

East Ventures

**DIGITAL
COMPETITIVENESS
INDEX
2022**

Towards Indonesia's Digital Golden Era



in collaboration with:





DIGITAL COMPETITIVENESS INDEX 2022

Towards Indonesia's Digital Golden Era

Digital Competitiveness Mapping
34 Provinces and 25 Cities in Indonesia

in collaboration with:



PREFACE



Willson Cuaca
Co-Founder and
Managing Partner
of East Ventures

In 2022, Indonesia is entering its golden digital economy era. For the past two years, the digital industry is experiencing rapid growth as a result of the pandemic acceleration. Not only did the internet penetration increase significantly, but society's awareness to further utilize the digital sector as an economic propeller also escalated.

Throughout the pandemic, every high-touch activity has been forced to shift to virtual. People transact through marketplace or e-commerce, and online payments have become the safest and best option. Logistics delivery has also grown more innovative with a variety of options following the variety demands of society. Financial access has also become more accessible and evenly distributed. Doctor consultations became easier as they are now live online. This new behavior will remain, and it is what we call the 'new normal'.

This condition continues to advance the Indonesian economic growth to recover and become more stable. This is also supported by many government efforts to stabilize the economy during the time of crisis, such as handling the COVID-19 spread, both by practicing healthcare protocols and accelerating vaccination programs. Hence, we hope that this pandemic condition will soon be under control and transform into an endemic.

Once these conditions are achieved, Indonesia is certain to begin its digital golden era this year.

East Ventures believes that the golden digital moment should also be evenly beneficial to all regions across the country, as technological innovation aims for economic equality between regions.

That is why East Ventures is committed to providing a digital competitiveness mapping of all 34 provinces in Indonesia, through the East Ventures - Digital Competitiveness Index (EV-DCI) for the past two years. The EV-DCI report is not a comparison of digital competitiveness between each region, and instead, is the guidance for all stakeholders, including government, regulators, business players, and investors, to continue putting efforts in further enhancing the digital pillars and bettering the supporting pillars in the digital economy sector, to create an even distribution of digital economy in every Indonesian region.

This year marks the third EV-DCI report. East Ventures collaborated with Katadata Insight Center and PwC Indonesia in providing an even more comprehensive report. Not only did we map the digital competitiveness index, we also did a survey of companies' perspectives about Indonesia's digital competitiveness. Moreover, this latest edition also provides the perspective and growth potential of each sector, where business players and other stakeholders can further explore and enhance their business potential in the future.

In this 2022 report, we also invited the stakeholders within the digital economy sector to give their perspectives, whether from the government, regulators, big corporations, and even startups. We would like to thank all of those who have contributed to the making of this report: Coordinating Minister for Economic Affairs Airlangga Hartarto, Coordinating Minister of Maritime and Investment Affairs Luhut Binsar Pandjaitan, Minister of State Owned Enterprises (BUMN) Erick Thohir, Minister of Cooperatives and Small and Medium Enterprises Teten Masduki, Minister of Health Budi G. Sadikin, Minister of Tourism and Creative Economy Sandiaga Uno, Minister of Industry Agus Gumiwang

Kartasasmitan, Mayor of South Tangerang Benyamin Davnie, Chairman of Indonesian Chamber of Commerce and Industry (KADIN) Arsjad Rasjid, and other business players as well as startup founders.

This year, we observed that the digital competitiveness between provinces has become better and more even. For three consecutive years, Greater Jakarta ranks first in the digital competitiveness index. Meanwhile, the digital competitiveness of other provinces has also risen, some even significantly. This is supported by the immense growth of some of the pillars, namely the human resources and digital literacy, Information and Communication (ICT) expenditure supported by the wage increase in the digital economy sectors, as well as the awareness of digital utilization for entrepreneurship and productivity. Other factors such as the digital infrastructure, finance, and government regulations also support the even distribution of digital competitiveness between provinces.

STRENGTHENING THE FOUNDATION TOWARDS INDONESIA'S DIGITAL GOLDEN ERA

Initially, the pandemic brought the digital sector and startups to a pause, and pulled them back from its initial pace. However, the digital sector can eventually speed up and enter its golden era.

This year, the key building blocks have been formed to drive the move towards achieving Indonesia's digital economy golden era. Those pillars are the ICT infrastructure, Digital Government, Digital Society, Digital Business, and Sustainable Digital Economy. The ICT infrastructure is a fundamental aspect to strengthen Indonesia's readiness to compete in the 4.0 industry era.

The ICT infrastructure pillar is a fundamental aspect in strengthening Indonesia's readiness to compete in Industry 4.0.

The Digital Government pillar, where the government role is crucial in the making of policies and regulations, must be agile in facing the rapidly changing world. Meanwhile, the Digital Society pillar will be achieved when society upskills their digital

literacy to support the economy.

In businesses, we witnessed that several sectors have experienced an improvement in their business performance as they adopt the digital into their business, including e-commerce, logistics, healthcare, edtech, tourism, and fintech. Digital transformation has increased their business performance by enhancing its efficiency and agility. Digital economy also has improved the growth of the creative economy, which made the sector more resilient during the pandemic.

To realize the immense potential of the digital economy, stakeholders need to accelerate the integration of Environment, Social, and Governance (ESG) principles into their strategies. Business leaders need to reassess their value chain to identify risks to the environment, society, and community. If we strengthen all these key building pillars, Indonesia can soon realize a digital golden era that is even and sustainable.

PROMOTING A SUSTAINABLE DIGITAL ECONOMY BY EVEN DISTRIBUTION OF DIGITAL COMPETITIVENESS

As time goes by, the awareness to encourage sustainable digital growth is increasing. A significant increase in the digital economy is not enough, it has to be balanced by taking its impacts to the environment, society, and government, into consideration.

Technology was not created to only gain a maximum amount of profit, but technology also plays a big role in creating a wider access and even distribution of economy to the society, as well as protecting the environment and Earth.

Thus, East Ventures sees how important it is to implement the ESG aspects in decision making, business strategies, as well as work culture. Encouraging a sustainable and inclusive digital economic growth is our combined effort. The digital competitiveness platform is available. Now, a part of the sustainable digital economic growth is to equalize the digital competitiveness in each region. No one shall be left behind. Let us work together in realizing digital equality for all Indonesians.

Table of Contents

Preface	02
Executive Summary	06

CHAPTER 1

THE PROGRESS OF INDONESIA'S DIGITALIZATION	08
PERSPECTIVES:	16

- Coordinating Minister for Economic Affairs, **Airlangga Hartarto**
- Coordinating Minister for Maritime and Investment Affairs, **Luhut Binsar Pandjaitan**



CHAPTER 2:

MAPPING THE CONDITION AND NEEDS OF REGIONAL DIGITAL COMPETITIVENESS	20
2.1. EV-DCI 2022	26
2.2. Digital Competitiveness According to Three Sub-Indexes	29



CHAPTER 3:

THE POTENTIAL OF REGIONAL DIGITAL COMPETITIVENESS TO PROMOTE DIGITAL ECONOMY	36
3.1. Profile of Provincial Competitiveness	40
3.2. Profile of City/Regency Competitiveness	53



CHAPTER 4

DIGITAL TECHNOLOGY DEVELOPMENT ACROSS SECTORS 62

4.1. **ICT:** The Backbone of Indonesia's Digital Economy 65

4.2. **E-Commerce** to Catalyze Digital Economy Growth 72

4.3. **Logistics:** Sustaining the Momentum of Supply-Chain and Logistics Transformation 78



4.4. **Health:** Improving Healthcare Resilience in Managing COVID-19 Pandemic and Beyond 87

4.5. **Education:** A Key Sector in Developing Social and Economic Progress 96

4.6. **Tourism:** The Importance of Resilience and Agility for the Industry Players 107

4.7. **Fintech:** Advancing Financial Inclusion Through Fintech 114

4.8. **ESG** as the Development Principle to Maximize Digital Economy Potential 124

APPENDIX

• Methodology 142

• Perspectives: 148

- Minister of Health, **Budi G. Sadikin**
- Minister of Cooperatives and SMEs, **Teten Masduki**
- Minister of Industry, **Agus Gumiwang Kartasasmita**
- Minister of Tourism and Creative Economy, **Sandiaga Salahuddin Uno**
- Minister of State-Owned Enterprises (BUMN), **Erick Thohir**
- Head of KADIN (Indonesian Chambers of Commerce and Industry), **M. Arsjad Rasjid P. M.**
- Mayor of South Tangerang, **Benyamin Davnie**
- CEO of MDI Ventures, **Donald Wihardja**
- CEO of GoTo Group & GoTo Financial, **Andre Soelistyo**
- President of Grab Indonesia, **Ridzki Kramadibrata**
- President of Traveloka, **Caesar Indra**
- CEO of Xendit, **Moses Lo**
- Co-Founder & President of Social Bella, **Christopher Madiam**
- CSO of Aruna, **Utari Octavianty**
- CEO of Waresix, **Andree Susanto**
- CEO of Warung Pintar, **Agung Bezharie Hadinegoro**

• Summary Statistics EV-DCI 2022 180

• Profile and Performance 34 Provinces 181

• Profile and Performance 25 Cities 250

CHAPTER 5

RECOMMENDATION 130



EXECUTIVE SUMMARY

After being hit by the COVID-19 pandemic for almost two years, Indonesia's economy has started to recover with the support of digital adoption and transformation in various business sectors. People's mobilities and activities have been gradually recovering, in line with tight health protocols and increasing COVID-19 vaccination rate. Economic recovery started to be shown in mid-2021 when Indonesia emerged from the recession in the second quarter, with a growth of 7.1% compared to the previous year (YoY). The positive trend continued in the fourth quarter with a recorded 5.0% growth.

Crisis does not always bring calamity. It also brings new achievements arising from the nation's resilience to survive. The restriction on physical activities has driven online platforms to become the main option to socialize, work, shop, and even access banking services. Inevitably, the COVID-19 pandemic period will be recorded as a digital transformation acceleration era in Indonesia. The digital economy has vastly grown, endorsed by the internet infrastructure that was accessed by over 200 million people in 2021 (Kominfo, 2021).

The pandemic and responses from various stakeholders in Indonesia have presented an immense dynamic that changed the digital economy landscape in the past one year. Therefore, for the third time, East Ventures - Digital Competitiveness Index (EV-DCI) maps the digital economy growth across 34 provinces and cities/regencies in the form of index disclosure. The EV-DCI comprises digital infrastructure readiness, human resources, digital economic activities, and provincial government policies.

The EV-DCI 2022 has three sub-indexes: Input, Output, and Support. The 2022 national index scored 35.2. The input sub-index, with building

pillars consisting of human resources, ICT usage, and ICT expenditure, scored 36.9 points. The output sub-index, formed by economy, entrepreneurship & productivity, and workforce pillars, scored 30.9 points. Meanwhile, the support sub-index with infrastructure, finance, regulation & provincial government capacity pillars scored 46.1.

The median of EV-DCI 2022 for 34 provinces is 35.2, increasing from last year's score of 32.1 (2021) and two years prior's score of 27.9 (2020). It shows that the digital competitiveness in some provinces within the mid to low category are improving and closing the gap from provinces within the higher category. This is also supported by the narrowing gap between the provinces with the highest and lowest score, consecutively being 61.9 and 55.6. This year, the gap decreased to 48.3. This finding shows the region's effort to catch up on the gap.

Consistent with previous two reports, provinces in Java still dominate the top rankings. The top five provinces are Jakarta, West Java, Yogyakarta, Banten, and East Java. Yogyakarta soared, from the sixth position in the previous year to the top three.

Other provinces outside Java start to show improvement in their digital competitiveness. East Kalimantan has climbed up three places to the seventh position. Meanwhile, West Sumatra, ranked ninth, became the best province in Sumatra and climbed to the top 10.

Yogyakarta and East Kalimantan jumped to the top 10 due to a significant increase in scores of the Input sub-index, such as human resources. Additionally, Yogyakarta shows growth in the Output sub-index, particularly in the entrepreneurship and productivity pillars. Meanwhile, West Sumatera is supported by the infrastructure pillars improvement and ICT usage.

Decline in the ranking of some provinces does

not reflect a setback. Instead, it shows a high acceleration in provinces that are leveling up. Each province's EV-DCI performance and score have shown an improvement in average digital competitiveness.

To continue digital economy growth during the pandemic, each business sector supporting the digital economy has a different priority development strategy. E-commerce sector can design an approach that emphasizes the customer's priorities (customer-centric) and create an inclusive ecosystem for MSMEs, while also supporting the growth of the business-to-business (B2B) segment. Logistics and transportation sectors can build a connected, autonomous and easy-to-analyze logistics ecosystem, to achieve end-to-end efficiency and integration.

Collaborations among platforms, health information unification, and data analysis acceleration in the healthtech sector will manifest the digitization of the national health system that will improve the quality and access to healthcare services. Partnerships among stakeholders are vital to build education systems and digitally skilled educators that will increase workforce absorption from various educational levels following the technology development and changing eras.

Recovering people's confidence becomes the priority of the tourism sector. It can be achieved by implementing Cleanliness, Health, Safety, and Environment Sustainability (CHSE) and health protocols, as well as improving the attractiveness of medical tourism. Moreover, the FinTech sector needs to prioritize financial literacy for all populations of Indonesia to encourage growth in numerous sectors. Digital ID implementation can also encourage financial inclusion for society and allow e-KYC (electronic-Know Your Customer) to be

performed instantly.

Stakeholders also need to understand and implement sustainability principles to solve environmental, social, and governance issues that will impact the development of the sectors.

EV-DCI 2022 is a reference for the stakeholders (the government, investors, academics, and business players) to map and set strategies towards Indonesia's digital golden era. These strategies are depicted in the form of a house where ICT infrastructure becomes the foundation that will facilitate the equitable growth of the digital economy in Indonesia. The house is supported by three digital pillars: digital government, digital society, and digital business sectors. First, the digital government pillar needs to focus on efficiency and transparency. Furthermore, in building the digital society, it needs to be supported by the education system improvement and upskilling digital talent while focusing on the growth of digital technology adoption in various economic sectors. Subsequently, these aspects need to be strengthened by implementing sustainability principles through Environmental, Social, and Governance (ESG) to maintain the digital economy growth in the long run.

Chapter 1:

The Progress of Indonesia's Digitalization



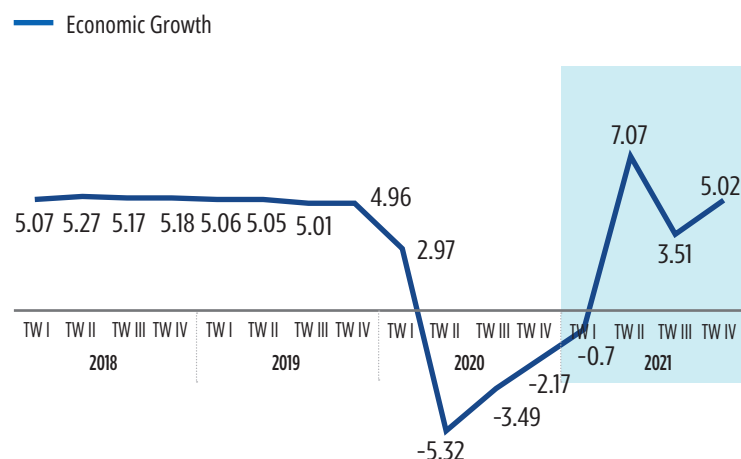


In 2022, Indonesia will begin to enter its digital golden era. The country's digital economy is expanding rapidly. The COVID-19 pandemic has provided a momentum for widespread digital transformation, enabled also by the government's efforts to expand internet infrastructure and make it more affordable throughout the archipelago. After almost two years, the pandemic is becoming more manageable as the result of high vaccination rate. People are slowly returning to their normal activities due to the easing of mobility restrictions. The economy is also reviving, indicated by Indonesia's exit from the recession zone in the second quarter of 2021, with 7.07% year-on-year growth. Positive growth trend has been consistent to the fourth quarter with recorded 5.02% and is predicted to continue growing around 5% in 2022.

A significant impact of the COVID-19 pandemic is the acceleration of digital transformation across Indonesia. Indonesia's digital economy is predicted to grow from IDR 1,005 trillion in 2021 to IDR 4,531 trillion in 2030¹. By

INDONESIA'S QUARTERLY ECONOMIC GROWTH, 2018-2021 (IN PERCENT)

SOURCE: BPS (2022)



¹ https://www.kominfo.go.id/content/detail/38556/siaran-pers-no-427hmkomin-fo122021-tentang-bangkitkan-ekonomi-nasional-menkominfo-pemerintah-optimal-kan-sektor-digital/0/siaran_pers

that time, the size of Indonesia's digital Gross Domestic Product (GDP) is estimated to be greater than 55% of ASEAN's².

Indonesia's Internet users, estimated at 202.6 million people³, are key to the growth of the digital economy. The fact that a large portion (73.3%) of the population uses the internet has accelerated the digitalization of daily activities: reading the news, shopping, socializing, and banking.

Based on the 2021 Indonesia E-commerce Statistics, 24.4% of e-commerce businesses experienced an increase in revenue compared to the previous year. The phenomenon of digital transformation can also be seen in a SIRCLO report (2021)⁴ that shows an increase in online shopping users from 17.5% before the pandemic to 25.5% in 2021. As many as 32.9% of e-commerce users have only used online platforms for less than one year.

“Today, our digital economy is relatively outperforming several ASEAN countries. I guarantee that with digitalization, we can compete with other countries because we have the volume, the market, and the talent.”



Airlangga Hartarto
Coordinating Minister
for Economic Affairs

2 <https://setkab.go.id/mendag-ekonomi-digital-indonesia-akan-tumbuh-delapan-kali-lipat-di-tahun-2030/>

3 Hootsuite (We Are Social): Indonesian Digital Report 2021

4 Navigating Indonesia's E-Commerce: Omnichannel as the Future of Retail, SIRCLO, 2021



1.1. Mapping the Digital Readiness of Indonesian Regions

To maximize the potential of the digital economy, the Ministry of Communication and Informatics (Kominfo) has compiled a Roadmap for Digital Indonesia 2021-2024, focusing on four key elements: Digital Infrastructure, Digital Governance, Digital Economy, and Digital Society. This roadmap explains Indonesia's policy direction, implementation strategy, and targets for digital transformation. It also aims to achieve a more even distribution of the digital economy across the regions.

In line with this strategy, local governments are also encouraging the growth of the digital economy. Some have provided free internet and digital training, and supported online markets for local products. However, a deeper understanding of each region's digital competitiveness is needed before setting local-specific development plans. Strategies to develop the digital economy should be based on each region's potentials and needs, so that the appropriate public policies could be implemented.

A comprehensive map of the state of Indonesia's digital economy across its regions is presented in the East Ventures - Digital Competitiveness Index (EV-DCI). This index dissects and measures the digital competitiveness of Indonesia's provinces and key cities according to carefully-selected indicators that support the growth of the digital economy. In line with the Roadmap for Digital Indonesia 2021-2024, this index also measures the readiness of digital infrastructure, human resources, digital economic activities, and local government policies.

Improved and evenly distributed digital competitiveness in Indonesia's regions can create a more ideal digital

STRUCTURE OF THE EAST VENTURES - DIGITAL COMPETITIVENESS INDEX

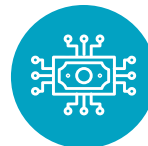
East Ventures

DIGITAL COMPETITIVENESS INDEX

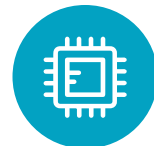
INPUT



Human Resources



ICT Usage



ICT Expenditure

OUTPUT



Economy



Entrepreneurship and Productivity



Manpower

SUPPORT



Infrastructure



Finance



Regulation and Capacity of the Regional Government

ecosystem for the country. The digital ecosystem that is currently forming throughout the archipelago is hoped to induce regional economic development, including through higher levels of digital investment. Therefore, regional development strategies should be in line with the current development trends and trajectory of the digital economy.

Based on a survey of 71 digital companies by the EV-DCI Team (EV-DCI 2022 survey), 88.7% of respondents stated that they want to expand their business and investment in various Indonesian regions that have the market

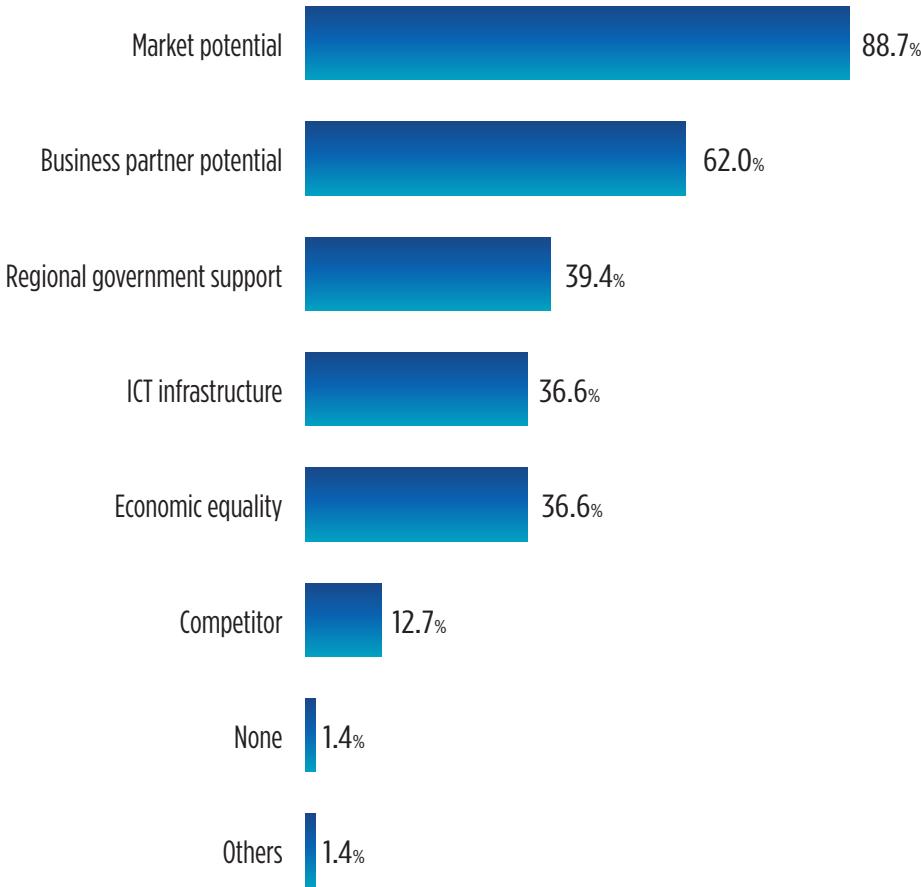
88.7% of digital companies stated that they want to expand their business and investment to various Indonesian regions with market potential.

potential. Understanding the digital competitiveness of a specific Indonesian region is useful if performed when the company is developing its business development strategy.

CONSIDERATIONS FOR INVESTING IN INDONESIA'S REGIONS BY DIGITAL COMPANIES

What are your factors of consideration for planning to invest and develop business in the regions?

REGIONAL INVESTMENT CONSIDERATIONS

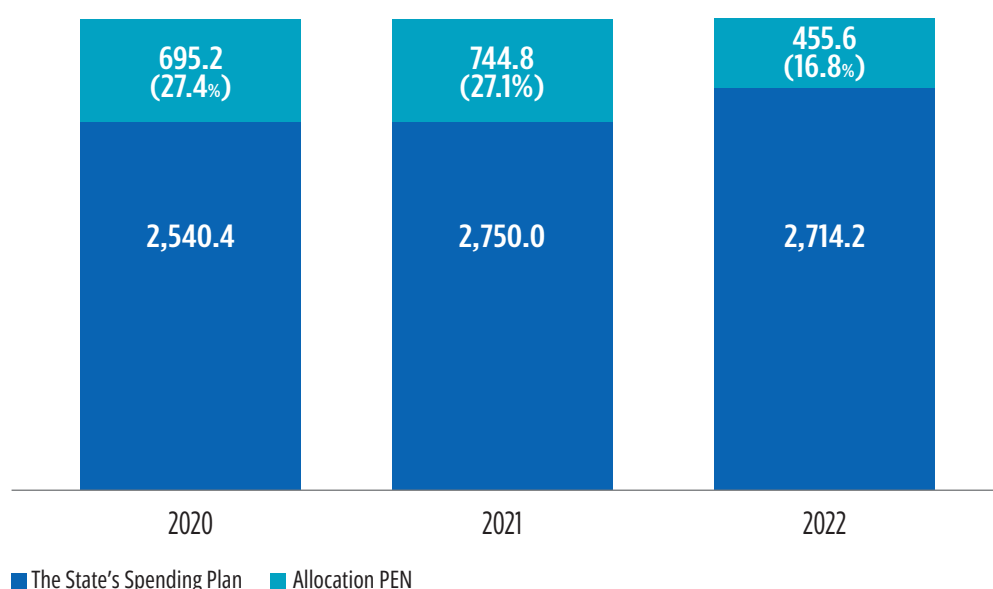




1.2. Major Agenda to Create a Digital Ecosystem

The government, through the Committee for COVID-19 Response and National Economic Recovery (PEN) has been instrumental in devising key programs. In 2021, as much as IDR 744.8 trillion (equivalent to 27% of the 2021 state budget or APBN) has been budgeted for economic recovery due to the COVID-19 pandemic. This program will continue in 2022, with a budget of IDR 455.6 trillion, or around 16.8% of the state's spending plan for 2022. This shows the government's ongoing commitment to economic recovery.

ALLOCATION FOR NATIONAL ECONOMIC RECOVERY IN THE STATE BUDGET (APBN), 2020-2022



SOURCE: MINISTRY OF FINANCE (2022)

The digital economy has an important role to play in Indonesia's overall economic recovery. This is already acknowledged by the government as the policymaker. Various collaborative programs between the government and startups are being implemented and under planning. One example is credit provision for Micro, Small and Medium Enterprises (MSMEs) affected by the pandemic through TokoScore program from GoTo, a digital credit scoring for MSMEs who have been active as merchants in its e-commerce platforms. In an interview with the EV-DCI team, Coordinating Minister for the Economy, Mr. Airlangga Hartarto, appreciated how key government programs such as the Pre-employment Card (Kartu Prakerja) and Microcredit Program (Kredit Usaha Rakyat or KUR) have been greatly helped by digitalization.

The digital economy offers plenty of potential, aside from helping with economic recovery. More holistically, the digital economy could be the main driver of post-pandemic economic growth. Indonesia is aiming for greater goals than economic

recovery alone, but also economic growth at a higher level compared to that before the pandemic. This is critical if Indonesia is to escape the middle income trap by 2045, according to the Indonesia 2045 Vision published by the National Development Planning Agency (Bappenas) in 2019.

Indonesia is also underlining its support for the digital economy in its G20 Presidency in 2022. The government, through the Kominfo, has developed three priority issues in the Digital Economy Working Group: equitable digital access, digital literacy, and cross-border flow of data traffic. The G20 agenda is considered to be a momentum for accelerating an inclusive digital transformation. This shows the government's commitment to accelerating the development of the digital economy in order to compete with other countries.

To realize this goal, all stakeholders need to take advantage of this momentum, where Indonesia is just entering its golden era of digitalization. The synergy between startups and other digital economy players together with the central and local governments needs to continuously be improved. The mapping of each region's advantages and needed improvements based on the EV-DCI is expected to be a reference in increasing the country's digital competitiveness.



The Importance of Role Model and Success Stories in Digital Transformation

Airlangga Hartarto
Coordinating
Minister for
Economic Affairs



“In the financial sector, fintech grows very fast, it is catching up to the conventional financial institutions.”

Indonesia is estimated to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

Indonesia's digital economy value in 2020 was around USD 40 billion and grew to USD 70 billion in 2021. This development is in-line with Industry 4.0 and digitalization in various sectors which are driven by the pandemic. For example, during the pandemic, the pre-work card program (Kartu Prakerja) was accessed

by more than 70 million registrants in 512 cities. With the existing digital infrastructure, fully-digitalized Kartu Prakerja services could be accessed by the entire nation.

In the future, Industry 4.0 requires 5G connectivity. The government has recently launched 5G in Kalimantan. Then, we need to enhance our human capital by retraining and reskilling. In the financial sector, fintech grows very fast, it is catching up to the conventional financial institutions. For example, last year's distribution of the Microcredit Program (KUR) through fintech has reached IDR 180 trillion. A tremendous growth by using a new network. When we talk about KUR, we know that the big players are state-owned banks and regional banks.

An inclusive economy is measured not only through financial inclusion but also by how far MSMEs can enter the digital market. This also goes for other productive activities. With digitalization, there should be less asymmetric information, for example by the implementation of e-logistics.

What are the government's strategies/roadmap to further develop Indonesia's resilient digital economy, especially to support economic growth?

Accelerating the digitalization of the economy, creating equal and diverse opportunities, and encouraging opportunities and productivity to generate added-value. With this concept, the most important thing in the short term is to build the infrastructure. 5G development requires a bigger investment than LTE, but the development of some IoT and Industry

4.0 can only be done with 5G. The basis of innovation is infrastructure.

Technological dynamics are very fast and unpredictable like COVID-19. So, the key is the readiness of our human capital. The curriculum must be adjusted to be more integrated, especially for digital-related subjects. In the early 2000s, digitalization meant only ICT. Nowadays, the definition has become broader. In every field of study, digitalization is a must because it is interconnected with each other.

How is the push in preparing our human capital to take advantage of the digital economy's growth momentum optimally?

Prototyping. For example, there are digitalization education conducted by Apple Academy in three digital centre locations, namely in Nongsa (Batam, Riau Islands), Surabaya (East Java) and Serpong (Banten). Nongsa Park encourages digital Special Economic Zones (SEZ). In East Java, there is also Singosari digital SEZ. The goal is to ensure that the startup development ecosystem could be replicated, especially by state universities.

One of the decisions at the G-20 Summit in Osaka is to make Indonesia a Digital Economy Hub. Could the idea be developed for accelerating the digital economy?

Currently, our digital economy

is relatively outperforming several ASEAN countries. We own 40% of the digital economy pie in ASEAN. For the development of digitalization, we should be able to compete with Singapore or Malaysia since we have the volume, market and talents.

For instance, the development of cryptocurrencies such as Bitcoin and Non-Fungible Token (NFT) is competing with the capital market. This is what we have to think about going forward, because the development is getting bigger. The government is looking for digitalization that is not only creative but also productive.

What are the agendas for accelerating digital transformation, especially by taking advantage of the G20 momentum?

To introduce digital transformation, there must be a pilot project that can be replicated by other developing countries. One of them is strengthening MSMEs to have new skills through the Kartu Prakerja program. This service is provided end-to-end on a digital basis, from treasury to e-wallet, to prevent misuse of the money. All data management in Kartu Prakerja is dynamic, different from typical government database management which tends to be static. This is one of the transformations in Indonesia for small communities. Of course, we hope there will be other prototyping.

With the existing digital infrastructure, fully-digitalized Kartu Prakerja services could be accessed by the entire nation.

Digitalization Helps Government in Creating Efficiency

Luhut Binsar Pandjaitan
Coordinating
Minister for
Maritime and
Investment Affairs



“Since we have become accustomed to meeting virtually and reducing mobility, we are not worried at all that digital adoption will slow down even if the pandemic becomes an endemic.”

There are eight unicorns in digital startups in Indonesia, and they continue to grow. From the government's perspective, what is the expected impact of these unicorns?

We expect an increase in added value, employment, taxes, and of course, technological development. This development will result in higher efficiency. Indonesia will be one of the

countries with the most unicorns in Asia or maybe globally since it provides a business-friendly environment. Hence, the strength of our digital economy will further expand its ecosystem. The Indonesian younger generation is extraordinary, as long as they are always united and willing to compete.

When the pandemic becomes endemic, there are concerns that digital adoption might slow down. What are the government's efforts to maintain the momentum of digital adoption, especially in the economy?

The government spending in the state budget (APBN) reaches almost IDR 1,200 trillion. This year's government spending through e-catalog, in which products are made by MSMEs, is targeted to reach IDR 400 trillion. Therefore, domestic industry and local employment will flourish, and higher efficiency will also be achieved. The government will also create a system that connects all ministries and agencies to streamline coordination.

The current decision-making process is also done virtually since it is faster and safer. Currently, all e-catalogs have been digitalized, so spending can go directly through e-catalogs to avoid a tender process. As a result, we can reduce corruption and misuse of APBD (regional budget). Moreover, Indonesia also achieved the all-time high exports value of USD 232 billion. This is due to higher efficiencies in multiple avenues such as digital connectivity of domestic ports to a one-stop national service system, namely the Indonesia National Single Window (INSW).

There are a lot of positive changes occurred due this pandemic. We are not worried at all that digital adoption will

slow down if the pandemic becomes an endemic. On the other hand, we have become accustomed to meeting virtually and reducing mobility.

Currently, there are still digital competitiveness gaps in several regions. What are the government's efforts to promote equal competitiveness nationally?

Currently, major venture capitalists provide connectivity such as between sellers and buyers, motorcycle taxi drivers and passengers, and so on. In the future, technological adoption should also happen in the other industries where the actual goods and services are created, such as the agriculture industry. This will boost equal digital competitiveness and enable other sectors to breed unicorns.

In fact, digitalization has made its debut in the agriculture sector, although so far, their primary focus is on distribution and marketing instead of in production, where the biggest problem lurks. Agritech should enable companies to manage the risks and open new markets. Moreover, some startups are starting to join the food estate sector.

What are the central government's efforts in encouraging transformation

in regional governments?

The government wants to be more efficient, and digital adoption is the only way to achieve this. Digitalization will enable higher connectivity, reduction in corruption, increase in efficiency, and eventually improved competitiveness level. For instance, an easier audit process is enabled by adopting an e-catalog. Currently, regional governments are still trying to transform due to suboptimal levels of supervision and challenging geographical conditions. But now, with the e-catalog, it is easier for the audit process.

The effort to promote digitalization in the regional government may seem a little progressive. We encourage regional governments to include the utilization of e-catalog into the key performance indicator (KPI) of regional leaders. Moreover, to ensure integrity, the process will also be audited. Reward and punishment approaches will be imposed to promote higher digitalization.

In addition, despite minor complaints from several parties, the introduction of Online Single Submission (OSS) has generated positive reviews. Further discussion with relevant stakeholders such as APINDO, KADIN, business actors, foreign investors will be conducted.

Currently, all e-catalogs have been digitized, so spending can go directly through e-catalogs to avoid a tender process. As a result, we can reduce corruption and misuse of APBD (regional budget).

Chapter 2

Mapping the Condition and Needs of Regional Digital Competitiveness

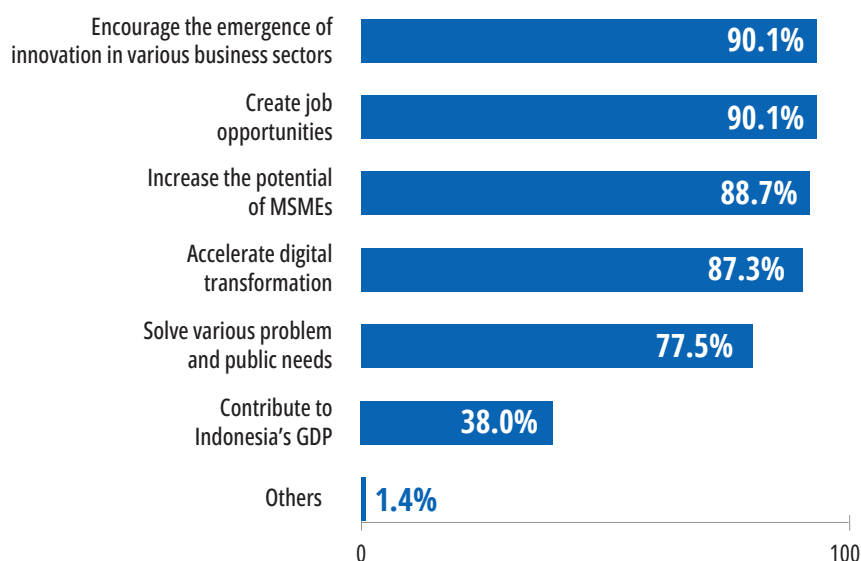




The COVID-19 pandemic that hit the world in early 2020 accelerated digital transformation in various sectors. This transformation marks a new stage in the structure of the economy, where digital technology increases the efficiency of every industrial process. Based on the EV-DCI 2022 survey, 90.1% of digital companies confirmed that digitalization contributes to more innovation and new jobs.

WHAT DO YOU THINK ABOUT DIGITAL SECTOR AND STARTUPS CONTRIBUTION TO INDONESIA'S ECONOMY?

Digital Sector Contribution



The EV-DCI report of the previous year (2021) states that Indonesia's digital competitiveness was centered in the Java-Bali region, with DKI Jakarta as the highest rank. Based on the index indicators, this is because the majority of digital innovation centers (universities and technology centers), digital infrastructure development, and human capital were located in Java. Nevertheless, the progress of digitalization outside Java is visibly improving. The EV-DCI report of 2022 shows improved access to digital infrastructure, increased spending on Information and Communication Technology (ICT), and improved local government capacity in promoting digital competitiveness in non-Java regions.

Digital technology presents new opportunities for Indonesia to promote a more inclusive economic growth along with a more distributed access to digital infrastructure.

Digital technology presents new opportunities for Indonesia to promote a more inclusive economic growth along with a more distributed access to digital infrastructure. So far, increasing the distribution of digital and technological competencies in every part of the economy has been challenging, especially at the regional level.

Huge market opportunities have driven the need for improved digital competitiveness in the regions. The use of mobile applications and gig-economy models such as e-commerce, online transportation, digital wallets, results in higher performance and contributes to the Indonesian economy, especially in terms of employment. This is driven, among others, by the growth of startups that are expanding their service coverage, including some that have gained the unicorn status.

Improvements in digital competitiveness can support further growth of the digital economy. During 2020 and in the first half of 2021, most (72%) of Indonesia's 21 million new digital consumers live in non-metropolitan areas¹. The large number of internet users means tremendous market opportunity, especially when further technologies in business and daily activities are adopted. This is one of the factors that have attracted the development of the digital economy in a region. As non-Java regions experience digitalization, they will benefit from the development of their digital economy.

¹ e-Economy SEA 2021 Report, Indonesia



About the East Ventures - Digital Competitiveness Index (EV-DCI)

The East Ventures - Digital Competitiveness Index (EV-DCI) measures and compares digital competitiveness among Indonesia's 34 provinces and cities/regencies. The index consists of three main aspects of sub-indexes, namely Input, Output, and Support. Each sub-index consists of three pillars, adding up to nine pillars that make up the EV-DCI. Each pillar consists of three to nine indicators, with a total of 50 indicators compiled in the index.

The actual value of each indicator is measured in various units. For example, Gross Regional Domestic Product (GRDP) is measured in Indonesian Rupiah (IDR), labor growth is in percent, and number of students are in units of people. In order for the indicators to be combined with each other, the units must be standardized.

To do this, the actual scores of each indicator is converted into a standardized score on a scale range of 0 to 100. This score shows the relative comparison of performances between regions. A score of 0 indicates that a region has the lowest actual value in comparison to other regions for that indicator (except for reverse indicator). A score of 100 indicates that the region has the highest actual value compared to other regions. Regions with higher indicator scores are considered as "more competitive" for that indicator.

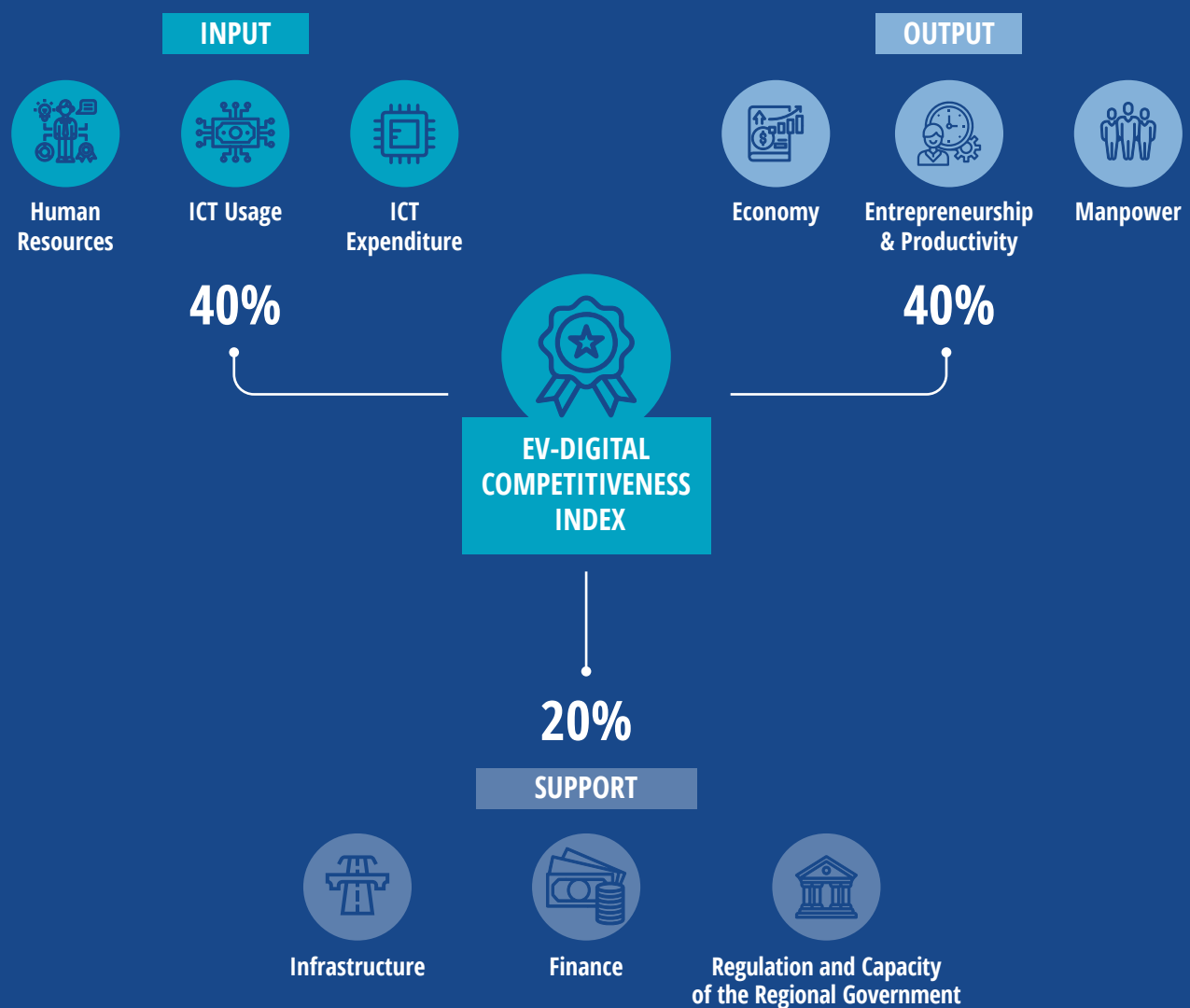
The EV-DCI calculation uses a stratified approach: the scores of each indicator are aggregated into pillar scores. Then, the pillar scores are aggregated into sub-index scores. Finally, the sub-index scores are aggregated into the overall index score. Each indicator carries an equal weight in their respective pillars, and each pillar carries an equal weight in their respective sub-index.

However, in combining the three sub-index scores into the overall EV-DCI index as a whole, a weighted calculation is given, 40 percent each for sub-index 1 (Input) and sub-index 2 (Output), while the remaining 20 percent is allocated for sub-index 3 (Support). The Support sub-index is weighted lower to ensure that the direct Input and Output of the digital economy are taken more seriously than factors that support the economy indirectly.

Actual scores of each indicator is converted into a standardized score on a scale range of 0 to 100. This score shows the relative comparison of performances between regions. A score of 0 indicates that a region has the lowest actual value in comparison to other regions for that indicator (except for reverse indicator). A region with higher score is considered to be “more competitive” for that particular indicator.

METHODOLOGY SUMMARY

EAST VENTURES - DIGITAL COMPETITIVENESS INDEX (EV-DCI)

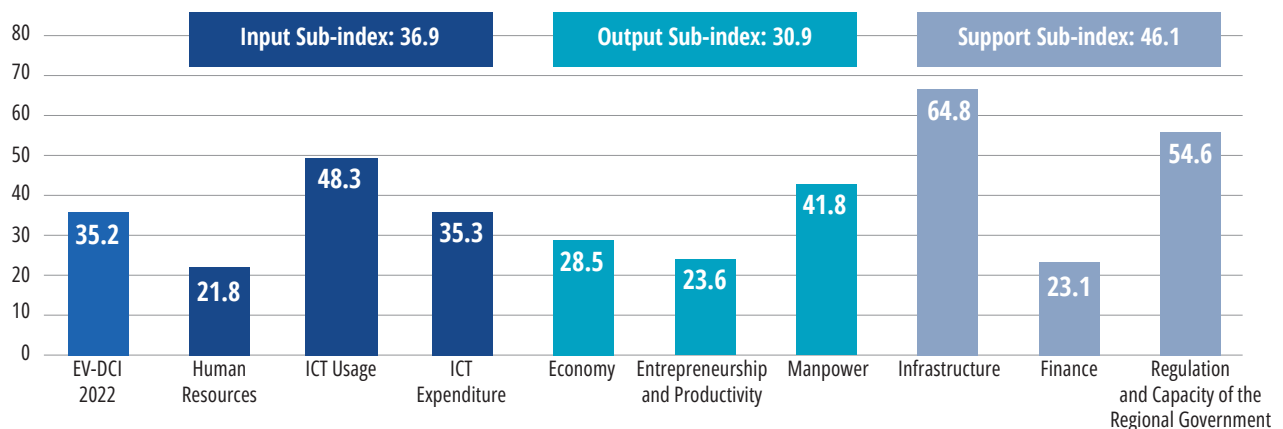


2.1. EV-DCI 2022

The COVID-19 pandemic has impacted the development of Indonesia's digital economy. The pandemic, however, accelerated society's adoption rate of digital technology. Various efforts have been made by the government and related stakeholders to assist digital adoption. The efforts to increase digital skills, develop digital infrastructure, increase internet use for productive activities are carried out to support the digital economy in every region, from Aceh to Papua.

EV-DCI 2022 delivers a comprehensive overview of the 2020-2021 digital economy conditions of Indonesian provinces. At a national level, the 2022 Digital Competitiveness Index scores 35.2. The Input sub-index, consisting of human resources, ICT usage, and ICT expenditure pillars, scores 36.9. As for the Output sub-index score, formed by the pillars of economy, entrepreneurship and productivity, as well as manpower, is at 30.9. Meanwhile, the score for the Support sub-index, consisting of the infrastructure, finance, regulation and local government capacity pillars, is 46.1.

EV-DCI 2022 SCORES



NATIONAL EV-DCI

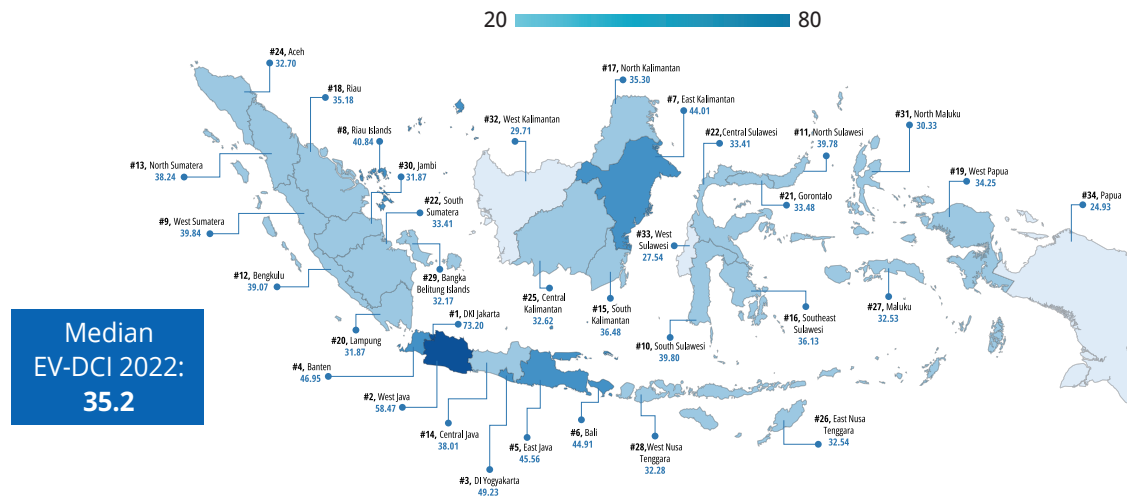
	2022	2021	2020
EV-DCI (Median)	35.2	32.0	27.9
Spread	48.3	55.6	61.9
Standard deviation	9.0	10.7	11.6

Notes:

- 1) The median is the value that divides the distribution of index data for 34 provinces into two, after all the indexes are sorted.
- 2) The spread is the distance between the highest score and the lowest score, to describe the range of disparities between provinces.
- 3) Standard deviation is the value that describes the distance between a province's score data and the average of all 34 provinces.

Consistent with last year, Indonesia's digital competitiveness top positions tend to be dominated by the provinces on Java island. Next, in the middle position, such competitiveness is followed by provinces that are mostly from Sumatra and Kalimantan. Whereas the lowest-ranked provinces are still dominated by those in Indonesia's eastern region. This condition has been consistent for three consecutive years.

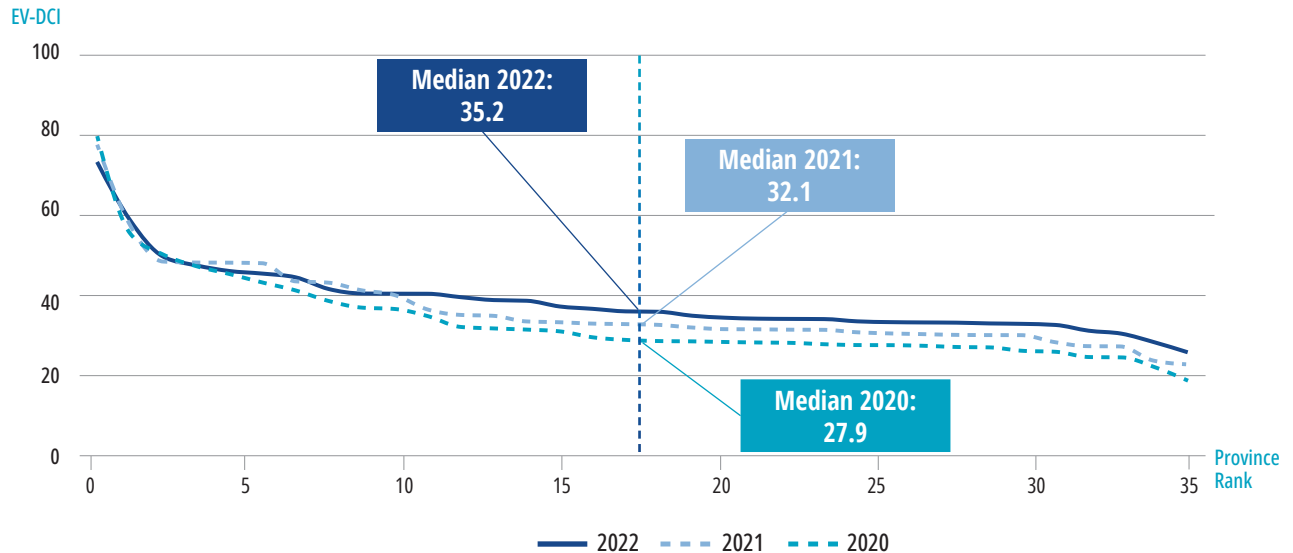
MAP OF THE DISTRIBUTION OF DIGITAL COMPETITIVENESS INDEX SCORES PER PROVINCE IN 2022



EV-DCI RANKING FOR 2022

Ranking	Province	EV-DCI 2022 Score	EV-DCI 2021 Score	Ranking Change
1	DKI Jakarta	73.2	77.6	=
2	West Java	58.5	57.1	=
3	DI Yogyakarta	49.2	47.5	↑ 3
4	Banten	47.0	47.7	↑ 1
5	East Java	45.6	48.0	↓ -2
6	Bali	44.9	47.7	↓ -2
7	East Kalimantan	44.0	39.5	↑ 3
8	Riau Islands	40.8	43.0	↓ -1
9	West Sumatera	39.8	34.5	↑ 3
10	South Sulawesi	39.8	40.7	↓ -1
11	North Sulawesi	39.8	35.9	=
12	Bengkulu	39.1	31.3	↑ 7
13	North Sumatera	38.2	34.2	=
14	Central Java	38.0	42.6	↓ -6
15	South Kalimantan	36.5	32.6	=
16	Southeast Sulawesi	36.1	32.0	↑ 2
17	North Kalimantan	35.3	32.8	↓ -3
18	Riau	35.2	32.1	↓ -1
19	West Papua	34.3	27.6	↑ 11
20	Lampung	33.8	29.6	↑ 6
21	Gorontalo	33.5	32.3	↓ -5
22	Central Sulawesi	33.4	30.7	↑ 1
23	South Sumatera	33.4	30.8	↓ -2
24	Aceh	32.7	29.4	↑ 3
25	Central Kalimantan	32.6	29.4	↑ 3
26	East Nusa Tenggara	32.5	29.3	↑ 3
27	Maluku	32.5	30.1	↓ -3
28	West Nusa Tenggara	32.3	30.7	↓ -6
29	Bangka Belitung Islands	32.2	29.8	↓ -4
30	Jambi	31.9	30.9	↓ -10
31	North Maluku	30.3	26.5	↑ 1
32	West Kalimantan	29.7	26.6	↓ -1
33	West Sulawesi	27.5	22.9	=
34	Papua	24.9	22.0	=

DISTRIBUTION OF DIGITAL COMPETITIVENESS INDEX SCORE



The spread of digital competitiveness among Indonesia's provinces is getting better. This is shown by the decreasing spread or distance between the province with the highest and lowest EV-DCI scores for three consecutive years. In 2020 and 2021, the spread between the highest and lowest scores were 61.9 and 55.6. This year, the spread decreased to 48.3.

In addition, the median EV-DCI for 34 provinces also increased to 35.2 in 2022 from 32.1 in 2021. This indicates that the digital competitiveness performance of provinces outside of the top-10 is getting better. The digital competitiveness of provinces in Indonesia is increasing every year.

DKI Jakarta is still leading the province's digital competitiveness with an EV-DCI score of 73.2. This score is lower than the previous year which reached 77.6. However, this decrease does not reflect that the state of the digital economy in DKI Jakarta is declining. Rather, it means that other provinces are increasingly catching up. Then, in second place with a score of 58.5, West Java managed to maintain its position. This score has increased from the previous year, narrowing the gap with DKI Jakarta. In the third position, DI Yogyakarta

rose three places from the sixth to third position with a score of 49.2.

The provinces that show the most improved performance in 2022 are Bengkulu and West Papua. These two provinces managed to advance both in ranking and score. Bengkulu rose seven places from 19th to 12th position, currently with a score of 39.1 as opposed to 31.3 in 2021. Bengkulu has shown consistent improvement for three consecutive years. Meanwhile, West Papua managed to rise eleven places from 30th to 19th position, with an improved score from 27.6 to 34.3.

Significant decreases occurred in the provinces of Central Java and Jambi. Central Java dropped six places to 14th position, with a score of 38.0, as opposed to 42.6 in 2021. Meanwhile, Jambi dropped 10 places from 20th to 30th position, yet its score in 2022 (31.9) was higher than that in 2021 (30.9). This signifies that even if Jambi actually improved its score, other provinces improved their scores much better than Jambi and ended up with a higher ranking. In general, despite the decline in rankings in several regions, the index scores in most regions have increased. This shows improvement of digital economic conditions across various regions in Indonesia.

2.2. Digital Competitiveness According to Three Sub-Indexes

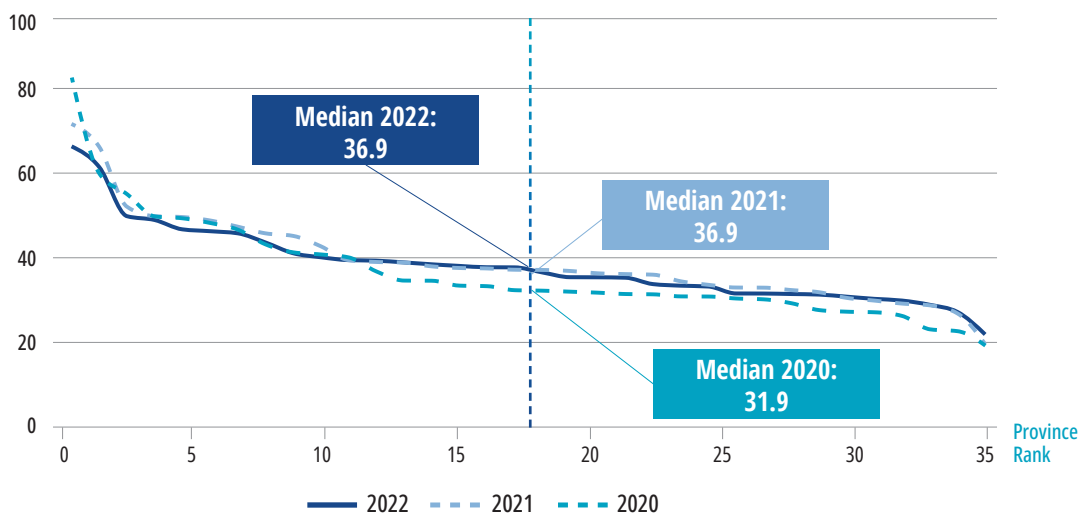
The digital competitiveness of Indonesian provinces can be seen in more detail through the Input, Output, and Support sub-indexes. In general, the scores distribution is more even and flatter than the previous years. Looking at the median score, Input sub-index across 34 provinces did not change between 2022 and 2021 (it remained 36.9), but the scores were more evenly distributed, meaning there is a decreasing gap between regions. Meanwhile during the same period, the median score for the Output sub-index has increased from 26.9 to 30.9, and the median score for the Support sub-index also rose from 39.1 to 46.1.

INPUT SUB-INDEX

The Input sub-index portrays the digital economy through the readiness of human resources, the use of digital technology, and the level of expenditure related to digital technology, be it personal expenditure for buying internet credits, or company expenditure for hiring ICT staff. Compared to the previous two years, the score distribution on this sub-index is more even, with the graph showing a flatter slope for 2022. This shows that the score gap between the top and bottom provinces in this sub-index has decreased significantly, from 52.6 points in 2021 to 45.0 points in 2022. This means that the digital competitiveness of Indonesian provinces is getting stronger, specifically in terms of inputs required to develop the digital economy.

SCORE DISTRIBUTION INPUT

EV-DCI



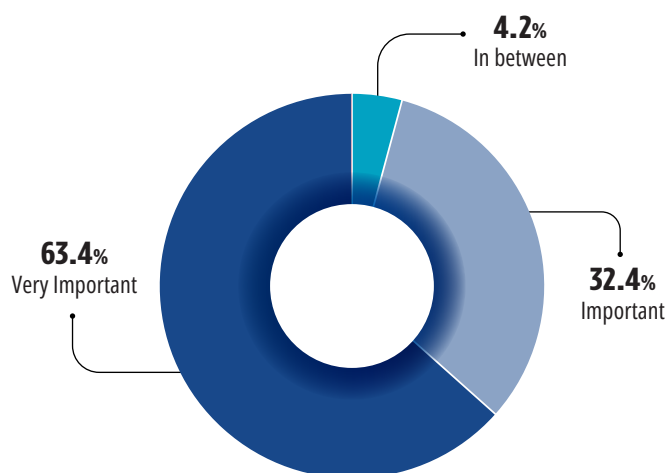
Overall, DKI Jakarta and West Java are still ranked among the top-two in the Input sub-index. Aspects related to human resources in West Java have improved, especially in terms of digital literacy. This reduces the gap between the two top-performing provinces even further: currently 4.9 points separates DKI Jakarta and West Java, while previously the gap was 5.4 points. Even though there was a decrease in the score between the two provinces (DKI Jakarta: 71.7 to 66.4 and West Java: 66.3 to 61.4), it should be emphasized that this condition did not indicate a deteriorating performance but stronger competitiveness of other provinces.

The human resources pillar was the only pillar that experienced a score increase in the Input sub-index. This condition is supported by the growing number of digital study programs at the university level, and increase of digital literacy index in several provinces.

Having digital skills are very important to be able to compete in today's job market. This is in line with the results of the EV-DCI 2022 survey, where 95.8% of digital companies see digital ability as an important factor in the selection of prospective employees.

Bengkulu Province experienced the highest increase in the Input sub-index score, it rose 5.6 points to 38.2. The increase occurred in all the pillars that make up this sub-index, especially the ICT expenditure pillar. One of the indicators within this pillar depicts a significant increase in the amount of wages paid out in the digital economy sector. The score for ICT-related wage expenditure for Bengkulu rose from 23.5 in 2021 to 89.3 in 2022.

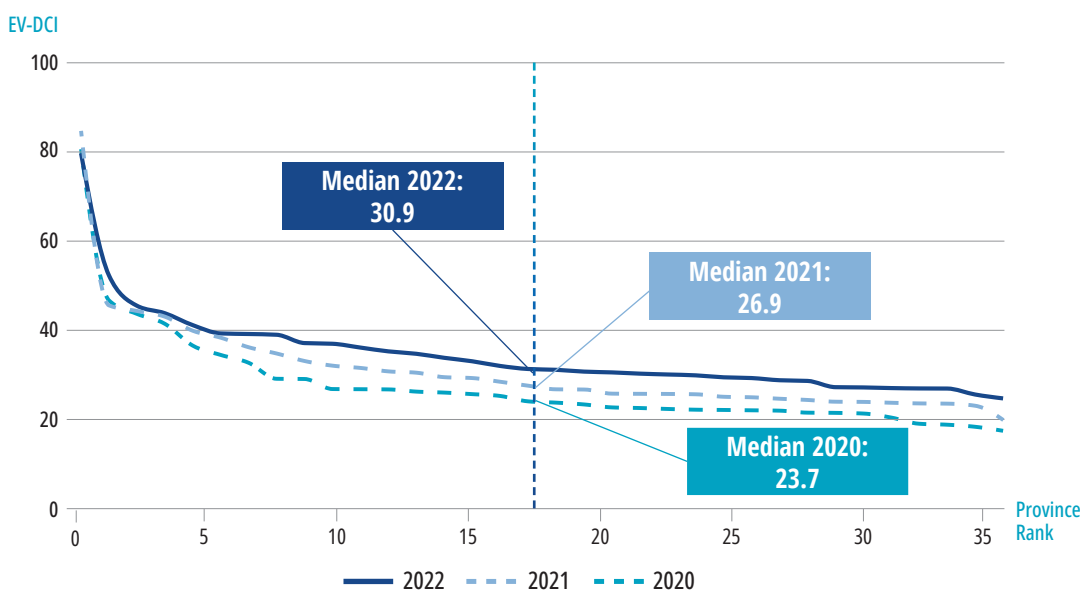
HOW IMPORTANT IS THE CANDIDATE'S DIGITAL SKILLS IN THE SELECTION PROCESS?



OUTPUT SUB-INDEX

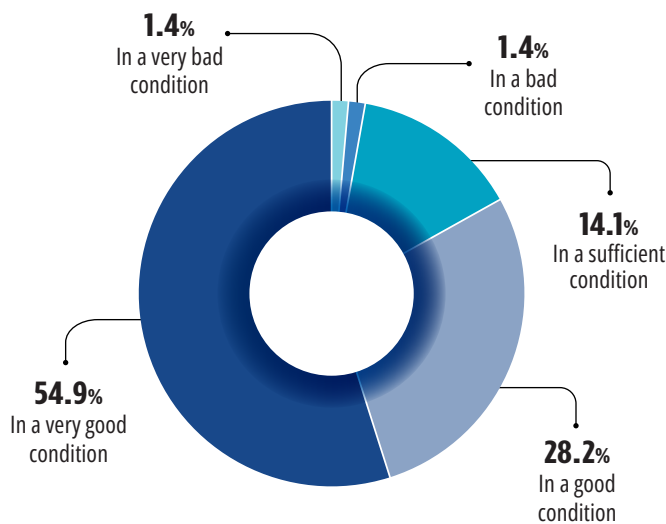
The Output sub-index describes a region's ability to utilize digital technology for economic activities. The EV-DCI measures digital developments in the economy, levels of entrepreneurship and productivity, and manpower conditions in the region. Compared to the previous two years, the distribution of scores shows that Indonesia is getting better at optimizing the role of digital to improve the regional economy.

SCORE DISTRIBUTION OUTPUT

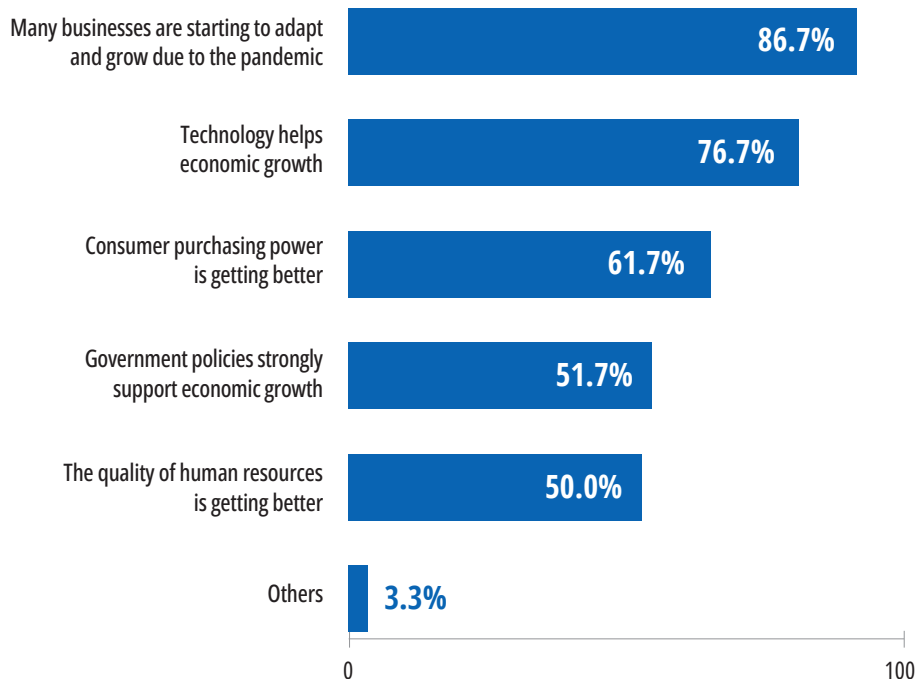


This condition is reinforced by the results of the EV-DCI 2022 survey of digital companies who assess the current condition of the Indonesian economy as relatively good. 86.7% of respondents said many businesses thrived during the pandemic and 76.7% of respondents said technology played a role in helping economic growth.

IN GENERAL, HOW DO YOU SEE ABOUT THE CURRENT CONDITION OF INDONESIAN ECONOMY?



WHY DO YOU SEE THE INDONESIAN ECONOMY IS IN A GOOD CONDITION?



The median of the Output sub-index which rose from 26.9 to 30.9 indicates the increasing role of digital in regional development. The gap between provinces has decreased relatively significantly from 63.9 points in 2021 to 54.2 in 2022, this means that the province's competitiveness is getting stronger in the capacity of developing the digital economy. Thus, Indonesian people have made many adjustments with technology adoption as part of economic recovery.

Overall, DKI Jakarta still leads in the first place, with a median score of 78.7 and a perfect score on the entrepreneurship and productivity pillars. Meanwhile, West Java, which is in second place, is getting ahead, especially in the economic pillar, with the median value rising from 35.2 to 54.1. The growth of the GRDP of the information and communication sector and the GRDP of the warehousing and transportation support sub-sectors pushed that increase.

Among the three aspects supporting Output, regions in the middle and lower groups are increasingly competing

in digital technology utilization for entrepreneurship. All provinces experienced an increase in the median value of entrepreneurship and productivity. DI Yogyakarta, which rose 3 places to position 3, increased from 40.4 in 2021 to 63.0 in 2022.

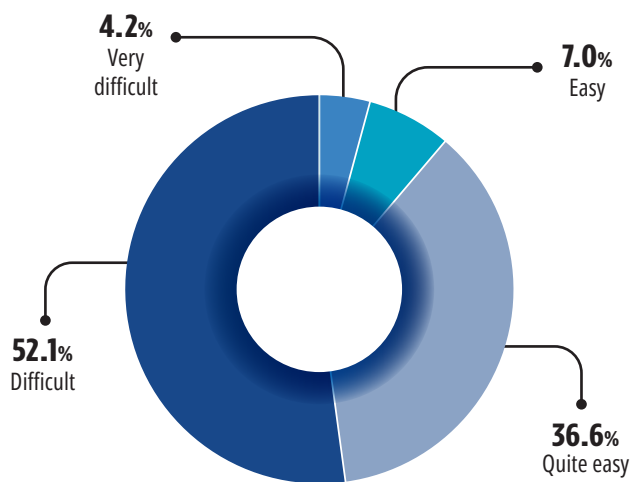
A study by Grab Indonesia with the Institute of Economic and Social Research Faculty of Economics and Business University of Indonesia (LPEM FEB UI) at the end of 2021 found that digitalization is able to create new business opportunities and improve the regional economy of the Eastern Indonesia. "About 30% of GrabFood merchants and 50% of GrabKios in Kupang and Jayapura are new businesses," said President of Grab Indonesia, Ridzki Kramadibrata in an interview with the EV-DCI team.

However, the regions need to catch up in the growth of the workforce in the digital sector. Most provinces experienced a decrease in the median of the manpower pillar. East Java Province, which fell 2 places, experienced a decrease in the median value from 39.8 in 2021 to 33.6 in 2022.

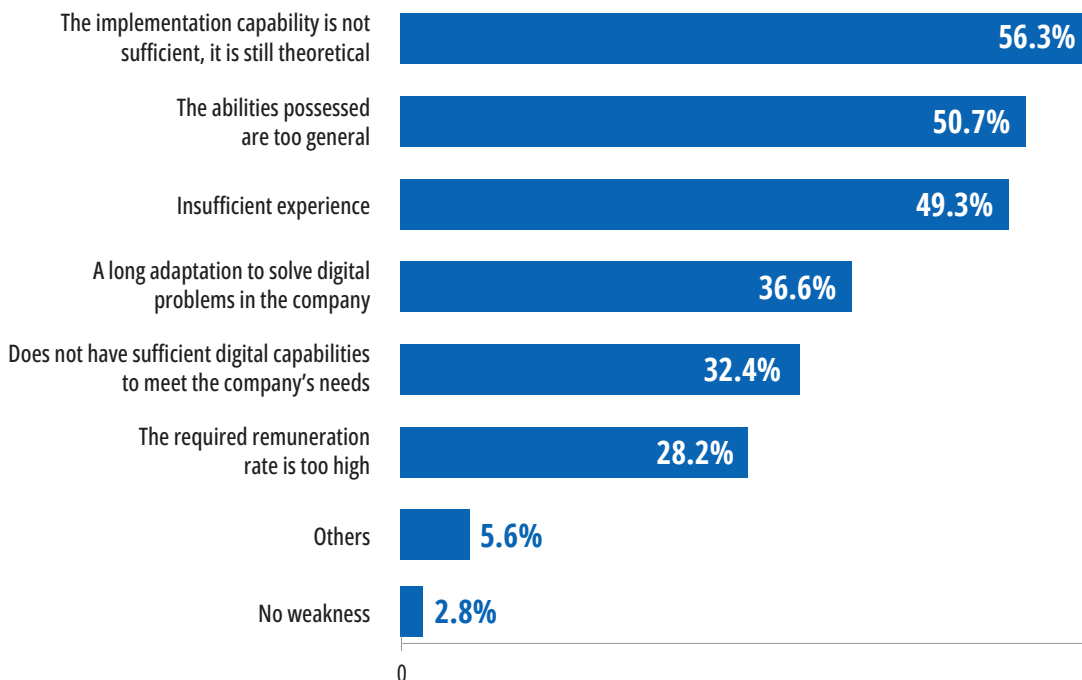


EV-DCI 2022 survey shows that the majority of digital companies feel that there is still a lack of a qualified workforce in the digital field. According to the respondents, three main aspects that need to be improved are practical implementation capabilities, specific digital capabilities, and coupled with adequate experience. "We need workers who are multidisciplinary scientific experts so that they are able to analyze digital solutions accurately," said a digital business player in the health sector.

IN GENERAL, HOW DIFFICULT IS IT TO FIND EMPLOYEES WITH DIGITAL SKILLS?



IN GENERAL, WHAT ARE THE WEAKNESSES OF EMPLOYEE CANDIDATES IN INDONESIA REGARDING DIGITAL SKILLS?



SUPPORT SUB-INDEX

Support sub-index that support the development of the regional digital economy are infrastructure, finance, and regulations and capacities of local governments. Compared to the previous two years, the distribution of the EV-DCI scores shows that provinces in the middle and lower groups are able to improve various facilities which are needed to expand digital access for regional development.

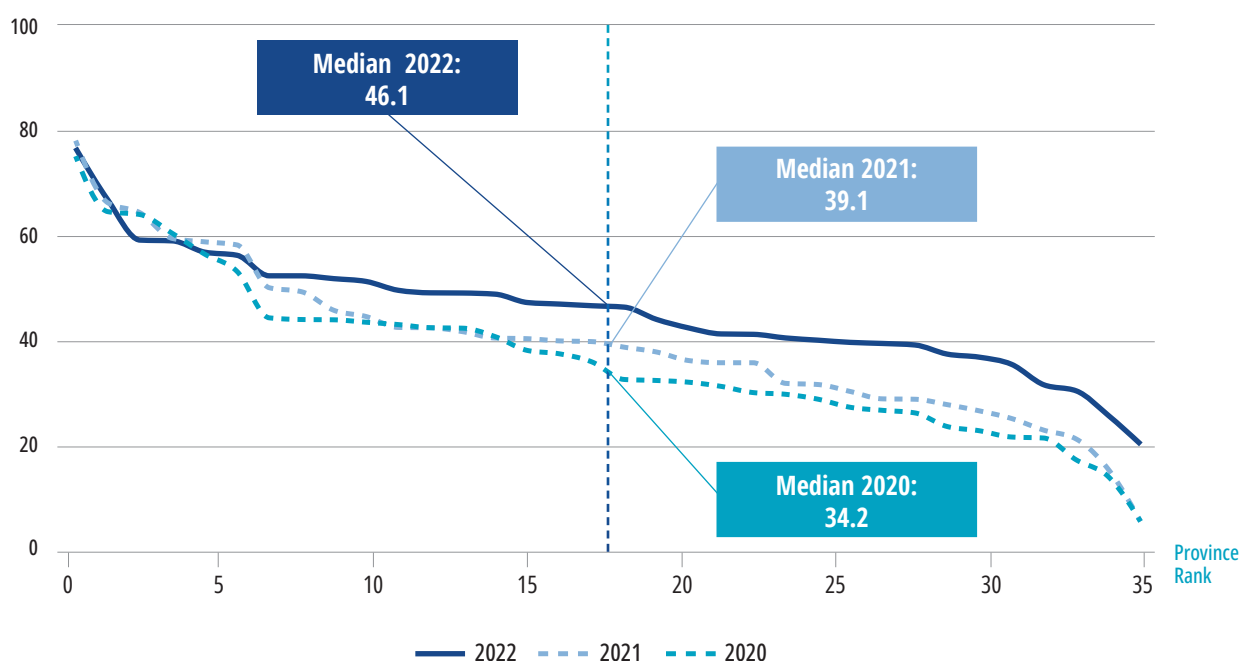
The gap between provinces has significantly reduced from 71.0 in 2021 to 55.5 in 2022. The median Support sub-index has consistently increased from 34.2 in 2020 to 39.1 in 2021 and increased to a score of 46.1 in 2022. This illustrates the more even development of telecommunications infrastructure, better financial inclusion, and increased capacity and support for government regulations.

As for the ranking, DKI Jakarta still leads as the first position with a median value of 75.1. Similar to 2021, the provinces that are in the next top 5 are West Java (66.1), DI Yogyakarta (58.5), East Java (58.4), and Bali (56.3).

Among the three Support pillars, in the middle and lower group of regions, much improvement is seen in the regulatory aspect. Papua, which is in the lowest rank, has experienced an increase in the median number from 4.0 in 2021 to 38.4 in 2022. The push for government policies, both central and regional, has helped the even digital distribution in the regions.

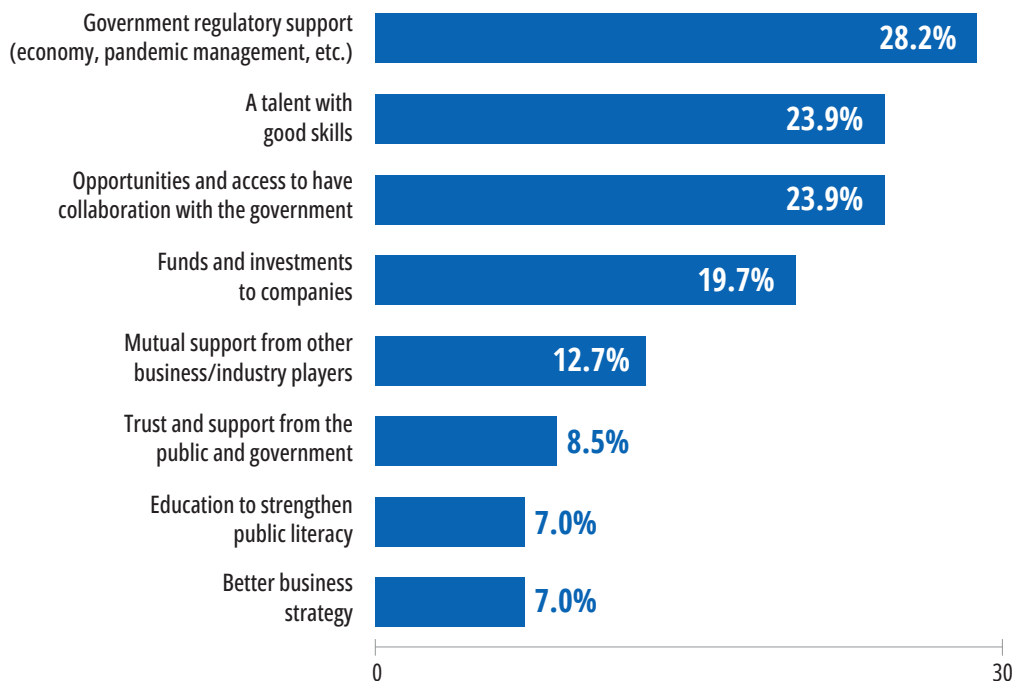
SCORE DISTRIBUTION SUPPORT

EV-DCI



The EV-DCI 2022 survey also found that the majority of digital companies view government regulations as the main driver of digital payment adoption. In addition, for startups, support from government policy is an important aspect of post-pandemic business development.

IN GENERAL, WHAT DOES YOUR COMPANY NEED TO MAKE IT EASIER TO EXECUTE POST-PANDEMIC BUSINESS PLAN?



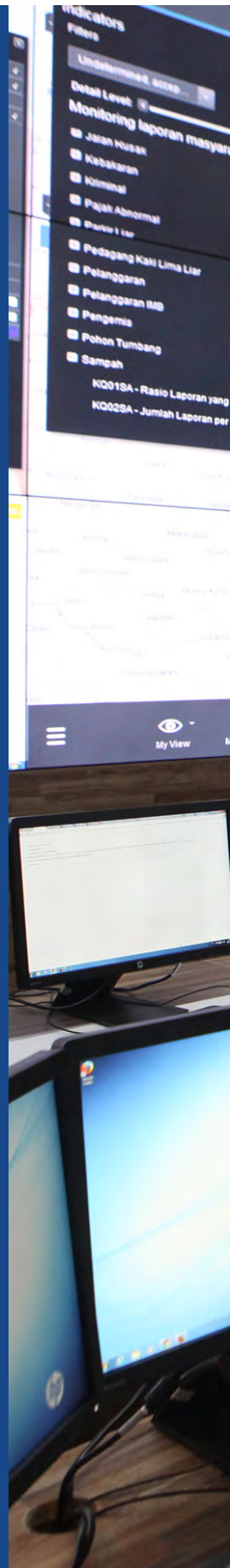
Almost all provinces have also experienced infrastructure improvements. As in the previous year, the median figure was the highest, rising from 54.3 in 2021 to 64.8 in 2022. This data reflects the condition of digital infrastructure in Indonesia that is increasingly more evenly distributed. West Papua, which rose 11 places to 19th, experienced an increase in the median value from 21.8 in 2021 to 37.2 in 2022. This improvement was supported by the increase in the number of villages that received a strong signal and stable electricity connections.

In order to reduce the digital gap, the Indonesian government accelerates infrastructure development to the frontier, outermost, and underdeveloped (3T) areas. In an interview with the EV-DCI team, Chief Sustainability Officer (CSO) of Aruna, Utari Octavianty stated that with the more complete digital infrastructure in an area, any technological approach will be easier to adapt to the community.

On the other hand, regions need to prepare appropriate strategies to improve financing and business funding aspects. This is in line with EV-DCI 2022 survey of digital companies which shows that the number of financial access points for the Indonesian people is still considered as minimal. Digital financial literacy programs need to be improved so that people understand more about financial products and services and make it easier to adopt digital payments.

Chapter III

The Potential of Regional Digital Competitiveness to Promote Digital Economy





The COVID-19 pandemic that struck Indonesia has affected the behavior of people and companies in carrying out economic activities. The players in the economy have adjusted by embracing digital technology. This has a positive impact on the growth of Indonesia's digital economy. According to a report by Google, Temasek, and Bain & Co, e-Conomy SEA 2021, the value of Indonesia's digital economy will reach USD 70 billion in 2021. When compared to the digital economy's value in 2020, which was only USD 47 billion, this figure represents a 49% rise. The contribution of the digital economy to GDP, which was 4% in 2020, is predicted to rise to 18% by 2030.

The size of the digital economy is predicted to increase further to USD 146 billion by 2025. The e-commerce industry, with a 54% increase in value of transactions in 2021, is the primary driver of digital economy growth. Transaction value also increased in the transportation and food delivery industries, as well as social media, online travel, edutech, and healthtech. The digital economy's potential is further supported by the growing number of people in their productive age and internet users, which today comprises 202.6 million people or 73.3% of the total population¹.

The enormous potential of the digital sector benefits the Indonesian economy. The government's optimization of the digital sector could potentially give a significant contribution to economic growth. To improve the potential of the digital economy, the government focuses on strengthening human resources and the availability of digital infrastructure. The government, through the Digital Literacy Movement, aims to provide basic digital training to 12.4 million Indonesians each year to promote digital talent. Furthermore, Kominfo has established the Digital Talent Scholarship program specifically designed for the Indonesian Millennial Generation, which will be attended by at least 100,000 participants per year.

In terms of digital infrastructure development, the Indonesian government and telecommunications

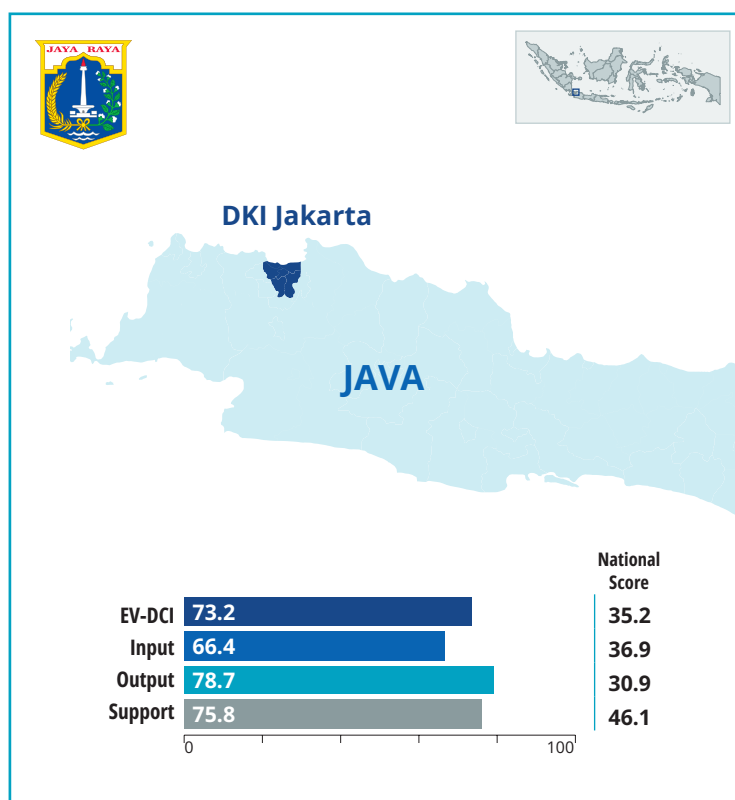
¹ Hootsuite (We Are Social), Indonesian Digital Report 2021

companies have installed 342,000 kilometer fiber optic cable networks on land and sea. This serves as the foundation for connectivity for technology and communication.

Similarly, at the local government level, the COVID-19 pandemic has also become a momentum for regional leaders to offer breakthrough policies that would drive the digital economy. West Java, for example, used a door-knocking strategy and an investment summit to attract digital investment. West Java also prioritizes the inclusion of the digital economy so that investment does not only flow to Greater Bandung and nearby areas, but also to the rural areas or digital villages.



3.1. Profile of Provincial Competitiveness



DKI JAKARTA: Leading in Digital Competitiveness

According to the results of the EV-DCI index calculation, DKI Jakarta has continued to stay on top from 2020 to 2022. Over the three years since the EV-DCI calculation, on first glance DKI Jakarta's score appears to decrease. However, this does not reflect a decline in DKI's digital competitiveness, but rather shows an improvement in other provinces' competitiveness. The decreasing range of EV-DCI scores over the previous three years indicates that digital competitiveness is becoming more widely distributed, thus reducing the gap between DKI Jakarta and other regions.

DKI Jakarta has held the top position in the infrastructure pillar for the past three years based on the level of electrical

power interruptions, access to mobile signal, and telephone connections. Compared to other provinces, digital finance adoption is the highest, where financial inclusion index and e-wallet adoption rate by e-commerce is the highest. Furthermore, the level of entrepreneurship and productivity continues at its peak.

Despite some fluctuations in other key elements, the high score of the Support sub-index remains one of the primary reasons why DKI Jakarta is consistently at the top. However, the EV-DCI 2022 result indicates that one of the indicators under ICT usage has declined. The current slow adaptation process for face-to-face learning following the COVID-19 pandemic situation has reduced the indicator of ICT usage in schools.

WEST JAVA:

The Growth of Digitalization-Related Sectors and Digital Transactions Stimulates the Economy

West Java has maintained its second place in the EV-DCI 2022 with a score of 58.5, holding its ranking from the previous two years. West Java is implementing a range of digitalization-related programs, including Digital Villages, digital marketing training for Micro, Small and Medium-sized Enterprises (MSMEs), and Command Centers in 13 cities/regencies. The implementing unit for the digital service center, Jabar Digital Service, demonstrates the West Java Provincial Government's dedication to advancing the use of end-to-end technology and bridging the digital gap in the community.

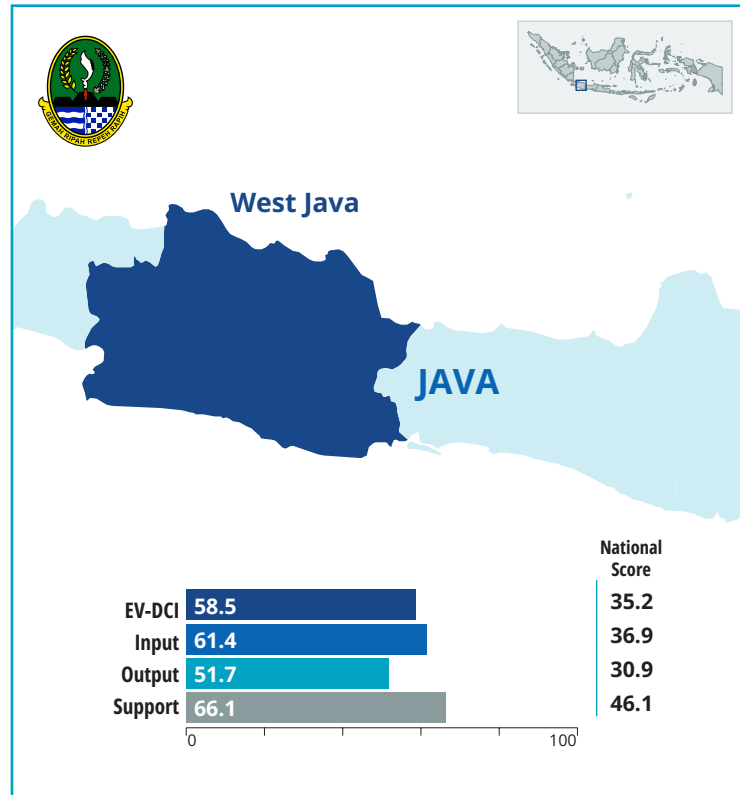
One of the pillars that heavily contributed to West Java's EV-DCI score was human resources (71.5). West Java obtained the highest score for this pillar

compared to other provinces. In line with an improvement in the human resources pillar, the entrepreneurship and productivity pillar (63.0) is ranked third out of 34 provinces. The improvement in these two pillars is driven, among others, by the various digital training programs for the people of West Java. These programs include the Digital Entrepreneurship Academy Training Program for MSMEs, Digital Talent Scholarships, and the Lintasarta Mengajar Program to support Digital Villages provided to the Head of Villages.

In addition to these two pillars, the increase in the province's index score was supported by an improvement in the economy. The rise of the economy pillar has been aided by the expansion of digitalization-related sectors. This is a digitalization-related sector based on the Central Bureau of Statistics (BPS) classification of commercial fields, which includes information and communication, financial and insurance services, transportation and warehousing. One of the sectors with the highest investment realization in 2021 (11%) is transportation, warehouse, and communications. Furthermore, in the third quarter of 2021, e-commerce transactions in West Java increased by 59%². Both factors stimulated the output of digitalization-related sectors.

However, economic growth, especially in digitalization-related sectors is not in line with ICT expenditure. The ICT expenditure pillar's score decreased from 74.4 in the previous year to 63.0 this year. This decrease was due to a decrease in the ratio of households having ICT expenditure, which fell from 81.5% to 76.16%.

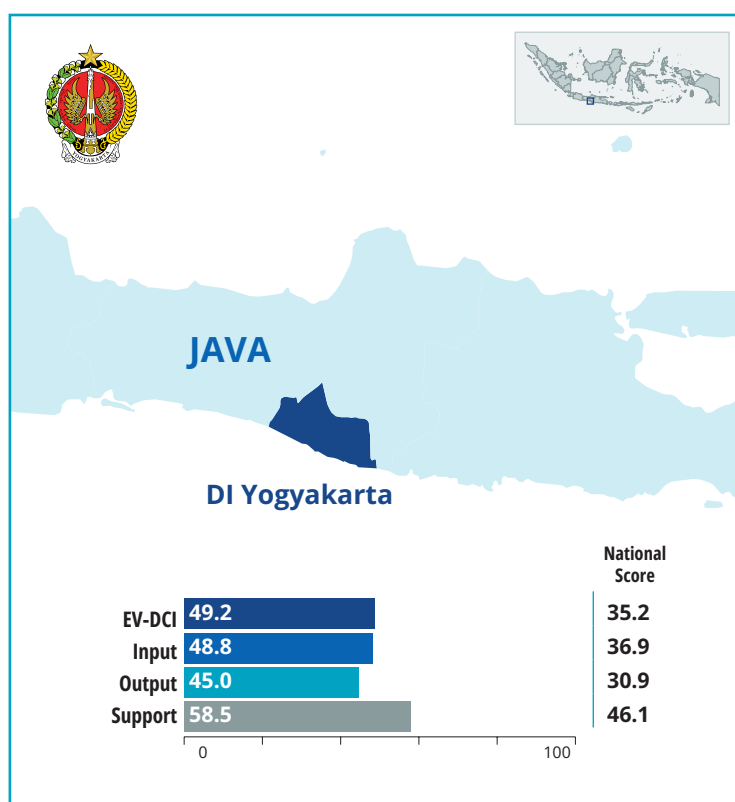
Meanwhile in the Support sub-index, the infrastructure pillar contributed the highest score (79.4) compared to the other pillars. The provincial government



of West Java has made the development of digital infrastructure a priority, particularly in rural areas. The West Java provincial government offers digital infrastructure in rural areas through the Digital Village program in an effort to close the digital disparity in West Java.

West Java is implementing a range of digitalization-related programs, including Digital Villages, digital marketing training for MSMEs and Command Centers in 13 cities/regencies.

² https://jabarprov.go.id/index.php/news/44831/Transaksi_E_Commerce_Jabar_Capai_Lebih_Dari_Rp6_5_Triliun_Tertinggi_Nasional



DI YOGYAKARTA:

Increasing the Performance of a Large-Scale Ecosystem Development

The Special Region (DI) of Yogyakarta is ranked 3rd in this year's EV-DCI, up three places compared to the previous year. DI Yogyakarta scored a 49.2 overall score. The pillar with the greatest significant change in the Input sub-index is human resources, which has increased by 14.8 points.

The increased score in human resources is related to a high digital literacy. DI Yogyakarta has the highest digital literacy index, according to the results of the 2021 Digital Literacy Survey conducted by Kominfo and Katadata Insight Center. Several activities and programs involving various groups and communities and in collaboration with Kominfo have contributed to this achievement.

Regarding the Output sub-index, the

entrepreneurship and productivity pillars have increased significantly. This increase was also influenced by DI Yogyakarta's efforts to carry out digital transformation of MSMEs through projects such as platform creation (SiBakul Jogja) and Smart Traditional Market (Semar). As a result, the ratio of workers using the internet in their main job has increased.

The infrastructure pillar also contributed to the improvement in DI Yogyakarta's overall score. Within the infrastructure pillar, the indicator of 3G and 4G internet access in the villages has increased. This growth is supported by Kominfo's digital infrastructure development program, which includes expanding 4G services to 41 villages in Yogyakarta by the end of 2020. In addition to strengthening digital infrastructure, the Department of Communication and Information Technology of DI Yogyakarta has created 525 public wi-fi hotspots at the neighborhood and community (RT/RW) level.

BANTEN:

Increases In Productivity and Infrastructure Support

Banten Province's digital competitiveness index has improved, shifting from fifth to fourth ranking in 2021 and 2022, respectively. The score for Banten Province tends to be steady in all sub-indexes, with no significant decrease or increase from the previous year. ICT expenditure, entrepreneurship and productivity, infrastructure, and finance are some of the pillars where scores have improved. They correspond to an improvement in economic activity in Banten Province.

The infrastructure pillar has seen the most progress in Banten province, ascending from a score of 70.9 in 2021 to 73.8 in 2022. The proportion of the population with access to 3G and 4G signals has increased, resulting in more

evenly distributed internet access. One of the factors driving this increase is the local government's initiatives to provide wi-fi in public locations.

In the meantime, the productivity and entrepreneurship pillar's score improved from 49.4 to 54.8. This increase is due to the growing number of people who use digital technology in their jobs. There has been an increase in the proportion of workers who use the internet in their main job for communication, promotion, and sales via social media.

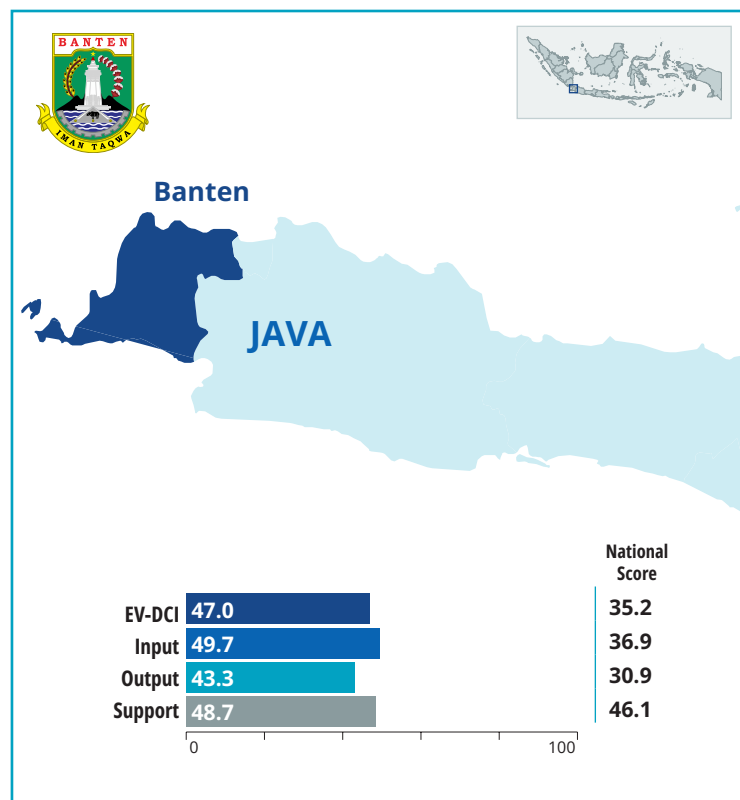
Banten province is one of the pioneers among Indonesian provinces that produce digitally-skilled college students in large numbers. The rate of production, however, is slowing down. Banten had a growth rate of 59.45% in 2020, which fell to 16.6% in 2021, and further dropped to 8.8% in 2022. This is due to the substantial number of digital talents already produced in Banten compared to other provinces, such that when the other provinces initiate talent development, Banten's growth slows down.

EAST JAVA: **Significant Obstacles to Restore the Digital Economy**

This year East Java Province comes in fifth place, two levels down from the previous year, with a score of 45.6. The performance of East Java's EV-DCI pillars vary. A decrease in scores occurred in the following pillars: ICT usage, ICT expenditure, and the economy.

Compared to the previous year, the score of the human resources pillar has increased. The ratio of digitally-adept students has climbed from 4.7% to 8.7%, while the number of study programs related to digitalization increased from 422 to 432.

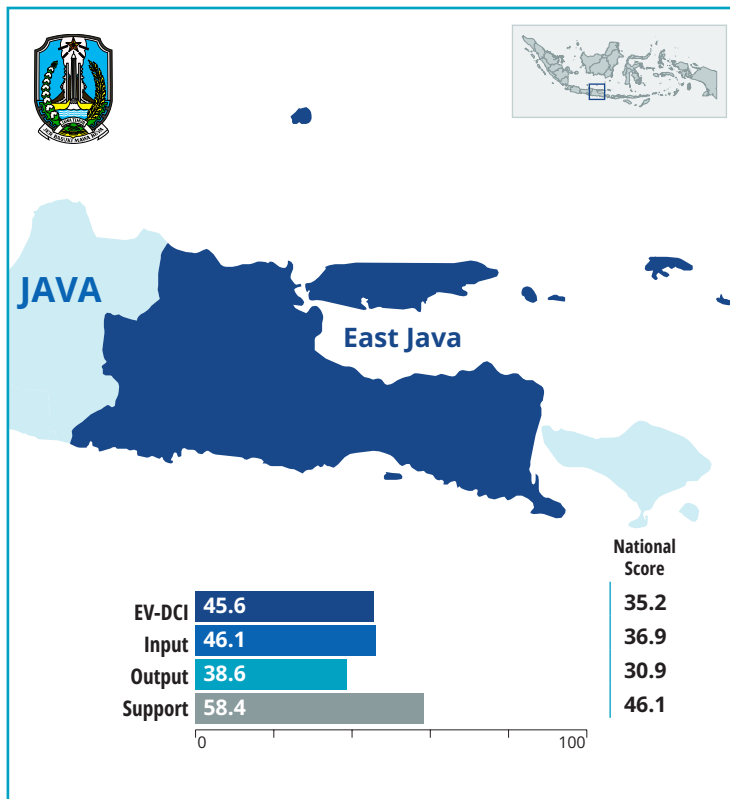
On the pillar of ICT usage, the total households using the internet from school has decreased. The percentage of those who use the internet in schools has



dropped from 14.1% to 8.2%. People have been more cautious in their spending as a result of the pandemic, with the ratio of households that allocate budget for ICT expenditure dropping from 83.3% to 80.8%. From the business side, the average salary paid to workers in the information and communication sector has also decreased from IDR. 3.3 million to IDR. 2.7 million.

The economy pillar has also suffered a decrease. Although the information and communications industry has contributed to East Java's economic recovery, the score for GRDP growth indicator has dropped from 55.1 in 2021 to 32.0 in 2022.

On the other hand, the score of entrepreneurship and productivity pillars increased from 35.5 to 41.1. The usage of the internet for productive economic activity by employees has increased. This has been enabled, among others, by various digital trainings held in East Java, one of which was sponsored by



Grab. Thousands of MSMEs in Surabaya, Malang, and Kediri received virtual training on digital business methods held by Grab and the East Java Regional Government.

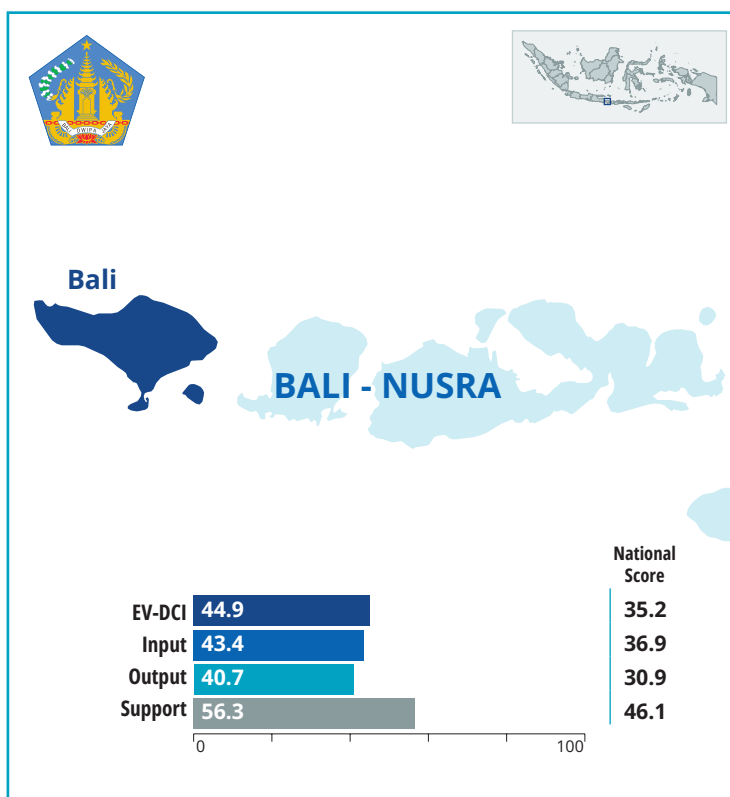
Meanwhile, the government has made advancements through the Lumbung Pangan application³, a local e-commerce specialized in selling basic commodities at below market price as part of a commitment to ensure the supply of basic commodities. To facilitate delivery to the users, the application has partnered with Gojek and Grab as delivery partners.

BALI: The Development of Digital Creative Industries

The negative impact of the pandemic on Bali's tourism sector is reflected by the decline in the province's EV-DCI 2022 score. The number of tourists visiting Bali is still impacted by various limitations and flight regulations during the pandemic. According to BPS Bali, the number of foreign tourists visiting Bali has decreased by almost 100%. In 2019, 10.5 million domestic tourists visited Bali before the outbreak. The number fell to 4.6 million in 2020, and 4.3 million in 2021.

Bali's digital competitiveness index dropped from fourth to sixth place in 2022 due to the prolonged impact of the pandemic on the tourism sector, among others. The most significant drop was in the Input sub-index, which fell by 8.6 points from the previous year, with all three input pillars (human resources, ICT usage, and ICT expenditure) falling.

However, the Output sub-index increased, driven by a rise in the scores of the entrepreneurship, productivity, and manpower pillars. This occurred



³ <http://kominfo.jatimprov.go.id/read/umum/ayobelanja-di-lumbung-pangan-jatim-lewat-online>

even if Bali's Economy pillar declined. The Support sub-index also declined especially in the financial as well as regulatory and local government capacity pillar, despite an increase in the infrastructure pillar.

One of the contributing factors to the decrease is the ICT usage pillar. During the pandemic, the percentage of workers using the internet for work has dropped dramatically. The adoption of Work from Home (WFH) demanding work done outside of the workplace, as well as the decrease in Bali's tourism sector as a main source of income, has resulted in a decline in this pillar.

The pillars of entrepreneurship and productivity, on the other hand, grew as the digital creative industry is seen as a solution to help Bali's economy recover. Kominfo, in collaboration with Pandu Digital Indonesia and Relawan TIK Indonesia (Indonesia's ICT volunteers), held digitalization training for MSME actors, with the program having a positive impact on the number and ratio of workers using the internet for promotion and sales.

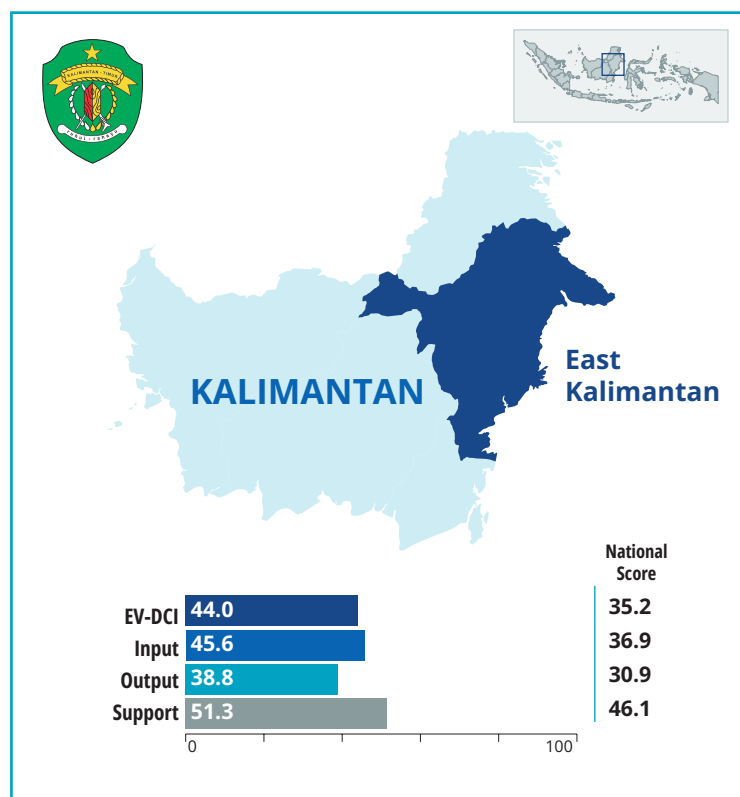
EAST KALIMANTAN: New Startups Creation Improves the Human Resources and Entrepreneurship Pillars

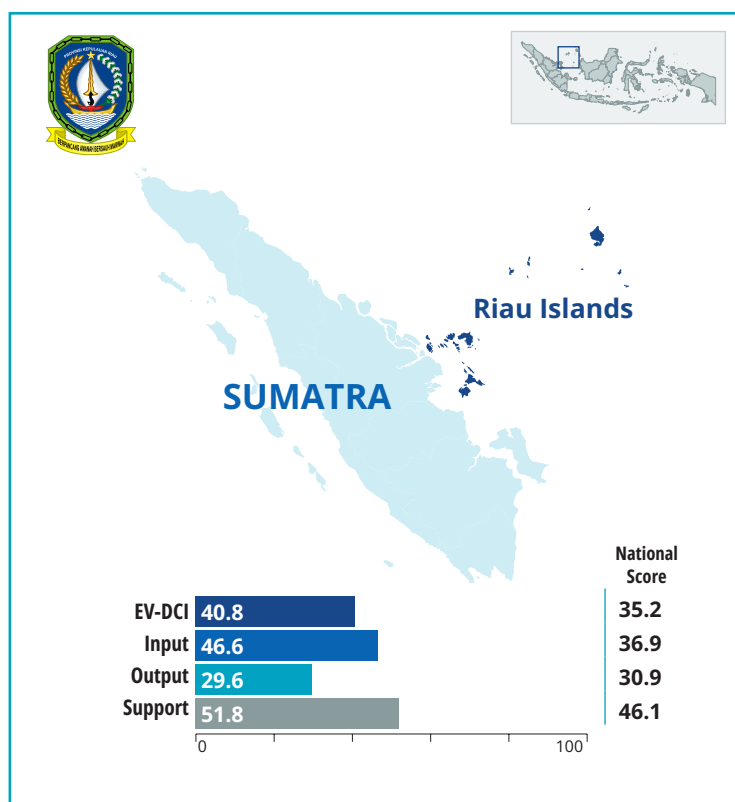
East Kalimantan experienced an improvement in the digital competitiveness index in 2022, climbing from 10th to 7th position. There are many contributing factors to this increase, including the improved human resources pillar supported by the increased digital literacy indicator. The organization of Hackathon, an event to improve a competitive atmosphere among new startups in East Kalimantan and increase the quality of MSMEs in adopting digital technology is one of the few supporting programs.

The majority of ICT indicators, such as computer ownership, internet access

in the office, and internet access with a laptop, have improved scores in general. The decline in pillar scores, on the other hand, was largely driven by a drop in mobile internet access score. The pillars of entrepreneurship and productivity are improving, with the development of several new startups in East Kalimantan contributing to creating jobs and demand for digital talent. These startups work in digital marketing agencies, media, and other fields that require internet access.

Telkomsel also sponsored an incubation facility for digital startups in Balikpapan with the Telkomsel The NextDev 2021 program as part of its assistance for local startups to accelerate their development. In line with this, the economy pillar also increased from a score of 30.5 to 38.8. One of the reasons for this increase was the substantially stronger growth of the financial sector's GRDP than other provinces, despite the fact that this sector slowed down.





RIAUI ISLANDS:

Manpower in the Digital Sector Requires a Stimulus

This year, the Riau Islands is ranked eighth, one level lower than in 2021. The EV-DCI score for the Riau Islands was 40.8 overall. The manpower pillar has seen the most significant reduction in scores. This pillar's score dropped from 24.4 in the previous year to 26.9 in 2022. The drop in indicators is impacted by the change in the number of digitalization-related workers.

The presence of Nongsa Digital Park is projected to boost the development and growth of the digital sector in the Riau Islands. However, the province's largest investment inflow continues to focus on the manufacturing sector, particularly the metal industry. In fact, compared to other Special Economic Zones (*Kawasan Ekonomi Khusus* or *KEK*) in Indonesia, *KEK* Galang Batang in the Riau Islands

received the largest investment inflow (IDR 12.8 trillion). This *KEK* concentrates on the processing industry,

The increase in the entrepreneurship and productivity pillars, on the other hand, provided a breath of fresh air to the Output sub-index. The Bank Indonesia Representative Office in the Riau Islands Province has accelerated the digitalization of MSMEs through the *Gebyar Melayu Pesisir* program, which focuses on the promotion of the Indonesian Standard Quick Response Code (QRIS) and online product marketing, resulting in increased use of internet for work.

At the same time, the infrastructure pillar also improved. *Kominfo's* program for expanding the presence of 4G Base Transceiver Stations (BTS) in numerous rural parts of the Riau Islands stimulates the rural population to use the internet in their daily lives, thus increasing village access to the internet with 3G and 4G.

WEST SUMATRA:

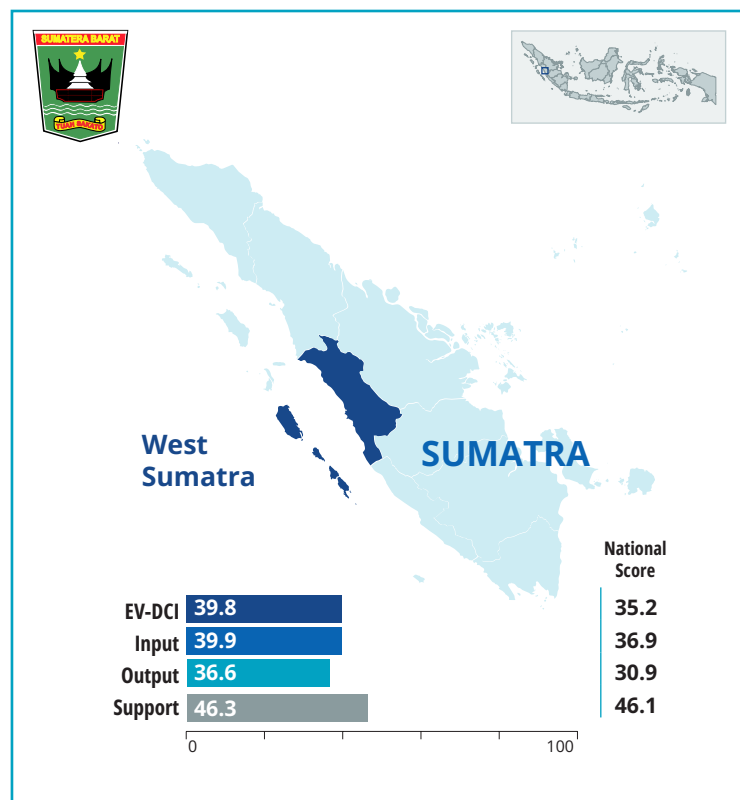
Increased ICT Usage and Job Opportunity

This year, West Sumatra is placed ninth, up three levels from last year. West Sumatra received a total score of 39.8, making it the second best province in the Sumatra Island region. Infrastructure, with a score of 69.0, is the pillar with the highest score in the province. ICT usage is the second-best pillar in West Sumatra, with 58.2 points.

The development of digital infrastructure in various blank spot areas in West Sumatra has enabled many villages in the province to receive internet connectivity. This has a positive impact on the increased number of people accessing the internet from a range of locations, including at home and at work. In addition, the initiative promotes greater ICT usage. The provision of internet connectivity also

facilitates online learning for students and community activities that utilize ICT equipment during the pandemic.

Although West Sumatra remains impacted by the COVID-19 pandemic, the workforce conditions have improved. This is reflected in the province's unemployment rate, which declined by 10,660 people to 179,950 people in August 2021 compared to the previous year. Such change is due to the fact that as the economy continued to improve, more job opportunities became available, thus reducing the unemployment rate. The Ministry of Public Works and Public Housing (PUPR) and the provincial government constructed several key infrastructure in West Sumatra to support economic growth. This resulted in an increase of GRDP for the sub sector of warehousing, transportation support, post and courier.



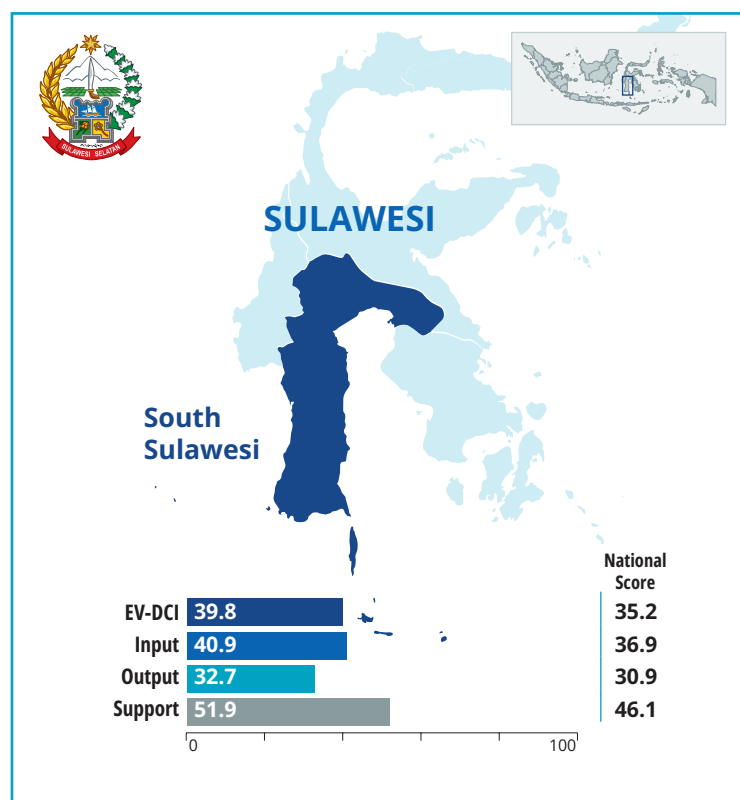
SOUTH SULAWESI:

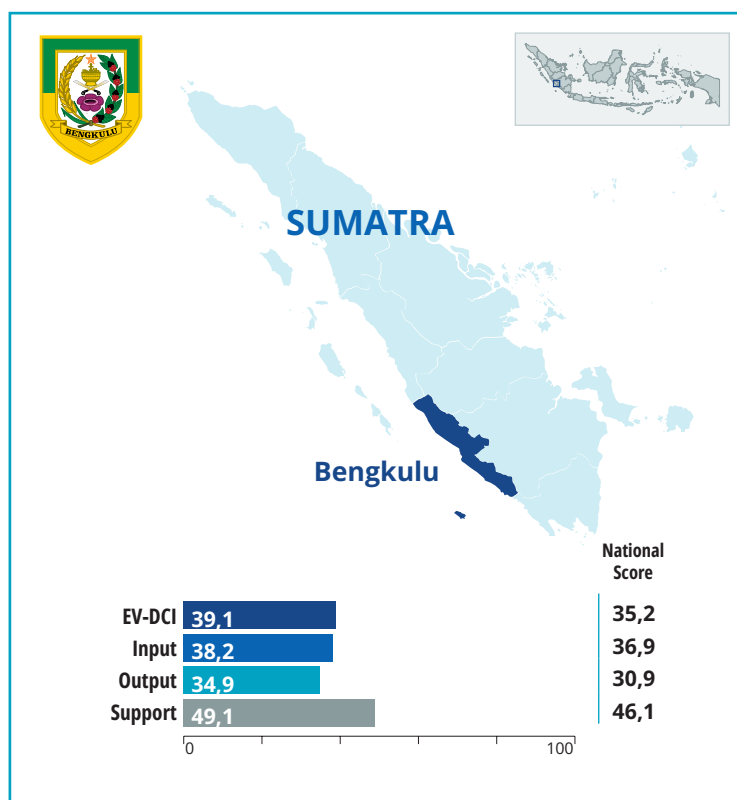
Economic Recovery Process by Training MSMEs to Go Digital

South Sulawesi's digital competitiveness rank has dropped from ninth place in 2021 to tenth in 2022. The score for the Input and Output sub-index decreased by 1.7, despite a 2.2 increase in the Support sub-index.

The decrease was driven by a number of variables, one of which was the decreased score of the economy pillar due to a slower development in the technology and communication as well as in the financial services sector compared to 2021. Although the economy of South Sulawesi is progressively improving, the pace of economic growth remains slower than other provinces, with a score of 45.1 in 2021 and 31.0 in 2022.

In addition to being influenced by the economy pillar, the Input sub-index in South Sulawesi decreased by 1.7. This was caused by drops in the scores of ICT





usage (down by 10.5 from the previous year) and ICT expenditure (down from 28.1 to 15.3). However, there was a very significant increase in the human resources pillar by 7.0.

Nevertheless, South Sulawesi saw an improvement in its entrepreneurship and productivity pillar. This increase came with MSMEs' digital transformation, which was supported by a collaboration initiative between the Department of Cooperatives and Telkomsel to provide digital training and free internet quota to MSMEs.

BENGKULU: **Surging Performance Due to** **Development of the Internet** **Network**

Bengkulu improved greatly in this year's EV-DCI, rising to 12th place with a score of 39.1. The province was ranked 19th last year, and has now progressed

seven places. Several pillars, particularly the internet-related ones, have increased in importance, including ICT usage, entrepreneurship and productivity, and infrastructure.

Efforts of the Bengkulu provincial government to overcome the blank spot and the weak signal problems in more than 80 villages have supported improvements in the ICT usage pillar. The Governor of Bengkulu Province in partnership with the Association of Indonesian Internet Service Providers (APJII) assisted to implement the Indonesia Internet Exchange (IIX) program through the establishment of the Regency's Internet Exchange cultural park. This brings a favorable impact on the number and age of internet users. Furthermore, the corporation has reintroduced Work from Office (WFO) in order to expand the number of people that use internet connection from the office.

The Bengkulu Provincial Government is cooperating with PT Cybers Bengkulu Indonesia to host a digital training program named Cybers Academy to enhance the digitalization of MSMEs. The program will be available in the form of a Warkop Digital application. The presence of this initiative supports the acceleration of digitalization in Bengkulu, and the provincial government of Bengkulu encourages MSMEs to participate.

Moreover, on the infrastructure pillar, the Bengkulu Provincial Government has accelerated the expansion of the village internet network. The provincial Communications and Information Technology Department promoted village internet connectivity for Industrial Revolution 4.0. The program has increased the number and ratio of villages with good 3G and 4G signals.

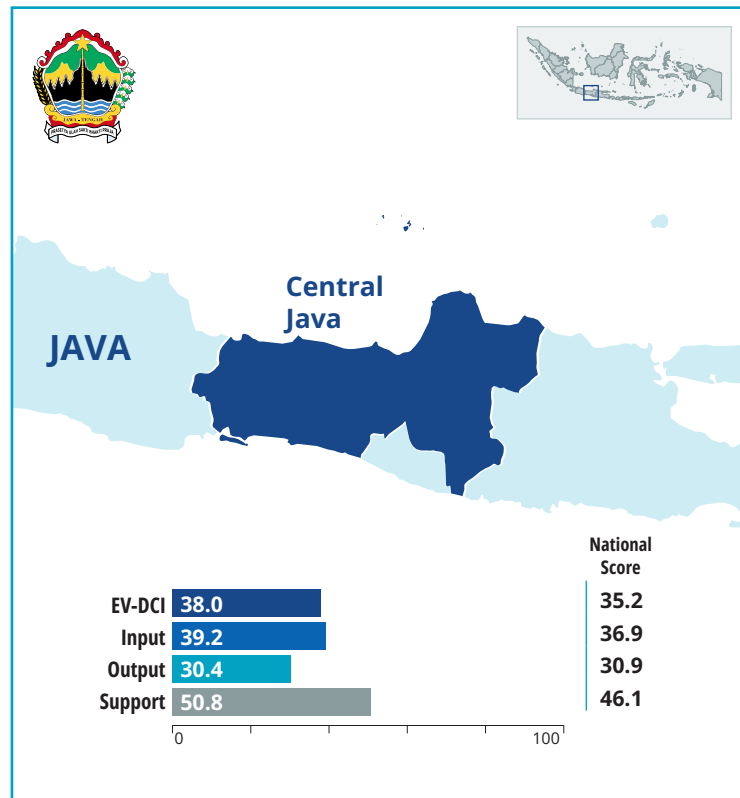
CENTRAL JAVA:

Preparation for Massive Digital Skills Training

The digital competitiveness index for Central Java Province has changed due to several pillars. The first is the human resources pillar. One of the contributing factors is the Digital Literacy Index in Central Java. According to the findings of the 2021 Digital Literacy Survey, Central Java's digital literacy index has decreased from 64.1 to 53.4 in 2022. Second, the pillar of ICT expenditure. The ratio of households with ICT expenditure has declined from 81.4% last year to 75.9% this year. Although the average spending on ICT in households increased by 12.9%, from IDR 199,000 to IDR 224,000, the average spending growth in Central Java is slower than other provinces, hence the score for the average household ICT expenditure indicator decreased from 14.7 to 4.6.

In September 2021, the statistics from the Central Java's Department of Cooperatives and MSMEs revealed that 44,338 MSME players were still suffering from the impact of the pandemic, with 53.0% of MSMEs having marketing issues and 30.2% experiencing capital issues. This has encouraged MSME players to embrace digital transformation through various programs, such as the MSME Campus that collaborates with digital marketplaces, and the preparation of the 5,000 MSME Digitalization Assistance Program supported by BPR-BPRS Central Java. Massive digitalization for MSMEs are boosting the pillars of entrepreneurship and productivity from 27.6 points in 2021 to 36.3 points in 2022. However, the number of MSMEs using digital platforms is perceived to remain low, so the regional government intends to expand digital training programs for MSMEs.

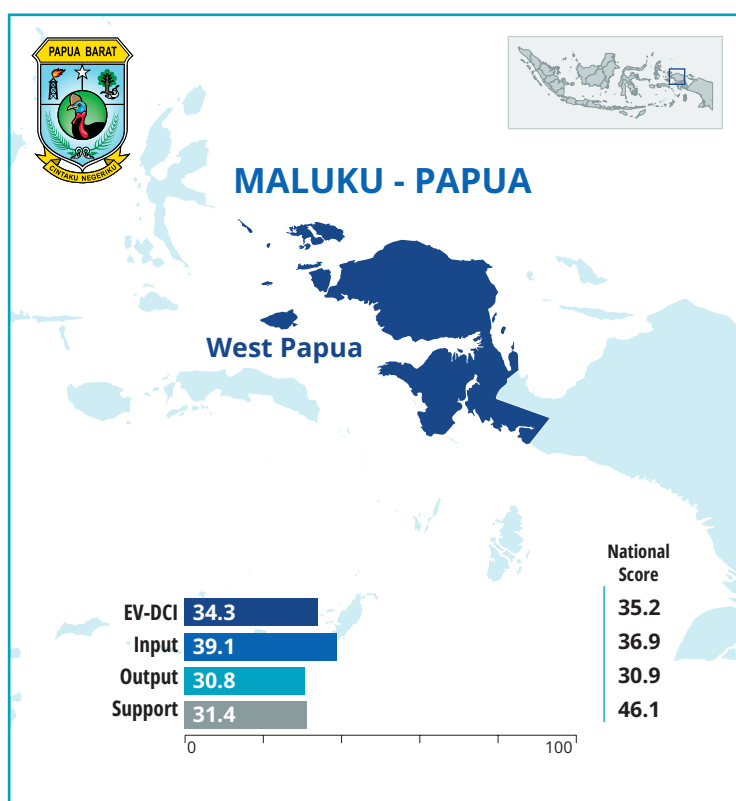
Furthermore, the GRDP for the financial sector has dropped. The performance of several banking



indicators in Central Java, including Third Party Funds (*Dana Pihak Ketiga* or DPK), Non-Performing Loans (NPL), and total assets, has decreased. Deposit growth has slowed further, owing mostly to a considerable drop in deposit performance. In some locations of Central Java, the adoption of the Large-Scale Social Restriction (*Pemberlakuan Pembatasan Kegiatan Masyarakat* or PPKM) level 3-4 has impacted industrial production and community income levels. In addition, MSME loan growth slowed in the second half of 2021, particularly in investment loans and MSME working capital loans. Relaxation occurred in the micro and medium categories, indicating that MSMEs remained unable to perform optimally in light of constrained household consumption.

Manpower is another declining pillar. In this pillar, EV-DCI data indicate an increase in the number of workers who are negatively prone to digitalization (an inverted indication of digital

competitiveness) from 0.28% in 2021 to 6.81% in 2022. Occupations such as administrative staff, processing employees, crafts workers, operators, machine assemblers, and manual laborers are continuously on the rise in the workforce although they can be redundant when digitalization takes over. Central Java's continuous digital-related training as well as plans for more widespread training are hoped to ameliorate this problem.



WEST PAPUA:

Digital Infrastructure Improvement as the Key for Improved Performance

A remarkable rise of EV-DCI this year is observed in West Papua. West Papua is now ranked 19th, up 11 places from last year, with a total score of 34.3. Human resources, ICT usage, as well as entrepreneurship and productivity are other pillars that experienced improvement.

Improvements in digital literacy have led to an increased score in the human resources pillar. West Papua Province, with a score of 3.61, was the top province in the East, according to the results of the 2021 Digital Literacy Survey.

Kominfo, in cooperation with the National Digital Literacy Movement, Siberkreasi, introduced an online literacy program to accelerate digital and technological transformation in West Papua. This program was designed for MSMEs in Sorong. Supported by the optimization of digital infrastructure, this program has successfully increased the number of internet users at work.

The ICT pillar has also gained significance. This is because the Communication and Information Department in West Papua has implemented the development of digital infrastructure focusing on the East Palapa Ring backbone network, 4G BTS towers, and internet connectivity that reaches remote locations. This program has a positive effect on the number and ratio of internet users at home and work. Furthermore, the Ministry of Education

West Papua has implemented the development of digital infrastructure focusing on the East Palapa Ring backbone network, 4G BTS towers, and internet connectivity that reaches remote locations.

and Culture's participation in prioritizing digitalization in schools through the school digitalization program has resulted in an increase in internet users from schools.

LAMPUNG:

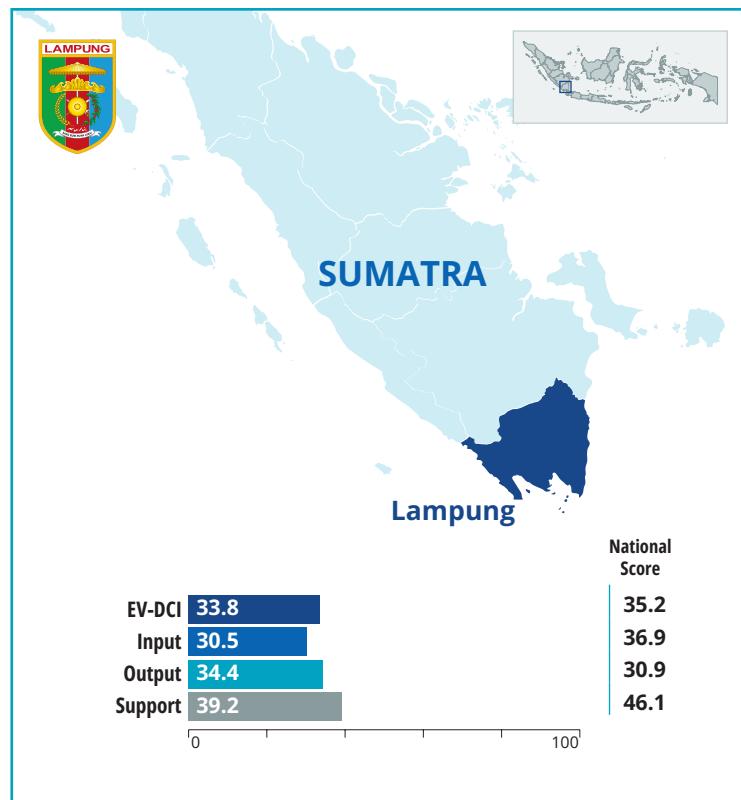
Smart Village to Improve Regional Development

Lampung is one of the provinces with a considerable improvement in the digital competitiveness index, rising from 26th place in 2021 to 20th in 2022. Several factors contributed to the rise, all of which increased simultaneously. The human resources pillar has grown in importance as one of the key drivers of the digital economy. Lampung province obtained a score of 3.5 in the 2021 Digital Literacy Survey. Most of the population has high digital capabilities, which improve human resource quality.

Then there was an increase in the economy pillar, driven by the growth and contribution of GRDP in the warehousing, transportation support, post and courier sub-sector. The improvement is prevalent in the rising performance of exports over imports. On the other hand, the Lampung Provincial Government aggressively promotes the optimization of logistical connectivity in order to boost the competitiveness of their products.

Additionally, the pillars of entrepreneurship and productivity are on the rise. This pillar has grown as 70.3% of MSMEs in Lampung have joined the digital ecosystem. Through the BeLa (*Belanja Langsung*/Direct Shopping) procurement application, Lampung Provincial Government has contributed to support the digitalization of MSMEs. Technology is a tool to provide goods and services for the government towards digitalization.

In line with this, the score for the manpower pillar has increased. Labor conditions in Lampung Province have



generally improved, owing it to an increased absorption of workforce and job opportunities available in the province. The infrastructure pillar improved as well. In addition to logistical infrastructure, Lampung Provincial Government has collaborated with several private companies to implement an acceleration program for the smart village initiative. The program has positively impacted the number and proportion of villages with good 3G and 4G signals.

Through the BeLa procurement application, Lampung Provincial Government has contributed to support the digitalization of MSMEs.

GORONTALO:

Towards the Acceleration and Expansion of Digitalization

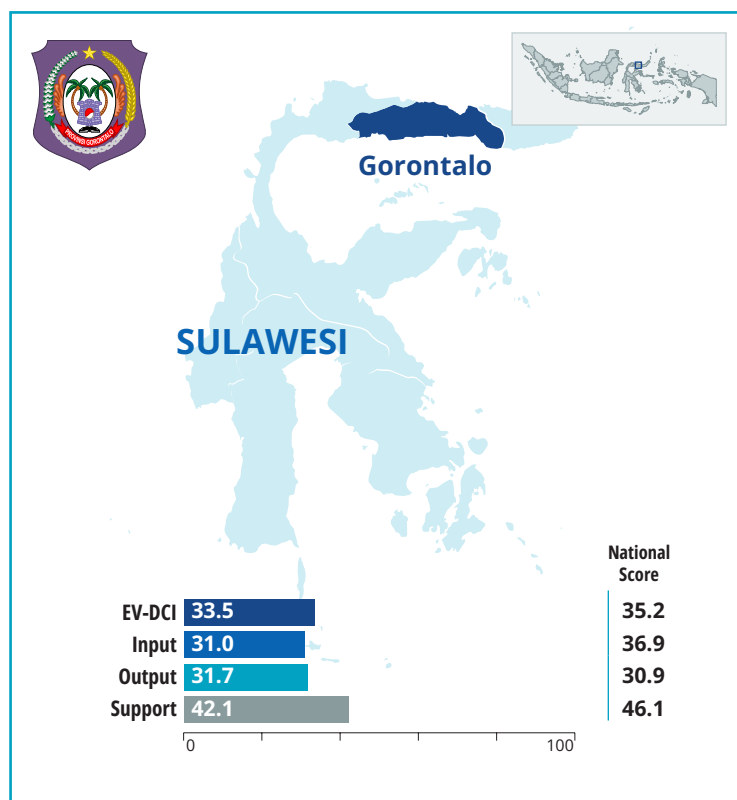
Gorontalo's digital competitiveness rank has dropped from 16th in 2021 to 21st in 2022. Scores for the Input sub-index declined by 4.9, but for the Output and Support sub-index they grew by 2.7 and 10.5, respectively. Overall, the score increased from 32.3 in the previous year to 33.5 this year. Gorontalo is one of the provinces that constantly improves its EV-DCI scores although slower than the other progressing provinces, resulting in a lower position among 34 provinces.

The Output and Support sub-indexes have both increased significantly. The infrastructure pillar increased from 52.6 to 65.5 in the Support sub-index. The frequency of electrical disturbances (reverse indicator) decreased, reflecting

an improvement in the level of electricity service in Gorontalo. Other enhancements were made in the coverage of 3G and 4G signals in rural areas.

However, the ICT usage and ICT expenditure pillars have decreased in the Input sub-index. The disparate distribution of internet connectivity and electricity in numerous regencies of Gorontalo coincides with reduced users of information technology tools. Gorontalo Provincial Government has partnered with Bank Indonesia on the Regional Digitalization Acceleration and Expansion Team (*Tim Percepatan dan Perluasan Digitalisasi Daerah* or TP2DD) initiatives towards Indonesia Digital 2024 to further strengthen Gorontalo's digitalization⁴.

Next, in the Output sub-index, GRDP growth in warehousing and financial services sectors supported the increase in the economy pillar, but growth in the information and communication sector fell from 8.8% to 6.7%. The pillars of entrepreneurship and productivity also increased from 11.4 last year to 17.5 this year. More employees are using the internet for their main job, communication, and marketing. This is in line with the commitment of the Ministry of Tourism and Creative Economy (Menparekraf) to foster digital transformation of MSMEs in Gorontalo through several initiatives, such as Bekraf Digital Entrepreneurship, Beli Kreatif Lokal (Buy Local Creative), and the Gerakan Nasional Bangga Buatan Indonesia (Proudly Made in Indonesia National Movement), as well as the Hulonthalo Art and Craft Festival 2021⁵. It aims to increase MSMEs market access using digital technology.



4 <https://gorontaloprov.go.id/gubernur-gorontalo-dukung-kemandirian-fiskal-melalui-digitalisasi-pembayaran/>

5 <https://gorontaloprov.go.id/menparekraf-dorong-digitalisasi-umkm-gorontalo/>

3.2. Profile of City/Regency Competitiveness

Further mapping of digital competitiveness was done at the city/regency level to analyze the data at the sub-provincial or local level. This mapping was done for 157 cities and regencies, as in the previous years, taking into consideration the availability of data. Some of the 157 cities/regencies that were tallied have undergone substantial changes, which will be examined further in this section.

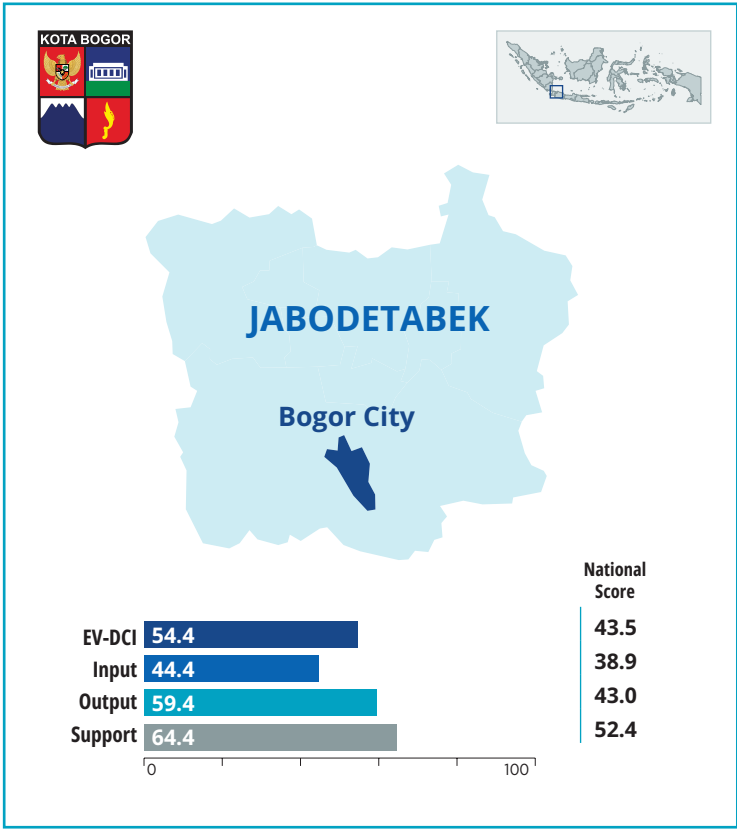
BOGOR CITY: Efforts to Increase Business Scale for Startups and MSMEs

Bogor City, located in West Java Province, is ranked 11th this year, up from 20th in the previous year. Bogor achieved a total score of 54.4. Several pillars had significant changes in this area, including the economy (64.6) and entrepreneurship and productivity (67.2).

Better performance of the information and communication and finance sectors contributed to the improvement of the economy pillar. This improvement is in line with the service expansion of various startups in Bogor city. Furthermore, the West Java Provincial Government, including Bogor City Government, collaborated with the British Government to develop the Nurture to Scale program.

Nurture To Scale is a program to help tech startups become unicorns. To be a part of the program, the British government cooperated with 35 selected startups from West Java, including Bogor. The selected startups will be assisted in planning and developing their businesses.

In addition, Bogor City Government collaborates with startups to provide digital training programs for MSMEs,



such as BukuWarung that aims to reach 5,000 MSMEs through the Komunitas Juragan Bisnis initiative. Bogor City's Department of Cooperatives and SMEs also participated in providing separate training to boost MSMEs' capacity on digital platforms.

The improvement of the economy pillar is in line with the service expansion of various startups in Bogor city.

Cimahi City Government has launched LAPAKU portal to support and assist the expansion of MSMEs in the city. This platform also assists MSMEs in Cimahi with their digitalization activities.

CIMAHI CITY:

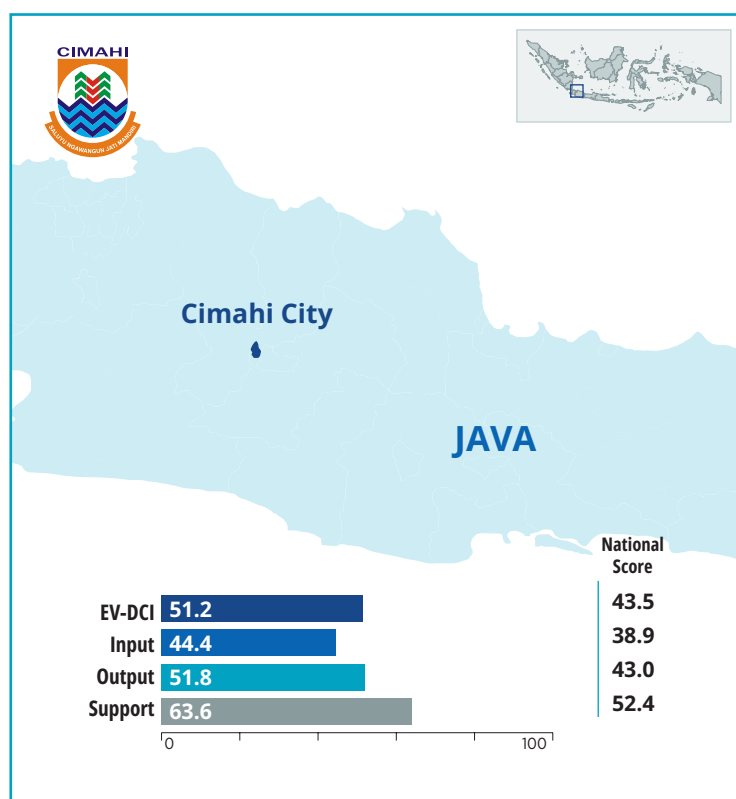
Positive Trends in Information and Communication Sector Push Digitalization

This year, Cimahi City in West Java Province is placed 23rd compared to the 38th place the previous year. The overall score of Cimahi is 51.2. ICT expenditures (56.0) and economy (53.2) are two of the pillars that have undergone significant changes in this sector.

The establishment of many digital transaction facilities for MSMEs in Cimahi, such as Pasar Atas Baru that

help digitalize traditional markets, has raised household awareness of the importance of digital transformation. In addition, Cimahi City Government has launched LAPAKU portal to support and assist the expansion of MSMEs in the city. This platform also assists MSMEs in Cimahi with their digitalization activities. These programs encourage households to spend more money on ICT.

Meanwhile, in the economy pillar, activities of the information and communication sector have increased, following its upward trend. This corresponded to an increase in the incubation and innovation of startup-based digital business models in Cimahi City, such as the animation and telematics industries. This favorable trend cannot be isolated from the role of Cimahi Techno Park, which serves as the digital and creative center for Cimahi City's digital business development.



KEDIRI CITY:

Various Programs for Strengthening Human Resources and MSMEs

The city of Kediri in East Java Province is placed 33rd this year, up from 62nd the previous year. Kediri received a total score of 49.6. Human resources (16.3) and entrepreneurship and productivity (68.0) were two pillars that saw significant developments in this area.

An increase in the Digital Literacy indicator drove the large growth in the human resources pillar from 1.9 in 2021 to 16.3 in 2022. As it is known, the score calculation of digital literacy data index for the City/Regency is based on provincial

data, and East Java has seen a large growth in scores.

In addition, Kediri City Government promotes community empowerment through the Scale Up Prodamas. Launched in 2015, Prodamas has increased to Scale Up Prodamas in 2021 and involved many students through collaboration with the Ministry of Education, Culture, Research, and Technology's Independent Internship program (Kemendikbudristek). Kediri City Government is the only regional government that collaborated with Kemendikbudristek in the Certified Independent Study and Internship (*Magang dan Studi Independen Bersertifikat* or MSIB) program. Since 2015, Kediri City Government has also offered a scholarship program, providing benefits to a total of 2,479 students.

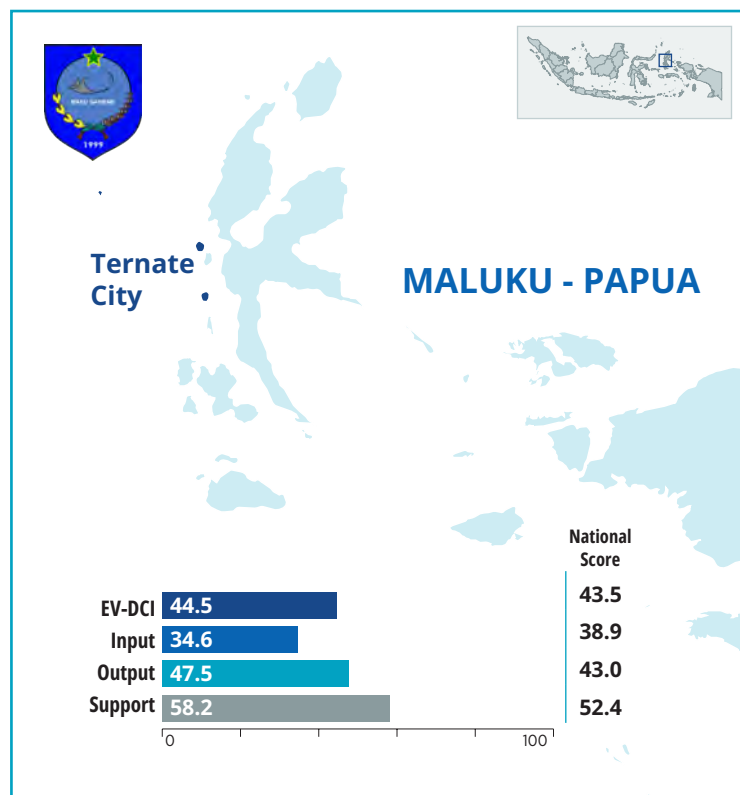
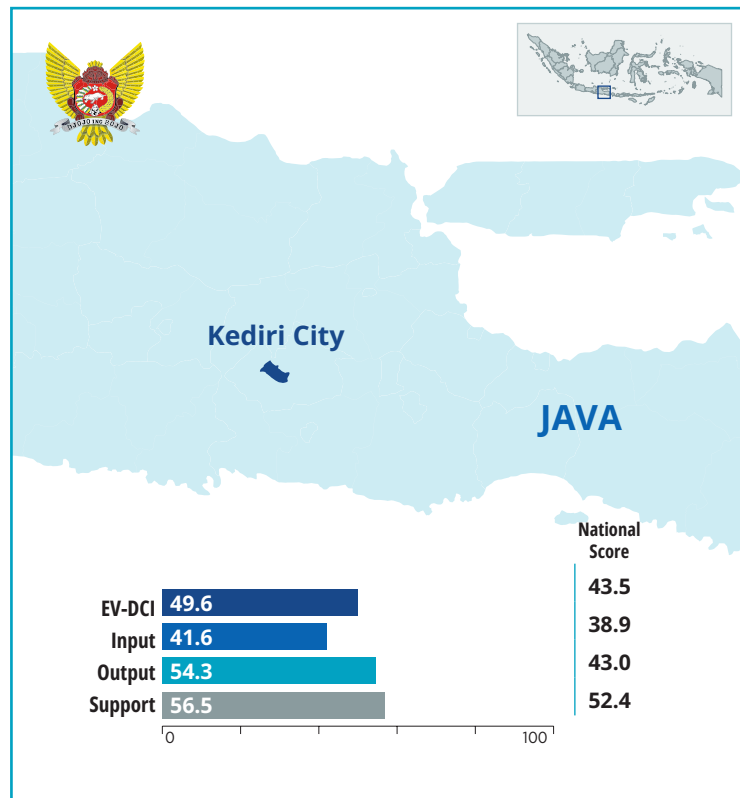
Meanwhile, the considerable improvement in the entrepreneurship and productivity pillars cannot be separated from numerous training initiatives implemented by the Kediri City Government, such as Sobat UKM Shopee that encourages sales through online platforms, digital MSMEs training in conjunction with CrediBook, and digital marketing training for betta fish farmers. As a result, all indicators in this pillar have risen.

TERNATE CITY:

Accelerating Digitalization through Trainings and Infrastructure Development

Ternate, the capital of North Maluku Province, is placed 35th this year, up 18 levels from last year. This region of North Maluku received a total score of 49.1. Entrepreneurship and productivity (38.6) and infrastructure (67.2) were two pillars with significant changes in this area.

In order to promote the pillars of entrepreneurship and productivity, Ternate City Government collaborated



with Bhinneka.com to establish Milik Ternate, an e-commerce platform for local MSMEs. This is a step towards expanding MSMEs into a larger market, as well as providing training and mentoring.

Digitalization initiatives in Ternate City are also accelerated by the growing QRIS non-cash payments in traditional markets. The Inpres Bastiong market in Ternate is one of 51 markets in 34 provinces participating in the Ministry of Trade and Bank Indonesia's trial program. These efforts also aided in the improvement of the Financial Services sector's GRDP indicator score.

The development of digital infrastructure in the area is also supporting the initiatives to accelerate digitalization. Internet infrastructure development in Ternate is carried out by internet service providers, such as XL and Telkom in close collaborations with Ternate City Government to accelerate the expansion of internet connectivity to remote areas.

PADANG PANJANG CITY:

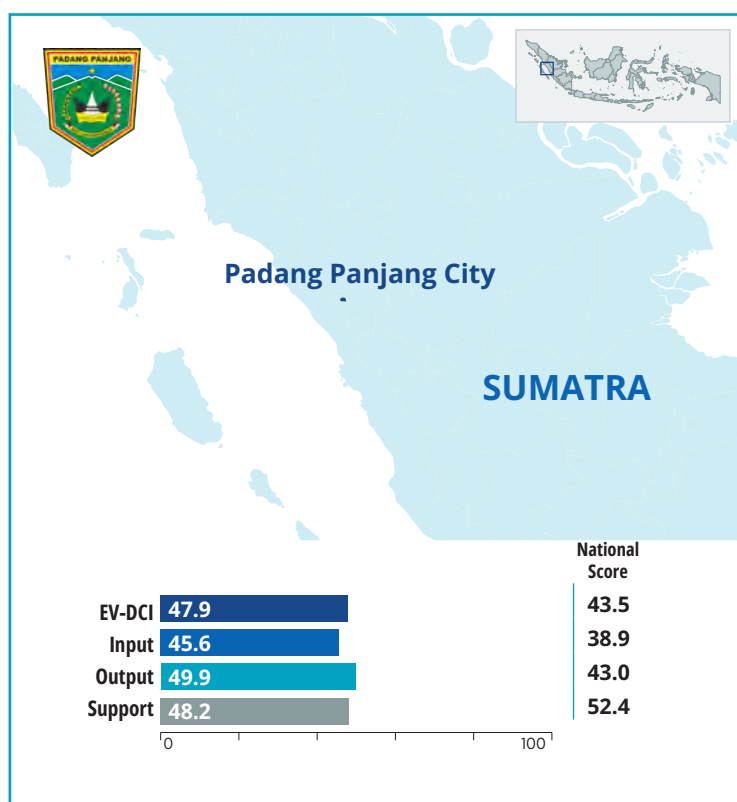
Boost Performance through Digitalizing MSMEs and the Financial Sector

Padang Panjang, a city in West Sumatra Province, is ranked 44th this year, up 24 places from last year. Padang Panjang had a 47.9 overall score. Several pillars have seen significant changes in this area, including entrepreneurship and productivity (48.8) and economy (47.7).

Improved performance of the financial sector was one of the contributing factors to the increased score in the economy pillar. The expansion of KUR distribution by Bank Nagari Padang Panjang shows progress in the region's financial sector. In addition, Padang Panjang City Government collaborates with state-owned banks to provide people with services and facilities. It demonstrates the growing importance of banks in financing the operation of the economy, particularly the informal sector.

In addition to the economy pillar, the positive trend of Padang Panjang City was supported by an increase in the score of entrepreneurship and productivity pillar, particularly the usage of the internet for online sales promotion (social media and e-commerce). The Department of Trade, Cooperatives, and Small and Medium Enterprises of MSME digital marketing training program in Padang Panjang City also contributed to the increased indicators of internet usage in sales.

In addition, Padang Panjang City Government offers Pakan Akaik Manggaleh Virtual initiatives, which aims to encourage MSMEs to digitize their operations. The regular event is held to facilitate market traders for virtual sales every Sunday of the month.



BENGKULU CITY:

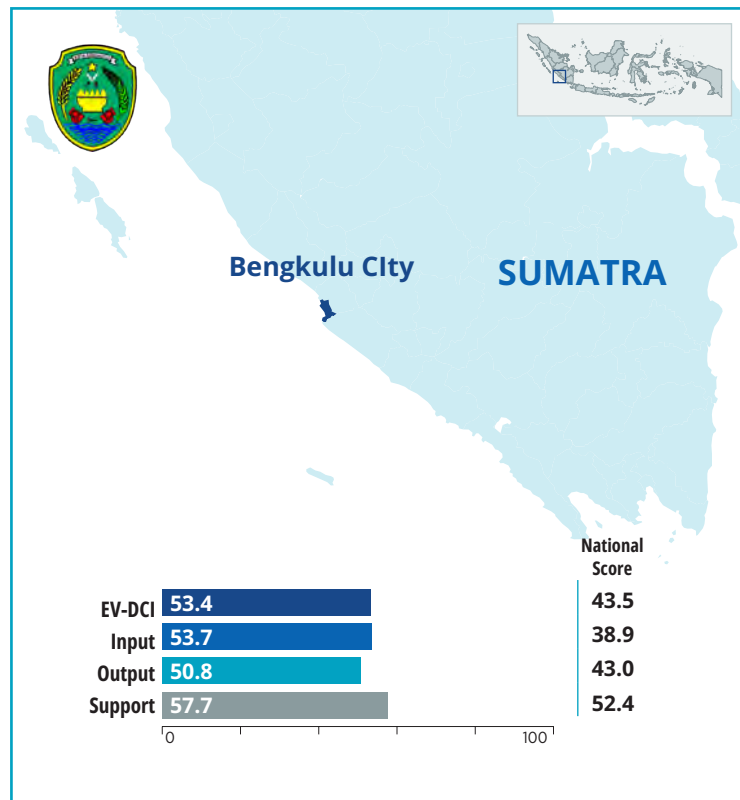
The Role of Digital Culture, Digital Infrastructure, and Manpower

Located in Bengkulu Province, Bengkulu City improved significantly from the previous year, rising from 42nd to 14th in 2022. The human resources pillar is one of the contributing factors to this rise. According to the 2021 Digital Literacy Survey, Bengkulu City's digital literacy has increased since last year. Digital culture is one of the driving forces for an improved digital literacy that ultimately affects the human resources pillar. This is in accordance with various Bengkulu local government programs that support digital literacy, such as the national seminar program and online workshop for digital literacy entitled "Maintaining privacy and countering hoax around COVID-19" held during the pandemic.

The ICT usage pillar has also improved. The Bengkulu City Government, through the Department of Communication and Information, enables people to access the internet by providing free wi-fi access 24/7 at strategic locations to encourage its citizen to utilize technology. The program also increases the number and proportion of people using communication tools to access the internet in various locations, such as at home, work, and school.

Another growing pillar was the manpower pillar. According to the Central Bureau of Statistics of Bengkulu Province, the workforce has grown by 3.8%. The improvement in economic activity following the wave of rising cases of COVID-19 pandemic and the long-term viability of the vaccination program have contributed to the decrease of unemployment in Bengkulu City. Meanwhile, transportation and warehousing industries as well as wholesale and retail sectors contributed to the increase of employment rate.

Finally, the Infrastructure pillar has been improved. The Bengkulu City



Government is working with Telkom to strengthen the internet network by installing BTS in numerous villages. Also, the local Communication and Information Department promotes the presence of village internet in preparation for the Industrial Revolution 4.0. The program has increased the number and proportion of villages receiving reliable 3G and 4G signals.

Bengkulu local government programs support digital literacy, such as the national seminar program and online workshop for digital literacy.

KUNINGAN REGENCY:

Towards a Smart City by Improving Digital Infrastructure

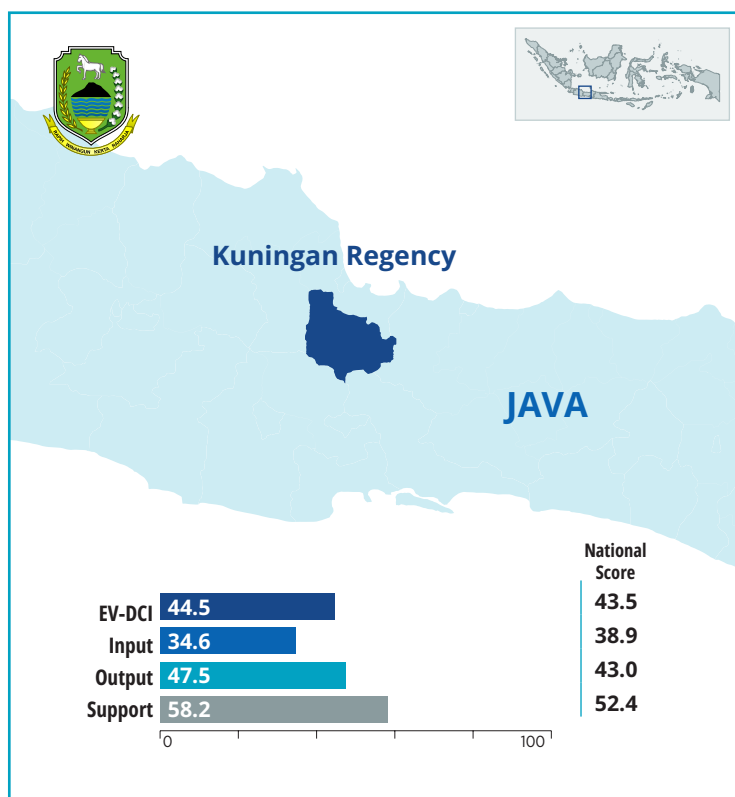
One of the most dramatic improvements was in West Java's Kuningan Regency that rose from 123rd place in 2021 to 75th place in 2022. The human resources pillar is one of the drivers. According to the 2021 Digital Literacy Survey, West Java Province, including Kuningan Regency, has increased in digital literacy over the previous year. The Kuningan Regency government through its Department of Communication and Information Technology, also promotes digital literacy activities, such as providing digitalization advice and hosting a digital literacy workshop (Ramatloka) for mosque youth.

Second, there is improvement in the pillar of ICT usage. The government of the Kuningan Regency is working to upgrade internet infrastructure

and turn the region into a smart city. Several programs have been implemented, including the creation of a Command Center, the installation of public CCTV, and the installation of free wi-fi in public spaces, parks, hospitals, and other public places. Pandapa Paramarta, Cirendang Park, Ketawinangun Open Space in Sindangagung Regency, Regional General Hospital 45 Kuningan, Darma Reservoir, and Padepokan Bima Suci Kuningan are among the installation locations. The program has a positive impact on the number and proportion of people who use mobile devices to access the internet.

In addition, Kuningan Regency Government has also accelerated the installation of digital infrastructure in villages that are still blank spots. The program works with a number of companies to invest in the blank spot area by building towers and establishing networks. The Kuningan regency government has asked PT Telkom for CSR (Corporate Social Responsibility) for the southern Kuningan area.

The economy pillar is the next one to also see improvements. According to a survey from the West Java Central Statistics Agency, economic growth in Kuningan is among the best in the province. Increased production in all business categories that were not affected by inflation contributed to this increment. Information and communication; water supply; waste treatment, waste and recycling; education services; agriculture, forestry and fisheries; financial and insurance services; and real estate and processing are the seven employment sectors that have seen growth.



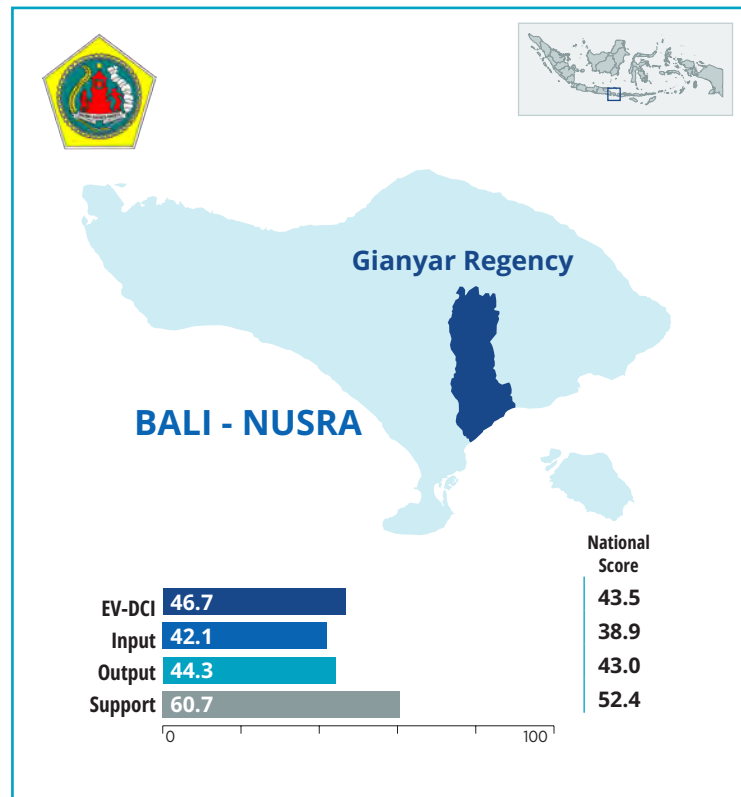
GIANYAR REGENCY:

Affected by the Decline in the Tourism Sector in Bali

A part of Bali Province, Gianyar Regency has dropped from 37th to 52nd place in the digital competitiveness index. One of the factors, similar to the province, are declining scores for the ICT usage and ICT expenditure pillars. In the ICT usage pillar, the ratio of households with mobile phones and internet access has decreased. Meanwhile, in the ICT expenditure pillar, there has been a major fall in the total amount of salaries and wages paid to digital workers.

The condition of the regional economy continues to influence the decrease in wages for workers in the digitalization sector. The pandemic remains a factor in Bali's economic decline in the cities and regencies. In 2021, the pandemic's impact on the tourism sector, which is the main driver of Bali's economy, has continued. The decline in the number of tourists, as well as many other travel limitations, has negatively impacted the economy of Gianyar Regency.

Aside from tourism, the Gianyar Regional Government has been unable to fully exploit the expansion of agricultural and marine sectors, resulting in a 1.2% drop in economic growth. This can be seen in the decline of the economy pillar. In addition, the manpower pillar has also dropped. The pandemic continues to impact employment in Gianyar Regency, particularly among the workforce in the tourism sector. The closure of hotels and restaurants, as well as restrictions in various tourist destinations, contributed to the reduction in employment in Gianyar Regency.



YOGYAKARTA CITY:

The Development of New Digital Talents

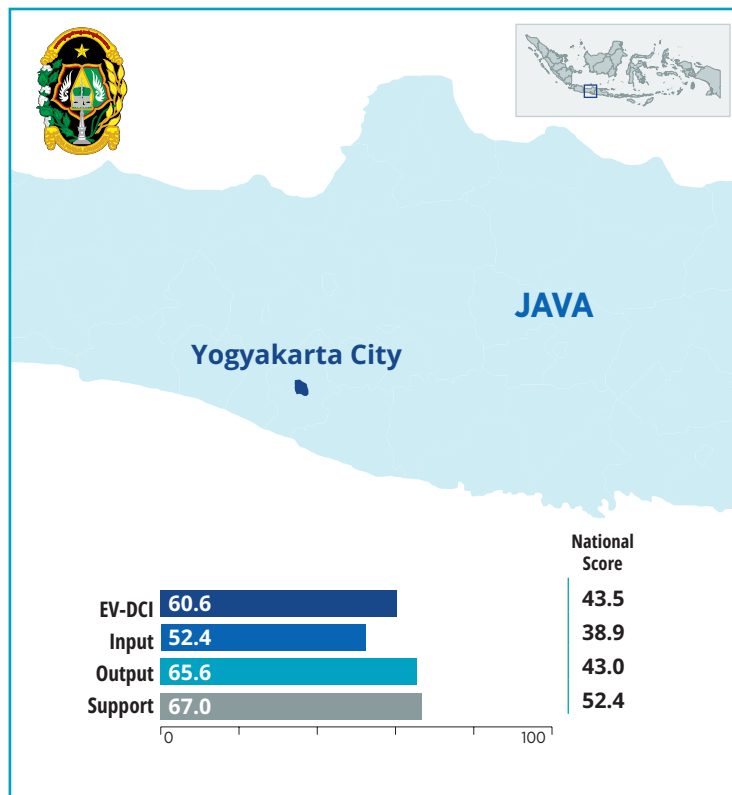
DI Yogyakarta Province enjoys a substantial improvement in the digital competitiveness index for 2022. A similar pattern can be seen in the provincial capital, where Yogyakarta City has risen from ninth to third place. The human resources pillar is one of the main drivers of this increase. According to the 2021 Digital Literacy Survey, Yogyakarta City's digital literacy increased to 3.71 from 3.38 the previous year.

Yogyakarta is seen as a destination for digital companies to seek digital talent. This is reflected in the increasing score for the manpower pillar. In the digital sector, there has been an expansion of workforce in the digital sectors (logistics, communication and information, and finance sub-sectors). Several organizations are adjusting their business plans by recruiting digital talents from Yogyakarta who receive a lower minimum wage than those in the Greater Jakarta area but agree to undertake digital skill training. The pandemic conditions that

Yogyakarta is seen as a destination for digital companies to seek digital talent. This is reflected in the increasing score for the manpower pillar. There has been an expansion of workforce in the digital sectors.

allow remote work or work from home also aided with the implementation of this plan.

The pillar of ICT expenditure in Yogyakarta City's digital competitiveness index has also increased with the wages for workers, especially in the information and communication sector, as one of the impacts of the expanding development of digital enterprises in Yogyakarta. As a result, the economy pillar has grown. Moreover, the digital sector's participation has expanded, particularly in the logistics sector..



SOUTH TANGERANG CITY: Provision of Wi-Fi in Public Spaces and Digitalizing MSMEs

The South Tangerang City remains consistent in the top ten rankings, despite the decline from fifth to sixth place in 2021 and 2022, respectively. One of the pillars that suffered a decrease was manpower. According to data from the Department of Manpower, the pandemic has caused the closure and bankruptcy of roughly 49 businesses in South Tangerang City. Furthermore, 83 business sectors have suspended work for staff as a result of the pandemic, putting their employees at risk of losing their jobs⁶.

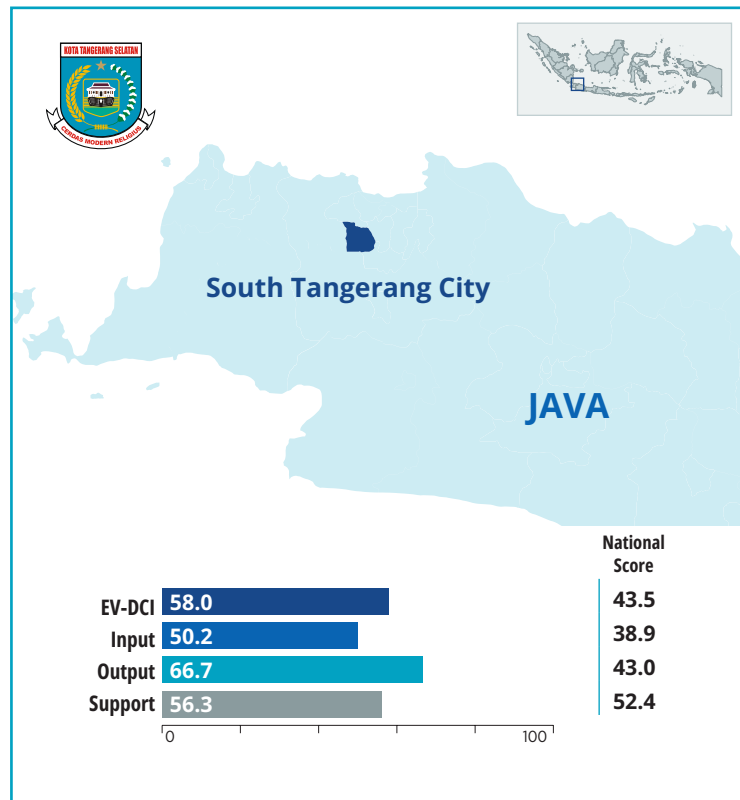
Furthermore, the ICT expenditure pillar has decreased. This is related to the reduced budget of households spending on information and communication technology. Economic conditions and the amount of formal business sectors that collapsed during the pandemic also contributed to this decline, forcing households to prioritize basic needs.

Despite the declines, there were improvements in numerous other pillars, resulting in South Tangerang dropping only one position from the previous year. The entrepreneurship and productivity pillar have improved. The City Government continues to expand South Tangerang City's digitalization in an effort to strengthen the economy, one

⁶ <https://www.beritasatu.com/amp/megapolitan/829811/84000-warga-tangerang-selatan-jadi-pengangguran>

of which is the digitalization of MSMEs. Together with Sinar Mas Land, marketing digitalization training was held for 400 MSMEs fostered by Rumah Pintar BSD City. In addition to training programs, Department of Cooperatives and MSMEs South Tangerang City has submitted 2,000 proposals to the Ministry of Cooperatives and SMEs for business players who are potential recipients of Micro Business Productive Assistance (Bantuan Produktif Usaha Mikro or BPUM) in 2021.

An interview with the Mayor of South Tangerang revealed that the ICT usage pillar in the digital competitiveness index has improved. The city government of South Tangerang has installed 875 free wi-fi hotspots in public areas including parks, recreational areas, community halls, mosques, village halls, markets, and health centers. The speed of wi-fi access reached 20 Mbps, so people can enjoy free internet connectivity. Wi-fi installation is one of the initiatives aimed at achieving a Smart City in South Tangerang City. As a result, the proportion of the population with internet connection has increased. Meanwhile, because schools continue to employ Distance Learning (Pembelajaran Jarak Jauh or PJJ) or online, the number of students accessing the internet at school has declined.



Finally, the human resources pillar has increased. According to the 2021 Digital Literacy Survey, South Tangerang City experienced a significant growth over the previous year. This is in line with the fact that South Tangerang City was chosen as one of 20 cities (out of 514 cities/regencies) to host Digital Literacy Classes.

“The pandemic has mostly affected two groups of business players in South Tangerang. The first is middle-to-upper-income businesses that tend to hesitate when it comes to migrating online. The second group is the MSMEs that are continuously provided with digitalization training for the whole business process, and eventually, they are the ones who have proven to be the most resilient.”



Benjamin Davnie
Mayor of
South Tangerang

Chapter 4

Digital Technology Development Across Sectors



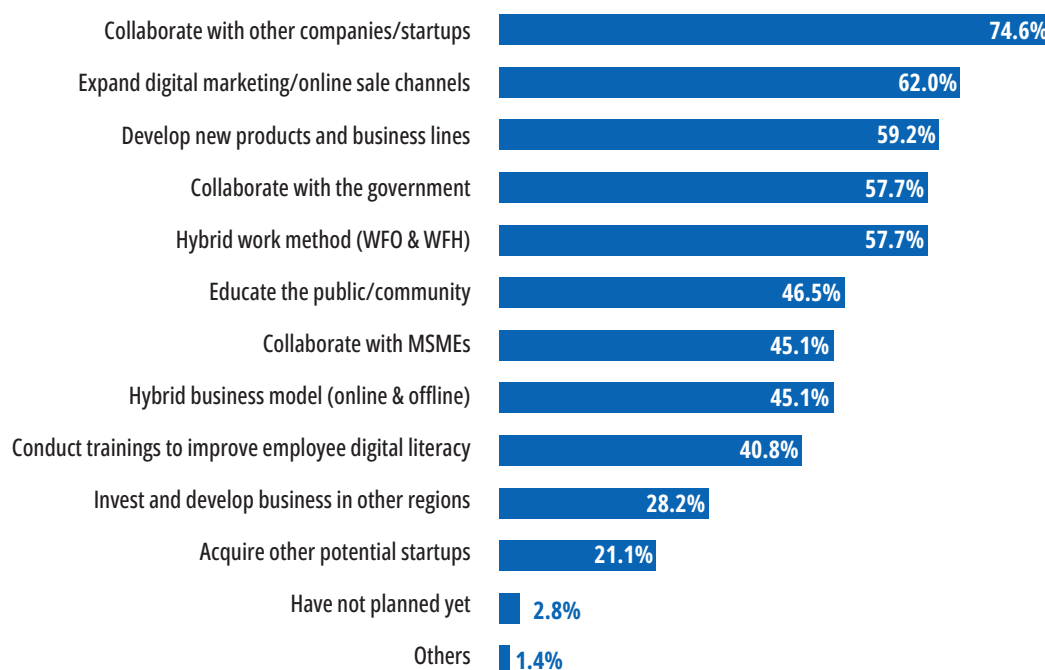


In supporting the development of the digital economy, support from various interrelated sectors in the digital ecosystem is important. In this report, several supporting main sectors to the digital economy will be discussed, namely Information and Communication Technology (ICT), e-commerce, logistics, health, edutech, tourism, and fintech. Meanwhile, the application of Environment, Social, and Governance (ESG) principles in the digital sector to ensure sustainable business operations is also discussed.

Synergy among various stakeholders is a crucial factor in increasing the digital competitiveness index and forming a solid digital ecosystem in Indonesia. According to the EV-DCI 2022 survey, 74.6% of digital companies think that collaboration with other companies is important during the pandemic.

POST-PANDEMIC PLAN OF DIGITAL COMPANIES

In general, what does your company plan to do after the pandemic?



The existence of linkages among stakeholders, including digital businesses in various sectors, is the cornerstone of Indonesia's digital economy development. According to our interview with the Coordinating Minister for the Economy Airlangga Hartarto, it was stated that digitalization in this era is no longer limited to the ICT sector, as happened in the early 2000s. Currently, various sectors of the economy increasingly require the application of digitalization in their entire business processes, from production to post-sales, although with different levels of adoption and innovation.

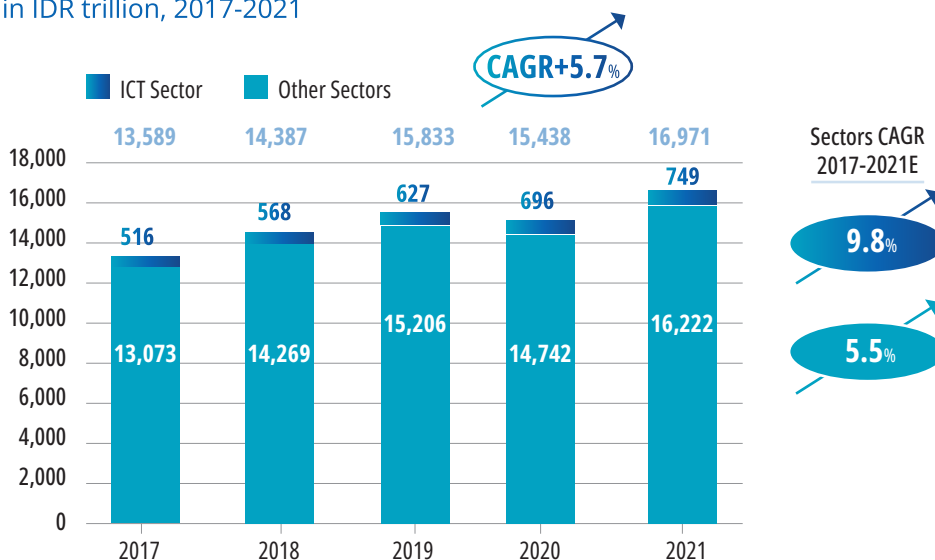


4.1 ICT: The Backbone of Indonesia's Digital Economy

4.1.1 ICT in Indonesia Still Grows Amid the Pandemic

The Information, communications, and technology (ICT) sector is the foundation for establishing a digital environment that will support Indonesia in strengthening its digital economy. Asian Development Bank's report states that Indonesia's economy could gain an additional 0.6 percentage points to GDP growth annually from 2020 to 2040 with the integration of digital technology across sectors¹. The ICT sector has been one of the main propellers of Indonesia's economic recovery due to the pandemic, being among the fastest-growing sectors in terms of real GDP compared to other sectors. The Fiscal Policy Agency also predicts that growth will continue in 2022 to 10.3% year on year².

ICT SECTOR CONTRIBUTION TO NATIONAL GDP in IDR trillion, 2017-2021



Sources: Statistics Indonesia (BPS)

4.1.2 Indonesia's Digital Adoption has Increased Despite Still Facing Certain Challenges

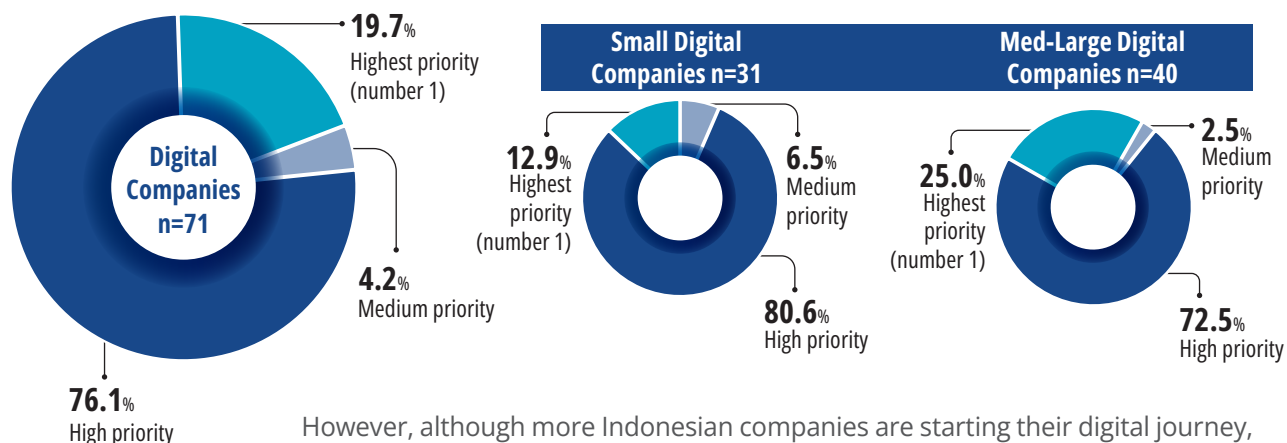
Indonesia experienced a significant growth in new digital consumers in 2021—almost 80% of Indonesia's consumers are now a part of the digital economy³. Adjusting with the rising digital maturity of the market, more industry players have also been seen to focus more on ICT adoption as well. Propelled by digital adoption, the ICT sector has grown to serve the demand. Based on the EV-DCI 2022 survey, almost 80% of Indonesian digital companies have put investments in ICT as high priority.

¹ ADB Report - Innovate Indonesia: Unlocking Growth through Technological Transformation

² Badan Kebijakan Fiskal - Fiscal Policy Agency (BKF) thejakartapost.com with the title "Tech industry to lead growth in Indonesia until 2022". <https://www.thejakartapost.com/news/2021/06/07/ict-sector-to-lead-growth-in-2021-2022-fiscal-policy-agency.html>.

³ e-Economy SEA 2021 - Roaring 20s: The SEA Digital Decade

LEVEL OF PRIORITY FOR ICT INVESTMENT IN DIGITAL COMPANIES



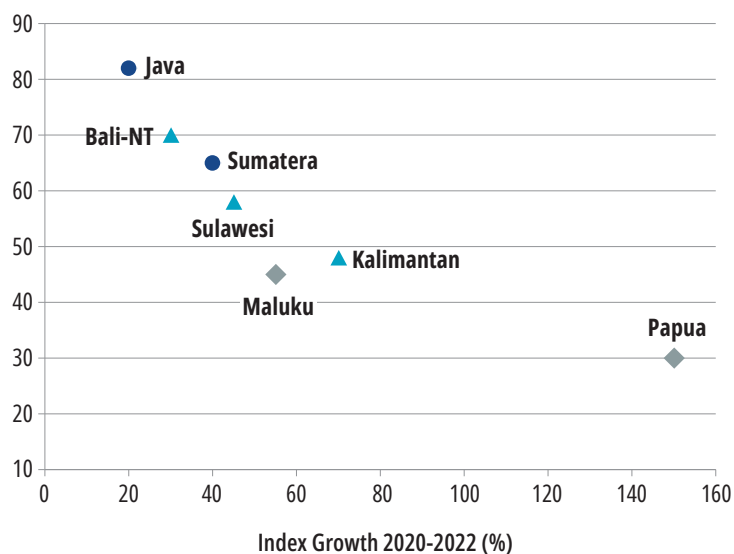
However, although more Indonesian companies are starting their digital journey, certain challenges are still hindering others from starting to integrate or expand the integration of ICT in their operations. There are three key challenges that these companies face—the **slow growth of ICT infrastructure**, **capital to transform** and **supply of skilled human resources**.

ICT Infrastructure Still Requires Improvements

Indonesia has an archipelagic landscape, unique among countries. This condition has continuously challenged Indonesia to evenly develop the ICT infrastructure across regions. ICT infrastructure development in Indonesia is currently lower than its neighboring countries in 2021—Indonesia spends around 0.2% of its GDP on ICT infrastructure, compared to Malaysia with 0.6% and Singapore with 0.7%⁴. Cost overruns and delays are also often found in ICT infrastructure projects, resulting in a slower improvement of internet and telecommunication quality. Speedtest Global Index further emphasized the fact that despite the improved access to the internet and internet use frequency, Indonesia remains uncompetitive in mobile and fixed broadband speed compared to other countries, ranked 113th and 114th respectively⁵.

REGIONAL COMPARISON OF EV-DCI 2022 MEDIAN SCORE AND THE GROWTH FROM 2020 TO 2022

EV-DCI 2022 - Infrastructure



The EV-DCI 2022 also exemplifies Indonesia's digital divide—or disparity on digital competitiveness especially in the infrastructure pillar. Highly competitive regions remain dominated by provinces in Java Island and some higher-economy provinces. For instance, from 2020 to 2022, provinces in Java and Bali-Nusa all scored above the median level.

In realizing ICT infrastructure projects in Indonesia, private investment is one of the ways to accelerate the developments. Private investments have helped the country in developing data centers and fiber optic networks, as well as very-small-aperture terminal (VSAT) which is

⁴ PwC Analysis from News Outlets

⁵ <https://www.speedtest.net/global-index#fixed>

far more reliable for remote regions with no or limited access to the internet and telecommunication connectivity⁶. However, attracting investment opportunities as such require Indonesia to solidify ICT-related blueprints and regulations to support Indonesia's aim in developing its digital economy.

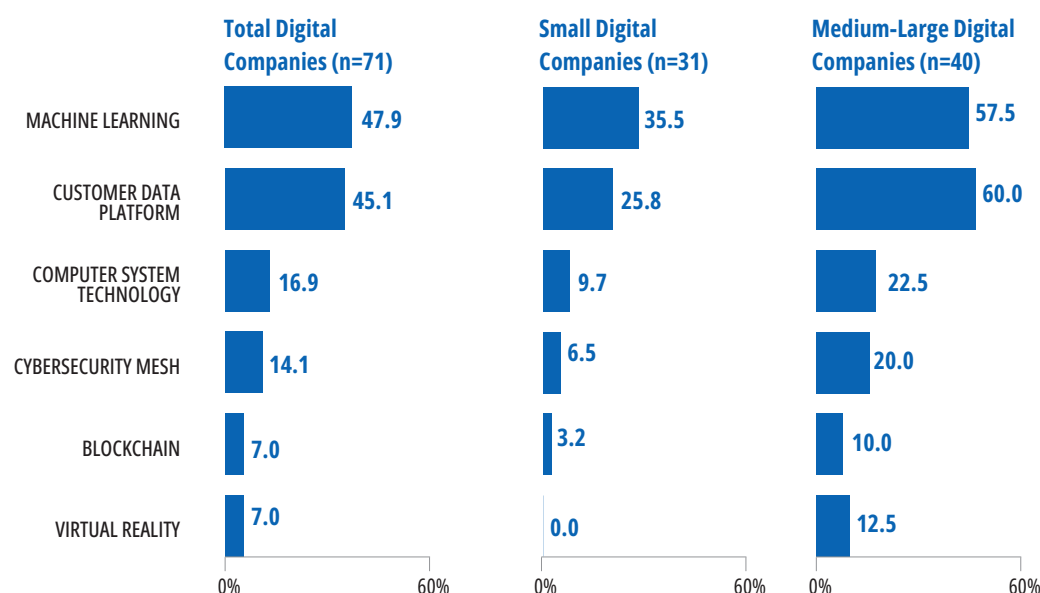
Capital to Drive Digital Transformation

Most digital companies in Indonesia that have adopted digital transformation agree that it improves operational efficiency significantly and opens more opportunity to scale up their business⁷. Digital transformation also has a direct impact on both revenue growth and cost reduction⁸. However, digital transformation will require significant capital to implement, and currently larger digital companies in Indonesia have a higher adoption rate of digital technologies compared to smaller digital companies⁹.

Overcoming this will be crucial for Indonesian firms to remain competitive, especially when more firms and startups have been enjoying the value creation from investing in digital transformation.

TECHNOLOGY USED BY DIGITAL COMPANIES

in %. 2021



Supply of Skilled Human Resources

According to the Ministry of Industry, digitalization will drive the GDP growth of Indonesia and is expected to result in the creation of 2.5 million more jobs and 600 thousand digital talents each year, driven by the rapid growth of digitalized MSMEs and start-ups. This optimism must be supported by efforts to improve the human capital of Indonesia—including people, skill, and culture as inseparable factors. The impact of

6 ADB Report - Innovate Indonesia: Unlocking Growth through Technological Transformation

7 EV-DCI Survey 2022

8 EV-DCI Survey 2022; Forrester Report - The state of digital transformation in Indonesia

9 EV-DCI Survey 2022

the COVID-19 pandemic has shifted many sectors towards digitalization, therefore supply quantity and quality improvement need to be given a high priority.

However, almost 90% of Indonesian digital companies perceived that digitally skilled workforce availability is still lower than the demand¹⁰. The EV-DCI 2022 indicated a decline in the median score of the digital-related sector workforce from last year's 5.3 point to 5.1. These facts explain that not only is there still an issue in Indonesia's digitally skilled workforce supply-demand gap, but also a disparity of their availability across regions. The EV-DCI 2022 survey pointed out that one of the main reasons that caused this gap is that curriculums in education institutions still yet to provide adequate digital competency¹¹.

4.1.3 Becoming More Competitive in the Digital Economy

With more economic opportunity brought by digital technology, Indonesia should be ready to grab it and become more competitive than ever. In 2021's IMD World Competitiveness Center ranking of digital competitiveness, Indonesia is still ranked the 37th, lower than its neighboring countries Malaysia and Thailand at 25th and 28th respectively¹². To prepare Indonesia for the digital economy golden era, improving its competitiveness will take three key strategies—**catalyzing ICT infrastructure development, improving the human capital readiness, and starting the digital transformation.**

Efforts to Catalyze ICT Infrastructure Development

The Indonesia Digital Roadmap for 2021-2024 launched by the Ministry of Communications and Information has

helped bridge the ICT infrastructure gap in the country to improve its competitiveness. So far, Indonesia has installed 342,000 km of fiber optic cable networks from the Western to the Eastern part of Indonesia, through both sea and land. Indonesia will also be a part of the Sea Cable Communication System project, connecting Southeast Asia to the United States through fiber optic networks by 2025.

The Ministry of Communications and Information also aimed to complete its joint operation project with telco providers to build Base Transceiver Stations (BTS) for expanding 4G signal outreach across 7,904 points in least developed regions, or 3T (*Terdepan, Terluar, dan Tertinggal*). For the next stage of network enhancement, the ministry has also devised a 5G development roadmap in 2021, to be implemented by three telco companies, Telkomsel, Indosat Ooredoo Hutchison, and XL Axiata in 13 locations by 2024 including 6 provincial capital cities (Jakarta, Serang, Bandung, Semarang, Yogyakarta, Surabaya), 5 super-priority tourism destinations (Borobudur, Danau Toba, Likupang, Labuan Bajo, and Mandalika), Nusantara as the new capital city, and one manufacturing industry complex. As a result, EV-DCI 2022 showed a strong 39% growth from 2020 to 2022 in Indonesia's ICT infrastructure indicator.

However, with this development, it is apparent that Indonesia needs to carefully prepare the regulations and policies to support the smooth rollout of the connectivity infrastructure projects that hopefully can bridge gaps of uneven network access and quality distribution.

Aside from connectivity-related infrastructure, the data center market is also seeing a strong projected growth especially due to new private investments

¹⁰ EV-DCI Survey 2022

¹¹ EV-DCI Survey 2022

¹² IMD 2021 – World Competitiveness Ranking

in tier III and IV data centers, such as those from Japan's NTT Communication, Microsoft, and Sinarmas Group. The new investments are expected to grow the data center market to 11% (CAGR 2019-25), reaching as much as 2,270 billion USD in 2025. The government has also devised the Satu Data Indonesia consolidation as a part of a digital government initiative in addition to the private sector's contribution in data centers. The program targets building a tier-IV national data center in four locations –Bekasi, Batam, the new capital city in East Kalimantan, and Labuan Bajo.

As a support to the infrastructure, concerns over privacy and data protection as well as cyber risks need to be overcome. The digital ecosystem development will continuously push the government to regulate and govern the security and usage of user data. The personal data privacy bill (RUU Data Pribadi) is already in the pipeline, and the current industry development has made the stipulation of this regulation even more crucial than ever. With the regulation being prioritized, digital companies will be obligated to increase data security protection, in an end-to-end manner—from data gathering to data disposal.

A key role that the government holds is being both regulator and accelerator, which means providing a legal framework as well as preparing Indonesia's readiness to promote room for the growth of the digital economy. Infrastructure development's future will be highly affected by the government's strategy, and investors and businesses will tag along when the investment environment is stimulated. Therefore, regulations and policies must be agile enough to follow market dynamics.

Keeping Up with the Digital Human Capital Development Trend

Startups and corporations play a large part in contributing to upskilling

“The infrastructure support will not be fully equal nor similar in all parts of Indonesia—but they will not be left behind. Satellite connectivity will be one of the prioritized solutions to connect all regions while also enabling digital technology such as IoT to be utilized in those regions to help agriculture, manufacturing, healthcare, and many other sectors”



Airlangga Hartarto
Coordinating
Minister for
Economic Affairs

Indonesia's digital talents. Becoming the demand-creator of the talents can also leverage them to play a part in increasing the supply quantity and quality. One of the examples of the involvement is from Hacktiv8, a learning academy, and boot camp startup established in 2016. Hacktiv8 has been helping Indonesian individual learners as well as other startups to accelerate their capability and skills necessary in this digital economy regardless of their background. Hacktiv8 provides data analytics, digital marketing, programming, product management, and web development. They also provide career support and apprenticeship programs to channel their graduates to the digital workforce through partnerships with digital companies, not only in the ICT sector.

Meanwhile, the government also plays a key role in facilitating the human capital upgrade with new skill sets at a national level. A top-down redesign of the education curriculum shall incorporate more digital and cyber-related courses, regardless of the education majors. Engaging in public-private partnership is also key to boosting the human capital learning opportunity, whether sector-

Almost 90% of Indonesian digital companies perceived that digitally skilled workforce availability is still lower than the demand

specific or to providing learning experience directly from ICT sector leaders.

The Ministry of Communication and Information devised a three-level plan to improve digital talent in Indonesia. The National Digital Literacy Movement is the first level, providing training for basic knowledge whose goal by 2024 is to provide an additional 12.5 million digitally literate people in the country each year. The medium-level training program is channeled through Digital Talent Scholarship, leveraging partnership with multiple digital and tech companies including Grab, Gojek, and many more to provide scholarships to 100,000 students every year for various courses such as AI, IoT, big data analytics, cybersecurity, and digital marketing. Lastly, for more advanced training, Digital Leadership Academy will provide support for smart city developers, digital-related policymakers, and startup leaders¹³.

Progressing Companies' Digital Transformation Journey

To grab the opportunities of the digital economy, Indonesian firms need to prepare their capabilities through transforming digitally. While many operations are disrupted by unforeseeable challenges such as the pandemic, digitally transformed industries have shown their ability to adapt better to the playbook changes, even helping them to pivot faster. Schneider Electric Indonesia is a good example: utilizing remote operations in its factory to reduce physical

interaction during the pandemic peak and increasing production efficiency to minimize lead time. As a result, Schneider Electric Indonesia's Batam smart factory has increased on-time delivery by 40%, reduction of person-hours on maintenance by 17%, and improvement in operational efficiency by 12%¹⁴.

Recognized by the Ministry of Industry as a National Lighthouse of Industry 4.0, Schneider Electric Indonesia also contributes to developing Indonesia's digital economy through collaboration with the Government of Indonesia. The collaboration launched a Digital Industry Innovation Center (PIDI 4.0) which provides training for industry 4.0 Digital Transformation and the development of a vocational program that includes a training curriculum at the higher education level for selected university and polytechnic teachers.

The awareness of the importance to focus in digital transformation has grown, but implementing it at an organizational level may be more challenging¹⁵. Many companies who have undergone a digital transformation self-funded the process and technology; however, only a handful of firms have this kind of privilege. The transformation does not only require technology but also will incur adoption costs—for instance, building digital skills in employees. Digital transformation is also going to be hard, as 87% of global companies have failed to meet their transformation targets¹⁶. However, not transforming is not an option anymore in

¹³ Kominfo press release 2021

¹⁴ Schneider Electric company disclosure - <https://www.se.com/id/en/work/campaign/smart-factory/>

¹⁵ EV-DCI Survey 2022

¹⁶ Forbes <https://www.forbes.com/sites/tomokoyokoi/2022/02/04/funding-digital-transformation--growth-in-2022/?sh=5d02da244d16>

the current digital economy. Around 60% of global executives agree that digital transformation will become more critical in 2022 for businesses.

To facilitate digital transformation, companies can start with the following steps:

First, company leaders must evaluate their digital readiness and strategy at an organization level instead of in departmental silos. Developing a roadmap and prioritization will help companies to understand collaborating opportunities with suppliers, customers, and technology partners. This will also help companies to understand which capabilities require improvement, from technology to human capital aspects.

Second, starting small with self-funded cross-functional pilot projects to answer questions of economic benefits and costs or how to fund digital adoption. Piloting digital technology implementations should also start from the foundational first—such as data management, customer relationship management (CRM) technology, or enterprise resource planning (ERP). Collaboration with or outsourcing to digital leaders such as startups may be beneficial in accelerating internal digital innovation.

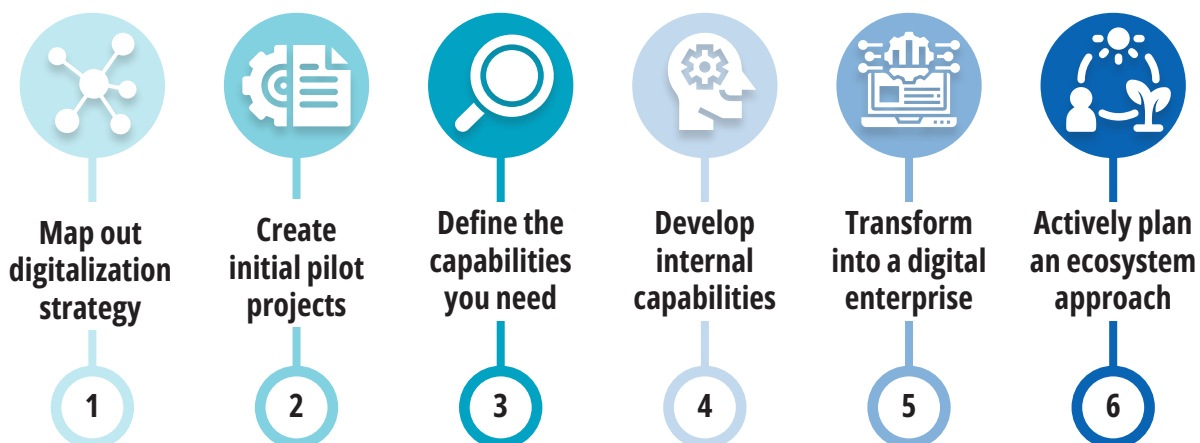
Third, build a lesson-learned analysis from pilot projects and map out which capabilities are needed to enable new business models or internal digitalization. This will help companies to see opportunities for value creation through new initiatives. Companies will also be able to identify ways to monetize assets that will no longer give operational benefits after being digitized and give additional funding to their transformation.

Fourth, focus on developing internal foundational technologies, if they are still outsourced. Next, explore the opportunities of innovation using data-driven systems, such as utilizing IoT to allow remote and real-time monitoring.

Fifth, transforming into a digital enterprise requires more than strong data analytics. Companies need to develop strong digital skill sets and culture, this should be driven from the management leadership who must make digital transformation a top priority.

Sixth, planning an ecosystem approach means seeing a company as a part of the digital ecosystem of partners, suppliers, and consumers. This will enable companies to continuously come up with new solutions and innovate.

BLUEPRINT FOR DIGITAL SUCCESS





4.2 E-Commerce to Catalyze Digital Economy Growth

4.2.1 E-Commerce Growth Propelled by the Pandemic

Despite its devastating impacts, COVID-19 has turned out to be a blessing in disguise to the e-commerce sector in Indonesia. The implementation of physical distancing measures have paved the way for a more home-centric lifestyle, giving rise to increased online shopping. According to the e-Conomy SEA 2021 report, Indonesia's e-commerce sector experienced significant growth of 52% to reach USD 53 billion in 2021, and is projected to hit USD 104 billion by 2025¹⁷. This is further supported by the data from NielsenIQ that indicates a significant increase of 88% in the number of online shoppers in Indonesia from 17 million in 2020 to 32 million in 2021¹⁸.

Due to the growth, e-commerce players have also been prospering. For instance, Sociolla, Indonesia's leading

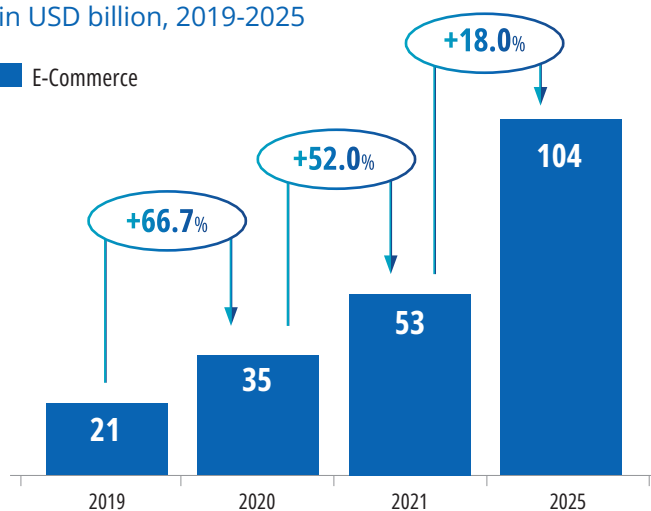
beauty and personal care e-commerce business, has reported a 50% increase in online transactions amid the pandemic. According to the co-founder and president of Sociolla, Christopher Madiam, the pandemic has accelerated the shift from offline to online as people in Indonesia are becoming more reliant on the use of technologies to meet their daily necessities.

4.2.2 Indonesia's E-Commerce Landscape will Require Further Development

Despite this growth, there are still challenges that need to be addressed by multiple stakeholders to ensure sustainable growth. Macro problems pertaining to the underdevelopment of ICT and logistics are major challenges that have hampered the growth of e-commerce in Indonesia. However, since those are already discussed in other sections of this report, we will focus on the specific industry challenges, namely, MSMEs' adoption of digitalisation and the development of the B2B market.

E-COMMERCE GMV
in USD billion, 2019-2025

■ E-Commerce



Source: eConomy SEA 2021

Adoption of Technology Among MSMEs

Micro, small, and medium-sized enterprise (MSMEs) are a significant part of the Indonesian economy, with a contribution of 61.1% of the 2021's GDP¹⁹. Moreover, according to the World Economic Forum, there are over 62 million MSMEs in Indonesia and that is equivalent to one MSME for every five Indonesians²⁰. According to the EV-DCI

¹⁷ Google, Temasek and Bain, e-Conomy SEA 2021

¹⁸ <https://www.cnnindonesia.com/ekonomi/20211229141536-92-740093/konsumen-belanja-online-ri-melonjak-88-persen-pada-2021#:~:text=NielsenIQ%20mencatat%20jumlah%20konsumen%20belanja,yang%20hanya%2017%20juta%20orang.>

¹⁹ <https://www.kemenkeu.go.id/publikasi/berita/pemerintah-terus-perkuat-umkm-melalui-berbagai-bentuk-bantuan/#:~:text=Berdasarkan%20data%20Kementerian%20Koperasi%20dan,IDR8.573%2C89%20triliun>

²⁰ <https://www.weforum.org/agenda/2021/09/how-can-indonesian-smes-scale-up/>

2022, there is an increase of 39% in the median of online platforms usage in businesses from the previous year. This is also supported by the Minister of Cooperatives and Small and Medium Enterprises (KUKM), Teten Masduki, who stated that the number of MSMEs that have gone digital has reached 16.4 million as of January 2022, a 105% increase from the pre-pandemic level of 8 million.

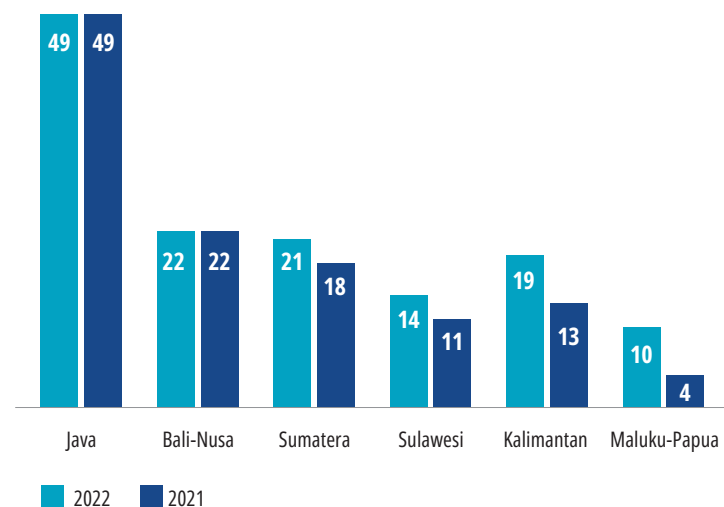
However, despite its significance and growth, only around 25% of Indonesia's MSMEs have been utilizing online platforms for their businesses. Due to the lack of digitalization, many have been severely affected by the COVID-19 pandemic. According to a study by Bank Indonesia, almost 80% of Indonesian MSMEs were affected negatively by the pandemic²¹.

The low adoption of digital technology among MSMEs in Indonesia exists as most of them are still facing various obstacles in taking the digital turn. Compared with large enterprises, MSMEs lack resources and face difficulties in adopting and adapting to new technologies due to a lack of digital literacy. Moreover, limited access to funding and start-up investment can pose significant roadblocks to them since the implementation of digital tools requires resources such as time and money.

According to the World Economic Forum, 99% of Indonesia's MSMEs are in the 'newcomer' category, which has an annual gross merchandise value (GMV) of less than IDR 1 billion²². Many of the owners in this category have problems in identifying crucial factors such as target market, customer demand and profit optimisation strategies. Furthermore, there is a lack of strategic growth planning and they do not have a clear sense of their own potential. These factors have also been hindering the growth and adoption of digital technology for MSMEs.

Additionally, due to Indonesia's unique geography, it is a logistical challenge to provide robust internet connections to the MSMEs scattered across the country. As a result, there is a lack of digital adoption, especially for MSMEs located in the less-developed areas of Indonesia. According to EV-DCI 2022, there is still a large discrepancy between Jakarta and other provinces in terms of workers' utilization of online platforms to conduct sales. For instance, Sulawesi has a score of 14, much lower than Java's score of 49 in 2022.

AVERAGE EV-DCI RATIO WORKFORCE UTILIZATION OF INTERNET FOR BUSSINES THROUGH WEBSITES OR E-COMMERCE PLATFORMS



Development of the B2B Market

We have seen many types of e-commerce grow in the new normal era of the pandemic. However, ensuring business sustainability will be essential in anticipating the next normal, especially for the underdeveloped B2B market. According to a report by Reogma in 2020, the market share of B2B e-commerce in Indonesia, which is occupied by players such as Ralali and Mbiz, is only 27% of the total e-commerce market. The market share of B2B e-commerce in Indonesia

²¹ Survei Bank Indonesia 2022

²² <https://www.weforum.org/agenda/2021/09/how-can-indonesian-smes-scale-up/>

is still very small compared to Malaysia's 62% and Singapore's 68%²³. Moreover, In several countries such as China and the United States, B2B e-commerce has almost three times the number of transactions of the B2C²⁴ sector.

This untapped potential is mainly due to the slower adoption of digitalization in enterprises compared to the C2C segment, with higher digital adoption in retail consumers. This is caused by the higher operational complexity compared to the B2C or C2C space. B2B transactions have higher price value, requiring more advanced technical capabilities, such as real-time inventory information, quote requests, and the flow of procurement approval.

4.2.3 E-Commerce to be Leveraged as Indonesia's Strength to Drive Digital Economy Growth

The growth of Indonesia's e-commerce sector is foreseen to continue with the rising digital transformation trend in enterprises and the evolving digital consumers. There are two key measures that need to be implemented to sustain the growth of e-commerce—namely, **adopting consumer-first strategies and improving the inclusion of MSMEs.**

Consumer-First Strategies

In order to stay relevant in the new normal, e-commerce companies must devise a customer-centric approach to make their platforms 'stickier'. This is to keep up with the ever-changing needs of the consumer, including a wider range of options, convenience, synergy, and higher service quality.

One prominent strategy is to reinforce the inter-platform model of the e-commerce ecosystem as the

e-commerce consumers are connected to various platforms. In order to improve the convenience of the buying process for consumers, online grocers such as PasarNow, Kedai Sayur and Sayurbox have partnered with several marketplaces, such as Shopee and Tokopedia, and became official stores. These partnerships have also allowed online grocery players to provide various payment and delivery methods. Therefore, aside from benefiting from the exposure to a wider market, the partnerships provide customers with more flexibility and options.

E-commerce companies will need to continue innovating by utilizing data and information to support business growth that will improve the ecosystem even further. With the use of AI and machine learning, companies can build deep consumer insights for faster and more accurate search results, including social engagements. For instance, the use of AI and cloud computing can help with demand forecasting and marketing optimisation through effective discount allocations.

In preparing for the next 'new normal', the upcoming stage is O2O (online-to-offline) conversion, especially for online-made brands. In 2021, more e-commerce players grew their O2O strategy. In October 2021, Gojek acquired a minority stake in Matahari Putra Prima that operates Hypermart, as part of the GoTo Group expansion in the retail business. Additionally, Sociolla has started to build its offline retail stores in 2019. As of 2021, Sociolla has already had 31 offline stores, which include its expansion to Vietnam in late 2020²⁵. According to the Co-Founder and President of Sociolla, Christopher Madiam, the objective of opening physical stores is to enhance customer

23 <https://www.reogma.com/industry-reports/analysis-on-the-impact-of-COVID-19-on-b2b-e-commerce-market-in-indonesia/>

24 <https://katadata.co.id/saptopradityo/digital/5f277b0e67c12/bisnis-e-commerce-b2b-yang-tetap-tahan-di-era-pandemi>

25 <https://money.kompas.com/read/2022/01/14/090000326/alasan-sociolla-berani-buka-toko-offline-selama-pandemi-bahkan-sampai-ke>



experience and provide customers with an interconnected relationship between the online and offline worlds.

While for B2B e-commerce, we recommend three ways to devise its customer-centric strategies²⁶. **One, think beyond the physical supply chain** as relationships with B2B customers are built even before the sales are made. Creating an end-to-end engagement strategy is important to retain them, and this needs to be backed by digital capabilities, which leads to the **second strategy of enhancing digital capabilities**. Digital sensing and analytics for customers will be crucial, especially if they give additional value that drives the customers' digital transformation. **Third, understanding customers' priorities** while keeping engaged after making a purchase is essential to drive a one-time purchase into loyalty.

Blibli for Business is a great example of a business utilizing its platform to drive digital transformation at the customer level through e-procurement solutions using SAP Commerce Cloud (a cloud-

based ERP system). Blibli for Business also opens opportunities for vendors to expand their reach to the corporate market to increase sales through bulk selling. For brands and merchants, they can create dynamic merchandising strategies that are more personalized, which can help increase sales, conversion rates and optimize profits²⁷. Meanwhile, customers benefit from the end-to-end digital documentation of their procurement process which expedites administration, one of the most tedious activities. Cloud-based ERP enables overall information transparency and provides aftersales engagement with customers, which will complete the process of the customer-centric strategy.

E-Commerce to Advance Digital Economy Inclusion of the MSMEs

As part of Indonesia's pandemic recovery efforts, accelerating the digitization of MSMEs has been identified as a vital step in making businesses more resilient. Therefore, it is indeed important to provide guidance and create favorable

²⁶ PwC - The new B2B value chain: Competing on experience, cost and responsiveness

²⁷ <https://pressrelease.kontan.co.id/release/blibli-jadi-e-commerce-pertama-di-indonesia-yang-gunakan-solusi-sap-commerce-cloud-untuk-memperluas?page=all>

conditions to help MSMEs in digitalising their businesses.

First, providing education to MSMEs will expedite the adoption of digitalisation. To improve MSMEs operational capability, e-commerce can provide training and educational courses to increase their digital know-how, especially for data analytics and marketing. A data analytics dashboard shows the performance of the merchant and can give insight of future business strategy, including marketing. Take Bhinneka.com, one of Indonesia's largest B2BEC platforms, as an example. Bhinneka.com provides a dashboard to help merchants manage stores in one marketplace or more. The dashboard allows merchant to manage product stock, promotion, end-to-end procurement process documentation, and data analytics insights²⁸. Providing education and training in utilizing such powerful tools can often be the key to MSMEs' further innovation and business growth.

Additionally, to address MSMEs' necessities for growing within the e-commerce ecosystem, there is a need for partnerships between stakeholders. For instance, partnerships between e-commerce and financial services will enable more MSMEs to get access to KUR (*Kredit Usaha Rakyat*) disbursement, which has been set by the government. This new way of making a KUR application leverages e-commerce's power of data analytics to compile the MSMEs' sales performances and general information to be provided to their creditors.

Aside from KUR, e-commerce partnerships with P2P lending institutions have enabled many MSMEs to gain easier access to capital loans for their businesses. As an example, Tokopedia collaborates with the digital loan platform Modalku to provide Modal Toko. With Modal Toko, MSMEs can get capital that can be withdrawn at any time with easy application processes and

requirements, low and flat loan interest, and no admin fees.

Government Efforts to Maturing the Current Ecosystem and Preparing New Initiatives

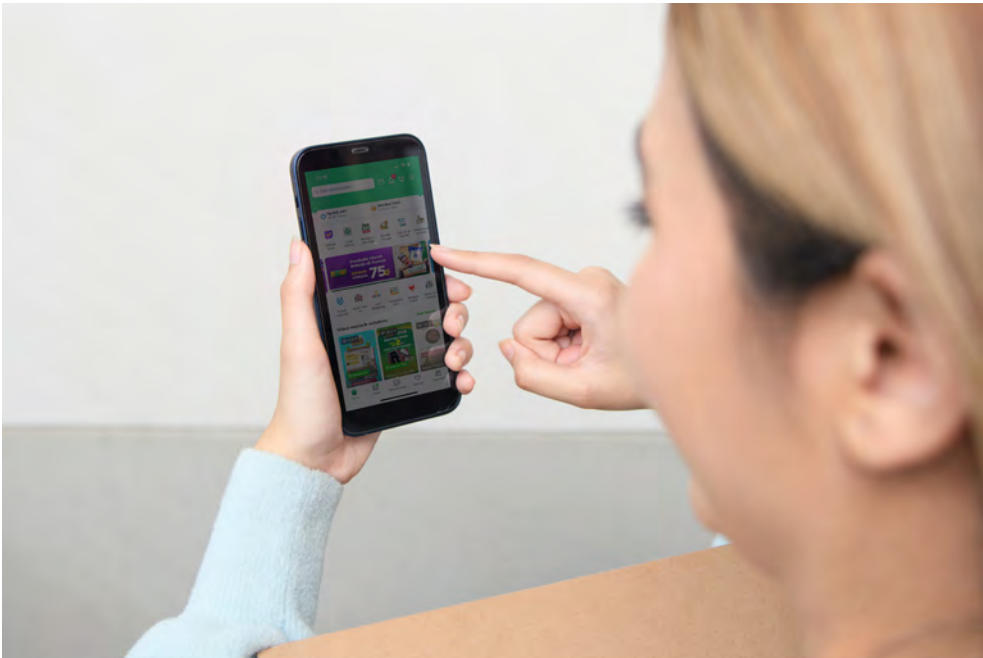
As regulator and policymaker, the government should also envision the role of e-commerce to propel digital economy growth while also taking part in improving digital inclusion, especially for the MSMEs. The government sets a high target for Indonesia's digital economy, translated through its Digital Roadmap 2021-2024. Highlighting the correlation to e-commerce development, the government targets 50% of MSMEs on a national scale to be able to market products on the digital market by 2024, which means onboarding additional 20.8 million MSMEs in the span of three years. To achieve this, the government launched the Gerakan Nasional Bangga Buatan Indonesia (Gernas BBI) program which aims to encourage digitalization for offline MSMEs and encourage national branding of superior MSME products in various marketplaces.

In addition, the government also welcomes all efforts to improve the ability of corporations and MSMEs to penetrate the global digital market, such as²⁹:

1. "Kreasi Nusantara, From Local to Global", which facilitates the sale of local products to Malaysia and Singapore.
2. "BukaGlobal", which was initiated by BukaLapak and supported by the government to facilitate the purchase of local products by customers from Malaysia, Singapore, Brunei, Hong Kong, and Taiwan; and
3. "ASEAN Online Sale Day", which aims to increase cross-border e-commerce transactions in the Southeast Asia region.

28 <https://katadata.co.id/padjar/infografik/5f570b6faca99/menyelamatkan-umkm-melalui-e-commerce-b2b-saat-pandemi>

29 <https://ekon.go.id/publikasi/detail/3180/dukungan-pemerintah-untuk-mendorong-umkm-go-digital-dan-go-global>



As for the next stage, cross-border expansion will be an attractive initiative for Indonesia's e-commerce sector, and the government should start preparing to explore this opportunity. A bonded warehouse or digital free trade zones (DFTZs) have been rising trends in SEA and China to cut the lead time of receiving purchased products that pass through warehouses. This trend will bring opportunities for Indonesian brands and products to enter a wider market in a more cost-efficient way. For instance, by the end of 2021, China has 70 bonded warehouses throughout the country—enabling duty-free foreign products, especially retail, to enter the China market with zero VAT charged to the customers³⁰.

Several regulations have also been issued to protect and support e-commerce ecosystem elements in Indonesia. For instance, the Government has issued a GR No. 80/2019 regarding the legal framework for e-commerce transactions. Moreover, there is GR No. 71/2019 regarding the responsibility of the e-commerce players to establish a good system for its business and

electronic transactions. However, there is still room for improvement for regulations to support the growth of e-commerce. The Indonesian government may take the Chinese government as a benchmark, since the latter has reformed its e-commerce-specific law to further protect e-commerce customers, including matters pertaining to the eligibility of e-commerce platforms to personalize promotions using consumers' interest and activities information. The law also covers digital-related concerns such as banning sales traps when making purchases, strictly categorizing paid rankings as advertising, and making it compulsory for all e-commerce transactions to be stored for at least three years.

In conclusion, with the prevalence of e-commerce in the Indonesian retail market, the government must provide continued clarity and certainty. This can be done through its flexible policies and regulations to promote fair competition, enabling innovations, creating opportunities for local MSMEs, and consumer protection in terms of data protection and cyber security.

30 <https://www.tmogroup.asia/bonded-warehousing/>

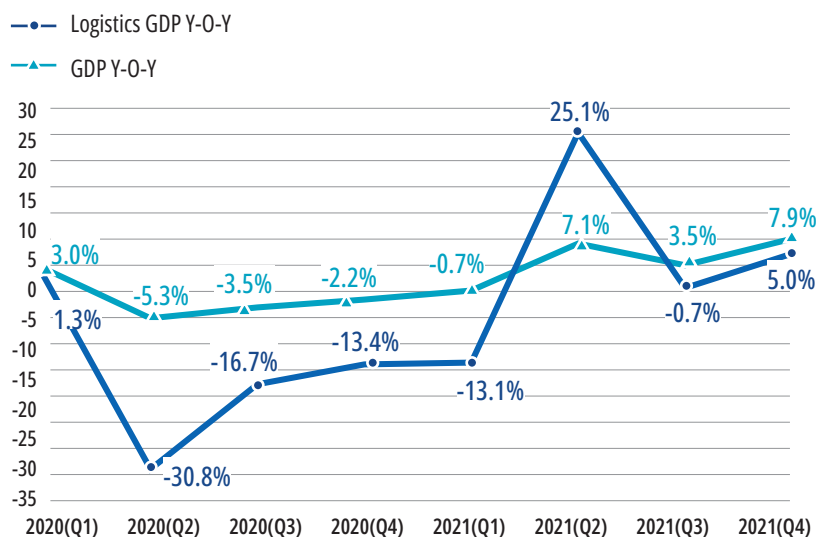


4.3 Logistics: Sustaining the Momentum of Supply-Chain and Logistics Transformation

4.3.1 Recovering the Logistics Sector Amid the Pandemic

The logistics sector is the lifeblood of Indonesia's economy and has been facing a time of extraordinary change during the pandemic. After consecutive contractions since the start of the pandemic in March 2020, the transportation and warehousing sector finally recorded a GDP growth of 25.1% as the country's GDP grew 7.1% in Q2 2021. Moreover, the sector recorded another promising growth of 7.93% as the GDP grew by 5.02% in Q4 2021.

INDONESIA GDP AND LOGISTIC GDP



Source : Bank Indonesia

The tremendous growth of the e-commerce industry has been a key growth driver for the logistics industry amid the pandemic. COVID-19 has shifted consumer behavior as many flocked online to buy daily necessities with the implementation of mobility restrictions. According to the e-Economy SEA 2021 report, Indonesia's e-commerce sector experienced a significant growth of 52% in 2021 and is projected to hit USD 104 billion by 2025. Consequently, The logistics sector is projected to continue growing and the trend can be observed from the EV-DCI 2022's data. According to the data, the median for the growth of the Gross Regional Domestic Product (GRDP) of warehousing, transportation support, post and courier has increased to reach 79.1 in 2022, a 40.6% increase from 2020's 56.2.

The pandemic has also propelled digitization in supply chain management, which can be observed in the exponential growth of logistics startups. For example, Waresix, a logistic tech startup established in 2017, has grown rapidly during the pandemic with the addition of new trucks and warehouses that cover over 200 cities. The startup's fleet of trucks has grown by approximately 20,000 and the number of warehouses

has increased by over 100 units in 2021³¹.

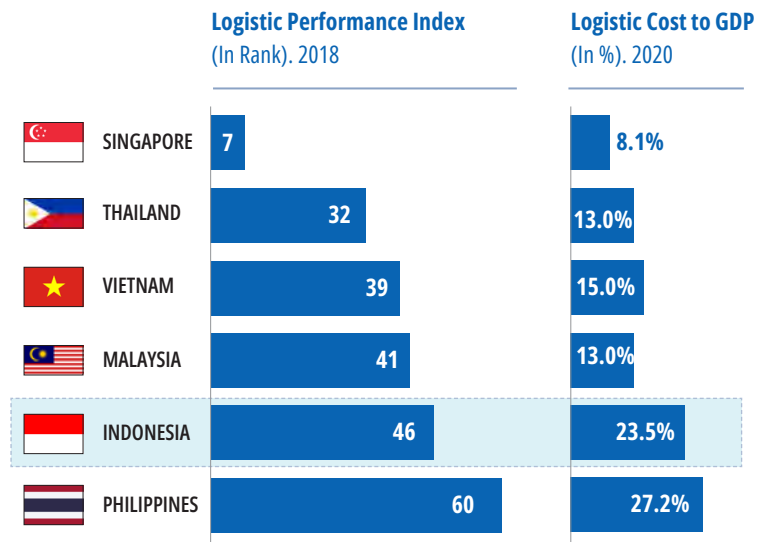
However, despite the growth and adoption of technology in the logistics sectors, the current supply-chain ecosystem in Indonesia still needs improvements in several key factors. Indonesia ranked 46th among 160 countries in the World Bank's Logistics Performance Index (LPI) in 2018. Although this number reflects major improvements as it rose 17 levels within two years, Indonesia still lags behind many neighboring countries. Compared to other countries in SEA such as Singapore, Indonesia's performance consistently ranks far below, typically ranking below 45 whereas Singapore consistently ranks in the top 10. Additionally, Indonesia has one of the highest logistics costs to GDP percentages in the region with 23.5%, far behind Singapore's 8.1%, Malaysia's 13.0%, Thailand's 13.2%, and Vietnam's 15.0%. Although it is noteworthy that part of the high cost of logistics is caused by the fact that Indonesia is an archipelago, there are other contributing factors that lead to the high cost.

4.3.2 The Long-standing Challenges of Indonesia's Logistics Sector

Indonesia needs to improve its logistics performance as the industry faces challenges that reduce competitiveness significantly. There are four main contributing factors, namely, **the proper infrastructure, utilization of resources, red tape and regulations and standardization.**

Proper Infrastructure

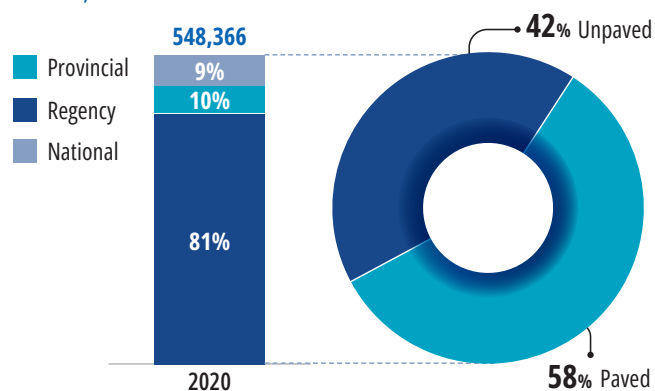
Indonesia's lack of quality infrastructure is creating challenges for the logistics industry as the development has failed to match the pace of economic growth in recent years.



Source: World Bank. PwC Analysis

According to the Ministry of Transportation (Kemenhub), road transport is the anchor for the movement of goods in Indonesia as it accounts for 80-90% of the total freight volume handled annually³². However, the condition of road infrastructure has severely hampered the development of the freight transport industry. Statistics Indonesia (BPS) estimated that as of 2020, only 58% of the road was paved, which is very low compared to countries like Singapore and Malaysia with 100% and 76%, respectively³³.

INDONESIAN ROAD CONDITION BASED ON ADMINISTRATIVE STATUS AND ROAD TYPE in KM, 2020



Source: Badan Pusat Statistik (BPS)

31 <http://dmia.danareksaonline.com/Upload/20210819%20Technology.pdf>

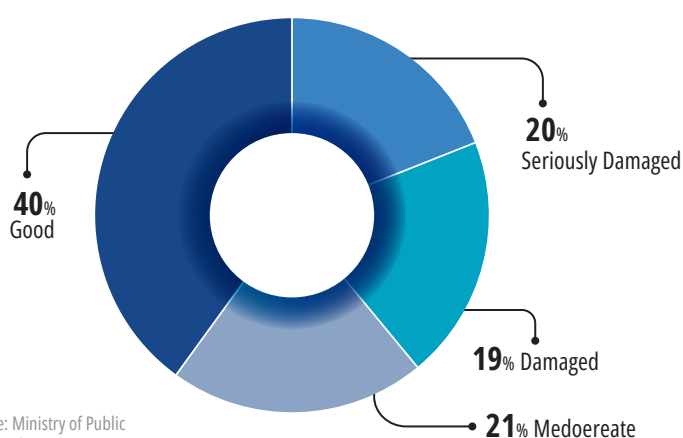
32 <http://dephub.go.id/post/read/kemenhub-sosialisasikan-kebijakan-angkutan-barang-dan-perizinan-usaha-angkutan-jalan>

33 ChartsBin: Roads Paved (% of Total Roads) by Country. Source: <http://chartsbin.com/view/37627>

Moreover, the poor quality of district roads, which accounts for 81% of the roads in Indonesia, is an impediment to trading across districts, and integrating poor and remote areas with larger markets. Data from the Ministry of Public Work and Housing (PUPR) showed that only 61% of district roads are in good or moderate condition. This presents a barrier to an efficient inter-island connectivity due to increased traveling time and thus, higher freight cost.

INDONESIA'S DISTRICT ROAD CONDITION BASED ON SURFACE CONDITION

in %, 2020



Source: Ministry of Public Work and Housing (PUPR)

Indonesia is the world's largest archipelago with over 17,000 islands and maritime logistics plays a crucial role in the country's development. From the sea freight perspective, inefficiency due to the lack of appropriate infrastructure considerably affects performance across the supply chain.

The shortage of large-scale ports capable of receiving trans-oceanic vessels and overcapacity are two prominent factors contributing to the highly inefficient system. Currently, Indonesia's main port, Tanjung Priok, handles around 70% of Indonesia's total import and export flow and it is

being overloaded³⁴. As a result, many of Indonesia's international cargo must go through Malaysia or Singapore. As of 2019, 85% of Indonesia's cargo was collected from Singapore³⁵.

There is also the problem of inadequate intra-island connectivity due to the unequal distribution of infrastructure development, notably between main economic areas such as Java and Sumatra, and the far-flung parts of the nation. The EV-DCI 2022 data confirms this as six provinces in Java are all in the top 10 provinces with high infrastructure competitiveness. The lack of connectivity is also highlighted by the CEO of Waresix, Andree Susanto as he asserts that Waresix is facing challenges in its operations as infrastructure development is only concentrated in a few islands.

Additionally, maritime supply chains are long and fragmented, especially to the eastern islands, which means that they can barely support domestic or international exports. This leads to high domestic logistics costs between islands, often higher than international export-import costs. According to the Organization for Economic Co-operation and Development (OECD), the cost of sending a package from Jakarta to Tanjung Pinang in the province of Riau is two times more expensive than to Singapore, which is not only farther but also cross-border³⁶.

Utilization of Resources Across the Logistics Value Chain

Lack of supply-demand planning and cost optimization are important factors that contribute to a high logistics cost in Indonesia. Most trucking companies try to make revenues from round trips and support trade flow in both directions. However, scattered economic activity

³⁴ <https://www.beritasatu.com/megapolitan/859949/integrasi-data-pelayanan-di-tanjung-priok-lebih-cepat>

³⁵ <https://iopscience.iop.org/article/10.1088/1755-1315/557/1/012061/pdf>

³⁶ <https://search.oecd.org/daf/competition/oecd-competition-assessment-reviews-indonesia-2021.pdf>

and population dispersion lead to the backhaul problem. For instance, it is estimated that truck utilization at Tanjung Priok port is only at 50%³⁷.

A similar trend can be observed in domestic sea freight as ships often return empty from voyages. This applies particularly to shipments from main economic areas such as Java and Sumatra, to regions in eastern Indonesia. Minister of Transport, Budi Karya Sumadi, highlighted that even with the presence of a maritime highway, logistics activities from the west to east, and vice versa, are still not maximized. One main issue with utilizing the maritime highway is the mismatch between the type of products transported to and from eastern Indonesia. For instance, ships that use regular containers to transport products to eastern Indonesia cannot be used to transport fishery products on their way back.

There is also an underlying problem with Indonesia's road freight operations. The trucking industry is fragmented and lacks transparency and real time information. It is estimated that 90% of orders and matching are still done offline with slow verification and minimal transparency and traceability³⁸. The result is disorganized and inefficient utilization of trucks and warehouses, which causes longer waiting times for drivers. Moreover, according to the Indonesia Trucking Association (APTRINDO), most trucks are 10-15 years old and poorly maintained. When paired with poor road freight infrastructure and traffic congestion, these result in a significant increase in fuel consumption leading to higher costs.

Red Tape Bureaucracy and Regulations

Current practices and procedures such as inspections and permits are causing delays for manufacturers and traders in customs, even before starting the clearance process. Additionally, lack of coordination and unclear and overlapping regulations are impeding the effectiveness of reforms and development of quality logistics services.

For instance, to obtain a cargo-handling license, market participants must obtain a letter of recommendation from the Port Authority or a local operator unit that will grant issuance only after assessing the supply and demand for loading and unloading business activities³⁹. However, the requirement for a letter of recommendation may favor certain market participants, especially incumbents, and could potentially be a way of restricting entry. Lack of competition may hinder productivity as it removes the opportunity for the more efficient firms to enter and gain market share at the expense of the less efficient firms.

Additionally, goods that are subject to trade-related regulations also have a higher chance of needing further inspections by customs, resulting in further delays. Minister of Commerce, Muhammad Lutfi, asserted the complexity by saying that the key problem faced by MSMEs in penetrating the international market is the complicated licensing process. Therefore, it is not surprising that Indonesia only scored 2.67 out of 5 for customs in the LPI, which is lower than Singapore's 4 and Malaysia's 3.22⁴⁰.

37 <https://ekonomi.bisnis.com/read/20180412/98/783669/tanjung-priok-terlalu-padat-utilisasi-truk-hanya-capai-separuhnya>

38 Jakarta Globe: Driving Innovation and Digital Transformation in Indonesia's Logistics Sector. Source: <https://jakartaglobe.id/opinion/driving-innovation-and-digital-transformation-in-indonesias-logistics-sector>

39 Organisation for Economic Co-operation and Development: Indonesia Logistics Sector. Source: <https://www.oecd.org/competition/fostering-competition-in-indonesia.htm>

40 Asian Development Bank

To some extent, Indonesia is already moving towards creating a supply chain digital ecosystem with the emergence and adoption of technology in the logistics sector.

Standardized Procedures

There are multiple practices that create road bumps in Indonesia's cargo movement due to the lack of standardization. Inadequate standardized procedures are one of the sources of Indonesia's logistics problem, and they have been hampering the adoption of automation and digitalization of the country's logistics activities.

The government has recently standardized the pallet size by imposing standard pallet size specifications; this is considered as an imperative prerequisite to digitalization. However, there are still many basic things such as freight and truck sizes standards that have yet to be harmonized and embraced. According to data from the Ministry of Transport, out of 55,000 vehicles inspected from January to April 2021, 38% violated the Over Dimension and Over Loading (ODOL) regulation⁴¹. The consequences of ODOL are detrimental to the government, society, and logistics sector, especially as violations damage the road. It is estimated that road damages due to ODOL violations increased the budget for maintenance of national roads, toll roads and provincial roads by a significant average of IDR 43 trillion annually⁴².

4.3.3 Building a Smart, Connected and Efficient Logistics Ecosystem

It is imperative for the logistics sector to revolutionize the status quo with digital innovations to grow and be more competitive. This is especially the case now that Indonesia is entering the new era of Industry 4.0, which requires logistics to be the backbone of domestic and international trade, a critical factor in improving national economic competitiveness. There are **three key measures** that need to be adopted, namely, **improving transparency, strengthening connectivity, and streamlining processes**.

Strengthening Connectivity Through Infrastructure Development and Technological Adoption

The digital supply chain aims to deliver the right product to the customers as quickly as possible. Additionally, it is important to do this responsively and reliably, while increasing efficiency and cutting costs through automation. However, this goal can only be achieved if the infrastructure can seamlessly connect all stakeholders along the supply chain. Thus, Indonesia is in urgent need of improving its national infrastructure,

41 Ekonomi: Waduh! Ternyata Lebih dari 20,000 Kendaraan di Jalan Masih ODOL. Source: <https://ekonomi.bisnis.com/read/20210606/98/1401991/waduh-ternyata-lebih-dari-20000-kendaraan-di-jalan-masih-odol>

42 Kementerian Perhubungan Indonesia. Source: <https://dephub.go.id/post/read/masa-nataru-2021,-kemenhub-ketatkan-penindakan-truk-odol>

while integrating technology for optimization.

The key factor in achieving logistics efficiency is improving connectivity through equitable infrastructure development between territories, particularly in eastern Indonesia. Improved connectivity results in lower poverty rates and higher economic growth as it connects rural areas to larger markets and improves access to goods and services at lower and more stable prices.

Additionally, improved connectivity can contribute to higher diversification in production and exports, given that businesses are able to develop competitive advantages in higher value-added goods. Therefore, it is imperative to accelerate infrastructure development by prioritizing investments in infrastructure projects with high multiplier effects to improve intra- and inter-island connectivity.

However, Indonesia needs to incorporate technology into the development of infrastructure. This includes the adoption of digital twins in infrastructure projects. According to IBM, A digital twin is a virtual model designed to accurately reflect a physical object or asset. For infrastructure, digital twins help to consolidate data from multiple sources such as historical data, on-site sensors, and predictive modeling tools, to create a real-time representation of an asset condition. The reliability and precision of the data collated provides potential for more efficient planning, construction, and operations. For instance, the use of a digital twin in the on-going construction of Malaysia's 1,060 km Pan Borneo Highway in Sarawak, allows all stakeholders to have access to

reports, dashboards, and performance data to monitor and ensure safety, reliability, and efficiency⁴³.

Additionally, it is vital to implement intelligent transport systems (ITS) that monitor, evaluate, and manage transportation systems to boost efficiency and safety. Take the implementation of ITS on transport in Argentina as an example. According to World Bank, intelligent traffic systems have already reduced commuting by 20% and around 9 million people in Buenos Aires benefit from intelligent transport solutions⁴⁴. These include installing technologies such as variable message signs, CCTV cameras and different traffic sensing technologies⁴⁵. For instance, the use of sensors that measure traffic flows and can adjust the green light interval depending on traffic conditions.

The development of transport infrastructure requires a large amount of capital investment. Although financial resources have been scarce in the past, Indonesia is well positioned to receive capital injection for infrastructure development. The government introduced the Omnibus Law in October 2020 with the aim of boosting foreign direct investment (FDI) in multiple sectors including infrastructure. Additionally, to increase support in financing for logistics infrastructure, the government has taken strategic fiscal policy actions. President Joko Widodo repeatedly emphasized the importance of infrastructure development and outlined an ambitious infrastructure spending plan worth tens of billions of dollars for the construction of multiple projects.

Moreover, the development in infrastructure will also be magnified by Indonesia's sovereign wealth fund (SWF),

43 <https://www.worldhighways.com/feature/going-digital-helped-government-malaysia-leverage-digital-twins-deliver-trusted-information>

44 <https://blogs.worldbank.org/digital-development/digitizing-infrastructure-technologies-and-models-foster-transformation>

45 <https://erticonetwork.com/kapsch-to-provide-advanced-traffic-management-systems-in-latin-america/>

the Indonesia Investment Authority (INA), which officially started operating in February 2021. Through INA, the government aimed to initially focus on attracting private investment into key infrastructure projects such as toll roads, seaports, and airports. An agreement for a USD 3.75 billion infrastructure platform marked the first investment vehicle for INA in May 2021. The memorandum of understanding (MoU) signed by INA, Caisse de dépôt et placement du Québec (CDPQ), APG Asset Management and Abu Dhabi Investment Authority (ADIA), was meant for investment in critical road assets in Indonesia.

Improving Transparency to Optimize the Supply Chain

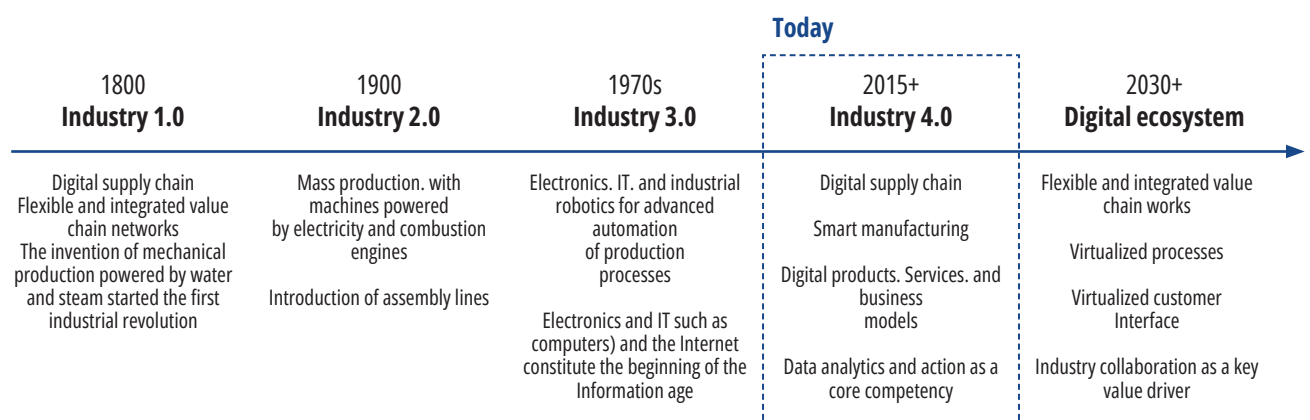
Stakeholders in Indonesia's logistics sector ought to increase transparency in the opaque and unreliable supply chain network currently underpinned by underdeveloped infrastructure and low efficiency. At its core, supply chain transparency means knowing exactly what happens at every step of the supply chain, backed by data and clearly communicated internally and externally. This enables the identification

of bottlenecks throughout the chain that facilitates the removal of unnecessary steps and verifies the efficiency of important processes. More importantly, transparency is the fundamental process of increasing visibility and traceability that enables the digital transformation of the supply chain to enter the era of industry 4.0.

Indonesia needs to continue nurturing the adoption of digitalization, as this will help to improve transparency by relying on several key technologies: integrated planning and execution systems, logistics visibility, autonomous logistics, smart procurement and warehousing, and advanced analytics. Once integrated, the transparent digital logistics network will offer a new level of resiliency and responsiveness, resulting in a system that can react to disruptions and even anticipate them.

Essentially, we are advancing towards developing a complete digital ecosystem. It expands the vertical integration of all corporate functions across to the horizontal dimension, connecting all relevant players, from the suppliers of raw materials to the customer. This is done through a network of sensors and

THE LONG ROAD TO INDUSTRY 4.0. THE DIGITIZATION OF EVERY ASPECT OF BUSINESS



social technologies, overseen via a central control hub, and managed through an overarching data analytics engine.

To some extent, Indonesia is already moving towards creating a supply chain digital ecosystem with the emergence and adoption of technology in the logistics sector. Take the logistic startup Waresix as an example. Waresix adopts a smart logistics system using Radio Frequency Identification (RFID), GPS, cloud computing, and other information technologies, and connects them with data, advanced analytics, autonomous decisions, and IoT. Through the implementation of the system, Waresix provides efficiency, cost savings, and end-to-end integrated utilities, among other things.

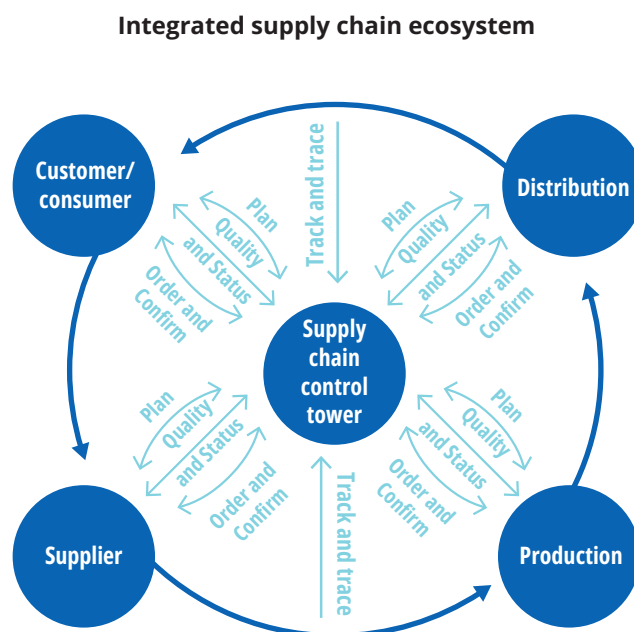
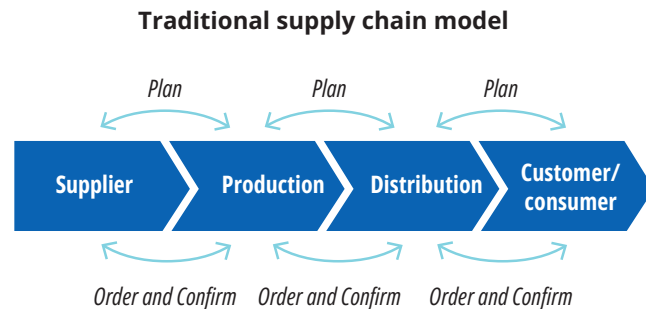
Another player is Warung Pintar Group, a technology company that enables digitalization for *warungs* (stalls or small shops). In 2021, Warung Pintar acquired Bizzy Digital, an integrated B2B supply chain logistics and distribution platform. The acquisition of Bizzy Digital allows Warung Pintar to create an ecosystem that digitalizes the supply chain, providing a fully integrated app that facilitates product orders, tracking and dashboard monitoring to *warung* owners⁴⁶.

Since technological adoption is still at its nascent stage for the logistics industry, there is a critical need for the government to support innovative startups and help them grow. A vital role that the government plays is not only providing favorable regulations and legal framework, but also developing a robust digital infrastructure to accelerate digitalization.

Embracing Digitalization of Procedures to Boost Efficiency

Digitalization can improve licensing and permitting processes as it allows

THE TRADITIONAL LINEAR SUPPLY CHAIN VS. DIGITALLY ENABLED SUPPLY ECOSYSTEM



individuals and businesses to submit documents online, and for agency staff to conduct review and approval more efficiently in one centralized place. Indonesia, to some extent, has digitized its business licensing system through Indonesia National Single Window (INSW),

⁴⁶ <https://dailysocial.id/post/warung-pintar-umumkan-kehadiran-sebagai-holding-supply-chain>

Since technological adoption is still at its nascent stage for the logistics industry, there is a critical need for the government to support innovative startups and help them grow.

which is an integrated customs clearance system. Moreover, the introduction of the National Logistic Ecosystem (NLE) in 2020 aims to harmonize the flow of goods and international documents starting from the means of transport and continuing through to goods at the warehouse. The NLE is the result of collaboration between the government and private sector with the implementation of technology that facilitates data exchange and process simplification, and removal of repetition and duplication.

However, these programs have yet to be utilized to their full potential due to several reasons. For instance, the underutilization of INSW is not caused by regulations but the lack of knowledge from business actors who are not accustomed to using the system⁴⁷. Additionally, according to the CEO of Waresix, Andree Susanto, the

adoption rate of NLE is still low despite its functionality in streamlining information and order flow.

There are three essential steps that the government can implement to ensure the success of such programs. **Firstly**, it is important that the government continues to provide socialization to stakeholders so that the initiatives introduced can be properly utilized. For instance, the government can organize a regular training session to raise awareness of the programs. **Secondly**, stakeholders involved also need to continue committing from conceptualization until the development and implementation stages. **Additionally**, the government must set a clear guideline, including mutual agreements on the standard and technology. This is to ensure that priorities and goals are aligned with the long-term implementation plan.

47 <https://bisnis.tempo.co/read/1538821/kendala-izin-ekspor-impor-lewat-insw-kemendag-pelaku-usaha-belum-terbiasa>



4.4 Health: Improving Healthcare Resilience in Managing COVID-19 Pandemic and Beyond

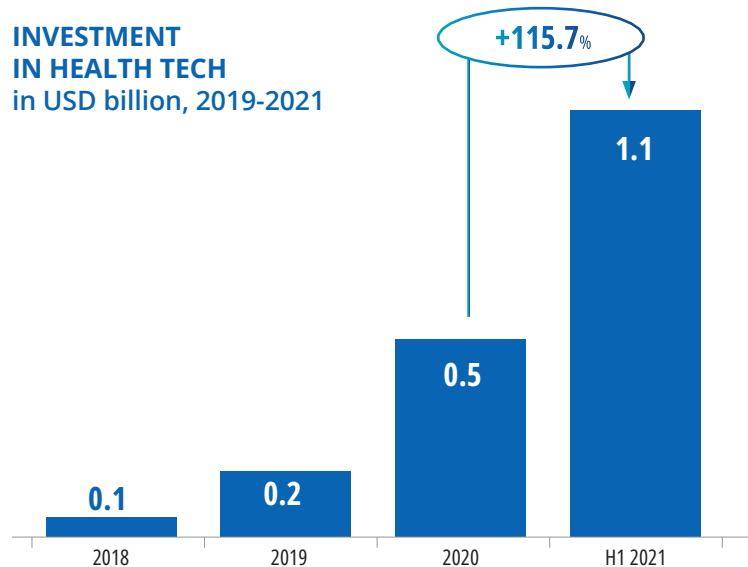
4.4.1 Accelerating Healthcare Digital Transformation

The healthcare sector has been under intensifying pressure and scrutiny as the systems struggle with soaring patient numbers, workforce shortages, supply chain disruptions, and insufficient facilities. As the pandemic unveils Indonesia's healthcare shortcomings, there is an increased awareness and urgency to reimagine and reform the healthcare systems to create greater resiliency. Therefore, the crisis breeds innovations and has been the catalyst for the much-needed digital transformation marked by the significant growth of the digital health industry. Digital health market size in Indonesia, which was valued at USD 85 million in 2017, is projected to grow rapidly to hit USD 973 million in 2022 at a CAGR of 63%⁴⁸.

Digital health is increasingly emerging as one of the most prominent tools in fighting COVID-19, making it a lucrative investment opportunity. According to the e-Economy SEA 2021 report, Healthtech is also considered to be one of two nascent sectors that have accelerated rapidly due to COVID-19. A record-high of USD 1.1 billion funding was invested in the six largest ASEAN economies in H1 2021 alone, growing by 115% from the previous year.

Digital health in Indonesia is currently being used to address specific problems with traditional healthcare models and seeks to improve aspects such as information sharing and communication, utilization and efficiency, and the quality of service. There are a wide range of different technologies being implemented in digital health with varying

**INVESTMENT
IN HEALTH TECH
in USD billion, 2019-2021**



Source: e-Economy SEA



Mobile Health

Mobile health is used to collect and store patient information to obtain accurate results, which are used to treat and diagnose various medical conditions. Mobile health makes it easy to record electronic health care (EHR), online pharmacies, telemedicine, and prescriptions.



Cloud Computing

Cloud computing allows patients, doctors and hospitals to access information remotely and in an integrated manner. With a virtual data space, it allows specialists to review patient cases and provide their opinions regardless of geographic boundaries.



Blockchain

Blockchain technology allow to secure data tracking across computing devices. It can store medical records confidentially, especially EHR and patient autonomy, by providing safer mechanisms for health information exchange of medical data in the healthcare industry.



Data Science

AI or machine learning is used to process patient data, understand clinical records, find interactions, associate symptoms, habits, diseases, and make predictions. It can improve diagnostic accuracy and suggest better treatment solutions.



Wearable and Sensor Devices

The wearable device with advances in sensors and artificial intelligence provides patient health monitoring, therapy administration, patient rehabilitation, activity tracking and early disease diagnostics. It plays a more active role in maintaining patient health.

⁴⁸ https://asialink.unimelb.edu.au/_data/assets/pdf_file/0006/3323706/MTPC-2019-and-Asialink-Business-Digital-Tech-Indonesia.pdf

E-Learning	Information System	Health Marketplace
 aveecena  summit HEALTHCARE  FKtanpabatas  docquity  Jago Preventif  EDUKASI ^{4.0}	 Assist.id  avimed  TRUSTMEDIS ^{.com} eHealth Solution  Periksa.id  REK MED  SISFOMEDIKA SISTEM INFORMASI SISTEM KEPERAWATAN  Carfula  PT. Medika Integrasi Teknologi Healthcare Integrated Solution Partner  CRYPTOSCOPE  MEDICO PENGUNJUNG & PENYUSUN  MEDIGO ⁺	 GORRY Well  itmi  kuponseha ⁺ .com  PLANET MEDIKA  lemonilo  Klik Hospital
Media & Community	AI, IOT & others	Teleconsultation
 pasienia connecting patient  Kardiologi Diabetes  Vascular Indonesia  klikDOKTER [®]	 Qoala  neurabot reimagining robotics  TELE SEHAT INDONESIA  NalaGenetics  MyHealth Diary "Semua Bisa Sehat"  Datamedis.id  WeCare.id  NUSANTICS	 ALODOKTER  bicarakan.id  konsulife  TeleCTG  halodoc  Good Doctor  GO DOK SEHAT ITU MUDAH  Link Medis Sehat  SehatQ  riliv
On-demand Healthcare		
 Homecare24  SAHABAT CARE  Medi-Call  perawatku.id  PROSEHAT  Caredige'  perawat.ID  doctoo		

complexity. Some examples of the types of new and existing technologies being applied to the healthcare sector are mobile health, wearables and sensor devices, data science, cloud computing and blockchain.

With the adoption of such technologies, HealthTech startups have been facilitating the healthcare digital transformation by introducing new solutions to enhance the quality of healthcare services as well as to lower their prices. Although still at its nascent stage, Indonesia's digital health ecosystem poses promising potential as it comprises many players that provide

varying and often integrated services, catering the needs of the different stakeholders in the sector.

4.4.2 Indonesia's Digital Health is Still at Its Infancy

Although healthcare improvements in Indonesia have been increasingly prevalent and apparent with the help of digitalisation, the nation's healthcare systems are still far from optimal. There are problems that should be addressed—namely, the shortage of healthcare workers, lack of quality service, lack of regulations and lack of technological adoption.

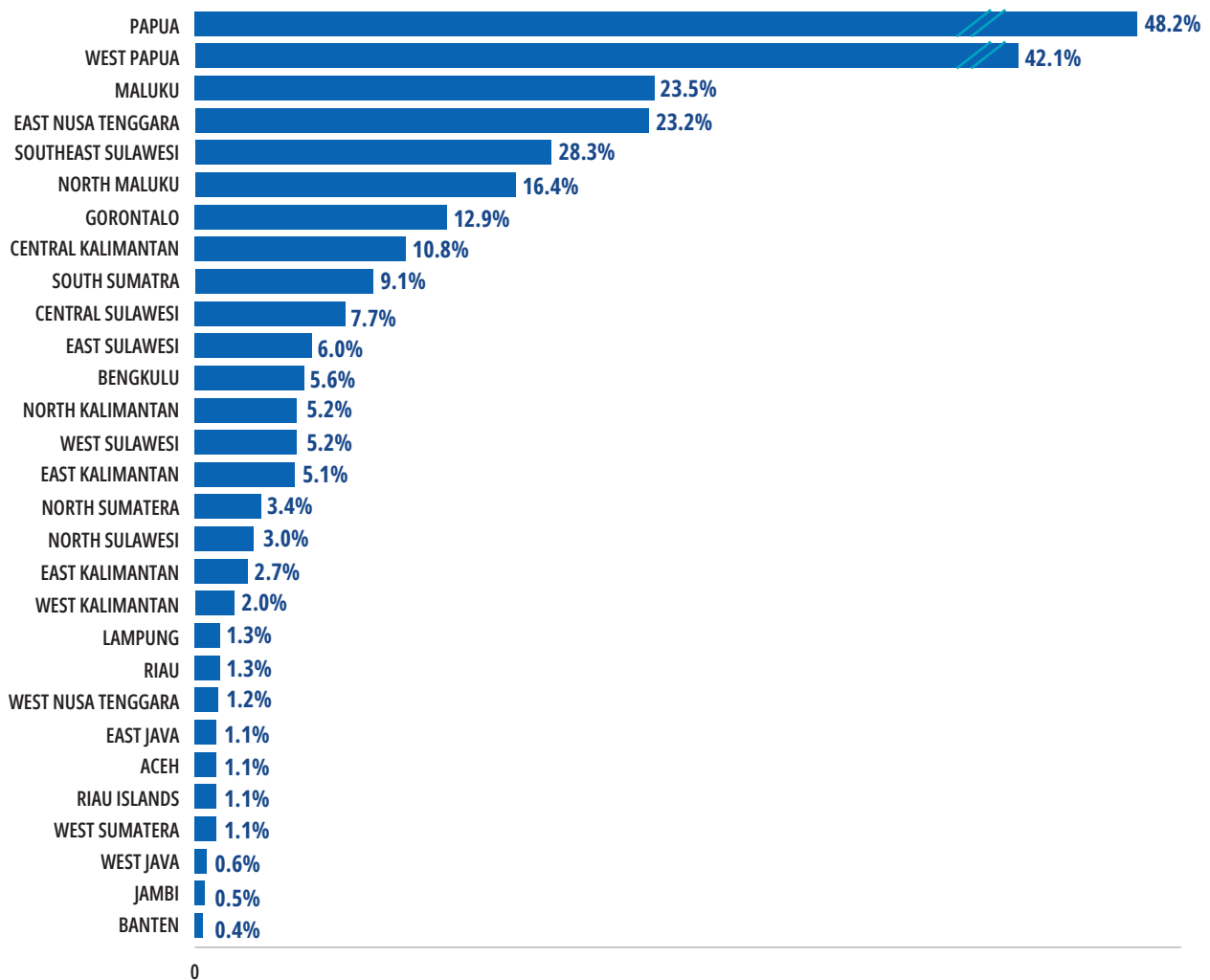
Shortage of Physicians

The shortage of healthcare workers existed before COVID-19 as Indonesia has long struggled to increase the number of its physicians. However, the pandemic has exacerbated the ongoing shortage, leaving many healthcare facilities short-staffed, especially in dealing with surges in new COVID-19 cases. At the height of the pandemic in July 2021 when the daily number of confirmed cases reached over 50,000, the Minister of Health, Budi G. Sadikin, stated that Indonesia needed an additional of approximately 3,000

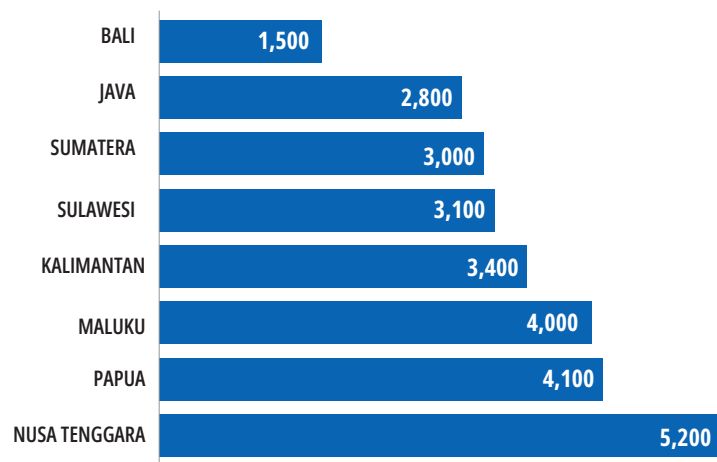
PHYSICIAN TO POPULATION RATIO (PER 1000 POPULATION), 2019



PERCENTAGE OF PUSKESMAS WITHOUT A DOCTOR, 2020



RATIO OF 1 DOCTORS TO POPULATION BY PROVINCE



Source: Lokadata

doctors to successfully fight against the virus⁴⁹.

Indonesia's number of physicians is well below the neighboring countries' numbers and the World Health Organization's (WHO) standard ratio of 1 doctor per 1,000 people. According to the World Bank, Indonesia has the lowest number of physicians to population at 0.5 (per 1,000 people), far below other countries such as Singapore and Malaysia with 2.5 (per 1,000 people) and 2.2 (per 1,000 people), respectively.

The lack of workers is exacerbated by the unequal distribution of physicians, especially in the remote areas of Indonesia. According to BPS, 6.9% of over 10,000 community health clinics (puskesmas) are without a doctor and most of them are in the underdeveloped eastern regions. For instance, Papua and West Papua have the highest number of puskesmas without a doctor, at 48.2% and 42.1%, respectively. Moreover, none of the regions in Indonesia meet the WHO's physician-to-population recommended ratio. According to Lokadata, Bali has the best ratio of 1

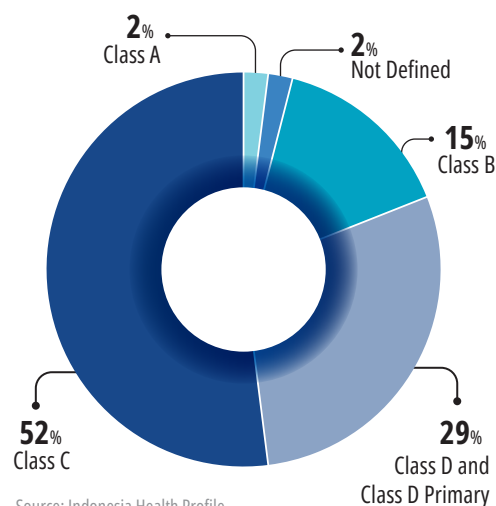
doctor per 1,500 people, while Nusa Tenggara has the worst ratio of 1 doctor per 5,200 people.

Quality Healthcare

Although the government is trying to improve the public health services, the quality of healthcare in Indonesia is still relatively low. Out of Indonesia's 2,925 hospitals, only around 40 hospitals are internationally accredited⁵⁰. This suggests that most hospitals in Indonesia do not necessarily follow international health guidelines, which hinders the provision of quality service.

Hospitals in Indonesia have class type divisions, namely class A, B, C and D, and the difference in the four classes lies in facilities and medical support with class A as the highest class. For instance, class A is able to provide the most complete range of medical services and have more medical professionals. According to BPS, the number of hospitals in Indonesia is still dominated by class C at 51.9% and followed by class D at 29.4%, while class B and A only account for 14.6% and 2%

NUMBER OF HOSPITALS BY CLASS IN 2020



Source: Indonesia Health Profile

49 <https://www.beritasatu.com/kesehatan/799365/menkes-indonesia-butuh-tambahan-20000-perawat-dan-3000-dokter>

50 <https://ekonomi.bisnis.com/read/20190509/12/920377/hanya-36-rumah-sakit-di-indonesia-berstatus-kelas-dunia>

of all hospitals, respectively. The lack of class A and B hospitals indicates that most hospitals are unable to provide a high-quality level of care and treatment for all patients. Moreover, most of the class A and B hospitals are located in Jakarta. The inadequate presence of top-quality hospitals, paired with their uneven distribution, leads to limited access to quality healthcare services across the country.

Furthermore, the quality of physicians needs to be improved and this revolves around improving the quality of education for medical students. The number of medical schools in Indonesia has nearly doubled as it increased from 38 in 2000 to over 75 today⁵¹. The growing number of schools not only increases the number of graduates, but also raises concerns about quality. With more schools, the admission process could be less competitive and there might be a shortage of teaching hospitals to develop students' skills and knowledge. This concern is also shared by the ex-Chief of Indonesian Medical Council (KKI), Bambang Supriyatno. In 2019, he stated that Indonesia needs to implement a moratorium on new medical schools to maintain the quality of physicians⁵².

The impact of the lack of quality healthcare is lower life expectancy, as confirmed by the EV-DCI 2022 data, which shows a slow growth in life expectancy as Indonesia's median growth of the indicator is only at 29.1. The slow life expectancy growth rate signifies huge room for improvement in the healthcare sector, which presents opportunities for investment in the digital health industry.

Additionally, due to the poor quality of healthcare, Indonesian patients continue to have a high appetite for treatment abroad, costing billions of

LIFE EXPECTANCY 2019



Source: World Bank

dollars that could be spent domestically to enhance the local healthcare industry. Singapore and Malaysia are among the top destinations for medical tourism. In March 2021, the Minister of Health, Budi G. Sadikin, stated that Indonesians spend IDR 161 trillion annually on overseas healthcare services and 80% of the visits are to Malaysia⁵³.

Clarity and Progressive Regulation to Keep Up with the Digitally Transforming Health Sector

As digital health rapidly expands, the need for regulations from the government regarding legal and ethical standards is also increasing. However, Indonesia has yet to develop rules and regulations regarding the digital health care system, leaving a gray area where digital health applications are operating – that is, between existing (but separate) health and technology regulations. In April 2020, there was an issuance of the Regulation of the Indonesian Medical Council No. 74/2020 on Clinical Privilege and Medical Practices Through

51 https://medicine.nus.edu.sg/taps/wp-content/uploads/sites/10/2020/02/GP1077_RitaMustika_The-Odyssey-of-Medical-Education-in-Indonesia.pdf

52 <https://ekonomi.bisnis.com/read/20190620/12/935795/fakultas-kedokteran-makin-banyak-mutu-jalan-di-tempat>

53 <https://www.cnbcindonesia.com/news/20210319113213-4-231366/wow-warga-ri-rogo-rp161-t-tahun-demi-berobat-ke-luar-negeri>



Budi G. Sadikin
Minister of Health

“We want to standardize this health data so that it can be accessed by every health facility and every individual easily. Then after we clean up our data, we want to tidy up the application. There are too many applications, the government will make them all in one platform.”

Telemedicine during the COVID-19 Pandemic in Indonesia. Prior to this, there was always a debate over the accuracy of providing a full diagnosis through remote consultation without a full physical check. However, it seems that this regulation will only remain in effect during the state of COVID-19 emergency.

One of the challenges to stipulate digital health regulations is that the health data is still fragmented according to the Ministry of Health. Based on the current mapping results, there are more than 400 health applications developed by the central and local governments. With so many applications and various data, the integration process of health service data will be challenging too. This condition hinders health policies from being data-driven to determine the right regulatory infrastructure for Indonesia digital health sector. The Ministry of Health acknowledged the importance of this regulatory development, and promised its support and urged guidance for the industry players.

Healthcare Operations Efficiency

Although some hospitals have adopted technology in their information system, the lack of operational and technological adoption still exists. Operational data such as products and

raw materials are still not standardized in hospitals. Stock data for drugs, medical devices, and PKRT (Perbekalan Kesehatan Rumah Sakit) are stored separately in each agency (producers, distributors, and health facilities). This causes a lack of operation efficiency due to highly fragmented data and varying independent systems.

There is also a problem with operations regarding the delivery of digital healthcare services. Based on a PwC global health consumer survey, more than 25% of respondents said that during a video virtual treatment visit, they had a technical problem, felt their health problem was not being addressed adequately or was unclear about further care steps, among other difficulties. This illustrates that there is still a gap between the demand for virtual care and the capacity to deliver it effectively.

4.4.3 Healthtech Development for a Better Healthcare System

In Indonesia, HealthTech development is still at an early stage compared to that of other countries. As the internet connectivity and coverage improve, there is room for improvement for HealthTech to provide further services to its customers. The use of digital technologies for health should be promoted as it will address key healthcare systems challenges. However, successful digital health initiatives require an integrated strategy.

WHO in its Global Strategy on Digital Health 2020-2025⁵⁴ suggests that the government, as the primary stakeholder, needs to continue its focus in enabling digital health through providing further policies and follow up actions. WHO proposed four key objectives that should be taken into consideration carefully to establish a country's digital health systems. To complement the WHO's recommendation from Indonesia's

54 WHO Global Strategy on Digital Health 2020-2025



condition, we also suggests several initiatives that stakeholders can consider to develop the healthtech ecosystem.

Promote Collaboration and Advance The Transfer of Knowledge on Digital Health to Build Resilience

The pandemic stimulates healthtech in improving inclusivity for healthcare access in Indonesia. Moreover, digital healthcare services have an apparent contribution in keeping Indonesia's economy growing due to its agility. Seeing this opportunity to grow the economy in the post-pandemic era, the government expressed their interest to collaborate with the industry's stakeholders to strengthen Indonesia's healthcare systems, especially through digital technology.

The G20 Presidency should be the momentum to explore global collaboration to increase knowledge exchange to the local healthtech sector, which can support the government in reforming the national healthcare system through digitalisation. We have learned that partnerships between governments, healthtech startups, and corporations are indeed imperative in developing resilience to fight the COVID-19 crisis. For instance, the partnerships of 17 telehealth startups—such as Halodoc and Good Doctor - with the Ministry of Health has widened access to free virtual care and free medicine for COVID-19 patients throughout Java and Bali⁵⁵. In Jakarta, the

telemedicine services have served more than 150,000 COVID-19 patients and delivered 38,000 medicines to them.

Collaboration with digital platforms can increase digital health technology adoption as Singapore did for AI adoption. SGInnovate, a private organization owned by the Singapore government, collaborated with SingHealth to advance the development and adoption of AI. The combination of SingHealth's clinical and research capabilities and SGInnovate's deep AI technology expertise can enhance diagnostic and treatment services, healthcare service delivery and support innovations in the health and biomedical sectors⁵⁶.

Health professional capability building is also vital in overcoming Indonesia's inequity of quality healthcare. Similar to other sectors' human capital development approach, the digital technology, cutting-edge life sciences, and sustainability aspects—such as good health and wellbeing, and reducing inequalities, should be introduced as early as possible within the health education system. Therefore, it is vital to continuously improve the curricula of medical school and promote training and courses enrollment for all levels of healthcare workers. Strengthening the medical association's partnership with global counterparts, in addition to adopting digital technology, will play a key role in facilitating the improvements

⁵⁵ <https://www.healthcareitnews.com/news/asia/indonesia-expand-telemedicine-service-COVID-19-patients-outside-jakarta>

⁵⁶ <https://www.sginnovate.com/pressroom/singhealth-and-sginnovate-partner-advance-health-science-innovations-and-further-deep-tech>

in the quality of education and training provided through the transfer of knowledge.

Going forward, healthcare organizations and governments should continue to explore and expand more global, national, or regional partnerships that enable healthcare technology innovations, foster healthcare systems' resilience, and increase accessible healthcare for all.

Advance the Implementation of Data-Driven National Health Strategies

As the digital world has and will continue to have a substantial impact on the healthcare landscape, it is indeed vital to incorporate the use of data analytics. The development of digital devices and datasets will facilitate the inventions of new software solutions and healthcare platforms. This will further revolutionize the healthcare industry, changing how healthcare providers diagnose and administer health solutions and how customers choose to be treated.

Moreover, the use of data in digital technologies will also help in discovering and developing new products and therapeutics. It is a crucial element needed as the sector moves towards greater adoption of precision health. Indonesia is already moving towards the right direction with startups utilizing data to improve healthcare. Data science is currently being used with clinical data to support the move towards health risk profiling. For instance, Nalagenetics, a health technology company dedicated to reducing adverse reactions and increasing the efficacy of prescriptions through genetic testing by studying how certain DNA characteristics affect drug response.

Nalagenetics and the Center for Indonesia's Strategic Development Initiatives (CISDI) launched CLM 2.0HP (COVID-19 Likelihood Meter 2.0 for Healthcare Providers), machine learning

to map the risk profiles of officers developed from validity testing to data analysis to predict the disease severity of individuals infected with COVID -19 .

Additionally, Sehati, a healthcare startup, utilizes TeleCTG to provide cardiotocography (CTG) devices to midwives in remote regions in Indonesia. With the device, Sehati aims to deliver affordable and accessible healthcare, especially to facilitate maternal care, to a population scattered widely across over 17,000 islands. The TeleCGT The device allows midwives to record the vital signs of a fetus to their mobile phones and communicate the data to specialist obstetricians/gynecologists located in urban areas. In this case, with the use of data to remotely monitor pregnancy, the CTG device is helping to reduce maternal mortality rate in Indonesia.

In order to fully unlock the potential of data utilization, the creation of electronic health records (EHR) for the entire population will be a key step. This is also in line with the government's development plan, which is stated in the Ministry of Health's (Kemenkes) Blueprint of Healthcare Digital Transformation 2024 document. The creation of EHR will grant physicians access to all patients' medical record information, which provides a broader view of their health by presenting data such as medical history. This allows the maximization of patients' medical care even when they move to other hospitals or physicians.

Furthermore, with machine learning adoption, EHR can facilitate and accelerate the use of data analytics. For instance, the Natural Language Processing (NLP) to speed up the search for treatment documents and generate health reports. In addition, utilization of data mining for faster patient data collection and extraction on a large scale. This will then be used to interpret patient data and predictive analytics to assist physicians in making treatment decisions.

Advocate Human-Centered Digital Health Service Systems

Paradoxically, an entire industry designed around meeting people's healthcare needs is often the victim of poorly designed systems that impede the delivery of service. Healthcare consumers are demanding more from the experience of a typical healthcare encounter. In response to the changing market dynamics, healthcare has to embrace a new discipline in developing software-driven healthcare experiences, namely, human-centered design.

Human-centered digital health facilitates better understanding of patient needs and puts the patient at the center of every decision. When it comes to sectors as complex as healthcare, real and lasting innovation must happen on a broad and systematic level. Different stakeholders, such as medical device manufacturers, pharma and biotech companies, and digital health services, have a role to play in shaping the future of healthcare and integrating a human-centered design.

Moreover, human-centered digital health should strengthen patient-physician relationships, promote communication about things that matter, help patients to know more about their health, and facilitate patient involvement in their own care. There are several principles to consider in implementing human-centered digital health to increase its effectiveness and maximize its impact.

- Incorporate all the experiences and insights of patients and citizens into policy-making and innovation, and value them as key inputs. Creating opportunities for physicians to highlight issues they see on the front lines when delivering treatment and participating in the design process can also maximize human-centered digital health.

- Make research interactive, personal and action-oriented. Instead of conducting research separately from the designing human-centered digital process, research from physicians and the design process should be carried out together and integrated with each other. Research should identify solutions that are in line with human habits and motivations by looking at public health practices and traditions. Each proposed solution and design should be tested by always involving and gathering feedback from patients and citizens⁵⁷

Halodoc, one of the telemedicine providers in Indonesia, has implemented the concept of human centered design by using human-centered artificial intelligence (HIA). HIA technology leverages inputs from human users continuously to improve the way the system works. In collaboration with the Google Late Stage Accelerator, Halodoc succeeded in replicating the mentoring process and replicating the inputs received by junior physicians from experienced physicians. Physicians can view their performance based on response time and quality index metrics and can receive training from senior physicians to improve the quality of the health service⁵⁸.

Should the stakeholders of Indonesia succeed in implementing the above strategies, digital health will be Indonesia's precious ammunition to become a resilient nation to face future disruptions.

Human-centered digital health facilitates better understanding of patient needs and puts the patient at the center of every decision.

⁵⁷ UNICEF - Introduction to human centered design

⁵⁸ <https://www.cloudcomputing.id/berita/halodoc-terapkan-ai-untuk-tingkatkan-layanan>



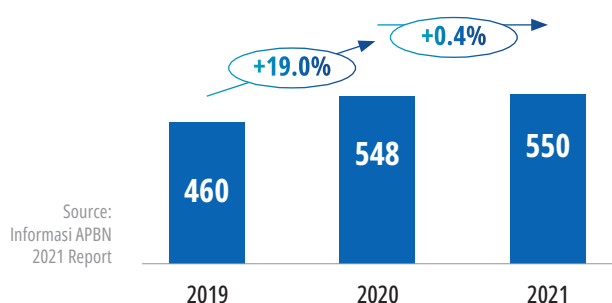
4.5 Education: A Key Sector in Developing Social and Economic Progress

4.5.1 Rapid Digital Transformation Amid the Pandemic

The effects of the COVID-19 pandemic have been unanticipated and significant, especially in causing major disruptions to in-person learning on an unprecedented scale. According to the Ministry of Education, Culture, Research and Technology (Kemendikbudristek)⁵⁹ in August 2020, approximately 68 million students (preschool (PAUD) to senior high school (SMA) has been affected by the COVID-19 pandemic as they had to shift to distance learning⁶⁰.

Consequently, the government has increased the budget allocation for education to support students and education units affected by the pandemic. In Indonesia, 20% of the national budget is allocated to the education sector. In response to the pandemic, the government has increased the national budget by 19.5% in 2019-2021 to IDR 550 trillion in 2021, as can be seen in the graph below.

INDONESIA'S BUDGET ALLOCATION FOR EDUCATION in IDR trillion, 2019-2021



The education budget is split among different government bodies, such as the national government, regional governments, and various endowment funds. According to the *Informasi APBN 2021* report published by the government, Kemendikbudristek is only entitled to IDR 81.5 trillion or 14.8% of the IDR 550 trillion education budget in 2021⁶¹. However, this budget allocation has increased from 2019's 7.9% and the current amount has more than doubled compared to 2019's IDR 36.5 trillion. While the increase in budget is associated with the merger between the Ministry of Research, Technology and Higher Education (Kemenristek Dikti) and Ministry of Education and Culture (Kemendikbud) to form Kemendikbudristek within 2019-2021, more budget allows Kemendikbudristek to take more actions to mitigate and cope with the impacts of the pandemic on the education sector.

With more budget, Kemendikbud Ristek has introduced initiatives to facilitate remote learning, expediting the adoption of digital technology. The introduction of Rumah Belajar is a good example. Rumah Belajar is a learning portal that provides learning materials and communication facilities that support interaction between communities. This portal comprises four main features developed to support online learning, namely virtual classes, learning resources, question banks, and virtual laboratories. In addition to the main features, there are also supporting features such as augmented reality (AR),

⁵⁹ In April 2021, the government decided to integrate the Ministry of Research and Technology (Kemenristek) with the Ministry of Education and Culture (Kemendikbud) to form a new ministry, which is the Ministry of Education, Culture, Research and Technology (Kemendikbudristek).

⁶⁰ <https://republika.co.id/berita/qejb7r428/kemendikbud-68-juta-siswa-terdampak-pandemi-covid19>

⁶¹ <https://www.kemenkeu.go.id/media/16835/informasi-apbn-2021.pdf>

Edugames, cultural maps, and other features to optimize online learning. As of February 2022, the numbers of students and teachers who have joined the platform have reached over 667,000 and 278,000, respectively⁶². Moreover, Kemendikbudristek is building GovTech as an instrument to synergise cross-function government in order to strengthen education through technology. This initiative is aligned with the World Bank version of GovTech, which aims to increase digital literacy and modernize the public sector equally.

The pandemic, which accelerated the adoption of digital technology in the education sector, has also expedited the growth of EduTech startups in Indonesia. For instance, Ruangguru, the largest EduTech company in Southeast Asia, recorded a 46% increase in its number of users to reach 22 million users in 2020 in Indonesia⁶³. The startup has introduced many initiatives that have benefited different stakeholders during the pandemic. For instance, the startup opened up access to 250 free training modules for teachers that were accessed by over 200,000 teachers in 2020. Additionally, Ruangguru entered into a collaboration with Telkomsel in March 2020 to allow Telkomsel users up to 30GB of data access to study materials on Ruangguru for 30 days.

However, despite the growth, Indonesia is still facing challenges in improving education systems. This is reflected in the human development index (HDI), which is a summary of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and having a decent standard of living. According to the United Nations Development Programme's HDI, Indonesia is ranked 107th out of 189

HUMAN DEVELOPMENT INDEX RANKING, 2020



Source: United Nations Development Programme

countries, far behind Singapore in 11th position, Malaysia in 62nd position and Thailand in 79th position.

4.5.2 Challenges in the Education Sector Hinder the Advancement of Human Capital Development

The education sector is an important sector in growing the economic development of Indonesia, including the digital economy across key sectors. There are several key challenges for education in Indonesia, such as **education equality, preschool (PAUD) and higher education participation rate, and employment rates among graduates.**

Education Equality

The distribution of education in Indonesia is unequal with regard to aspects such as the quality of teachers and education infrastructure, which is caused by Indonesia's uneven economic development. According to the EV-DCI 2022 survey, 90% of the digital companies

⁶² <https://belajar.kemdikbud.go.id/>

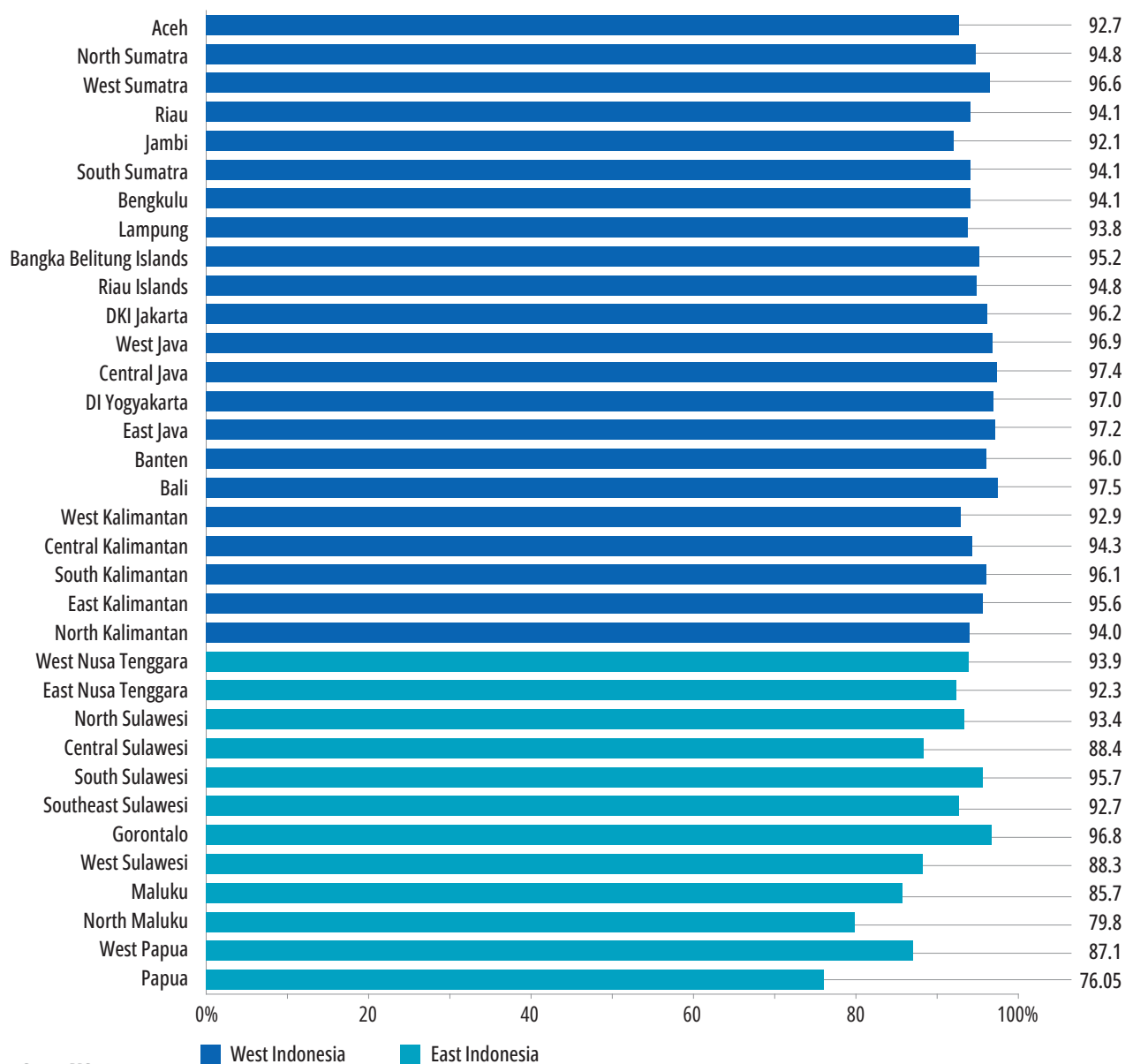
⁶³ <https://katadata.co.id/pingitaria/digital/5ff68c3b68399/tertolong-pandemi-ruangguru-raih-22-juta-pengguna-baru-selama-2020>

agreed that the quality of teachers is the main factor that contributes to the unequal education quality in Indonesia. According to BPS, the percentage of qualified teachers (those with at least Diploma 4/Bachelor's Degree) has actually increased from 89.3% in 2018/19 to 95.8% in 2020/21. However, the distribution of qualified teachers has been unequal with provinces in western regions of Indonesia having higher percentage of qualified teachers. The percentage of qualified

primary school teachers in provinces in Indonesia serves as an example, as shown in the graph below. According to BPS, the average percentage of qualified primary school teachers in western provinces is 95.1%, higher than that of eastern provinces with 89.2%.

Additionally, according to the EV-DCI 2022 survey, 83.3% of the digital companies agreed that the facilities and infrastructure is another major factor that contributes to the unequal quality

INDONESIA'S PERCENTAGE OF QUALIFIED PRIMARY SCHOOLS TEACHERS BASED ON PROVINCE

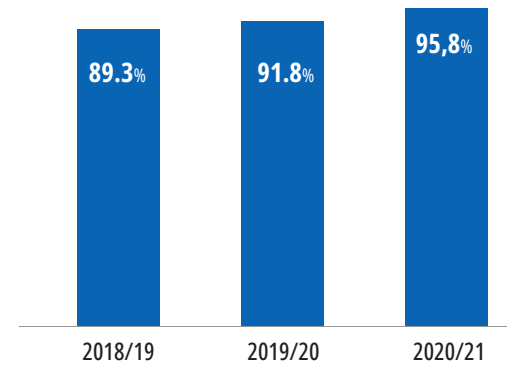


Source: BPS

of education in Indonesia. This is supported by the data presented by BPS for the school year 2020/2021. According to BPS, the percentage of primary school classes in good condition varies between provinces and the gap between the provinces with the highest and lowest percentage is huge, with Jakarta's 72.9% and Bengkulu's 36.3%, respectively. Details are shown in the graph below.

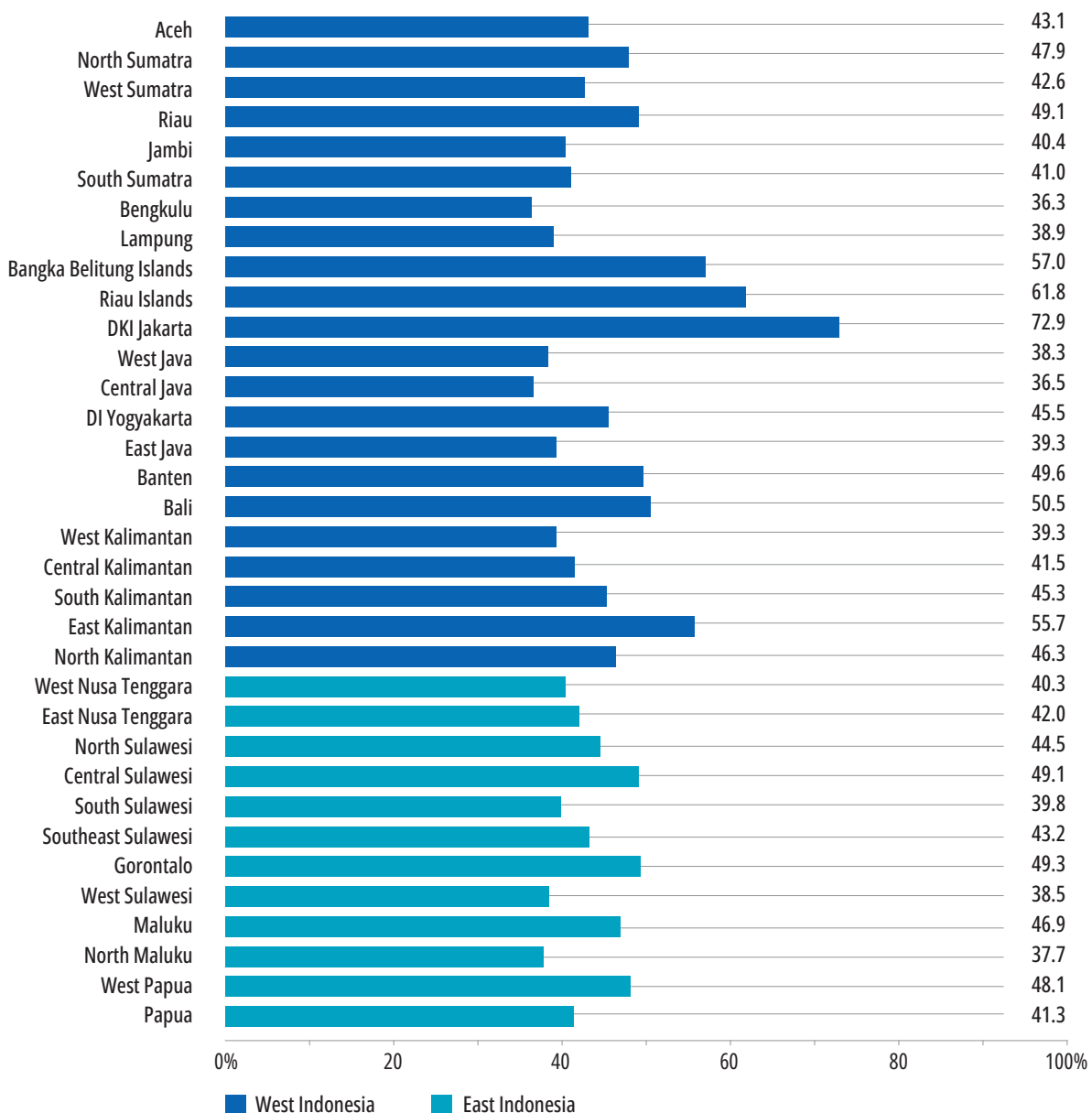
Consequently, the unequal distribution of quality education and infrastructure development has created roadblocks that

PERCENTAGE OF QUALIFIED TEACHERS



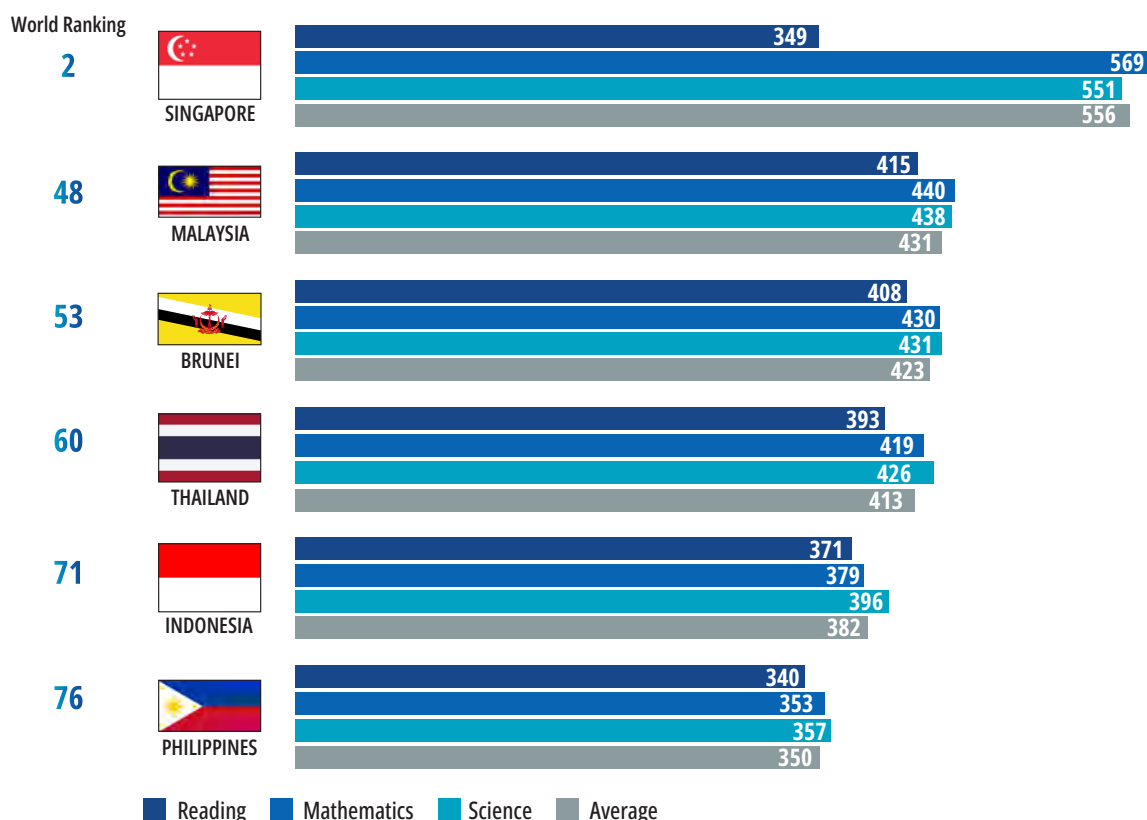
Source: BPS

INDONESIA'S PERCENTAGE OF PRIMARY SCHOOLS CLASSROOM IN GOOD CONDITION BASED ON PROVINCE



Source: BPS

PISA SCORE IN READING, MATHEMATICS, AND SCIENCE



Source: Organisation for Economic Co-operation and Development

impede the advancement of Indonesia's human capital development. According to the Program for International Student Assessments (PISA) 2018, which assesses 15-year-olds' scholastic performance on mathematics, science and reading, Indonesia was ranked 71st out of 79 countries, with an average score of 382. This number is far from that of comparable neighboring countries, such as Singapore and Malaysia, which were ranked 2nd (556) and 48th (431), respectively. Further details are set out in the graph below

Preschool (PAUD) and Higher Education Participation Rates

Opening up access to education as widely as possible is the most important step to prepare Indonesia's future generations. Thus, Indonesia needs to

increase the population's participation rate in education, especially in PAUD (*Pendidikan Anak Usia Dini* or preschool) and higher education where participation rates have been low.

Educating children aged three to six years old through PAUD will have a significant impact on children's development. Tanoto Foundation research in 2018 found that students who attend Early Childhood Education PAUD can read faster and have better comprehension.⁶⁴ Additionally, PAUD has an important role and function to provide learning experiences for children, optimize their brain development, and for children to form a good personality.

However, the participation rate of students in PAUD is still low. According to Kemendikbudristek's data, the Gross Enrollment Rate (GER) for PAUD in 2020

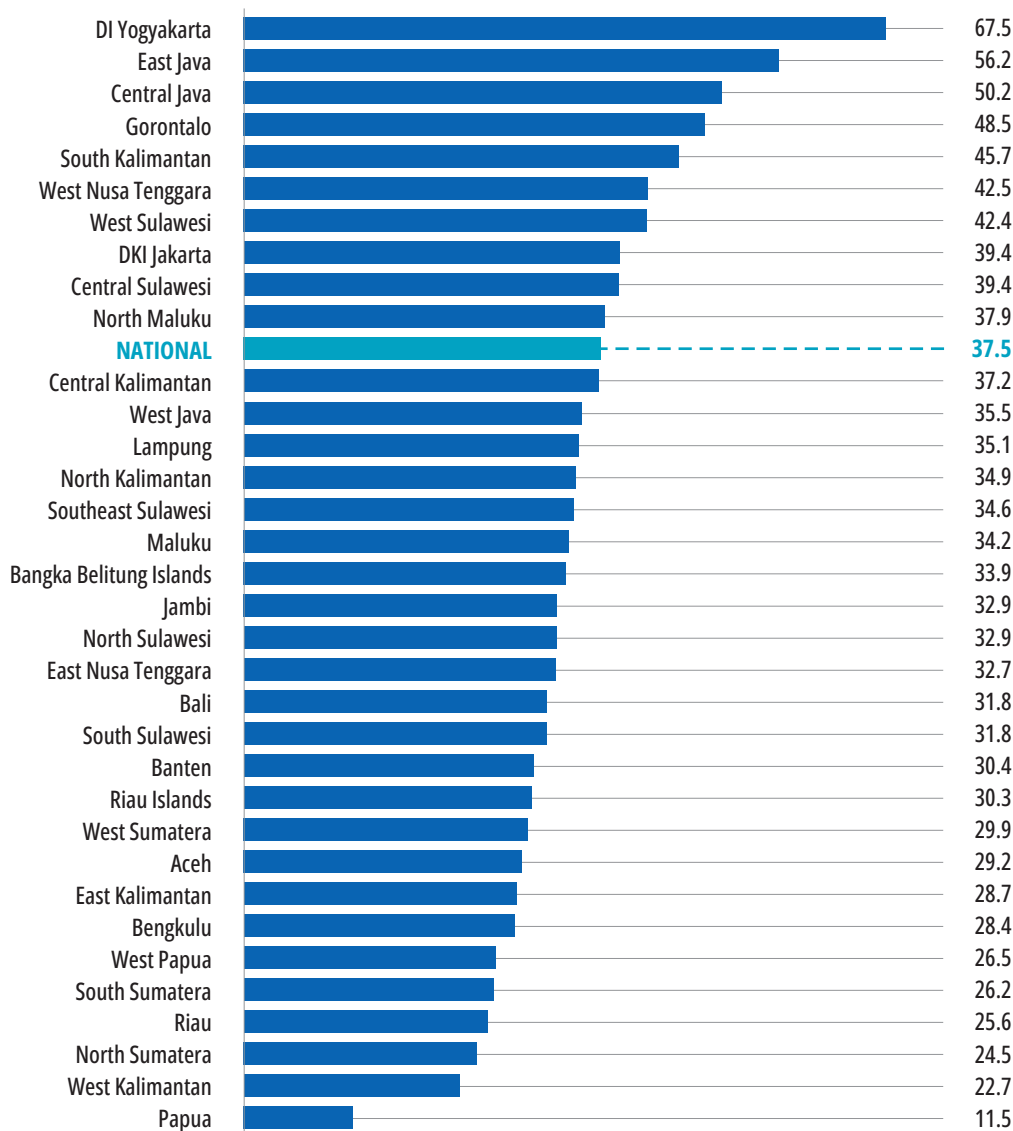
⁶⁴ <https://www.tanotofoundation.org/id/news/penelitian-paud-merupakan-kunci-peningkatan-kualitas-pendidikan-indonesia/>

was 37.5%. Nationally, there are still 24 provinces with a GER for PAUD that is lower than the national average of 37.5%, as shown in the graph below. One of the obstacles that causes the low PAUD participation rate is the limited access to PAUD services in certain areas, especially in underdeveloped and remote parts of Indonesia. Until 2019, data from the Ministry of Education and Culture shows that 30% of 25,000 villages in Indonesia did not have PAUD institutions. Thus, the low access to PAUD leads

to low participation and has hindered the educational development of many children across Indonesia.

Moreover, the participation rate for higher education is also still low. According to EV-DCI 2022 data, the median GER for Diploma 1 (D1) to Bachelor's Degree in Indonesia has continued to decline in the last three years. The data shows that there has been a 16.7% decline in the median GER for D1 and Bachelor's Degree to reach 29.69 in 2022 from 2020's 35.52. The

GROSS ENROLLMENT RATE (GER) FOR PAUD, 2020

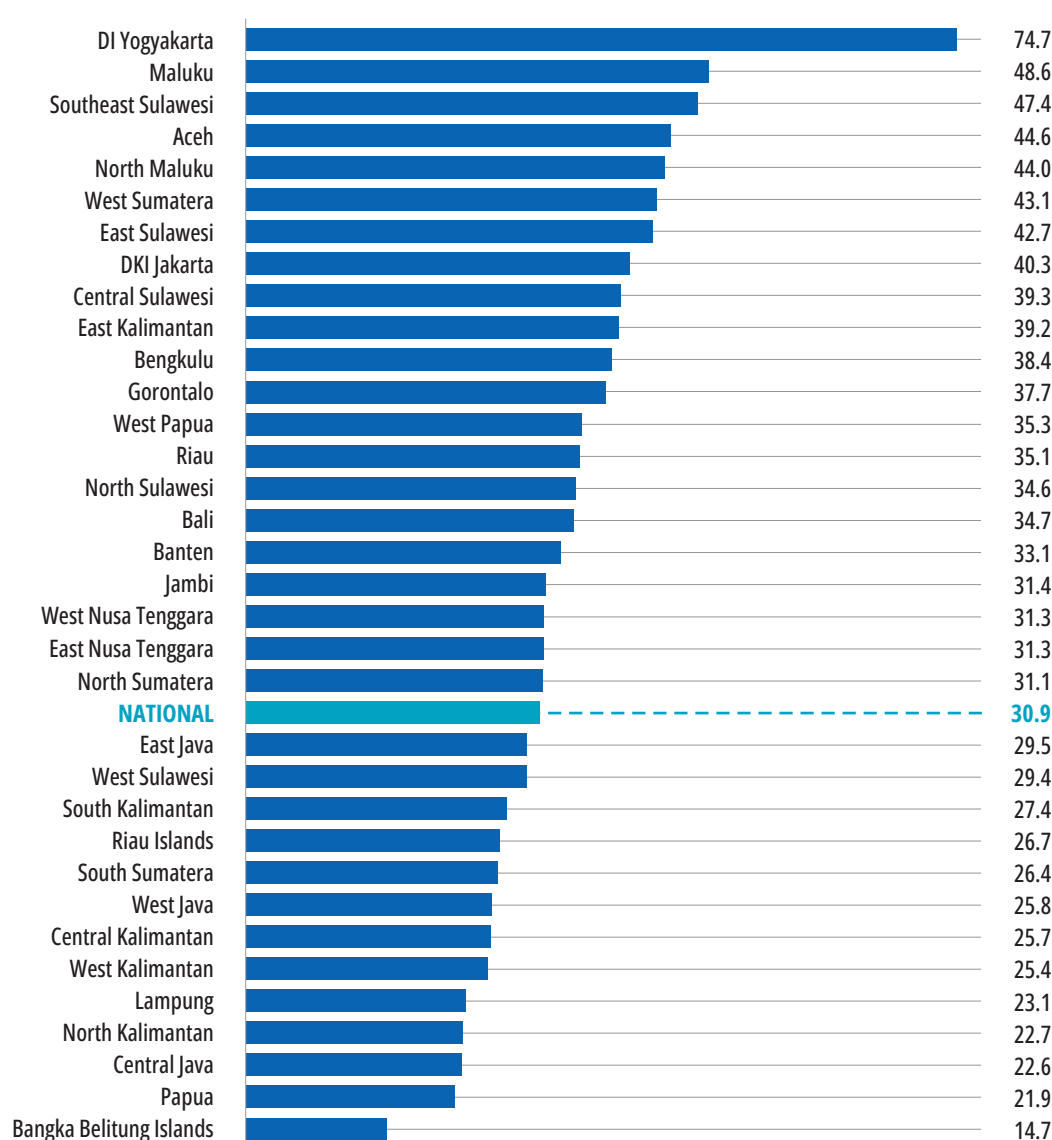


low higher education participation is further confirmed by the 2020 data from Kemendikbudristek that shows there are 13 provinces in Indonesia with GER for higher education below the national average of 30.9%, as shown in the graph below.

One prominent factor that contributes to the low participation rate is the shortage of higher education

capacity. According to the Deputy of the Coordinating Ministry for Human Development and Cultural Affairs (Kemenko PMK), Agus Sartono, there are around 3.7 million students graduating from high school education (SMA, SMK, MA) every year⁶⁵. However, according to a report published by the Directorate General of Higher Education (Ditjen Dikti), Indonesia's higher education institutions,

GROSS ENROLLMENT RATE (GER) FOR HIGHER EDUCATION, 2020



Source: Kemendikbudristek

65 <https://tirto.id/kemenko-pmk-lulusan-sma-smk-banyak-daya-serap-pt-sedikit-dDBv>

which number over 4,500, are only able to accommodate 2.1 million new students annually. This means that only 58% of high school graduates can continue their studies in higher education.

Additionally, economic factors are causing the low population participation rate in continuing to higher education. Referring to BPS data in 2021, the gross higher education participation rate in the community with the lowest economic background (Quintile 1) is only 16.0%. This figure is very low when compared to people with the highest economic background (Quintile 5) with 55.7% participation.

Employment Rates Among Graduates

The increasingly complex world challenges in the era of Industry 4.0 require higher education (i.e. University and Polytechnic) and vocational school (SMK) institutions to transform into more innovative and adaptive institutions to improve the quality of human capital. The challenges of this era are marked by megatrends in information technology, namely Volatility, Uncertainty, Complexity, and Ambiguity (VUCA), which describes a situation of constant and unpredictable change. This condition has been one of the triggers for the Indonesian government to focus on human capital development, as contained in the 2020–2024 National Medium-Term Development Plan (RPJMN).

According to the data released by the World Bank, Indonesia's Human Capital Index (HCI) is ranked 96th out of 173 countries, with a score of 0.54. This number is lower than comparable neighboring countries such as Singapore, Vietnam and Malaysia, with 0.88 (1st), 0.69 (38th) and 0.61 (62nd), respectively. Further details are set out in the diagram.

Moreover, developing digital talent is vital to support the growth of digital technology in Indonesia, especially in the era of Industry 4.0. Based on research from PwC in 2020, 74% of CEOs say

HUMAN CAPITAL INDEX, 2020



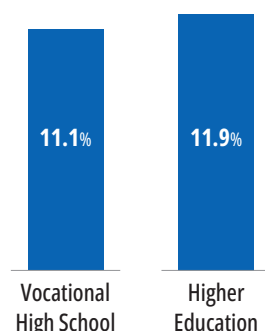
Source: United Nations Development Programme

they have difficulty in finding suitable digital talent. In Indonesia, the need to develop digital talent is emphasized by the Coordinating Ministry for Economic Affairs' (Kemenko Perekonomian) research in 2021 that estimated that Indonesia needs a total of 9 million digital talent in the next 15 years.

Despite the growing demand, the pace of the development of skilled digital talent in Indonesia is decreasing. According to the EV-DCI 2022 data, the growth of digitally-skilled students in Indonesia has continued to decline since 2020. The data indicates a 60.5% decline in the median growth of digital-skilled students, that is from 32.05 in 2020 to 12.67 in 2022. The slow growth of digital talent has created a mismatch between the supply of graduates and demand in the graduate labor market in Indonesia.

The low quality of Indonesia's human capital and mismatch between supply and demand among graduates have led to a high unemployment rate among graduates. According to data from BPS, the percentage of vocational high school and higher education graduates who are unemployed are 11.1% and 11.9%, respectively, as shown in the graph below. These numbers are high when

UNEMPLOYMENT RATE BY EDUCATION LEVEL, 2021



Source: BPS

we compare the unemployment rates of graduates in neighboring countries. For instance, Malaysia's unemployment rate among higher education graduates is only 4.4% in 2020.

4.5.3 Transformation in the Education Industry

While the pandemic presents challenges to the education sector, it has indeed presented opportunities that expedite the adoption of digital technology in the sector. Several actions can be taken to keep up the momentum of the digital transformation in the education industry—namely, **utilizing massive open online courses (MOOC), and encouraging collaboration and integration between stakeholders**

Utilizing MOOC Improve Inclusivity in Education and Upskilling

Two prominent problems in the education sector in Indonesia are the unoptimised absorption rate of new graduates in the labor market and the low participation rate in pursuing higher education among students. To overcome these problems, one solution is to optimize the MOOC platform.

MOOC is a digital product that

provides opportunities for anyone to obtain an equitable and quality education. Indonesia currently has MOOC platforms such as MOOC Indonesia, which provide online learning access from different institutions. However, when compared to the quality of MOOCs abroad such as Coursera and edX, the MOOC platforms in Indonesia are still lagging behind. This is due to the lack of university partners, which results in the provision of limited courses. For instance, MOOC Indonesia, which was created by the University of Indonesia (UI), only provides 3 courses⁶⁶. Additionally, MOOCs in Indonesia are only regarded as an additional learning resource. This means that the learning process undertaken by students on the platforms cannot be recognized as credits or part of assessment components.

One prominent way to optimize MOOCs in Indonesia is to encourage collaboration between multiple stakeholders such as domestic and foreign higher education institutions, industries, EduTech startups, research institutions and the government. For example, we can learn from the Malaysian government, which collaborates with a MOOC platform, namely Open Learning. The collaboration between the government and Open learning has opened access to collaborations with more than 190 global institutions, allowing students in Malaysia to access more than 10,000 courses.

The government plays a vital role in facilitating the adoption of such programmes to overcome the limited capacity of higher education institutions and providing equitable education. Therefore, it is vital for the government to start recognising the legitimacy of MOOC certifications to enable these certificates to be used for credits for higher education. For instance, the Massachusetts Institute of Technology (MIT) accepts MicroMasters programme

66 <https://moocindonesia.com/>

certificates from edX for credit, which will accelerate students' pursuit of a degree. Additionally, the 'mini bachelor programme' has been implemented by various leading institutions, such as Harvard University, IBM, and New York University, through the edX platform as an effort to provide an equitable and quality education.

Moreover, MOOC platforms in Indonesia can utilize quality courses to build digital talent through upskilling. MOOC platforms can collaborate with the National Education Standardization, Curriculum, and Assessment Agency (BSKAP) credible professional institutions such as the Corporate Finance Institutions (CFI), and companies that issue special certifications such as Alibaba and Amazon to develop MOOCs. This will not only increase the number of partners, but also the popularity and recognition of the certifications obtained by participants.

In Indonesia, the government has introduced the Kartu Prakerja to facilitate upskilling. The programme is intended for the working population to gain access to training that can improve their skills and competency. Currently, Kartu Prakerja has collaborated with 176 training institutions and platforms such as Skill Academy by Ruangguru, Hacktiv8 and Zenius.⁶⁷ As of October 2021, the number of participants have reached over 11 million, spreading across 514 regencies and cities. According to a study by Presisi, an independent research institution, the programme has successfully improved the skills of participants and increased wages by 31.6% on average. Therefore, such efforts need to continuously be embraced and improved by different stakeholders to improve the quality of Indonesia's human capital.

Collaboration Between Multiple Stakeholders to Improve the Quality of Education

Indonesia needs to strengthen the quality of human capital to develop the economy, especially in the Industry 4.0. Therefore, collaborations between multiple stakeholders are vital in improving the quality of education in Indonesia to develop the quality of human capital.

Higher education institutions need to enhance the curriculum in order to produce graduates with the ability to adapt to changes in society. To develop a curriculum that is relevant, it is important to involve industry players in developing the curriculum. This is crucial to develop the quality of learning to produce graduates with competencies that match the skills needed in the industries. The concept of university-industry collaboration (UIC) in developing a student curriculum has become popular in various developed countries such as the United States, Japan, Russia, and Singapore. Through this collaboration, the government and higher education institutions will be able to provide a more hands-on experience and industry insights to students.

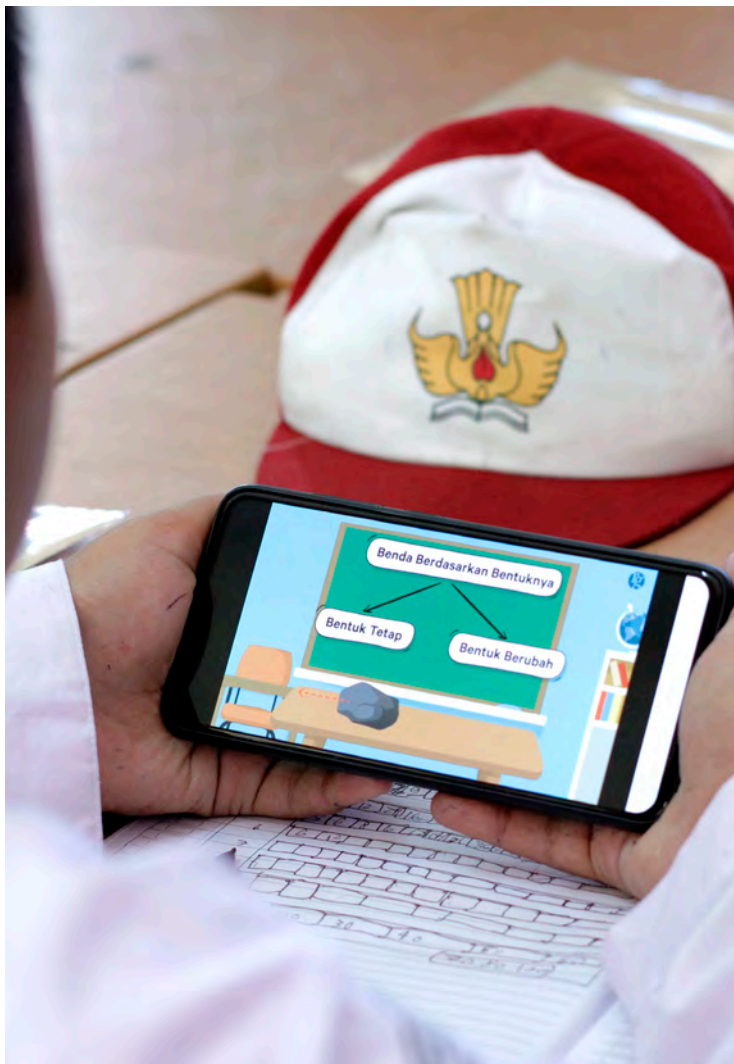
The new learning model will provide students with various learning options through different programmes that are aligned with their future endeavors. Currently, Indonesia is already strengthening cooperation between industry players and other stakeholders to advance the education system. One of which is Kedaireka, a platform to facilitate collaboration between industry and higher education institutions launched in December 2020. Through Kedaireka, industry can get support from higher education institutions regarding expertise and research-oriented analysis or

⁶⁷ <https://www.prakerja.go.id/lembaga-pelatihan>

solutions. On the other hand, higher education institutions can improve the quality of education by being connected with hundreds of industry players to create a more relevant curriculum to encourage the production of competent graduates. Thus, this creates a mutually beneficial relationship between industry players and education institutions that will also improve the quality of education in Indonesia. However, since it is still relatively new, the parties involved need to be committed in participating and developing a programme to realize the full benefits of the programme.

Moreover, it is crucial to encourage collaborations with startups to improve the quality of education in Indonesia.

Doc: Ruangguru



In an interview with EV-DCI 2022 team, the Chief Executive Officer (CEO) of GoTo Group and GoTo Financial, Andre Soelistyo, emphasized the importance of collaborations between the government and industry players. He mentioned that the collaborations between the government and other stakeholders need to continue to develop digital talent equipped with relevant skills and experience in accordance with the needs of today's global industry.

This can be done through collaborations between the regional government and EduTech companies in generating innovations to improve the quality education. For example, the Padang Panjang city government collaborated with Ruangguru to improve the quality of teachers in the Padang city area through the Indonesia Teaching Fellowship (ITF), a 7 month-long training and coaching programme. This program was attended by 103 teachers and succeeded in increasing teacher competence in the city of Padang Panjang by 53%⁶⁸.

From these examples, we can conclude that to advance the education sector in Indonesia, synergy and collaboration with multiple stakeholders is needed. By establishing strong collaborations and synergies, there will be many innovations to improve the quality of education and provide diverse learning options for students in Indonesia.

68 <https://www.harianhaluan.com/sumbar/pr-10262244/gandeng-ruangguru-pemko-padang-panjang-tingkatkan-kompetensi-guru>



4.6 Tourism: The Importance of Resilience and Agility for The Industry Players

4.6.1 The Tourism Landscape During Pandemic

Indonesia is a vast archipelago offering a wide range of tourist attractions and activities. The tourism sector contributed 4.2% to Indonesia's GDP in 2021 (2020: 4.1%, 2019: 4.7%), and employs 14.3 million Indonesians, or around 10.2% of total workforce in the same year. This condition makes tourism an important sector and plays a critical role in Indonesia's economic growth and job creation. However, tourism is one of the sectors most affected by the COVID-19 pandemic. The decline in demand in the sector during the pandemic has a big impact on industry players. According to BPS data, at least a workforce of 409,000 in tourism sectors were affected by the pandemic. Furthermore, the Ministry of Tourism and Creative Economy noted that large-scale social restrictions resulted in a decrease in national revenue in the tourism sector from IDR 244 trillion in 2019 to as low as IDR 51 trillion in 2020.

The decline was driven by the significant reduction in the number of tourists in Indonesia. The number of tourists in Indonesia declined by 73% due to the social mobility restrictions in 2020. This is driven by the 75% and 28% decrease in the number of international and domestic tourists, respectively. Consequently, the GMVs for international and domestic tourists have decreased by 52% and 49% to reach IDR 804 trillion and IDR 1,061 trillion, respectively. This caused a contraction in the GMV of online travel industry as it decreased to IDR 36.9 trillion in 2020 from the 2019's IDR 143.4 trillion in 2019.

The pandemic spillover is still seen in 2021 although it started to bounce back. Tren Industri Pariwisata 2021 issued by the Ministry of Tourism and Creative Economy (Kemenparekraf) indicates that the COVID-19 pandemic can change into building a completely new business landscape. In 2021, the industry faced a tremendous industrial shift, called "Industry Megashift"⁶⁹. The shift can be grouped into three major sections, as follows:

- Mega level (Changes): includes major changes in technology, politics, regulation, social, economic and environmental.
- Macro level (Competition): includes changes resulting in a new competition map in the pandemic era.
- Micro level (Customer): includes major changes that are based on changes in consumer behavior.

Elaborating on the micro shift, the recent rise in COVID-19 cases due to the Omicron variant are set to disrupt the recovery further this year and was seen to affect confidence for tourism growth through early 2022. Many tourism destinations around the world reintroduced the travel bans and closed their borders, mostly in Asia and the Pacific. This has shifted the way Indonesia's tourism industries from targeting foreign tourism towards attracting more domestic tourists. The result of this shift was reflected in 2021's revenue in tourism that increased by IDR 2 trillion, resulting in IDR 53 trillion. The online travel industry's traction also started to increase again, creating a total GMV of IDR 48.3 trillion in 2021.

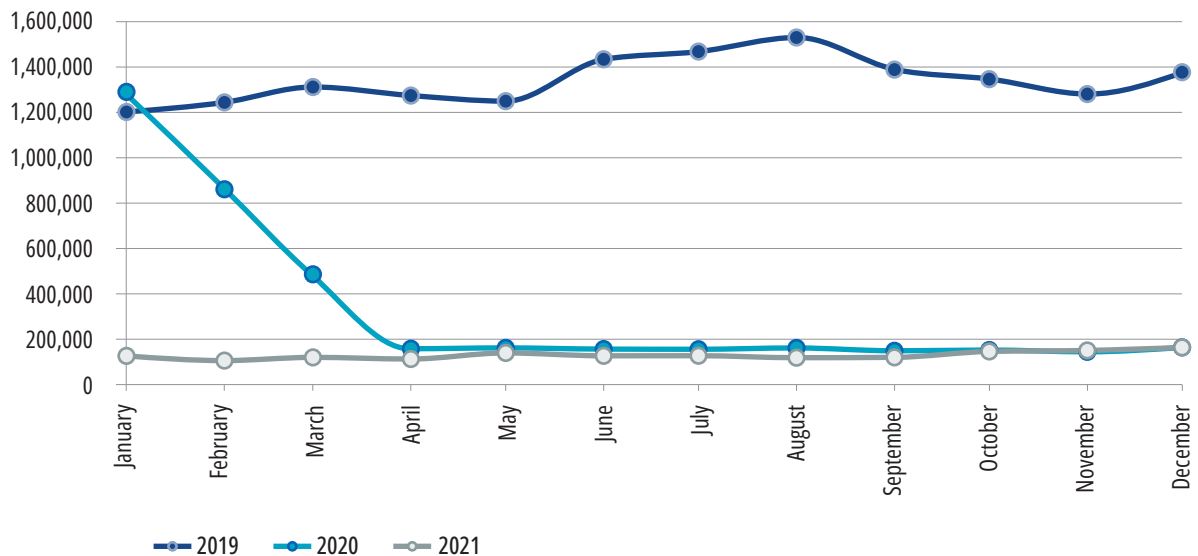
69 <https://kemenparekraf.go.id/rumah-difabel/INFOGRAFIK%3A-Industry-Megashift-Pariwisata-dan-Ekonomi-Kreatif>

This increment was supported by domestic tourists, contributing 12% to the total online travel GMV, due to the restriction of tourists between countries. The domestic tourists also increased the occupancy rate of five star hotels by 11% compared to 2020.

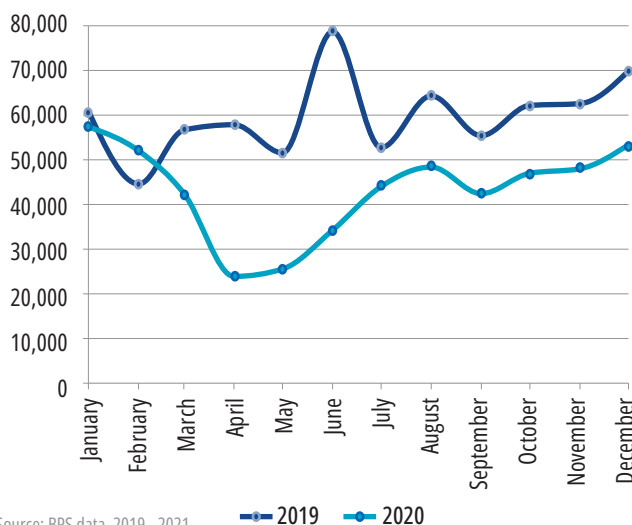
Looking forward, according to the latest United Nations World Tourism Organization (UNWTO) Panel of Experts, 79% of experts predicted that the

international arrivals in Asia/Pacific region will return to 2019 levels only in 2024 or in later years as shown on the below graph. This confidence for the Asia/Pacific region is also higher than other regions in the world in the same survey. While international tourism bounces back, the experts also agree that domestic tourism will continue to drive recovery of the sector in an increasing number of destinations, particularly those with large

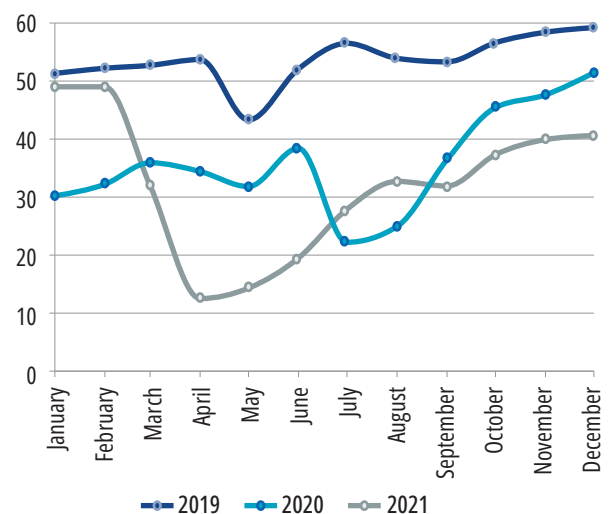
NUMBER OF FOREIGN TOURIST



NUMBER OF TRIP OF DOMESTIC TOURIST

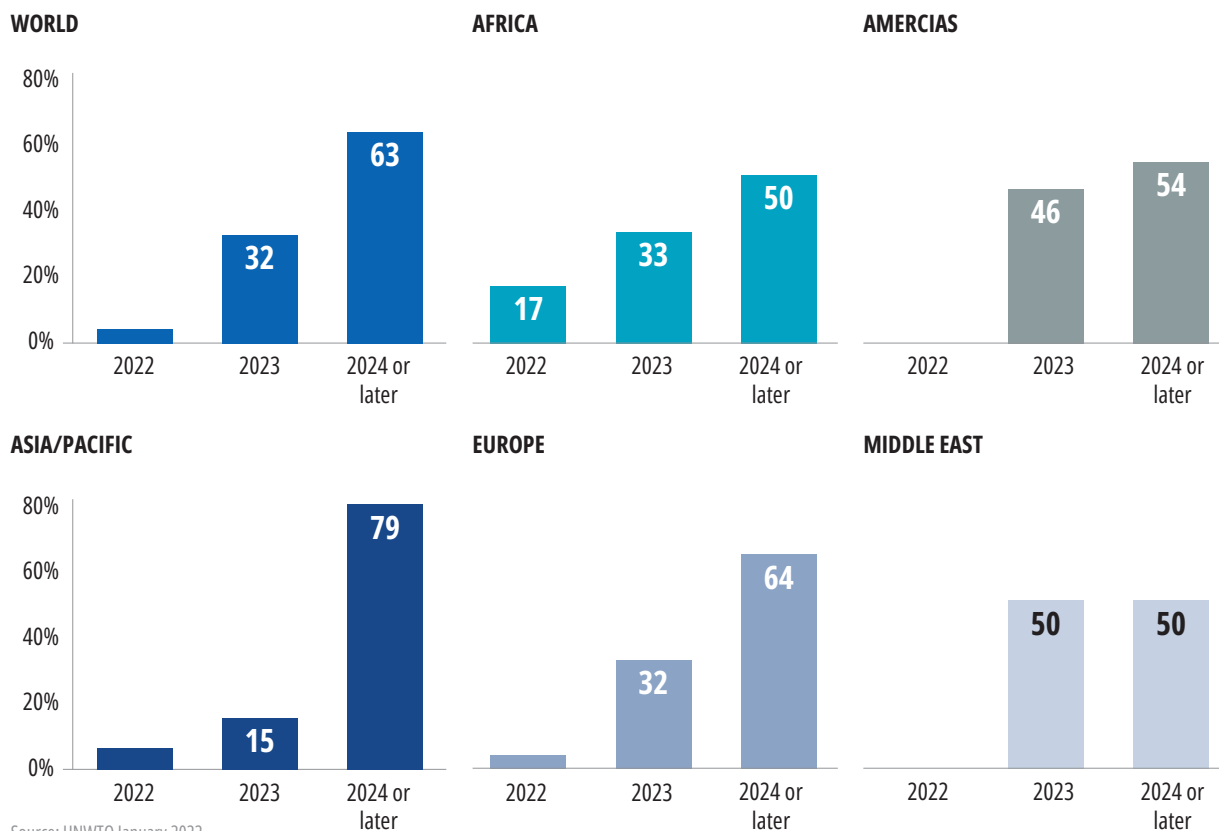


OCCUPANCY RATE OF FIVE STAR HOTELS



Source: BPS data, 2019 - 2021

INTERNATIONAL ARRIVAL



domestic markets. Domestic tourism and travel close to home, open-air activities, nature-based products and rural tourism are among the major travel trends that will continue shaping tourism in 2022.

4.6.2 The Increasing Importance of Online Travel Agencies Role in Growing Tourism Industry

The presence of online travel agencies (OTA) as a channel to increase promotion and engagement to domestic and foreign tourists has shown its significant contribution. Travel intermediaries recorded growth of 30% or IDR 59,878 billion in 2021 sales, while OTA sales

increased by 53% or IDR 83,674 billion compared to the previous year⁷⁰. As the income per capita increased from IDR 57.3 million in 2020 to IDR 62.2 million in 2021, it is expected that people can still allocate their income for tourism⁷¹.

With Indonesia being the most populous country in the SEA and 53.8% of the population comprises Gen Z and millennials, usage of OTAs in the tourism industry will likely be largely preferred. The large population, paired with a high proportion of Gen Z and Millennials, has created a highly favorable condition that drives the growth of OTA. Moreover, OTAs also offer a wide variety of products and services, with attractive prices due to promotions and lower overheads.

⁷⁰ Euromonitor International, 8 October 2021

⁷¹ BPS data

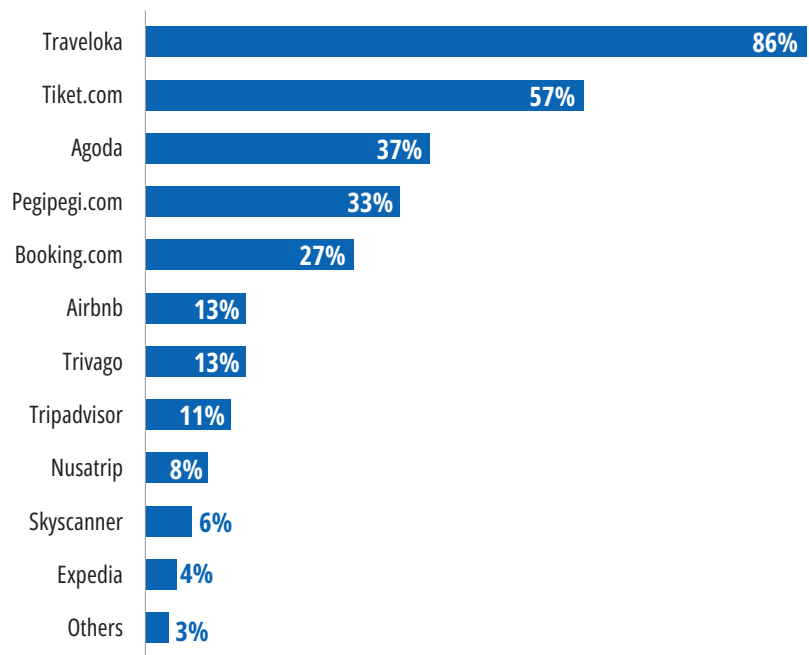
These caused the growth of OTA faster than conventional travel intermediaries.

Below are the most popular online travel agencies among customers in Indonesia as of November 2020:

As the most popular OTA in Indonesia, Traveloka has a comprehensive product portfolio that includes transport booking services such as flight tickets, bus, trains,

through the use of technology in an era full of challenges and disruptions due to COVID-19 pandemic and received an appreciation from the IDC Future Enterprise Awards 2021. During the last two years, Traveloka has already made innovations by diversifying its business, such as Traveloka Online Xperience (online class marketplace and workshop

MOST POPULAR ONLINE TRAVEL AGENCIES



Source: Survey by Rakuten Insight in November 2020 - published by Statista Research Development*

car rental, and airport transfer, as well as access to the largest accommodation inventory in Southeast Asia, including hotels, apartments, guest houses, homestays, resorts, and villas. Traveloka is also a key player in the lifestyle segment offering reservations for a wide range of local attractions and activities as well as culinary directories. Also, through financial services products, Traveloka offers financing, payment, and insurance solutions to help customers solve their various financial pain points in their travel & lifestyle journey.

Traveloka has survived and innovated

skill), Traveloka Eats (online food delivery), and Traveloka COVID-19 Testing (online health services in relation to COVID-19 vaccine and test related).

The Minister of Tourism and Creative Economy, Sandiaga Uno, stated that in 2022, the recovery and revival of the tourism and creative economy sectors will remain a priority. Overcoming these conditions, the Ministry of Tourism and Creative Economy made various efforts to save Indonesian tourism. These efforts are divided into three phases, namely **emergency response, recovery, and normalization**. The emergency response

phase focuses on health, such as initiating social protection programs, coordinating tourism crises with tourism areas, and preparing for recovery. In the recovery phase, tourist attractions in Indonesia will be opened in stages. The preparation includes the implementation of the CHSE (Cleanliness, Health, Safety and Environmental Sustainability) certification and protocol in tourist attractions, as well as supporting the optimization of MICE (Meetings, Incentives, Conventions and Exhibitions) activities. Next, in the normalization phase, the government began to prepare destinations with the CHSE protocol, increase market interest, and to offer discounts for tour packages and MICE.

4.6.3 How to Compete in Digital Tourism Industry

During the interview with the Kemenparekraf, the minister said that tourism development post pandemic has accelerated the characteristics of the new tourism economy, which is based on hygiene, low mobility, less crowding, and low levels of touch - or what is commonly referred to as personalized, customized, localized, and smaller in size. The concept of 3A (attraction, amenity, access) has also changed due to the formation of a new tourism economy.

Currently, tourism attractions prioritize culture and nature, because attractions that offer eco-friendliness, and adventure concepts will be more in demand and will become a new mainstream in the tourism industry. In addition, amenities based on the aspect of hospitality are important. Also of importance is access that includes domestic micro tourism, because in the midst of a pandemic the movement of tourists between countries is increasingly restricted so that domestic micro tourism will become the most important pillar of the megashift that occurs in the sector. The Minister of Tourism and Creative Economy also mentioned that the main

“One of the business strategies prepared by Traveloka, before the economy fully recovered is that Traveloka will continue to innovate and collaborate to expand our products and services, in line with Traveloka’s commitment as a lifestyle superapp to meet the lifestyle needs and aspirations of people in Southeast Asia.”



Caesar Indra
President of
Traveloka

key for tourism in order to survive in the midst of a pandemic and in order to face the megashift industry is to have the ability to adapt, innovate, and collaborate well. At this time, people are starting to change, and this is accompanied by a shift in tourism trends.

Indonesia is one of the fastest-growing online travel markets in the world. The continued success of OTAs will depend on whether Indonesia can address the limitation of Indonesia’s digital ecosystems, such as by improving resources’ availability, implementing the innovative strategies or looking for other opportunities and supporting policies and promoting digital adoption. Accordingly, the government, as the top policymaker, should elevate such issues to create a business climate that supports the tourism industry’s players.

Improve Resources Availability– Attracting More Domestic Tourists, Including Accelerating Infrastructure Development

The skills and experience of the people in the tourism industry can be enhanced. Given the wide landscape of Indonesia, such resources may not be spreading evenly across remote but potential destinations. OTAs, local governments and private sectors can focus on improving these areas through collaboration with universities and other

relevant organizations, while the focus post-pandemic may still be with domestic tourists.

The development of access to tourism and infrastructure like toll roads, airports and seaports should be continued, which can be done through collaboration with the private sector in developing tourist destinations. Underdeveloped but high potential areas should be explored. An example is from the development of the Trans-Java toll road that stretches around more than 1,000km and Sumatra toll road; there are higher opportunities for movements of domestic tourists, not only in hotels but also for activities like camping, hiking and other outdoor activities. As for the ICT infrastructure, the sufficient internet connection/broadband needs to be enhanced, especially in the high-potential tourism area.

Support Policies and Promoting Digital Adoption

The tourism industry players are affected by the government policies on responses to the pandemic and the large-scale social restriction (PSBB). Certain players may already have gone out of business or be facing a very difficult time financially. Governments play an important role to help tourism businesses get back to business through promotion, campaign and favorable policies, such as: a simpler COVID-testing protocol and procedure, clear quarantine procedure, opening up flights, and providing support to small and medium tourism players which might be the most impacted by the pandemic. Therefore, the industry players can also use the opportunity to transform their operation by adopting relevant technologies.

COVID-19 accelerated tourism digitalisation and innovative technologies, and also influenced consumer behavior. Digitalisation impacts a consumer's everyday life, including the tourism industry. With digitalisation, travelers have the option to control their actions

and be more involved in the travel planning process at their own pace. From planning the e-itineraries, checking on the available options, automated bookings to mobile check-in, digitalisation is having a profound impact on the tourism industry.

The pandemic offers certain behavior to the customers and they will demand more access, convenience and safety. To improve services, tourism industry players can start to focus on offering these services. This includes providing access to high-speed internet, online promotion and resources. Moreover, online booking and check-ins can be done using touchless technologies or customer's mobile phones in accessing the rooms. There is also cost reduction through efficiencies from technology and developing better customer relationships by utilizing data.

Kemenparekraf had already started to support digital tourism, in ways such as: collaborating with the Ministry of Communications and Informatics in developing ICT infrastructure for connection internet and wifi, especially in five super priority destinations (Danau Toba - North Sumatra, Borobudur—Central Java, Mandalika—West Nusa Tenggara, Labuan Bajo—East Nusa Tenggara, and Likupang—North Sulawesi) and Indonesian tourist villages. Furthermore, Kemenparekraf also advised the industry players to implement the appropriate strategy or an innovative promotion to survive in this situation, by offering a Work From Home package, staycation package, and virtual tours. And to support fast, easy and safe payment, many tourism players have already switched to a cashless environment payment system, or digital payments using QRIS (Quick Response Code Indonesian Standard).

Improving and Promoting Indonesia's Medical Tourism

Benchmarking other ASEAN countries such as Singapore and Malaysia, there is also an opportunity in the medical tourism industry in Indonesia. The Government



of Indonesia also continues to intensify efforts to develop health tourism or medical tourism. One of the stepping stones in the development of the national medical tourism industry is the Indonesia Medical Tourism Board (IMTB).

The IMTB is an agency that facilitates and promotes the healthcare travel industry of Indonesia by coordinating industry collaborations and building valuable public-private partnerships, at home and abroad. Research shows that a big percentage of the affluent market in Indonesia prefers to use overseas medical services. Singapore, Malaysia, South Korea, and Europe are among the popular medical destinations for Indonesians. Aside from the medical competence and facilities, those medical destinations also offer appealing traveling experiences and affordable care services. Therefore, the government founded the IMTB to enable people to access

reputable medical services and facilities, while enjoying the exquisite traveling experience in Indonesia⁷². However, to develop Indonesia to become a major player in the medical tourism market, it is imperative to increase the quality of healthcare services and involvement of reputable health experts.

The impact of COVID-19 to the industry is indeed severe. However, the industry has learnt a very valuable lesson on resilience and agility - to be continuously innovative and capture the engagement of the customers. Both traditional and digital players in the tourism industry need to be ready to adjust their strategy, allocating resources in the appropriate area and ready to capture the potential recovery that will hopefully soon be enjoyed post-pandemic.

⁷² <https://imtb.id/about/>



4.7 Fintech: Advancing Financial Inclusion Through Fintech

4.7.1 The Flourishing Fintech Sector in the Time of COVID-19

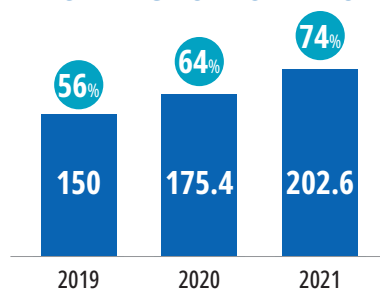
Indonesia's digital financial services scene has been experiencing a boom in recent years. COVID-19 has become the unexpected catalyst that accelerates digital transformation and technologies. From the EV-DCI 2022 findings, the growth is exemplified in the improvement in entrepreneurship and productivity pillar, which increased by 182%, from 8.4 to 23.5 in 2020-2022.

In Indonesia, the tremendous development of the fintech industries is driven by the exponential increase in internet adoption. Internet penetration increased from 56% to 74% to reach 202.6 million users, while mobile internet penetration increased from 53% to 71% to reach 195.3 million in 2019-2021.

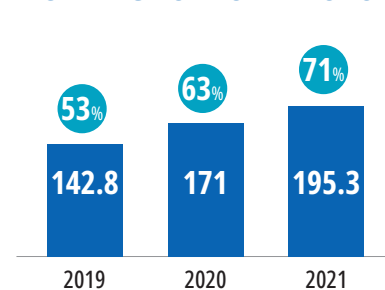
■ Number of Active Internet User & Number of Mobile Internet Users
● Percentage of Total Population

Source: We Are Social and Hootsuite: Digital 2021 Indonesia

ACTIVE INTERNET USERS AS A PERCENTAGE OF TOTAL POPULATION

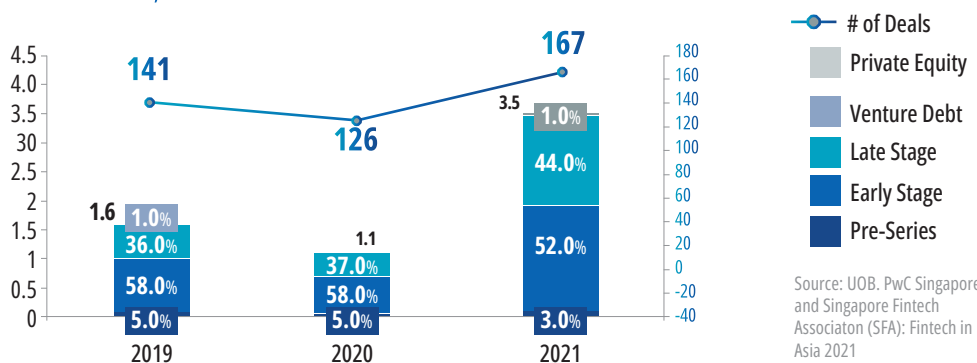


MOBILE INTERNET USERS AS A PERCENTAGE OF TOTAL POPULATION

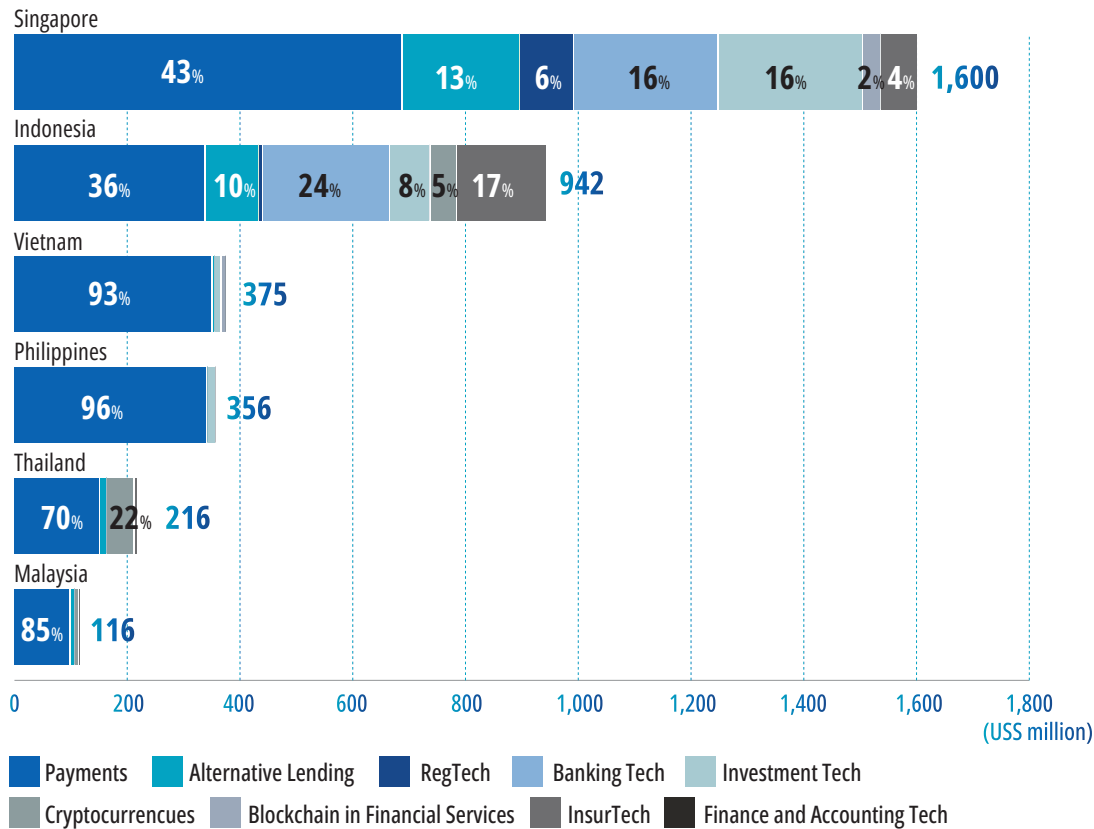


According to Fintech in the ASEAN 2021 report by United Overseas Bank (UOB), PwC Singapore, and Singapore Fintech Association (SFA), the total fintech funding of the six largest ASEAN economies grew by over three times to reach USD 3.5 billion in 2020-2021, after experiencing a decline of 31.3% in the previous year. Indonesia was ranked second as it received 26% of the total investment, behind only Singapore with 44%. Almost every fintech category in Indonesia and Singapore received funding, an indicator of a dynamic and flourishing industry with a vibrant investment landscape.

INVESTMENT IN FINTECH IN ASEAN-6 in US billion, 2019-2021



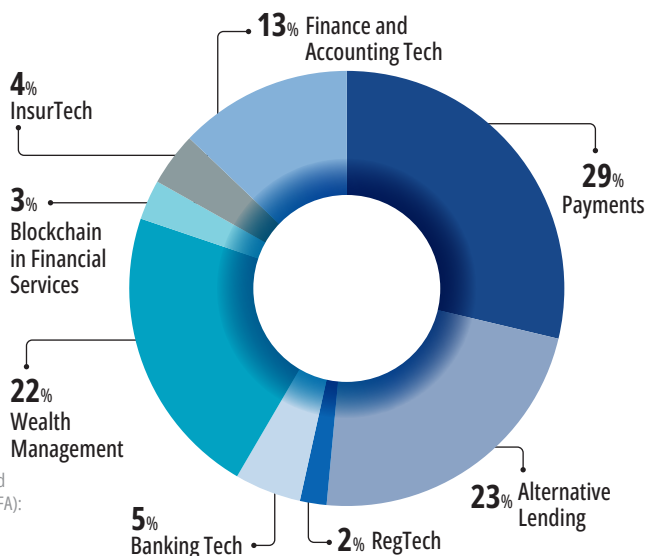
FINTECH FUNDING IN ASEAN



Source: UOB, PwC Singapore and Singapore Fintech Association (SFA): Fintech in Asia 2021

Starting with e-money and P2P lending, the fintech industry now serves broader segments to encompass the growing consumer needs from investments, insurance, and others. Payment firms make up 29% of all fintech firms in Indonesia, making it the most common type of fintech firm followed by lending at 25% and wealth management at 22%.

FINTECH LANDSCAPE IN INDONESIA BASED ON NUMBER OF FIRMS



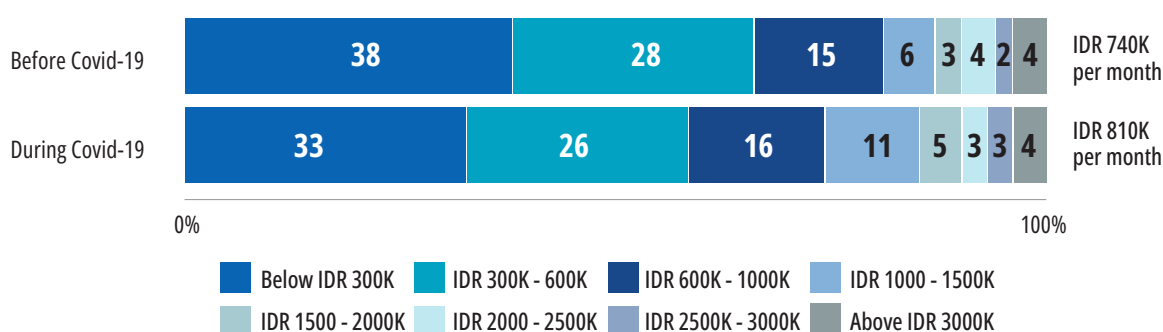
Source: UOB, PwC Singapore and Singapore Fintech Association (SFA): Fintech in Asia 2021

4.7.2 Fintech's Current Condition

Payment

Amid slowing economic activity, COVID-19 has led to a surge in e-commerce and expedited digital transformation. As social restriction became the new normal, businesses and consumers are progressively adopting digitalization, providing and purchasing more goods and services online and raising the size of the e-commerce market. A survey conducted by PwC Indonesia in 2021 indicated that the average e-wallet payment spending per month has increased by 9.5% to approximately IDR 810,000 due to the pandemic.

AVERAGE E-WALLET PAYMENT SPEND PER MONTH DURING COVID-19



0%

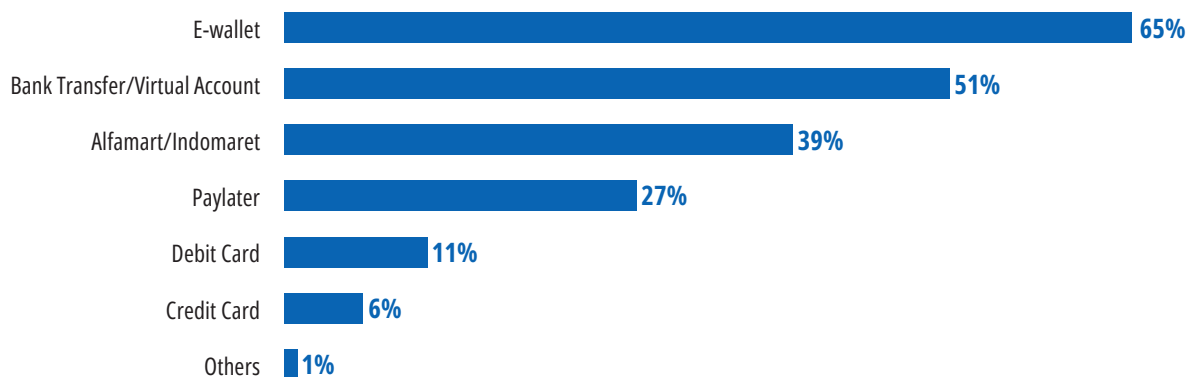
100%

■ Below IDR 300K ■ IDR 300K - 600K ■ IDR 600K - 1000K ■ IDR 1000 - 1500K
 ■ IDR 1500 - 2000K ■ IDR 2000 - 2500K ■ IDR 2500K - 3000K ■ Above IDR 3000K

Source: PwC Survey

The prominence of digital payment can also be observed by the high appetite for using e-wallet as a payment method. According to a survey conducted by Katadata Insight Center (KIC) and Kredivo in 2021, 65% of respondents chose to use digital wallet (e-wallet) to shop online, making it the go-to payment method in e-commerce. This has led to a growth in fintech payment, including players such as OVO, which reported an increase of 276% in new users since the start of the pandemic. Moreover, OVO experienced an increase of over 70% in the number of merchants in 2020.

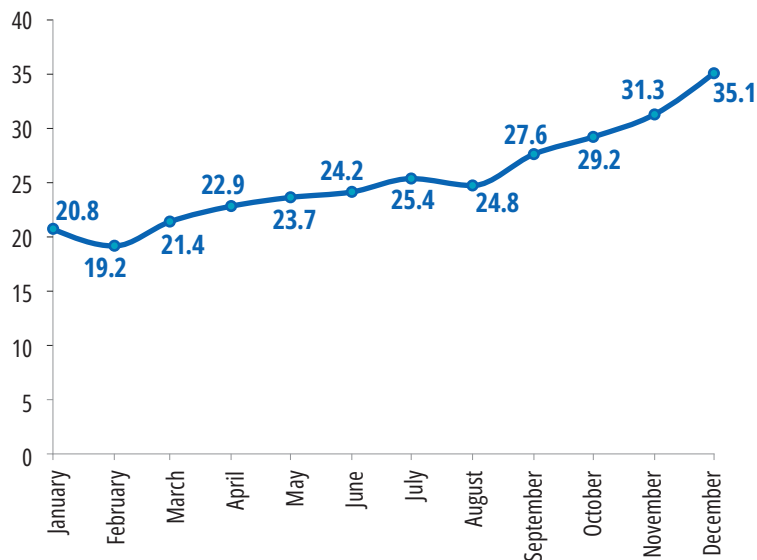
INDONESIA DIGITAL PAYMENT METHODS, 2021



Source: Katadata Insight Center (KIC) and Kredivo

Consequently, the fintech payment sector has grown tremendously and generated a massive transaction value in the past year. Data from BI shows that as of December 2021, the number of e-money transactions has reached IDR 35.1 trillion, an increase of 59% from IDR 22 trillion rupiah in December 2020.

MONTHLY E-MONEY TRANSACTION IN INDONESIA in IDR trillion, 2021



Source: Bank Indonesia

Indonesia's government has also been proactive and responsive in supporting the integration of the national digital economy and finance, reflected in the issuance of the 2025 Indonesia Payment System Blueprint. For instance, the government remains committed to improving the digital payment system, shown by launching the Quick Response Code Indonesian Standard (QRIS) in August 2019. QRIS facilitates payments across different payment methods/applications such as GoPay, OVO, Dana, LinkAja and several mobile banking applications, by providing a single QR code basis for merchants. The implementation of QRIS has been a successful one. As of November 2021, the number of merchants integrated with the system has reached 12.11 million and the number of transactions has increased by 264% (YoY) to reach 40 million. Additionally, the accumulated transaction value has increased by 248% (YoY) to hit IDR 2.9 trillion⁷³.

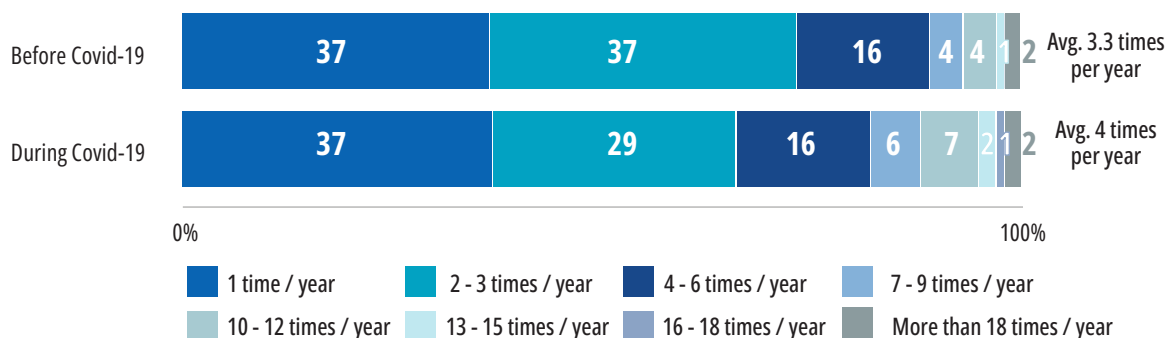
Peer-to-peer (P2P) Lending

People from all walks of life have been impacted by the COVID-19 crisis. In addition to the threat to public health and social disruption, the pandemic has also driven many into financial crisis due to job loss and salary cuts. According to BPS, the average annual income of the Indonesian population declined from IDR 59.1 million to IDR 56.9 in 2020. Additionally, BPS also indicated that there was an increase of 11.2% in the number of people in poverty in the same period.

⁷³ <https://qris.id/homepage/qris-news-detail?page=9-transaksi-pembayaran-qris-semakin-subur>

Amid the financial turmoil, many resorted to P2P lending platforms to meet their financing needs. EV-DCI 2022 shows an increase of 0.5point to reach 1.9 in fintech lending median score compared to last year. Furthermore, according to a survey

AVERAGE FREQUENCY OF LENDING PER YEAR BEFORE VS DURING COVID-19, 2021



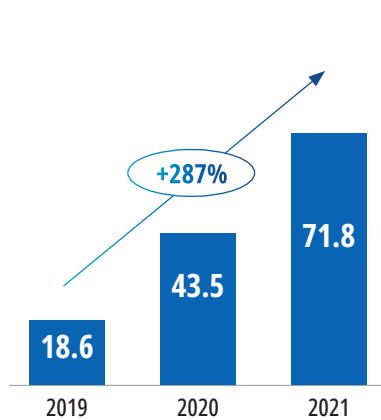
Source: PwC Survey



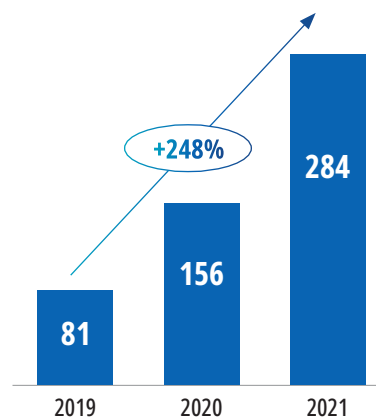
conducted by PwC Indonesia in 2021, people borrow more often during the pandemic as the average frequency of lending increases from 3.3 to 4 times annually.

The growth in P2P lending is also captured by the data published by Indonesia Financial Services Authority (OJK). The number of borrower accounts increased by 287% to reach 71.8 million accounts in 2019-2021. Similar trends can also be observed in the accumulated loan disbursement to borrowers, which grew by 248% in the same period. Moreover, the proportion of productive loan to total loan disbursement grew from 42.5% to 63.2% in January-November 2021. The increase in the proportion of productive loans can be associated with the growing need for financing to develop people's business activities in the current conditions.

**ACCUMULATED NUMBER OF
BORROWER ACCOUNT**
in IDR million, 2019-2021

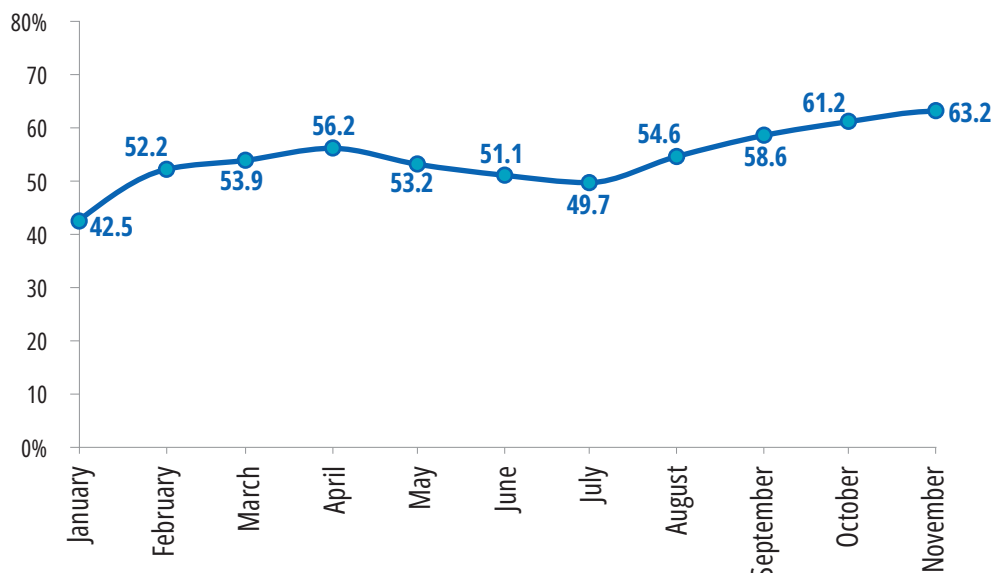


**ACCUMULATED LOAN
DISBURSEMENT TO BORROWERS**
in IDR trillion, 2019-2021



Source: Otoritas Jasa Keuangan (OJK)

LOAN DISBURSEMENT ON PRODUCTIVE SECTORS, 2021



Source: Otoritas Jasa Keuangan (OJK)

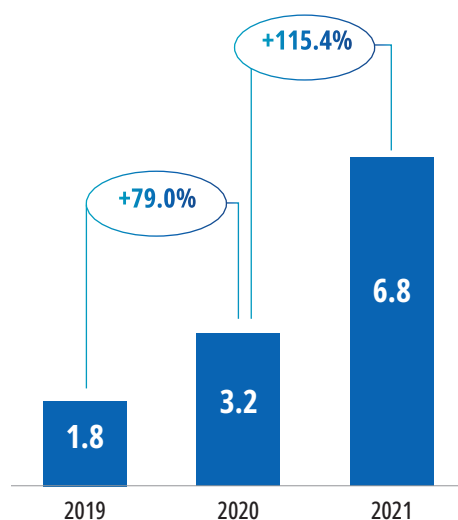
The growth in P2P lending has also accelerated the growth of fintech players. Take KoinWorks, a leading P2P lending startup in Indonesia, as an example. KoinWorks recorded an increase of over 50% (YoY) in the number of users reaching 1.2 million individuals as of November 2021, and is targeting to reach 5 million users by the end of 2022. Additionally, the startup has successfully secured USD 108 million in its series C round in January 2022. The capital injection will further accelerate the growth of the company and is a sign of confidence from investors that signals the promising future of the industry.

Wealth Management

Although COVID-19 has adversely affected various industries, the investment sector is one exception as the uncertainty surrounding the pandemic results in an upward trend in the investment industry. Consequently, the dawn of the pandemic also becomes a catalyst for the growth of investment tech as people look to increase their income with the implementation of restrictions, restrictions and stay-at-home orders. According to Indonesia Central Securities Depository (KSEI), the number of capital market investors increased by 93.0% to 7.5 million, while mutual fund investors increased by 115.41% in 2021.

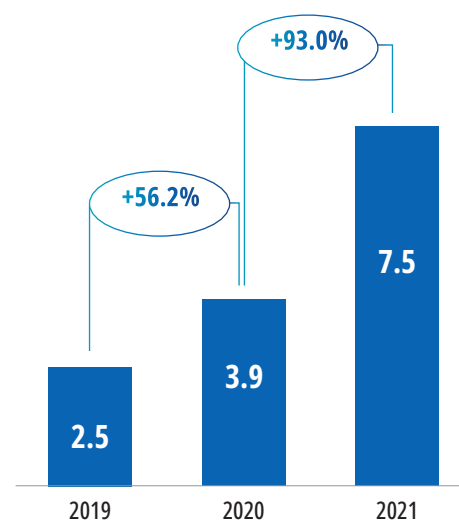
MUTUAL FUNDS INVESTOR

In million, 2019 - 2021



STOCK MARKET INVESTOR

in million, 2019 - 2021



Source: Kustodian Sentral Efek Indonesia (KSEI)

In addition to uncertainty amid the pandemic, the high growth of investment tech is also driven by fintech investment players' aggressive promotions and beginner friendly products. Take Bibit, a robo-advisor investment app, as an example. Bibit's Robo Advisor technology will automatically suggest a mutual fund portfolio that best fits the user's risk profile, making investing hassle-free. Additionally, it provides investors with a small starting investment amount of IDR 10,000 (personal) and IDR 100,000 (with robo-advisor) for mutual funds.

4.7.3 Financial Technology to Drive the Development of a Digital Society

It is vital for Indonesia to accelerate the adoption of fintech to democratize access to financial services. While Indonesia has huge market potential for fintech, current and potential players have to be aware of the fundamental problems that have been hindering the growth of the sector. There are a number of roadblocks that fintech players should take into consideration; they revolve around the lack of financial literacy and inclusion.

Improving Financial Literacy to Accelerate the Growth of Fintech

Financial literacy, particularly the clarity and relevance of financial education regarding financial products, services, and activities, is one of the main drivers of fintech adoption. This is supported by a report published by Asian Development Bank in 2020, which indicates that higher financial literacy is positively associated with a higher likelihood of using fintech services.⁷⁴ However, in Indonesia, the key hindrance to drive more growth in the fintech adoption process is financial literacy, especially for the underbanked population.

Indonesia's low financial literacy, especially among vulnerable populations, has been a major roadblock in accelerating the growth of the fintech industry. According to a survey conducted by OJK in 2019, Indonesia financial literacy was 38.03%, which is much lower than countries like Singapore, which has approximately 80%⁷⁵.

A lack of financial literacy is responsible for poor money management skills, which lead to consequences

The number of illegal online lending companies that had been shut down in 2021 reached 3,631 companies and over 8,000 complaints.

such as bankruptcies, higher debt, and lower savings. In Indonesia, poor financial literacy has also been affecting the credibility and growth of fintech, especially regarding P2P lending with the emergence of illegal online loans. Illegal operators often promise easy borrowing schemes to customers, who often lack financial literacy. When customers are unable to pay and become trapped in the over-indebtedness, the illegal lenders often use violent and abusive tactics to demand payments.

The Asosiasi Fintech Pendanaan Bersama Indonesia (AFPI) explained that illegal lending platforms are those not registered with OJK. Illegal online lending operations have grown exponentially amid the growing popularity of fintech during the pandemic. According to the Investment Alert Task Force (SWI), the number of illegal online lending companies that had been shut down reached 3,631 companies and over 8,000 complaints were recorded as of November 2021⁷⁶.

There is an urgent need to increase financial literacy in Indonesia to help educate and empower people to evaluate various financial products and services available before making decisions that might impact their welfare. Here are a few key approaches to introduce effective and innovative provision

⁷⁴ <https://www.adb.org/sites/default/files/publication/574806/adb-wp1095.pdf>

⁷⁵ <https://www.finder.com.sg/singaporeans-more-financially-literate-than-they-think#:~:text=Among%20the%20four%20markets%20surveyed,health%20index%20score%20of%2068%25.>

⁷⁶ <https://aceh.antaranews.com/berita/253497/satgas-waspada-investasi-blokir-3631-pinjol-illegal>

Indonesia's low financial literacy, especially among vulnerable populations, has been a major roadblock in accelerating the growth of the fintech industry.

of financial education. **Firstly**, the stakeholders need to facilitate access to information and advice through multi-channel delivery. For instance, the government should continue optimizing the utilization of websites or social media that seek to become the reference at the national level through interactive web-based tools, and awareness and communication campaigns. The OJK has been utilizing digital media by creating and posting informative videos and infographics on platforms such as YouTube and Instagram. Moreover, The OJK has published the 'Finance Literacy Book Series', which provides financial education at different life stages.

Secondly, the government should harness existing learning environments and networks. One way is to introduce financial education in schools as an elective or mandatory cross-curricular subject. For example, financial education has been a compulsory part of the Danish national curriculum for students in 7th-9th grade (aged 13-15) since 2015. The program has been successful as Denmark has one of the highest financial literacy rates in the world. Indonesia has actually introduced financial literacy education as part of the curriculum starting in high school in 2016 and all levels of education in 2021⁷⁷. However, since the introduction is still new, the government needs to ensure that the curriculum remains relevant to cope with the rapid changes in the financial sector.

Lastly, stakeholders should provide financial education to the public, which can come in the form of handbooks and programs to further accelerate the development of financial literacy. For instance, Dana has a Report Card feature to learn about finance that includes materials such as budget management, savings, and investments. Moreover, GoPay, Tokopedia, Gojek and PT Bursa Efek Indonesia (BEI) collaborated to create 'Finansiap Program', which aims to increase financial literacy through platforms such as webinars, podcasts, articles and websites⁷⁸.

Integration of Digital ID into Fintech to Facilitate Financial Inclusion

Provided a strong financial literacy among the population, Indonesia will be able to achieve full financial inclusion, which can be accelerated with the adoption of fintech. Financial inclusion is a key factor of social inclusion, particularly effective in combating poverty and income inequality by unlocking blocked advancement opportunities. It involves providing access to an adequate range of safe, convenient, and affordable financial services to disadvantaged and other vulnerable groups.

Due to factors such as insufficient income levels and market discrimination in developing regions, many Indonesians are involuntarily excluded from the financial system, which generates potential loss of savings, investable

⁷⁷ <https://ekbis.sindonews.com/read/520636/33/resmi-literasi-keuangan-masuk-kurikulum-pendidikan-1629803294>

⁷⁸ <https://money.kompas.com/read/2021/10/25/164412126/finansiap-diharapkan-tingkatkan-literasi-keuangan-di-kalangan-anak-muda>

funds, and accumulation of wealth. According to Financial Inclusion Insight report, 58.2% of Indonesia's population remained unbanked in 2020 despite the nation's rapid economic expansion in the last decades⁷⁹. This is much higher than in neighboring countries like Singapore and Malaysia with 2% and 15%, respectively⁸⁰. Thus, it is not surprising that according to a survey conducted by OJK, Indonesia's financial inclusion index was only 76.19% in 2019.

The fintech sector is not only able to streamline the provision of financial products and services, but also to generate new players that are swiftly connecting with more unbanked and underbanked customers. If it is done properly, fintech has the potential to eliminate the existing financial inclusion gap more rapidly than conventional finance. Fintech improves financial inclusion by providing individuals, especially those who are underserved, with greater access to financial products and services such as payment, savings, credit, and investment.

However, Indonesia is missing a crucial piece in accelerating financial inclusion: digital IDs for Individuals. Indonesia needs to start adopting a digital ID system to accelerate efforts to achieve financial inclusion. The importance of digital IDs is also highlighted by the government in the Indonesia Payment Systems Blueprint 2025 in opening the door to payment service access for all parties.

While Indonesia's priority remains to provide traditional identification documents, the effort should be accompanied by a shift towards creating a universal ID system. The implementation of digital IDs will become a key driver of growth for the fintech sector. Fintech will benefit from the huge convenience that digital IDs present by being an instant

'know-your-customer' (KYC) verification tool, accelerating financial inclusion. Moreover, this will also assist in creating the digital economy as it increases transparency, reduces fraud, and protects individual's rights, among other things. According to Reuters, developing countries could see an economic growth of up to 13% by 2030 with the implementation of digital IDs.

One prominent example is the successful implementation of digital IDs to increase financial inclusion in India. In 2009, the government launched Aadhaar card, a unique 12-digit individual identity number that combines demographic information (birthdate, address, etc) with biometric information (fingerprints, iris scans, etc). According to the Unique Identification Authority of India (UIDAI), the total proportion of the Indian adult population holding an Aadhaar card has reached 99% in 2021⁸¹. Additionally, the system card has helped bring tens of millions of people into the financial system by being accepted as valid identification for KYC banking regulations.

Successful utilization of a digital ID system to spur fintech growth will lead to the acceleration of digital adoption in the financial sector. One of the most prominent results will be the creation of a cashless society through the development of digital payment. Take China as an example. China is well on its way to become the world's first cashless society with the prevalence of mobile payment. The payment system has come to dominate person-to-person, retail and many other business transactions with two big tech firms, AliPay and WeChat Pay, as the most used digital wallets. Essentially, Indonesia is moving towards China's cashless payment system, and the introduction of digital IDs will bring Indonesia a step closer to a fully cashless society.

⁷⁹ Financial Inclusion Insight report 2020

⁸⁰ <https://www.gfmag.com/global-data/economic-data/worlds-most-unbanked-countries>

⁸¹ <https://www.livemint.com/news/india/big-boost-for-uidai-today-99-of-indian-adult-population-holds-aadhaar-card-11624939991372.html>



4.8 ESG as The Development Principle to Maximize Digital Economy Potential

4.8.1 Rising Priority of ESG Implementation

The incorporation of environmental, social, and governance (ESG) principles has increased globally and is accelerated by the pandemic situation. PwC State of Climate Tech report in 2021 revealed a 210% year-on-year increase on global investments in climate tech. Climate tech consists of technologies that focus on reducing greenhouse gas emissions or addressing the impacts of climate change. The global society is increasingly aware of climate change and its impacts, also becoming more inclined to voice concerns on social and governance issues—which calls for drastic actions from stakeholders.

The UN's climate change conference (COP26) has echoed this and announced commitments from countries and businesses to collaborate in speeding up the shift towards climate tech adoption worldwide. There are two key factors that have led Indonesia to speed up its ESG principle incorporation; **increased awareness among Indonesia's consumers** about the importance of ESG and the **growing global stakeholders' pressure** to find solutions to sustainability challenges⁸².

This is also aligned with President Joko Widodo's remark at the G20, mentioning that among the focuses of the G20 presidency, Indonesia will prioritize transitioning to a greener economy and growing its digital economy. Through Indonesia Stock Exchange (IDX), Indonesia has also strengthened its commitment to ESG by being an active member of the United Nations' Sustainable Stock

Exchange Initiative that encouraged the reporting of sustainability disclosures for companies' country members. Commitment to advance gender equality in businesses was also made by Indonesian corporations and MSMEs at the United Nations Development Program (UNDP)'s Women Empowerment Principles Award 2021, involving companies such as Pertamina Persero, GoTo, Amaan Indonesia, The Body Shop Indonesia, and L'Oréal.

4.8.2 Indonesia is Progressing Towards ESG Incorporation Although Faced with Challenges

Indonesia has been progressively strengthening its sustainable policy and regulations to catch up. One of the most important strategies of Indonesia's sustainable finance was published by the Indonesian Financial Services Authority (OJK) through its 2021-2025 Sustainable Finance Roadmap, released in 2021. One of its prominent strategies include introducing the green taxonomy as a guide in developing innovative and sustainable financial products and sustainable financial disclosure⁸³. Moreover, OJK has also developed a task force that collaborates with industries to accommodate sustainable finance discussions in regional, national, or global forums⁸⁴.

In a Global Progress Report assessment of national approaches in promoting sustainable finance in emerging economies, Sustainable Banking and Finance Network (SBFN) and International Finance Corporation (IFC) positioned

82 Indonesia Sustainable Transformation - PwC and OBG <https://oxfordbusinessgroup.com/news/esg-and-indonesia-which-factors-will-drive-growth>

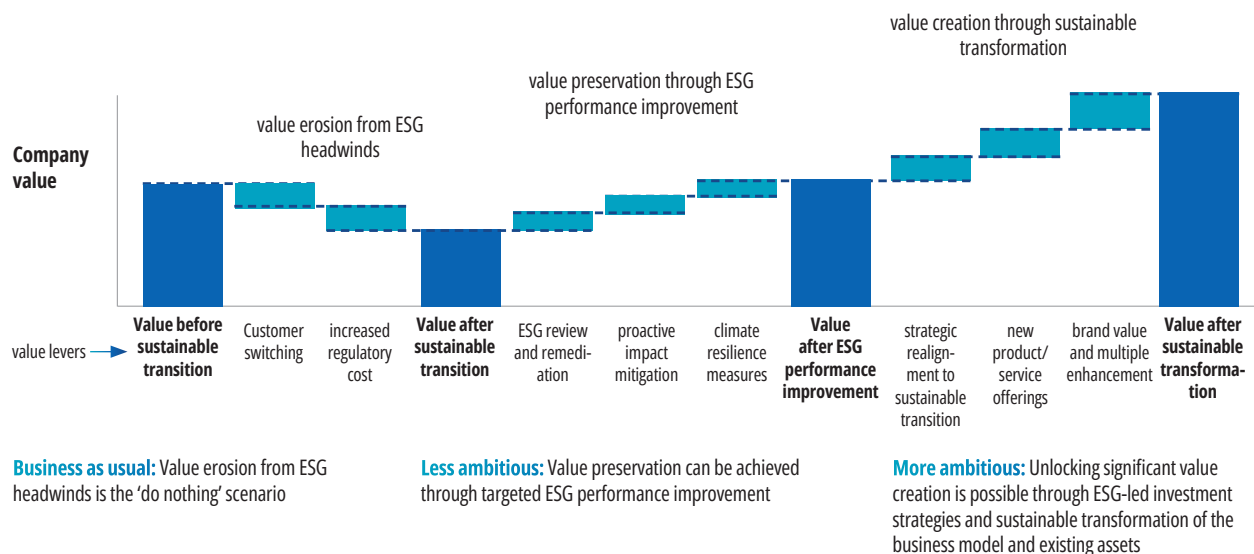
83 OJK Sustainable Finance Roadmap 2021-2025

84 <https://www.ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/OJK-Bentuk-Task-Force-Kuangan-Berkelanjutan-Sektor-Jasa-Kuangan.aspx>

Indonesia, China, and Colombia as the only three countries in the maturing stage⁸⁵. This was a result of Indonesia's efforts to address sustainability in the regulatory landscape through the stipulation of carbon tax price starting April 2022 will also add momentum to ESG-aligned investments in technology and business practices in the years to come. However, whilst being mature by having a dedicated sustainable financing strategic infrastructure for financial services, there are several key barriers to why Indonesian companies and investors are hesitant to focus on incorporating ESG into their strategy and operations⁸⁶. **First, the lack of ESG proficiency across industries** leads to missed potential of value creation and mitigation of ESG-related risks. For instance, PwC found that opportunities to reduce more than 80% of future emissions are being missed because capital investments are channeled to a handful of conventional technologies instead of climate tech⁸⁷.

If organizations fail to align their vision in a balanced E, S, and G principles, the results may impose a bigger risk for their businesses—including value erosion from failure to transition. When other competitors have progressed towards sustainability incorporation in strategies, inability to meet stakeholder expectations, and to comply with ESG-aligned regulations may lead to certain disadvantages. For example, if Indonesian fisheries product suppliers failed to comply with the sustainability requirements of its ESG-oriented customers in the EU—such as responsible sourcing, labor rights, and diversity aspects, their products may be refused entry to the EU. This will impede their business, causing disruptions to financial performance and possibly

WHY ESG MATTERS?



losing competitiveness in the export markets.

Second, a reporting trap that is rooted in a lack of a single international ESG reporting framework that can enable comparability across industries and markets. Without a single standardized framework to guide data collection, validation, and reporting, companies will continue to face challenges in justifying actions that match ESG principles. PwC also found that investors who invested in ESG-related

⁸⁵ SFBN-IFC Global Progress Report

⁸⁶ PwC - Are you ready for the ESG revolution? – 2021

⁸⁷ PwC Climate Tech Report

startups and companies were driven not just by the commitment to have a positive impact but also by the opportunity for notable financial returns⁸⁸. Therefore, a single standardized framework for ESG reporting will enable investors and corporations to understand the link of ESG performance with financial performance and identify ESG risks across different sectors.

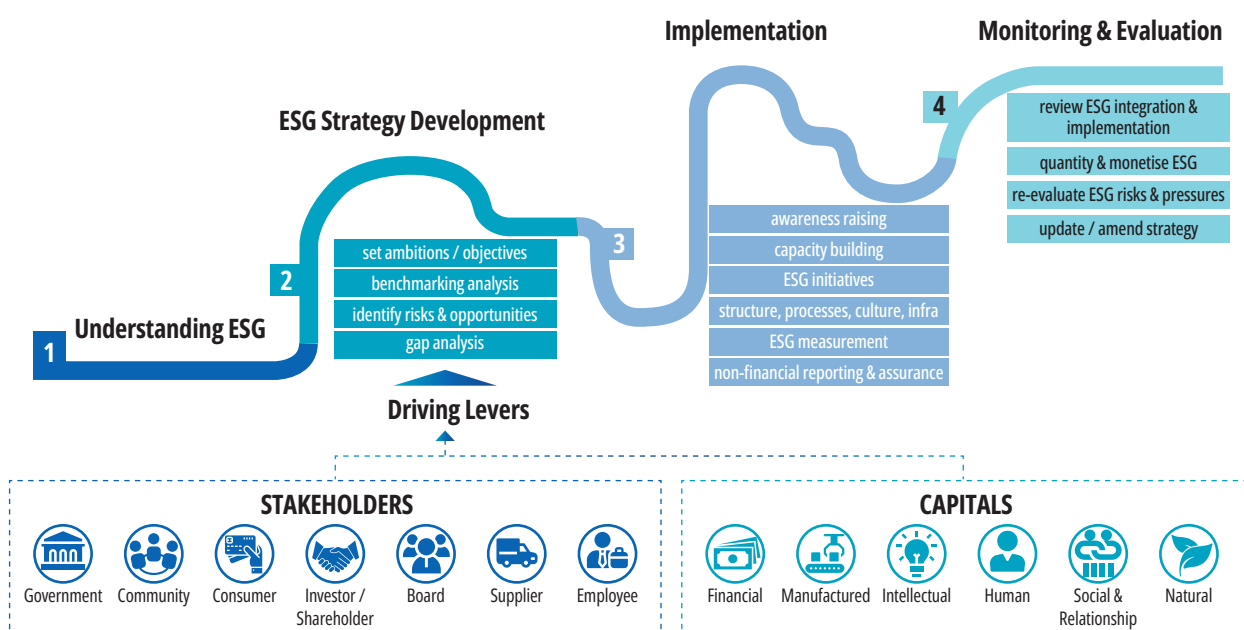
Third, there is still a lack of data utilization to quantify the parameters in calculating ESG impacts. Incorporating digital technology in internal processes up to the value chain could provide justifiable data for ESG reporting and also to create new initiatives to reduce negative impacts. For example, to justify their impact in the ESG report, companies will need to calculate certain metrics such as carbon emission from production activities, transportation and distribution, or electricity usage.

4.8.3 Accelerating ESG Implementation Empowered by Digital Technology

Overcoming the above key challenges will benefit Indonesia greatly, especially amidst the country's growing digital economy. Leveraging digital adoption in many industries has opened new market opportunities for the MSMEs and enabled more startups to come up with new solutions to solve sustainability issues at an unprecedented level. Digital adoption is positively correlated with achieving ESG targets, and shall be further explored to expedite more companies to start their journey towards incorporating ESG principles in their strategies.

Implementing ESG in business is about preserving value and enabling value creation. To help organizations to shift towards integrating ESG in their strategies, there are four key milestones in the ESG value creation journey that could be adopted by businesses, starting from awareness and understanding ESG, redefining strategies, implementation, and monitoring and evaluating the ESG implementation.

ESG VALUE CREATION JOURNEY FOR BUSINESS



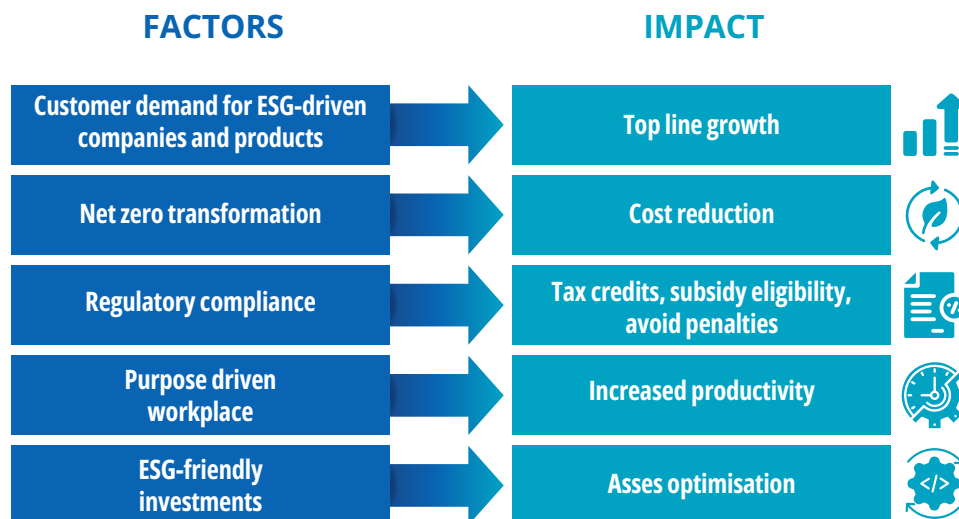
“Sustainability was our principle, and digital technology was our tool to help empower people and generate profits—not just for us, but to improve coastal economies.”



Utari Octavianty
Chief Sustainability Officer of Aruna

Being aware of ESG’s importance is the initial step for companies to start their transition. External stakeholders such as investors and consumers will likely be the most salient in pushing companies to reevaluate their strategies. Next, to fully understand how ESG principles can be applied, companies could begin evaluating their strategies and identifying their impacts on the environment, social systems and communities. A good way to do this is through assessing impacts throughout the internal company itself and along its value chain—this will allow companies to also see potential positive impacts that they may further create should they shift towards ESG integration.

After companies gain more understanding of ESG principles, then companies should consider how to integrate ESG with their business targets and policies. This integration may create financial and non-financial values. In addition, utilizing digital technology as an enabling tool to support ESG-aligned strategic development may open new opportunities that companies had never considered before.



A great example of adopting ESG principles to a company’s strategy is shown by Aruna, a rapidly expanding fisheries commerce startup in Indonesia, aiming to create a sustainable fisheries ecosystem from sea to table. When the pandemic hits in 2020, Aruna was able to grow eightfold compared to the previous year and raised USD 35 million in series A funding dominated by Prosus Ventures and East Ventures, with a contribution from SIG and its earlier investors including AC Ventures, MDI Ventures, and Vertex Ventures. Aruna mentioned that this is by far the largest series A investment that any Indonesia’s agritech and maritime sector players has ever received. This remarkable achievement is also a result of their technology adoption that supports its sustainability principles including implementation of satellite internet to enable fishers to obtain information in coastal areas, providing solar powered cold storage to reduce food loss.

4.8.4 Strengthening Indonesia's ESG Landscape

Notwithstanding that more companies have begun to understand the ESG concept to embed with their business strategies, they are still challenged with **monitoring** and **reporting** processes. Companies should be able to justify their actions to attract investments and trust from its suppliers, customers, and their employees.

Implementing digital technology along the value chain can come as a tool that enables companies to ease monitoring processes—tracking and measuring ESG metrics. One of key technologies that will enable this is through the Internet of Things (IoT). IoT is a cost-effective technology that can be utilized for data collection in real-time. Companies have been using IoT for various value chain parts to enhance performances, but it can also benefit companies who aim to monitor and measure ESG metrics such as carbon footprint and energy usage. In Indonesia, Xurya, a solar panel solutions startup, has incorporated IoT technology that enables customers to monitor energy usage. The technology showed real-time and historical tracking of energy savings in its monitoring system⁸⁹.

Meanwhile, to complete a company's value creation journey, the Indonesian government plays an important role in helping companies detach from the reporting trap that is yet to be developed.

The Indonesian government has been actively working to onboard more businesses to join their efforts around sustainability targets; however, the challenge remains, as a consolidation of ESG frameworks and sustainability reporting standards is yet to emerge. To eliminate challenges around reporting standards, in November 2021 the IFRS Foundation made its COP26 commitment to develop a new International Sustainability Standards Board (ISSB) that would enable countries to have a comprehensive global baseline of high-quality sustainability disclosure standards that will meet investors' expectations. The single standardized reporting framework shall significantly improve Indonesia's ESG landscape and allow companies to fully launch their sustainability journeys.

While waiting for the soon-to-be-developed single sustainability reporting standards, the Indonesian government can strengthen its efforts to encourage stakeholders across industries and markets to adopt ESG principles in their business strategies, innovations, and investments. Collaborations such as public-private partnerships could strengthen Indonesia's capability to develop an ESG policy and roadmaps that generate larger impact. As an example, during the COP26, APRIL Group explained its partnership with the government by providing knowledge in managing large-scale modern nurseries that aim to provide 12 million seedlings for Indonesia's national reforestation and restoration efforts⁹⁰. The regional government is also key to initiating partnerships with the private sector in implementing sustainable projects driven by technology such as the smart city projects. The partnership of DKI Jakarta provincial government with Qlue, initially a local tech startup

There is still a lack of data utilization to quantify the parameters in calculating ESG impacts

⁸⁹ <https://xurya.com/>

⁹⁰ <https://www.thejakartapost.com/news/2021/11/02/public-private-sector-collaboration-essential-to-fund-implement-climate-goals.html>

turned into a comprehensive smart city provider company. Qlue combined AI, IoT, and mobile workforce solutions to develop Jakarta Smart City and help the government reduce flood points from 8000 to 450 in 2016. By 2019, the startup had served more than 40 cities, regents and provinces. Qlue also received Series B funding in mid-2021.

Furthermore, Indonesian tech companies have also started collaborations to expedite their transition towards ESG by enabling technology to support its strategies. Unveiled from their first ESG report, Southeast Asia's super app, Grab Indonesia, is committed to creating socioeconomic empowerment and reducing emission while delivering strong financial growth. In mid-2021, Grab announced its collaboration with BenihBaik.com and World Resource Institute (WRI) Indonesia to launch and

initiate the Carbon Offsetting initiative. This initiative is part of Grab's ongoing #LangkahHijau program which will consist of a carbon calculator feature, crowdfunding and social media programs. Through the #LangkahHijau program which was introduced in 2019, Grab Indonesia is also committed to supporting Presidential Regulation (Perpres) Number 55 of 2019 concerning the Acceleration of the Battery-Based Electric Motor Vehicle Programme for Road Transportation through a pilot partnership program with Hyundai Motor Group.

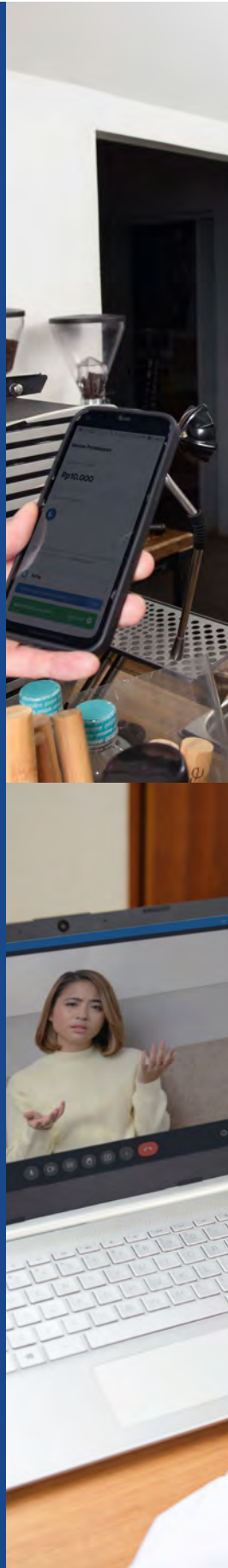
More partnerships and collaborations shall lead Indonesia to breakthrough innovations through fundings and immense knowledge transfer that will trigger sectoral tipping points to accelerate adoption and achieve meaningful financial returns as well as multi-sectoral reduction of ESG related risks.



Doc: Aruna

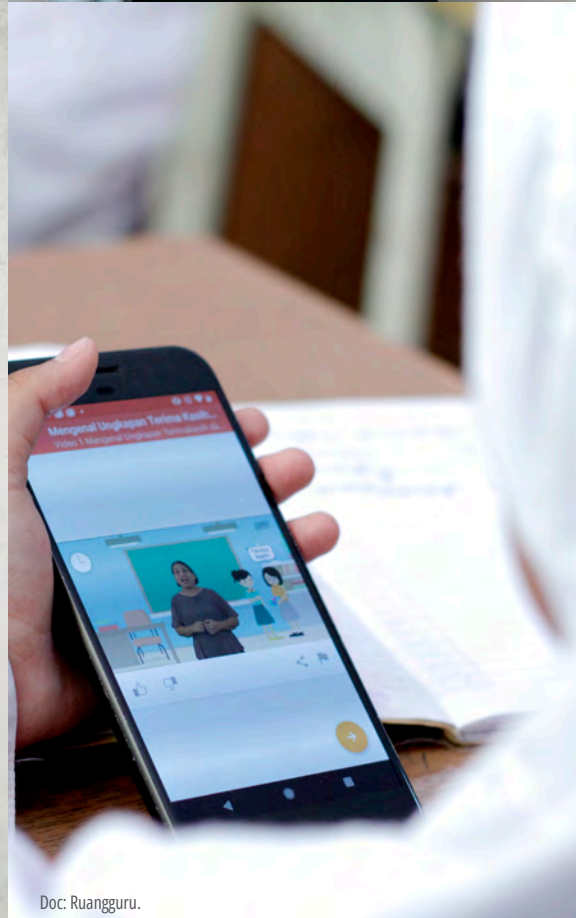
Chapter 5

Recommendation





Doc: Waresix.

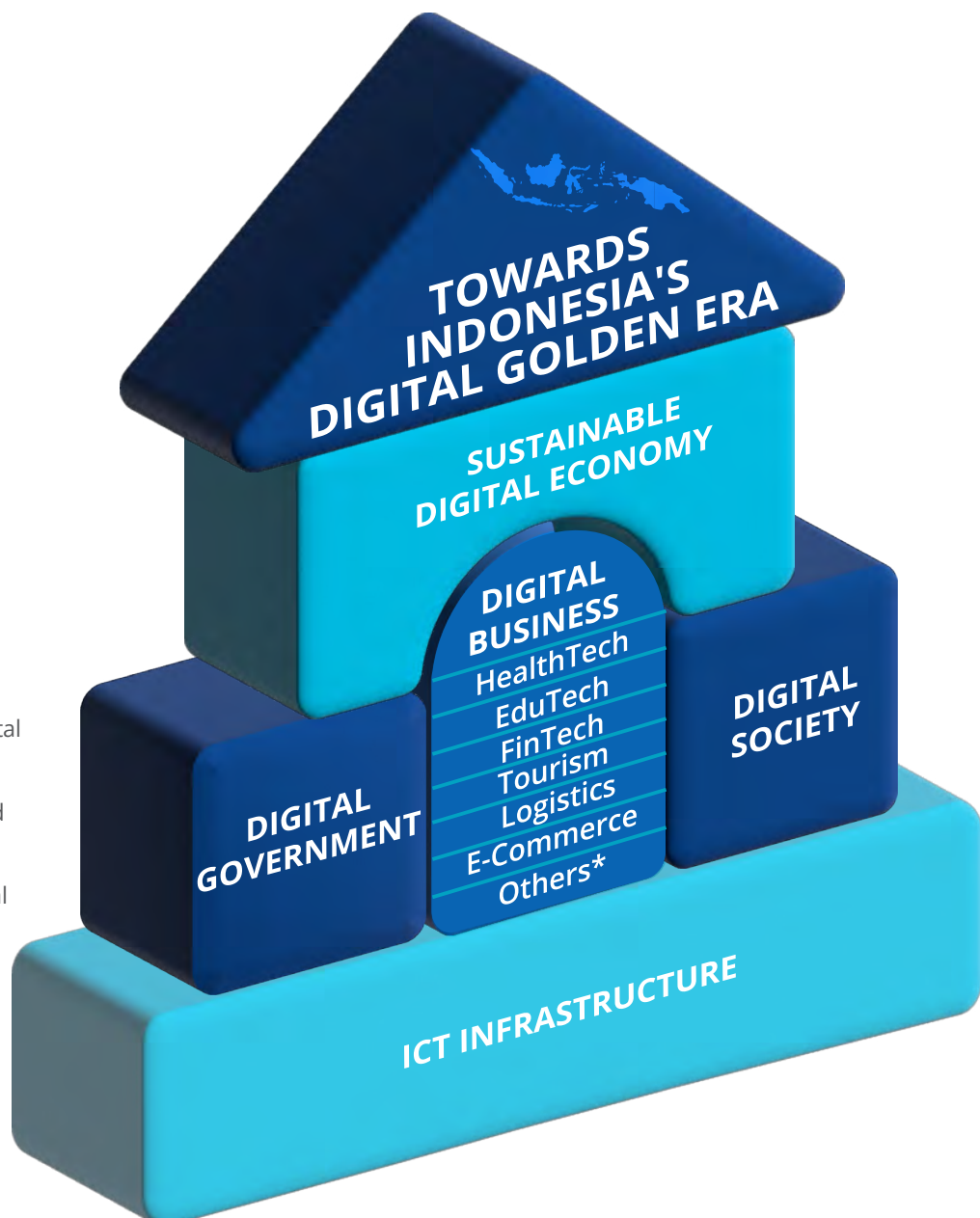


Doc: Ruangguru.

How should Indonesia move forward?

The COVID-19 pandemic has expedited the shift towards the integration of digital technology in the economy to not only recover, but also grow stronger. The global-scale transition has created new opportunities for emerging economies to uplift their competitiveness across all aspects. As discussed in chapter 4, Indonesia is already benefiting from some of the opportunities, manifested in the accelerated growth of multiple sectors: e-commerce, fintech, logistics, healthtech, tourism and edutech. The EV-DCI 2022 report serves as guidance for stakeholders in Indonesia to map and prioritize digital economy development strategies in the journey towards achieving its golden era.

On the path to achieving Indonesia's digital golden era, this report identifies **five key building blocks, namely, the ICT infrastructure, digital government, digital society, digital business, and sustainable digital economy**, which are enabled and accelerated by digital technology innovations.



Notes:

*) Other sectors contributing to digital business, including creative economy, manufacturing, and natural resources sectors who have implemented digital technology to a certain extent

Accelerating ICT Infrastructure Development to Enable Equitable Digital Economic Growth Across the Nation

ICTs are a fundamental aspect to strengthening Indonesia's readiness to compete in the Industry 4.0 era. However, the EV-DCI 2022 survey points out that ICT infrastructure is still facing challenges, especially regarding telecommunications, and internet connectivity and quality. These hamper the growth of technology companies and MSMEs, reducing their competitiveness, while also slowing the development of digital literacy among the population.

ICT infrastructure development is vital to economic growth as it adds anywhere between 0.9 to 2.0 percentage points to GDP per capita in communities in which more than 50% of the population have access to fixed broadband network¹. Therefore, Indonesia could benefit significantly should the fixed broadband coverage be developed, as it only stands at 4% according to the World Bank in 2021².

The development of fixed broadband networks in developed countries such as China serves as a good example. China has marked its milestone in achieving full broadband connectivity in all villages, facilitating rural modernization. Moreover, 5G connection currently covers all urban areas and 40% of rural areas across the vast country³. According to China's five-year plan by the Ministry of Industry and Information Technology, the country plans to finish building another 2.21 million 5G base stations by the end of 2025 to add on the current 1.43 million 5G base stations⁴.

In line with the global trend, strengthening digital infrastructure readiness is vital to allow Indonesia to provide equitable connectivity and thereby economic growth across the nation. Therefore, investing in ICT infrastructure development that is evenly distributed will create an equitable future for Indonesia's population through the provision of access to financing, education, and healthcare services. This is especially important for the vulnerable population living in rural areas or the 3T (*Terdepan, Terluar, dan Tertinggal*) regions. Additionally, building on the basic necessities, ICT infrastructure should also enable access to information such as commodity market prices, news, as well as updates on lifestyle and entertainment.

Developing ICT infrastructure is not the responsibility of the national government alone. Instead, the regional government could initiate collaborative efforts with ICT providers to accelerate the region's ICT development. For instance, the provincial government of North Kalimantan and Telkom Indonesia engaged in a partnership that installed the Mangoesky Very Small Aperture Terminal (VSAT) access points. As of 2020, 22 VSAT access points were installed to boost the province's internet connectivity, including to schools and public health centers (*Puskesmas*) in the 3T regions. The North Kalimantan government has recently signed an extension of the partnership to add more VSAT access points in 2022 and provide maintenance services to improve internet connectivity in the province⁵.

1 Fiber Broadband Association - <https://optics.fiberbroadband.org/Full-Article/studies-show-that-fiber-positively-impacts-gdp-and-is-an-economic-boon>

2 <https://www.cncindonesia.com/tech/20210729103115-37-264535/world-bank-cuma-4-warga-ri-pakai-internet-fixed-broadband>

3 <https://opengovasia.com/5g-gains-wide-coverage-in-china/>

4 <https://www.rcrwireless.com/20220128/5g/china-ends-2021-million-5g-base-stations#:~:text=China%20ended%202021%20with%20a,stations%20nationwide%20during%20last%20year.>

5 <https://diskominfo.kaltaraprov.go.id/kerjasama-dengan-telkom-gubernur-kembangkan-layanan-jaringan-dan-informasi-di-kaltara/>

Moreover, one prominent way to increase access to funding and knowledge transfer in ICT infrastructure projects is to engage in bilateral or multilateral partnerships. A successful example was a pilot project conducted by the Ministry of Communications and Information in partnership with USAID's Global Broadband Innovations (GBI) alliance in 2016 to support the National Broadband Plan for 2014-2019. The project successfully help the government to provide access to affordable and reliable internet service to over 1,600 rural fishing and farming villages, 140,000 schools, and 5,000 clinics by 2019. Additionally, the project was successful in implementing innovative solutions, one of which is the repurposing of the previously unoccupied television frequencies for wireless broadband internet in rural areas.

Creating a Digital Government Focusing on Efficiency and Transparency

The government, as the primary policymaker and regulator, must be agile in facing the rapidly changing world. Since regulations and policies stipulated by the government will be the north star for domestic and international stakeholders' development strategies, they must provide clear guidance and comprehensive measures to allow businesses to grow, while mitigating potential risks. In strengthening the government's capability to serve the nation's growing digital economy, the government needs to have a vision towards a digital government. This requires the government to have a digital mindset, while serving the interest of individuals and businesses.

The digitalisation of government services can increase efficiency. In Indonesia, the PeduliLindungi application has been one of the successful services

that the government developed to manage the COVID-19 situation. Currently PeduliLindungi has nine main features, ranging from the QR Code scan feature to allow access into public facilities to an inpatient information system feature to locate nearby hospitals. One of its prominent features is the integration of COVID-19 test results that directly update the eligibility status for entering public spaces and travel requirements. The PeduliLindungi application has successfully played a major role in streamlining data validation processes and tracing to break the chain of COVID-19 transmission, facilitating the ease of mobility restrictions.

However, there are improvements that can be implemented to the PeduliLindungi application. One good example is the digital contact tracing app in South Korea, the Co100 app. Citizens get alerts when they come within a 100 m radius of a location that has been visited by a COVID-19 infected person, allowing users to avoid potential risky areas and reduce the spread of the virus⁶.

Furthermore, one of the innovations made by the government to increase administration efficiency is the Online Single Submission (OSS), an electronically integrated business licensing platform in Indonesia. The platform has recently been reformed to adopt a risk-based approach that categorizes businesses into four categories; low, medium-low, medium-high, and high risks. The new approach to OSS is meant to create a more efficient and transparent business licensing process. Since the launch of the risk-based OSS in August 2021, a total of 61,325 Business Identification Number (NIB) have been issued and 59,414 (96.8%) of them have been micro and small business (UMK) NIBs⁷. For medium-size and larger businesses, however, the government will need to enhance the

6 <https://arxiv.org/ftp/arxiv/papers/2006/2006.15433.pdf>

7 <https://mediaindonesia.com/ekonomi/428437/oss-berbasis-risiko-solusi-perizinan-bagi-umk>

business licensing process to make the OSS a fully integrated platform for all types of businesses.

Another initiative is the utilization of the e-Katalog by National Public Procurement Agency (LKPP), an e-procurement platform for government bodies to improve efficiency and transparency in procurement activities. For example, since it is an e-marketplace, government bodies are provided more information to easily check, compare and negotiate prices before committing to a purchase. Furthermore, it facilitates online payments that provides efficiency and traceability for the entire payment processes. According to the Head of LKPP in February 2022, Abdullah Azwar Anas, Indonesia's potential government spending is IDR 1,200 trillion this year, which also provides a market opportunity for MSMEs⁸.

Additionally, the government should be agile in introducing and reforming regulations and policies that concern activities related to the digital economy. For instance, the Indonesian government should create a universal digital ID system. Digital ID will improve efficiency in streamlining processes as it acts as a Know Your Customer (KYC) verification tool. One prominent example is the successful introduction of the Aadhaar card by the government of India in 2009, a unique 12-digit digital ID card that incorporates demographic information (birthdate, etc.) with biometric information (iris scans, etc). As of the end of 2021, 99% of the Indian adult population is holding an Aadhaar card and has helped bring tens of millions of people into the financial system by being a valid identification tool for KYC banking regulations⁹. Moreover, the digital ID will also accelerate the adoption of digitalisation, providing huge convenience

“A minimum of 40% of the estimated 1,200 trillion government procurement budget in 2022 will have to be spent on MSME’s products within the e-Katalog. This platform allows the digitalisation of government procurement processes, which improves efficiency and reduces corruptions.”

by being an instant KYC tool in sectors such as fintech.

To some extent, Indonesia has improved its regulatory framework to facilitate the growth of the digital economy. For example, the Financial Services Authority (OJK) introduced a regulatory sandbox in 2018, a regulatory approach that allows live, time-bound testing for innovations under a regulator’s surveillance. This allows OJK to design a favorable and contained space where incumbents and insurgents experiment with innovations within or even outside the current regulatory framework. For instance, fintech startup players are given up to a one year incubation period before being eligible to request for formal permits from Bank Indonesia. Therefore, regulatory sandbox fosters responsible innovations in financial services, promotes efficiency, and brings benefits such as enhanced consumer protection.

However, the government must also ensure that besides widening the accessibility of these services, the data and information are well-protected and well-managed. For instance, digital ID is inherently exposed to risks related to digital technologies with large-scale population-wide usage. This can come



Luhut Binsar Pandjaitan
Coordinating
Minister for
Maritime and
Investment
Affairs

⁸ <https://mediaindonesia.com/ekonomi/468768/potensi-belanja-pemerintah-capai-rp1200-triliun-lkpp-e-katalog-jadi-kunci>

⁹ <https://www.livemint.com/news/india/big-boost-for-uidai-today-99-of-indian-adult-population-holds-aadhaar-card-11624939991372.html>

in the form of data breaches and cyber-intrusions, failure of technical systems and misuse of personal data. Data breaches for sensitive information must be actively avoided through cybersecurity improvements and implementation of emerging technologies. To prevent data breaches, the government must provide strong legal frameworks and implement risk mitigation approaches such as data protection impact assessment and cybersecurity penetration tests.

Developing Digital Talent Capability Through Improving the Education System and Upskilling

Indonesia needs to upskill its digital talent to support the development of Indonesia's digital economy. The development revolves around improving capabilities to use and develop digital technologies such as information processing software, data analytics, and the Internet of Things (IoT). More jobs such as developers, cloud engineers, and data scientists are growing in demand to help companies innovate and become more efficient.

However, EV-DCI 2022 has shown us that Indonesia's human resources pillar still lacks competitiveness with a gap amongst provinces—scoring a median of 21.8. The EV-DCI 2022 survey pointed out that the underlying problem in Indonesia is the lack of digital competence development in the curriculum. One of the impacts of the current digital capability gap in Indonesia is the supply-demand gap of digital talent in the job market. According to Korn Ferry research, it is estimated that the gap could widen if the pace of talent upskilling is not accelerated, as they predicted that by 2030 the Asia-Pacific region will lack 47 million digital talents.

Indonesia should leverage multi-stakeholder partnerships directed to nurturing future talents through enhancing the education curriculum, while also upskilling the current

workforce. The government could intensify partnerships between stakeholders to assess the necessity of enhancing digital and technology courses in the education curriculum from early up to higher education. This will not only prepare the future generation to keep up with the changing world, but also promote digital inclusion and innovations in the long run. Private sector participation should be encouraged to provide opportunities for learning new skills demanded by the digital economy today and in the future. Moreover, it is important to involve non-governmental educational organizations (e.g. schools, foundations, communities), and volunteers to provide education and upskilling opportunities to the vulnerable population, allowing them to participate and prosper in the digital economy.

The Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) has developed several initiatives to boost the education system, especially for the vulnerable population. The Ministry aims to empower more local non-governmental organizations through one of its programs, The Mobilization Organization Program or *Program Organisasi Penggerak* (POP). This program provides non-governmental organizations with financial support and assistance from the ministry in improving the competency of 50,000 educators in 5,000 PAUD, elementary schools, and junior high schools throughout 2020-2022. As of 2021, the program has supported 156 organizations, such as Sakata Innovation Center Foundation in Tasikmalaya, which also integrates coding learning as part of its curriculum.

Aside from the POP, Kemendikbudristek also partnered with companies to provide internship and self-study materials through the Kampus Merdeka program. In 2021, Kampus Merdeka collaborated with 121 partners to provide a quota for over 12,900 students to take part in internship

programs. At the beginning of 2022, the government increased the number of partners to 571 with a quota of over 30,800. The program's partners now include leading companies such as Gojek, Ruangguru, Huawei, and Traveloka.

Moving forward, Indonesia could consider ways to expand the Kampus Merdeka program into increasing access to job opportunities beyond internships for students, such as provided by the Singapore government through MyCareersFuture. MyCareersFuture is a job search service platform developed by Workforce Singapore, in collaboration with the Government Technology Agency. This platform is aimed at Singaporean residents, including foreigners, to match them with relevant jobs, based on skills and competencies. MyCareersFuture has comprehensive features, making it easier for job seekers to find jobs such as the latest Job-to-Skills matching technology feature that recommends jobs based on jobseeker's current skills. Currently there are more than 7,000 opportunities for multiple employment types, such as full time jobs, internship, and freelancing.

Additionally, the government partnerships with the private sector could extend to the provision of a national Massive Open Online Course (MOOC) to accelerate an inclusive digital upskilling. One good example of this initiative is the Singapore government's SkillsFuture program. SkillsFuture provides MOOC as part of the program, which allows the workforce to develop their skills through a variety of courses. SkillsFuture focuses on serving different groups starting from students, employees (early to mid-career), employers, training providers, and retirees. In 2020, SkillsFuture had reached 540,000 individuals by providing access to unlimited learning and collaborating with 14,000 companies to present a variety of

high-quality courses.

Indonesia has introduced a similar program to some extent. The government has implemented several initiatives to upskill talents such as the pre-employment card (Kartu Prakerja). The program aims to help pandemic-hit workers and jobseekers by providing a variety of upskilling opportunities, including MOOCs. The program partnered with Skill Academy (by Ruangguru), Zenius, and Sekolah Pintar to deliver the courses. As of September 2021, the program has benefited 11.4 million workforce in 514 cities and regencies throughout Indonesia¹⁰. However, it is important for the government to keep improving and developing the program beyond the pandemic as to consistently increase the competence of the workforce, especially in the digital age.

Focusing on Enhancing the Adoption of Digital Technology Across Sectors

The effects of digital transformation in businesses across sectors in Indonesia have been significant. The six digital economy sectors reviewed in Chapter 4—e-commerce, logistics, healthtech, edutech, tourism, and fintech—have successfully leveraged digital technology to improve the performance of businesses by improving efficiency and agility. The digital economy has also enabled the growth of the creative economy, making it more resilient during the pandemic. The creative economy serves digital consumers who are rapidly shifting towards products and services such as subscription-based entertainment, gaming, and digital media. The creative economy sector contributed IDR 1,211 trillion to Indonesia's 2020 GDP, growing 10% from the 2019 GDP contribution of IDR 1,105 trillion and will still potentially grow in 2022¹¹.

10 <https://money.kompas.com/read/2021/09/24/135538726/program-kartu-prakerja-diklaim-beri-dampak-positif-ke-masyarakat?page=all>

11 <https://www.kemendparekraf.go.id/ragam-ekonomi-kreatif/Indonesia-Menjadi-Inisiator-Tahun-Internasional-Ekonomi-Kreatif-Dunia>

Indonesia can further grow the creative sector by encouraging collaborations between stakeholders. One example is the Semesta Akademi, a program to develop the creative industry ecosystem through developing Indonesia's young talent. Semesta Akademi offers creative education programs through collaborations with creative and digital companies such as Tiket.com, Lazada, Hangry, Reckitt Benckiser, and many others. There are three creative learning programs, namely digital marketing, social media, and data storytelling. Therefore, such collaborative efforts will drive the growth of the creative economy in Indonesia.

Meanwhile, other sectors that rely on natural resources and manufacturing are still catching up to digitization. The government can help these sectors to facilitate knowledge transfers by initiating partnership with tech leaders in various sectors. This could give opportunities for Indonesian businesses to learn more about digitalization, and start the adoption of Industry 4.0 technologies.

Some of the companies that are in line with the Ministry of Industry roadmap "Making Indonesia 4.0" include PT Indolakto (Indomilk), one of Indonesia's biggest packaged milk manufacturing companies. Indolakto has implemented technology advancement to improve efficiency in its processes. Indolakto is among the 20 manufacturing companies selected by the Ministry of Industry as a part of the Center of Digital Industry (PIDI) 4.0, due to its early adoption of digital technologies in the manufacturing industry. The company implemented augmented reality (AR) technology to facilitate more efficient maintenance and troubleshooting processes by allowing technical experts from the machinery

producer to give step-by-step visual guidance to the on-site technical teams¹².

In the natural resources sectors, Pertamina, one of Indonesia's largest energy state-owned enterprises, has started incorporating digital technology across its subsidiaries, including Pertamina EP. Pertamina EP recently obtained a patent for its Operational Data Repository (ODR) platform which utilized big data technology that stores, analyzes, and processes operational data. The platform allows Pertamina EP to manage data needed to improve processes such as exploration, exploitation, sales, and electronic report-making¹³. Furthermore, Pertamina also implemented a digital procurement system (GEP SMART) across its subsidiaries. The system is also integrated with enterprise resource planning systems (ERP) that enables procurement activity along the sourcing up to contract process to happen in a single platform. The digitization of the Holding's procurement process is estimated to create an average procurement cost reduction by up to IDR 2 trillion per year¹⁴.

Achieving the Digital Golden Era Through Sustainability

To realize the immense potential of the digital economy, stakeholders need to accelerate the integration of Environment, Social, and Governance (ESG) principles into their strategies. Sustainability values are starting to gain its prominence in many countries' development strategies as well as investors' investment decisions due to their benefits in terms of E, S, and G factors and also the financial performance. A disclosure from the Indonesia Stock Exchange (IDX) showed that the ESG Leaders index has outperformed the IHSG and LQ45 indexes

12 <https://www.hannovermesse.de/product/indolakto-digital-transformation-journey/271523/N1458885>

13 <https://www.pertamina.com/id/news-room/news-release/pertamina-ep-peroleh-hak-kekayaan-intelektual-untuk-program-komputer-operational-data-repository-odr>

14 <https://www.medcom.id/ekonomi/energi/5b2Ar9MN-efisiensi-pertamina-meningkat-dengan-penerapan-industri-4-0>

by 2.6% and 11.8%, respectively, based on their returns from 2014 to 2021¹⁵. These trends amplify the need for stakeholders in the digital economy to integrate ESG principles as part of their business strategy.

Business leaders need to reassess their value chain to identify risks to the environment, society, and community. To address the risks, businesses can leverage digital technologies to streamline their operations and become more sustainable. One way is for companies to utilize technologies such as IoT in their day-to-day operations to monitor electricity consumption and track their carbon footprint. For example, Xurya, a renewable energy startup providing solar panel solutions, incorporated IoT technology that enables customers to monitor their electricity consumption and energy savings. The startup also provides a web-based monitoring system to track real-time and historical solar electricity production. Currently, Xurya has reduced more than forty million kilograms of CO₂ emission and generated almost 45 million kWh of green energy from its residential and industrial installations¹⁶.

In April 2021, Gojek, one of Southeast Asia's largest on-demand services and payment platforms, set a new milestone in home-grown digital business' sustainability journey, as stated in its annual sustainability report. In the sustainability disclosure, Gojek detailed its progress and plans in implementing ESG practices in the areas of environmental sustainability to achieve zero emissions and zero waste. This is done through initiatives such as conducting annual inventory for emission and waste accounting, launching a carbon offset in-app feature, as well as implementing plans to transition to electric vehicle usage in its ride-hailing business by 2030. In achieving zero barriers, Gojek

promotes socio-economic progress, equality, and inclusion. This includes MSMEs empowerment in business and digitization skills initiative, and equal and diverse corporate governance initiatives—also pledged to be achieved by 2030. Gojek highlighted their data-driven approach as a method to support its sustainability strategies that can maximize impact—emphasizing the benefit of incorporating digital technology as a tool in becoming more sustainable.

Notwithstanding this important milestone for Indonesia, the government holds a key role in setting the direction of Indonesia's digital economy sustainable development. The homework remains in building the awareness of ESG value creation benefits to more companies as well as actively encouraging companies to start preparing for sustainability reporting to ready them when a single reporting framework is established. Best-practice cases such as from Gojek's ESG impact monitoring and reporting should be amplified as an example for other companies to catch up.

Summary

In summary, we believe the building blocks above mentioned are guiding tools for governments, investors, startups and business players (especially MSMEs) to drive the move towards achieving Indonesia's digital economy golden era. Indonesia is already one of the fastest growing economies, ranked 4th in terms of the number of internet users across digital services in the world, which is supported with a high young population and growing middle income population. **Thus, if Indonesia is able to keep the momentum going, the nation is best positioned to continue the acceleration towards its digital golden era.**

15 https://www.idx.co.id/media/9789/factsheet_210129_08_idxesgl.pdf

16 <https://xurya.com/>

Appendix





Index Methodology

EAST VENTURES - DIGITAL COMPETITIVENESS INDEX FRAMEWORK

The East Ventures - Digital Competitiveness Index (EV-DCI) is an index that shows the digital competitiveness of a region. It consists of 3 sub-indexes that describe the digital situation of a province and city/regency. The sub-indexes forming the EV-DCI framework are calculated based on interrelated pillars, which are calculated from indicators of which data are collected from various sources.

The EV-DCI calculation was applied to 34 provinces and 157 cities/regencies in Indonesia. For the selection of 157 cities/regencies of which EV-DCI scores were calculated, these cities/regencies referred to the World Bank report entitled "Time to ACT: Realizing Indonesia's Urban Potential", published in 2019. Based on this report, 80 cities/regencies were identified, which make up 28 metropolitan areas and 82 cities/regencies with urbanization rates of 50% or above. However, DKI Jakarta, which comprises 6 administrative regions, is considered as one unit, and therefore the total number of regions analyzed is 157 cities/regencies.

EAST VENTURES - DIGITAL COMPETITIVENESS INDEX (EV-DCI) OF 34 PROVINCES IN INDONESIA

The EV-DCI compares the digital competitiveness of 34 provinces in Indonesia in the form of an index. This index consists of 3 main sub-indexes, which as a whole shapes an understanding of digital competitiveness. Each sub-index comprises three pillars, totaling nine pillars that formed the East Ventures - Digital Competitiveness Index (EV-DCI). Each pillar consists of 4-9 indicators, so that there are 50 indicators used to draw up the index. The following describes the constituent elements of the three sub-indexes and the nine pillars.

Sub-index 1. Input

The development of the digital economy requires specific inputs to help the sector improve in one region and provide the expected output. Sub-index 1 (Input) consists of three pillars that directly enable the development of the digital economy, which is the

human resources condition, the level of ICT usage, and the level of consumer expenditure in accessing ICT. In addition to direct inputs, digital economy development also requires indirect inputs that are calculated in the Support Sub-index as infrastructure, access to financial resources, and good governance.

Pillar 1.1. Human Resources

The development of the digital economy is heavily dependent on the availability of human resources, specifically those who are adept in information and communication technology. This pillar consists of five indicators, namely the number of study programs related to digitization, such as Informatics Engineering, Computer Science, Mathematics, Statistics, and other study programs; the number of lecturers in the study program; the number and growth rate of students enrolled in the study program; and the Digital Literacy Index score sourced from a survey conducted by the Katadata Insight Center with Kominfo.

Pillar 1.2. ICT Usage

The development of the digital economy is also enabled by the use of ICT in a given region. This pillar comprises eight indicators. The first three indicators are the ratios of households owning a mobile phone, computer, and internet access. The next three indicators consist of the location of accessing the Internet (the ratio of internet usage from home, work, and school). The last two indicators are how the population accesses the internet (the ratio of internet usage through mobile phones and computers).

Pillar 1.3. ICT Expenditure

The development of the digital economy in a region also depends on the level of desire and ability of households and companies to pay for access to ICT. This pillar considers four indicators, namely the proportion of households having specific expenditure on ICT, the average monthly household expenditure on ICT, and the wages (total and per worker) paid by companies to those working in the ICT sector.

Sub-index 2. Output

With the direct input described in sub-index 1, it is expected that the digital economy can expand and provide outputs or benefits to regions where digital economy activities are being developed. sub-index 2 (Output) measures three pillars or aspects that describe the outputs of the digital economy: economy, entrepreneurship and productivity, and manpower.

Pillar 2.1. Economy

Digital economy activities certainly contribute to the economy of a province, city, or regency, which can be measured through the contribution of sectors related to digitalization to the GRDP

of the region. There are three sectors or business fields of which growths are estimated to be closely related to the growth of the digital economy: (i) Information and Communication, (ii) Warehousing, Transportation Support, Post and Courier, and (iii) Financial Services. There are 9 indicators that are measured. For each of these sectors are measured for the economic value in IDR, its contribution to regional GRDP, and the level.

Pillar 2.2. Entrepreneurship and Productivity

Apart from contributing to the economy as described in Pillar 2.1, digital economy activities should also result in an output in the form of using the Internet for productive and entrepreneurial activities. There are eight indicators used to calculate productivity, which are the ratio of people who use the internet for work, both in their main jobs and in communicating for work. Meanwhile, to calculate entrepreneurship, the ratio of the population using the internet for promotion and trade or transactions is used. In addition, we also calculated the amount of money loaned through financial technology (fintech).

Pillar 2.3. Manpower

As economic activity and the number of businesses are growing, it is expected that there will be an increase in the number and proportion of workers engaged in sectors related to digitalization, in this case: (i) Information and Communication, (ii) Transportation and Warehousing, and (iii) Financial Services. For these three sectors, we calculated the number and ratio of the workforce in 2021, and their growth from 2016 to 2021. In addition, we analyzed the number and ratio of the groups of workers that are predicted to be vulnerable to digitalization in 2021,

and their growth rates from 2016 to 2021. Those vulnerable to the impact of digitalization are workers from the following categories: (i) administrative staff, (ii) processing and handicraft workers, (iii) machine operators and assemblers, and (iv) manual workers. Their number, ratio, and growth were calculated as inverse indicators (the lower, the better).

Sub-index 3. Support

The competitiveness of the digital economy cannot be fulfilled only by relying on direct inputs and outputs, but it is also influenced by supporting factors that allow these inputs to be processed properly into outputs. These supporting factors consist of infrastructure, financial inclusion, and effective and efficient local governance.

Pillar 3.1. Infrastructure

This pillar focuses on infrastructure that supports the development of the digital economy. There are five indicators to consider, namely the level of electrical disturbances that occur (inverse indicator), the ratio of households with fixed line telephone connections, the ratio of villages that have access to a strong internet connection, as well as 4G and 3G signals.

Pillar 3.2. Finance

The development of the digital economy is also related and needs to be supported by financial inclusion factors, including access to capital and business financing. Three indicators are considered in this pillar. To measure financial inclusion, we adopted an index that was developed by the Financial Services Authority (OJK), which is the Financial Inclusion Index. In addition, the number of smart selling agents and the adoption of E-Wallets by E-commerce companies are also calculated.

Pillar 3.3. Regulation and Local Government Capacity

The third Support pillar is the government regulations and capacity. In this pillar, there are four indicators that show the performance of local governments, which are the gross enrollment ratio for high schools and vocational schools (*Sekolah Menengah Atas/Sekolah Menengah Kejuruan* or SMA/SMK) and higher education (diploma to bachelor levels), Life Expectancy Growth, and Poverty Reduction.

Index Calculation

The EV-DCI index was calculated using a stratified approach: the scores of each indicator were aggregated into pillar scores. The pillar scores were then aggregated into sub-index scores. Finally, the sub-index scores were aggregated into an overall index score (EV-DCI). Each indicator carries the same weight for the score of each pillar. Similarly, the pillar scores carry the same weights into the sub-indexes.

However, when combining the three sub-indexes into the overall EV-DCI Index, we assigned a weighting of 40 percent to sub-index 1 (Input) and sub-index 2 (Output), while the remaining 20 percent was allocated to sub-index 3 (Support). The use of lower weights for sub-index 3 aimed to ensure that the direct inputs and outputs of the digital economy were considered more significant than the factors that support the economy indirectly.

The actual value of each indicator is stated in different units. For example, GRDP was calculated in Rupiah, growth was calculated in percentages, and the number of students was calculated as a person unit. In order for one indicator to be combined with the other indicators, the units must be equated or standardized.

To synchronize each indicator, the actual value of each indicator was

converted into a standard score on a scale of 0 to 100. This score shows the relative comparison of the performance of one region from another. A score of 0 indicates a region has the lowest actual value compared to other regions for this indicator. A score of 100 shows that the region has the highest actual value compared to other regions. Regions with higher indicator scores are considered “more competitive” in that indicator.

The indicator score is not the same as the actual value of an indicator. Although the actual value of an indicator for Region A increases (improves) from one year to the next, the score may decrease. This is because the indicators for other regions have risen, and therefore Region A's competitiveness has decreased in relative terms. Similarly, the actual value of an indicator for Region A may decrease, but the score increases instead as other regions experience greater declines. Therefore, the movement of scores at the indicator, pillar, sub-index, and index levels should be considered relative movements, not absolute ones.

The indicator score for a region is calculated using the following formula, where X_i is the actual value obtained by region i for a particular indicator, X_{min} and X_{max} are the minimum and maximum values for that indicator, respectively, among all the regions being compared.

$$\text{Score for Indicator}_i = \left(\frac{X_i - X_{min}}{X_{max} - X_{min}} \right) 100$$

For indicators that are “reverse indicators” (meaning the lower/the better, identified in the list of indicators), the formula is as follows:

$$\text{Score for Indicator}_i = 100 - \left[\left(\frac{X_i - X_{min}}{X_{max} - X_{min}} \right) 100 \right]$$

After obtaining the score for each indicator, the indicator scores were

aggregated into pillar scores. A pillar's score was calculated using the average of the scores of all the indicators in that pillar. The weight of each indicator forming a pillar was considered equal.

Next, the scores for each pillar were aggregated into sub-indexes scores. The sub-indexes scores were calculated using the average scores of the three pillars in the sub-indexes. The weight of each pillar making up a sub-index was considered equal, which was 33.3% in terms of its contribution to the sub-index score. Finally, the final EV-DCI score was calculated based on the following weights for each sub-index:

$$\text{40\% Input Score} + \text{40\% Output Score} + \text{20\% Support Score}$$

EV-DCI is an index that measures digital competitiveness across regions in Indonesia. The EV-DCI score for a region reflects the comparison of that region relative to other regions. The best performing region among all the regions receives a score of 100 (similarly, the worst performing region receives a score of 0), regardless of whether the region has progressed or regressed in absolute terms compared to the previous year.

There is no EV-DCI score for Indonesia, because Indonesia is not measured in this index. The score for each region cannot be aggregated or averaged to obtain an aggregate score for Indonesia. However, in some parts of the analysis, we present the median score of the 34 provinces, to understand the gap in scores between provinces.

Startup Survey Methodology

The subject of the study in the East Ventures - Digital Competitiveness Index (EV-DCI) is to compare digital competitiveness in 157 cities/regencies in Indonesia in the form of an index. In collecting data and supporting information related to digital competitiveness, the EV-DCI team also conducted a survey of digital companies. This survey on company perceptions of digital competitiveness was carried out in December 2021 – January 2022, involving 71 digital companies as respondents. The methods used in this survey were telesurvey (interviews using online media) and filling out questionnaires distributed online via a website link.

Processing and Data Analysis

Before conducting data analysis, data processing was carried out. The data processing stage in this study includes editing, coding, and tabulation.

Editing

Editing or checking involves checking or re-examining the data that has been collected to determine and assess the suitability and relevance of the data

collected for further processing. What needs to be considered in the editing process is the completeness of filling out the surveys, the suitability of the answers, and the relevance of the answers.

Coding

Coding is the classification of the answers given by the respondents according to the type of answer. In the coding stage, scores and symbols are usually assigned to the respondents' answers to facilitate data processing.

Tabulation

Tabulation is the step undertaken after checking and coding. In this stage, the data were arranged in a table to facilitate data analysis in accordance with the research objectives. The table used in this study was a frequency table expressed in percentages.

The data analysis used in this research was descriptive quantitative. The quantitative analysis referred in this section is the presentation of the results of data processing expressed in numbers. The data presented in a frequency table were then analyzed descriptively by presenting it in a representative narrative form supported by the data that had been processed to facilitate comprehension.

INPUT



Human Resources

1. Number of Students with Digital Capabilities
2. Growth of Students with Digital Capabilities
3. Number of Lecturers in Digitalization-Related Study Programs
4. Number of Digitalization-Related Study Programs
5. Digital Literacy Index



ICT Usage

1. Ratio of Citizens that Have Cellular Phone
2. Ratio of Citizens that Have Computer
3. Ratio of Citizens that Have Access to Internet
4. Ratio of Citizens that Access Internet from Home
5. Ratio of Citizens that Access Internet from Office
6. Ratio of Citizens that Access Internet from School
7. Ratio of Citizens that Access Internet with Laptop
8. Ratio of Citizens that Access Internet with Cellular Phone



ICT Expenditure

1. Ratio of Households that Have Expenditure for ICT
2. Average Expenditure of Households for ICT
3. Total Remuneration and Wage of Information and Communication Sector Workers
4. Average Remuneration and Wage of Information and Communication Sector Workers

OUTPUT



Economy

1. GRDP of the Information and Communication Sector
2. GRDP Contribution of the Information and Communication Sector
3. GRDP Growth of the Information and Communication Sector
4. GRDP of Warehousing, Transportation Support, Post & Courier Subsectors
5. GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsectors
6. GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors
7. GRDP of the Financial Services Sector
8. GRDP Contribution of the Financial Services Sector
9. GRDP Growth of the Financial Services Sector



Entrepreneurship and Productivity

1. Ratio of Workers Using the Internet in their Main Job
2. Ratio of Workers Using the Internet at Work for Communication
3. Ratio of Workers Using the Internet at Work for Promotion/Marketing
4. Ratio of Workers Using the Internet at Work for Sales via Social Media
5. Ratio of Workers Using the Internet at Work for Website/E-commerce Sales
6. Loan Using Fintech



Manpower

1. Number of Workers in Digitalization-Related Sectors
2. Ratio of Workers in Digitalization-Related Sectors
3. Growth of Workers in Digitalization-Related Sectors
4. Number of Workers in Digitalization-Prone Categories (Reverse Indicator)
5. Ratio of Workers in Digitalization-Prone Categories (Reverse Indicator)
6. Growth of Workers in Digitalization-Prone Categories (Reverse Indicator)

SUPPORT



Infrastructure

1. Level of Electricity Disturbance (Reverse Indicator)
2. Ratio of Villages that Get Strong and Very Strong Signal
3. Ratio of Villages that Get 3G Signal
4. Ratio of Villages that Get 4G Signal
5. Ratio of Households with Fixed Lines Connection



Finance

1. Financial Inclusion Index
2. Number of Officeless Financial Services Agents (Laku Pandai Agents)
3. E-wallet Adoption Rate as Payment Method by E-commerce



Regulation and Local Government Capacity

1. Gross Enrollment Rate of Senior High Schools/ Vocational Schools
2. Gross Enrollment Rate of Higher Education (Diploma-Bachelor)
3. Growth Rate of Life Expectancy
4. Reduction of Poverty Rate (Reverse Indicator)

Integrated Platform Development for Big Data in the Health Sector

Budi G Sadikin
Minister of Health



“Health data needs to be standardized so that it can be easily accessed.”

Indonesia is estimated to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in the country?

Internet of Things (IoT), digitalization, big data, and Artificial Intelligence (AI) will affect not only health services delivery but also diagnostics. The fundamental aspect is the data. Health data needs to be standardized so that it can be easily accessed. In addition, data ownership must be clear. Aside from being owned by health facilities, each individual must also own the data. Each individual's medical record needs to be integrated to ease health services.

Then, we will ask permission from each individual as the data owner to contribute their health data to the state, certainly with masking their personal identity. The data will be consolidated into a single database that we can provide for researchers.

We will also tidy up the health application. Currently, there are too many health applications. The government will create an integrated platform. Then, health biotechnology. In the future, health services will become more scientific, personalized, and precise. Medicines, diagnosis, and treatment could be determined by observing genes. Diagnosis will go beyond blood tests, CT Scan or MRI and instead, leveraging genes analysis to determine potential disease likelihood for each person. By having an integrated database, we can see those patterns.

During the pandemic, the government is leveraging digital technology to track new cases, telemedicine, and monitor hospital bed availability. What are the challenges of this digital health platform?

The use of digital health applications mainly still focuses on the delivery aspect. It has been very helpful because the service is available for 24 hours, regardless of location, and medicines can be delivered directly. However, not everyone has downloaded the application. For example, there are around 12,000 cases every day in which we send telemedicine services from the Ministry, but we only get about 4,000-5,000 responses. Another issue is that some people do not understand using the application due to the user experience (UX) aspect. Based on the data, a small

proportion of users stopped halfway throughout the process within the app.

As for usage outside Jakarta or Java, we will prioritize creating the platform first, hoping that the application will eventually grow in the outer regions. For instance, West Java has an excellent IT team that developed an application that can access our platform. Meanwhile, other regions that could not create an application can use our platform. They can decide whether to use our platform simply or make a more advanced application that can access it.

In 2021, the PeduliLindungi app was the most downloaded application worldwide. In the future, what does the government plan for this application? How can the private sector collaborate?

PeduliLindungi will integrate the entire patient experience in one application to avoid having too many platforms around. We will provide one platform for the end-users and one for the healthcare facilities. We will open the platform to everyone, including private sectors, to make it more useful. We will make regulations for those using the platform. It is as if we provide the soccer field and the soccer ball for free, but the players have to comply with

the game rules and the referee.

However, we are also aware that not everyone can use this application due to gadget limitations. To address this issue, we form a special strategy. For example, not all students have the PeduliLindungi app, so we reverse the process. Instead of requiring the students to own the application, only the teachers are required to, while the students only have to bring their barcode.

How does the Ministry of Health see the development of HealthTech? What could be synergized with the Ministry of Health?

By standardizing health data and creating several platforms, be it for medicine, vaccination, hospitals, labs, we hope these startups can grow creatively by using these platforms. My message for startups is to focus not only on the health technology information aspect but also on health biotechnology. I want to invite investors to shift towards biotechnology startups. Several collaborations with HealthTech have also been carried out, and it can be beneficial if healthtech startups could research health biotechnology and produce goods/services according to government needs.

We will ask permission from each individual as the data owner to contribute their health data to the state, certainly with masking their personal identity. The data will be consolidated into a single database that we can provide for researchers.

Improving Cluster KUR (Microcredit Program/Kredit Usaha Rakyat) to Accelerate Credit Absorption

Teten Masduki
Minister of
Cooperatives and
MSMEs



“We are now developing KUR clusters and encouraging the MSMEs to join the program. Therefore, KUR distribution may be channeled through these clusters.”

The Ministry of Cooperatives and SMEs (KemenkopUKM) is targeting around 30 million MSMEs to go digital in 2024. What strategies and steps will Kemenkop UKM take to support target achievement?

According to IDEA, from 30 million MSME targets in 2024, 16.4 million have gone digital. It is a tremendous

acceleration as it reflects a 105% increase from the pre-pandemic, where only 8 million MSMEs have onboarded digital platforms. To reach the other 13.6 million, we will encourage micro-scale businesses with small production capacity to onboard local platforms instead of the global-scale unicorn e-commerce, to avoid competition with big brands. Therefore, we will segment the MSMEs based on their trade area, and I believe that there are now developed digital markets whether the ones owned by the government or local e-commerce.

Also, we will make the currently digitalized government expenditure more effective. For example, in LKPP, 40% of goods and service procurement by the government and institutions for MSMEs is now processed digitally.

What measures should we take regarding funding or capitals specific to unbankable MSMEs?

If banking still focuses on using the asset adequacy ratio or collateral appraisal approach, a lot of MSMEs will not be able to access the banking system. Now that the fintech industry has grown tremendously, 240 trillion worth of funding is distributed through 140 registered fintech companies that no longer apply collateral adequacy assessment, and instead leverage the digital track record for its business. These fintech companies use cash flow statements, but their financial record is still manual.

Therefore, the digitalization that we aim for should not only be how businesses enter the digital market, but it should also be in their business processes

Banking must be more dynamic because many fintech firms are getting more aggressive. This condition can motivate many banks that maintain conventional systems or rely on asset adequacy to change their method through assessment.

as well. I hope that with how competitive it is to give fundings for MSME, it would also encourage banking firms to shift their strategies by evaluating the digitalized financial track record.

At the moment, many new startups are flourishing and focusing on supporting MSMEs. What challenges and opportunities faced by these startups during the process?

I believe the market will remain wide open to allow the development of a business ecosystem for MSMEs, particularly to access the market, funding, or opportunities for business collaboration. For example, the Wahyoo app encourages food stalls (*warteg*) to sell online, and Jahitin helps tailors.

Does that mean Kemenkop UKM will use a digital platform to distribute the microcredit program (KUR)?

The Ministry of Cooperation will only subsidize the credit interest. We are now developing KUR clusters and encouraging the MSMEs to join the program. The KUR cluster could become part of the regional cluster. Therefore, KUR distribution may be channeled through these clusters. We will constantly increase the portion of the credit for MSMEs. Last year was IDR 190 trillion, this year is IDR 285 trillion,

and next year will be IDR 350 trillion. This funding will be well absorbed if KUR channeling is distributed more broadly through some measures, including the KUR clusters. On the other hand, MSMEs' business capacity must be fostered to upgrade their credit demand from micro to commercials, or higher.

How do you respond to PBI (Regulation of Bank Indonesia) plans to increase bank credit allocation for MSMEs to 30%?

Today the rate is 19.8%, not even 20% yet, because a lot of the business players are unbankable. Unbankable means the nature of their business is informal, and hence, not a legal entity. We are encouraging transformation from informal to formal entities through the Omnibus Law. In the future, the process to obtain a company registration certificate, halal certification, BPOM (Food and Drugs Administration), and other documents will be seamless for them.

In addition to business activities, banking also needs attention. Banking must be more dynamic because many fintech firms are getting more aggressive. This condition can motivate many banks that maintain conventional systems or rely on asset adequacy to change their method through assessment.

Digitalization as a Crucial Part of the Development of Industry 4.0

Agus Gumiwang Kartasasmita
Minister of Industry



“In support of Making Indonesia 4.0, the Industrial Human Resources Development Agency (BPSDMI) constructed the Digital Industry 4.0 Center (PIDI 4.0).”

Indonesia is predicted to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

A study conducted by the Ministry of Finance and the Asian Development Bank (ADB) entitled “Innovate Indonesia: Unlocking Growth Through Technological Transformation”, in which a survey conducted to 502 domestic companies, found that the level of

technology adoption of companies in Indonesia is mostly in the basic category (64%), while for the advanced category, it is still relatively small (6%). The main barriers to technology adoption include funding and human resource capacity.

This is in line with the Indonesia Industry 4.0 Readiness Index (INDI 4.0) where some of the challenges in applying digital technology are the commitment of top management, access and technological investment, human resources that can adapt to digital technology, and company's readiness to operate at a medium level. In addition, Indonesia's budget allocation for ICT is lower than other countries. Access to ICT is also still dominated by the upper middle class. Indonesia's research and development (R&D) spending is also still low, only 0.1-0.3% of gross domestic product (GDP).

What is the government's strategy/roadmap to make the digital economy sector more resilient to support the economy?

Among the “Making Indonesia 4.0” implementation agenda items related to digital are building a national digital infrastructure, establishing an innovation ecosystem, and implementing technology investment incentives. We also issued regulations regarding assessing the company's level of readiness to transform towards industry 4.0. Currently, we are formulating incentives for industries transforming towards Industry 4.0.

In support of Making Indonesia 4.0, the Industrial Human Resources Development Agency (BPSDMI) constructed the Digital Industry 4.0 Center (PIDI 4.0). PIDI 4.0 was

established as a one-stop solution for implementing Industry 4.0 in Indonesia. PIDI 4.0 will also become a digital manufacturing learning center that helps companies develop value chains.

Indonesia will enter the demographic bonus in 2030. How is the push towards the readiness of human resources in terms of digital capabilities?

Industry 4.0 system causes industrial expansion specifically due to the widespread application of the Distributed Manufacturing concept. The reduced technical workforce in an industry can be distributed to new types of industries that require higher workforce competencies (skilled labour). For this reason, there will be a shift in competence from low-skilled labor to high-skilled. We are currently developing industrial vocational education based on digitalization competencies. Some of them are vocational education that can align industry and vocational schools.

We also have the E-Smart program for Small, Medium and Multifarious Industries (IKM). This program will utilize digital platforms by facilitating collaboration between IKM and start-up companies, especially those engaged in e-commerce. This program is intended

to build an IKM database system that is presented in industry profiles so that centers and products will be integrated with existing marketplaces. It aims to expand market access and open up opportunities for government guidance.

What collaborations can be developed between the Ministry of Industry and startups to increase industrial growth?

We have an Industrial Technology 4.0 Startup (Startup4Industry) coaching program. Through the Startup4Industry program, we seek to direct the potential and innovation of startups to transform technology in the industry through implementation projects of startup solutions.

Since 2018, the Startup4Industry program has been participated by 723 startups, resulting in 73 finalists and 35 implementation projects. In 2021, we facilitated 20 implementation projects as a model for the impact of technology adoption for other industry players. In addition, this program is intended to increase public and industry trust in startups. Another thing we continue to work on is promoting startups through business meetings and innovation showcasing so that they are better known and leveraged by industry players.

We have an Industrial Technology 4.0 Startup (Startup4Industry) coaching program. Through this program, we seek to direct the potential and innovation of startups to transform technology in the industry through implementation projects of startup solutions.

The Rise of Tourism with Digital Transformation

**Sandiaga
Salahuddin Uno**
Ministry of Tourism
and Creative
Economy



“The development of the digital industry has changed the need for workforces. The World Bank and McKinsey projected that between 2015 and 2030, Indonesia would need approximately nine million talented workforces in the digital sector.”

Indonesia will take advantage of the demographic bonus in 2030. How do you encourage the readiness of digital talents to help boost digital economy growth?

The development of the digital industry has changed the need for workforces. The World Bank and McKinsey

projected that between 2015 and 2030, Indonesia would need approximately nine million talented workforces in the digital sector. Therefore, we need a palpable breakthrough by the Ministry of Tourism and Creative Economy/Department of Tourism and Creative Economy (Kemenparekraf/Baparekraf) embodied in the Baparekraf Developer Day and Baparekraf Digital Talent.

Baparekraf Developer Day is an event held by Kemenparekraf/Baparekraf aiming to upskilling app developers' technical capacity in Indonesia. This event facilitates the transfer of knowledge and awareness of industry standards directly from successful practitioners, especially in app development.

Meanwhile, Baparekraf Digital Talent (BDT) refers to the Upskilling Program for Creative Digital Talents as a government initiative to develop and increase the capacity of creative economy players, especially in app development. In 2021, Baparekraf Digital Talent (BDT) facilitated Belajar Android Jetpack Pro and became the Front-End Web Developer Expert for 1,515 Developers.

The pandemic has significantly affected tourism and creative economy players, especially MSMEs. How can we encourage the growth of the creative sector amid the pandemic?

Digital transformation is one of the options that could be used to face the pandemic impact. Digitalization of the creative economy ecosystem brings multiple benefits to the actors. Digital transformation helps a business unit to become more efficient and stable. It is because digital transformation allows the practical simplification of operational procedures. Also, the digital ecosystem

would support company scale-up since digital technology creates a more modern work environment.

Kemenparekraf/Baparekraf initiates several programs to help MSMEs facing the pandemic, including Proud of Indonesian Products (*Program Stimulus Bangga Buatan Indonesia/PSBBI*), Government Incentives and Assistance Program (*Program Bantuan Insentif Pemerintah/BIP*), Business Safety net (*Jaring Pengaman Usaha/JPU*), and Government Aid for Tourism Sector (*BPUP*).

What is the trajectory of tourism development post-pandemic?

The key factors for tourism and creative economy businesses to survive the pandemic and industry megashift are the capacity of successful adaptation, innovation, and collaboration. It is due to the modified social behavior and shifting tourism trends.

From the innovation aspect, we encourage harnessing digital platforms for tourism marketing to provide optimized services. Regarding adaptation, we ensure that health protocols are non-negotiable in the new normal. In collaboration, we partner with all stakeholders in the pentahelix.

The impact of the COVID-19 pandemic has accelerated the emerging characteristics of the new tourism economy: hygiene, low mobility, crowd avoidance, and physical distancing, all commonly known as personalized, customized, localized, and smaller in

size. The 3A concept (attraction, amenity, access) is changing due to the new emerging form of the tourism economy. Tourist attractions nowadays put forward cultural and natural aspects because they offer more attractive ecology, wellness, and adventures that will be the main driver of the tourism sector.

What sort of collaborations can potentially be developed between Kemenparekraf and the startup players to boost economic recovery?

The collaboration between Kemenparekraf/Baparekraf and startups may embody coaching/incubation, business matching with the investors, or national and international promotions. One of the programs in business matching is FoodStartup Indonesia (FSI) 2021, which creates space for startups to meet potential investors and pitch their business development ideas to gain capital. Another program is Barekraf for Startup (BEKUP), focusing on startup incubation or scale-up programs. In 2022, the Ministry will collaborate with startups like Bukalapak, Blibli, Grab, and 11 other digital platforms to organize *Program Stimulus Bangga Buatan Indonesia (PSBBI)*.

To support the government initiatives in accelerating the Super Priority Tourist Destination development, accommodation franchises such as Bobobox have collaborated with Kemenparekraf to present Bobocabin in the Toba Lake tourism spot.

Key factors for tourism and creative economy businesses to survive the pandemic and industry megashift are the capacity of successful adaptation, innovation, and collaboration.

State-Owned Enterprises (BUMN) Strategy to Support Acceleration of Digital Ecosystem

Erick Thohir
Minister of State-
Owned Enterprises
(BUMN)



“In addition to transformation through corporate actions, each and every BUMN must meet the target of being digital ready with a minimum score of 3.5 out of 4.0.”

What is the government strategy/roadmap to strengthen the digital economy sector to support the country's economy?

As more than 70% of the total population are internet users, Indonesia is on the list of countries with the most startups. State-owned Enterprises (BUMN) have driven a third of the country's economy and are responsible for leading

and making necessary breakthroughs in the future. Today, technology and digital adoption has been implemented in nearly all industrial clusters, including Telkom that is now operating with data center network, cloud, and fiber optic to support local business activities. Also, in collaboration with Freeport, Telkomsel has initiated the first 5G Mining in Southeast Asia.

On top of that, we encourage all BUMN to commit to digital transformation towards Industry 4.0 by implementing INDI 4.0 for BUMN assessments. Undoubtedly, it takes strong commitment and partnership with universities, public and private sectors, both domestic and overseas, to undertake all initiatives in the journey of digital transformation.

In addition to transformation through corporate actions, each and every BUMN must meet the target of being digital ready with a minimum score of 3.5 out of 4.0. We keep encouraging them so that 20% of the total employees across Ministries and BUMN are digital ready while preparing for utilizing e-government in the entire Ministry of BUMN and corporations by the end of 2022.

Indonesia will take advantage of the demographic bonus in 2030. How do you encourage the readiness of digital talents to help boost digital economy growth?

In less than 10 years, the demographic bonus will be the main accelerator for achieving the vision of 2045 Golden Indonesia. However, we still need to prepare for readiness and acceleration. We prioritize talent development to produce quality human resources

through a vast range of reskilling and upskilling programs. Other measures that engage talent transformation in the Ministry of BUMN is encouraging inclusive millennial leadership in strategic positions of BUMN. Naturally, we also provide mentoring to ensure the continuity of the initiatives implemented by their predecessors.

We are currently preparing multiple strategies and facilities to stimulate creativity and digital innovation for the younger generations. For instance, we are mapping the impact of technology disruption on job function in BUMN 2030 and developing strategic initiatives to prepare for the future jobs. We have established digital leadership as one of the 10 main competencies of BUMN leaders. Moreover, we have created a movement of #AkselerasiGenerasiDigital, a collaborative movement to develop talents, innovation, startups, and soonicorns (soon to be unicorn) for accelerating the advanced ecosystem for the digital economy.

With the current strategic initiatives and talent readiness, we hope to produce young generations who are capable of recognizing business opportunities, creating productive workforce in the digital era, being a pioneer or trendsetter rather than simply followers in digital industries and making Indonesia a technology sovereignty.

What sort of potential collaborations could be established between the government and startup players to accelerate economic recovery?

The government, through the Ministry of BUMN, continues its efforts in the establishment of the startup ecosystem and accelerating the birth of new unicorns in Indonesia. One of the initiatives for funding local startups is Merah Putih Fund (MPF) led by five Corporate Venture Capital (CVC) BUMN, namely Mandiri Capital Indonesia, BRI Ventures, MDI Ventures, Telkomsel Mitra Inovasi, and BNI Ventures. The other purpose of establishing MPF is to show support for startup companies in Indonesia.

In the first phase, MPF is advocated by five BUMNs, i.e., Telkom, Telkomsel, Bank Mandiri, BRI, and BNI. In the second phase, MPF will engage other BUMNs and private companies based in Indonesia to participate as investors.

To obtain MPF-mediated investment, you must be of Indonesian citizens, with the company's operation domicile in Indonesia, and it must also be in the growth stage with a clear IPO timeline that must be undertaken in Indonesia. Besides Merah Putih Fund, we currently have Indonesia Digital Tribe to boost the potentials of digital-ready talents and digital entrepreneurs as the initiatives of the Ministry of BUMN through BRI, Bank Mandiri, Telkom Indonesia, and Kemendikbudristek, as well as Narasi.

Other measures that engage talent transformation in the Ministry of BUMN is encouraging inclusive millennial leadership in strategic positions of BUMN.

Society 5.0 is the “Solution” to Industrial Revolution 4.0

M. Arsjad Rasjid P. M.
Head of KADIN
(Indonesian
Chambers of
Commerce and
Industry)



“Digitalization plays a pivotal role in economic recovery due to the COVID-19 pandemic.”

How will the collaborative strategy/roadmap between the industry and the government to strengthen the digital economy sector for supporting Indonesia’s economy?

KADIN has mapped and determined the roadmap for digital economy development. The top priority is reinforcing the ecosystem of the digital economy at the local and national levels. Program Coordination and Synergy with the government is the key to accomplishing this goal.

In general, this program consists of education and digital literacy specific

for the industry players and MSMEs, infrastructure for digital asset trading across the country and beyond, closed loop system or close mentoring between the parent company and MSMEs, and research and development for perfecting a conducive regulatory framework.

How can accelerated digital transformation contribute to economic recovery due to the COVID-19 pandemic?

Despite being a significant challenge to the economy, the COVID-19 pandemic has been the catalyst in boosting the digital economy. Digitalization plays a pivotal role in economic recovery due to the COVID-19 pandemic.

SMEs’ adoption of e-commerce contributes to the ease of access to more supplies of raw materials and market access across Indonesia. Optimizing Industry 4.0 in SME at the middle to bigger scale will improve productivity by 10-20%. For example, data integration allows the business process to use machine analysis and data visualization in order to improve performance and efficiency, and eventually to let the business thrive. Accordingly, digitalization has, directly and indirectly, accelerated the rate of economic growth, particularly due to the pandemic.

Indonesia will take advantage of demographic bonus in 2030. How do you encourage the readiness of digital talents to seize the opportunity of the digital economy optimally?

The Industrial Revolution 4.0 poses challenges in the business world, such as lack of skilled workforces, security issues in technology communication/ICT, poor stability of production machines,

the inability of stakeholders to adapt to change, and countless job losses due to automation.

Society 5.0 is an era where technology is immersed within humans. Society 5.0 is the solution to Industrial Revolution 4.0. Most people assume that Industry 4.0 is associated with sophisticated machines that will eradicate plenty of manual jobs. Society 5.0 is expected to create a new value through the development of cutting-edge technology and bridge the gap between humans and economic issues in the future.

In order to seize the opportunity and address the challenges of the Industrial Revolution 4.0, Indonesian people are required to have literacy in data and technology while moving forward to Society 5.0.

When accelerating comprehensive digital transformation, what sort of strategies or collaborations are implemented to achieve skill and technology transfer from overseas to Indonesia?

KADIN collaborates with other countries in the economic sector to always encourage technology transfer among countries in the form of comparative study, seminars, and training for local entrepreneurs and MSMEs. Collaborative programs are expected to equip the entrepreneurs and executives of both

conventional and digital businesses in Indonesia to transform their businesses to compete and boost the country's economy in the digital era.

What should the government prepare regarding the funding scheme and budget for digital transformation?

In promoting digital transformation, the government focuses on building strong and inclusive digital infrastructure to accelerate the extension of internet access and services. In this regard, the Government of Indonesia has prepared three funding schemes. First, Universal Service Obligation (USO) is donated from telecommunication service providers. Second, the Non-tax State Income from ICT sectors, and at last, the State Budget.

These three funding schemes reflect the government's strong commitment to achieving equal distribution of infrastructure for inclusive and well-distributed telecommunication networks, and not a single area will be overlooked. In addition to infrastructure, the State Budget reflects the government initiatives to keep pushing digital transformation in economic and government sectors, building National Data Center, and implementing Electronic-based Government System (SPBE). The budget is allocated to the expenditure of the ministry agencies and Transfer to Region and Rural Funds (TKDD).

KADIN has mapped and determined the roadmap for digital economy development. The top priority is reinforcing the ecosystem of the digital economy at the local and national levels. Program coordination and synergy with the government is the key to accomplishing this goal.

Encouraging Digitalization of MSMEs to Support Economic Growth

Benyamin Davnie
Mayor of
South Tangerang



“What we encourage at the moment is the small-scale and the household industries to keep digitalizing their production and marketing process.”

South Tangerang achieves one of the best digital economies in Banten. What are the strategies to encourage digital competitiveness in South Tangerang?

South Tangerang has high potential in two aspects: population growth and more educated populations. The captive market is already established, the local people are attentive to digital development, especially because the economic players are those performing in tertiary sectors, mainly trade and services.

The use of digital apps was introduced

gradually in 2011. It was initially intended for internal affairs of local government, but it has evolved to aid the society in public services. For example, the Civil Registry Office provides 30 services (online, offline, and ojek online/online courier) in which people can select to access service via walk-in, online app, or represented by online courier. The other support from the government to go digital is the installment of Wi-Fi in public facilities, e.g., mosques, schools, city hall, and others with funding resources from APBD (Regional Expenditure Budget) or other donations.

Indonesia will take advantage of the demographic bonus in 2030. How do you encourage the readiness of digital talents in South Tangerang to help boost digital economy growth?

Education infrastructure in South Tangerang is quite complete, and we are currently delivering digital learning. We also encourage collaborations between campus and pesantren (Islamic boarding school) that introduce ICT in their system.

The city government has fulfilled the demand for WiFi installation at school. The central government has also contributed in providing internet data for learning activity. In educational programs, some campuses dedicate particular study programs to enhance students' knowledge in technology. Besides that, junior high schools also incorporate digitalization as a local content in the curriculum. A bigger portion of learning should be dedicated to attitude in harnessing the benefits of technology. The role of the government is to stimulate the introduction of technology to the community.

How has the City Government of South Tangerang provided initiatives and policy for entrepreneurs to consistently apply digital transformation in their company?

There are not many companies in South Tangerang because we are not an industrial city, but there are some tech-based industries. What we encourage at the moment is the small-scale and the household industries to keep digitalizing their production and marketing process. We strongly encourage digitalization among MSME, though it may be slow, so that MSMEs can reap the benefits. In addition, we plan to partner with the Ministry of Communication and Informatics (Kemenkominfo) to develop digital talents, for example through training and coaching for MSMEs.

What has the City Government of South Tangerang prepared regarding the funding scheme and payment for digital transformation?

In an effort of digitalization, we must first 'digitize' paper files before we start utilizing digital technology. It is indeed costly because the cost of technology is high, and it also changes very rapidly. We have to avoid stagnation of digital transformation as if it happens only if there is funding and will stop if there is lack of funding.

In our office, we keep increasing our

budget for digitalization, such as operator fees, new app development, Wi-Fi supply, and others. The source of funding is mainly APBD and additionally from aids such as Wi-Fi supply from the third party for 100 locations from mosques to other public facilities. Besides, a fraction of the budget is dedicated to coaching and training programs.

How accelerated digital transformation could contribute to regional economic recovery from COVID-19 pandemic impacts?

The pandemic has mostly affected two groups of business actors. The first are middle-to-upper-income businesses that tend to hesitate when it comes to migrating online. When they have to migrate to online, they are quite slow to catch up and eventually have to cut their employees or close down. The second group is the MSMEs that are continuously provided with digitalization training for the whole business process starting from production, packing and marketing. Eventually, they are the ones who have proven to be the most resilient. If we saw declining economic growth in South Tangerang, it does not mean that the economy has recessed. The ones seeing a drastic decrease are the upper middle class economic actors, while the lower middle class economic players continue to live, adapting to the pandemic.

The captive market in South Tangerang is already established, the local people are attentive to digital development, especially because the economic players are those performing in tertiary sectors, mainly trade and services.

Venture Capital Encourages Synergy between Startups and Business Ventures

Donald Wihardja
CEO of
MDI Ventures



“Reorientation from the investors, that the future of tech startups are bright, but they need industry support, they need funds.”

Indonesia is estimated to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

The main challenge of digital development in Indonesia is product innovation, such as designing the most advanced technology. From the startup

point of view, this challenge is related to the operational aspect. Indonesia has a huge market, but the challenge is the technology creators and its users are not yet well-literated with technological advancement. As a result, the competitive advantage belongs to startups that are capable of utilizing technology to solve current issues. Hence, we can see that the problem lies in the operations.

However, most big operation solutions in Indonesia need an enormous investment. We see unicorns in Indonesia are actually solving operational problems such as transportation by ride hailing app and logistics problem by e-commerce. Apart from requiring huge investment, they also need to educate people. Thus, we need to deepen our understanding and reorientation from the investors, that the future of tech startups are bright, but they need industry support, they need funds. Advanced technologies require more operational costs and digital talents. Therefore, fundraising became one of the challenges.

What are the characteristics of startups funded by MDI Ventures that are now evidently growing fast?

Startups that generate a revenue stream, growth, and capability to justify their profit margins. In unit economics, we have set the scale for revenue, marketing cost, retention, and so on. The main issue is market suitability. When startups have reached the measured unit economics that translates to growth, they will generate more profits. Eventually, they will come to a phase where profits outnumber the fixed cost.

Regarding startups funded by MDI Ventures, how do you improve innovation and competitiveness of fostered partners?

Unlike any other VC firm, we support startups not only by funding but also opening up business opportunities through synergies. Additionally, we hold events designed to bridge startups with potential business ventures with State-owned Enterprise (BUMN), e.g Telkom Indonesia, Pos Indonesia, Pupuk Indonesia, and many others.

It is the duty of our synergy team to open doors through an event 'Next Billion Ecosystem Festival' (Nex-BE Fest) to introduce startups to the commissaries of BUMN and their holding company. Then we keep a record on which investment or synergy to follow up.

Considering the huge market potentials in Indonesia, digital adoption has become a prerequisite. What synergies have MDI Ventures forged with other stakeholders to support digital distribution in regional areas?

First, MDI connects startups with business opportunities. For example, in the health care sector, we bridge between health care providers (Alodokter, Halodoc, and mClinica) and business opportunities in Telkom, AdMedika, Mandiri Inhealth,

Bio Farma, and Kimia Farma. The outcomes of these synergies vary from telemedicine, insurance, and e-pharmacy for Kimia Farma's digitalization.

Second, we bring impacts to small-scale traders and the community in general. Our startups like Aruna and TaniHub provide abundant opportunities for farmers and fishermen. Digital technology has bridged between market demand and agricultural harvest and marine products.

Sustainable investment is a crucial issue for potential investors. What is your take?

We agree with the concept of impact investing as the social responsibility of corporations and philanthropists. However, it is proper corporate governance that improves competitiveness and added value to attain Sustainable Development Goals.

In many American and European countries, buyers only want to purchase products from companies that are engaged in social contract and impactful. There are added values to companies. We are currently building an impact investment fund with Telkom that will come to fruition next year. In addition, some of our companies have released ESG reports.

Indonesia has a huge market, but the challenge is the technology creators and its users are not yet well-literated with technological advancement. As a result, the competitive advantage belongs to startups that are capable of utilizing technology to solve current issues.

Synergized Equal Digitalization Across the Nation

Andre Soelistyo
CEO of GoTo Group
& GoTo Financial



“Providing various infrastructures that aid MSMEs, they will be able to grow alongside other industries.”

Indonesia is one of the largest digital players in Southeast Asia and is expected to become one of the biggest in Asia. What are the obstacles to meet these expectations?

First, we need to foster quality human resources. Indonesia has more than 2,200 startups companies, and will continue to grow. This demonstrates the favorable regulatory which encourage the growth of the startup ecosystem. However, there remains a lack of workforce for the digital economy industry.

Second, we need adequate logistic

infrastructure. As an archipelagic country, Indonesia still faces the challenge to create a reliable and affordable logistic infrastructure so that everyone across the country is able to utilize the digital economy. Third, the ease of business for MSME players as the backbone of the digital economy industry. By providing various infrastructures that aid MSMEs, they will be able to grow alongside other industries.

The pandemic has become the momentum of accelerating digital transformation in multiple sectors. How ready are Indonesian talents to partake in the workforce for Industry 4.0?

Collaborations between the government and tech-players in the industry must be continuously done to equip the digital talents with the skill sets and experiences needed by global industry, in regards to the rapid development of ICT and borderless competition. At GoTo, we partake in the HR development program through Kampus Merdeka initiated by the Ministry of Education, Culture, Research and Technology (Kemendikbudristek). We also organize upskilling programs for young tech talents, namely Generasi GIGIH. At Gojek, we have GoAcademy, a talent incubator, and Gojek Xcelerate. Meanwhile, at Tokopedia, some initiatives include Tokopedia Goes to Campus, Product Design Academy, Tokopedia DevCamp, and multiple collaborations with universities.

With a huge market potential, digital adoption becomes a must for Indonesia. What synergies have GoTo undertaken with other stakeholders

Collaborations between the government and tech-players in the industry must be continuously done to equip the digital talents with the skill sets and experiences needed by global industry, in regards to the rapid development of ICT and borderless competition.

to support the measures of equal digitalization?

One of the synergies to achieve equal digitalization especially for Indonesian MSME players is the #BangkitBersama movement. One of the programs in this movement is training for MSME players to strengthen competitiveness through digitalization. Then, GoTo Financial also improves the competence of non-culinary MSMEs through the Komunitas Retail GoTo Financial (KONTAG). This community is part of the Academy of Business Partners (Akademi Mitra Usaha/ KAMUS) initiative that has trained more than 50,000 MSMEs across Indonesia in 2021. We certainly intend to keep exploring other collaborations with multiple stakeholders in order to support equal distribution of digitalization across the nation.

The merger of Gojek and Tokopedia was a huge decision amidst the pandemic. How has GoTo contributed to improving MSME through digital platforms?

The decision to give birth to GoTo has produced a platform that integrates on-demand services, e-commerce, and fintech in one ecosystem. To the best of our knowledge, GoTo is the first platform to have performed this in Southeast Asia. From then on, we now have solid infrastructure and resources to help MSMEs implement digitalization in every phase of its business operations.

According to research by LD FEB UI, the turnover of MSME partners in GoTo Financial by the end of 2021 was estimated to increase by 37% (yoy) or equal to IDR 53.2 trillion.

From the customers' perspective, there is an increasing use of digital services that help MSMEs growth. Research by LPEM FEB UI shows that 7 out of 10 [business players/merchants in] Tokopedia have experienced a surge in sales up to 133% during the pandemic. Also, for MSME players, GoPay becomes the gateway to digital financial access. 60% of MSMEs made their first non-cash transaction with GoPay.

Technology development comes with an increased level of cybercrime. What are the corporate policies to improve the safety of users of digital service and product?

We focus on three aspects in enhancing security. First is protection, emphasizing the importance of preventive measures. We implement privacy policy and establish a Data Protection Officers team. The, we provide education to improve digital literacy among users, driver partners, and merchants through the #AmanBersamaGojek campaign. Tokopedia has also been actively educating their users and merchant partners. Lastly, technology that provides innovative features and technology to improve cyber security, by doing access limitation, and multiple-layer protection to safeguard personal data of the users.

Business Relevance is the Answer to Regional Digital Divide

Ridzki Kramadibrata
President of
Grab Indonesia



“We use a 360° view to see digital security from its overarching aspects.”

Grab is currently extending the ecosystem of the digital economy up to the borders of Eastern Indonesia. How has it progressed so far?

Recently, we did collaborative studies with LPEM FEB UI at the end of 2021 to demonstrate the development of Eastern Indonesia in relation to the existence of Grab. This study focused on two areas: Kupang and Jayapura. The first of four core findings in our study is the impact of Grab-initiated digitalization on electricity. The level of lightning in the area where Grab exists has grown twice as rapidly, which means business activity has

improved the economic level in that area.

The second finding is creating a new business opportunity. Approximately 30% of GrabFood merchants and 50% of GrabKios are new ventures. Digitalization enables Grab to create new entrepreneurs in Eastern Indonesia. Third, adopting financial products. E-wallet ownership is 87% higher than the non-Grab users, and 60% of driver-partners have insurance schemes. The last finding is concerned with women empowerment. We open business opportunities specifically for women because 60% of new Grab partners in Kupang and Jayapura are women.

To support digital development in Indonesia, what sort of digital business ecosystem that Grab built with Emtek and Bukalapak. With this regard, how has the Kota Masa Depan program developed?

Kolaborasi Nyata Untuk Masa Depan (Kota Masa Depan), or real collaboration for the future program, is initiated in the second-tier and third-tier cities because they are the foundation of Indonesia's growth in the next few years. In Kota Masa Depan, we collaborate with Emtek and Bukalapak. It is an ecosystem where Grab handles on-demand and financial affairs, Bukalapak focuses on commerce, and Emtek is responsible for media content and network.

In the first phase, we pilot in Solo, Gowa, Malang, Pekanbaru, and Kupang. In these cities, we undertook business acceleration for MSME. In Kupang and Solo, we provide supplementary business coaching, e.g., business planning, financial management, business permit, and digital marketing. These programs aimed to increase MSME's digital literacy from

onboarding to the digital world. We also empower traditional markets merchants to digitize their business. In implementing this program, we consult with the local government, including the Mayor of Solo, to understand what needs to be done.

Grab collaborated with OVO in the Government Online Transaction Acceleration Program (Program Akselerasi Transaksi Online Pemerintah/Patriot). What would be the targets, and how do they grow?

Our first target is the digitization of manual transactions of the local government. It is crucial to increase the revenue of the local government. The second is market digitization, particularly in Tier 2 and Tier 3 regions. Third, receiving tax which is not local tax revenue. The challenge is we have to observe the implementation in each area along with the problems and solutions. Therefore, bridging the gap is not only about infrastructure and human resources, but also business sensitivity to local issues so it can overcome the regional disparities.

We started our piloting project in Solo because this city has its own remarkable achievement. Firstly, local tax revenue

in October 2021 already reached 85% of the target set forth by the central government. Secondly, we help digitize markets. The potential markets in Solo are Pasar Gede and Pasar Klewer. Most digital transactions are settled in D+1, which is highly unsuitable with the nature of the traditional market. Alongside OVO, we provide a program so that the traditional market can secure transaction settlement on the H+0 or same day.`

In parallel with technology development and the digital economy, cyber crime is increasing. What are the Company's policies to reinforce user safety?

Cybercrime has been our main concern since we initiated Grab. We use a 360° view to see digital security from its overarching aspects. The first and foremost aspect is user awareness; in other words, the first defense comes from users. We educate our users/ consumers including our partners about protecting data privacy. Also, we provide continuous coaching and monitoring to strengthen their awareness. The second aspect is technology and the last one is partnership with the government and law enforcement.

Therefore, bridging the gap is not only about infrastructure and human resources, but also business sensitivity to local issues so it can overcome the regional disparities.

Digital Talent Development in Accelerating Digital Competitiveness

Caesar Indra
President of
Traveloka



“The biggest challenge is building exceptional digital human resources.”

Indonesia is estimated to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

Research by the IMD World Digital Competitiveness Ranking 2021 showed that Indonesia is ranked 53rd of 63 countries. Another index, Global Innovation Index which measures a country's innovation capability, reported that Indonesia has remained in the same position from 2018 to 2020, which was the 85th rank. In 2021, Indonesia fell to the 87th rank out of 131 countries. This demonstrates that the high value of the digital economy has not paralleled the

growth of digital competitiveness in the country.

The biggest challenge is building exceptional digital human resources. COVID-19 pandemic has pushed many institutions to do digital transformation, which highly affects the demand for digital human resources. However, this high demand is not yet in-line with the availability of a competitive digital workforce. We believe that collaboration across sectors between the industry players, government, society, and other stakeholders is one of the keys to enhance and equalize digital talents in Indonesia. With collaboration in the ecosystem, we are optimistic that digital transformation could develop rapidly.

Considering the massive market potentials in Indonesia, digital adoption becomes a requirement. What synergies have been established between Traveloka and other stakeholders to support digital distribution to regional areas?

Aside from actively contributing to building competitive digital talents through numerous initiatives, including Bangkit and Independent Campus Programs, we consistently provide educational and training programs for our partners across Indonesia to adopt digital technology. We hope the outcome of these measures is two-pronged: assist our partners, especially the MSMEs in small towns in digitalizing their products, and improve customer outreach to increase sales.

The benefit of adopting digital technology is evident in a pandemic era. One of our car rental partners in Bali revealed that since the start of the pandemic, their only source of income

comes from online platforms such as Traveloka. Before the pandemic, most of their customers placed direct orders or offline. It shows that digitalizing a product or service is capable of generating business during hardship.

Traveloka is one of the founding partners in collaborative initiatives of Google and The Ministry of Education, Culture, Research, and Technology Kemendikbudristek (Kemendikbudristek) in the Bangkit Program. How does that create digital talents?

Due to the high demand for quality digital talents in the present and future, we hope our fostered digital talents make significant impacts on both the community and country. This includes the talents partaking in the mentoring program of 3,000 young developers across Indonesia. In Traveloka, the high demand for digital talents also motivates us to prepare better appeals and offers to our digital talents, such as flexibility, work culture, space for self-development and compensation.

Sustainable investment is the current crucial issue for potential investors. What is your perspective on this?

Sustainable investments have grown exponentially in the past few years. It is evident from the increased in Assets Under Management (AUM) that consider the Environmental, Social, Governance (ESG) factors prior to investment. Based on the Principles for Responsible Investment (PRI), ESG-integrated AUM has generated nearly USD 120 trillion in 2021.

Some contributing factors to this development are the corporate and community increased awareness of the impacts of climate change, change in consumer behavior (especially, millennials and GenZ) regarding eco-friendly products, and appeal or regulations applied to investors or corporates to manage and reduce environmental and social externalities. Accordingly, Traveloka's ambition is to proactively address ESG-related issues in relevant industries by, for example, accelerating the digitalization of MSMEs actors, protecting customers' data privacy, and minimizing the environmental cost of our operations.

We believe that collaboration across sectors between the industry players, government, society, and other stakeholders is one of the keys to enhance and equalize digital talents in Indonesia.

Digital Infrastructure and Consumer Education Remain as Main Issues

Moses Lo
CEO of Xendit



“Our strategy is to learn the playing field and make it very much more accessible for small businesses to start accepting different payment methods.”

Indonesia is predicted to be the biggest digital economy player in Southeast Asia. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

Digital infrastructure and physical infrastructure were really lacking when we first began. It is changing but it remains as the main issue. There is still a long way for us to achieve global standards. Over the last couple of years, Indonesia has catapulted past other parts of the region.

As the infrastructure improves, you can see the proliferation and the number of start-ups booming and growing quickly, which could not have been done with the infrastructure that existed a few years ago. The problem is how to make it equal in other regions. It is hard given the archipelago, but it is improving much faster than in other countries that we are operating on.

Have you done any collaborations with other stakeholders in Indonesia to accelerate digital adoption? What about relationships with banks, and the fintech outlook in Indonesia?

We did lots of partnerships with other companies, and with different start-ups. Some fintech companies might be a threat to banks, but we are actually helping banks to grow. For the fintech outlook, it is still very early. If we look at the US and China, they need a decade for fintech to consolidate. Yes, we – start-up and other companies – can compete. But more importantly, the digital economy pie is getting bigger. There is less point in fighting around our share of the pie because the pie is growing so fast that we all can do different things.

How do you see the development of financial literacy and inclusion in Indonesia? What needs to be improved?

We have seen MSMEs, merchants and start-ups who used to have very traditional mindsets on what payments need to look like, including the methods and integration. That is now changing, which makes it easier to build businesses. The biggest challenge for us is to educate the market about where different players sit in the environment. For example, differentiating the job scope between

the payment provider and e-commerce. As for the government, we hope they will keep sponsoring and encouraging innovation.

Our strategy to approach MSMEs to adopt digital payment, for example, is by reaching into all these local communities and educating them on the benefits we offer. Suddenly, the barrier to entry for adopting digital payment methods in some small villages is not much higher relative to the barriers faced by other massive businesses. Our strategy is to learn the playing field and make it very much more accessible for small businesses to start accepting different payment methods.

As technology grows, so does cybercrime. What are the steps taken by your company to ensure consumer safety?

A lot of due diligence, Know Your Customer (KYC), categorizing merchants into different risk level groups, transaction monitoring, fraud detection engine, and white hat hacking. But the hardest part is education to end-users around social

engineering phishing attacks, which is the area most susceptible to attacks. We need to educate the customers to protect themselves. We may have a very secure system, but it is not secure to give your keys to someone. There are always people trying to commit fraud, both the merchants and end-users, and they are becoming more creative.

What do you think are the main deciding factors of digital payment adoption, especially for outer regions?

I do not see someone not using a digital payment method as wrong; it just means we do not have a use case yet, a more convenient way of helping them with payment. That is the problem. In outer regions, we have not discovered that more convenient way yet. The limiting factors are internet reliability and building the right set of touch points from offline to online, so people could migrate more easily. We also need to educate on security. If someone has been scammed by something in the past, it is hard to regain trust. Since there is lots of social engineering, others are also scared.

We have seen MSMEs, merchants and start-ups who used to have very traditional mindsets on what payments need to look like, including the methods and integration. That is now changing, which makes it easier to build businesses.

Technology Integration Enables Nuanced Experience in Shopping

Christopher Madiam
Co-Founder & President of Social Bella



“For us, sustainability encompasses business and all things we do, especially the environment.”

The pandemic has become the momentum of accelerating digital transformation in multiple fields. How can digital transformation develop in the beauty tech industry?

The development of digitalization is not always about shifting from offline to online; it is also the integration of many things. Although Indonesia's income per capita is not yet the biggest in Asia, digital adoption in our country is relatively successful. Also, mobile phone ownership grows more exponentially in Indonesia

compared to other countries. The pandemic has accelerated the demand to shift from offline to online. In the beauty industry, it is crucial to provide a combined experience in which customers cannot tell the difference between online and offline shopping. We need to be able to provide the best from both worlds.

In our case, online platforms are limiting customers' shopping experience because our customers would need to physically touch and feel our products with their own hands before making purchases. Therefore, we do not favor online extensions but rather integrate our onsite store with online technology to give a more nuanced shopping experience.

In the midst of digital acceleration and transformation, Sociolla keeps developing and expanding onsite outlets in multiple places. What are the long-term goals that you plan to achieve?

We are certainly motivated to provide a different experience. Many people focus on changing things in the next 10-15 years. However, many also forget that some things will remain unchanged, such as the retail industry. The retail industry was established hundreds of years ago and will remain to thrive in the future, so it needs to start adopting digitalization. Accordingly, we thrive to serve our customers in the most holistic fashion that allows them to physically touch and try the product themselves, although technology like AR (Augmented Reality) is now trending.

Those are the reasons we keep opening new offline outlets, particularly stores with minor or no presence in the market. Nevertheless, since we are a digital company, we do not need too

many outlets because they only stand as an experience store. Meanwhile, product purchasing has been digitalized, so the difference between online and offline shopping is non-existent.

What kind of synergies are created between Sociolla and other stakeholders in order to support digital distribution to regional areas?

Our business is beyond retail and online marketplace. We also have our distribution network that operates directly from modern retail channels to convenience stores, department stores, and even traditional stores across Indonesia. It is one of our ambitions to establish retribution centers in 21 cities in Indonesia. We are expanding these retribution centers to multiple cities using one application to assist them. As we know, traditional stores, particularly in suburban areas, give considerable economic contributions. Though, it is not the same case in Jakarta where almost all transactions are accessible from customer data. Among other things, we are supporting digital sharing as we believe it allows for more efficient operation, which eventually expands our business and creates better job

opportunities for the workforce in areas with our presence.

What business strategies does Sociolla prepare as a beauty tech company to keep improving the quality of your products and services while integrating them with digital roles?

We dedicate our substantial strategy this year to sustainability, which is a vital element. For us, sustainability encompasses business and all things we do, especially the environment. The next 10 years is a crucial period that will see a soaring amount of wasted packaging in addition to overconsumption. Digitalization has brought huge impacts because some people make decisions to purchase simply because they see social media influencers are buying; despite whether or not the product would suit them. We educate the community about this issue in a mission to reduce waste, and this year we aim at cutting down e-commerce over-dependency on bubble wrap. Therefore, we try to figure out a sustainable and delivery-proof alternative packaging to bubble wrap. We also expect to reuse paper. If we can do those things, it also becomes one of the good ways to support environmental sustainability.

Among other things, we are supporting digital sharing as we believe it allows for more efficient operation, which eventually expands our business and creates better job opportunities for the workforce in areas with our presence.

Adaptation Strategies of Fishery Business to Thrive Amid the Pandemic

Utari Octavianty
Chief Sustainability
Officer (CSO)
of Aruna



“Aruna is built on a sustainable foundation which integrates people, planet, and profit.”

While many sectors were hit hard during the pandemic, fishery showed a positive trend. What sort of transformations occurred in Aruna?

When the pandemic hit, we first sorted out the logistical issues since 80% of Aruna business revolves around exporting commodities. We used to face grave difficulties in overseas shipping that led us to launch our products in the domestic market in March. Necessary adjustments were conducted to suit the market during the pandemic. We saw an increasing demand for animal protein

consumption, including fish and seafood produce.

Another challenge comes from delivery issues, so securing delivery matters would be important. As the final measure, a special force or team was formed to be in charge of logistics or technology development to ensure a fast product cycle. Consequently, not only Aruna has grown eightfolds during the pandemic, the company also provides more employment opportunities.

One of the currently emerging issues is related to environment or sustainability. How are these elements applied to conventional business, like fishery?

Aruna is built on a sustainable foundation which integrates people, planet, and profit. Firstly, profitability is the main focus. Aruna provides a technology which enables the fishermen to earn more income. According to the recent collaborative research with LPEM UI, it was found that during the out-of-fishing season, the income of fishermen in Aruna rose by 148%.

Secondly, the people aspect is incorporated through collaborative initiatives with relevant stakeholders, including World Wide Fund (WWF) and Astra to provide education to the fishermen on the importance of sea preservation by utilizing eco-friendly fishing gears. The collaborative research with LPEM UI also stated that fishermen in Aruna gained a higher level of knowledge on eco-friendly fishing gears.

To ensure the planet aspect, GPS trackers were installed in the fishermen's boats to ensure eco-friendly tools were utilized and the fishing was done sustainably. Moreover, the proper

waste management system to avoid fish processing waste does not go to the sea.

What are the challenges of implementing a sustainable scheme, especially from the fishermen's perspectives? And what sort of digital talents are needed to ensure a smooth-sailing business?

The main challenge is to provide education with proper technique and solid examples. Local heroes of Aruna are the extending hands of Aruna to educate through seminars as well as friendly gathering over coffee and even going fishing with the fishermen. Accordingly, digital infrastructure improvements such as the internet or the fishermen's digital literacy can be achieved, which then ease any further technological implementation. In some integrated areas, the SONAR program – an online seminar with Aruna's fishermen, is provided. The fishermen are not obliged to understand how the internet works since most of them still use conventional mobile phones. Moreover, potential and eager fishermen are chosen to learn beyond technology (e.g., eco-friendly fishing gears) such as fishing method, communication skills, and

investment.

Indonesia has a huge market potential so digital adoption is a prerequisite. What measures are undertaken by Aruna and other stakeholders to support digital distribution in regional areas?

With the central government, we synergize with the Ministry of Fishery (KKP) and the Ministry of Communication and Informatics (Kominfo). We also hold regular activities such as Nelayan Go Online (Fishermen Go online) with Kominfo, which is a roadshow or tour around coastal villages with the government officials to approach the locals and get familiar with them. Collaboration with telecommunication providers and internet satellite providers to support connectivity in the field is established. In addition, other collaboration with other stakeholders such as Astra to provide electricity installation and clean water in the area, as well as to enhance digital adoption in the field is also maintained. We believe that a better integrated infrastructure set up will enable better technological adoption among the fishermen.

Accordingly, digital infrastructure improvements such as the internet or the fishermen's digital literacy can be achieved, which then ease any further technological implementation.

Equal Distribution of Digital Talents and Data-driven in the Logistics Sector

Andree Susanto
CEO of Waresix



“Digitalization assists us in carrying out the process and gaining a better understanding of more strategic movements based on the data.”

Indonesia is one of the largest digital players in Southeast Asia and is expected to become one of the greatest in Asia. What are the obstacles to meet these expectations?

With Indonesia's big population, there is a high demand for logistics. However, the logistic costs are equally high. One of the causes is that Indonesia has many islands, yet infrastructure is concentrated

only on a few of them. There are two types of infrastructure development: physical infrastructure and digital infrastructure, and both have to work together. Physical infrastructure is the foundation of digital infrastructure.

What makes Waresix different so it is considered capable of contributing to the acceleration of digitalization in Indonesia?

Logistics is the backbone of all digital economies in Indonesia, particularly in terms of product adoption. Without an effective and integrated logistic infrastructure, whatever happens in e-commerce cannot be delivered. In the logistic ecosystem, there are many truck owners, truck drivers, and transporters who provide deliveries and they are economic heroes. Logistics refers not only to e-commerce logistics, but also includes business-to-business (B2B) logistics, since e-commerce logistics accounts for only 5 to 10% of total logistics, while the remaining 90% serves offline trade.

The critical infrastructure issue is to improve the living standard of the transporter by providing access to digital infrastructure, insurance, and a variety of other services. Hopefully, by having strong penetration to every offline logistic player, we can give them better opportunities.

How does Waresix envision Indonesia's digital skills to fulfill employment demand in the Industry 4.0 era? What should Indonesia's government do to increase the quality of its digital talent?

Digital talent is categorized into three groups: visionary talent, talent who possess exceptional technical abilities,

The critical infrastructure issue is to improve the living standard of the transporter by providing access to digital infrastructure, insurance, and a variety of other services.

and talents who are still in the learning process. The challenge is in order to absorb these capacities, we must first determine which skill sets are needed by companies. One of the most crucial aspects is the transfer of knowledge. Therefore, what Indonesian talents need to do is to develop their own skill set outside of working hours.

What are the collaborations that Waresix has had with stakeholders? In order to improve Waresix's performance in the future, what kind of collaboration will be conducted?

These stakeholders can be seen on both the customer and vendor perspectives. We are building a digital infrastructure that leans more towards the vendor and logistics provider in order to improve the efficiency and utilization of each activity. If we have finished connecting all vendors, we can assist you to streamline a route and then help small vendors develop into large ones. For instance, The Ministry of Health has entrusted Waresix with delivering oxygen to 4,000 hospitals. In this case, we contributed to the transparency of the distribution process. By digitizing the process, we are supporting local vendors to participate in this activity.

How is the development of the National Logistics Ecosystem (NLE), integration of the digital platform between the government and the commercial sector, particularly to improve logistics cost efficiency?

When we first heard about NLE, we were excited about the government's ambition to build a one-stop platform for commodities entering Indonesia. Actually, we have prepared all of the APIs that are connected not only to the NLE, but also to other platforms, clients, and ecosystems that could utilize our services. In the future, the most crucial aspect of NLE's future is its adoption.

Can digitalization help resolve the Indonesian shipping crisis from West to East Indonesia?

Digitalization assists us in carrying out the process, whether it is submitting and receiving orders, and at the same time we are gaining a better understanding of more strategic movements based on the data we have. We can learn from the movement in each location, for example, based on meteorological data. We can take preventive measures to improve work efficiency based on this information. Data is also required to support end-to-end partnerships and connect all components of the supply chain.

Bridging the Gap to Drive Growth Through Digital Distribution

Agung Bezharie Hadinegoro
CEO of
Warung Pintar



“We always apply a bottom-up strategy, that is to take the lowest vantage point so that we may provide assistance to the *warung* businesses.”

Indonesia is estimated to be Southeast Asia's biggest player in the digital economy. What are the challenges to encourage the reinforcement of the digital economy in Indonesia?

First is the infrastructure issue. Although infrastructure is now progressing in a positive trajectory, some blind spots remain unaddressed. The second issue is productive utilization of technology. Social media usage is already quite good, but the conversion level from usage into economic transactions is not

yet sufficient. This is because most Indonesians are dependent on cash, so online payment remains an issue. Approximately 95% of transactions in Warung Pintar are cash on delivery. Lastly, the ability to create local-specific products directed to a particular market, including the business aspect and functions. Business such as Warung Pintar, for instance, is very specific for Indonesia and will be difficult to be replicated in other countries without Warung business.

How do you perceive the readiness of Indonesian talents to meet the workforce demand in the era of Industry 4.0? What does the government need to prepare to further improve digital talents in Indonesia?

I think what could be done is more incentives. Honestly speaking, when it comes to Indonesian talents, we do have a lot to choose from, but unfortunately, many giant tech companies are developed outside of Indonesia. Therefore, it is not that we lack local talents, but their price is expensive. Consequently, many companies are rethinking their decisions to hire local talents. So, we believe that when the company cannot foresee the benefits of hiring Indonesian talents, they will eventually seek foreign talents to bridge the huge gap in price to value.

Since the first establishment in 2017, how has Warung Pintar developed to improve micro retail businesses (warung) through digitalization?

Speaking of gross development, we perceive it from three aspects: growth in user numbers, services, and impact. First, concerning user growth over the past four years, one in seven warung owners have been registered as our partner.

Second, about services. The services provided by Warung Pintar have expanded. Initially, our services only focused on warungs, but now we have an integrated service that connects warungs with retailers, distributors, financial institutions, and digital tools. We also connect warungs with e-commerce firms. Today, around 2,000 retailers and 6,070 distributors have joined the Warung Pintar ecosystem. We perceive it beyond user-based vertical penetration – we take the horizontal service extensions into account.

Third, we certainly hope to give greater impact beyond social. For instance, by enabling partners to master financial management, to afford national health insurance, to gain security and future plans, and to obtain financial household security.

What are the strategies or innovations that Warung Pintar makes to accelerate the integration of players needed for the business ecosystem of warungs? In general, how do government programs support?

Our strategy is to always think locally. Warung Pintar has to be established by people with a local context. We always apply a bottom-up strategy, that is to take the lowest vantage point so that we may provide assistance.

In our opinion, the government has pulled incredible efforts in the past few

years, but given faster acceleration, it would stand more impactful because, like a canvas to an artist, substantial infrastructure allows people like us to create something. Without the canvas, we can do nothing.

Sustainable investments are the current crucial issue for potential investors. What is your perspective on this?

We focus more on economic inclusion, but it could also be related with environment, conflict resolution, communication and other SDGs. We are fully supportive of SDGs because Warung Pintar is a tech company that carries social impact in its DNA. Ever since its first inception, we believe that business transcends generating profit alone and it also needs to create positive impacts on the community. We want to be one of the companies that becomes a role-model for other companies, especially tech companies, in creating a positive impact.

Sustainable investment is a sound initiative which we should perform and support. It is also likely to connect sustainable investment with the capital market, to encourage social enterprises to do Initial Public Offering (IPO), so investors gain special incentives when they invest in companies undertaking sustainable programs.

Ever since its first inception, we believe that business transcends generating profit alone and it also needs to create positive impacts on the community. We want to be one of the companies that becomes a role-model for other companies, especially tech companies, in creating a positive impact.

Summary Statistics

SUMMARY OF EV-DCI 2020-2022 STATISTICS (COMPOSITE)

	2022	2021	2020
EV-DCI (median)	35.2	32.0	27.9
Spread	48.3	55.6	61.9
Standard Deviation	9.0	10.7	11.6

SUMMARY OF EV-DCI 2020-2022 STATISTICS, BY SUB-INDEX

	INPUT			OUTPUT			SUPPORT		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
EV-DCI (median)	36.9	32.0	27.9	30.9	26.9	23.7	46.1	39.1	34.2
Spread	45.0	55.6	61.9	54.2	63.9	62.2	55.5	71.0	68.1
Standard Deviation	9.1	10.7	11.6	9.8	11.2	11.4	10.9	14.6	14.8

SUMMARY OF EV-DCI 2020-2022 STATISTICS, BY PILLAR

	INPUT								
	Human Resources			ICT Usage			ICT Expenditure		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
EV-DCI (median)	21.8	20.9	16.3	48.3	51.2	48.5	35.3	39.9	33.7
Spread	67.5	58.4	77.3	57.3	70.5	68.2	46.0	53.3	80.5
Standard Deviation	14.7	14.0	18.1	12.0	15.0	15.2	12.1	11.4	14.4

	OUTPUT								
	Economy			Entrepreneurship and Productivity			Manpower		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
EV-DCI (median)	28.5	30.8	27.2	23.6	13.5	8.4	41.8	39.8	39.0
Spread	63.5	72.7	79.2	98.9	99.7	88.4	32.2	37.0	37.1
Standard Deviation	11.3	12.2	13.4	19.6	19.0	18.8	7.3	7.6	6.4

	SUPPORT								
	Infrastructure			Finance			Regulation and Capacity of the Regional Government		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
EV-DCI (median)	64.8	54.3	46.8	23.1	25.8	20.4	54.6	35.5	40.3
Spread	79.0	87.3	91.9	71.4	75.5	81.0	38.8	63.3	61.1
Standard Deviation	16.3	18.5	19.2	18.4	18.0	18.4	11.1	12.8	13.1

Notes:

The median is the value that divides the distribution of index data for 34 provinces into two, after all the indexes are sorted.

The spread is the distance between the highest score and the lowest score, to describe the range of disparities between provinces.

Standard deviation is the value that describes the distance between a province's score data and the average of all 34 provinces.

Profile and Performance 34 Provinces



Aceh

Province Rank

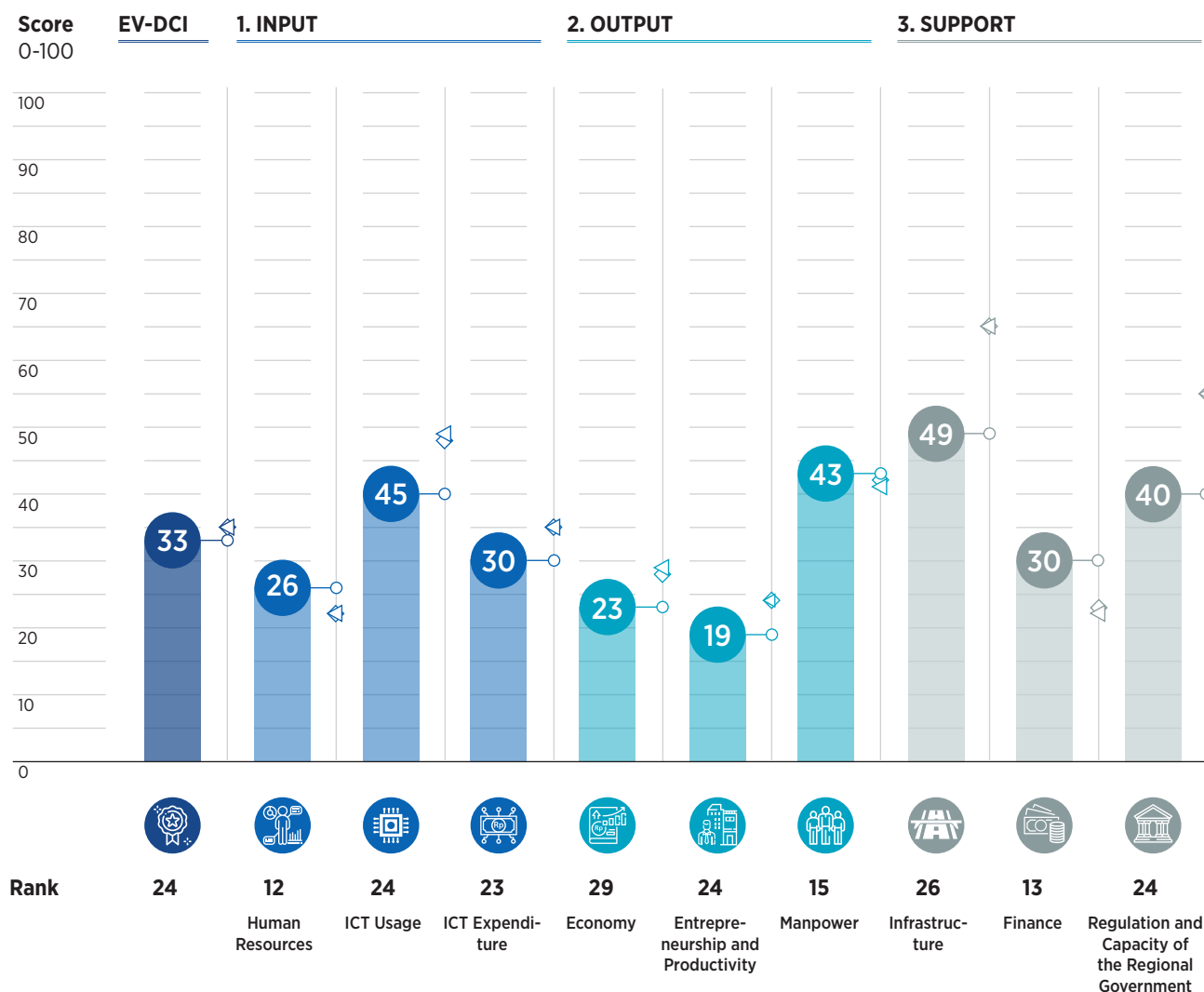
2021 :
272022 :
24

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	54.6
Area (km2)	57,956
Economic Growth (percent)	-0.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	166.4
GRDP per Capita (IDR thousand)	30,473
Human Development Index	72.2
Life Expectancy (year)	69.9
School Life Expectancy (year)	14.4
Average School Attendance (year)	9.4
Domestic Investment Realization (IDR billion)	857
Foreign Investment Realization (USD million)	51.1

Aceh

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	33.5	22	↑	36.9
1.1	Human Resources	25.5	12	↑	21.8
1.1.01	Number of Students with Digital Capabilities	11.3	14	=	6.3
1.1.02	Growth of Students with Digital Capabilities	20.6	12	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	9.2	14	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	12.1	13	=	6.3
1.1.05	Digital Literacy Index	74.5	9	↑	62.9
1.2	ICT Usage	45.1	24	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	51.9	28	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	22.5	27	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	38.5	30	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	75.5	20	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	38.4	16	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	76.4	6	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	32.4	19	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	24.7	27	↑	48.9
1.3	ICT Expenditure	29.8	23	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	81.5	16	↑	79.7
1.3.02	Average Expenditure of Households for ICT	13.8	24	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.9	16	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	22.0	26	↓	27.4
2	OUTPUT	28.4	27	↑	30.9
2.1	Economy	22.7	29	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	1.6	23	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	25.3	21	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	39.0	10	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	6.5	18	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	39.9	15	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	42.9	27	↓	79.1
2.1.07	GRDP of the Financial Services Sector	0.8	24	↓	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	11.0	27	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	37.8	26	↓	47.4
2.2	Entrepreneurship and Productivity	19.5	24	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	30.4	18	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	30.6	18	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	21.2	27	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	20.3	26	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	13.0	22	↑	18.8
2.2.06	Loan Using Fintech	1.1	21	↑	1.9
2.3	Manpower	43.0	15	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	4.9	18	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	7.2	25	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	31.1	24	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	93.2	18	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	35.7	13	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	85.8	4	↑	64.4
3	SUPPORT	39.8	24	↓	46.1
3.1	Infrastructure	49.1	26	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	0.0	34	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	81.1	9	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	94.0	11	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	68.0	17	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	2.2	32	↓	9.7
3.2	Finance	30.5	13	↑	23.1
3.2.01	Financial Inclusion Index	75.2	10	=	46.2
3.2.02	Number of Digital Finance Service Agent	7.7	13	-	4.1
3.2.03	Use of E-wallet as a Payment Method	8.5	21	-	9.5
3.3	Regulation and Capacity of the Regional Government	39.9	22	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	22.9	32	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	49.3	4	↑	29.6
3.3.03	Life Expectancy Growth	0.0	34	-	29.1
3.3.04	Poverty Decreasing Rate	87.3	12	-	83.0



Bali

Province Rank

 2021 :
4

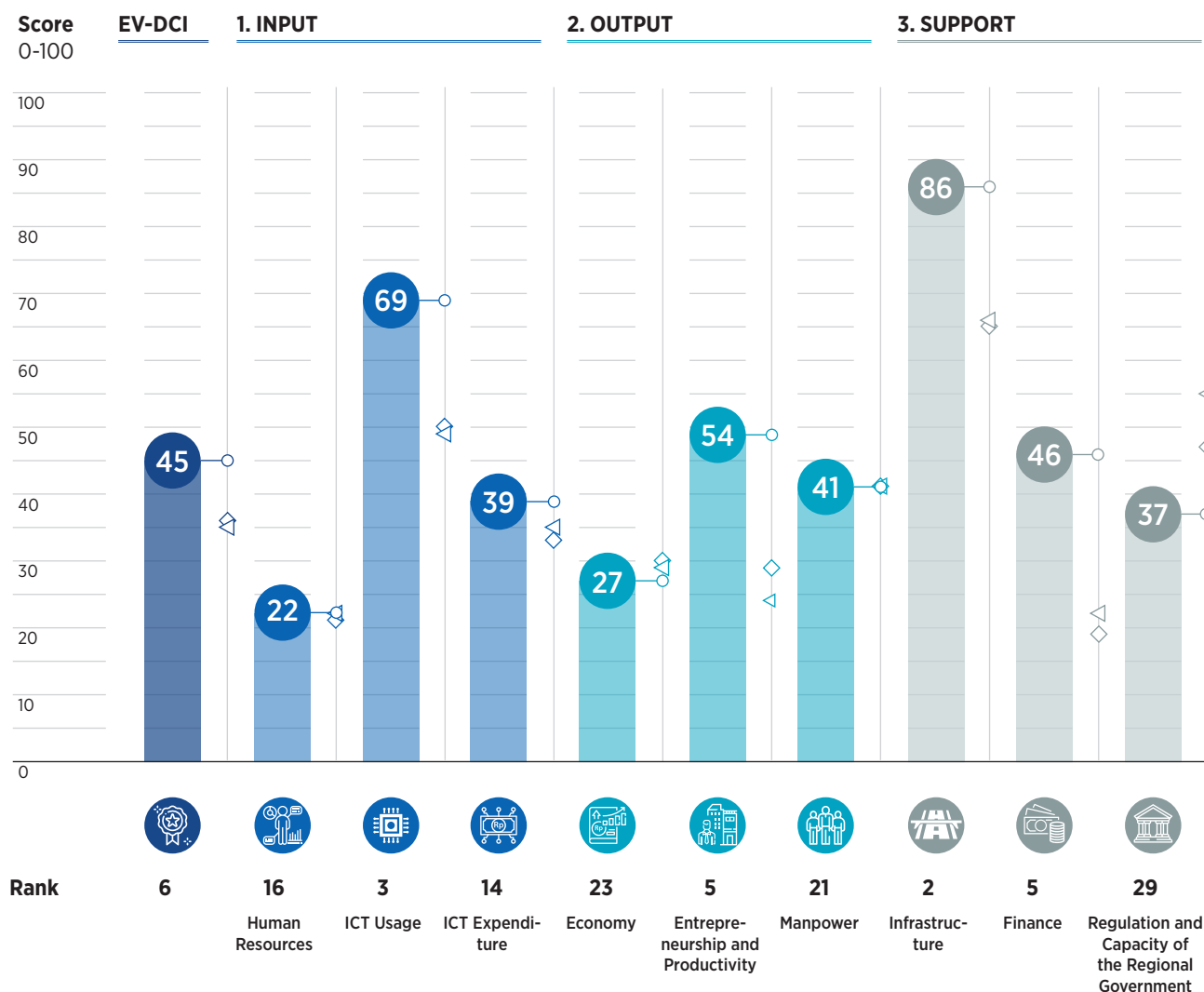
 2022 :
6

East Ventures - Digital Competitiveness Index 2022

Performance 2022

 ◇ Regional Median Score
Bali-Nusra

◁ National Median Score



Province Profile

Population (thousand)	43.8
Area (km2)	5,780.1

Economic Growth (percent)	-9.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	224.2
GRDP per Capita (IDR thousand)	51,181

Human Development Index	75.7
Life Expectancy (year)	72.1
School Life Expectancy (year)	13.4
Average School Attendance (year)	9.1

Domestic Investment Realization (IDR billion)	1,836.1
Foreign Investment Realization (USD million)	293.3

Bali

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	43.4	8	↓	36.9
1.1	Human Resources	22.2	16	↓	21.8
1.1.01	Number of Students with Digital Capabilities	12.6	13	=	6.3
1.1.02	Growth of Students with Digital Capabilities	27.3	5	=	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	14.5	12	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	9.3	14	=	6.3
1.1.05	Digital Literacy Index	47.4	28	↓	62.9
1.2	ICT Usage	69.4	3	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	76.3	5	=	63.9
1.2.02	Ratio of Citizens that Have Computer	57.7	5	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	69.9	7	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	90.6	5	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	81.7	2	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	27.4	24	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	52.8	5	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	99.2	2	=	48.9
1.3	ICT Expenditure	38.6	14	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	74.4	25	↓	79.7
1.3.02	Average Expenditure of Households for ICT	38.6	10	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	4.2	9	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	37.4	12	↓	27.4
2	OUTPUT	40.7	5	↑	30.9
2.1	Economy	27.1	23	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	5.1	11	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	62.1	5	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	19.2	30	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	13.9	10	=	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	64.4	5	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	32.2	30	↓	79.1
2.1.07	GRDP of the Financial Services Sector	2.7	10	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	31.8	4	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	12.5	33	↓	47.4
2.2	Entrepreneurship and Productivity	54.3	5	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	71.6	3	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	72.8	3	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	75.1	3	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	62.8	3	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	39.1	5	=	18.8
2.2.06	Loan Using Fintech	4.0	9	↑	1.9
2.3	Manpower	40.8	21	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	6.8	12	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	15.3	14	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.4	15	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	91.4	23	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	15.7	27	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	77.1	10	↓	64.4
3	SUPPORT	56.3	5	↓	46.1
3.1	Infrastructure	85.6	2	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.9	8	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	95.8	2	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	99.9	2	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	89.8	2	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	46.8	3	=	9.7
3.2	Finance	45.9	5	↓	23.1
3.2.01	Financial Inclusion Index	94.7	3	=	46.2
3.2.02	Number of Digital Finance Service Agent	5.4	16	-	4.1
3.2.03	Use of E-wallet as a Payment Method	37.8	3	-	9.5
3.3	Regulation and Capacity of the Regional Government	37.3	29	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	80.5	4	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	35.7	4	↑	29.6
3.3.03	Life Expectancy Growth	32.8	16	-	29.1
3.3.04	Poverty Decreasing Rate	0.0	34	-	83.0



Banten

Province Rank

2021 :
5

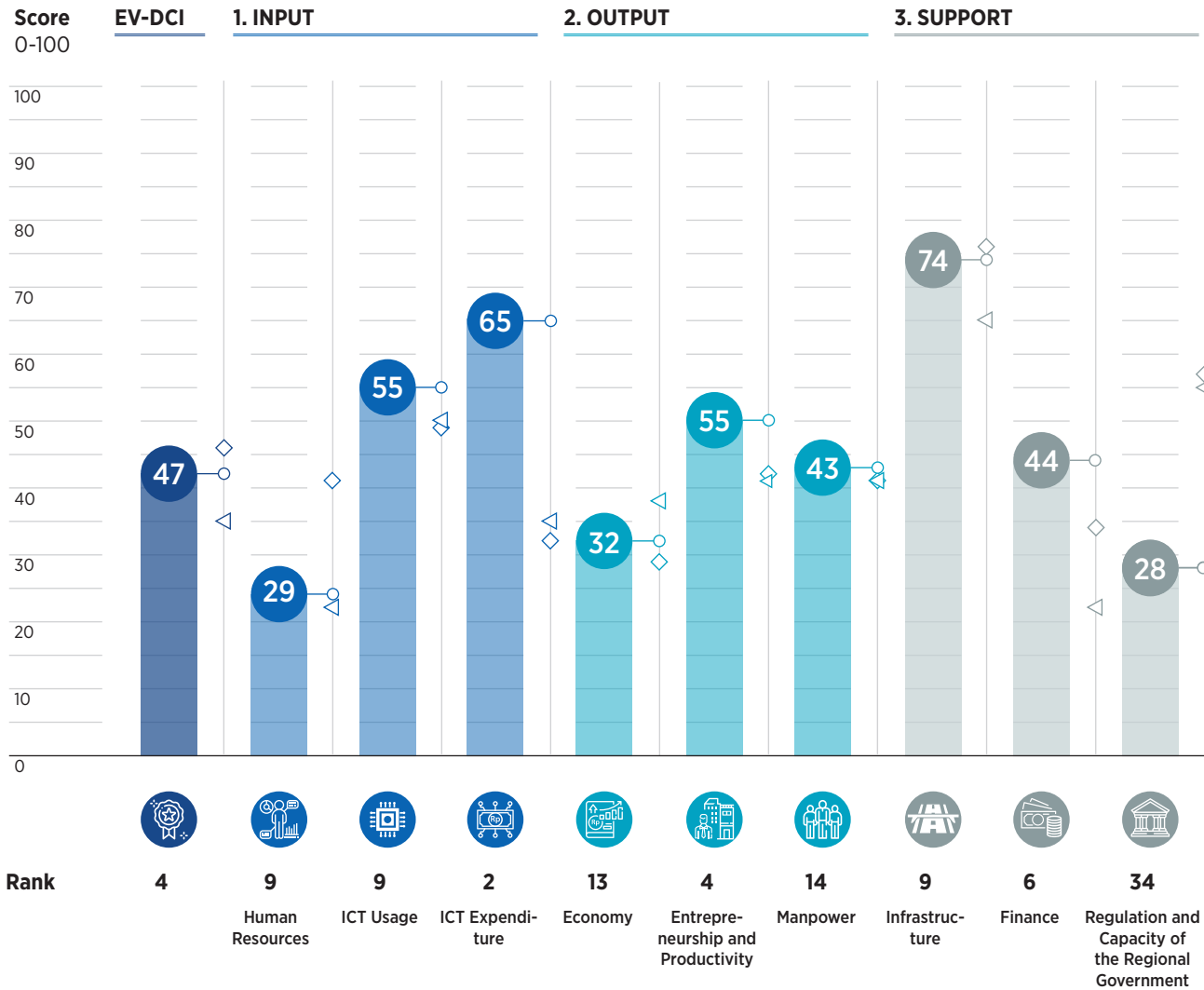
2022 :
4

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	131.6
Area (km2)	9,662.9
Economic Growth (percent)	-3.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	626.4
GRDP per Capita (IDR thousand)	47,600
Human Development Index	72.7
Life Expectancy (year)	70.0
School Life Expectancy (year)	13.0
Average School Attendance (year)	8.9
Domestic Investment Realization (IDR billion)	3,527.6
Foreign Investment Realization (USD million)	2,143.6

Banten

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	49.7	3	↑	36.9
1.1	Human Resources	28.7	9	=	21.8
1.1.01	Number of Students with Digital Capabilities	39.9	6	=	6.3
1.1.02	Growth of Students with Digital Capabilities	8.8	24	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	28.8	7	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	29.2	6	↑	6.3
1.1.05	Digital Literacy Index	36.9	31	↓	62.9
1.2	ICT Usage	55.2	9	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	68.2	14	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	33.5	17	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	68.8	8	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	74.9	21	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	74.9	5	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	40.5	19	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	36.6	11	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	44.2	20	↓	48.9
1.3	ICT Expenditure	65.2	2	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	68.9	27	=	79.7
1.3.02	Average Expenditure of Households for ICT	53.8	7	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	38.2	3	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	100.0	1	↑	27.4
2	OUTPUT	43.3	4	↓	30.9
2.1	Economy	32.0	13	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	9.3	6	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	35.5	15	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	29.7	18	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	36.7	4	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	59.0	8	=	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	42.1	28	↓	79.1
2.1.07	GRDP of the Financial Services Sector	6.2	6	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	22.0	14	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	47.9	17	↓	47.4
2.2	Entrepreneurship and Productivity	54.8	4	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	55.6	7	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	55.8	7	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	69.9	4	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	62.2	4	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	53.6	2	=	18.8
2.2.06	Loan Using Fintech	31.5	4	↓	1.9
2.3	Manpower	43.2	14	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	35.9	5	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	52.3	2	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	44.1	11	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	75.8	30	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	2.7	30	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	48.5	26	↓	64.4
3	SUPPORT	48.7	11	↓	46.1
3.1	Infrastructure	73.8	9	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98.6	3	=	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	75.5	14	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	98.1	7	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	73.3	14	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	23.2	6	↑	9.7
3.2	Finance	44.2	6	=	23.1
3.2.01	Financial Inclusion Index	70.0	14	=	46.2
3.2.02	Number of Digital Finance Service Agent	12.9	5	-	4.1
3.2.03	Use of E-wallet as a Payment Method	49.8	2	-	9.5
3.3	Regulation and Capacity of the Regional Government	28.0	34	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	33.8	30	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	29.0	4	↑	29.6
3.3.03	Life Expectancy Growth	12.8	28	-	29.1
3.3.04	Poverty Decreasing Rate	36.5	33	-	83.0



Bengkulu

Province Rank

2021 :
19

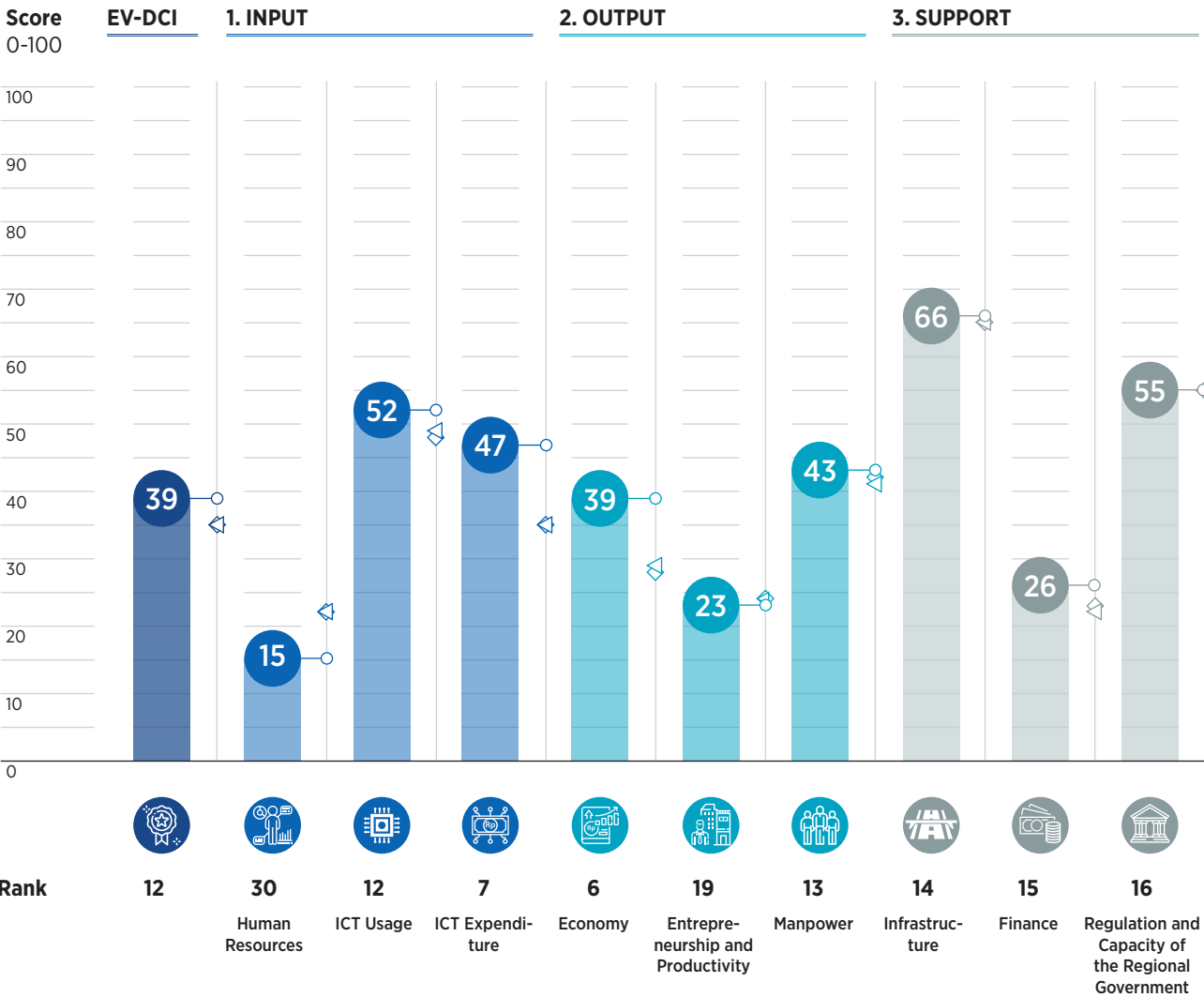
2022 :
12

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	20.2
Area (km2)	19,919.3
Economic Growth (percent)	-0.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	73.3
GRDP per Capita (IDR thousand)	36,308
Human Development Index	71.6
Life Expectancy (year)	69.4
School Life Expectancy (year)	13.7
Average School Attendance (year)	8.9
Domestic Investment Realization (IDR billion)	1,038.5
Foreign Investment Realization (USD million)	192.3

Bengkulu

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	38.2	14	↑	36.9
1.1	Human Resources	15.4	30	↓	21.8
1.1.01	Number of Students with Digital Capabilities	2.4	26	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	9.2	23	=	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	2.6	23	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	2.7	25	↑	6.3
1.1.05	Digital Literacy Index	60.2	19	=	62.9
1.2	ICT Usage	52.4	12	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	59.2	22	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	33.2	18	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	48.2	24	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	82.4	15	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	38.1	17	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	78.7	5	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	35.3	14	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	43.9	21	↑	48.9
1.3	ICT Expenditure	46.8	7	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	78.8	18	=	79.7
1.3.02	Average Expenditure of Households for ICT	16.8	21	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	2.4	14	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	89.3	2	↑	27.4
2	OUTPUT	34.9	12	↑	30.9
2.1	Economy	38.8	6	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.6	25	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	33.0	18	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	10.2	33	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	5.0	22	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	77.2	3	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	100.0	1	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.4	27	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	23.1	13	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	100.0	1	↑	47.4
2.2	Entrepreneurship and Productivity	22.5	19	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	32.5	16	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	32.7	16	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	32.1	19	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	25.6	18	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	11.6	24	↑	18.8
2.2.06	Loan Using Fintech	0.6	27	↓	1.9
2.3	Manpower	43.4	13	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.9	29	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	3.1	31	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	32.9	23	=	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	98.3	8	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	50.1	3	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	75.0	12	↑	64.4
3	SUPPORT	49.1	13	↑	46.1
3.1	Infrastructure	66.3	14	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	88.7	20	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	71.5	18	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	89.4	16	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	67.7	18	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	14.1	10	↑	9.7
3.2	Finance	26.5	15	↑	23.1
3.2.01	Financial Inclusion Index	73.7	11	=	46.2
3.2.02	Number of Digital Finance Service Agent	3.0	20	-	4.1
3.2.03	Use of E-wallet as a Payment Method	2.9	25	-	9.5
3.3	Regulation and Capacity of the Regional Government	54.6	18	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	69.6	8	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	39.3	4	↑	29.6
3.3.03	Life Expectancy Growth	17.4	24	-	29.1
3.3.04	Poverty Decreasing Rate	92.3	7	-	83.0



DI Yogyakarta

Province Rank

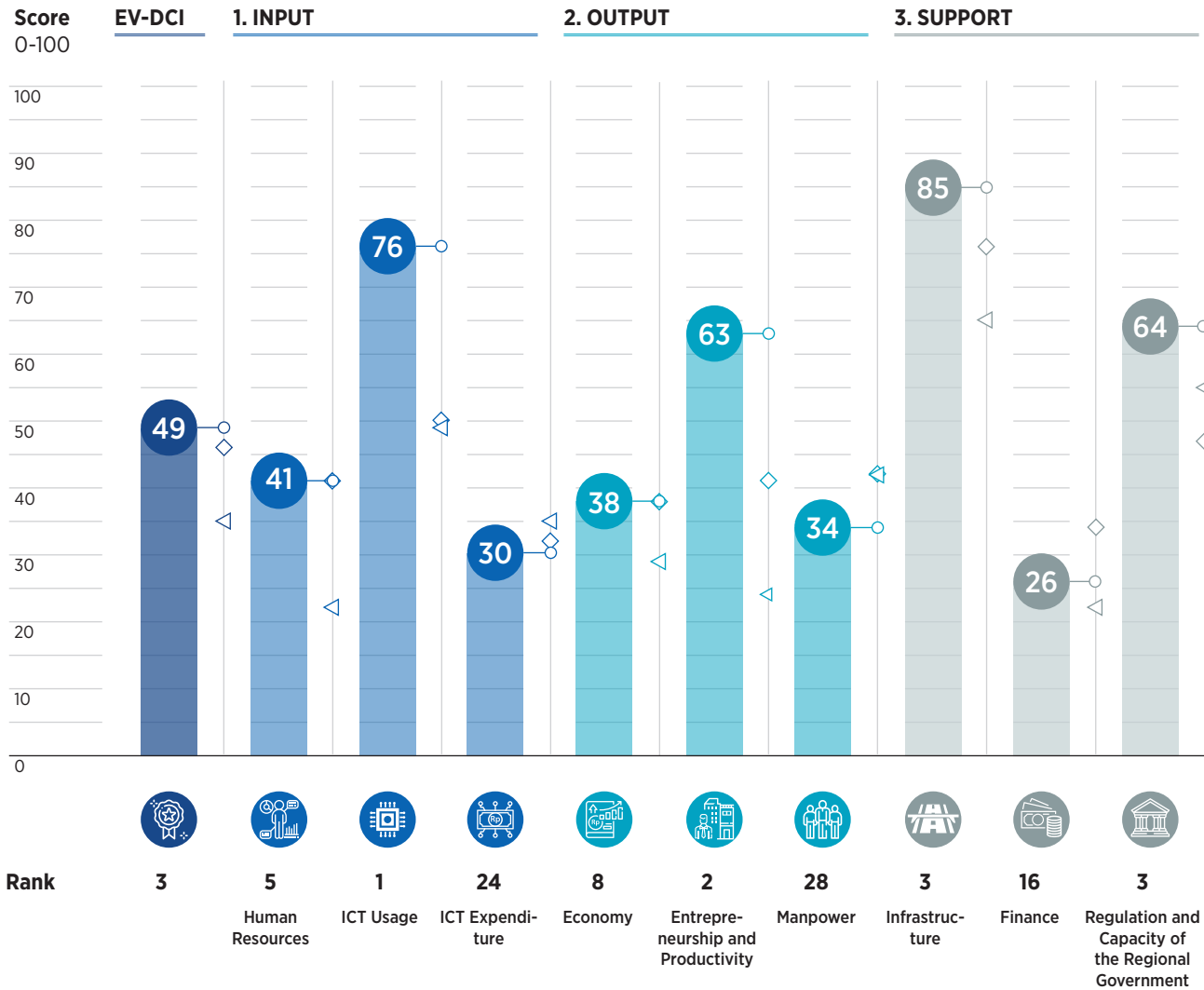
2021 : 6
2022 : 3

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	38.8
Area (km2)	3,133.2
Economic Growth (percent)	-2.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	138.4
GRDP per Capita (IDR thousand)	35,646
Human Development Index	80.2
Life Expectancy (year)	75.0
School Life Expectancy (year)	15.6
Average School Attendance (year)	9.6
Domestic Investment Realization (IDR billion)	526
Foreign Investment Realization (USD million)	9.7

DI Yogyakarta

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	48.8	4	↑	36.9
1.1	Human Resources	40.9	5	↑	21.8
1.1.01	Number of Students with Digital Capabilities	33.3	7	=	6.3
1.1.02	Growth of Students with Digital Capabilities	11.1	19	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	32.2	6	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	27.7	7	↓	6.3
1.1.05	Digital Literacy Index	100.0	1	↑	62.9
1.2	ICT Usage	76.0	1	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	72.0	9	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	88.8	2	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	80.4	4	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	95.7	3	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	78.5	4	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	41.3	17	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	88.9	2	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	62.5	12	↑	48.9
1.3	ICT Expenditure	29.5	24	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	53.8	31	↑	79.7
1.3.02	Average Expenditure of Households for ICT	6.6	31	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	8.4	6	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	49.3	8	↑	27.4
2	OUTPUT	45.0	3	↑	30.9
2.1	Economy	37.6	8	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	4.7	12	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	100.0	1	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	62.4	2	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	5.3	21	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	39.5	16	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	65.2	24	↓	79.1
2.1.07	GRDP of the Financial Services Sector	1.5	17	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	29.6	7	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	29.9	30	↓	47.4
2.2	Entrepreneurship and Productivity	63.0	2	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	81.3	2	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	83.4	2	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	89.6	2	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	73.3	2	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	46.4	3	↑	18.8
2.2.06	Loan Using Fintech	3.8	11	↓	1.9
2.3	Manpower	34.5	28	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	6.5	13	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	17.5	13	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	35.3	21	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	92.3	21	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	16.9	25	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	38.4	30	↓	64.4
3	SUPPORT	58.5	3	↑	46.1
3.1	Infrastructure	85.1	3	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	97.8	7	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	88.8	4	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	98.0	8	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	80.9	8	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	59.8	2	=	9.7
3.2	Finance	26.2	16	↓	23.1
3.2.01	Financial Inclusion Index	46.6	17	=	46.2
3.2.02	Number of Digital Finance Service Agent	7.9	11	-	4.1
3.2.03	Use of E-wallet as a Payment Method	24.0	6	-	9.5
3.3	Regulation and Capacity of the Regional Government	64.4	3	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	72.7	7	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	100.0	4	↑	29.6
3.3.03	Life Expectancy Growth	7.1	33	-	29.1
3.3.04	Poverty Decreasing Rate	77.6	22	-	83.0



DKI Jakarta

Province Rank

2021 :
1

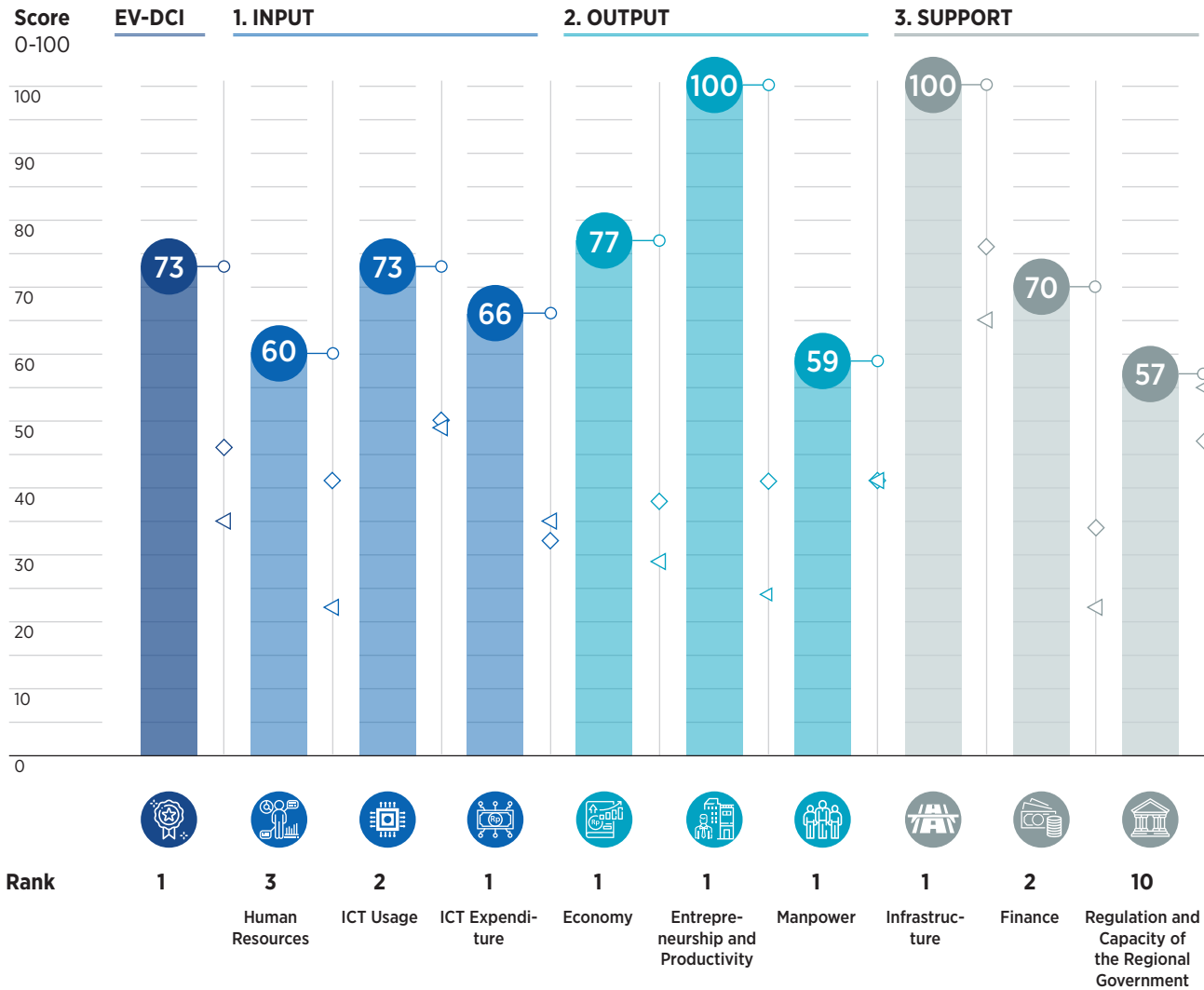
2022 :
1

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	106.4
Area (km2)	664.0
Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	2,772.4
GRDP per Capita (IDR thousand)	260,440
Human Development Index	81.1
Life Expectancy (year)	72.9
School Life Expectancy (year)	13.1
Average School Attendance (year)	11.2
Domestic Investment Realization (IDR billion)	20,404.5
Foreign Investment Realization (USD million)	3,613.3

DKI Jakarta

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	66.4	1	=	36.9
1.1	Human Resources	59.5	3	↓	21.8
1.1.01	Number of Students with Digital Capabilities	84.5	2	=	6.3
1.1.02	Growth of Students with Digital Capabilities	8.5	26	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	83.2	2	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	58.9	4	↓	6.3
1.1.05	Digital Literacy Index	62.5	18	↑	62.9
1.2	ICT Usage	73.4	2	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	100.0	1	=	63.9
1.2.02	Ratio of Citizens that Have Computer	100.0	1	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	100.0	1	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	84.6	10	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	100.0	1	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	0.0	34	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	100.0	1	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	2.5	32	↓	48.9
1.3	ICT Expenditure	66.3	1	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	100.0	1	↑	79.7
1.3.02	Average Expenditure of Households for ICT	30.0	11	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	57.6	2	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	77.6	4	↓	27.4
2	OUTPUT	78.7	1	=	30.9
2.1	Economy	77.4	1	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	100.0	1	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	96.5	2	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	36.3	11	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	88.5	2	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	28.4	24	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	91.9	12	↓	79.1
2.1.07	GRDP of the Financial Services Sector	100.0	1	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	100.0	1	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	55.3	13	↓	47.4
2.2	Entrepreneurship and Productivity	100.0	1	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	100.0	1	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	100.0	1	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	100.0	1	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	100.0	1	=	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	100.0	1	=	18.8
2.2.06	Loan Using Fintech	100.0	1	=	1.9
2.3	Manpower	58.6	1	=	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	48.8	3	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	100.0	1	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.3	17	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	81.1	29	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	9.4	29	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	74.2	13	↓	64.4
3	SUPPORT	75.8	1	=	46.1
3.1	Infrastructure	100.0	1	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	100.0	1	=	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	100.0	1	=	9.7
3.2	Finance	70.4	2	↓	23.1
3.2.01	Financial Inclusion Index	100.0	1	=	46.2
3.2.02	Number of Digital Finance Service Agent	11.2	6	-	4.1
3.2.03	Use of E-wallet as a Payment Method	100.0	1	-	9.5
3.3	Regulation and Capacity of the Regional Government	57.0	9	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	80.4	5	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41.6	4	↓	29.6
3.3.03	Life Expectancy Growth	28.2	18	-	29.1
3.3.04	Poverty Decreasing Rate	77.8	21	-	83.0



Gorontalo

Province Rank

2021 :
16

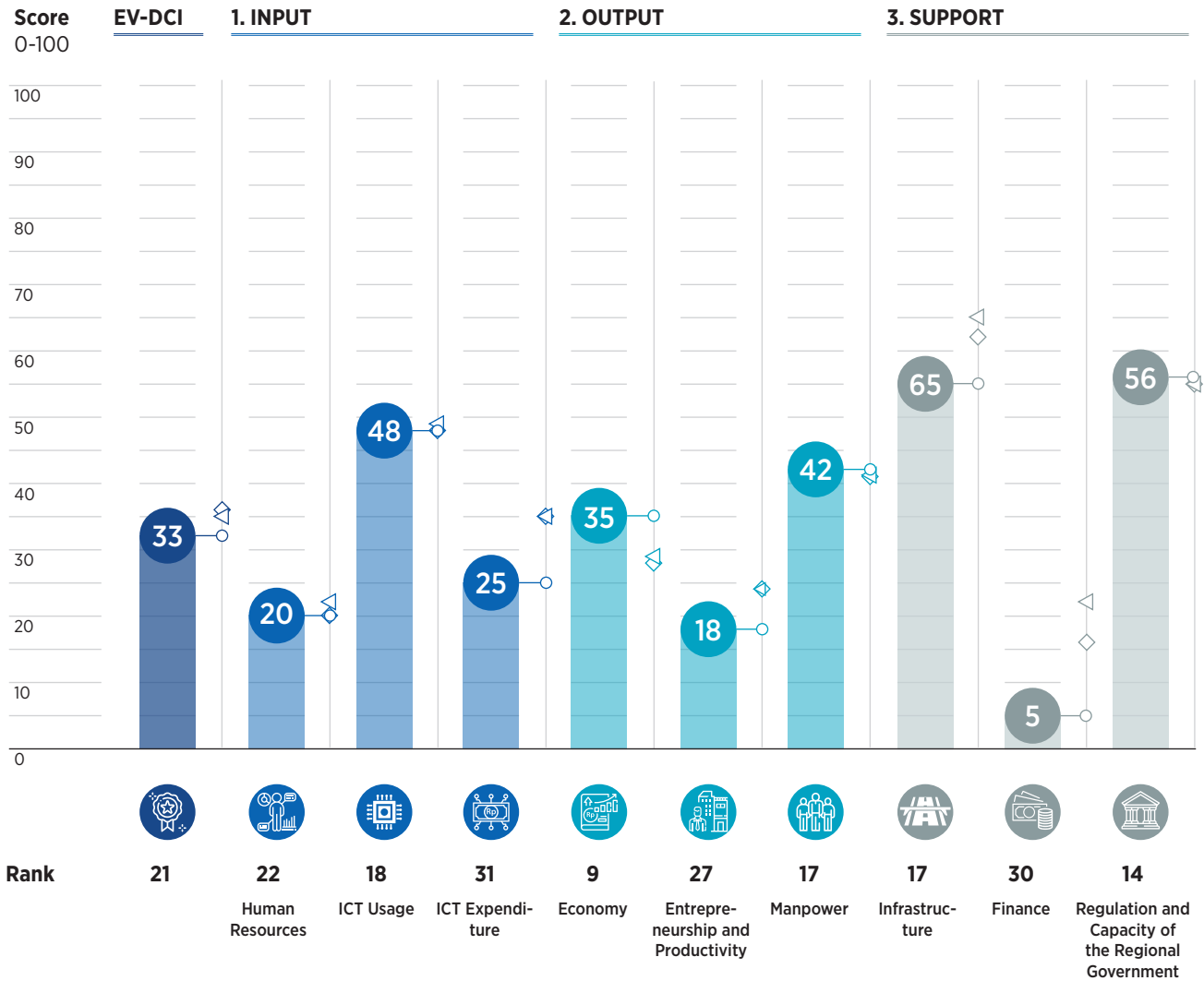
2022 :
21

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sulawesi

◁ National Median Score



Province Profile

Population (thousand)	12.2
Area (km2)	11,257.1
Economic Growth (percent)	-0.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	41.7
GRDP per Capita (IDR thousand)	34,213
Human Development Index	69.0
Life Expectancy (year)	68.1
School Life Expectancy (year)	13.1
Average School Attendance (year)	7.9
Domestic Investment Realization (IDR billion)	72.9
Foreign Investment Realization (USD million)	67.6

Gorontalo

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	31.0	28	↓	36.9
1.1	Human Resources	19.9	22	↓	21.8
1.1.01	Number of Students with Digital Capabilities	1.7	28	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	12.8	17	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	2.0	25	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	2.4	27	↓	6.3
1.1.05	Digital Literacy Index	80.5	5	↑	62.9
1.2	ICT Usage	48.0	18	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	59.9	20	=	63.9
1.2.02	Ratio of Citizens that Have Computer	29.0	21	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	50.0	23	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	53.6	27	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	19.9	31	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	54.5	10	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	29.3	22	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	87.6	4	↑	48.9
1.3	ICT Expenditure	25.0	31	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	80.6	17	↓	79.7
1.3.02	Average Expenditure of Households for ICT	9.7	27	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.0	33	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	9.6	32	↓	27.4
2	OUTPUT	31.7	16	↓	30.9
2.1	Economy	35.2	9	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.0	34	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	21.0	24	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	23.0	26	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	1.5	31	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	47.9	9	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97.0	5	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.3	29	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	34.0	2	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	92.4	2	↓	47.4
2.2	Entrepreneurship and Productivity	17.5	27	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	30.6	17	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	30.8	17	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	28.5	23	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	14.5	30	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	0.0	34	↓	18.8
2.2.06	Loan Using Fintech	0.6	25	↑	1.9
2.3	Manpower	42.3	17	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	1.3	28	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	33.9	6	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.9	14	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	99.0	5	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	16.0	26	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	64.9	17	↓	64.4
3	SUPPORT	42.1	20	↑	46.1
3.1	Infrastructure	65.5	17	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	89.3	17	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	74.7	15	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	87.1	20	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	74.4	11	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	1.9	33	↓	9.7
3.2	Finance	5.1	30	↑	23.1
3.2.01	Financial Inclusion Index	3.0	31	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.6	30	-	4.1
3.2.03	Use of E-wallet as a Payment Method	11.8	14	-	9.5
3.3	Regulation and Capacity of the Regional Government	55.7	13	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	59.8	15	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	37.0	4	↑	29.6
3.3.03	Life Expectancy Growth	40.0	12	-	29.1
3.3.04	Poverty Decreasing Rate	85.9	15	-	83.0



Jambi

Province Rank

2021 :
20

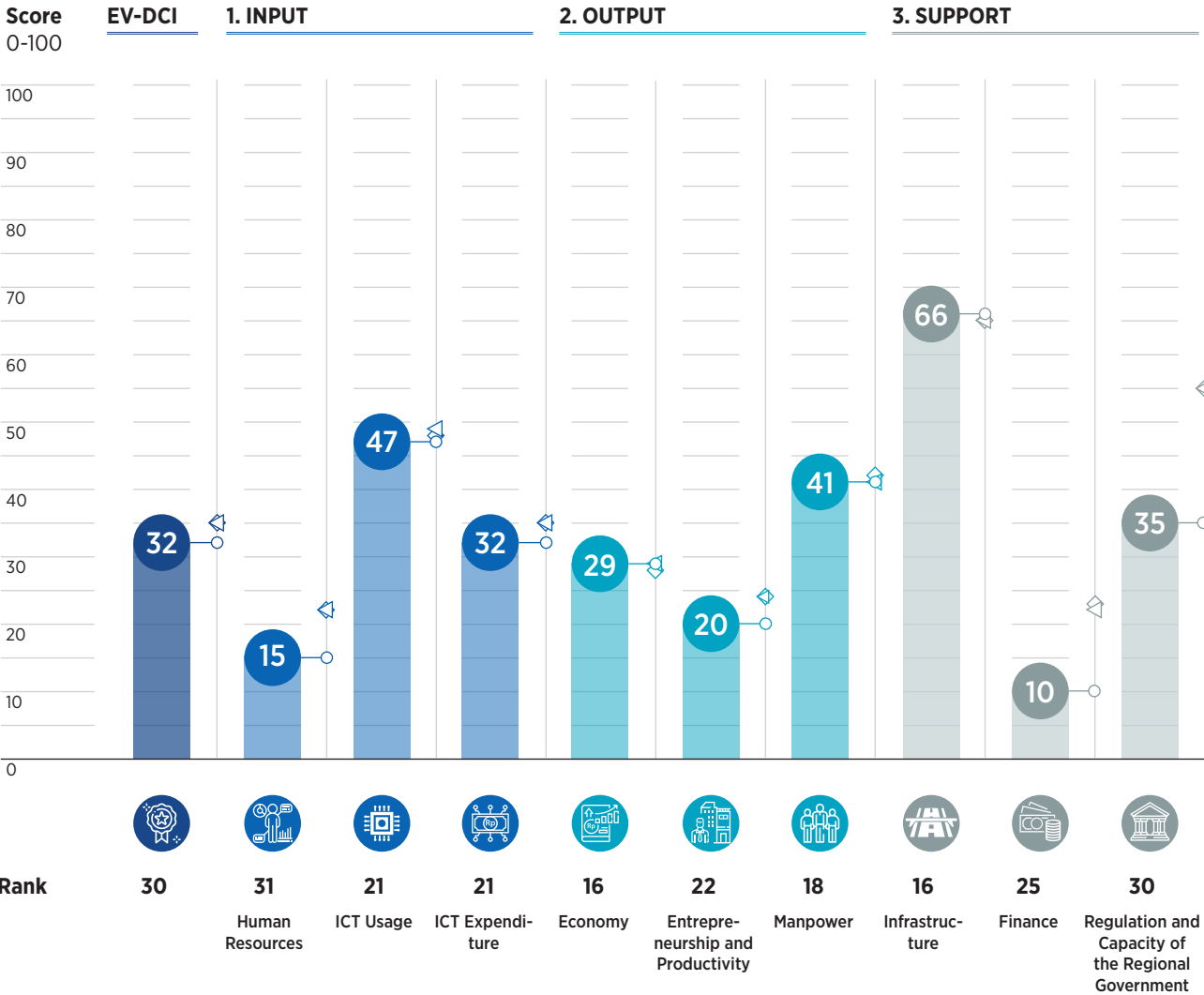
2022 :
30

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	36.8
Area (km2)	50,058.2
Economic Growth (percent)	-0.5
Gross Regional Domestic Product (GRDP) (IDR trillion)	206.8
GRDP per Capita (IDR thousand)	56,240
Human Development Index	71.6
Life Expectancy (year)	71.2
School Life Expectancy (year)	13.0
Average School Attendance (year)	8.6
Domestic Investment Realization (IDR billion)	1,522.8
Foreign Investment Realization (USD million)	27

Jambi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	31.1	27	=	36.9
1.1	Human Resources	14.6	31	↓	21.8
1.1.01	Number of Students with Digital Capabilities	4.3	24	=	6.3
1.1.02	Growth of Students with Digital Capabilities	17.3	15	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	3.0	22	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	4.0	23	↑	6.3
1.1.05	Digital Literacy Index	44.3	30	↓	62.9
1.2	ICT Usage	47.1	21	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	66.2	17	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	30.9	20	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	50.1	22	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	78.3	19	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	36.2	19	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	60.4	7	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	27.8	23	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	26.9	25	↓	48.9
1.3	ICT Expenditure	31.6	21	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	86.3	10	=	79.7
1.3.02	Average Expenditure of Households for ICT	15.8	22	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.5	29	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	23.8	24	↑	27.4
2	OUTPUT	30.0	21	↓	30.9
2.1	Economy	28.6	16	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	3.1	14	↑	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	40.0	9	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	27.4	20	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	4.6	23	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	20.4	27	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	78.4	18	↓	79.1
2.1.07	GRDP of the Financial Services Sector	1.4	18	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	15.8	22	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	66.6	10	↑	47.4
2.2	Entrepreneurship and Productivity	20.0	22	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	22.4	25	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	21.2	29	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	31.1	21	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	23.3	22	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	20.3	15	↑	18.8
2.2.06	Loan Using Fintech	1.6	20	↓	1.9
2.3	Manpower	41.4	18	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	3.0	22	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	6.1	27	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	18.9	31	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	95.1	15	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	31.7	16	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	93.3	3	↑	64.4
3	SUPPORT	37.2	28	↓	46.1
3.1	Infrastructure	66.1	16	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	86.1	22	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	71.0	19	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	89.9	15	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	73.2	15	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	10.1	16	↓	9.7
3.2	Finance	10.3	25	↑	23.1
3.2.01	Financial Inclusion Index	14.3	27	=	46.2
3.2.02	Number of Digital Finance Service Agent	6.1	14	-	4.1
3.2.03	Use of E-wallet as a Payment Method	10.4	16	-	9.5
3.3	Regulation and Capacity of the Regional Government	35.3	31	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	37.5	25	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	26.0	4	↑	29.6
3.3.03	Life Expectancy Growth	12.4	29	-	29.1
3.3.04	Poverty Decreasing Rate	65.2	27	-	83.0



West Java

Province Rank

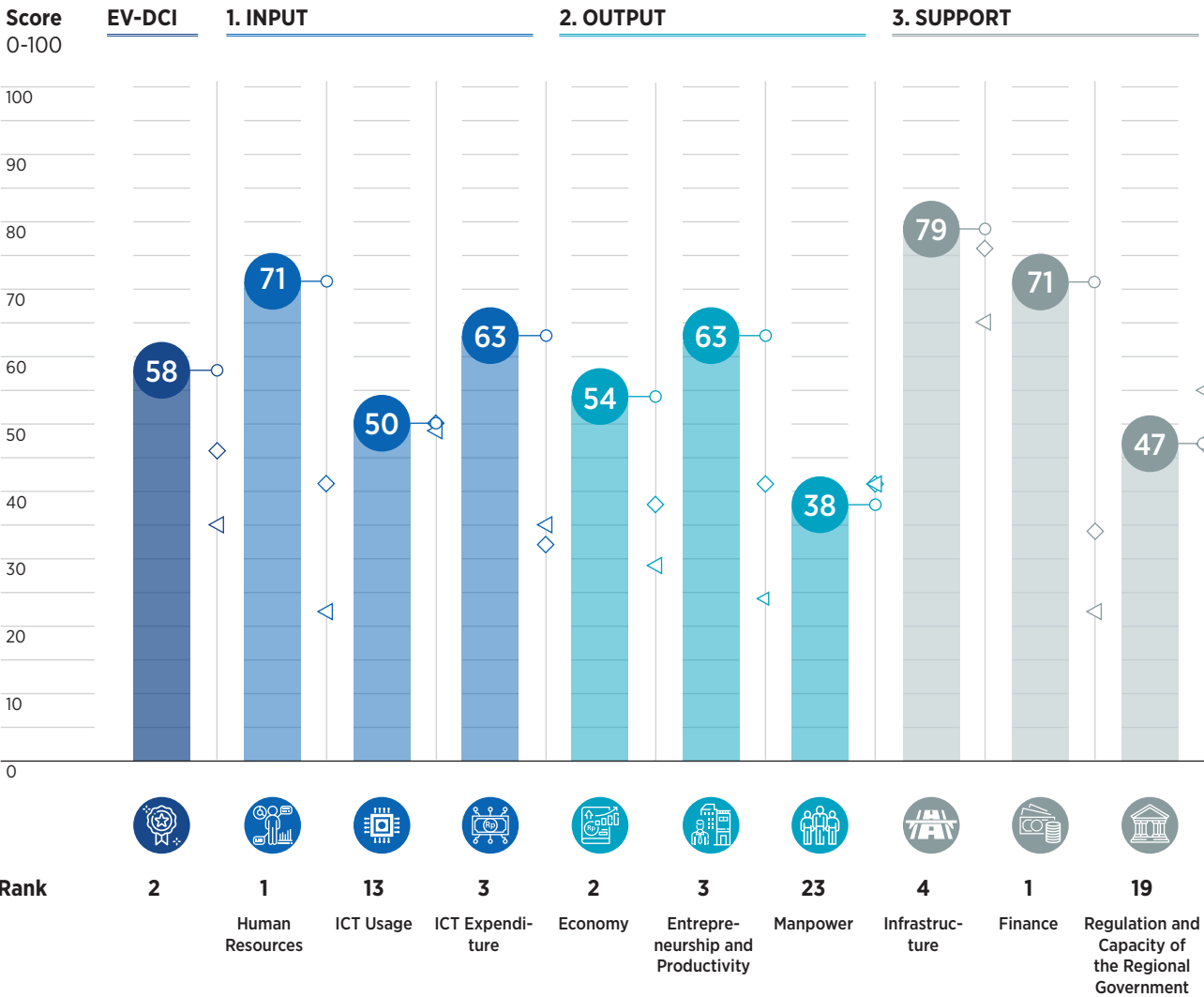
2021 : 2
2022 : 2

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	499.4
Area (km2)	35,377.8
Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	2,088.0
GRDP per Capita (IDR thousand)	41,814
Human Development Index	72.5
Life Expectancy (year)	73.0
School Life Expectancy (year)	12.6
Average School Attendance (year)	8.6
Domestic Investment Realization (IDR billion)	14,643.7
Foreign Investment Realization (USD million)	4,793.7

West Java

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	61.4	2	=	36.9
1.1	Human Resources	71.5	1	=	21.8
1.1.01	Number of Students with Digital Capabilities	100.0	1	=	6.3
1.1.02	Growth of Students with Digital Capabilities	2.9	31	=	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	100.0	1	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	100.0	1	=	6.3
1.1.05	Digital Literacy Index	54.5	23	↓	62.9
1.2	ICT Usage	49.8	13	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	67.4	16	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	31.4	19	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	70.9	6	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	87.0	7	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	54.4	9	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	14.1	30	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	36.1	12	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	37.1	24	↓	48.9
1.3	ICT Expenditure	63.0	3	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	45.6	32	↓	79.7
1.3.02	Average Expenditure of Households for ICT	21.2	16	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	100.0	1	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	85.3	3	↓	27.4
2	OUTPUT	51.7	2	↑	30.9
2.1	Economy	54.1	2	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	31.1	3	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	34.5	16	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	100.0	1	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	100.0	1	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	46.3	10	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97.8	4	↑	79.1
2.1.07	GRDP of the Financial Services Sector	18.4	3	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	17.7	19	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	40.6	25	↓	47.4
2.2	Entrepreneurship and Productivity	62.6	3	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	54.3	8	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	54.7	8	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	65.3	5	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	58.7	5	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	44.9	4	↑	18.8
2.2.06	Loan Using Fintech	97.5	2	↑	1.9
2.3	Manpower	38.4	23	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	100.0	1	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	28.6	8	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.3	18	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	0.0	34	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	0.9	33	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	62.9	19	↓	64.4
3	SUPPORT	66.1	2	=	46.1
3.1	Infrastructure	79.4	4	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.0	10	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	88.3	6	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	99.2	3	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	87.4	4	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	27.3	4	↑	9.7
3.2	Finance	71.5	1	↑	23.1
3.2.01	Financial Inclusion Index	82.0	6	=	46.2
3.2.02	Number of Digital Finance Service Agent	100.0	1	-	4.1
3.2.03	Use of E-wallet as a Payment Method	32.4	4	-	9.5
3.3	Regulation and Capacity of the Regional Government	47.3	19	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	40.6	24	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17.8	4	↑	29.6
3.3.03	Life Expectancy Growth	65.1	4	-	29.1
3.3.04	Poverty Decreasing Rate	65.8	26	-	83.0



Central Java

Province Rank

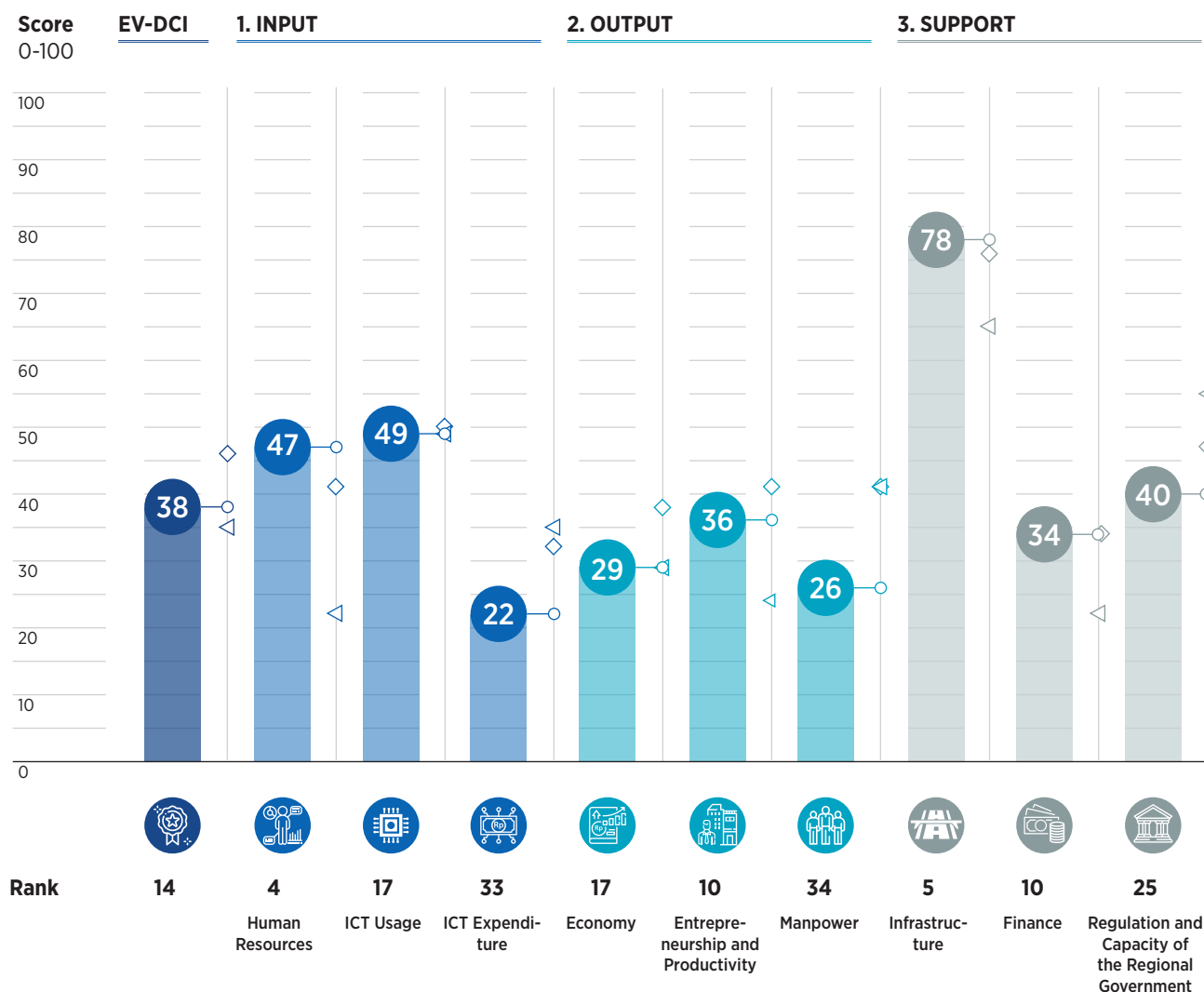
2021 :
82022 :
14

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	349.4
Area (km2)	32,800.7

Economic Growth (percent)	-2.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	1,348.6
GRDP per Capita (IDR thousand)	38,598

Human Development Index	72.2
Life Expectancy (year)	74.4
School Life Expectancy (year)	12.8
Average School Attendance (year)	7.8

Domestic Investment Realization (IDR billion)	7,434.1
Foreign Investment Realization (USD million)	1,363.6

Central Java

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	39.2	11	↓	36.9
1.1	Human Resources	46.6	4	=	21.8
1.1.01	Number of Students with Digital Capabilities	56.0	4	=	6.3
1.1.02	Growth of Students with Digital Capabilities	12.5	18	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	49.6	4	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	61.3	3	↑	6.3
1.1.05	Digital Literacy Index	53.4	24	↓	62.9
1.2	ICT Usage	48.6	17	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	55.5	25	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	20.0	28	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	60.5	11	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	90.1	6	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	51.1	10	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	25.3	27	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	22.1	28	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	63.9	10	↓	48.9
1.3	ICT Expenditure	22.4	33	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	44.9	33	↓	79.7
1.3.02	Average Expenditure of Households for ICT	4.6	32	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	15.3	5	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	25.1	20	=	27.4
2	OUTPUT	30.4	19	↓	30.9
2.1	Economy	28.5	17	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	21.7	4	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	38.2	12	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	50.6	4	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	26.9	6	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	15.2	31	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	27.5	32	↓	79.1
2.1.07	GRDP of the Financial Services Sector	12.6	4	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	19.4	17	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	44.7	20	↓	47.4
2.2	Entrepreneurship and Productivity	36.3	10	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	44.2	10	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	45.1	10	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	47.2	9	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	33.1	12	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	21.7	13	↓	18.8
2.2.06	Loan Using Fintech	26.7	5	=	1.9
2.3	Manpower	26.4	34	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	47.4	4	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	7.4	24	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.1	19	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	19.8	32	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	0.0	34	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	45.9	27	↓	64.4
3	SUPPORT	50.8	10	↓	46.1
3.1	Infrastructure	78.4	5	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98.1	6	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	88.3	5	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	99.1	4	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	84.6	6	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	21.8	7	↑	9.7
3.2	Finance	34.3	10	↓	23.1
3.2.01	Financial Inclusion Index	16.8	24	=	46.2
3.2.02	Number of Digital Finance Service Agent	74.0	3	-	4.1
3.2.03	Use of E-wallet as a Payment Method	12.2	11	-	9.5
3.3	Regulation and Capacity of the Regional Government	39.7	25	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	34.9	28	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	14.5	4	↑	29.6
3.3.03	Life Expectancy Growth	27.4	19	-	29.1
3.3.04	Poverty Decreasing Rate	82.1	18	-	83.0



East Java

Province Rank

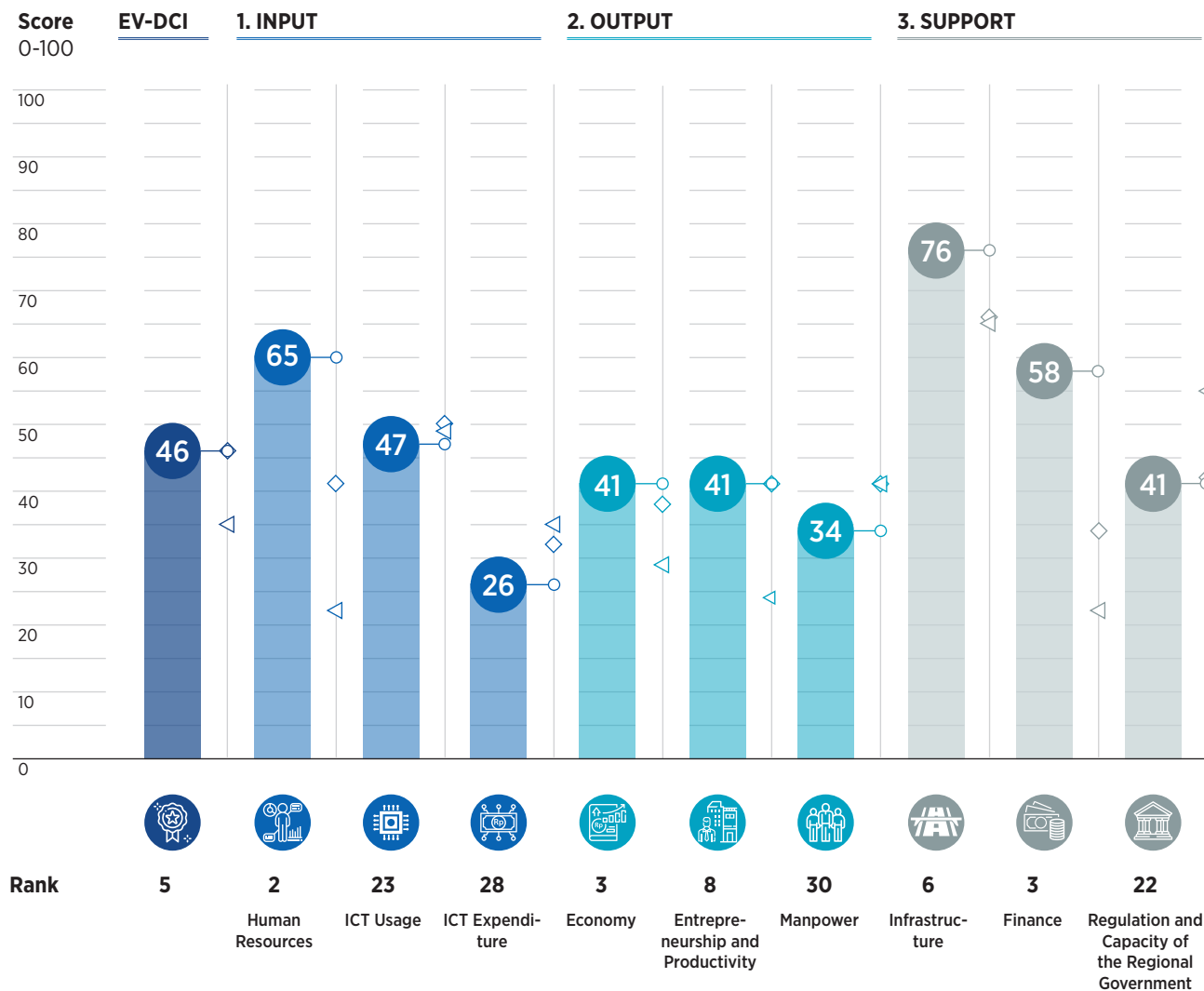
2021 :
32022 :
5

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ National Median Score



Province Profile

Population (thousand)	398.9
Area (km2)	47,803.5

Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	2,299.5
GRDP per Capita (IDR thousand)	57,651

Human Development Index	72.1
Life Expectancy (year)	71.3
School Life Expectancy (year)	13.4
Average School Attendance (year)	7.9

Domestic Investment Realization (IDR billion)	16,137.6
Foreign Investment Realization (USD million)	1,575.5

East Java

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	46.1	6	=	36.9
1.1	Human Resources	65.3	2	↑	21.8
1.1.01	Number of Students with Digital Capabilities	77.5	3	=	6.3
1.1.02	Growth of Students with Digital Capabilities	11.0	20	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	81.7	3	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	87.5	2	=	6.3
1.1.05	Digital Literacy Index	69.0	13	↑	62.9
1.2	ICT Usage	46.6	23	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	56.1	24	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	25.4	24	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	55.6	17	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	82.7	14	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	41.4	14	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	38.2	22	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	33.9	16	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	39.6	23	↓	48.9
1.3	ICT Expenditure	26.4	28	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	57.5	30	=	79.7
1.3.02	Average Expenditure of Households for ICT	0.2	33	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	19.6	4	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	28.2	17	↓	27.4
2	OUTPUT	38.6	8	↓	30.9
2.1	Economy	41.0	3	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	45.2	2	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	48.3	7	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	32.0	15	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	62.5	3	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	23.2	26	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	85.0	13	↑	79.1
2.1.07	GRDP of the Financial Services Sector	19.7	2	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	16.8	21	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	36.0	28	↓	47.4
2.2	Entrepreneurship and Productivity	41.1	8	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	41.8	11	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	42.4	11	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	48.2	8	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	43.6	9	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	29.0	9	↓	18.8
2.2.06	Loan Using Fintech	41.8	3	=	1.9
2.3	Manpower	33.6	30	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	60.6	2	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	9.8	20	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	24.7	27	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	17.6	33	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	18.7	23	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	70.4	15	↓	64.4
3	SUPPORT	58.4	4	↓	46.1
3.1	Infrastructure	76.3	6	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.5	9	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	90.3	3	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	98.5	6	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	82.6	7	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	14.6	9	=	9.7
3.2	Finance	57.8	3	=	23.1
3.2.01	Financial Inclusion Index	80.5	7	=	46.2
3.2.02	Number of Digital Finance Service Agent	77.4	2	-	4.1
3.2.03	Use of E-wallet as a Payment Method	15.6	10	-	9.5
3.3	Regulation and Capacity of the Regional Government	41.0	23	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	33.9	29	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	24.7	4	↑	29.6
3.3.03	Life Expectancy Growth	20.8	23	-	29.1
3.3.04	Poverty Decreasing Rate	84.7	16	-	83.0



West Kalimantan

Province Rank

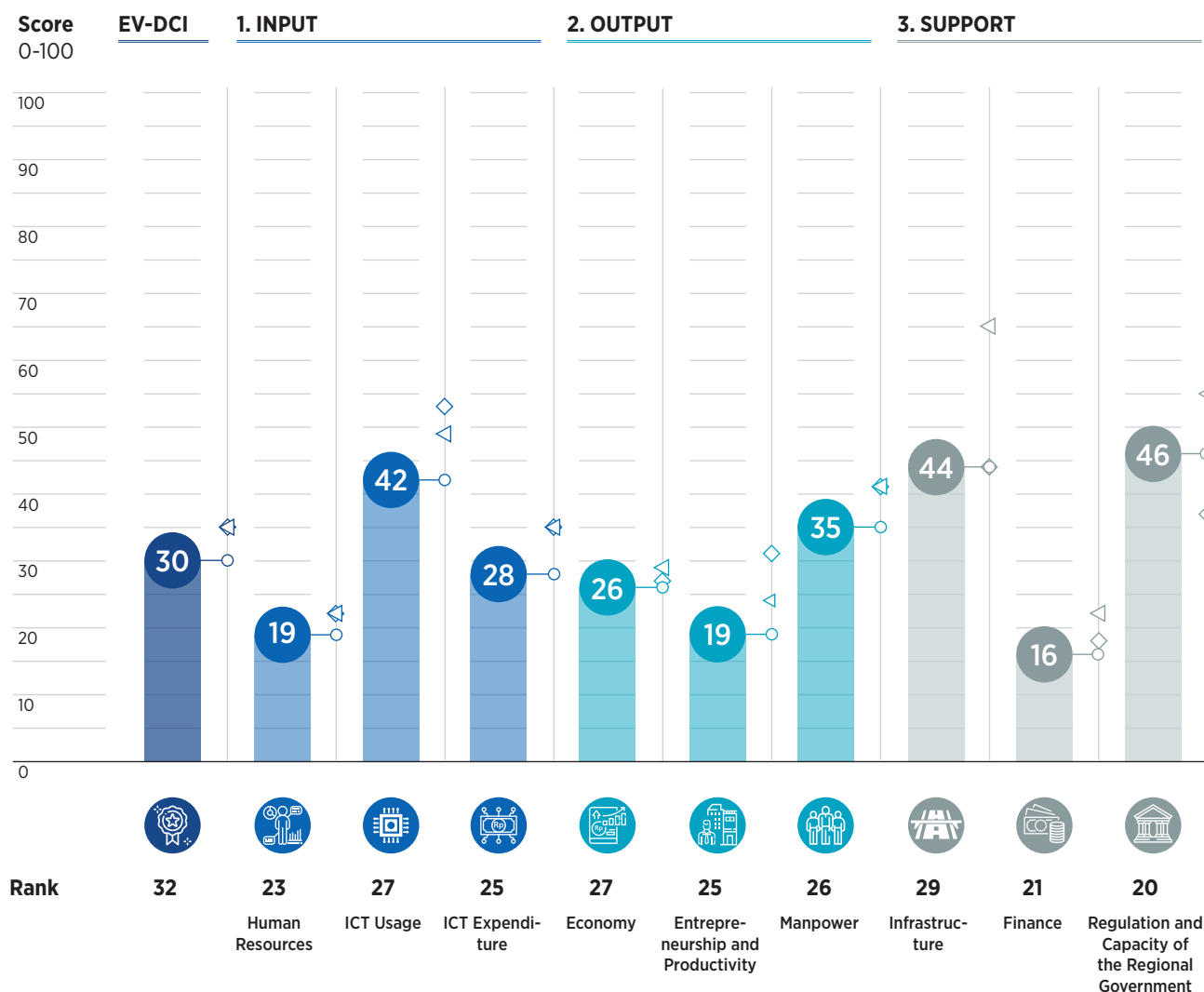
2021 :
312022 :
32

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Kalimantan

◁ National Median Score



Province Profile

Population (thousand)	51.3
Area (km2)	147,307

Economic Growth (percent)	-1.8
Gross Regional Domestic Product (GRDP) (IDR trillion)	214.0
GRDP per Capita (IDR thousand)	41,677

Human Development Index	67.9
Life Expectancy (year)	70.7
School Life Expectancy (year)	12.7
Average School Attendance (year)	7.5

Domestic Investment Realization (IDR billion)	3,862.0
Foreign Investment Realization (USD million)	759.3

West Kalimantan

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	29.9	30	↓	36.9
1.1	Human Resources	19.4	23	↑	21.8
1.1.01	Number of Students with Digital Capabilities	5.2	22	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	7.2	27	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	5.2	19	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	4.8	22	=	6.3
1.1.05	Digital Literacy Index	74.7	8	↑	62.9
1.2	ICT Usage	42.0	27	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	54.7	27	=	63.9
1.2.02	Ratio of Citizens that Have Computer	23.4	25	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	47.9	25	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	49.8	28	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	27.8	23	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	21.9	28	=	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	18.7	30	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	92.2	3	↑	48.9
1.3	ICT Expenditure	28.4	25	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	71.6	26	↓	79.7
1.3.02	Average Expenditure of Households for ICT	18.8	19	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.1	22	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	22.0	25	↑	27.4
2	OUTPUT	26.7	32	↓	30.9
2.1	Economy	25.9	27	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	3.0	15	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	36.8	14	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	27.1	21	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	7.1	17	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	32.5	21	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	67.9	23	↓	79.1
2.1.07	GRDP of the Financial Services Sector	2.0	13	↓	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	23.5	12	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	33.4	29	↓	47.4
2.2	Entrepreneurship and Productivity	19.0	25	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	27.2	24	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	27.7	22	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	24.9	25	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	20.9	24	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	11.6	24	↓	18.8
2.2.06	Loan Using Fintech	1.7	19	↓	1.9
2.3	Manpower	35.2	26	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	3.7	21	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	0.0	34	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	20.9	30	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	92.9	19	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	37.2	12	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	56.2	23	↑	64.4
3	SUPPORT	35.3	30	↑	46.1
3.1	Infrastructure	43.6	29	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	99.6	2	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	31.5	32	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	50.9	29	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	28.2	30	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	7.5	21	↓	9.7
3.2	Finance	16.4	21	↓	23.1
3.2.01	Financial Inclusion Index	44.4	19	=	46.2
3.2.02	Number of Digital Finance Service Agent	2.7	21	-	4.1
3.2.03	Use of E-wallet as a Payment Method	2.3	26	-	9.5
3.3	Regulation and Capacity of the Regional Government	45.8	21	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	48.1	20	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	18.4	4	↑	29.6
3.3.03	Life Expectancy Growth	16.8	25	-	29.1
3.3.04	Poverty Decreasing Rate	100.0	1	-	83.0



South Kalimantan

Province Rank

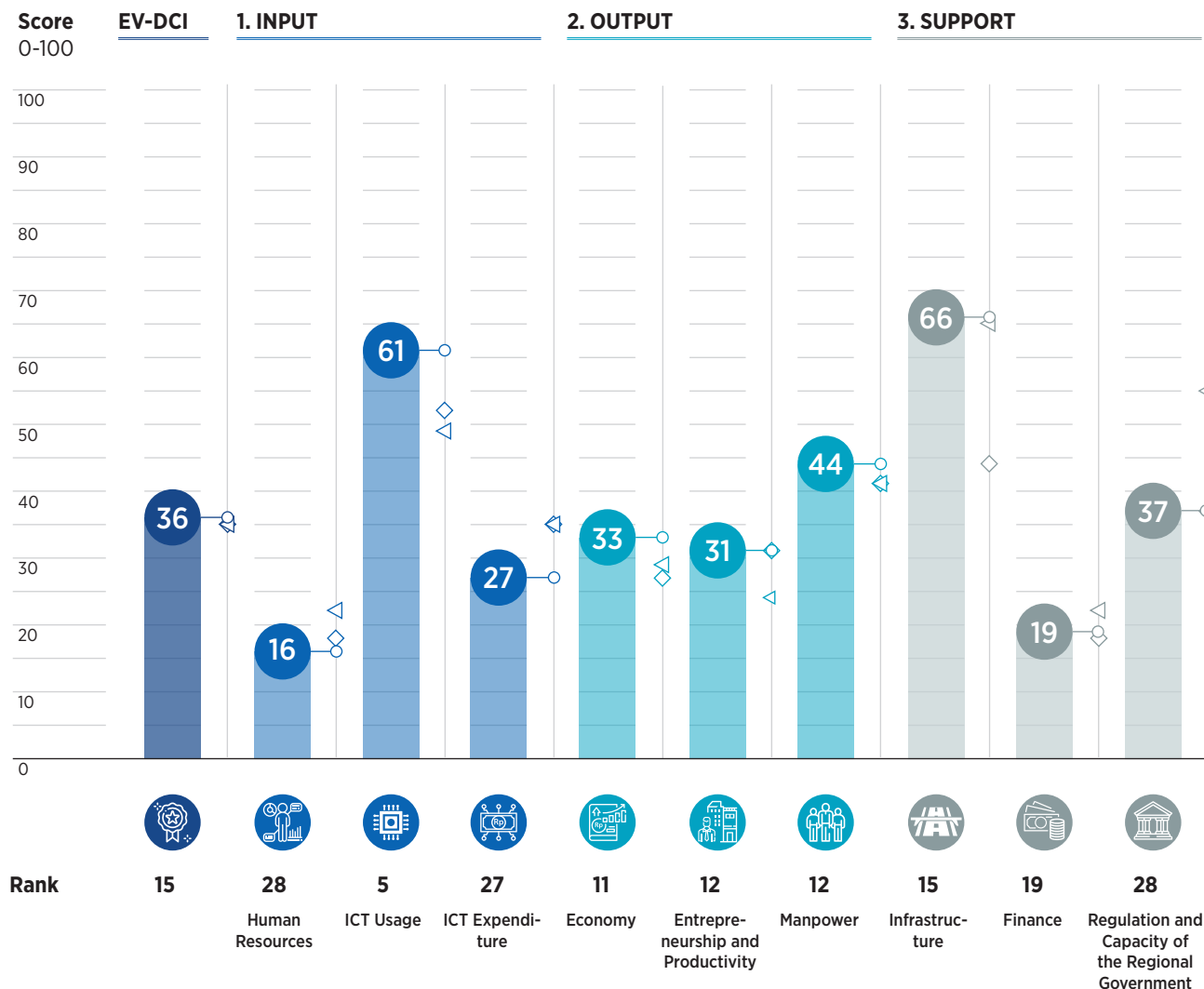
2021 :
152022 :
15

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Kalimantan

◁ National Median Score



Province Profile

Population (thousand)	43.0
Area (km2)	38,744.2

Economic Growth (percent)	-1.8
Gross Regional Domestic Product (GRDP) (IDR trillion)	179.2
GRDP per Capita (IDR thousand)	41,625

Human Development Index	71.3
Life Expectancy (year)	68.7
School Life Expectancy (year)	12.8
Average School Attendance (year)	8.3

Domestic Investment Realization (IDR billion)	2,545.4
Foreign Investment Realization (USD million)	240.8

South Kalimantan

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	35.0	21	↑	36.9
1.1	Human Resources	16.5	28	↑	21.8
1.1.01	Number of Students with Digital Capabilities	7.4	15	=	6.3
1.1.02	Growth of Students with Digital Capabilities	4.5	28	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	5.9	17	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	5.6	20	↓	6.3
1.1.05	Digital Literacy Index	58.9	21	↑	62.9
1.2	ICT Usage	61.1	5	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	71.2	10	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	36.7	13	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	66.9	9	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	96.6	2	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	56.9	8	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	27.2	25	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	33.0	17	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	100.0	1	↑	48.9
1.3	ICT Expenditure	27.4	27	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	75.5	24	↑	79.7
1.3.02	Average Expenditure of Households for ICT	17.9	20	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.8	17	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	14.4	30	↑	27.4
2	OUTPUT	35.8	11	↑	30.9
2.1	Economy	32.9	11	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	2.3	18	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	34.5	16	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	23.5	25	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	10.3	13	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	60.2	7	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95.8	7	↑	79.1
2.1.07	GRDP of the Financial Services Sector	1.8	16	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	26.1	10	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	41.6	22	↑	47.4
2.2	Entrepreneurship and Productivity	30.6	12	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	46.6	9	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	47.4	9	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	34.7	14	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	30.8	14	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	21.7	13	=	18.8
2.2.06	Loan Using Fintech	2.2	15	↓	1.9
2.3	Manpower	43.8	12	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	5.5	16	↑	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	14.6	16	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	48.8	9	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	94.1	17	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	35.5	14	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	64.0	18	↓	64.4
3	SUPPORT	40.9	21	↓	46.1
3.1	Infrastructure	66.2	15	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	83.8	26	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	77.5	12	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	90.6	13	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	68.8	16	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	10.2	15	↑	9.7
3.2	Finance	19.2	19	=	23.1
3.2.01	Financial Inclusion Index	42.1	22	=	46.2
3.2.02	Number of Digital Finance Service Agent	4.0	18	-	4.1
3.2.03	Use of E-wallet as a Payment Method	11.7	15	-	9.5
3.3	Regulation and Capacity of the Regional Government	37.3	27	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	18.9	33	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	21.4	4	↑	29.6
3.3.03	Life Expectancy Growth	61.3	5	-	29.1
3.3.04	Poverty Decreasing Rate	47.6	32	-	83.0



Central Kalimantan

Province Rank

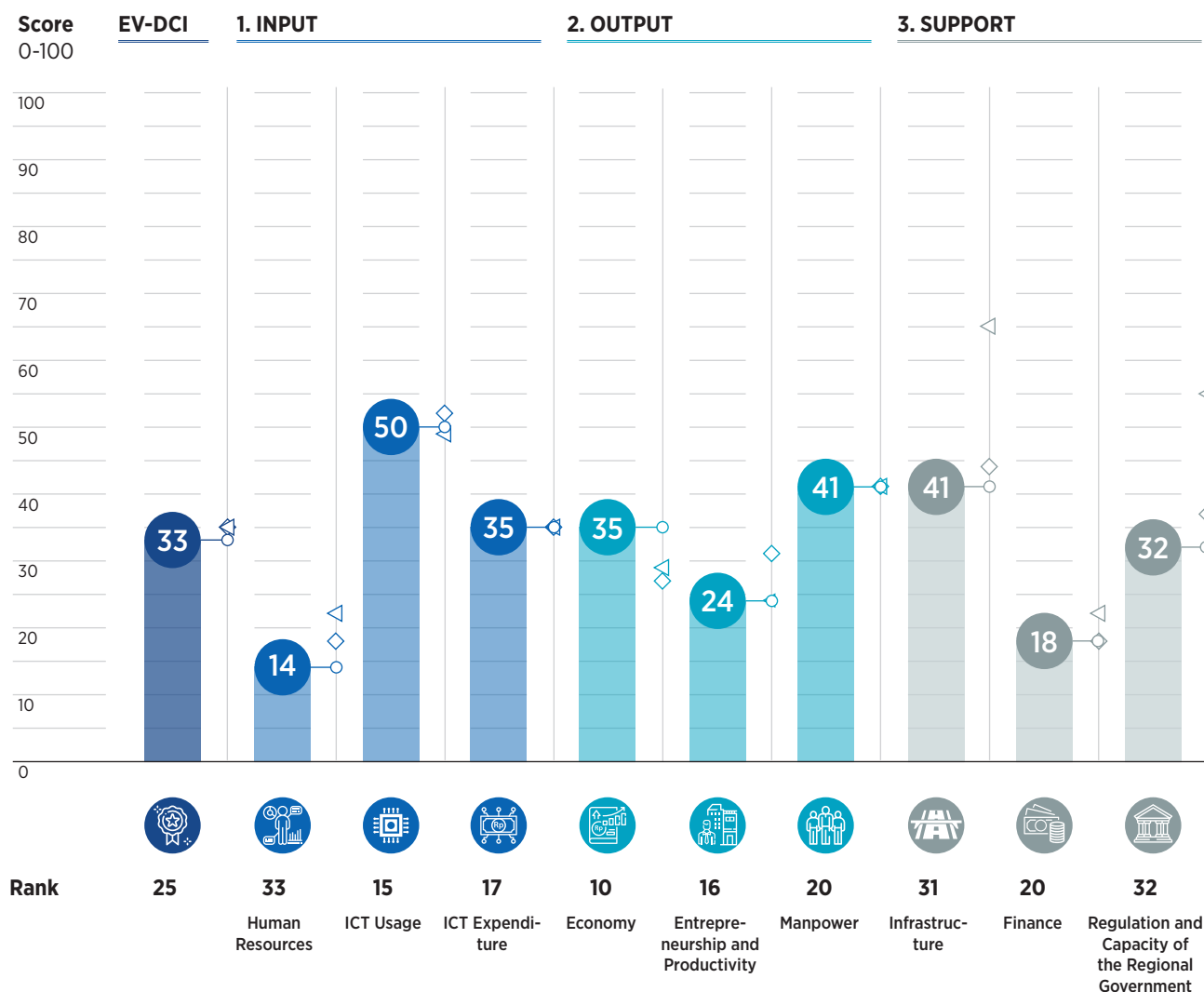
2021 :
282022 :
25

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Kalimantan

◁ National Median Score



Province Profile

Population (thousand)	27.7
Area (km2)	153,564.5

Economic Growth (percent)	-1.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	152.2
GRDP per Capita (IDR thousand)	54,959

Human Development Index	71.3
Life Expectancy (year)	69.7
School Life Expectancy (year)	12.7
Average School Attendance (year)	8.6

Domestic Investment Realization (IDR billion)	1,125.1
Foreign Investment Realization (USD million)	177.6

Central Kalimantan

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	32.9	24	↓	36.9
1.1	Human Resources	13.7	33	↓	21.8
1.1.01	Number of Students with Digital Capabilities	0.7	32	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	2.0	32	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	1.0	29	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	0.8	31	=	6.3
1.1.05	Digital Literacy Index	64.2	16	↓	62.9
1.2	ICT Usage	49.6	15	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	76.2	6	=	63.9
1.2.02	Ratio of Citizens that Have Computer	35.0	15	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	56.7	13	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	60.8	24	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	42.2	13	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	21.8	29	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	26.0	24	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	77.8	6	=	48.9
1.3	ICT Expenditure	35.4	17	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	89.6	6	↓	79.7
1.3.02	Average Expenditure of Households for ICT	24.4	15	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.9	23	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	26.6	18	↓	27.4
2	OUTPUT	33.5	14	↑	30.9
2.1	Economy	35.1	10	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.2	30	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	2.4	33	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	33.2	14	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	9.6	14	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	67.0	4	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	99.3	2	↑	79.1
2.1.07	GRDP of the Financial Services Sector	1.4	20	↑	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	24.1	11	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	78.5	4	↑	47.4
2.2	Entrepreneurship and Productivity	24.3	16	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	40.3	14	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	40.7	14	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	32.1	19	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	21.5	23	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	10.1	28	↑	18.8
2.2.06	Loan Using Fintech	0.9	22	↑	1.9
2.3	Manpower	41.1	20	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	1.6	27	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	2.7	33	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	60.5	5	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	96.2	14	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	24.4	18	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	61.1	20	↑	64.4
3	SUPPORT	30.3	32	↓	46.1
3.1	Infrastructure	40.9	31	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	84.2	24	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	36.8	30	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	50.3	30	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	27.2	32	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	6.3	25	↑	9.7
3.2	Finance	18.1	20	↑	23.1
3.2.01	Financial Inclusion Index	42.8	21	=	46.2
3.2.02	Number of Digital Finance Service Agent	2.2	24	-	4.1
3.2.03	Use of E-wallet as a Payment Method	9.3	18	-	9.5
3.3	Regulation and Capacity of the Regional Government	31.9	32	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	36.7	27	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	18.8	4	↑	29.6
3.3.03	Life Expectancy Growth	8.6	31	-	29.1
3.3.04	Poverty Decreasing Rate	63.6	28	-	83.0



East Kalimantan

Province Rank

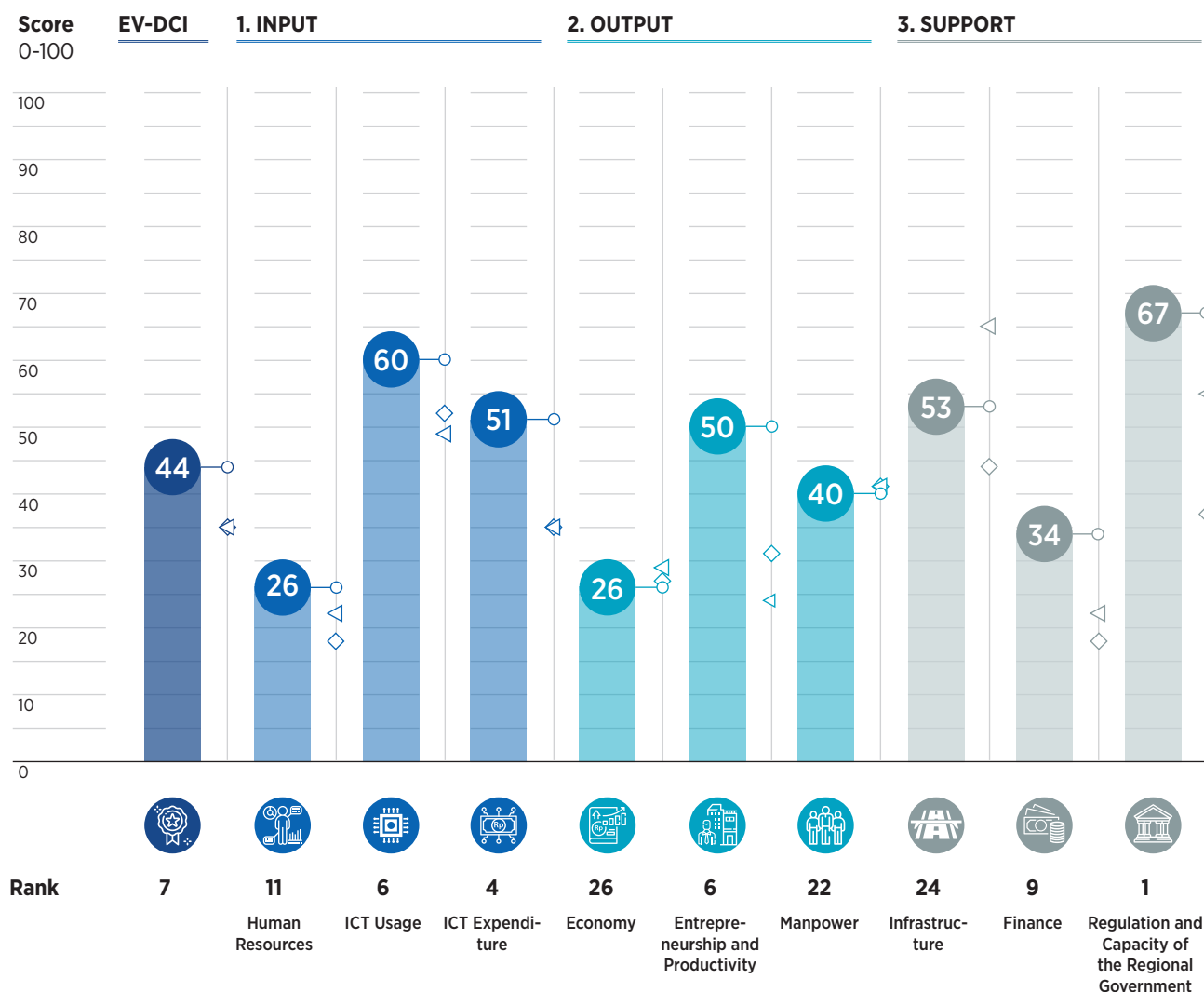
2021 :
102022 :
7

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Kalimantan

◁ National Median Score



Province Profile

Population (thousand)	37.9
Area (km2)	129,066.6

Economic Growth (percent)	-2.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	607.3
GRDP per Capita (IDR thousand)	160,110

Human Development Index	76.9
Life Expectancy (year)	74.3
School Life Expectancy (year)	13.8
Average School Attendance (year)	9.8

Domestic Investment Realization (IDR billion)	12,952.9
Foreign Investment Realization (USD million)	378

East Kalimantan

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	45.6	7	↑	36.9
1.1	Human Resources	25.6	11	↑	21.8
1.1.01	Number of Students with Digital Capabilities	7.3	16	=	6.3
1.1.02	Growth of Students with Digital Capabilities	23.7	9	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	8.2	15	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	6.6	16	↓	6.3
1.1.05	Digital Literacy Index	82.4	3	↑	62.9
1.2	ICT Usage	60.1	6	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	98.3	2	=	63.9
1.2.02	Ratio of Citizens that Have Computer	79.2	4	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	81.2	3	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	82.3	17	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	59.4	6	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	2.8	33	=	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	58.9	4	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	18.9	29	↓	48.9
1.3	ICT Expenditure	51.0	4	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	96.3	3	↓	79.7
1.3.02	Average Expenditure of Households for ICT	58.2	6	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	3.0	10	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	46.6	10	↑	27.4
2	OUTPUT	38.8	7	↑	30.9
2.1	Economy	26.1	26	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	3.2	13	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	7.5	32	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	22.1	27	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	19.9	8	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	30.2	22	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95.4	8	↑	79.1
2.1.07	GRDP of the Financial Services Sector	3.0	9	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	7.3	30	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	46.8	18	↑	47.4
2.2	Entrepreneurship and Productivity	49.8	6	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	71.5	4	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	72.5	4	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	64.8	6	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	53.5	6	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	33.3	7	=	18.8
2.2.06	Loan Using Fintech	3.5	12	↑	1.9
2.3	Manpower	40.3	22	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	5.3	17	↓	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	22.0	11	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	11.4	33	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	95.1	16	↓	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	29.8	17	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	78.0	9	↓	64.4
3	SUPPORT	51.3	9	=	46.1
3.1	Infrastructure	52.8	24	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	53.8	32	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	57.8	24	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	75.8	25	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	57.3	25	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	19.3	8	↓	9.7
3.2	Finance	34.4	9	=	23.1
3.2.01	Financial Inclusion Index	93.2	4	=	46.2
3.2.02	Number of Digital Finance Service Agent	4.2	17	-	4.1
3.2.03	Use of E-wallet as a Payment Method	5.8	23	-	9.5
3.3	Regulation and Capacity of the Regional Government	66.8	1	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	62.5	13	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41.9	4	↑	29.6
3.3.03	Life Expectancy Growth	100.0	1	-	29.1
3.3.04	Poverty Decreasing Rate	62.8	29	-	83.0



North Kalimantan

Province Rank

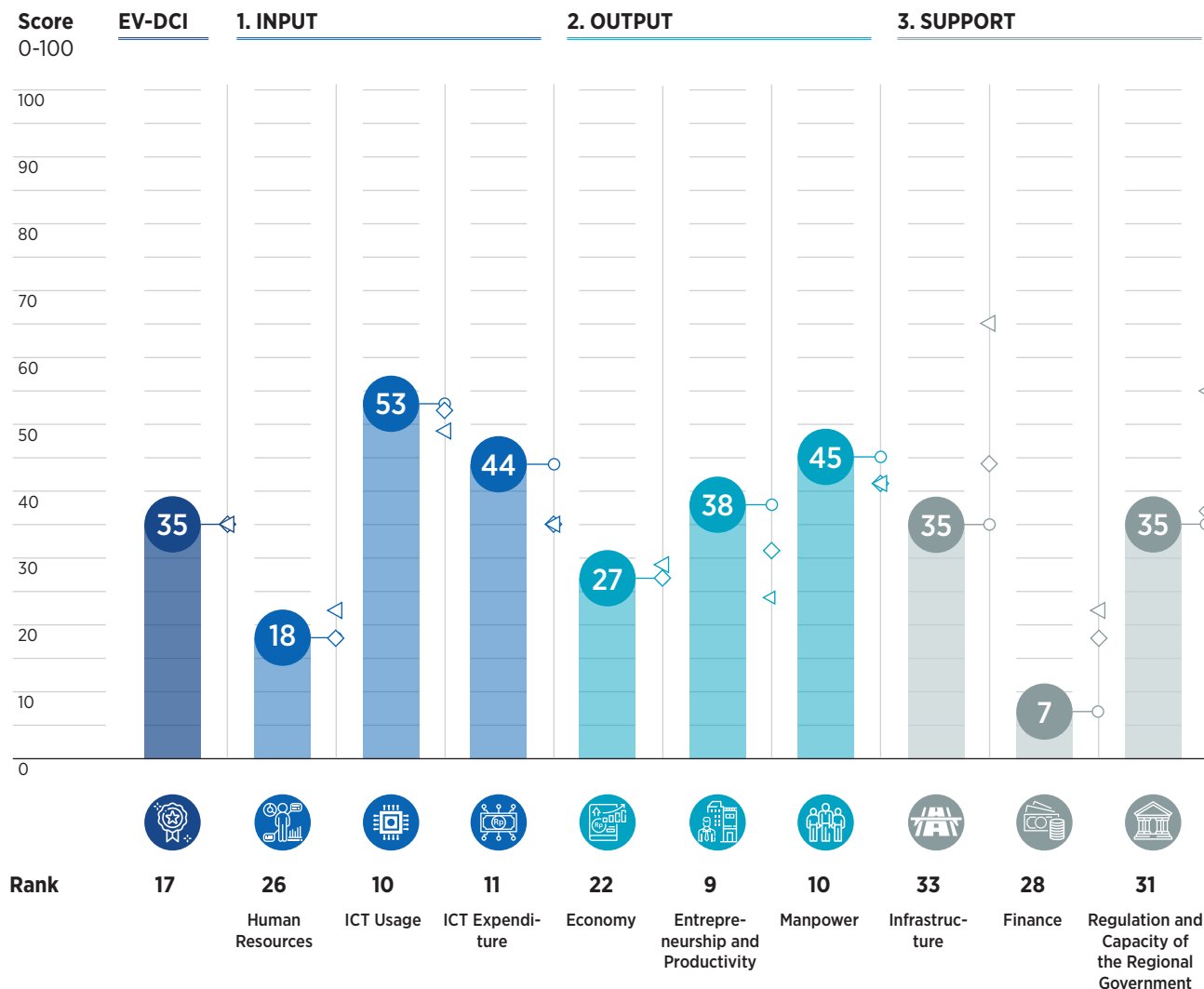
2021:
142022:
17

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Kalimantan

◁ National Median Score



Province Profile

Population (thousand)	7.7
Area (km2)	75,467.7

Economic Growth (percent)	-1.11
Gross Regional Domestic Product (GRDP) (IDR trillion)	100.5
GRDP per Capita (IDR thousand)	130,831

Human Development Index	71.2
Life Expectancy (year)	72.6
School Life Expectancy (year)	12.9
Average School Attendance (year)	9.1

Domestic Investment Realization (IDR billion)	1,173.0
Foreign Investment Realization (USD million)	68.4

North Kalimantan

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	38.7	13	↓	36.9
1.1	Human Resources	18.5	26	↑	21.8
1.1.01	Number of Students with Digital Capabilities	0.0	34	=	6.3
1.1.02	Growth of Students with Digital Capabilities	17.6	13	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	0.3	32	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	0.0	34	=	6.3
1.1.05	Digital Literacy Index	74.4	10	↑	62.9
1.2	ICT Usage	53.0	10	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	86.5	4	=	63.9
1.2.02	Ratio of Citizens that Have Computer	55.1	6	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	72.4	5	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	56.0	25	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	57.4	7	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	3.4	32	=	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	39.9	9	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	53.5	15	↓	48.9
1.3	ICT Expenditure	44.5	11	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	97.9	2	=	79.7
1.3.02	Average Expenditure of Households for ICT	48.9	8	=	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.7	27	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	30.4	15	↓	27.4
2	OUTPUT	36.7	9	↑	30.9
2.1	Economy	27.3	22	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.5	26	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	18.9	25	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	20.8	28	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	5.7	19	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	62.1	6	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	98.9	3	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.0	33	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	1.3	33	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	37.2	27	↓	47.4
2.2	Entrepreneurship and Productivity	38.1	9	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	61.6	6	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	62.1	6	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	44.0	10	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	44.8	8	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	15.9	20	↓	18.8
2.2.06	Loan Using Fintech	0.1	31	↓	1.9
2.3	Manpower	44.9	10	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.0	34	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	29.8	7	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	81.8	2	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	100.0	1	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	19.4	22	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	38.3	31	↓	64.4
3	SUPPORT	25.7	33	↓	46.1
3.1	Infrastructure	35.2	33	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	53.8	32	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	51.9	26	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	35.1	32	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	28.0	31	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	7.3	22	↓	9.7
3.2	Finance	6.9	28	↑	23.1
3.2.01	Financial Inclusion Index	15.0	26	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.0	34	-	4.1
3.2.03	Use of E-wallet as a Payment Method	5.5	24	-	9.5
3.3	Regulation and Capacity of the Regional Government	35.0	30	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	53.8	17	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	16.8	4	↑	29.6
3.3.03	Life Expectancy Growth	11.9	30	-	29.1
3.3.04	Poverty Decreasing Rate	57.7	31	-	83.0



Bangka Belitung Islands

Province Rank

2021:
25

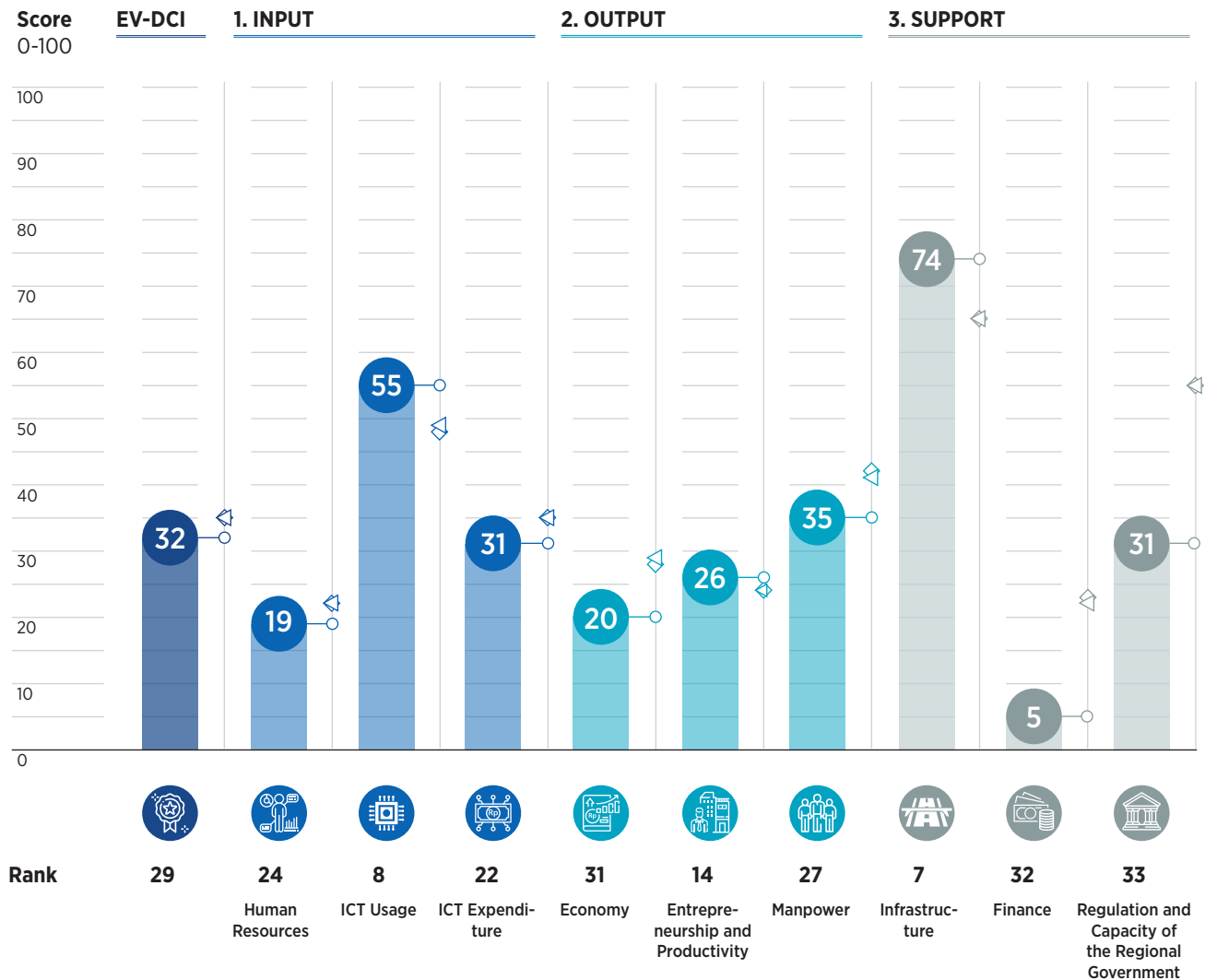
2022 :
29

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	15.2
Area (km2)	16,424.1
Economic Growth (percent)	-2.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	75.5
GRDP per Capita (IDR thousand)	49,772
Human Development Index	71.7
Life Expectancy (year)	70.6
School Life Expectancy (year)	12.2
Average School Attendance (year)	8.1
Domestic Investment Realization (IDR billion)	365.4
Foreign Investment Realization (USD million)	48.4

Bangka Belitung Islands

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	35.1	19	↓	36.9
1.1	Human Resources	18.8	24	↓	21.8
1.1.01	Number of Students with Digital Capabilities	0.7	32	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	17.4	14	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	0.8	31	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	1.9	30	↓	6.3
1.1.05	Digital Literacy Index	73.3	12	=	62.9
1.2	ICT Usage	55.2	8	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	68.3	13	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	34.9	16	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	58.3	12	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	100.0	1	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	46.7	12	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	30.9	23	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	31.9	21	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	70.9	8	↓	48.9
1.3	ICT Expenditure	31.3	22	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	85.1	14	↓	79.7
1.3.02	Average Expenditure of Households for ICT	28.9	12	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.3	30	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	11.0	31	=	27.4
2	OUTPUT	27.0	28	↑	30.9
2.1	Economy	19.9	31	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.2	31	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	14.7	29	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	49.9	5	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	1.9	29	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	29.8	23	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	74.0	21	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.1	31	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	8.6	29	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	0.0	34	=	47.4
2.2	Entrepreneurship and Productivity	26.2	14	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	41.0	13	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	41.7	12	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	33.7	15	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	24.4	20	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	15.9	20	↓	18.8
2.2.06	Loan Using Fintech	0.5	28	↓	1.9
2.3	Manpower	34.9	27	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.1	32	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	3.6	29	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	46.6	10	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	98.2	9	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	2.0	32	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	58.8	21	↓	64.4
3	SUPPORT	36.6	29	↓	46.1
3.1	Infrastructure	73.9	7	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	83.7	27	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	88.0	7	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	98.9	5	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	89.2	3	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	9.7	18	↓	9.7
3.2	Finance	4.9	32	↓	23.1
3.2.01	Financial Inclusion Index	13.5	28	=	46.2
3.2.02	Number of Digital Finance Service Agent	1.2	28	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	31.0	33	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	40.9	23	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	0.0	4	↑	29.6
3.3.03	Life Expectancy Growth	25.3	21	-	29.1
3.3.04	Poverty Decreasing Rate	58.0	30	-	83.0



Riau Islands

Province Rank

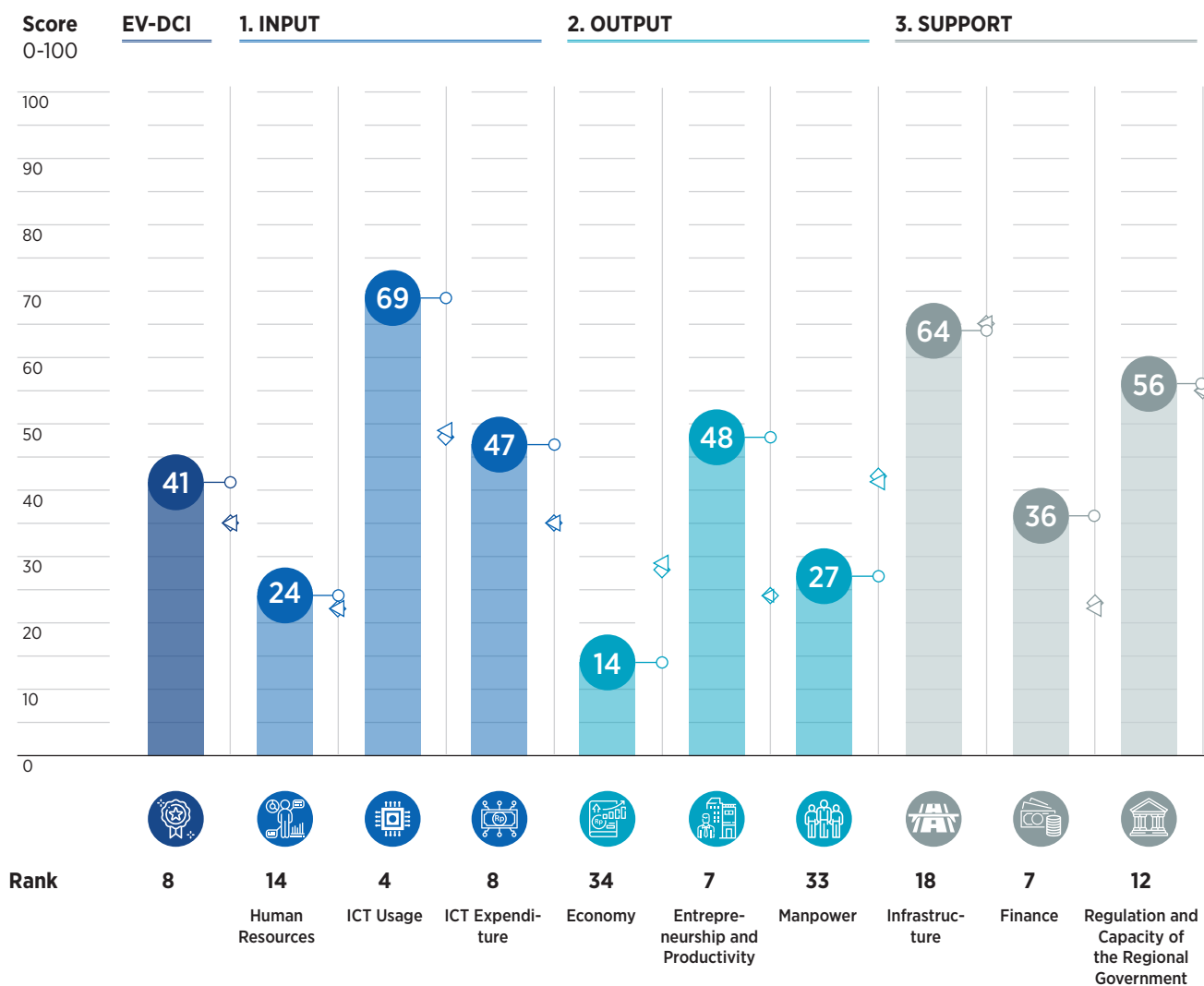
2021 :
72022 :
8

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	22.4
Area (km2)	8,201.7
Economic Growth (percent)	-3.8
Gross Regional Domestic Product (GRDP) (IDR trillion)	254.3
GRDP per Capita (IDR thousand)	113,395
Human Development Index	75.8
Life Expectancy (year)	70.0
School Life Expectancy (year)	13.0
Average School Attendance (year)	10.2
Domestic Investment Realization (IDR billion)	3,206.2
Foreign Investment Realization (USD million)	1,649.4

Riau Islands

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	46.6	5	=	36.9
1.1	Human Resources	23.7	14	=	21.8
1.1.01	Number of Students with Digital Capabilities	4.8	23	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	9.2	22	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	4.6	20	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	5.7	19	=	6.3
1.1.05	Digital Literacy Index	94.3	2	=	62.9
1.2	ICT Usage	69.3	4	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	96.9	3	=	63.9
1.2.02	Ratio of Citizens that Have Computer	80.5	3	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	92.4	2	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	90.9	4	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	79.4	3	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	13.8	31	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	80.8	3	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	19.6	28	↓	48.9
1.3	ICT Expenditure	46.7	8	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	86.7	9	↓	79.7
1.3.02	Average Expenditure of Households for ICT	48.3	9	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	2.6	13	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	49.2	9	↓	27.4
2	OUTPUT	29.6	23	↓	30.9
2.1	Economy	13.9	34	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	2.1	19	↑	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	18.9	25	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	53.2	3	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	3.2	28	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	9.2	32	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	0.0	34	↓	79.1
2.1.07	GRDP of the Financial Services Sector	1.9	15	↓	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	17.2	20	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	19.6	32	↓	47.4
2.2	Entrepreneurship and Productivity	48.0	7	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	70.1	5	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	70.6	5	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	62.2	7	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	48.3	7	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	34.8	6	↓	18.8
2.2.06	Loan Using Fintech	2.1	17	↓	1.9
2.3	Manpower	26.9	33	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	4.1	20	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	36.6	4	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	22.2	28	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	96.4	13	↓	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	2.1	31	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	0.0	34	↓	64.4
3	SUPPORT	51.8	8	↑	46.1
3.1	Infrastructure	64.1	18	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98.5	4	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	59.7	22	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	77.6	23	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	59.3	24	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	25.3	5	↓	9.7
3.2	Finance	35.5	7	↑	23.1
3.2.01	Financial Inclusion Index	92.5	5	=	46.2
3.2.02	Number of Digital Finance Service Agent	1.8	26	-	4.1
3.2.03	Use of E-wallet as a Payment Method	12.1	12	-	9.5
3.3	Regulation and Capacity of the Regional Government	56.0	12	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	65.8	9	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	20.7	25	↑	29.6
3.3.03	Life Expectancy Growth	55.7	6	-	29.1
3.3.04	Poverty Decreasing Rate	81.8	19	-	83.0



Lampung

Province Rank

2021 :
26

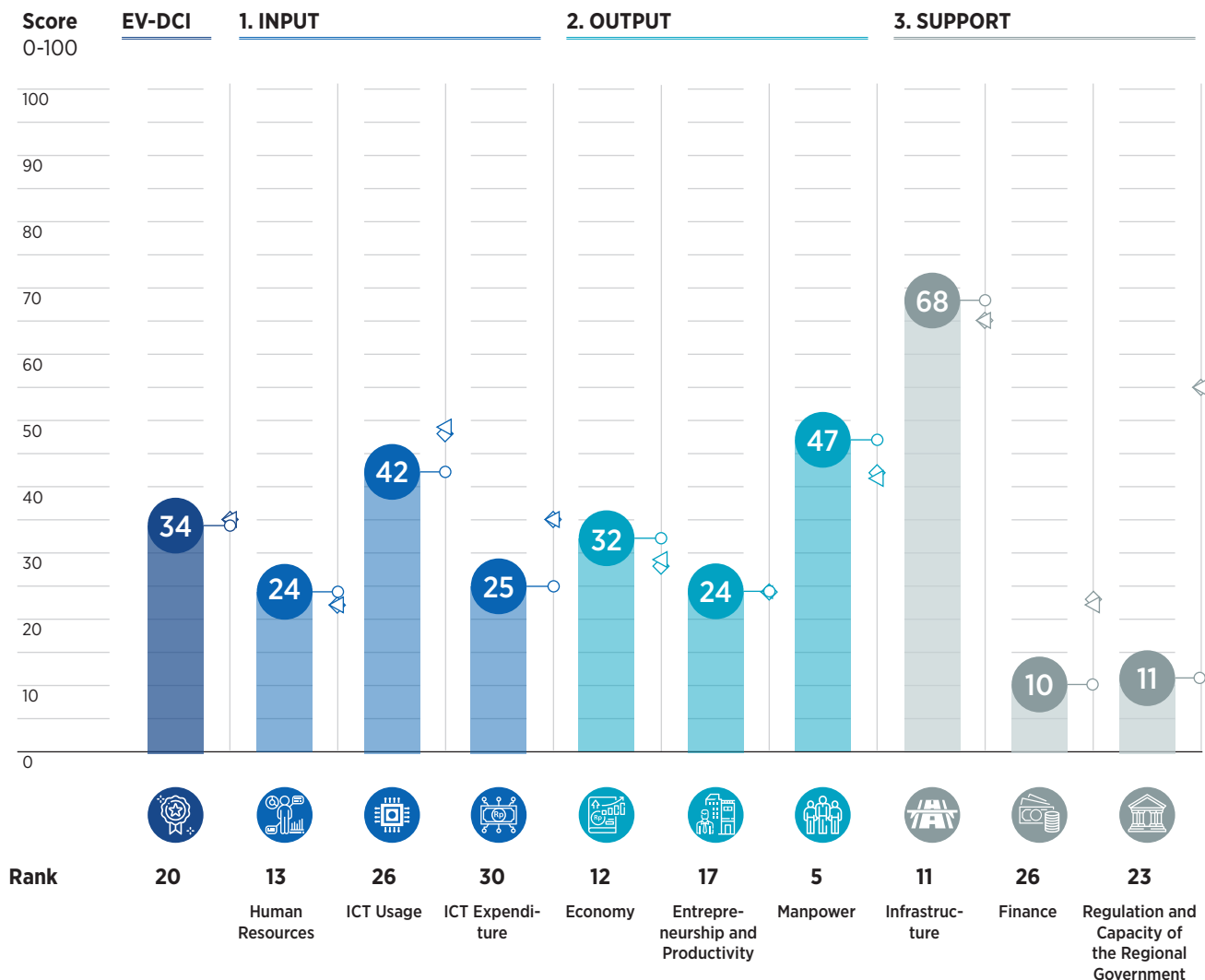
2022 :
20

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	85.2
Area (km2)	34,623.8

Economic Growth (percent)	-1.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	354.6
GRDP per Capita (IDR thousand)	41,618

Human Development Index	69.9
Life Expectancy (year)	70.7
School Life Expectancy (year)	12.7
Average School Attendance (year)	8.1

Domestic Investment Realization (IDR billion)	1,600.3
Foreign Investment Realization (USD million)	498.4

Lampung

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	30.5	29	↓	36.9
1.1	Human Resources	23.9	13	↑	21.8
1.1.01	Number of Students with Digital Capabilities	15.3	10	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	3.8	29	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	19.8	9	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	15.7	10	↑	6.3
1.1.05	Digital Literacy Index	65.0	15	↑	62.9
1.2	ICT Usage	42.1	26	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	58.0	23	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	6.7	33	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	56.6	14	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	82.3	16	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	17.0	32	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	40.8	18	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	0.0	34	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	75.6	7	↓	48.9
1.3	ICT Expenditure	25.3	30	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	78.7	20	↓	79.7
1.3.02	Average Expenditure of Households for ICT	0.0	34	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.7	20	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	20.8	27	↓	27.4
2	OUTPUT	34.4	13	↑	30.9
2.1	Economy	32.4	12	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	5.4	9	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	38.8	11	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	25.8	23	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	15.8	9	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	44.1	11	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95.3	9	↑	79.1
2.1.07	GRDP of the Financial Services Sector	2.1	11	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	11.7	26	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	52.6	15	↑	47.4
2.2	Entrepreneurship and Productivity	23.8	17	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	27.4	23	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	27.3	23	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	33.2	16	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	30.8	14	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	20.3	15	↑	18.8
2.2.06	Loan Using Fintech	3.9	10	↑	1.9
2.3	Manpower	46.9	5	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	10.0	9	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	6.8	26	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	39.1	13	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	87.0	28	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	38.5	11	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	100.0	1	↑	64.4
3	SUPPORT	39.2	26	↓	46.1
3.1	Infrastructure	67.5	11	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	85.0	23	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	78.4	11	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	95.5	10	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	73.9	12	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	4.9	28	↑	9.7
3.2	Finance	9.5	26	↑	23.1
3.2.01	Financial Inclusion Index	6.0	30	=	46.2
3.2.02	Number of Digital Finance Service Agent	10.5	7	-	4.1
3.2.03	Use of E-wallet as a Payment Method	12.0	13	-	9.5
3.3	Regulation and Capacity of the Regional Government	40.5	23	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	41.4	22	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	12.4	32	↓	29.6
3.3.03	Life Expectancy Growth	21.1	22	-	29.1
3.3.04	Poverty Decreasing Rate	87.3	12	-	83.0



Maluku

East Ventures - Digital Competitiveness Index 2022

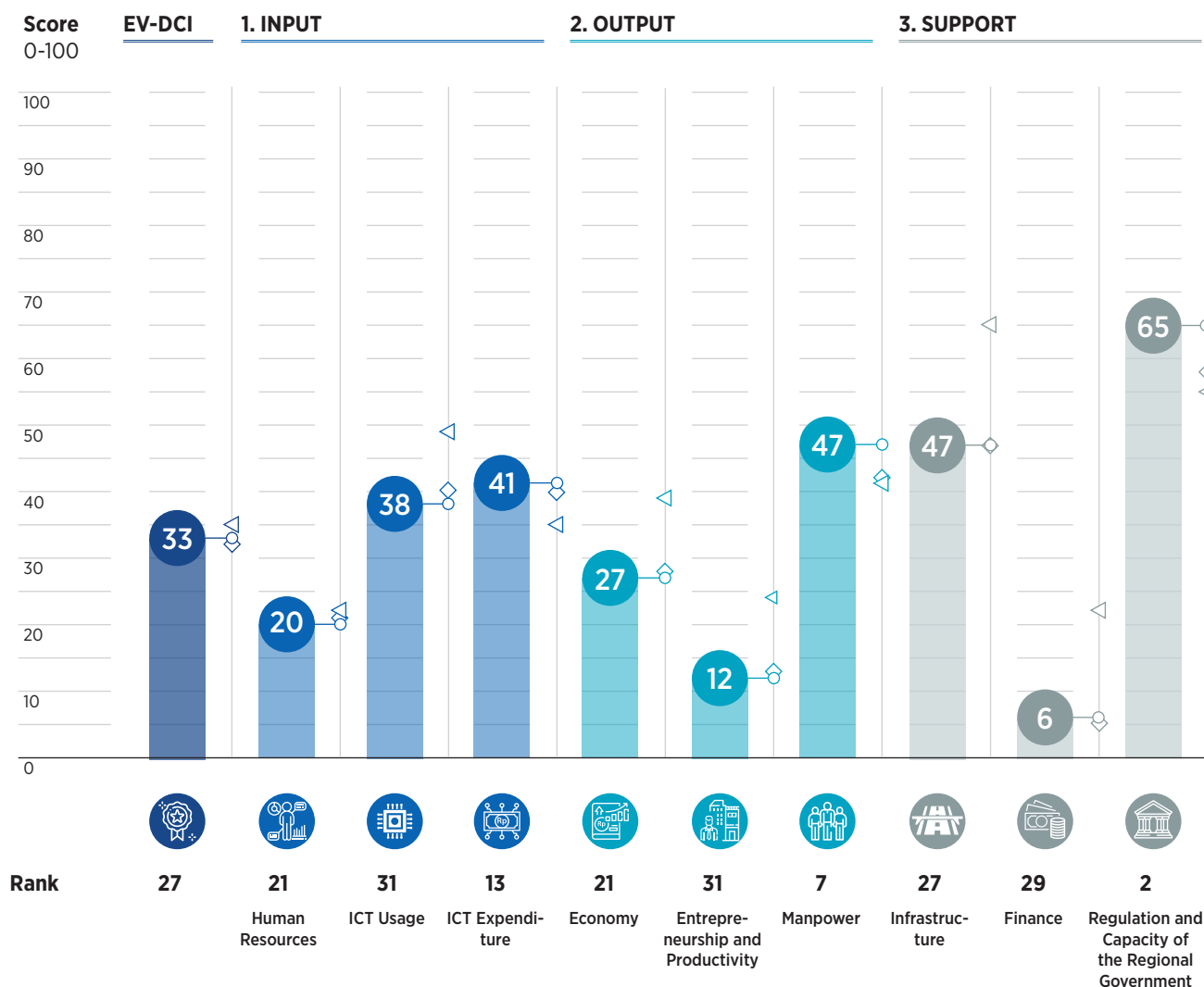
Province Rank

2021 :
242022 :
27

Performance 2022

◇ Regional Median Score
Maluku-Papua

◁ National Median Score



Province Profile

Population (thousand)	18.3
Area (km2)	31,982.5

Economic Growth (percent)	-0.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	46.3
GRDP per Capita (IDR thousand)	25,255

Human Development Index	69.7
Life Expectancy (year)	66.0
School Life Expectancy (year)	14.0
Average School Attendance (year)	10.0

Domestic Investment Realization (IDR billion)	142.2
Foreign Investment Realization (USD million)	176.7

Maluku

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	33.1	23	↓	36.9
1.1	Human Resources	20.2	21	↓	21.8
1.1.01	Number of Students with Digital Capabilities	1.7	29	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	45.8	3	=	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	0.0	34	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	0.5	33	=	6.3
1.1.05	Digital Literacy Index	53.1	25	↓	62.9
1.2	ICT Usage	37.8	31	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	54.7	26	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	42.2	10	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	39.4	29	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	7.5	33	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	9.5	33	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	56.8	8	=	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	51.1	6	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	41.4	22	↑	48.9
1.3	ICT Expenditure	41.2	13	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	78.8	19	↑	79.7
1.3.02	Average Expenditure of Households for ICT	65.5	4	=	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.3	32	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	20.3	28	↓	27.4
2	OUTPUT	28.5	26	=	30.9
2.1	Economy	27.3	21	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.1	33	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	24.4	23	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	0.0	34	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	1.4	32	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	39.1	17	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	80.6	16	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.3	28	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	30.6	5	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	69.1	8	↑	47.4
2.2	Entrepreneurship and Productivity	11.8	31	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	21.3	29	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	21.4	28	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	14.0	30	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	5.2	32	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	8.7	29	=	18.8
2.2.06	Loan Using Fintech	0.2	30	=	1.9
2.3	Manpower	46.5	7	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	2.6	25	↓	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	36.0	5	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	29.1	26	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	98.8	6	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	43.9	8	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	68.7	16	↑	64.4
3	SUPPORT	39.4	25	↑	46.1
3.1	Infrastructure	47.4	27	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	88.8	19	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	44.5	28	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	49.4	31	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	40.8	28	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	13.4	11	↑	9.7
3.2	Finance	5.7	29	↑	23.1
3.2.01	Financial Inclusion Index	16.6	25	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.5	31	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	65.1	2	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	81.5	3	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	55.5	2	=	29.6
3.3.03	Life Expectancy Growth	37.1	15	-	29.1
3.3.04	Poverty Decreasing Rate	86.3	14	-	83.0



North Maluku

East Ventures - Digital Competitiveness Index 2022

Province Rank

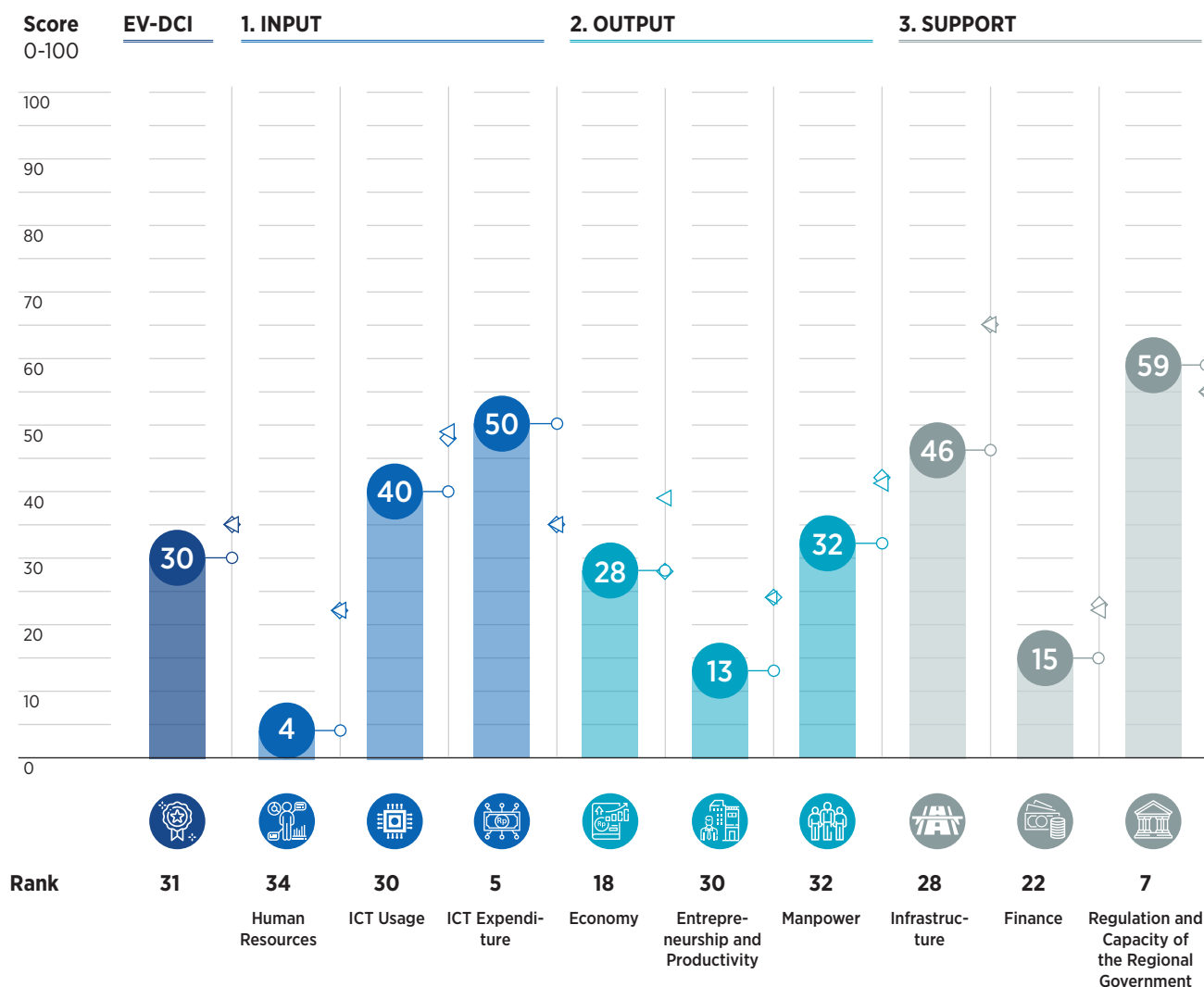
2021 :
32

2022 :
31

Performance 2022

◇ Regional Median Score
Maluku-Papua

◁ National Median Score



Province Profile

Population (thousand)	12.8
Area (km2)	46,914.0

Economic Growth (percent)	4.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	42.1
GRDP per Capita (IDR thousand)	32,955

Human Development Index	68.8
Life Expectancy (year)	68.3
School Life Expectancy (year)	13.7
Average School Attendance (year)	9.1

Domestic Investment Realization (IDR billion)	1,564.8
Foreign Investment Realization (USD million)	2,409

North Maluku

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	31.2	26	↑	36.9
1.1	Human Resources	4.0	34	↓	21.8
1.1.01	Number of Students with Digital Capabilities	2.1	27	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	14.6	16	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	0.9	30	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	2.2	28	=	6.3
1.1.05	Digital Literacy Index	0.0	34	↓	62.9
1.2	ICT Usage	39.5	30	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	47.0	32	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	27.5	22	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	27.4	33	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	0.0	34	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	26.3	26	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	100.0	1	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	18.3	31	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	69.4	9	↑	48.9
1.3	ICT Expenditure	50.2	5	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	76.5	21	↑	79.7
1.3.02	Average Expenditure of Households for ICT	100.0	1	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.3	31	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	24.0	23	↑	27.4
2	OUTPUT	24.5	34	↓	30.9
2.1	Economy	28.4	18	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	0.1	32	↑	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	29.0	19	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	24.3	24	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	1.2	33	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	40.6	13	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	71.0	22	↓	79.1
2.1.07	GRDP of the Financial Services Sector	0.1	32	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	19.8	16	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	69.9	7	↓	47.4
2.2	Entrepreneurship and Productivity	13.4	30	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	20.5	31	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	20.8	30	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	11.4	31	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	16.3	28	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	11.6	24	↑	18.8
2.2.06	Loan Using Fintech	0.0	34	=	1.9
2.3	Manpower	31.7	32	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.9	30	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	25.3	9	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	36.2	20	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	99.0	4	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	13.7	28	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	15.0	33	↓	64.4
3	SUPPORT	40.2	23	↑	46.1
3.1	Infrastructure	46.0	28	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	94.8	11	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	38.4	29	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	54.9	27	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	41.8	26	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	0.0	34	↓	9.7
3.2	Finance	15.3	22	=	23.1
3.2.01	Financial Inclusion Index	45.8	18	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.2	33	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	59.3	7	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	59.5	16	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	47.6	6	↓	29.6
3.3.03	Life Expectancy Growth	39.8	13	-	29.1
3.3.04	Poverty Decreasing Rate	90.6	9	-	83.0



West Nusa Tenggara

East Ventures - Digital Competitiveness Index 2022

Province Rank

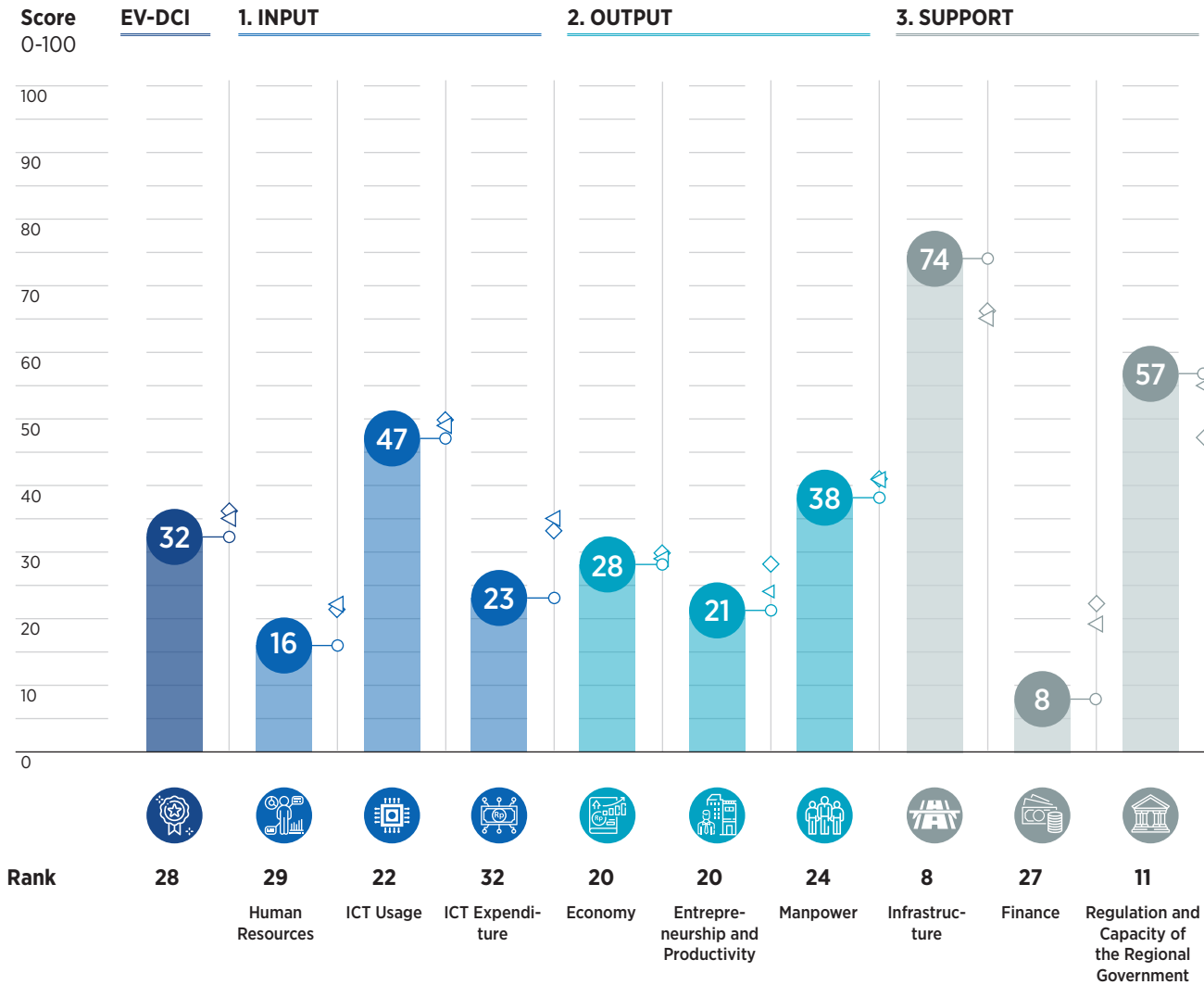
2021 :
22

2022 :
28

Performance 2022

◇ Regional Median Score
Bali-Nusra

◁ National Median Score



Province Profile

Population (thousand)	51.3
Area (km2)	18,572.3
Economic Growth (percent)	-0.6
Gross Regional Domestic Product (GRDP) (IDR trillion)	133.5
GRDP per Capita (IDR thousand)	26,050
Human Development Index	68.7
Life Expectancy (year)	66.5
School Life Expectancy (year)	13.9
Average School Attendance (year)	7.4
Domestic Investment Realization (IDR billion)	2,219.2
Foreign Investment Realization (USD million)	302.1

West Nusa Tenggara

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	28.5	32	↓	36.9
1.1	Human Resources	16.0	29	↓	21.8
1.1.01	Number of Students with Digital Capabilities	6.0	18	=	6.3
1.1.02	Growth of Students with Digital Capabilities	9.7	21	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	5.9	18	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	6.5	17	↓	6.3
1.1.05	Digital Literacy Index	51.8	26	↓	62.9
1.2	ICT Usage	46.8	22	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	47.1	31	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	8.0	32	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	44.8	27	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	86.6	9	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	23.5	28	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	83.8	4	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	23.4	26	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	57.1	14	↑	48.9
1.3	ICT Expenditure	22.8	32	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	76.4	22	↓	79.7
1.3.02	Average Expenditure of Households for ICT	6.9	30	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.8	25	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	7.1	33	=	27.4
2	OUTPUT	29.2	24	↓	30.9
2.1	Economy	28.1	20	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.7	24	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	14.9	28	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	40.4	8	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	5.5	20	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	43.6	12	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	33.5	29	↑	79.1
2.1.07	GRDP of the Financial Services Sector	1.4	19	↑	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	29.7	6	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	83.5	3	↓	47.4
2.2	Entrepreneurship and Productivity	21.4	20	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	21.8	27	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	22.0	26	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	33.2	16	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	32.0	13	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	17.4	18	↑	18.8
2.2.06	Loan Using Fintech	1.8	18	=	1.9
2.3	Manpower	38.0	24	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	6.2	14	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	9.4	21	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	41.6	12	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	91.1	24	↓	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	23.2	20	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	56.7	22	↓	64.4
3	SUPPORT	46.0	18	↓	46.1
3.1	Infrastructure	73.9	8	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	93.3	13	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	87.2	8	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	97.6	9	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	87.4	5	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	3.9	29	↑	9.7
3.2	Finance	7.5	27	↓	23.1
3.2.01	Financial Inclusion Index	8.3	29	=	46.2
3.2.02	Number of Digital Finance Service Agent	5.9	15	-	4.1
3.2.03	Use of E-wallet as a Payment Method	8.3	22	-	9.5
3.3	Regulation and Capacity of the Regional Government	56.6	11	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	37.1	26	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	28.5	19	↑	29.6
3.3.03	Life Expectancy Growth	68.2	3	-	29.1
3.3.04	Poverty Decreasing Rate	92.5	6	-	83.0



East Nusa Tenggara

Province Rank

2021 :
29

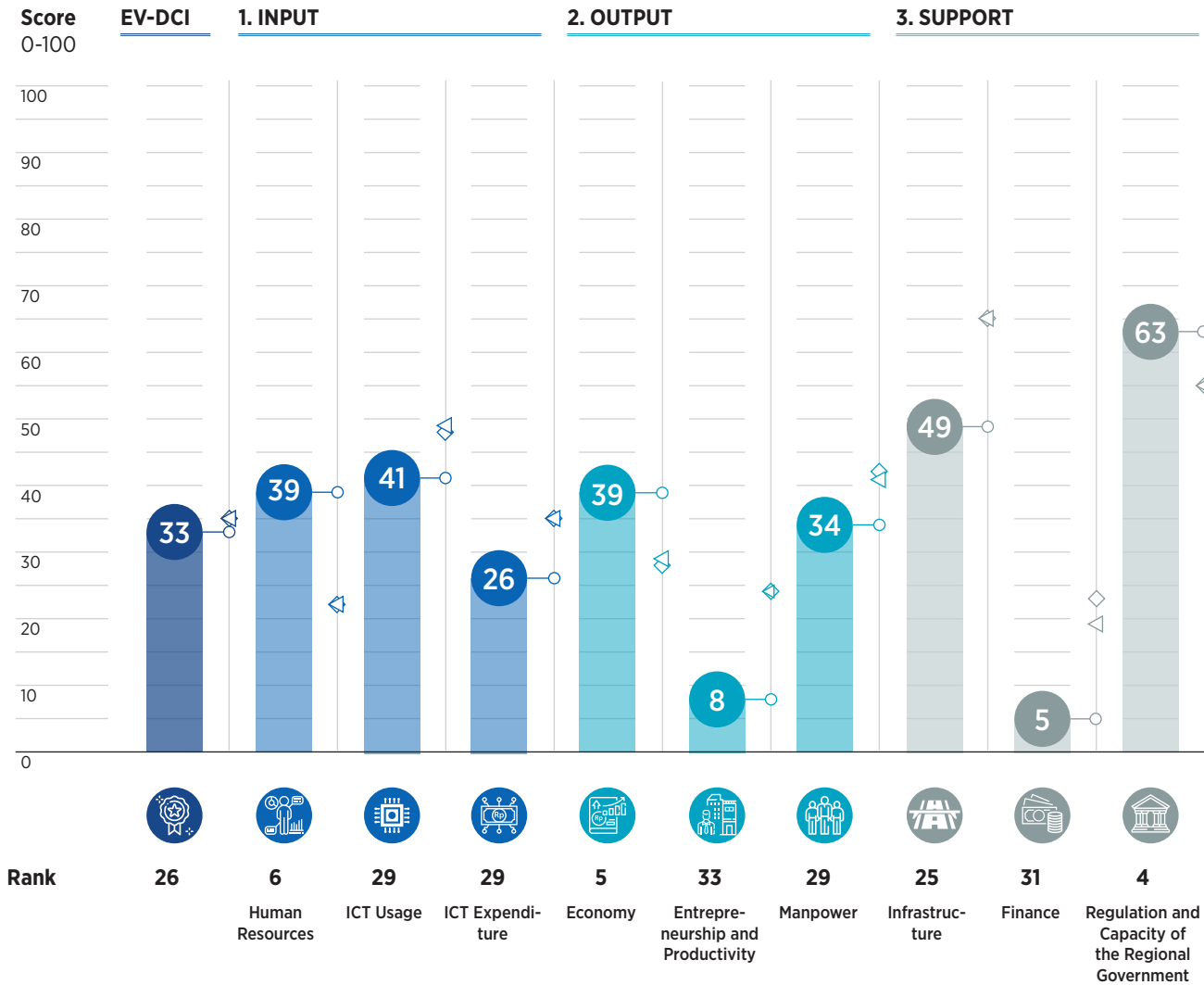
2022 :
26

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Bali-Nusra

◁ National Median Score



Province Profile

Population (thousand)	55.4
Area (km2)	48,718.1
Economic Growth (percent)	-0.8
Gross Regional Domestic Product (GRDP) (IDR trillion)	106.5
GRDP per Capita (IDR thousand)	19,220
Human Development Index	65.3
Life Expectancy (year)	67.0
School Life Expectancy (year)	13.2
Average School Attendance (year)	7.7
Domestic Investment Realization (IDR billion)	1,112.0
Foreign Investment Realization (USD million)	81.3

East Nusa Tenggara

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	35.1	20	↓	36.9
1.1	Human Resources	38.8	6	↓	21.8
1.1.01	Number of Students with Digital Capabilities	5.6	20	=	6.3
1.1.02	Growth of Students with Digital Capabilities	100.0	1	=	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	3.5	21	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	5.2	21	↓	6.3
1.1.05	Digital Literacy Index	79.9	7	↓	62.9
1.2	ICT Usage	40.8	29	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	30.3	33	=	63.9
1.2.02	Ratio of Citizens that Have Computer	17.3	31	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	28.2	32	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	67.5	23	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	20.6	30	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	97.0	2	=	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	39.7	10	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	25.6	26	↑	48.9
1.3	ICT Expenditure	25.7	29	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	68.7	28	=	79.7
1.3.02	Average Expenditure of Households for ICT	8.4	29	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.8	24	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	24.8	21	↓	27.4
2	OUTPUT	26.8	30	↑	30.9
2.1	Economy	38.9	5	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	2.6	17	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	74.2	3	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	39.1	9	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	4.0	26	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	40.1	14	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	83.1	14	↑	79.1
2.1.07	GRDP of the Financial Services Sector	1.1	22	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	32.8	3	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	73.1	6	↑	47.4
2.2	Entrepreneurship and Productivity	7.7	33	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	12.5	32	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	12.6	32	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	7.3	33	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	4.7	33	=	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	8.7	29	↑	18.8
2.2.06	Loan Using Fintech	0.4	29	↓	1.9
2.3	Manpower	33.8	29	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	7.0	11	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	10.8	18	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	21.8	29	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	92.5	20	↓	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	44.9	7	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	25.9	32	↑	64.4
3	SUPPORT	38.9	27	↑	46.1
3.1	Infrastructure	49.2	25	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	87.1	21	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	46.2	27	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	69.0	26	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	41.3	27	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	2.3	31	↓	9.7
3.2	Finance	5.0	31	↑	23.1
3.2.01	Financial Inclusion Index	2.3	33	=	46.2
3.2.02	Number of Digital Finance Service Agent	3.6	19	-	4.1
3.2.03	Use of E-wallet as a Payment Method	9.1	20	-	9.5
3.3	Regulation and Capacity of the Regional Government	62.6	4	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	73.8	6	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	30.2	17	↑	29.6
3.3.03	Life Expectancy Growth	49.7	8	-	29.1
3.3.04	Poverty Decreasing Rate	96.5	2	-	83.0



Papua

Province Rank

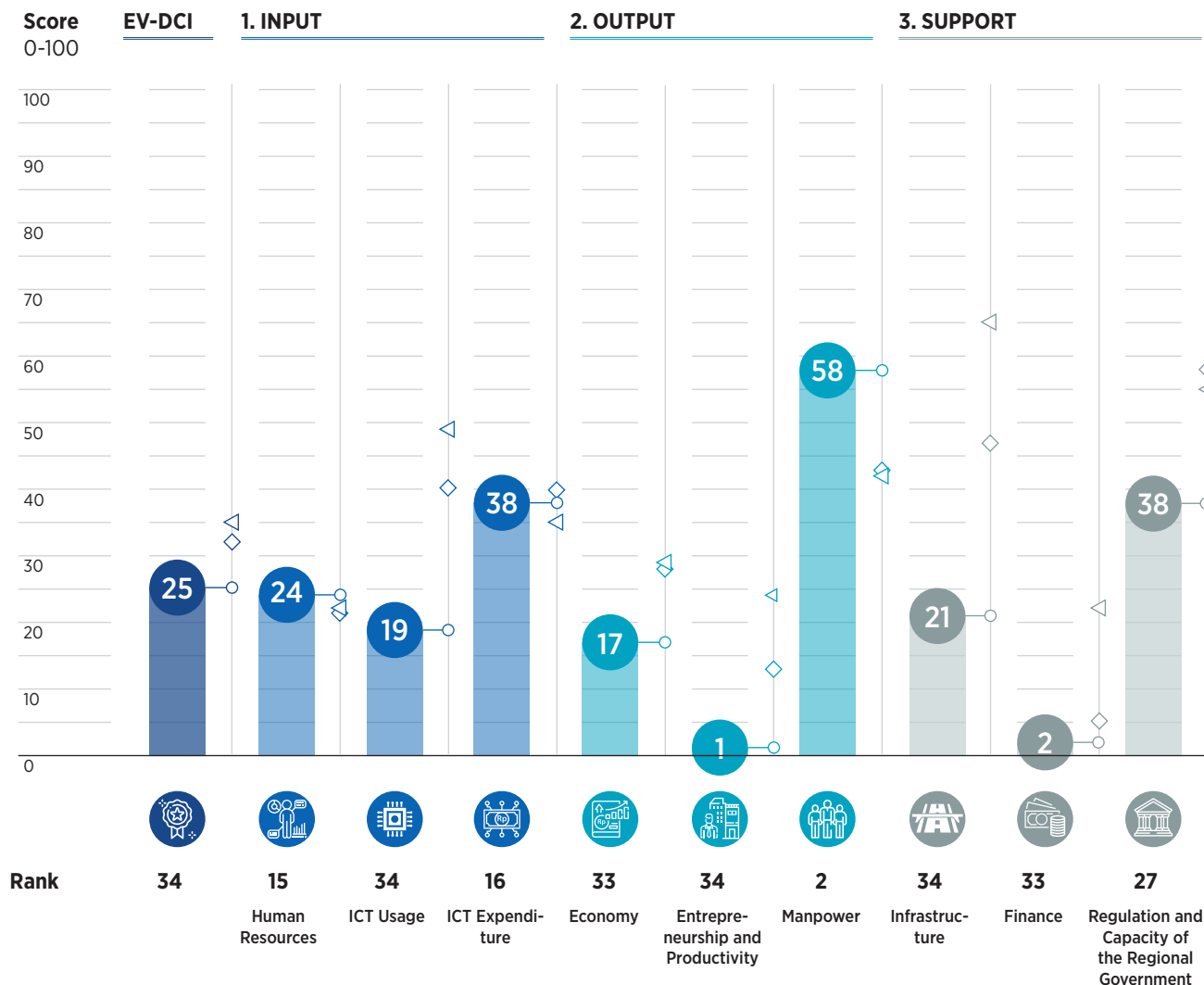
2021 :
342022 :
34

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	34.4
Area (km2)	319,036.1

Economic Growth (percent)	2.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	198.9
GRDP per Capita (IDR thousand)	57,905

Human Development Index	60.6
Life Expectancy (year)	65.8
School Life Expectancy (year)	11.1
Average School Attendance (year)	6.8

Domestic Investment Realization (IDR billion)	234.2
Foreign Investment Realization (USD million)	567.7

Papua

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	26.8	33	=	36.9
1.1	Human Resources	23.7	15	↑	21.8
1.1.01	Number of Students with Digital Capabilities	6.6	17	=	6.3
1.1.02	Growth of Students with Digital Capabilities	69.6	2	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	1.4	27	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	4.0	23	=	6.3
1.1.05	Digital Literacy Index	36.7	32	↓	62.9
1.2	ICT Usage	18.7	34	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	0.0	34	=	63.9
1.2.02	Ratio of Citizens that Have Computer	0.0	34	=	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	0.0	34	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	27.8	32	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	48.7	11	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	39.1	21	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	32.3	20	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	1.8	33	↓	48.9
1.3	ICT Expenditure	38.0	16	=	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	0.0	34	=	79.7
1.3.02	Average Expenditure of Households for ICT	99.1	2	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.8	26	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	52.1	7	↓	27.4
2	OUTPUT	25.4	33	↓	30.9
2.1	Economy	17.3	33	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	2.8	16	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	38.1	13	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	10.3	32	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	7.1	16	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	35.8	19	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	25.8	33	↓	79.1
2.1.07	GRDP of the Financial Services Sector	0.7	25	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	6.7	32	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	27.8	31	↓	47.4
2.2	Entrepreneurship and Productivity	1.1	34	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	0.0	34	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	0.0	34	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	0.0	34	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	0.0	34	=	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	5.8	33	=	18.8
2.2.06	Loan Using Fintech	0.7	23	↑	1.9
2.3	Manpower	57.8	2	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	2.9	23	↑	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	3.2	30	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	100.0	1	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	98.7	7	↓	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	100.0	1	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	41.9	29	↓	64.4
3	SUPPORT	20.3	34	=	46.1
3.1	Infrastructure	21.0	34	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98.3	5	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	0.0	34	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	0.0	34	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	0.0	34	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	6.9	24	↑	9.7
3.2	Finance	1.5	33	=	23.1
3.2.01	Financial Inclusion Index	3.0	31	=	46.2
3.2.02	Number of Digital Finance Service Agent	1.6	27	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	38.4	27	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	0.0	34	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	8.1	33	=	29.6
3.3.03	Life Expectancy Growth	50.9	7	-	29.1
3.3.04	Poverty Decreasing Rate	94.5	5	-	83.0



West Papua

Province Rank

2021 :
30

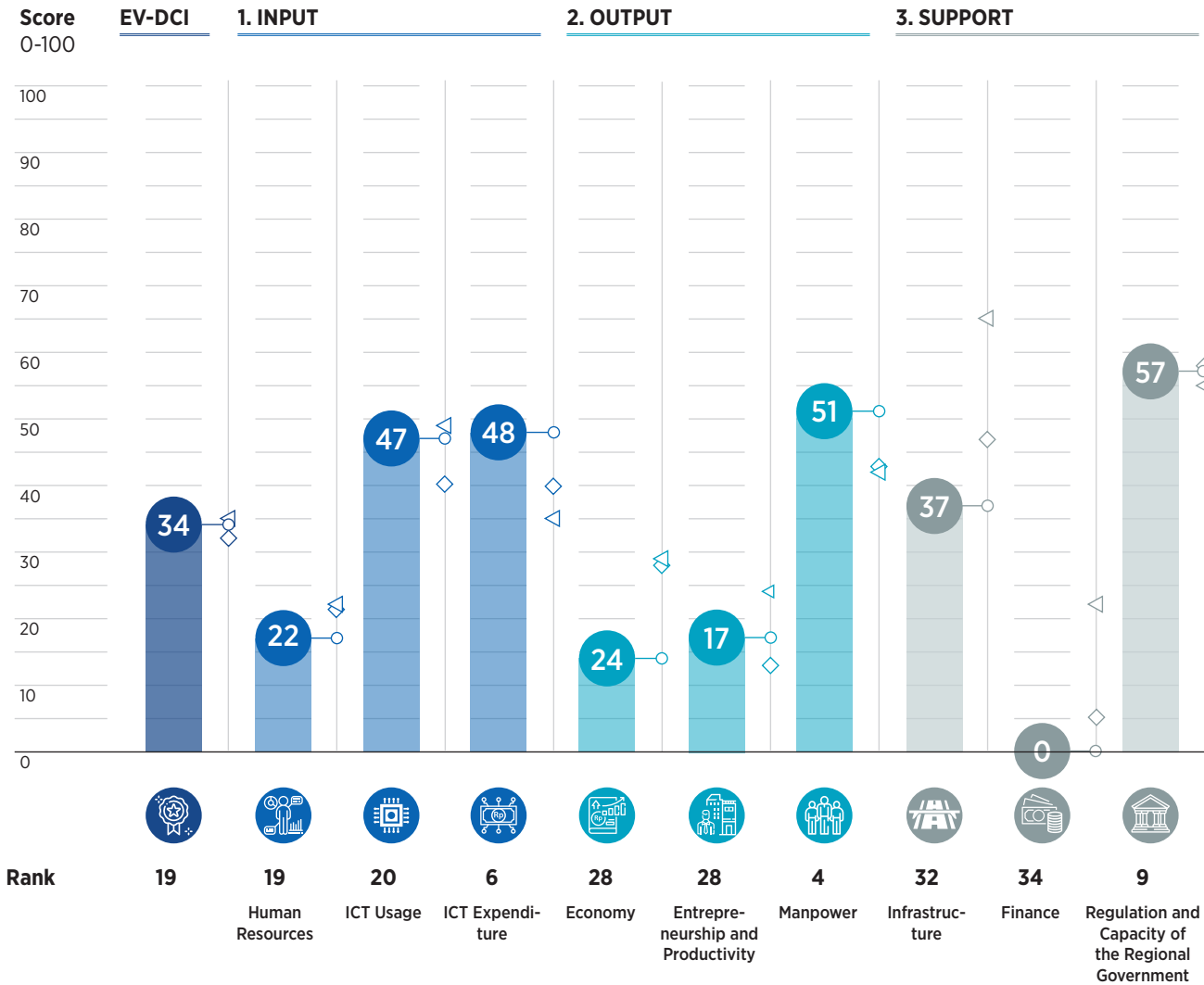
2022 :
19

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Maluku-Papua

◁ National Median Score



Province Profile

Population (thousand)	9.8
Area (km2)	102,955.2
Economic Growth (percent)	-0.8
Gross Regional Domestic Product (GRDP) (IDR trillion)	83.6
GRDP per Capita (IDR thousand)	85,113
Human Development Index	65.3
Life Expectancy (year)	66.0
School Life Expectancy (year)	13.1
Average School Attendance (year)	7.7
Domestic Investment Realization (IDR billion)	12.6
Foreign Investment Realization (USD million)	10.6

West Papua

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	39.1	12	↑	36.9
1.1	Human Resources	21.6	19	↓	21.8
1.1.01	Number of Students with Digital Capabilities	1.6	30	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	20.9	11	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	2.6	24	↑	5.9
1.1.04	Number of Digitalization-Related Study Programs	2.7	25	=	6.3
1.1.05	Digital Literacy Index	80.3	6	↑	62.9
1.2	ICT Usage	47.4	20	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	68.0	15	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	44.9	8	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	47.6	26	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	33.6	30	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	27.1	24	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	43.3	16	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	34.7	15	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	79.6	5	↑	48.9
1.3	ICT Expenditure	48.2	6	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	87.9	7	↑	79.7
1.3.02	Average Expenditure of Households for ICT	68.4	3	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.6	28	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	36.1	13	↑	27.4
2	OUTPUT	30.8	18	↑	30.9
2.1	Economy	24.1	28	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	0.2	29	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	12.8	30	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	31.2	17	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	1.5	30	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	20.3	28	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	75.1	19	↓	79.1
2.1.07	GRDP of the Financial Services Sector	0.1	30	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	7.1	31	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	68.2	9	↑	47.4
2.2	Entrepreneurship and Productivity	17.1	28	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	28.0	22	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	27.3	23	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	19.2	29	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	15.1	29	=	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	13.0	22	↑	18.8
2.2.06	Loan Using Fintech	0.0	33	=	1.9
2.3	Manpower	51.4	4	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.4	31	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	22.3	10	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	54.4	6	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	99.8	2	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	46.6	4	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	84.7	7	↑	64.4
3	SUPPORT	31.4	31	↑	46.1
3.1	Infrastructure	37.2	32	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	92.7	16	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	30.1	33	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	30.2	33	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	27.0	33	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	6.0	26	↓	9.7
3.2	Finance	0.1	34	=	23.1
3.2.01	Financial Inclusion Index	0.0	34	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.3	32	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	57.1	9	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	64.6	10	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	34.5	15	↓	29.6
3.3.03	Life Expectancy Growth	41.6	11	-	29.1
3.3.04	Poverty Decreasing Rate	87.7	11	-	83.0



Riau

Province Rank

2021 :
17

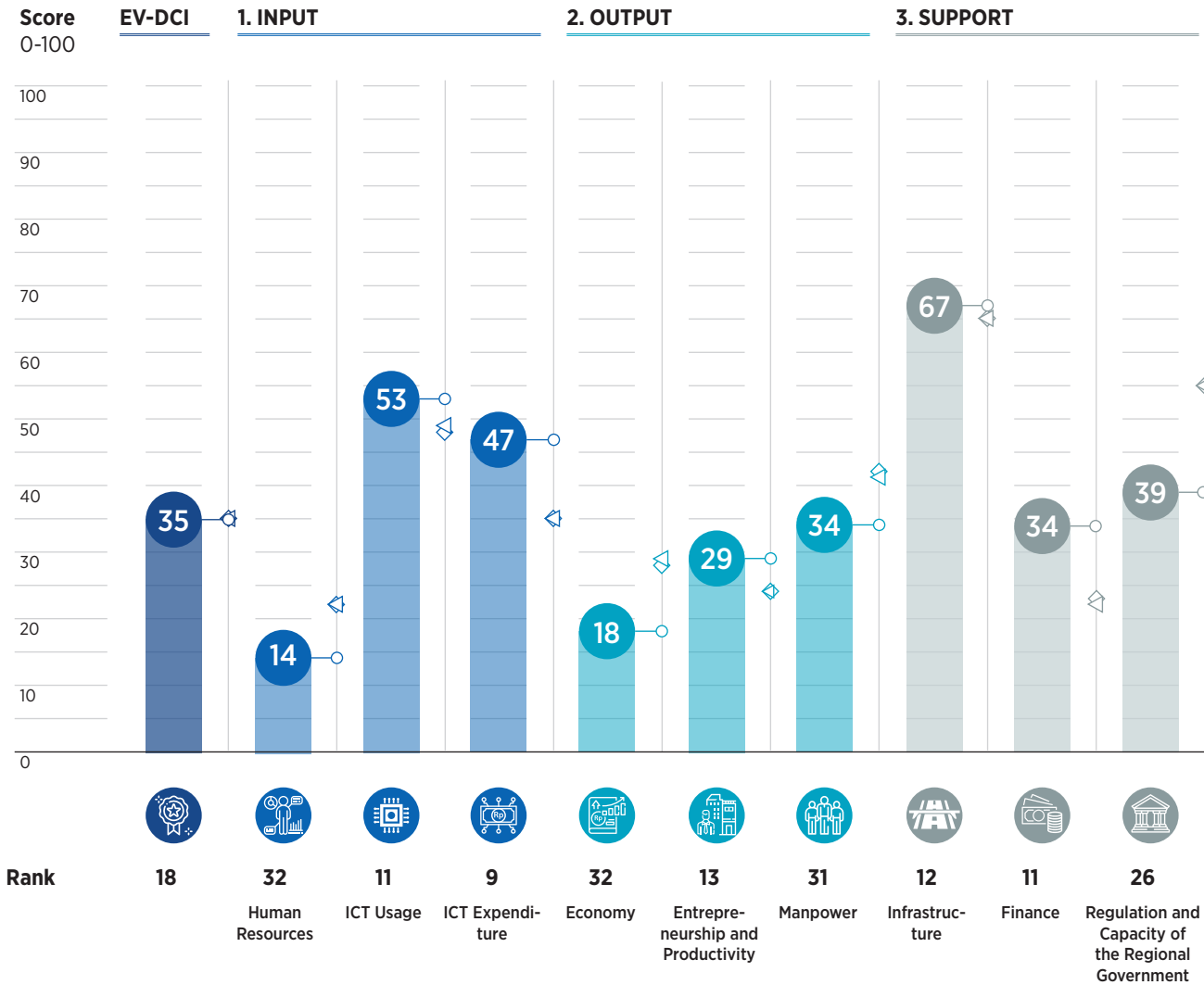
2022 :
18

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	71.3
Area (km2)	87,023.7
Economic Growth (percent)	-1.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	729.2
GRDP per Capita (IDR thousand)	102,292
Human Development Index	72.9
Life Expectancy (year)	71.6
School Life Expectancy (year)	13.3
Average School Attendance (year)	9.2
Domestic Investment Realization (IDR billion)	7,234.6
Foreign Investment Realization (USD million)	1,078

Riau

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	37.8	15	↑	36.9
1.1	Human Resources	14.3	32	↓	21.8
1.1.01	Number of Students with Digital Capabilities	12.8	12	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	0.0	34	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	12.6	13	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	13.7	12	=	6.3
1.1.05	Digital Literacy Index	32.4	33	↓	62.9
1.2	ICT Usage	52.7	11	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	73.8	7	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	38.0	12	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	61.5	10	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	82.9	13	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	40.0	15	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	50.9	13	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	24.4	25	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	50.0	16	↓	48.9
1.3	ICT Expenditure	46.5	9	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	93.4	4	↓	79.7
1.3.02	Average Expenditure of Households for ICT	63.1	5	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	2.9	11	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	26.5	19	↑	27.4
2	OUTPUT	26.7	31	↓	30.9
2.1	Economy	17.6	32	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	2.0	20	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	0.0	34	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	41.0	7	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	4.3	24	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	0.0	34	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	54.3	26	↓	79.1
2.1.07	GRDP of the Financial Services Sector	2.0	14	↑	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	0.0	34	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	54.4	14	↑	47.4
2.2	Entrepreneurship and Productivity	29.1	13	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	38.2	15	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	38.0	15	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	36.3	12	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	35.5	11	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	23.2	11	↓	18.8
2.2.06	Loan Using Fintech	3.2	13	=	1.9
2.3	Manpower	33.5	31	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	7.6	10	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	9.2	22	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	18.5	32	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	89.3	25	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	23.3	19	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	53.3	24	↓	64.4
3	SUPPORT	46.9	15	↓	46.1
3.1	Infrastructure	67.2	12	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	94.5	12	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	75.8	13	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	89.2	18	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	67.3	19	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	9.2	19	↓	9.7
3.2	Finance	34.1	11	=	23.1
3.2.01	Financial Inclusion Index	76.0	9	=	46.2
3.2.02	Number of Digital Finance Service Agent	8.4	10	-	4.1
3.2.03	Use of E-wallet as a Payment Method	17.9	7	-	9.5
3.3	Regulation and Capacity of the Regional Government	39.2	26	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	29.0	31	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	34.8	14	↑	29.6
3.3.03	Life Expectancy Growth	16.4	26	-	29.1
3.3.04	Poverty Decreasing Rate	76.7	23	-	83.0



West Sulawesi

Province Rank

2021 :
33

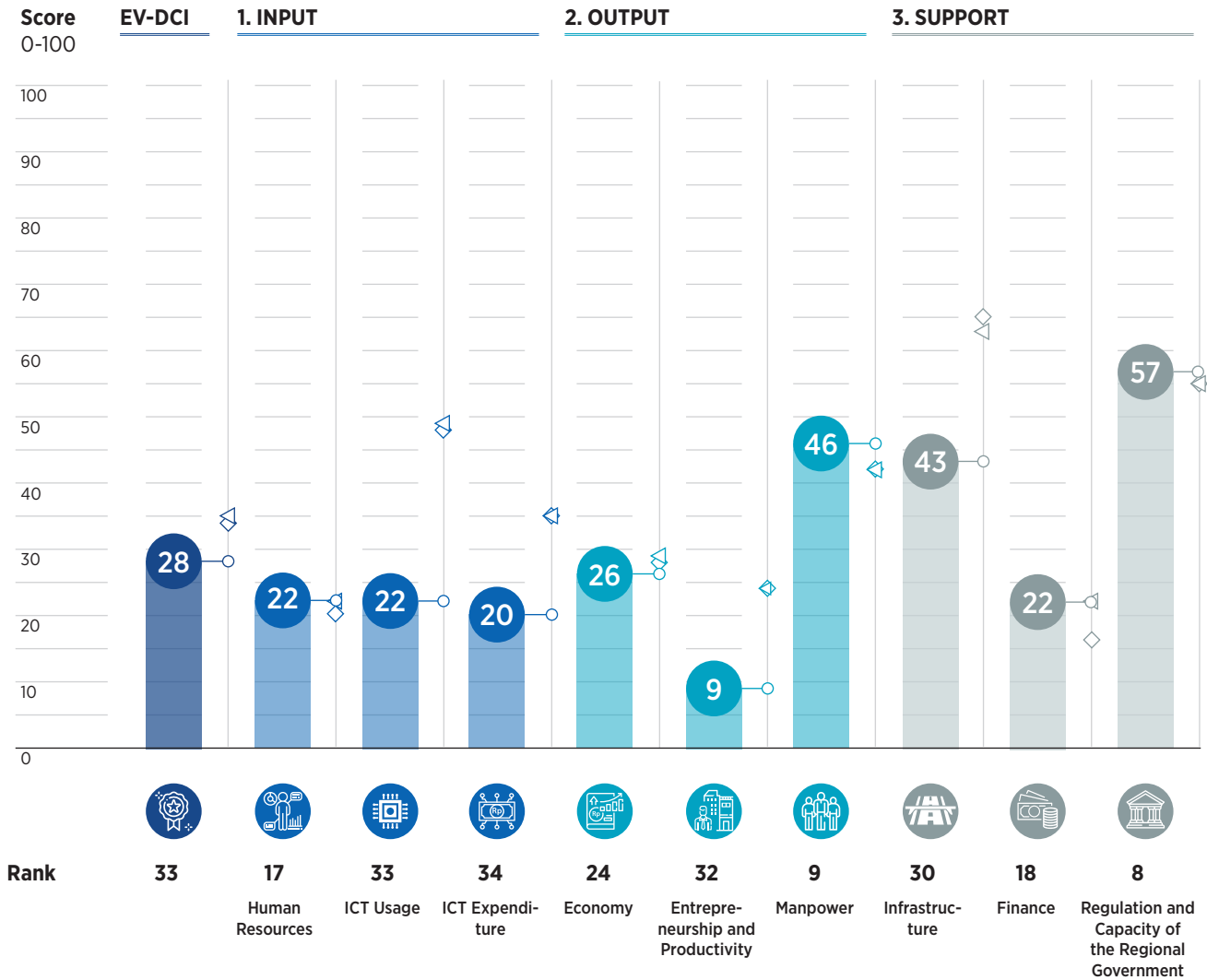
2022 :
33

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sulawesi

◁ National Median Score



Province Profile

Population (thousand)	14.1
Area (km2)	16,787.2
Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	45.9
GRDP per Capita (IDR thousand)	32,675
Human Development Index	66.4
Life Expectancy (year)	65.1
School Life Expectancy (year)	12.9
Average School Attendance (year)	8.0
Domestic Investment Realization (IDR billion)	78
Foreign Investment Realization (USD million)	6.5

West Sulawesi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	21.4	34	=	36.9
1.1	Human Resources	21.9	17	↑	21.8
1.1.01	Number of Students with Digital Capabilities	1.2	31	=	6.3
1.1.02	Growth of Students with Digital Capabilities	34.0	4	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	0.0	33	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	0.6	32	=	6.3
1.1.05	Digital Literacy Index	73.6	11	↑	62.9
1.2	ICT Usage	22.2	33	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	48.0	30	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	18.0	29	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	37.7	31	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	28.6	31	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	0.0	34	=	37.8
1.2.06	Ratio of Citizens that Access Internet from School	25.8	26	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	12.2	33	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	7.0	31	↓	48.9
1.3	ICT Expenditure	20.2	34	=	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	67.8	29	↓	79.7
1.3.02	Average Expenditure of Households for ICT	13.1	25	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	0.0	34	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	0.0	34	=	27.4
2	OUTPUT	26.9	29	=	30.9
2.1	Economy	26.4	24	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	0.4	28	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	41.3	8	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	17.7	31	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	0.0	34	=	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	6.4	33	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	93.7	11	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.0	34	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	13.0	25	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	65.5	11	↓	47.4
2.2	Entrepreneurship and Productivity	8.5	32	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	10.8	33	=	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	10.5	33	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	11.4	31	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	9.3	31	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	8.7	29	↑	18.8
2.2.06	Loan Using Fintech	0.1	32	=	1.9
2.3	Manpower	45.9	9	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	0.0	33	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	2.8	32	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	76.2	3	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	99.4	3	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	54.5	2	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	42.5	28	↓	64.4
3	SUPPORT	41.0	21	↑	46.1
3.1	Infrastructure	43.4	30	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	92.8	15	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	34.1	31	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	51.1	28	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	36.5	29	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	2.4	30	↑	9.7
3.2	Finance	22.3	18	=	23.1
3.2.01	Financial Inclusion Index	66.3	16	=	46.2
3.2.02	Number of Digital Finance Service Agent	0.6	29	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	57.2	8	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	49.9	19	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	25.0	22	↓	29.6
3.3.03	Life Expectancy Growth	74.6	2	-	29.1
3.3.04	Poverty Decreasing Rate	79.4	20	-	83.0



South Sulawesi

Province Rank

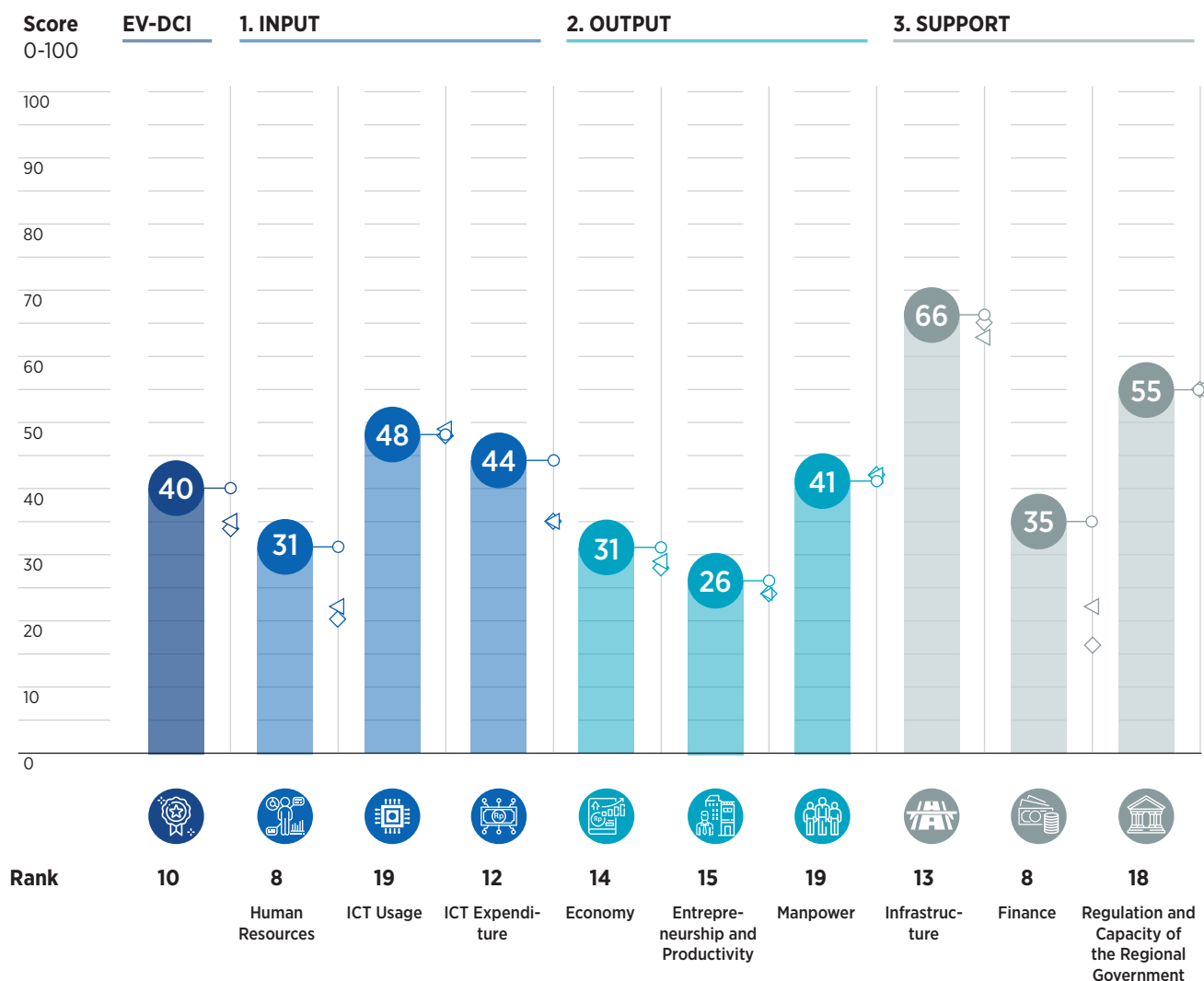
2021 :
92022 :
10

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sulawesi

◁ National Median Score



Province Profile

Population (thousand)	89.3
Area (km2)	46,717.5

Economic Growth (percent)	-0.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	504.5
GRDP per Capita (IDR thousand)	56,505

Human Development Index	72.2
Life Expectancy (year)	70.6
School Life Expectancy (year)	13.5
Average School Attendance (year)	8.5

Domestic Investment Realization (IDR billion)	1,289.5
Foreign Investment Realization (USD million)	236.1

South Sulawesi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	40.9	9	↑	36.9
1.1	Human Resources	30.6	8	↑	21.8
1.1.01	Number of Students with Digital Capabilities	26.7	8	=	6.3
1.1.02	Growth of Students with Digital Capabilities	22.9	10	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	20.1	8	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	27.7	7	↑	6.3
1.1.05	Digital Literacy Index	55.6	22	↑	62.9
1.2	ICT Usage	47.9	19	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	70.4	11	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	43.5	9	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	56.2	16	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	83.3	12	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	27.0	25	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	53.6	11	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	40.2	8	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	9.2	30	↓	48.9
1.3	ICT Expenditure	44.0	12	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	86.0	11	↓	79.7
1.3.02	Average Expenditure of Households for ICT	15.2	23	↓	19.5
1.3.03	Total Renumeration and Wage of Information and Communication Sector Workers	8.3	7	=	1.8
1.3.04	Average Renumeration and Wage of Information and Communication Sector Workers	66.6	5	↑	27.4
2	OUTPUT	32.7	15	↓	30.9
2.1	Economy	31.0	14	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	10.5	5	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	53.5	6	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	35.4	13	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	13.7	11	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	24.1	25	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	62.4	25	↓	79.1
2.1.07	GRDP of the Financial Services Sector	5.7	7	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	26.9	9	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	46.6	19	↓	47.4
2.2	Entrepreneurship and Productivity	25.9	15	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	30.4	18	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	30.4	19	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	35.2	13	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	30.2	16	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	24.6	10	=	18.8
2.2.06	Loan Using Fintech	4.8	8	↑	1.9
2.3	Manpower	41.2	19	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	12.5	7	↑	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	14.8	15	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	33.3	22	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	88.3	26	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	45.7	6	↓	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	53.0	25	↓	64.4
3	SUPPORT	51.9	7	=	46.1
3.1	Infrastructure	66.3	13	↓	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	80.4	29	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	73.8	16	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	91.9	12	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	75.9	10	=	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	9.7	17	↑	9.7
3.2	Finance	34.6	8	↑	23.1
3.2.01	Financial Inclusion Index	77.5	8	=	46.2
3.2.02	Number of Digital Finance Service Agent	10.5	8	-	4.1
3.2.03	Use of E-wallet as a Payment Method	15.9	8	-	9.5
3.3	Regulation and Capacity of the Regional Government	54.6	18	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	52.4	18	↓	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	45.4	7	↓	29.6
3.3.03	Life Expectancy Growth	25.4	20	-	29.1
3.3.04	Poverty Decreasing Rate	95.2	4	-	83.0



Central Sulawesi

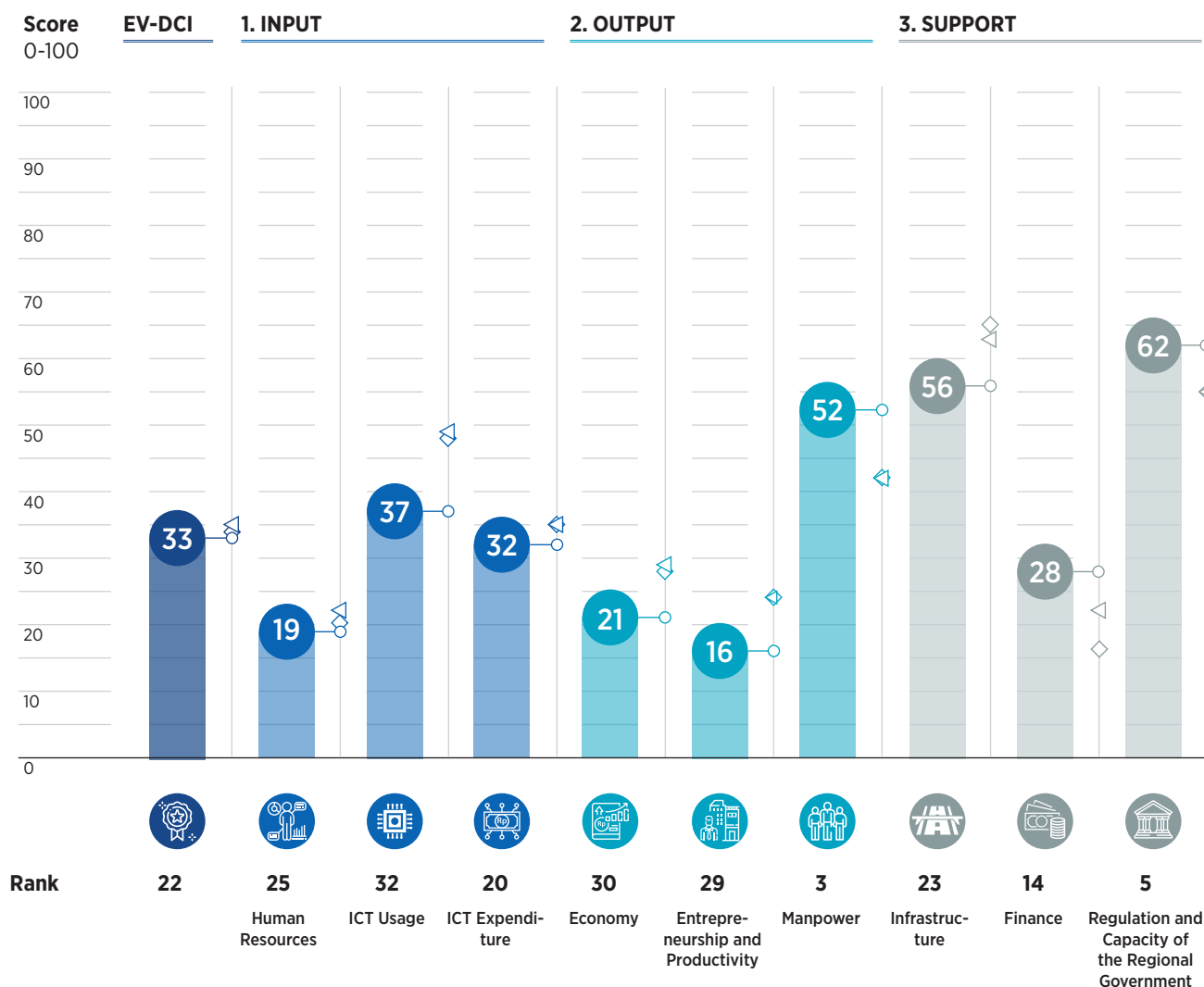
Province Rank

 2021 :
23

 2022 :
22
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sulawesi

◁ National Median Score


Province Profile

Population (thousand)	31.0
Area (km2)	6,841.3
Economic Growth (percent)	4.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	197.4
GRDP per Capita (IDR thousand)	63.753
Human Development Index	69.8
Life Expectancy (year)	68.7
School Life Expectancy (year)	13.2
Average School Attendance (year)	8.9
Domestic Investment Realization (IDR billion)	319.2
Foreign Investment Realization (USD million)	1,779

Central Sulawesi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	29.5	31	↓	36.9
1.1	Human Resources	18.8	25	↓	21.8
1.1.01	Number of Students with Digital Capabilities	2.5	25	=	6.3
1.1.02	Growth of Students with Digital Capabilities	24.6	7	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	1.2	28	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	2.2	28	↑	6.3
1.1.05	Digital Literacy Index	63.3	17	↓	62.9
1.2	ICT Usage	37.4	32	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	51.7	29	↓	63.9
1.2.02	Ratio of Citizens that Have Computer	25.9	23	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	40.1	28	=	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	38.5	29	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	30.4	22	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	45.5	15	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	23.1	27	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	44.3	19	↑	48.9
1.3	ICT Expenditure	32.4	20	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	75.9	23	↑	79.7
1.3.02	Average Expenditure of Households for ICT	28.1	13	↑	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.2	21	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	24.4	22	↓	27.4
2	OUTPUT	29.8	22	↑	30.9
2.1	Economy	21.0	30	↓	28.5
2.1.01	GRDP of the Information and Communication Sector	1.9	21	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	24.8	22	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	27.7	19	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	3.5	27	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	15.8	30	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	27.7	31	↓	79.1
2.1.07	GRDP of the Financial Services Sector	0.8	23	↑	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	8.6	28	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	78.2	5	↑	47.4
2.2	Entrepreneurship and Productivity	16.4	29	=	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	21.8	27	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	22.0	26	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	19.7	28	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	25.6	18	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	8.7	29	↓	18.8
2.2.06	Loan Using Fintech	0.7	24	=	1.9
2.3	Manpower	52.0	3	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	2.4	26	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	5.8	28	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	66.5	4	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	96.6	12	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	45.9	5	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	94.8	2	↑	64.4
3	SUPPORT	48.4	14	↑	46.1
3.1	Infrastructure	55.9	23	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	79.0	30	=	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	54.1	25	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	77.0	24	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	62.5	23	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	7.1	23	↑	9.7
3.2	Finance	27.5	14	↑	23.1
3.2.01	Financial Inclusion Index	70.6	13	=	46.2
3.2.02	Number of Digital Finance Service Agent	2.6	22	-	4.1
3.2.03	Use of E-wallet as a Payment Method	9.2	19	-	9.5
3.3	Regulation and Capacity of the Regional Government	61.8	5	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	61.9	14	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41.7	9	=	29.6
3.3.03	Life Expectancy Growth	48.2	9	-	29.1
3.3.04	Poverty Decreasing Rate	95.5	3	-	83.0



South East Sulawesi

Province Rank

2021 :
18

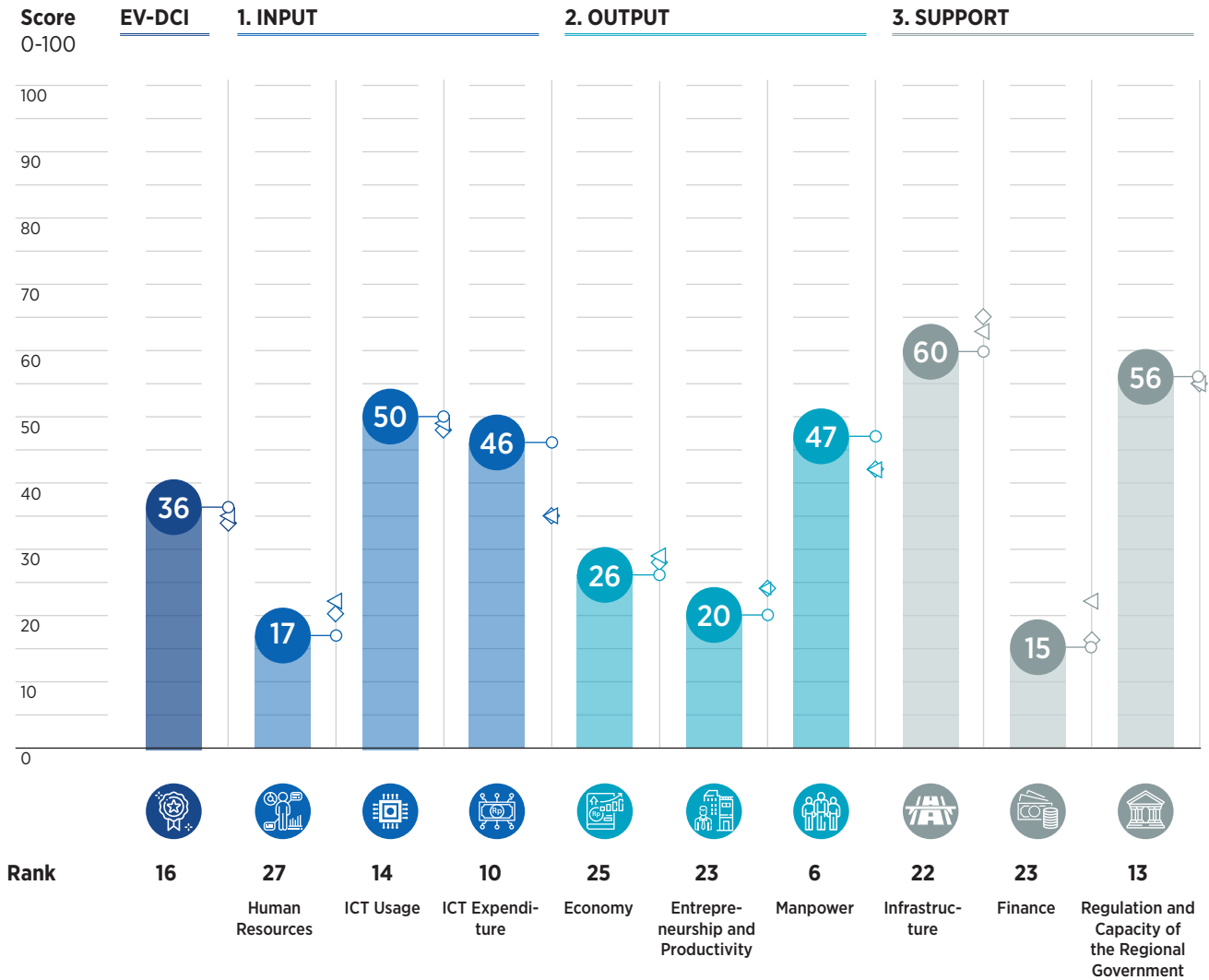
2022 :
16

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sulawesi

◁ National Median Score



Province Profile

Population (thousand)	27.6
Area (km2)	38,067.7
Economic Growth (percent)	-0.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	130.2
GRDP per Capita (IDR thousand)	47,244
Human Development Index	71.7
Life Expectancy (year)	71.2
School Life Expectancy (year)	13.7
Average School Attendance (year)	9.1
Domestic Investment Realization (IDR billion)	1,134.6
Foreign Investment Realization (USD million)	1,268.6

South East Sulawesi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	37.5	17	↑	36.9
1.1	Human Resources	17.2	27	↓	21.8
1.1.01	Number of Students with Digital Capabilities	5.8	19	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	25.9	6	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	1.8	26	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	6.0	18	↑	6.3
1.1.05	Digital Literacy Index	46.7	29	↓	62.9
1.2	ICT Usage	49.6	14	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	68.3	12	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	35.6	14	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	52.0	20	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	68.9	22	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	24.5	27	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	51.4	12	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	32.8	18	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	63.6	11	↓	48.9
1.3	ICT Expenditure	45.5	10	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	90.5	5	↑	79.7
1.3.02	Average Expenditure of Households for ICT	25.0	14	=	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	1.8	18	↑	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	64.8	6	↑	27.4
2	OUTPUT	31.0	17	↑	30.9
2.1	Economy	26.4	25	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	0.5	27	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	11.5	31	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	26.0	22	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	4.3	25	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	34.3	20	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	96.0	6	↑	79.1
2.1.07	GRDP of the Financial Services Sector	0.7	26	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	13.7	23	=	19.0
2.1.09	GRDP Growth of the Financial Services Sector	50.2	16	↓	47.4
2.2	Entrepreneurship and Productivity	19.8	23	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	29.5	21	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	29.8	20	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	30.6	22	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	16.9	27	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	11.6	24	↑	18.8
2.2.06	Loan Using Fintech	0.6	26	↓	1.9
2.3	Manpower	46.9	6	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	2.8	24	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	14.1	17	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	50.9	8	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	96.9	10	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	39.7	9	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	76.9	11	↑	64.4
3	SUPPORT	43.7	19	↓	46.1
3.1	Infrastructure	59.9	22	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	83.3	28	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	59.6	23	=	71.8
3.1.03	Ratio of Villages that Get 3G Signal	85.0	22	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	65.9	21	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	5.9	27	↓	9.7
3.2	Finance	15.2	23	↑	23.1
3.2.01	Financial Inclusion Index	43.6	20	=	46.2
3.2.02	Number of Digital Finance Service Agent	1.9	25	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	55.9	13	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	97.3	2	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	49.5	3	=	29.6
3.3.03	Life Expectancy Growth	8.2	32	-	29.1
3.3.04	Poverty Decreasing Rate	68.8	25	-	83.0



North Sulawesi

Province Rank

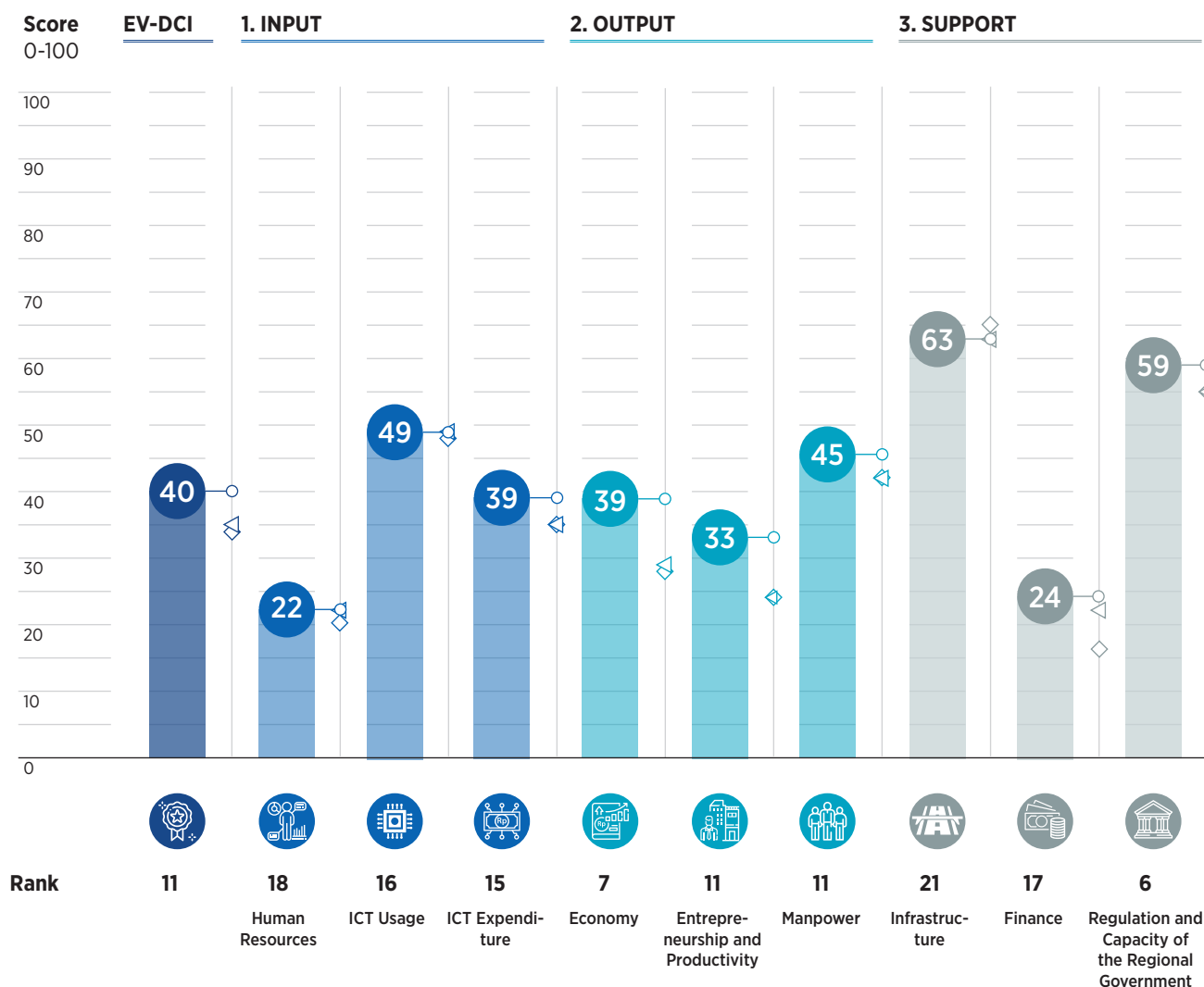
2021 :
112022 :
11

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sulawesi

◁ National Median Score



Province Profile

Population (thousand)	25.3
Area (km2)	13,892.5
Economic Growth (percent)	-1.0
Gross Regional Domestic Product (GRDP) (IDR trillion)	132.3
GRDP per Capita (IDR thousand)	52,317
Human Development Index	73.3
Life Expectancy (year)	71.7
School Life Expectancy (year)	12.9
Average School Attendance (year)	9.6
Domestic Investment Realization (IDR billion)	424.6
Foreign Investment Realization (USD million)	155.7

North Sulawesi

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	36.3	18	↓	36.9
1.1	Human Resources	21.6	18	↑	21.8
1.1.01	Number of Students with Digital Capabilities	5.3	21	=	6.3
1.1.02	Growth of Students with Digital Capabilities	24.1	8	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	6.6	16	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	6.8	15	↑	6.3
1.1.05	Digital Literacy Index	65.4	14	↑	62.9
1.2	ICT Usage	48.7	16	=	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	73.2	8	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	38.7	11	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	56.3	15	↓	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	55.8	26	↓	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	34.0	21	↑	37.8
1.2.06	Ratio of Citizens that Access Internet from School	46.8	14	↓	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	35.6	13	↑	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	49.0	17	↑	48.9
1.3	ICT Expenditure	38.5	15	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	85.3	13	↑	79.7
1.3.02	Average Expenditure of Households for ICT	19.7	17	=	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	2.3	15	=	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	46.5	11	↓	27.4
2	OUTPUT	38.9	6	↑	30.9
2.1	Economy	38.7	7	=	28.5
2.1.01	GRDP of the Information and Communication Sector	1.8	22	↓	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	39.1	10	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	35.5	12	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	10.9	12	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	89.0	2	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	79.7	17	↓	79.1
2.1.07	GRDP of the Financial Services Sector	1.3	21	↓	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	28.7	8	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	62.1	12	↓	47.4
2.2	Entrepreneurship and Productivity	33.3	11	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	41.2	12	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	41.1	13	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	44.0	10	=	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	40.7	10	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	30.4	8	↑	18.8
2.2.06	Loan Using Fintech	2.1	16	↓	1.9
2.3	Manpower	44.7	11	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	4.6	19	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	39.2	3	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	38.3	16	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	96.8	11	↑	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	17.0	24	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	72.2	14	↓	64.4
3	SUPPORT	48.6	13	=	46.1
3.1	Infrastructure	62.7	21	=	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	65.8	31	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	72.0	17	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	88.1	19	↓	89.3
3.1.04	Ratio of Villages that Get 4G Signal	76.9	9	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	10.6	14	↑	9.7
3.2	Finance	23.9	17	↓	23.1
3.2.01	Financial Inclusion Index	69.2	15	=	46.2
3.2.02	Number of Digital Finance Service Agent	2.4	23	-	4.1
3.2.03	Use of E-wallet as a Payment Method	0.0	27	-	9.5
3.3	Regulation and Capacity of the Regional Government	59.3	6	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	100.0	1	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	32.2	16	=	29.6
3.3.03	Life Expectancy Growth	16.4	27	-	29.1
3.3.04	Poverty Decreasing Rate	88.8	10	-	83.0



West Sumatra

Province Rank

2021 :
12

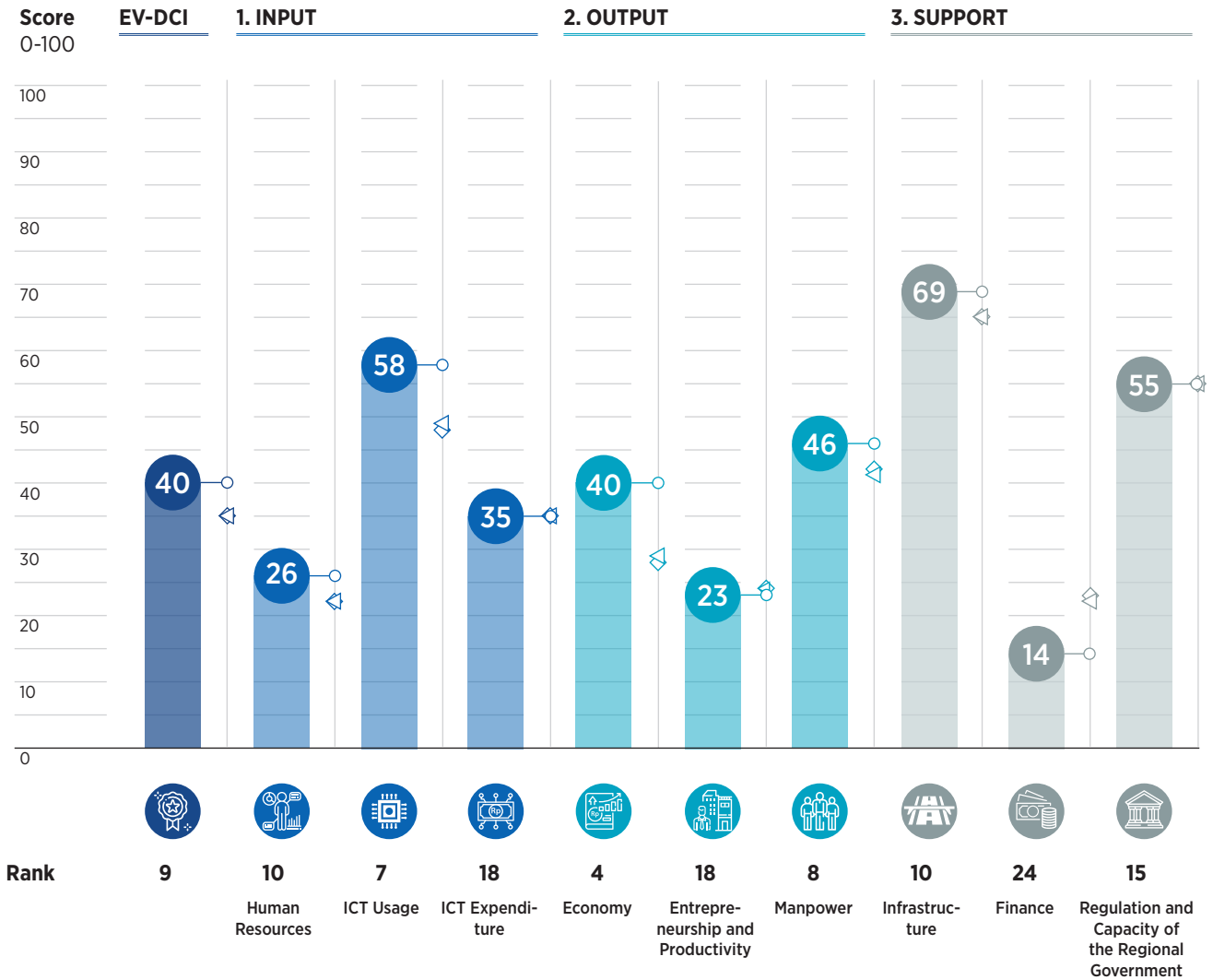
2022 :
9

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	55.0
Area (km2)	42,012.9
Economic Growth (percent)	-1.6
Gross Regional Domestic Product (GRDP) (IDR trillion)	242.1
GRDP per Capita (IDR thousand)	44,032
Human Development Index	72.7
Life Expectancy (year)	69.5
School Life Expectancy (year)	14.1
Average School Attendance (year)	9.1
Domestic Investment Realization (IDR billion)	673.4
Foreign Investment Realization (USD million)	125.6

West Sumatra

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	39.9	10	↑	36.9
1.1	Human Resources	26.2	10	↑	21.8
1.1.01	Number of Students with Digital Capabilities	14.9	11	↓	6.3
1.1.02	Growth of Students with Digital Capabilities	0.8	33	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	18.0	10	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	15.5	11	↓	6.3
1.1.05	Digital Literacy Index	81.5	4	↓	62.9
1.2	ICT Usage	58.2	7	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	61.5	18	=	63.9
1.2.02	Ratio of Citizens that Have Computer	48.1	7	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	53.6	19	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	84.3	11	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	37.5	18	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	90.5	3	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	41.6	7	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	48.7	18	↑	48.9
1.3	ICT Expenditure	35.3	18	↑	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	87.0	8	↑	79.7
1.3.02	Average Expenditure of Households for ICT	19.4	18	↑	19.5
1.3.03	Total Renumeration and Wage of Information and Communication Sector Workers	1.7	19	↓	1.8
1.3.04	Average Renumeration and Wage of Information and Communication Sector Workers	33.0	14	↑	27.4
2	OUTPUT	36.6	10	↑	30.9
2.1	Economy	40.1	4	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	5.6	8	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	62.9	4	=	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	31.8	16	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	22.7	7	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	100.0	1	↑	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	74.8	20	↓	79.1
2.1.07	GRDP of the Financial Services Sector	2.0	12	↑	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	20.0	15	↑	19.0
2.1.09	GRDP Growth of the Financial Services Sector	41.5	23	↑	47.4
2.2	Entrepreneurship and Productivity	23.3	18	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	30.2	20	↓	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	29.8	20	↓	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	32.6	18	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	24.4	20	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	20.3	15	=	18.8
2.2.06	Loan Using Fintech	2.4	14	↑	1.9
2.3	Manpower	46.3	8	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	5.7	15	↑	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	8.1	23	↑	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	52.9	7	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	92.3	22	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	33.4	15	=	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	85.7	5	↑	64.4
3	SUPPORT	46.3	17	↓	46.1
3.1	Infrastructure	69.0	10	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	88.8	18	↓	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	79.2	10	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	90.0	14	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	73.7	13	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	13.1	12	↓	9.7
3.2	Finance	14.4	24	↓	23.1
3.2.01	Financial Inclusion Index	19.8	23	=	46.2
3.2.02	Number of Digital Finance Service Agent	7.8	12	-	4.1
3.2.03	Use of E-wallet as a Payment Method	15.7	9	-	9.5
3.3	Regulation and Capacity of the Regional Government	55.4	15	↓	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	62.9	12	↑	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	48.6	5	↑	29.6
3.3.03	Life Expectancy Growth	38.9	14	-	29.1
3.3.04	Poverty Decreasing Rate	70.9	24	-	83.0



South Sumatra

Province Rank

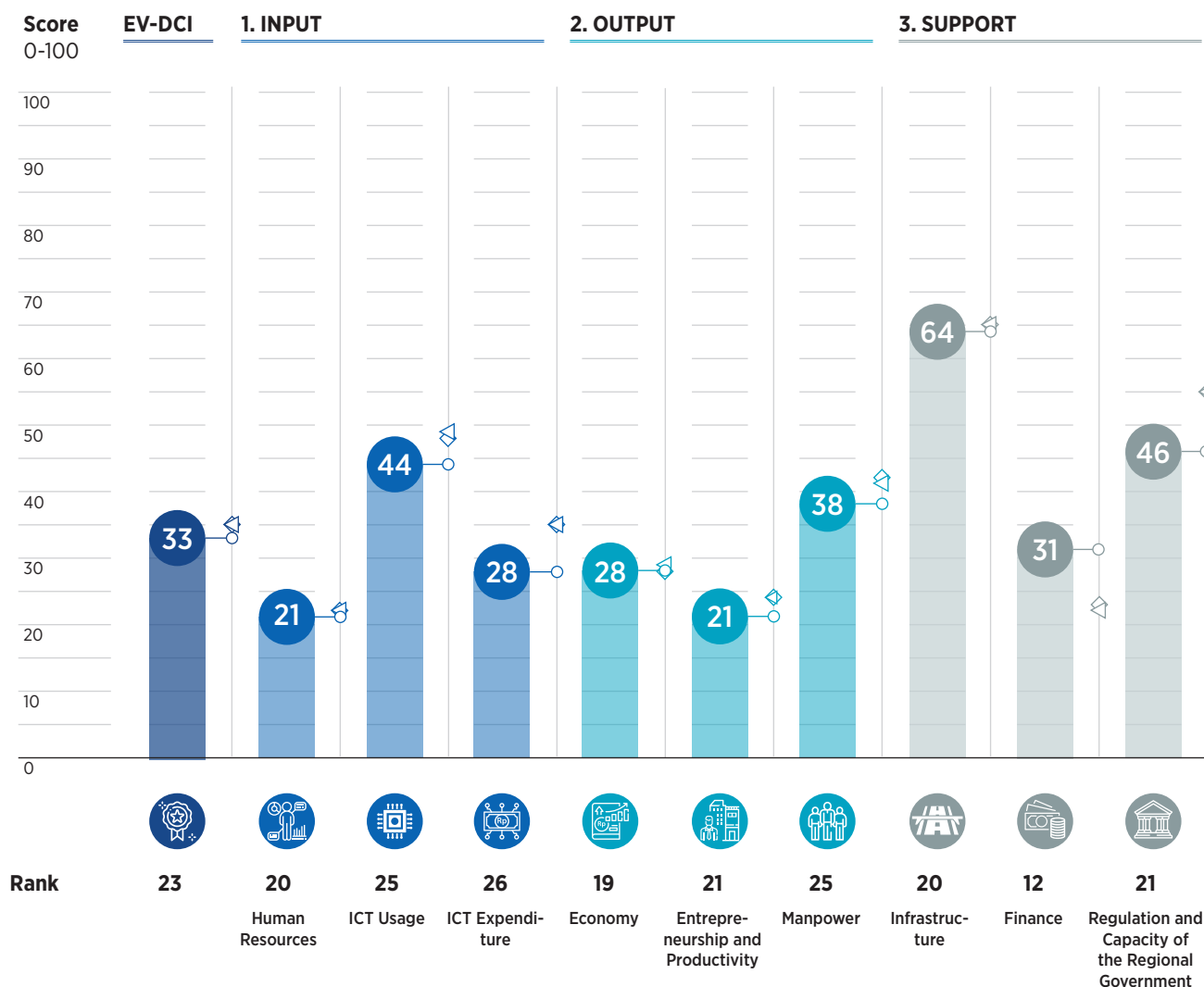
2021 :
212022 :
23

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	85.7
Area (km2)	91,592.4

Economic Growth (percent)	-0.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	458.4
GRDP per Capita (IDR thousand)	53,505

Human Development Index	70.2
Life Expectancy (year)	69.9
School Life Expectancy (year)	12.5
Average School Attendance (year)	8.3

Domestic Investment Realization (IDR billion)	4,093.2
Foreign Investment Realization (USD million)	1,543.9

South Sumatra

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	31.2	25	=	36.9
1.1	Human Resources	21.4	20	=	21.8
1.1.01	Number of Students with Digital Capabilities	16.0	9	↑	6.3
1.1.02	Growth of Students with Digital Capabilities	8.6	25	↑	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	14.9	11	↓	5.9
1.1.04	Number of Digitalization-Related Study Programs	17.7	9	=	6.3
1.1.05	Digital Literacy Index	49.8	27	↓	62.9
1.2	ICT Usage	43.9	25	↑	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	59.7	21	=	63.9
1.2.02	Ratio of Citizens that Have Computer	18.0	30	↑	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	51.5	21	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	86.8	8	↑	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	21.3	29	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	40.2	20	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	12.7	32	=	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	61.4	13	↑	48.9
1.3	ICT Expenditure	28.3	26	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	83.9	15	↓	79.7
1.3.02	Average Expenditure of Households for ICT	9.7	28	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	2.6	12	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	17.2	29	↓	27.4
2	OUTPUT	29.0	25	↓	30.9
2.1	Economy	28.2	19	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	5.3	10	↑	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	26.9	20	↑	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	41.7	6	↑	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	9.3	15	↑	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	16.6	29	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	94.8	10	↑	79.1
2.1.07	GRDP of the Financial Services Sector	3.2	8	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	13.5	24	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	43.0	21	↑	47.4
2.2	Entrepreneurship and Productivity	21.1	21	↑	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	20.7	30	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	20.3	31	=	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	26.9	24	↑	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	30.2	16	↑	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	23.2	11	↑	18.8
2.2.06	Loan Using Fintech	5.2	7	=	1.9
2.3	Manpower	37.7	25	↓	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	11.1	8	↓	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	10.6	19	↓	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	0.0	34	↓	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	87.4	27	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	39.0	10	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	78.2	8	↑	64.4
3	SUPPORT	46.6	16	↑	46.1
3.1	Infrastructure	63.5	20	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	83.9	25	=	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	66.1	20	↑	71.8
3.1.03	Ratio of Villages that Get 3G Signal	89.4	17	↑	89.3
3.1.04	Ratio of Villages that Get 4G Signal	66.5	20	↑	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	11.4	13	↓	9.7
3.2	Finance	30.5	12	↑	23.1
3.2.01	Financial Inclusion Index	72.3	12	=	46.2
3.2.02	Number of Digital Finance Service Agent	9.6	9	-	4.1
3.2.03	Use of E-wallet as a Payment Method	9.6	17	-	9.5
3.3	Regulation and Capacity of the Regional Government	45.7	21	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	42.8	21	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	18.6	27	↓	29.6
3.3.03	Life Expectancy Growth	30.0	17	-	29.1
3.3.04	Poverty Decreasing Rate	91.6	8	-	83.0



North Sumatra

East Ventures - Digital Competitiveness Index 2022

Province Rank

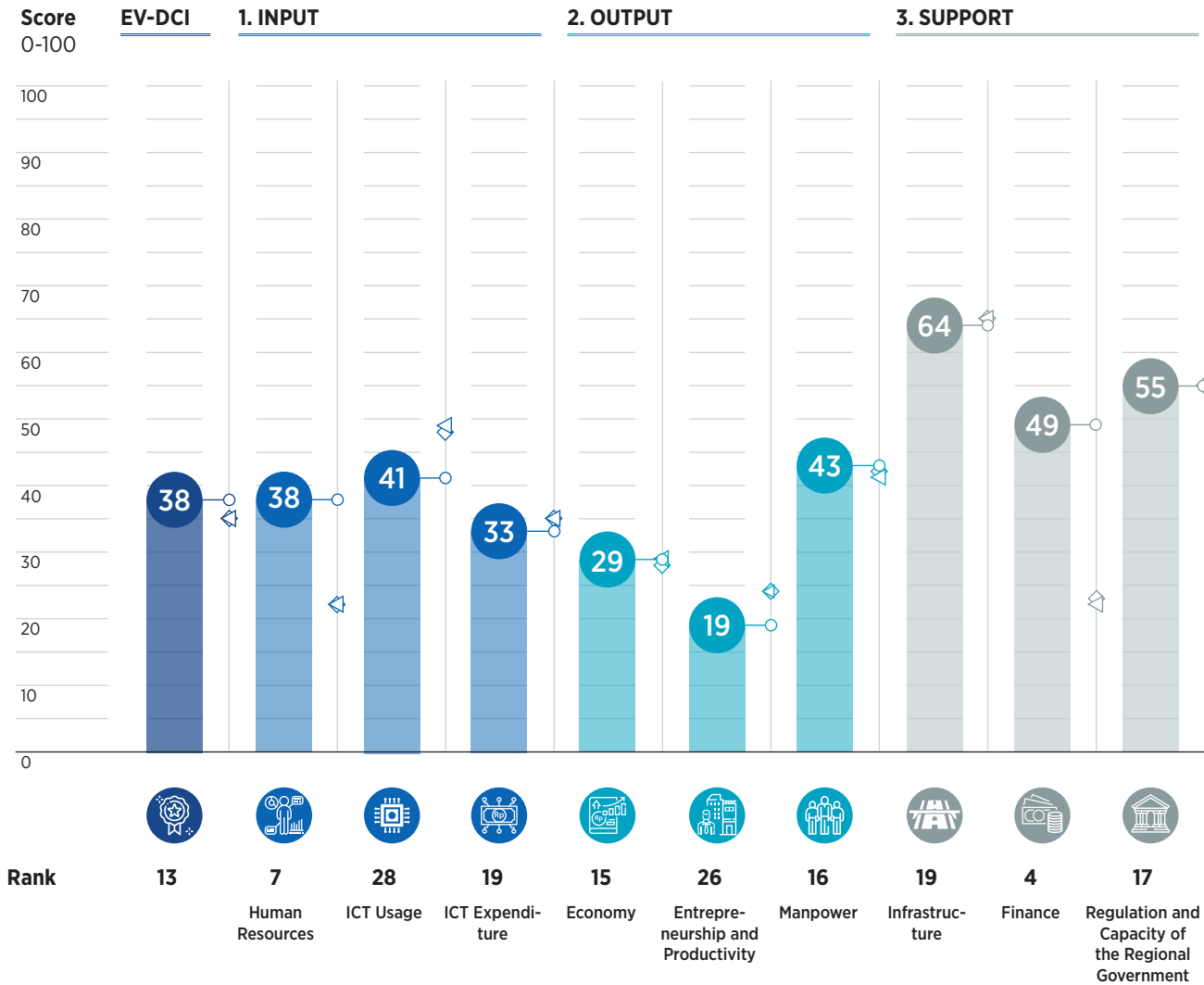
2021 :
13

2022 :
13

Performance 2022

◇ Regional Median Score
Sumatra

◁ National Median Score



Province Profile

Population (thousand)	147.0
Area (km2)	72,981.2
Economic Growth (percent)	-1.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	811.3
GRDP per Capita (IDR thousand)	55,176
Human Development Index	72.0
Life Expectancy (year)	69.1
School Life Expectancy (year)	13.3
Average School Attendance (year)	9.6
Domestic Investment Realization (IDR billion)	3,974.0
Foreign Investment Realization (USD million)	974.8

North Sumatra

		Score (0-100)	Province Rank	Status	National Median Score
1	INPUT	37.5	16	↓	36.9
1.1	Human Resources	37.8	7	↓	21.8
1.1.01	Number of Students with Digital Capabilities	48.0	5	=	6.3
1.1.02	Growth of Students with Digital Capabilities	3.5	30	↓	12.7
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	33.4	5	=	5.9
1.1.04	Number of Digitalization-Related Study Programs	44.3	5	=	6.3
1.1.05	Digital Literacy Index	60.0	20	↑	62.9
1.2	ICT Usage	41.4	28	↓	48.3
1.2.01	Ratio of Citizens that Have Cellular Phone	60.9	19	↑	63.9
1.2.02	Ratio of Citizens that Have Computer	23.0	26	↓	33.4
1.2.03	Ratio of Citizens that Have Access to Internet	55.3	18	↑	55.5
1.2.04	Ratio of Citizens that Access Internet from Home	81.1	18	=	81.7
1.2.05	Ratio of Citizens that Access Internet from Office	34.0	20	↓	37.8
1.2.06	Ratio of Citizens that Access Internet from School	56.2	9	↑	41.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	20.4	29	↓	32.9
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	0.0	34	↓	48.9
1.3	ICT Expenditure	33.3	19	↓	35.3
1.3.01	Ratio of Households that Have ICT Expenditure	85.4	12	=	79.7
1.3.02	Average Expenditure of Households for ICT	11.1	26	↓	19.5
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	7.8	8	↓	1.8
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	28.7	16	↑	27.4
2	OUTPUT	30.3	20	↓	30.9
2.1	Economy	29.2	15	↑	28.5
2.1.01	GRDP of the Information and Communication Sector	6.7	7	=	2.4
2.1.02	GRDP Contribution of the Information and Communication Sector	15.8	27	↓	33.8
2.1.03	GRDP Growth of the Information and Communication Sector	19.3	29	↓	30.4
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	33.0	5	↓	6.8
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	38.6	18	↓	38.9
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	81.8	15	↓	79.1
2.1.07	GRDP of the Financial Services Sector	7.2	5	=	1.4
2.1.08	GRDP Contribution of the Financial Services Sector	18.7	18	↓	19.0
2.1.09	GRDP Growth of the Financial Services Sector	41.3	24	↑	47.4
2.2	Entrepreneurship and Productivity	19.0	26	↓	23.6
2.2.01	Ratio of Population Using the Internet in their Main Job	22.4	25	↑	30.5
2.2.02	Ratio of Population Using the Internet in their Job for Communication	22.6	25	↑	30.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	22.8	26	↓	32.9
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	20.9	24	↓	27.9
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	17.4	18	↓	18.8
2.2.06	Loan Using Fintech	7.9	6	=	1.9
2.3	Manpower	42.7	16	↑	41.8
2.3.01	Number of Workers in Digitalization-Related Sectors	24.3	6	=	5.1
2.3.02	Ratio of Workers in Digitalization-Related Sectors	18.2	12	=	12.4
2.3.03	Growth of Workers in Digitalization-Related Sectors	30.6	25	↑	38.3
2.3.04	Number of Workers in Digitalization-Prone Categories	74.3	31	=	93.6
2.3.05	Ratio of Workers in Digitalization-Prone Categories	23.2	21	↑	27.1
2.3.06	Growth of Workers in Digitalization-Prone Categories	85.3	6	↑	64.4
3	SUPPORT	55.7	6	↑	46.1
3.1	Infrastructure	63.5	19	↑	64.8
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	93.1	14	↑	89.1
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	65.7	21	↓	71.8
3.1.03	Ratio of Villages that Get 3G Signal	85.0	21	=	89.3
3.1.04	Ratio of Villages that Get 4G Signal	64.7	22	↓	67.9
3.1.05	Ratio of Households with Fixed Phone Connection	9.0	20	↓	9.7
3.2	Finance	49.0	4	↑	23.1
3.2.01	Financial Inclusion Index	97.8	2	=	46.2
3.2.02	Number of Digital Finance Service Agent	18.8	4	-	4.1
3.2.03	Use of E-wallet as a Payment Method	30.4	5	-	9.5
3.3	Regulation and Capacity of the Regional Government	54.6	17	↑	54.6
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	64.5	11	=	53.1
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	26.6	20	↓	29.6
3.3.03	Life Expectancy Growth	43.5	10	-	29.1
3.3.04	Poverty Decreasing Rate	83.8	17	-	83.0





Profile and Performance 25 Cities



DKI Jakarta

Cities/Regencies Rank

2021 :

1

2022 :

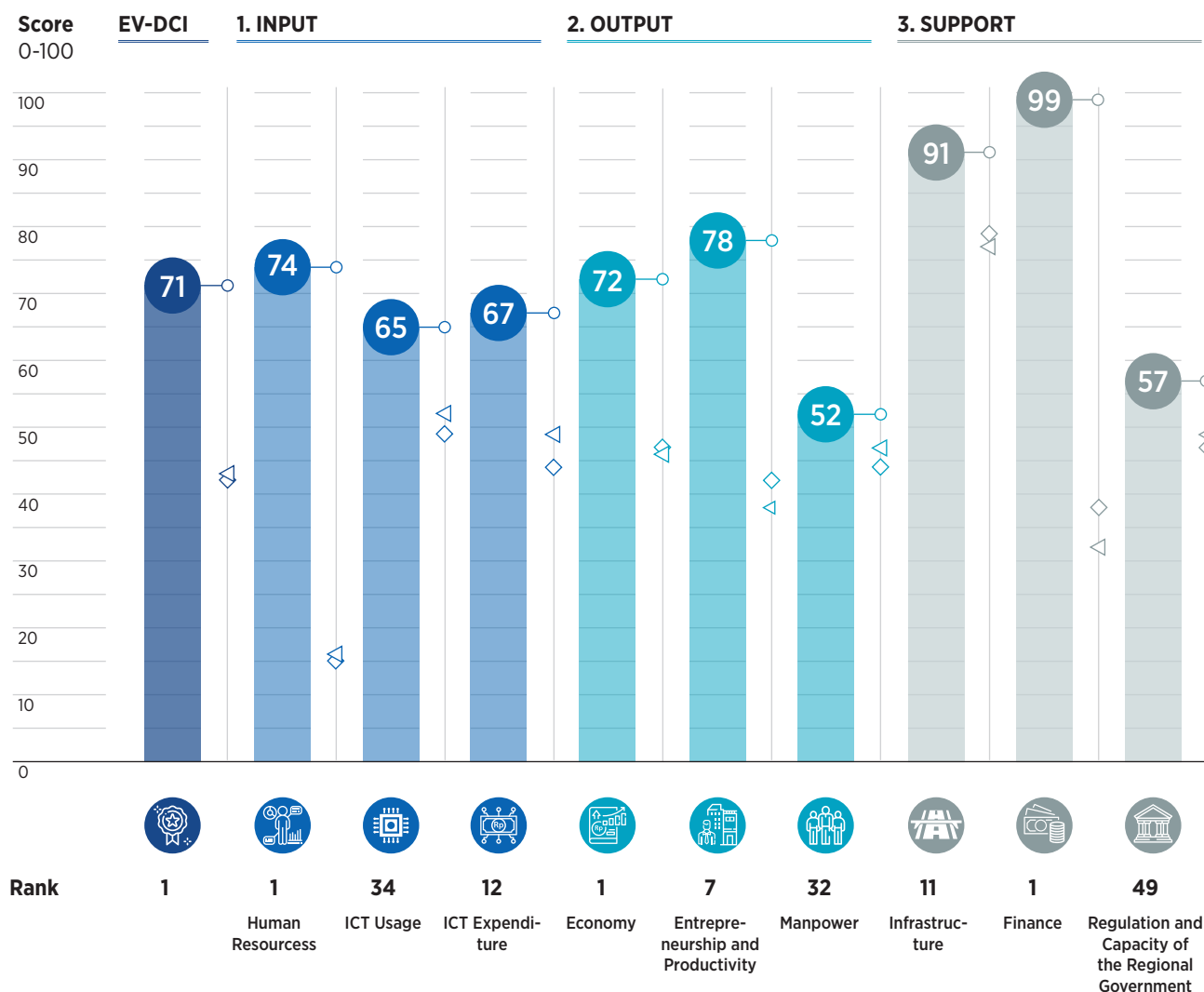
1

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	106.4
Area (km2)	664.0
Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	2,772.4
GRDP per Capita (IDR thousand)	26,044
Human Development Index	80.8
Life Expectancy (year)	72.9
School Life Expectancy (year)	13.1
Average School Attendance (year)	11.2
Domestic Investment Realization (IDR billion)	20,404.5
Foreign Investment Realization (USD million)	3.6

DKI Jakarta

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	68.7	1	=	38.9
1.1	Human Resources	74.3	1	=	15.9
1.1.01	Number of Students with Digital Capabilities	100.0	1	=	1.4
1.1.02	Growth of Students with Digital Capabilities	8.9	62	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	100.0	1	=	1.1
1.1.04	Number of Digitalization-Related Study Programs	100.0	1	=	2.4
1.1.05	Digital Literacy Index	62.5	66	↑	58.9
1.2	ICT Usage	65.0	34	↑	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	81.5	24	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	57.1	38	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	91.9	10	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	81.5	111	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	83.2	11	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	15.6	147	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	53.2	20	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	55.5	120	↓	69.5
1.3	ICT Expenditure	66.8	12	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	94.9	14	↑	76.4
1.3.02	Average Expenditure of Households for ICT	28.0	62	↓	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	100.0	1	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	44.5	19	↓	18.2
2	OUTPUT	67.3	2	↓	43.0
2.1	Economy	71.9	1	=	45.8
2.1.01	GRDP of the Information and Communication Sector	100.0	1	=	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	58.4	16	↓	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	32.2	70	↓	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	100.0	1	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	12.7	90	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	93.7	70	↓	91.4
2.1.07	GRDP of the Financial Services Sector	100.0	1	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	91.5	5	↑	25.5
2.1.09	GRDP Growth of the Financial Services Sector	58.7	22	↑	47.4
2.2	Entrepreneurship and Productivity	77.8	7	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	78.6	11	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	76.8	11	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	60.1	23	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	66.8	17	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	84.5	6	↑	22.9
2.2.06	Loan Using Fintech	100.0	1	=	40.0
2.3	Manpower	52.3	32	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	100.0	1	=	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	86.2	4	=	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	11.9	151	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	0.0	157	=	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	58.3	89	↑	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	57.3	86	↓	58.2
3	SUPPORT	82.1	1	=	52.4
3.1	Infrastructure	90.7	11	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	100.0	1	=	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	98.9	50	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	99.4	95	↓	100.0
3.1.04	Ratio of Villages that Get 4G Signal	98.6	49	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	56.8	12	↓	11.2
3.2	Finance	98.6	1	=	32.2
3.2.01	Financial Inclusion Index	100.0	1	=	75.2
3.2.02	Number of Digital Finance Service Agent	95.8	2	-	5.3
3.2.03	Use of E-wallet as a Payment Method	100.0	1	-	15.6
3.3	Regulation and Capacity of the Regional Government	56.8	49	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	64.9	61	↑	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41.6	31	↓	24.7
3.3.03	Life Expectancy Growth	36.7	71	-	33.3
3.3.04	Poverty Decreasing Rate	84.1	75	-	83.2



Bandung City

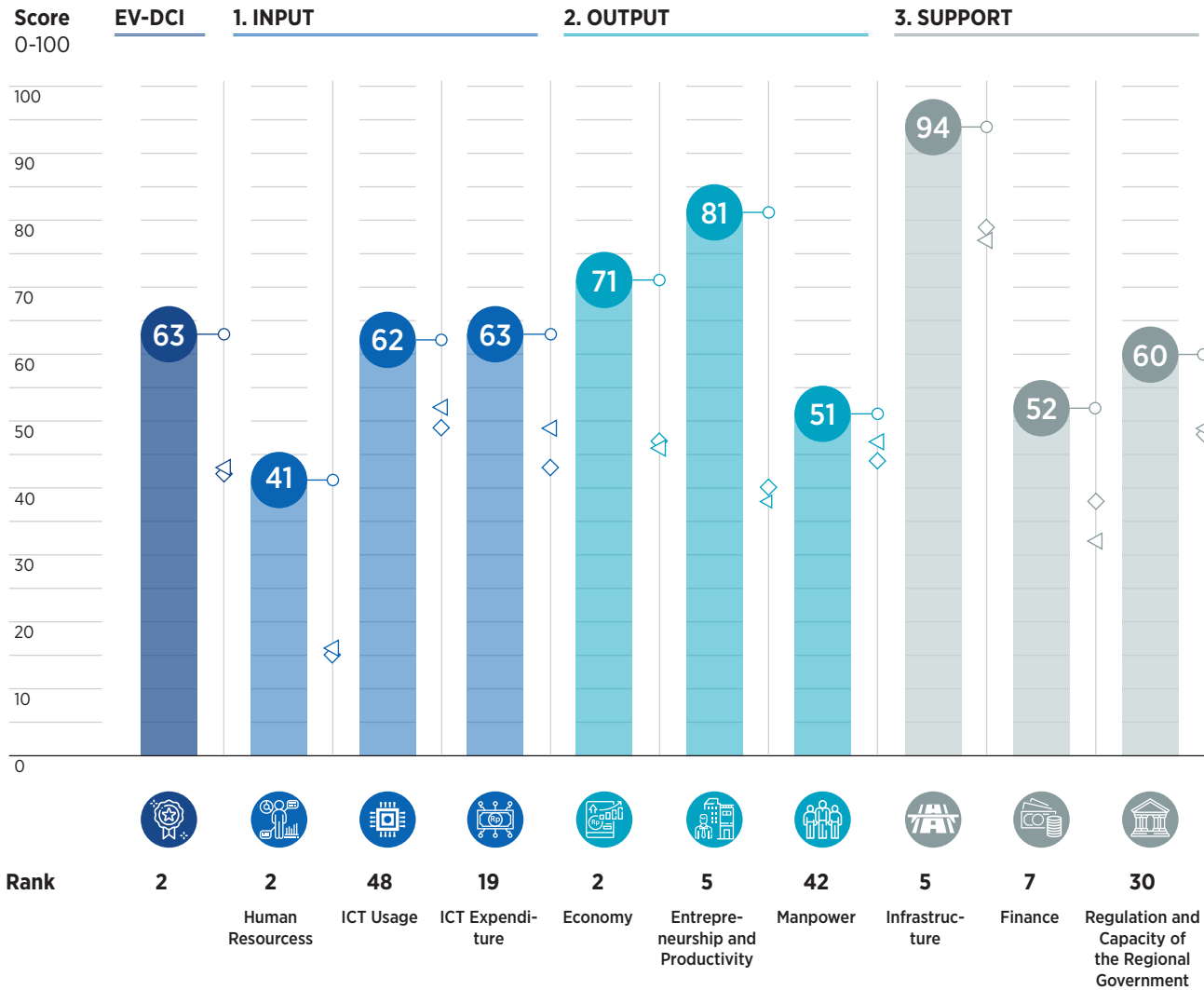
East Ventures - Digital Competitiveness Index 2022

Cities/Regencies Rank
2021 : 2
2022 : 2

Performance 2022

◇ Regional Median Score
Java

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	25.1
Area (km2)	167.3
Economic Growth (percent)	-2.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	283.6
GRDP per Capita (IDR thousand)	112,990
Human Development Index	82.0
Life Expectancy (year)	74.3
School Life Expectancy (year)	14.2
Average School Attendance (year)	11.0
Domestic Investment Realization (IDR billion)	998
Foreign Investment Realization (USD million)	493.9

Bandung City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	55.1	4	↑	38.9
1.1	Human Resources	41.0	2	=	15.9
1.1.01	Number of Students with Digital Capabilities	36.6	3	=	1.4
1.1.02	Growth of Students with Digital Capabilities	7.9	113	↑	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	44.0	2	=	1.1
1.1.04	Number of Digitalization-Related Study Programs	61.7	2	=	2.4
1.1.05	Digital Literacy Index	54.5	86	↓	58.9
1.2	ICT Usage	61.7	48	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	89.4	6	↑	56.6
1.2.02	Ratio of Citizens that Have Computer	62.9	24	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	98.3	3	↑	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	88.8	73	↑	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	56.5	77	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	3.7	155	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	49.2	29	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	44.6	141	↓	69.5
1.3	ICT Expenditure	62.8	19	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	50.0	130	=	76.4
1.3.02	Average Expenditure of Households for ICT	33.1	44	↓	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	94.9	4	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	73.2	3	↑	18.2
2	OUTPUT	67.6	1	↑	43.0
2.1	Economy	70.5	2	=	45.8
2.1.01	GRDP of the Information and Communication Sector	79.6	2	↑	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	89.8	3	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	83.4	9	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	80.0	4	=	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	28.2	45	↓	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	80.3	122	↓	91.4
2.1.07	GRDP of the Financial Services Sector	91.5	3	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	50.8	26	↑	25.5
2.1.09	GRDP Growth of the Financial Services Sector	51.0	47	↓	47.4
2.2	Entrepreneurship and Productivity	80.9	5	=	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	74.6	19	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	74.4	19	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	94.0	2	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	87.3	6	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	86.9	5	↓	22.9
2.2.06	Loan Using Fintech	67.9	9	=	40.0
2.3	Manpower	51.3	42	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	15.9	10	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	52.1	25	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	46.8	31	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	76.3	144	↓	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	64.0	63	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	52.6	106	↓	58.2
3	SUPPORT	68.5	2	↑	52.4
3.1	Infrastructure	93.6	5	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.0	69	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	99.2	47	↓	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	73.6	4	↑	11.2
3.2	Finance	52.1	7	↓	32.2
3.2.01	Financial Inclusion Index	82.0	26	=	75.2
3.2.02	Number of Digital Finance Service Agent	41.8	8	-	5.3
3.2.03	Use of E-wallet as a Payment Method	32.4	14	-	15.6
3.3	Regulation and Capacity of the Regional Government	59.7	30	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	85.4	20	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17.8	106	↓	24.7
3.3.03	Life Expectancy Growth	64.9	34	-	33.3
3.3.04	Poverty Decreasing Rate	71.0	128	-	83.2



Yogyakarta City

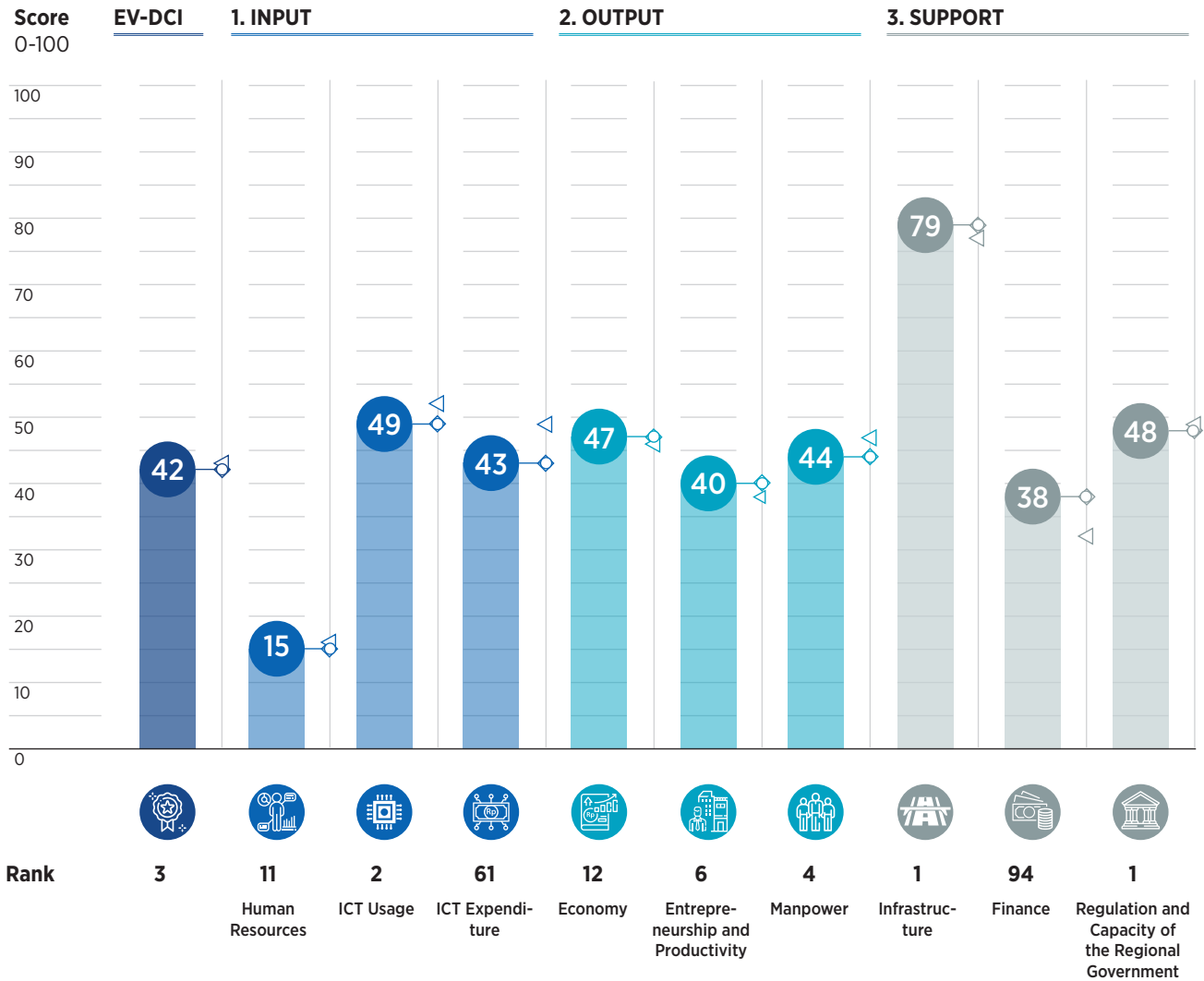
Cities/Regencies Rank
2021 : 9
2022 : 3

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	4.4
Area (km2)	32.5
Economic Growth (percent)	-2.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	35.8
GRDP per Capita (IDR thousand)	82,049
Human Development Index	87.2
Life Expectancy (year)	74.7
School Life Expectancy (year)	17.6
Average School Attendance (year)	11.7
Domestic Investment Realization (IDR billion)	231.8
Foreign Investment Realization (USD million)	4.2

Yogyakarta City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	52.4	9	↑	38.9
1.1	Human Resources	27.1	11	↑	15.9
1.1.01	Number of Students with Digital Capabilities	7.3	22	↑	1.4
1.1.02	Growth of Students with Digital Capabilities	10.7	47	↑	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	6.4	24	↓	1.1
1.1.04	Number of Digitalization-Related Study Programs	10.9	19	↓	2.4
1.1.05	Digital Literacy Index	100.0	1	↑	58.9
1.2	ICT Usage	78.0	2	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	82.2	21	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	77.1	4	=	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	91.3	12	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	90.8	61	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	82.7	15	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	49.2	37	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	79.3	2	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	71.6	71	↓	69.5
1.3	ICT Expenditure	52.2	61	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	76.8	77	↑	76.4
1.3.02	Average Expenditure of Households for ICT	23.9	80	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	85.7	32	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	22.3	57	↑	18.2
2	OUTPUT	65.6	4	↑	43.0
2.1	Economy	57.3	12	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	55.6	21	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	78.7	6	=	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	55.0	29	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	43.6	66	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	13.5	87	=	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	88.4	102	↑	91.4
2.1.07	GRDP of the Financial Services Sector	85.5	28	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	55.4	23	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	40.1	129	↓	47.4
2.2	Entrepreneurship and Productivity	80.6	6	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	82.9	4	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	83.3	4	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	93.8	3	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	94.0	4	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	87.2	4	↓	22.9
2.2.06	Loan Using Fintech	42.3	73	↓	40.0
2.3	Manpower	58.8	4	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	3.1	52	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	52.6	24	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	78.4	5	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	95.8	78	=	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	71.1	38	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	52.0	109	↓	58.2
3	SUPPORT	67.0	3	↓	52.4
3.1	Infrastructure	99.6	1	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	97.8	39	↑	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	100.0	1	↑	11.2
3.2	Finance	26.1	94	↓	32.2
3.2.01	Financial Inclusion Index	46.6	97	=	75.2
3.2.02	Number of Digital Finance Service Agent	7.8	67	-	5.3
3.2.03	Use of E-wallet as a Payment Method	24.0	45	-	15.6
3.3	Regulation and Capacity of the Regional Government	75.2	1	=	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	81.3	28	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	100.0	1	=	24.7
3.3.03	Life Expectancy Growth	39.5	66	-	33.3
3.3.04	Poverty Decreasing Rate	80.2	98	-	83.2



Bekasi City

Cities/Regencies Rank

2021 :

3

2022 :

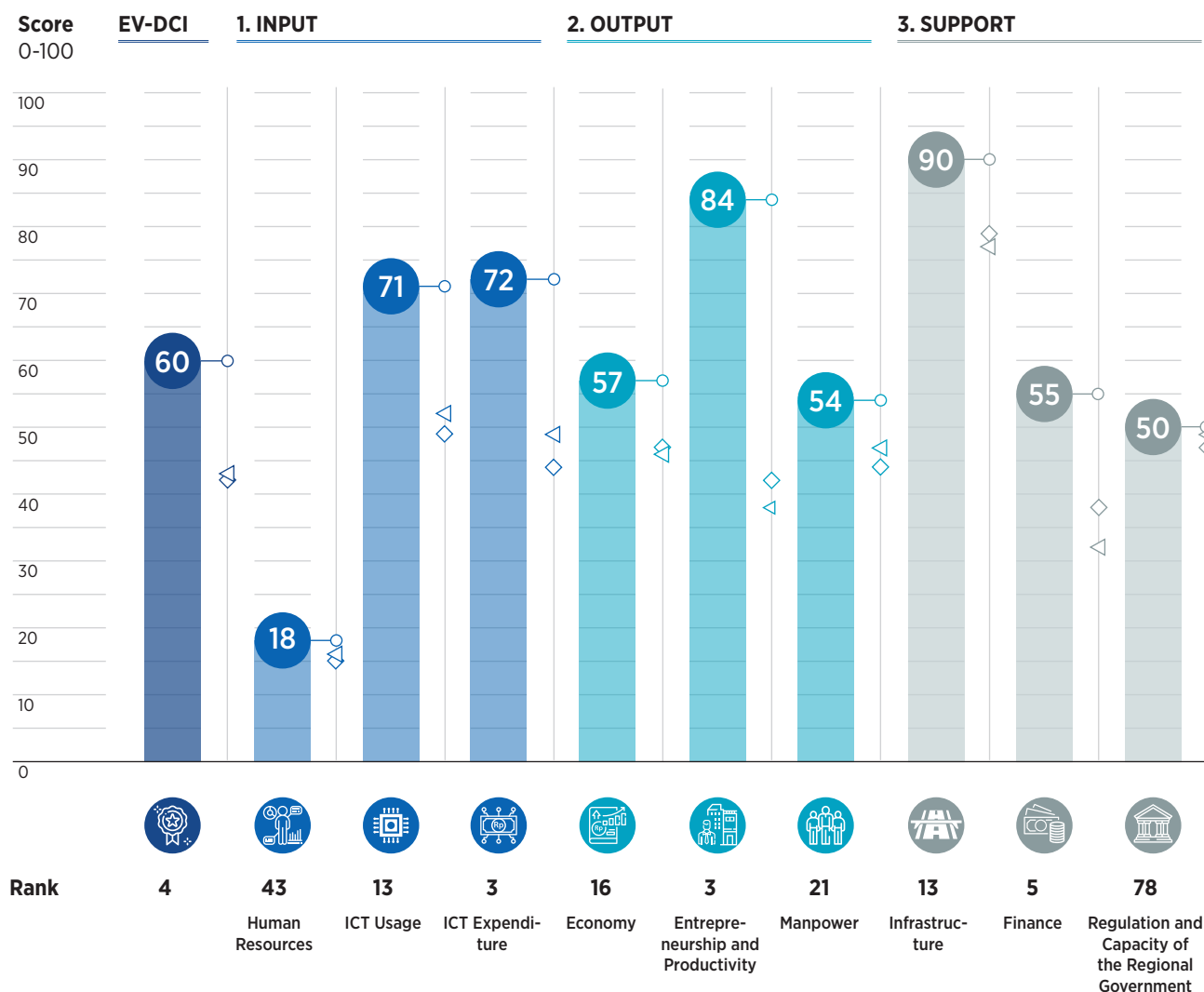
4

East Ventures - Digital Competitiveness Index 2022

Performance 2022

 ◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	30.8
Area (km2)	210.5
Economic Growth (percent)	-2.6
Gross Regional Domestic Product (GRDP) (IDR trillion)	96.6
GRDP per Capita (IDR thousand)	31,398
Human Development Index	82.0
Life Expectancy (year)	75.0
School Life Expectancy (year)	14.1
Average School Attendance (year)	11.3
Domestic Investment Realization (IDR billion)	828
Foreign Investment Realization (USD million)	1,042.4

Bekasi City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	53.5	8	↓	38.9
1.1	Human Resources	18.0	43	↑	15.9
1.1.01	Number of Students with Digital Capabilities	7.8	21	↓	1.4
1.1.02	Growth of Students with Digital Capabilities	3.8	149	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	8.5	18	=	1.1
1.1.04	Number of Digitalization-Related Study Programs	15.5	15	=	2.4
1.1.05	Digital Literacy Index	54.5	86	↓	58.9
1.2	ICT Usage	70.7	13	↑	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	87.8	8	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	67.4	16	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	98.6	2	↑	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	91.4	58	↑	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	75.1	29	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	17.0	144	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	57.3	12	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	71.5	72	↓	69.5
1.3	ICT Expenditure	71.7	3	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	89.7	39	↑	76.4
1.3.02	Average Expenditure of Households for ICT	43.3	18	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	96.7	3	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	57.0	6	↓	18.2
2	OUTPUT	64.8	5	↓	43.0
2.1	Economy	56.8	16	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	50.0	36	↑	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	15.2	111	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	86.0	5	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	69.9	9	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	38.5	21	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97.3	17	↑	91.4
2.1.07	GRDP of the Financial Services Sector	86.1	21	↓	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	23.4	88	=	25.5
2.1.09	GRDP Growth of the Financial Services Sector	44.5	108	↓	47.4
2.2	Entrepreneurship and Productivity	83.7	3	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	77.8	12	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	74.5	18	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	84.8	7	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	97.8	2	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	97.3	2	↑	22.9
2.2.06	Loan Using Fintech	70.0	6	=	40.0
2.3	Manpower	54.0	21	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	27.2	2	=	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	80.4	5	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	33.7	75	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	70.8	151	↓	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	56.7	95	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	55.4	95	↓	58.2
3	SUPPORT	64.8	5	=	52.4
3.1	Infrastructure	89.8	13	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.0	69	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	↑	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	54.2	13	↓	11.2
3.2	Finance	54.8	5	↓	32.2
3.2.01	Financial Inclusion Index	82.0	26	=	75.2
3.2.02	Number of Digital Finance Service Agent	50.1	5	-	5.3
3.2.03	Use of E-wallet as a Payment Method	32.4	14	-	15.6
3.3	Regulation and Capacity of the Regional Government	49.6	78	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	42.3	113	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17.8	106	↓	24.7
3.3.03	Life Expectancy Growth	64.3	36	-	33.3
3.3.04	Poverty Decreasing Rate	74.2	117	-	83.2



Depok City

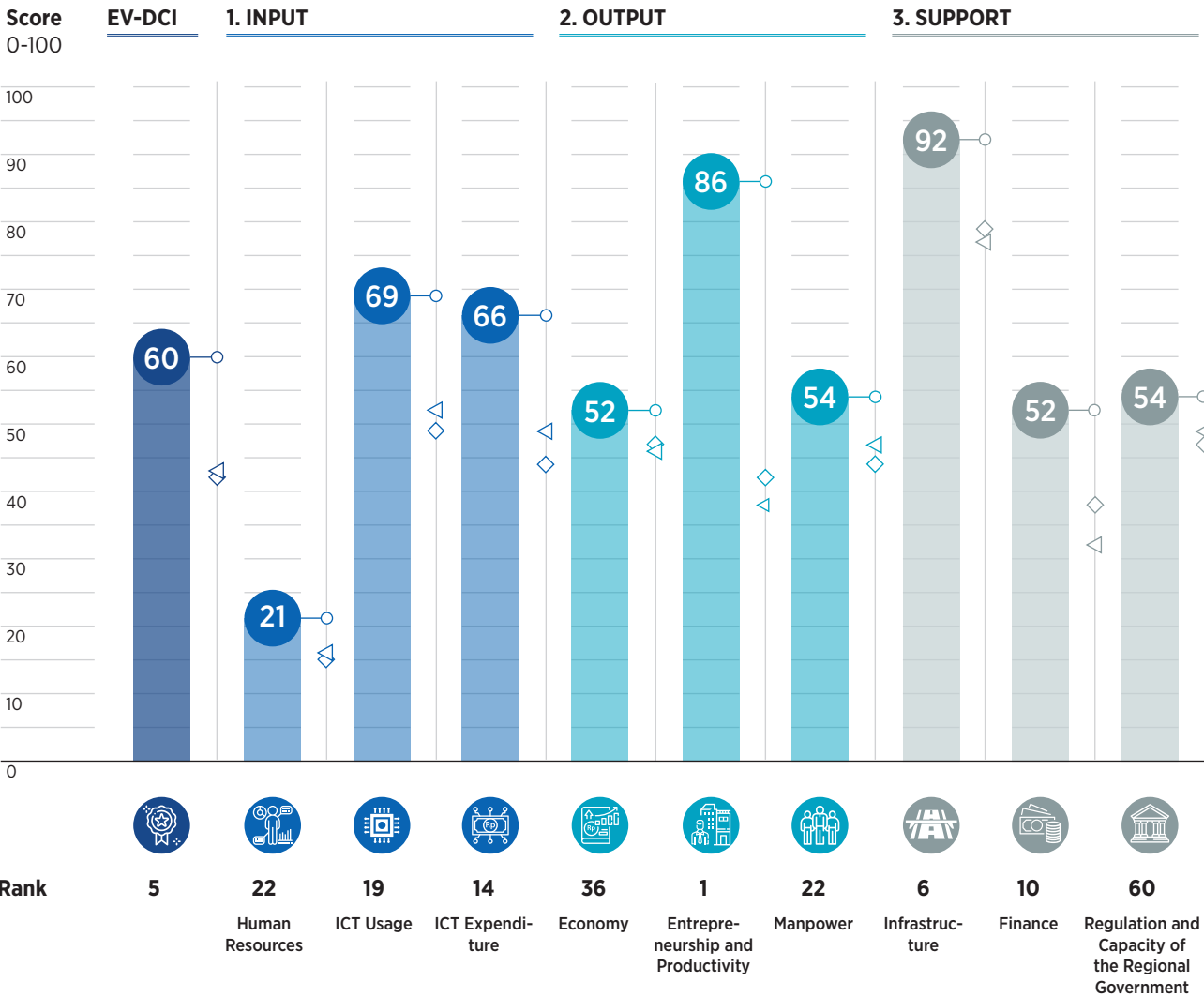
Cities/Regencies Rank
2021 : 7
2022 : 5

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	24.8
Area (km2)	200.3
Economic Growth (percent)	-1.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	70.4
GRDP per Capita (IDR thousand)	28,335
Human Development Index	81.4
Life Expectancy (year)	74.4
School Life Expectancy (year)	13.9
Average School Attendance (year)	11.5
Domestic Investment Realization (IDR billion)	275.2
Foreign Investment Realization (USD million)	364.6

Depok City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	52.1	11	↓	38.9
1.1	Human Resources	21.4	22	↑	15.9
1.1.01	Number of Students with Digital Capabilities	15.1	11	=	1.4
1.1.02	Growth of Students with Digital Capabilities	6.0	132	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	21.6	7	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	9.5	24	↓	2.4
1.1.05	Digital Literacy Index	54.5	86	↓	58.9
1.2	ICT Usage	69.2	19	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	83.6	14	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	69.5	10	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	100.0	1	↑	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	88.0	79	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	70.3	40	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	29.2	95	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	58.5	9	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	54.0	123	↓	69.5
1.3	ICT Expenditure	65.8	14	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	69.0	98	↓	76.4
1.3.02	Average Expenditure of Households for ICT	40.8	23	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	97.1	2	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	56.3	7	↓	18.2
2	OUTPUT	63.8	6	=	43.0
2.1	Economy	52.2	36	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	44.7	58	↑	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	12.4	122	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	79.5	14	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	54.7	32	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	16.1	79	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97.7	11	↑	91.4
2.1.07	GRDP of the Financial Services Sector	85.9	23	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	31.4	57	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	47.4	79	↓	47.4
2.2	Entrepreneurship and Productivity	85.6	1	↑	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	95.7	2	=	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	94.8	2	=	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	84.6	8	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	94.7	3	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	76.1	11	=	22.9
2.2.06	Loan Using Fintech	67.8	10	↑	40.0
2.3	Manpower	53.7	22	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	21.0	5	↓	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	78.5	8	↓	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	25.7	107	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	77.8	140	↑	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	61.2	76	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	57.9	82	↓	58.2
3	SUPPORT	65.8	4	↑	52.4
3.1	Infrastructure	91.7	6	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.0	69	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	=	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	63.7	7	=	11.2
3.2	Finance	51.5	10	↓	32.2
3.2.01	Financial Inclusion Index	82.0	26	=	75.2
3.2.02	Number of Digital Finance Service Agent	40.1	10	-	5.3
3.2.03	Use of E-wallet as a Payment Method	32.4	14	-	15.6
3.3	Regulation and Capacity of the Regional Government	54.3	60	↑	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	53.3	86	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17.8	106	↓	24.7
3.3.03	Life Expectancy Growth	64.7	35	-	33.3
3.3.04	Poverty Decreasing Rate	81.4	89	-	83.2



South Tangerang City

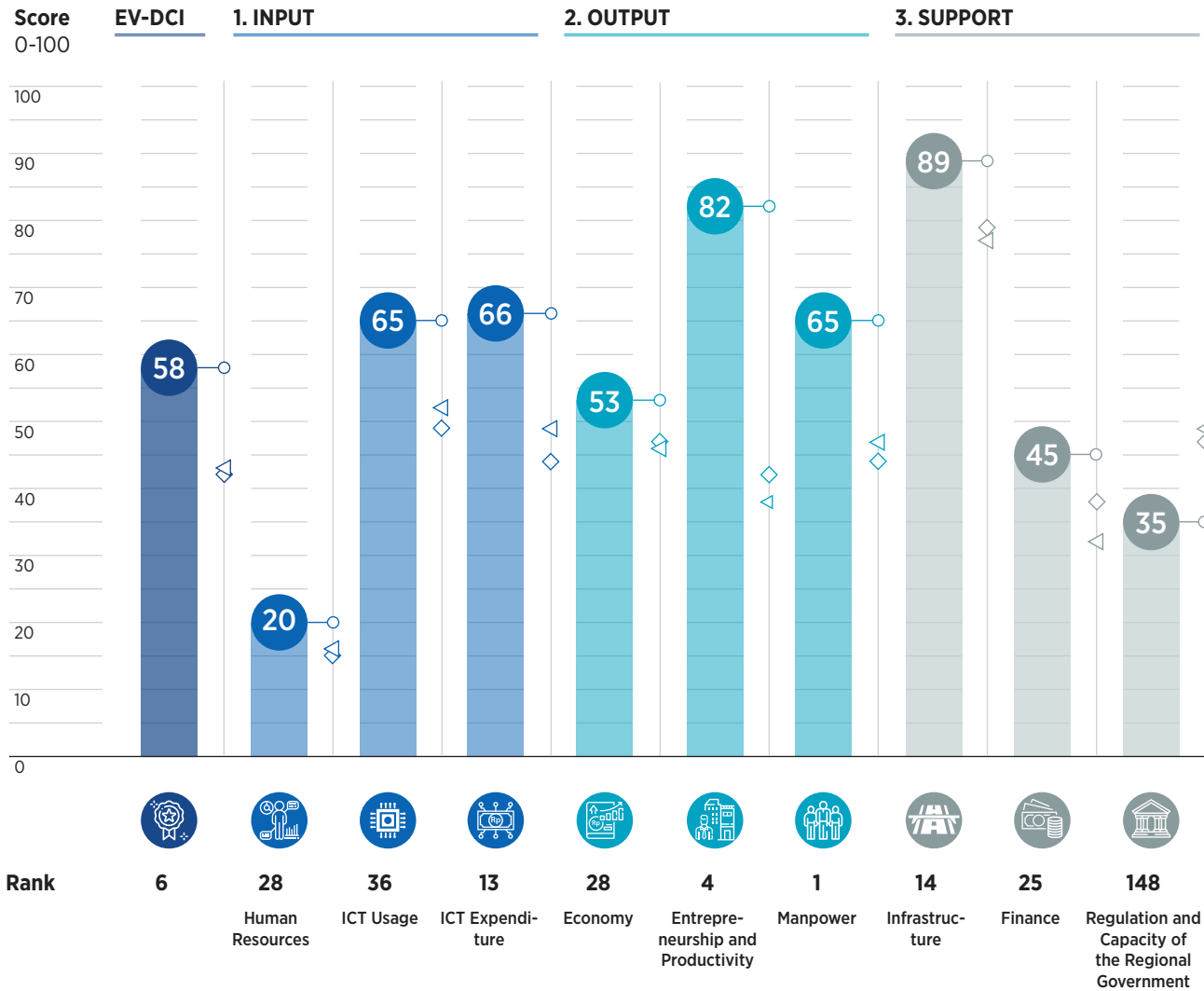
Cities/Regencies Rank
2021 : 5
2022 : 6

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	18.0
Area (km2)	147.2
Economic Growth (percent)	-1.0
Gross Regional Domestic Product (GRDP) (IDR trillion)	82.6
GRDP per Capita (IDR thousand)	45,872
Human Development Index	81.6
Life Expectancy (year)	72.5
School Life Expectancy (year)	14.7
Average School Attendance (year)	11.8
Domestic Investment Realization (IDR billion)	195
Foreign Investment Realization (USD million)	437.6

South Tangerang City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	50.2	17	↓	38.9
1.1	Human Resources	20.1	28	↑	15.9
1.1.01	Number of Students with Digital Capabilities	28.3	4	↑	1.4
1.1.02	Growth of Students with Digital Capabilities	11.8	37	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	12.6	12	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	11.1	18	↑	2.4
1.1.05	Digital Literacy Index	36.9	146	↓	58.9
1.2	ICT Usage	64.5	36	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	81.9	23	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	65.1	20	↓	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	86.6	16	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	61.9	144	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	76.4	24	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	29.8	91	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	58.1	10	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	56.5	116	↓	69.5
1.3	ICT Expenditure	65.9	13	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	62.6	107	↑	76.4
1.3.02	Average Expenditure of Households for ICT	56.4	7	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	94.0	7	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	50.4	13	↓	18.2
2	OUTPUT	66.7	3	=	43.0
2.1	Economy	53.2	28	↓	45.8
2.1.01	GRDP of the Information and Communication Sector	63.5	8	=	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	69.8	9	↓	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	25.6	102	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	52.6	36	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	11.4	96	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	93.0	72	↓	91.4
2.1.07	GRDP of the Financial Services Sector	83.4	61	↑	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	9.6	135	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	70.0	9	↓	47.4
2.2	Entrepreneurship and Productivity	81.6	4	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	81.4	5	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	79.0	9	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	100.0	1	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	100.0	1	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	62.9	19	↓	22.9
2.2.06	Loan Using Fintech	66.6	13	=	40.0
2.3	Manpower	65.4	1	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	18.7	7	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	100.0	1	=	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	35.5	65	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	86.4	120	↑	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	78.3	25	↑	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	73.4	11	↑	58.2
3	SUPPORT	56.3	47	↓	52.4
3.1	Infrastructure	88.8	14	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98.6	7	↑	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	97.6	54	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	47.9	14	↑	11.2
3.2	Finance	45.2	25	↓	32.2
3.2.01	Financial Inclusion Index	70.0	87	=	75.2
3.2.02	Number of Digital Finance Service Agent	15.7	47	-	5.3
3.2.03	Use of E-wallet as a Payment Method	49.8	2	-	15.6
3.3	Regulation and Capacity of the Regional Government	35.0	148	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	46.7	103	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	29.0	50	↓	24.7
3.3.03	Life Expectancy Growth	0.0	154	-	33.3
3.3.04	Poverty Decreasing Rate	64.3	139	-	83.2



Sleman Regency

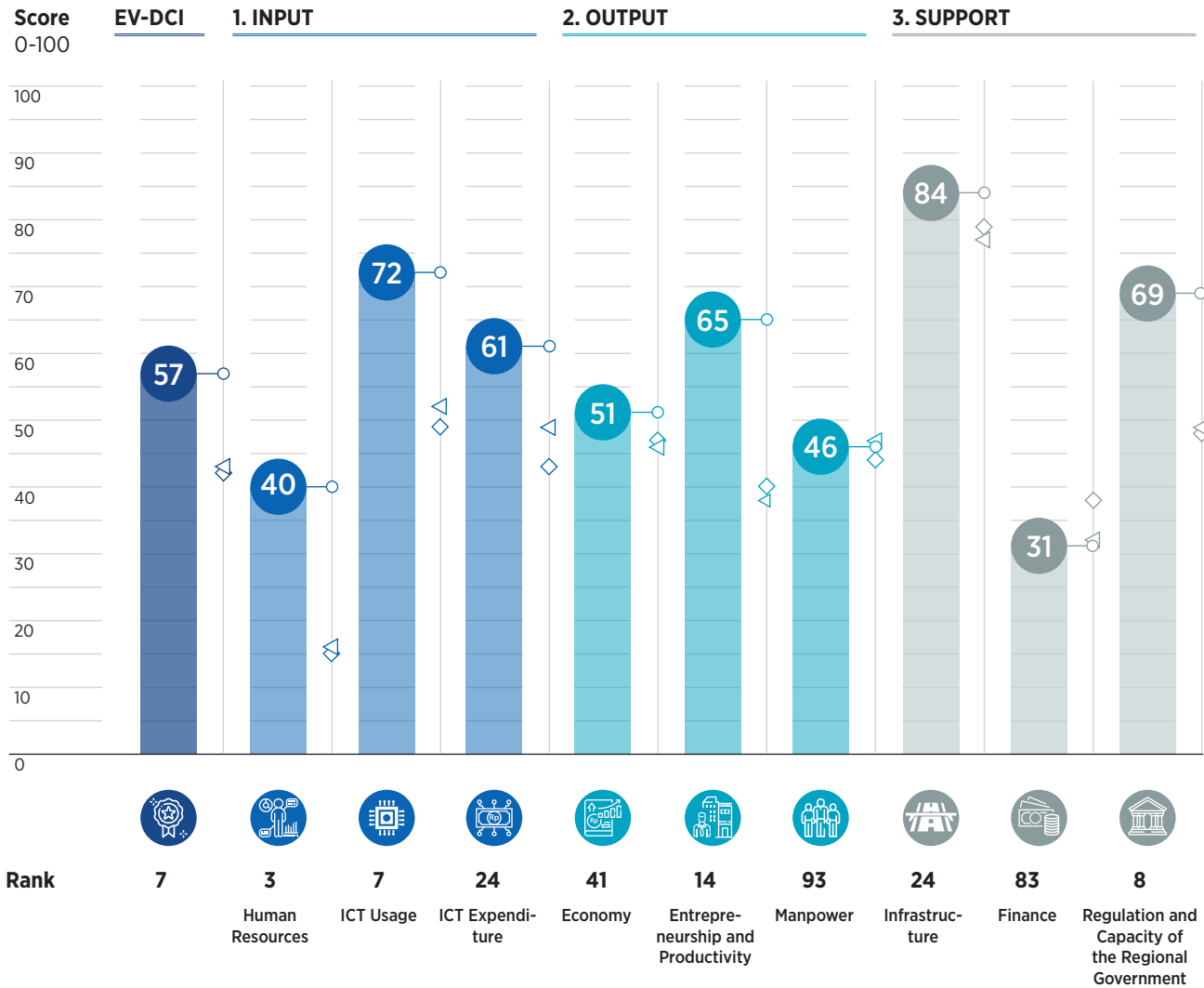
Cities/Regencies Rank
2021 : 12
2022 : 7

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Java

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	12.3
Area (km2)	574.8
Economic Growth (percent)	-3.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	45.8
GRDP per Capita (IDR thousand)	37,184
Human Development Index	84.0
Life Expectancy (year)	74.8
School Life Expectancy (year)	16.7
Average School Attendance (year)	10.9
Domestic Investment Realization (IDR billion)	49.9
Foreign Investment Realization (USD million)	141.0

Sleman Regency

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	57.8	2	↑	38.9
1.1	Human Resources	39.7	3	↑	15.9
1.1.01	Number of Students with Digital Capabilities	26.8	7	↓	1.4
1.1.02	Growth of Students with Digital Capabilities	9.7	54	↑	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	30.9	4	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	31.1	8	↓	2.4
1.1.05	Digital Literacy Index	100.0	1	↑	58.9
1.2	ICT Usage	72.4	7	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	67.2	59	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	76.2	5	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	83.9	23	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	91.9	50	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	83.6	9	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	49.7	35	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	67.0	5	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	59.7	109	↓	69.5
1.3	ICT Expenditure	61.4	24	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	80.0	69	↑	76.4
1.3.02	Average Expenditure of Households for ICT	18.7	107	↓	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	91.1	12	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	55.7	8	↑	18.2
2	OUTPUT	53.9	21	↓	43.0
2.1	Economy	51.0	41	↓	45.8
2.1.01	GRDP of the Information and Communication Sector	55.6	20	↑	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	60.8	13	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	55.9	26	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	49.7	47	↓	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	16.9	76	↓	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	68.4	143	↓	91.4
2.1.07	GRDP of the Financial Services Sector	84.1	45	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	25.9	74	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	42.1	120	↓	47.4
2.2	Entrepreneurship and Productivity	64.9	14	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	79.3	8	↑	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	79.7	6	↑	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	65.0	17	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	58.6	26	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	53.7	28	↓	22.9
2.2.06	Loan Using Fintech	53.4	36	↓	40.0
2.3	Manpower	45.7	93	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	5.7	28	↓	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	28.8	81	↓	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	30.3	91	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	87.1	116	=	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	72.5	36	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	49.5	120	↓	58.2
3	SUPPORT	61.4	16	↓	52.4
3.1	Infrastructure	84.2	24	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	97.8	39	↑	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	96.5	68	↓	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	↑	100.0
3.1.04	Ratio of Villages that Get 4G Signal	82.2	118	↓	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	44.8	17	↓	11.2
3.2	Finance	31.1	83	↓	32.2
3.2.01	Financial Inclusion Index	46.6	97	=	75.2
3.2.02	Number of Digital Finance Service Agent	22.8	26	-	5.3
3.2.03	Use of E-wallet as a Payment Method	24.0	45	-	15.6
3.3	Regulation and Capacity of the Regional Government	68.8	8	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	57.1	74	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	100.0	1	=	24.7
3.3.03	Life Expectancy Growth	39.4	67	-	33.3
3.3.04	Poverty Decreasing Rate	78.7	105	-	83.2



Surabaya City

Cities/Regencies Rank

2021 :

6

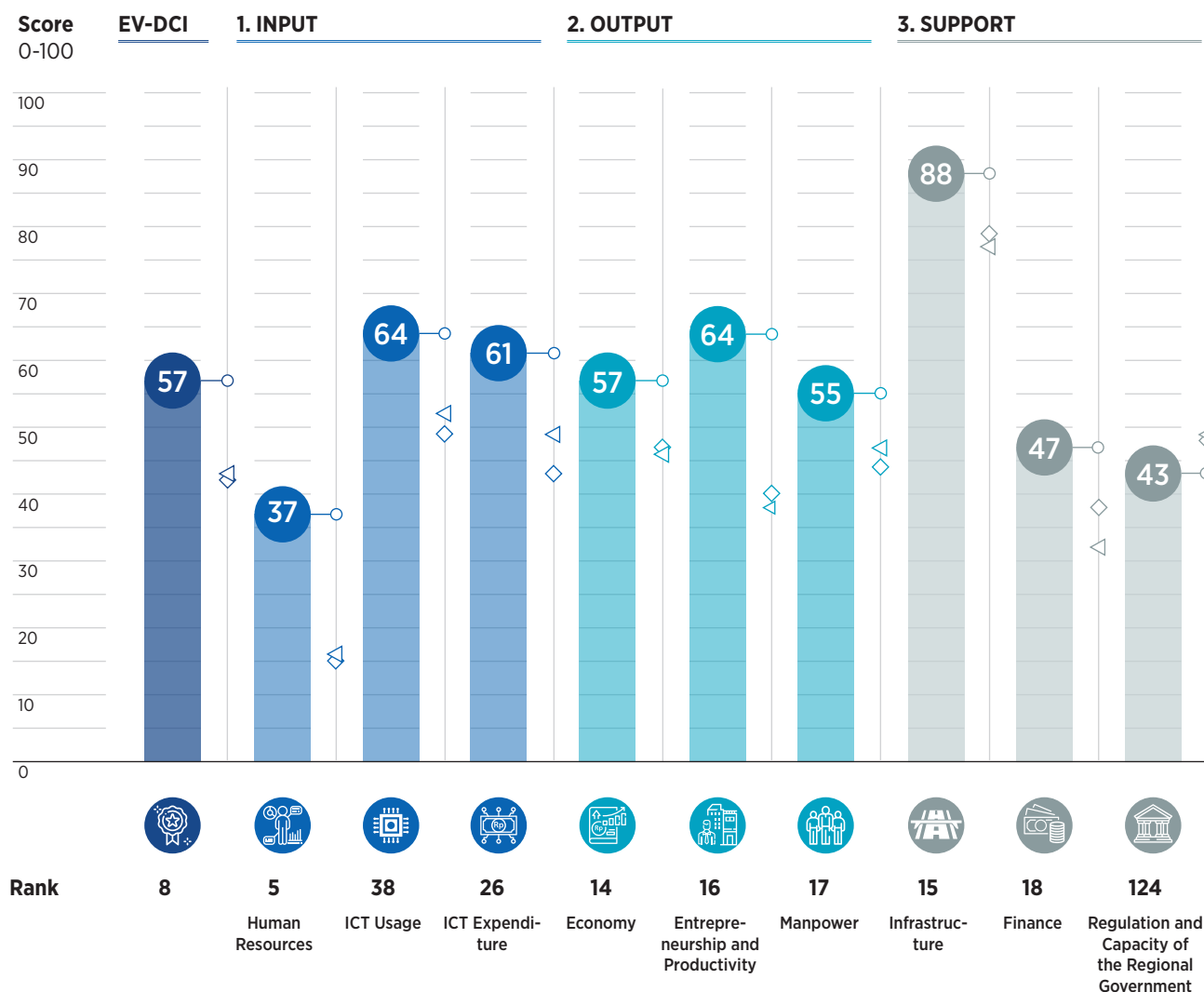
2022 :

8

East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Java

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	29.0
Area (km2)	326.8
Economic Growth (percent)	-4.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	554.5
GRDP per Capita (IDR thousand)	190,897
Human Development Index	82.3
Life Expectancy (year)	74.2
School Life Expectancy (year)	14.8
Average School Attendance (year)	10.5
Domestic Investment Realization (IDR billion)	463
Foreign Investment Realization (USD million)	696.0

Surabaya City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	54.1	6	=	38.9
1.1	Human Resources	37.0	5	↑	15.9
1.1.01	Number of Students with Digital Capabilities	28.2	5	=	1.4
1.1.02	Growth of Students with Digital Capabilities	9.0	61	=	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	34.4	3	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	44.6	4	=	2.4
1.1.05	Digital Literacy Index	69.0	38	↑	58.9
1.2	ICT Usage	64.0	38	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	78.3	32	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	47.8	55	↓	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	82.2	25	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	85.9	90	↑	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	81.3	19	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	20.5	131	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	43.8	42	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	72.3	70	↑	69.5
1.3	ICT Expenditure	61.2	26	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	87.7	45	↑	76.4
1.3.02	Average Expenditure of Households for ICT	29.1	57	↓	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	91.5	11	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	36.6	25	↓	18.2
2	OUTPUT	58.6	12	↓	43.0
2.1	Economy	56.8	14	↓	45.8
2.1.01	GRDP of the Information and Communication Sector	77.5	3	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	36.2	49	=	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	20.4	134	↓	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	84.6	2	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	20.0	63	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95.4	40	↑	91.4
2.1.07	GRDP of the Financial Services Sector	92.9	2	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	41.2	38	=	25.5
2.1.09	GRDP Growth of the Financial Services Sector	43.2	115	↓	47.4
2.2	Entrepreneurship and Productivity	64.0	16	↓	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	70.1	25	↑	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	70.1	25	↑	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	58.3	29	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	59.2	25	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	63.4	18	↓	22.9
2.2.06	Loan Using Fintech	62.8	17	=	40.0
2.3	Manpower	55.0	17	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	22.4	4	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	62.3	15	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	30.3	92	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	72.8	149	↑	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	69.1	43	↑	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	73.0	13	↓	58.2
3	SUPPORT	59.2	25	↓	52.4
3.1	Infrastructure	88.0	15	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.5	49	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	99.4	48	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	99.2	46	↓	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	45.9	16	↓	11.2
3.2	Finance	46.9	18	↓	32.2
3.2.01	Financial Inclusion Index	80.5	48	=	75.2
3.2.02	Number of Digital Finance Service Agent	44.4	6	-	5.3
3.2.03	Use of E-wallet as a Payment Method	15.6	64	-	15.6
3.3	Regulation and Capacity of the Regional Government	42.7	124	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	61.8	69	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	24.7	70	=	24.7
3.3.03	Life Expectancy Growth	0.0	154	-	33.3
3.3.04	Poverty Decreasing Rate	84.1	74	-	83.2



Malang City

Cities/Regencies Rank

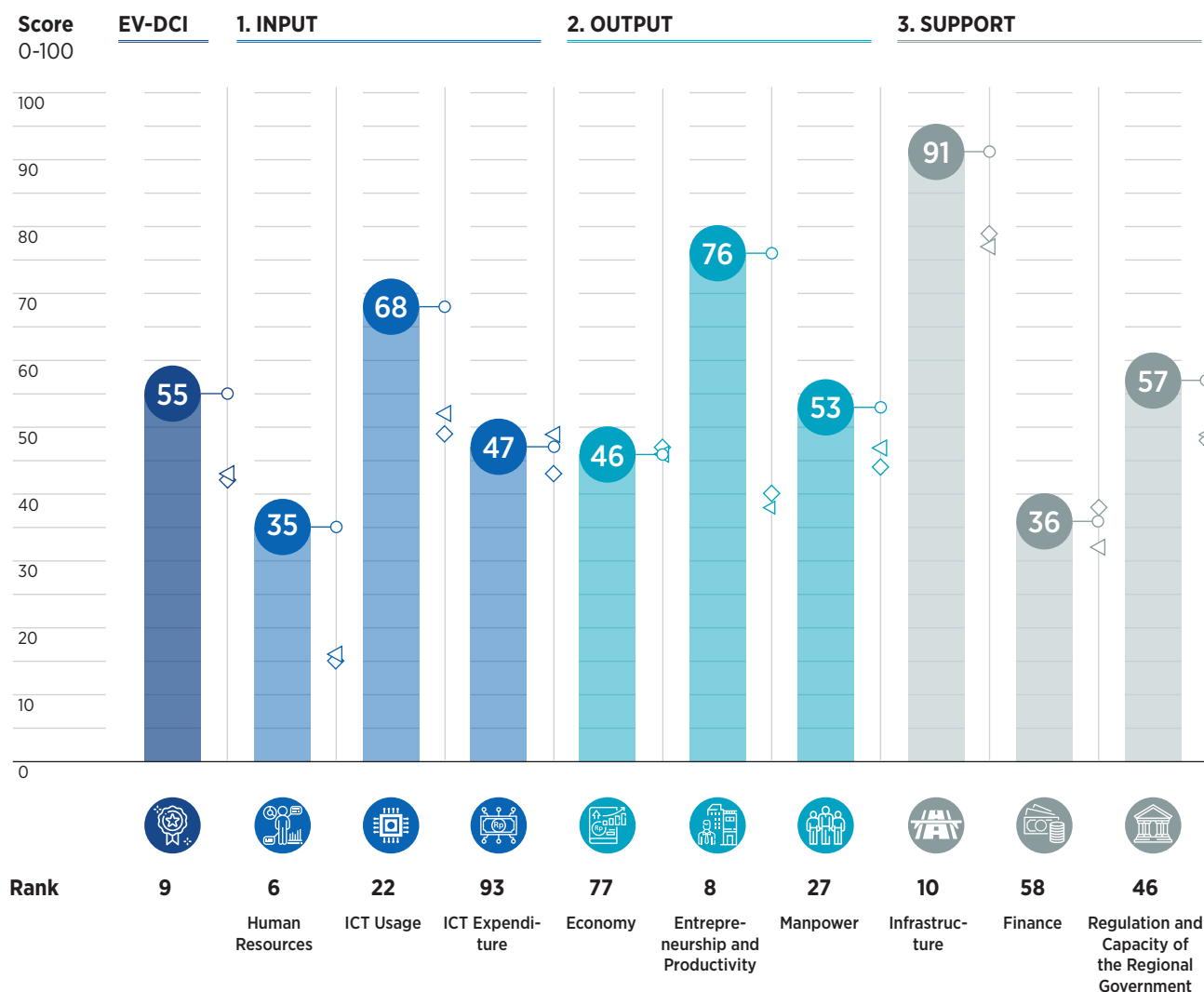
 2021 :
13

 2022 :
9

East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Java

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	8.7
Area (km2)	110.1
Economic Growth (percent)	-2.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	72.2
GRDP per Capita (IDR thousand)	82,483
Human Development Index	82.4
Life Expectancy (year)	73.3
School Life Expectancy (year)	15.8
Average School Attendance (year)	10.4
Domestic Investment Realization (IDR billion)	48
Foreign Investment Realization (USD million)	160.0

Malang City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	49.8	18	↑	38.9
1.1	Human Resources	34.9	6	↑	15.9
1.1.01	Number of Students with Digital Capabilities	28.2	6	↓	1.4
1.1.02	Growth of Students with Digital Capabilities	8.6	69	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	30.2	6	=	1.1
1.1.04	Number of Digitalization-Related Study Programs	38.3	5	=	2.4
1.1.05	Digital Literacy Index	69.0	38	↑	58.9
1.2	ICT Usage	67.8	22	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	76.3	37	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	71.6	7	↓	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	86.3	18	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	70.4	135	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	72.2	33	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	37.1	64	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	70.9	4	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	57.4	114	↓	69.5
1.3	ICT Expenditure	46.9	93	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	57.9	118	↑	76.4
1.3.02	Average Expenditure of Households for ICT	25.0	77	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	86.1	31	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	18.5	76	↓	18.2
2	OUTPUT	58.1	13	↑	43.0
2.1	Economy	45.9	77	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	51.9	29	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	26.0	74	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	34.8	67	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	46.6	55	↓	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	8.0	116	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	89.6	96	↓	91.4
2.1.07	GRDP of the Financial Services Sector	85.1	32	↓	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	22.0	95	=	25.5
2.1.09	GRDP Growth of the Financial Services Sector	48.9	64	↑	47.4
2.2	Entrepreneurship and Productivity	75.5	8	↑	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	76.1	15	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	75.8	15	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	88.4	5	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	84.2	8	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	78.5	9	↑	22.9
2.2.06	Loan Using Fintech	50.1	51	=	40.0
2.3	Manpower	52.9	27	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	6.1	23	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	55.8	20	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	55.8	20	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	91.3	99	↓	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	61.5	72	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	46.7	135	↓	58.2
3	SUPPORT	61.6	14	↑	52.4
3.1	Infrastructure	90.9	10	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.5	49	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	=	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	59.2	11	↑	11.2
3.2	Finance	36.4	58	↓	32.2
3.2.01	Financial Inclusion Index	80.5	48	=	75.2
3.2.02	Number of Digital Finance Service Agent	13.1	56	-	5.3
3.2.03	Use of E-wallet as a Payment Method	15.6	64	-	15.6
3.3	Regulation and Capacity of the Regional Government	57.3	46	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	87.3	16	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	24.7	70	=	24.7
3.3.03	Life Expectancy Growth	32.9	81	-	33.3
3.3.04	Poverty Decreasing Rate	84.5	66	-	83.2



Denpasar City

Cities/Regencies Rank

2021 :

4

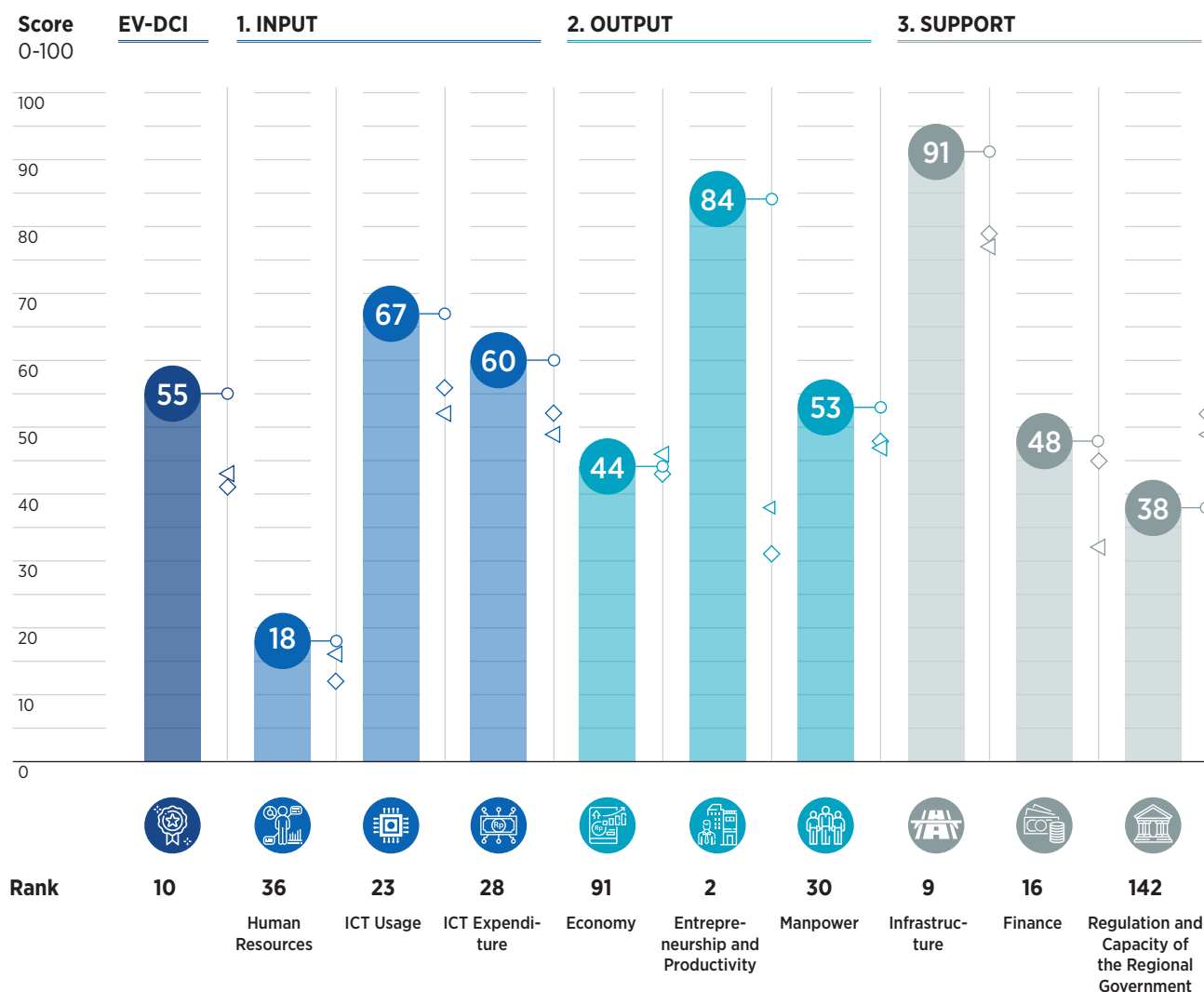
2022 :

10

East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Bali-Nusra

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	9.6
Area (km2)	124
Economic Growth (percent)	-9.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	49.6
GRDP per Capita (IDR thousand)	51,495
Human Development Index	84.0
Life Expectancy (year)	74.8
School Life Expectancy (year)	14.1
Average School Attendance (year)	11.5
Domestic Investment Realization (IDR billion)	274.1
Foreign Investment Realization (USD million)	78.0

Denpasar City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	48.5	24	↓	38.9
1.1	Human Resources	18.2	36	↓	15.9
1.1.01	Number of Students with Digital Capabilities	12.0	14	=	1.4
1.1.02	Growth of Students with Digital Capabilities	11.6	40	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	9.6	17	↓	1.1
1.1.04	Number of Digitalization-Related Study Programs	10.5	21	↑	2.4
1.1.05	Digital Literacy Index	47.4	136	↓	58.9
1.2	ICT Usage	67.1	23	↓	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	92.7	4	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	57.0	39	=	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	94.5	6	=	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	70.5	134	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	75.1	28	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	21.5	125	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	45.1	41	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	80.1	44	↓	69.5
1.3	ICT Expenditure	60.2	28	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	78.9	72	↓	76.4
1.3.02	Average Expenditure of Households for ICT	42.6	19	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	88.4	17	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	31.1	31	↓	18.2
2	OUTPUT	60.2	9	↑	43.0
2.1	Economy	44.1	91	↓	45.8
2.1.01	GRDP of the Information and Communication Sector	49.8	38	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	31.7	65	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	17.6	143	↓	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	44.1	61	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	9.8	105	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	84.0	113	↓	91.4
2.1.07	GRDP of the Financial Services Sector	86.1	20	↓	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	48.4	28	=	25.5
2.1.09	GRDP Growth of the Financial Services Sector	24.9	151	↓	47.4
2.2	Entrepreneurship and Productivity	83.8	2	↑	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	100.0	1	=	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	100.0	1	=	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	92.8	4	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	90.0	5	=	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	70.1	14	↓	22.9
2.2.06	Loan Using Fintech	50.1	50	↓	40.0
2.3	Manpower	52.7	30	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	6.8	21	↑	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	53.1	22	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	32.2	83	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	90.3	101	↑	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	64.7	56	↑	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	68.9	26	↑	58.2
3	SUPPORT	58.9	29	↓	52.4
3.1	Infrastructure	91.3	9	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.9	42	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	60.4	10	↑	11.2
3.2	Finance	47.6	16	↓	32.2
3.2.01	Financial Inclusion Index	94.7	11	=	75.2
3.2.02	Number of Digital Finance Service Agent	10.4	61	-	5.3
3.2.03	Use of E-wallet as a Payment Method	37.8	7	-	15.6
3.3	Regulation and Capacity of the Regional Government	37.9	142	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	76.6	40	↓	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	35.7	34	=	24.7
3.3.03	Life Expectancy Growth	39.4	68	-	33.3
3.3.04	Poverty Decreasing Rate	0.0	157	-	83.2



Bogor City

Cities/Regencies Rank

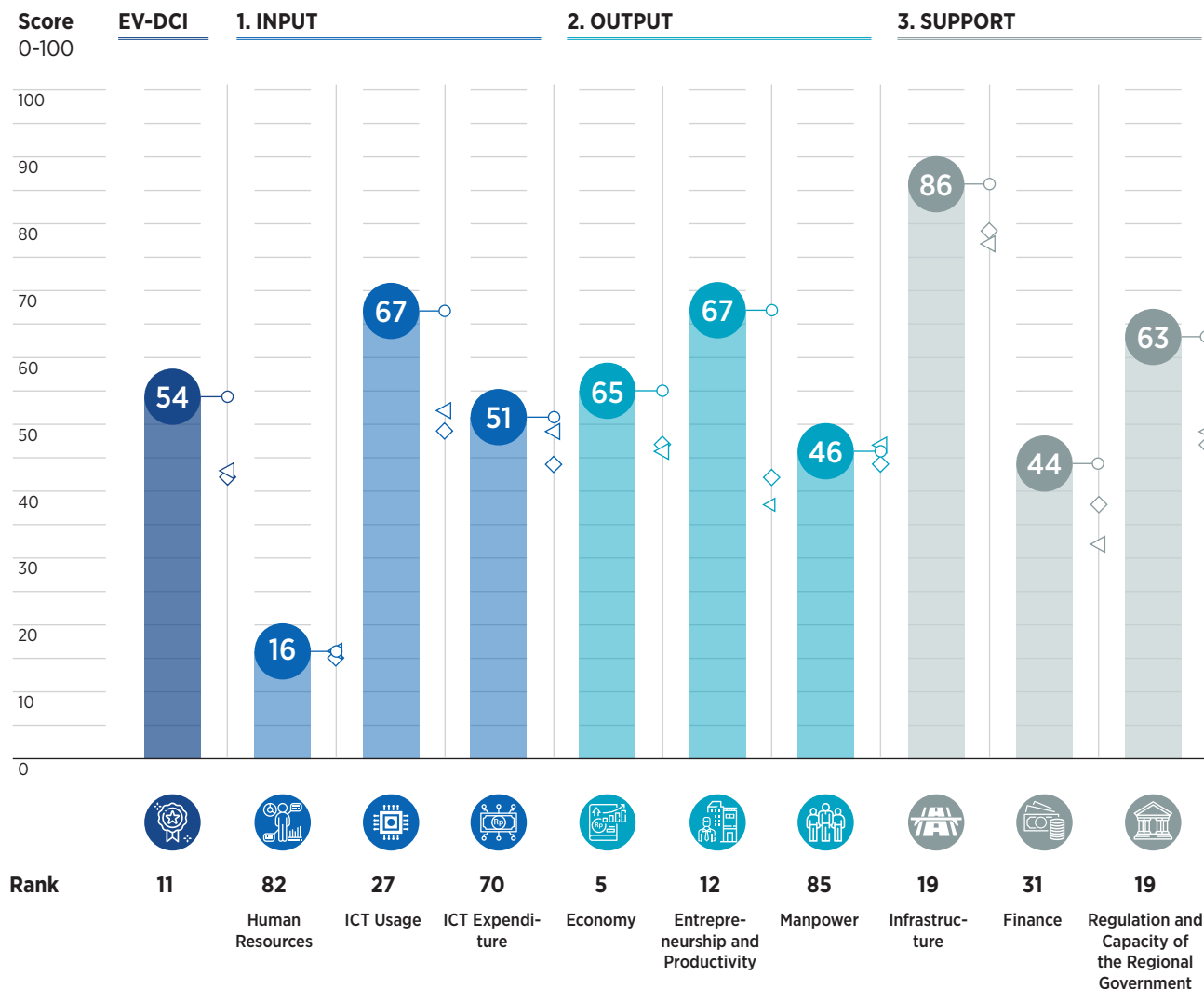
2021 :
202022 :
11

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	11.3
Area (km2)	118.5

Economic Growth (percent)	-0.5
Gross Regional Domestic Product (GRDP) (IDR trillion)	45.9
GRDP per Capita (IDR thousand)	40,766

Human Development Index	76.6
Life Expectancy (year)	73.6
School Life Expectancy (year)	13.4
Average School Attendance (year)	10.5

Domestic Investment Realization (IDR billion)	31
Foreign Investment Realization (USD million)	381.2

Bogor City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	44.4	47	↓	38.9
1.1	Human Resources	15.6	82	↑	15.9
1.1.01	Number of Students with Digital Capabilities	4.2	37	↑	1.4
1.1.02	Growth of Students with Digital Capabilities	10.5	49	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	3.1	43	↓	1.1
1.1.04	Number of Digitalization-Related Study Programs	6.0	40	↓	2.4
1.1.05	Digital Literacy Index	54.5	86	↓	58.9
1.2	ICT Usage	66.7	27	↑	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	73.9	40	↑	56.6
1.2.02	Ratio of Citizens that Have Computer	51.3	50	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	81.0	29	↓	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	93.4	39	↑	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	74.3	30	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	40.6	53	↑	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	55.3	18	↑	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	64.1	98	↓	69.5
1.3	ICT Expenditure	50.9	70	↓	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	42.4	142	↓	76.4
1.3.02	Average Expenditure of Households for ICT	33.6	41	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	88.7	16	↓	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	39.0	24	↓	18.2
2	OUTPUT	59.4	10	↓	43.0
2.1	Economy	64.6	5	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	51.3	31	↑	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	40.1	39	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	88.6	3	↑	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	63.0	15	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	48.2	16	↑	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97.4	16	↓	91.4
2.1.07	GRDP of the Financial Services Sector	86.4	17	↓	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	57.8	22	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	48.9	63	↓	47.4
2.2	Entrepreneurship and Productivity	67.2	12	↑	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	61.3	46	↓	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	61.1	46	↓	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	68.0	15	=	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	69.6	14	↑	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	83.6	7	↑	22.9
2.2.06	Loan Using Fintech	59.3	22	↓	40.0
2.3	Manpower	46.4	85	↓	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	5.9	25	↓	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	49.6	29	↓	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	15.6	144	↓	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	90.2	102	↓	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	55.6	99	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	61.4	58	↓	58.2
3	SUPPORT	64.4	7	↑	52.4
3.1	Infrastructure	85.7	19	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95.0	69	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	98.5	54	↓	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	98.1	51	↓	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	36.9	19	↓	11.2
3.2	Finance	44.2	31	↓	32.2
3.2.01	Financial Inclusion Index	82.0	26	=	75.2
3.2.02	Number of Digital Finance Service Agent	18.3	38	-	5.3
3.2.03	Use of E-wallet as a Payment Method	32.4	14	-	15.6
3.3	Regulation and Capacity of the Regional Government	63.4	19	↑	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	85.6	19	↑	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17.8	106	↓	24.7
3.3.03	Life Expectancy Growth	76.4	14	-	33.3
3.3.04	Poverty Decreasing Rate	73.8	120	-	83.2



Balikpapan City

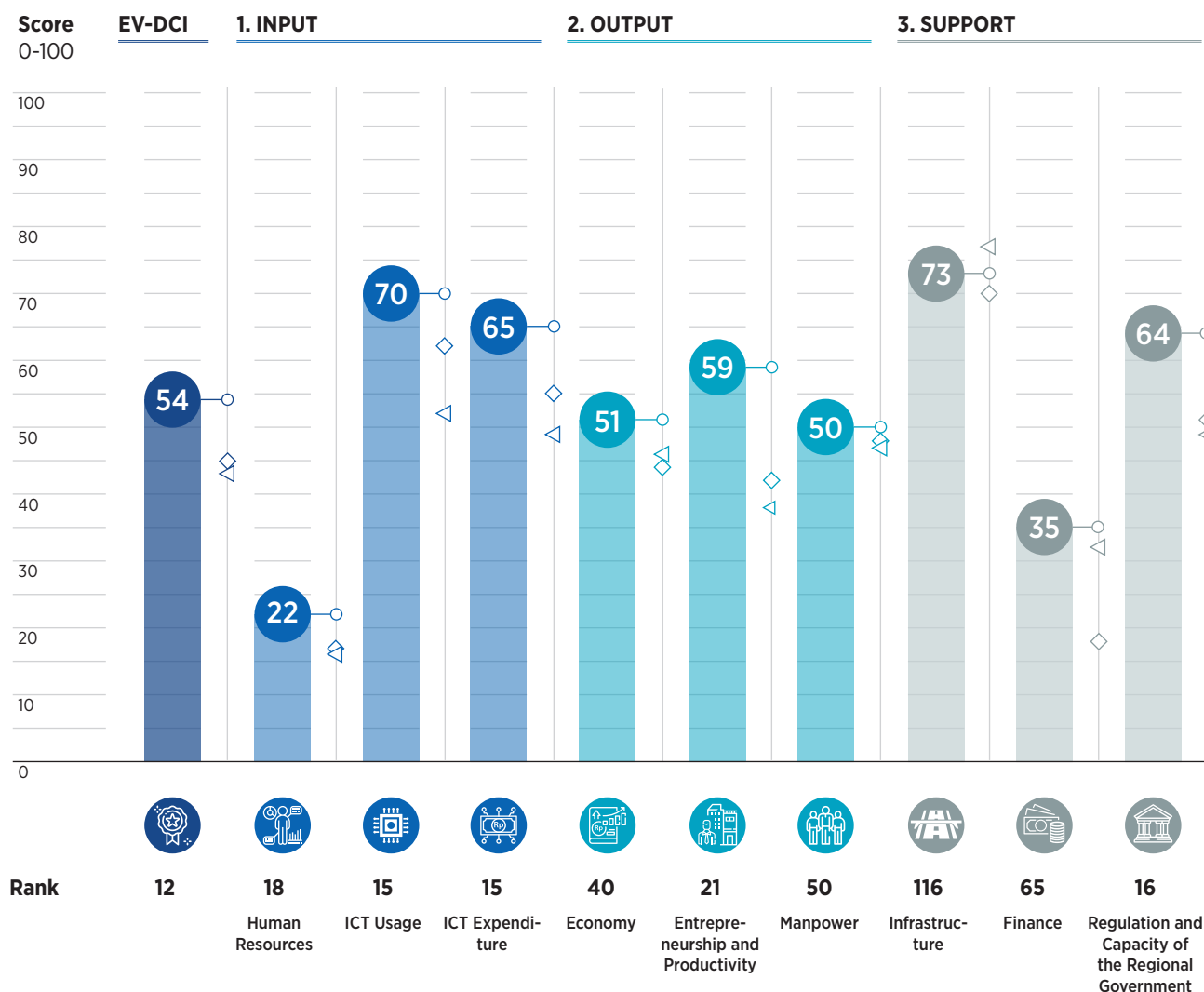
Cities/Regencies Rank

 2021 :
15

 2022 :
12
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Kalimantan

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	6.6
Area (km2)	503.3
Economic Growth (percent)	-0.7
Gross Regional Domestic Product (GRDP) (IDR trillion)	103.6
GRDP per Capita (IDR thousand)	155,977
Human Development Index	80.7
Life Expectancy (year)	74.5
School Life Expectancy (year)	14.2
Average School Attendance (year)	10.9
Domestic Investment Realization (IDR billion)	2,598
Foreign Investment Realization (USD million)	139.0

Balikpapan City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	51.9	12	↑	38.9
1.1	Human Resources	21.8	18	↑	15.9
1.1.01	Number of Students with Digital Capabilities	4.9	33	↓	1.4
1.1.02	Growth of Students with Digital Capabilities	11.3	42	↓	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	4.1	34	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	6.5	34	↓	2.4
1.1.05	Digital Literacy Index	82.4	8	↑	58.9
1.2	ICT Usage	69.5	15	↑	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	100.0	1	↑	56.6
1.2.02	Ratio of Citizens that Have Computer	74.8	6	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	92.7	8	↑	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	85.9	91	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	81.2	20	↓	56.1
1.2.06	Ratio of Citizens that Access Internet from School	22.9	120	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	55.6	17	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	42.8	144	↓	69.5
1.3	ICT Expenditure	64.5	15	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	94.4	17	↓	76.4
1.3.02	Average Expenditure of Households for ICT	34.3	40	↓	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	87.3	25	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	42.1	20	↑	18.2
2	OUTPUT	53.4	23	↑	43.0
2.1	Economy	51.0	40	=	45.8
2.1.01	GRDP of the Information and Communication Sector	53.2	27	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	19.7	97	↓	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	21.6	122	↓	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	70.5	7	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	37.6	24	↓	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	90.5	89	↓	91.4
2.1.07	GRDP of the Financial Services Sector	86.9	13	=	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	28.6	66	↓	25.5
2.1.09	GRDP Growth of the Financial Services Sector	50.8	49	↑	47.4
2.2	Entrepreneurship and Productivity	59.0	21	=	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	79.1	9	↑	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	77.5	10	↑	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	53.3	43	↓	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	45.7	46	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	52.4	30	↑	22.9
2.2.06	Loan Using Fintech	46.2	65	↑	40.0
2.3	Manpower	50.1	50	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	4.0	40	↓	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	54.2	21	↑	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	26.5	104	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	94.3	85	=	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	61.4	75	↓	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	60.1	67	↓	58.2
3	SUPPORT	57.3	39	↓	52.4
3.1	Infrastructure	72.6	116	↓	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	53.8	148	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	100.0	1	=	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	9.2	88	↓	11.2
3.2	Finance	35.1	65	↓	32.2
3.2.01	Financial Inclusion Index	93.2	18	=	75.2
3.2.02	Number of Digital Finance Service Agent	6.4	72	-	5.3
3.2.03	Use of E-wallet as a Payment Method	5.8	130	-	15.6
3.3	Regulation and Capacity of the Regional Government	64.3	16	↑	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	54.4	83	↑	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41.9	26	↑	24.7
3.3.03	Life Expectancy Growth	97.1	4	-	33.3
3.3.04	Poverty Decreasing Rate	63.8	141	-	83.2



Padang City

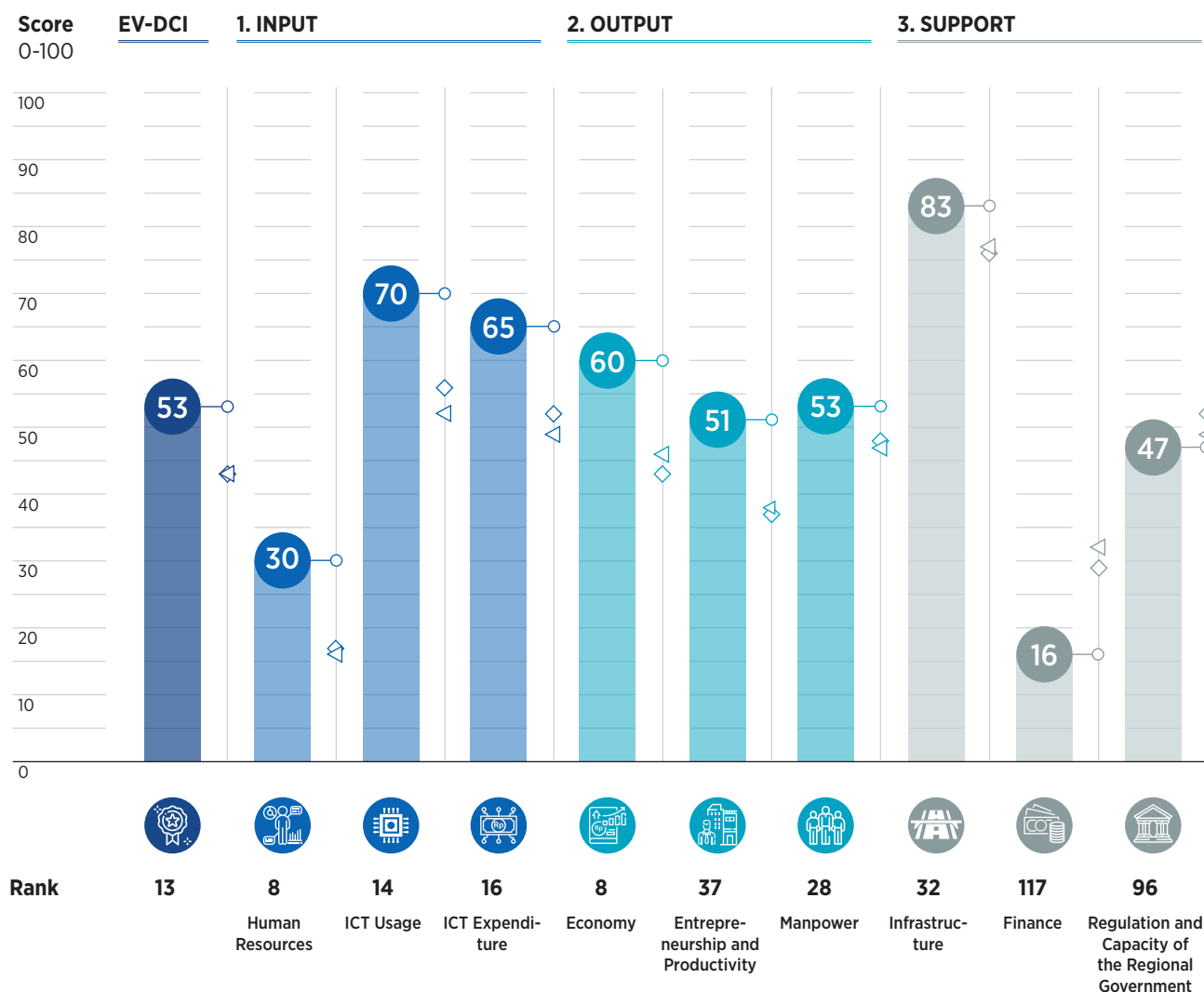
Cities/Regencies Rank

 2021 :
18

 2022 :
13
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sumatra

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	9.6
Area (km ²)	695
Economic Growth (percent)	-1.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	62.2
GRDP per Capita (IDR thousand)	64,667
Human Development Index	82.9
Life Expectancy (year)	73.7
School Life Expectancy (year)	16.5
Average School Attendance (year)	11.6
Domestic Investment Realization (IDR billion)	464.4
Foreign Investment Realization (USD million)	25.1

Padang City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	54.9	5	↑	38.9
1.1	Human Resources	30.1	8	↓	15.9
1.1.01	Number of Students with Digital Capabilities	17.0	10	=	1.4
1.1.02	Growth of Students with Digital Capabilities	8.4	75	↑	8.3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	20.5	9	↑	1.1
1.1.04	Number of Digitalization-Related Study Programs	23.0	9	=	2.4
1.1.05	Digital Literacy Index	81.5	12	↓	58.9
1.2	ICT Usage	70.2	14	↑	52.2
1.2.01	Ratio of Citizens that Have Cellular Phone	70.6	50	↓	56.6
1.2.02	Ratio of Citizens that Have Computer	69.1	11	↑	35.2
1.2.03	Ratio of Citizens that Have Access to Internet	72.4	50	↑	59.7
1.2.04	Ratio of Citizens that Access Internet from Home	95.1	28	↓	88.0
1.2.05	Ratio of Citizens that Access Internet from Office	64.0	52	↑	56.1
1.2.06	Ratio of Citizens that Access Internet from School	88.2	5	↓	34.0
1.2.07	Ratio of Citizens that Access Internet with Laptop	52.2	22	↓	27.0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	50.0	134	↓	69.5
1.3	ICT Expenditure	64.5	16	↑	49.5
1.3.01	Ratio of Households that Have ICT Expenditure	97.6	4	↑	76.4
1.3.02	Average Expenditure of Households for ICT	30.3	53	↑	24.0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	85.2	34	↑	80.5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	44.9	16	↑	18.2
2	OUTPUT	54.5	16	↑	43.0
2.1	Economy	59.9	8	↑	45.8
2.1.01	GRDP of the Information and Communication Sector	57.0	14	↓	40.0
2.1.02	GRDP Contribution of the Information and Communication Sector	50.7	23	↑	24.3
2.1.03	GRDP Growth of the Information and Communication Sector	33.7	69	↓	30.5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	69.9	8	↑	39.3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	60.3	7	=	16.1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	91.2	82	↓	91.4
2.1.07	GRDP of the Financial Services Sector	86.3	18	↑	82.2
2.1.08	GRDP Contribution of the Financial Services Sector	40.2	40	=	25.5
2.1.09	GRDP Growth of the Financial Services Sector	50.0	57	↑	47.4
2.2	Entrepreneurship and Productivity	50.8	37	↑	38.2
2.2.01	Ratio of Population Using the Internet in their Main Job	63.7	40	↑	43.1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	61.6	42	↑	42.7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	50.0	45	↑	34.2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	39.1	64	↓	35.0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	47.9	34	↑	22.9
2.2.06	Loan Using Fintech	42.8	72	↑	40.0
2.3	Manpower	52.8	28	↑	46.7
2.3.01	Number of Workers in Digitalization-Related Sectors	4.5	35	↓	2.0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	41.2	50	↓	30.7
2.3.03	Growth of Workers in Digitalization-Related Sectors	30.9	87	↑	33.5
2.3.04	Number of Workers in Digitalization-Prone Categories	93.1	94	↑	95.5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	81.2	17	↑	60.8
2.3.06	Growth of Workers in Digitalization-Prone Categories	65.6	38	↑	58.2
3	SUPPORT	48.6	103	↓	52.4
3.1	Infrastructure	82.6	32	↑	77.2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	88.8	111	↓	95.0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100.0	1	↑	94.9
3.1.03	Ratio of Villages that Get 3G Signal	100.0	1	=	100.0
3.1.04	Ratio of Villages that Get 4G Signal	98.8	48	↑	90.4
3.1.05	Ratio of Households with Fixed Phone Connection	25.6	30	↑	11.2
3.2	Finance	15.6	117	↓	32.2
3.2.01	Financial Inclusion Index	19.8	112	=	75.2
3.2.02	Number of Digital Finance Service Agent	11.5	59	-	5.3
3.2.03	Use of E-wallet as a Payment Method	15.7	57	-	15.6
3.3	Regulation and Capacity of the Regional Government	47.4	96	↓	49.4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	62.2	67	↑	55.5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	48.6	12	↑	24.7
3.3.03	Life Expectancy Growth	14.5	136	-	33.3
3.3.04	Poverty Decreasing Rate	64.2	140	-	83.2



Bengkulu City

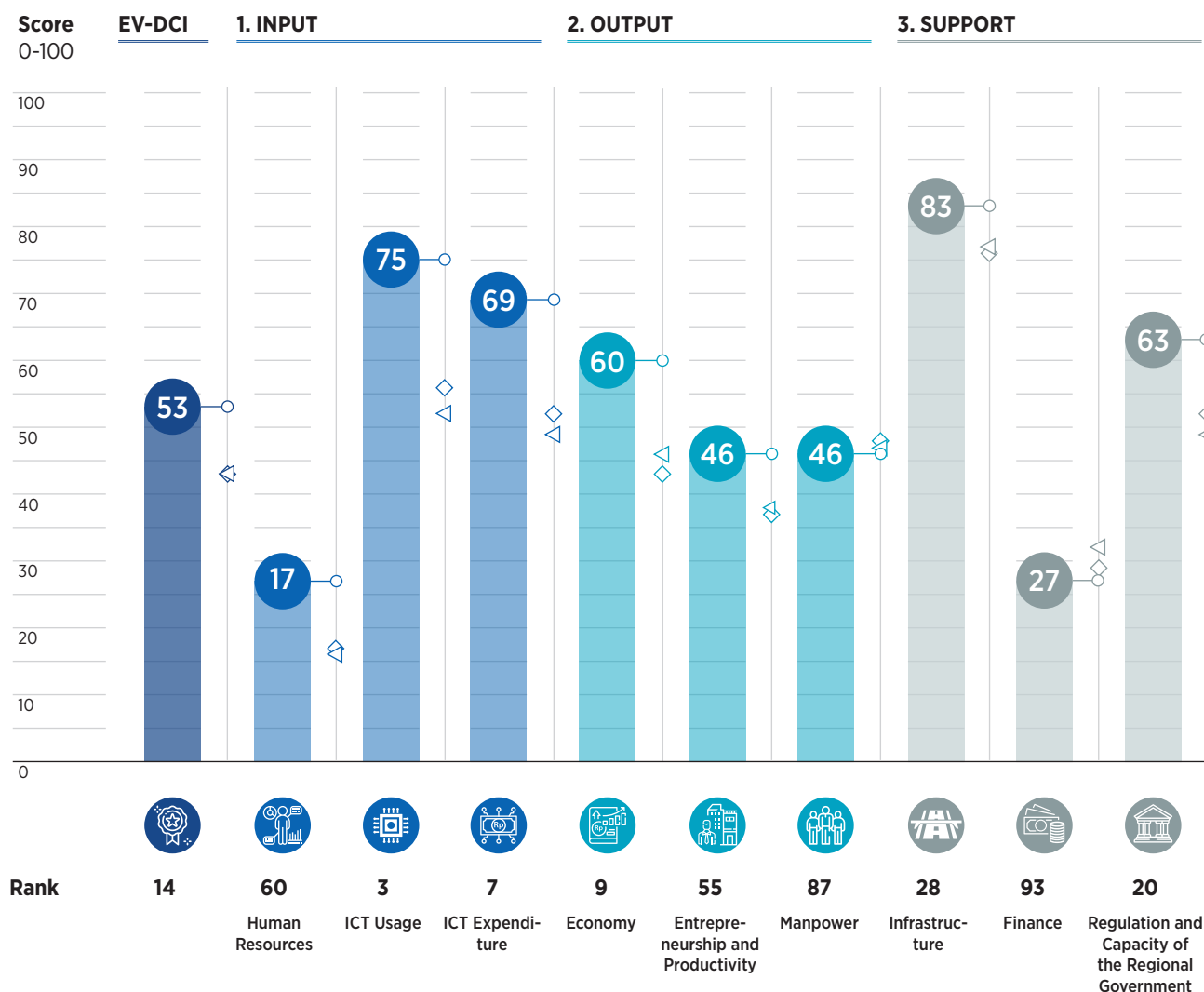
Cities/Regencies Rank

 2021 :
42

 2022 :
14
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sumatera

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	3.9
Area (km2)	151.7
Economic Growth (percent)	-0.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	23.5
GRDP per Capita (IDR thousand)	59,703
Human Development Index	80.5
Life Expectancy (year)	70.1
School Life Expectancy (year)	16.0
Average School Attendance (year)	11.8
Domestic Investment Realization (IDR billion)	69.4
Foreign Investment Realization (USD million)	12.6

Bengkulu City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	53,7	7	↑	38,9
1.1	Human Resources	16,6	60	↑	15,9
1.1.01	Number of Students with Digital Capabilities	4,2	38	↓	1,4
1.1.02	Growth of Students with Digital Capabilities	8,6	72	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	4,4	30	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	6,0	40	↓	2,4
1.1.05	Digital Literacy Index	60,2	67	↑	58,9
1.2	ICT Usage	75,3	3	↑	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	73,6	41	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	64,0	22	↓	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	77,0	38	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	97,3	15	↑	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	81,6	18	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	80,9	6	↑	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	49,3	28	↓	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	78,3	52	↑	69,5
1.3	ICT Expenditure	69,3	7	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	94,0	19	↑	76,4
1.3.02	Average Expenditure of Households for ICT	31,2	50	↓	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	88,2	18	↑	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	63,8	4	↑	18,2
2	OUTPUT	50,8	34	↑	43,0
2.1	Economy	59,9	9	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	45,5	56	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	46,3	28	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	11,3	153	↓	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	58,5	27	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	66,9	3	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95,5	36	↓	91,4
2.1.07	GRDP of the Financial Services Sector	83,2	64	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	37,9	44	↑	25,5
2.1.09	GRDP Growth of the Financial Services Sector	93,8	2	↑	47,4
2.2	Entrepreneurship and Productivity	46,2	55	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	64,9	38	↑	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	64,3	38	↑	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	49,2	48	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	37,9	67	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	30,0	59	↑	22,9
2.2.06	Loan Using Fintech	31,0	110	↑	40,0
2.3	Manpower	46,3	87	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	2,0	78	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	46,6	34	↑	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	21,9	123	↑	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	96,9	67	=	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	68,6	45	↑	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	41,9	145	↓	58,2
3	SUPPORT	57,7	37	↑	52,4
3.1	Infrastructure	83,1	28	↑	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	88,7	119	↑	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	=	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	98,1	52	↓	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	28,9	25	↑	11,2
3.2	Finance	27,3	93	↓	32,2
3.2.01	Financial Inclusion Index	73,7	82	=	75,2
3.2.02	Number of Digital Finance Service Agent	5,3	79	-	5,3
3.2.03	Use of E-wallet as a Payment Method	2,9	135	-	15,6
3.3	Regulation and Capacity of the Regional Government	62,8	20	↑	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	94,3	5	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	39,3	32	↓	24,7
3.3.03	Life Expectancy Growth	26,7	99	-	33,3
3.3.04	Poverty Decreasing Rate	91,1	22	-	83,2



Medan City

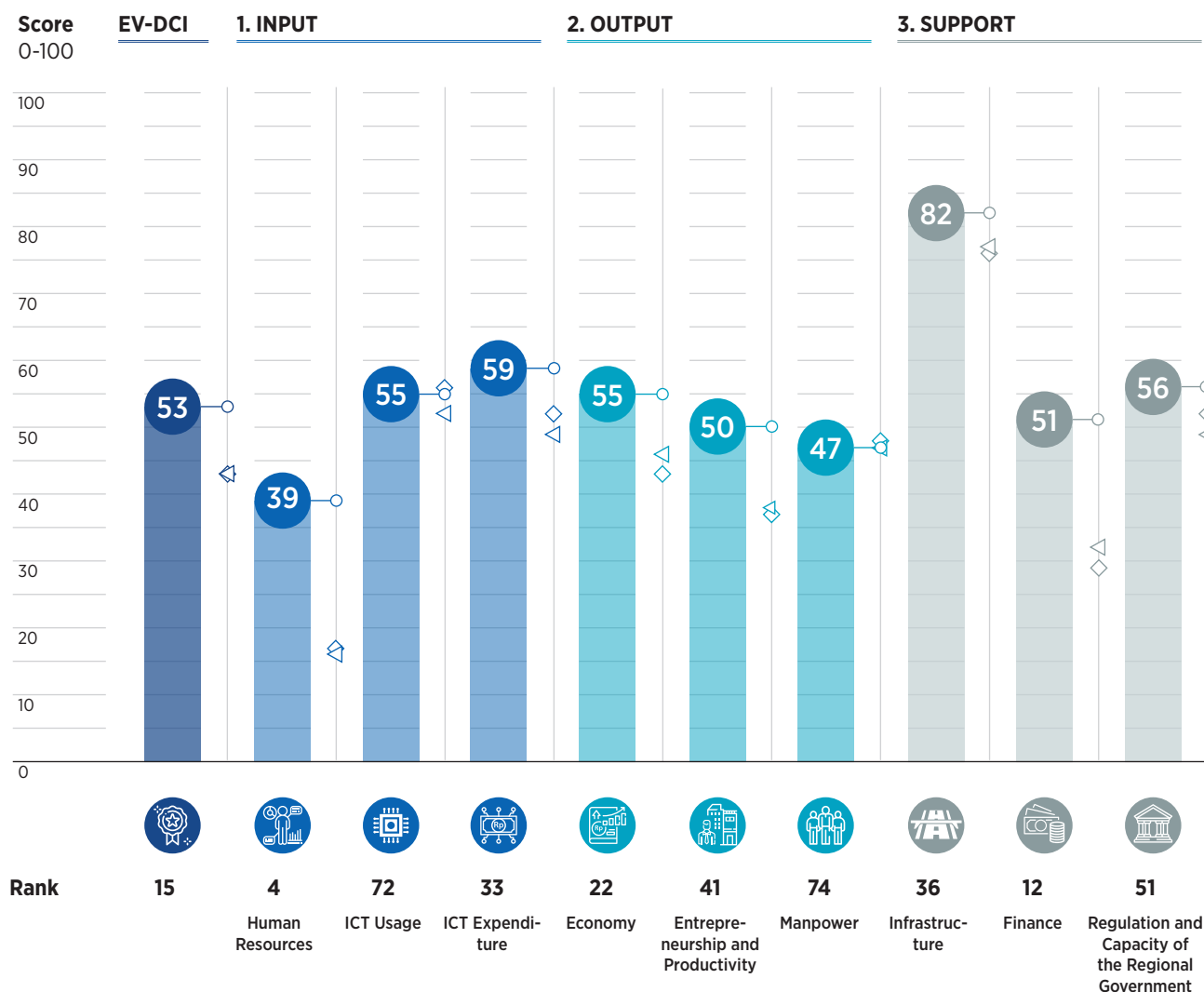
Cities/Regencies Rank

 2021 :
17

 2022 :
15
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sumatera

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	23.0
Area (km2)	265.1
Economic Growth (percent)	-2.0
Gross Regional Domestic Product (GRDP) (IDR trillion)	242.2
GRDP per Capita (IDR thousand)	105,533
Human Development Index	81.2
Life Expectancy (year)	73.1
School Life Expectancy (year)	14.8
Average School Attendance (year)	11.5
Domestic Investment Realization (IDR billion)	210
Foreign Investment Realization (USD million)	38.9

Medan City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	50,9	14	↑	38,9
1.1	Human Resources	38,8	4	↓	15,9
1.1.01	Number of Students with Digital Capabilities	44,2	2	=	1,4
1.1.02	Growth of Students with Digital Capabilities	7,3	119	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	30,5	5	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	51,7	3	=	2,4
1.1.05	Digital Literacy Index	60,0	68	↑	58,9
1.2	ICT Usage	55,0	72	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	66,3	62	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	46,6	58	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	68,7	60	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	65,0	140	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	60,5	61	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	34,0	79	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	36,9	57	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	62,0	106	↑	69,5
1.3	ICT Expenditure	58,9	33	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	90,7	33	↑	76,4
1.3.02	Average Expenditure of Households for ICT	29,3	55	=	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	88,9	15	↓	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	26,9	39	↑	18,2
2	OUTPUT	50,9	33	↓	43,0
2.1	Economy	55,4	22	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	67,7	6	=	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	33,7	60	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	26,0	99	↓	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	74,8	6	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	21,9	59	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	90,1	92	↓	91,4
2.1.07	GRDP of the Financial Services Sector	90,8	4	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	47,5	30	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	46,1	90	↑	47,4
2.2	Entrepreneurship and Productivity	49,9	41	↓	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	50,9	66	↑	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	49,8	68	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	42,5	62	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	45,1	47	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	57,7	24	↑	22,9
2.2.06	Loan Using Fintech	53,4	35	↓	40,0
2.3	Manpower	47,3	74	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	15,1	11	=	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	59,7	17	↑	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	35,2	67	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	77,5	142	=	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	48,2	125	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	48,3	127	↓	58,2
3	SUPPORT	63,0	11	↑	52,4
3.1	Infrastructure	82,1	36	↑	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	93,1	99	↑	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	↑	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	100,0	1	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	17,5	58	↓	11,2
3.2	Finance	50,6	12	↓	32,2
3.2.01	Financial Inclusion Index	97,8	2	=	75,2
3.2.02	Number of Digital Finance Service Agent	23,8	23	-	5,3
3.2.03	Use of E-wallet as a Payment Method	30,4	36	-	15,6
3.3	Regulation and Capacity of the Regional Government	56,3	51	↑	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	81,2	29	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	26,6	59	↓	24,7
3.3.03	Life Expectancy Growth	32,9	80	-	33,3
3.3.04	Poverty Decreasing Rate	84,3	70	-	83,2



Makassar City

East Ventures - Digital Competitiveness Index 2022

Cities/Regencies Rank

2021 :

10

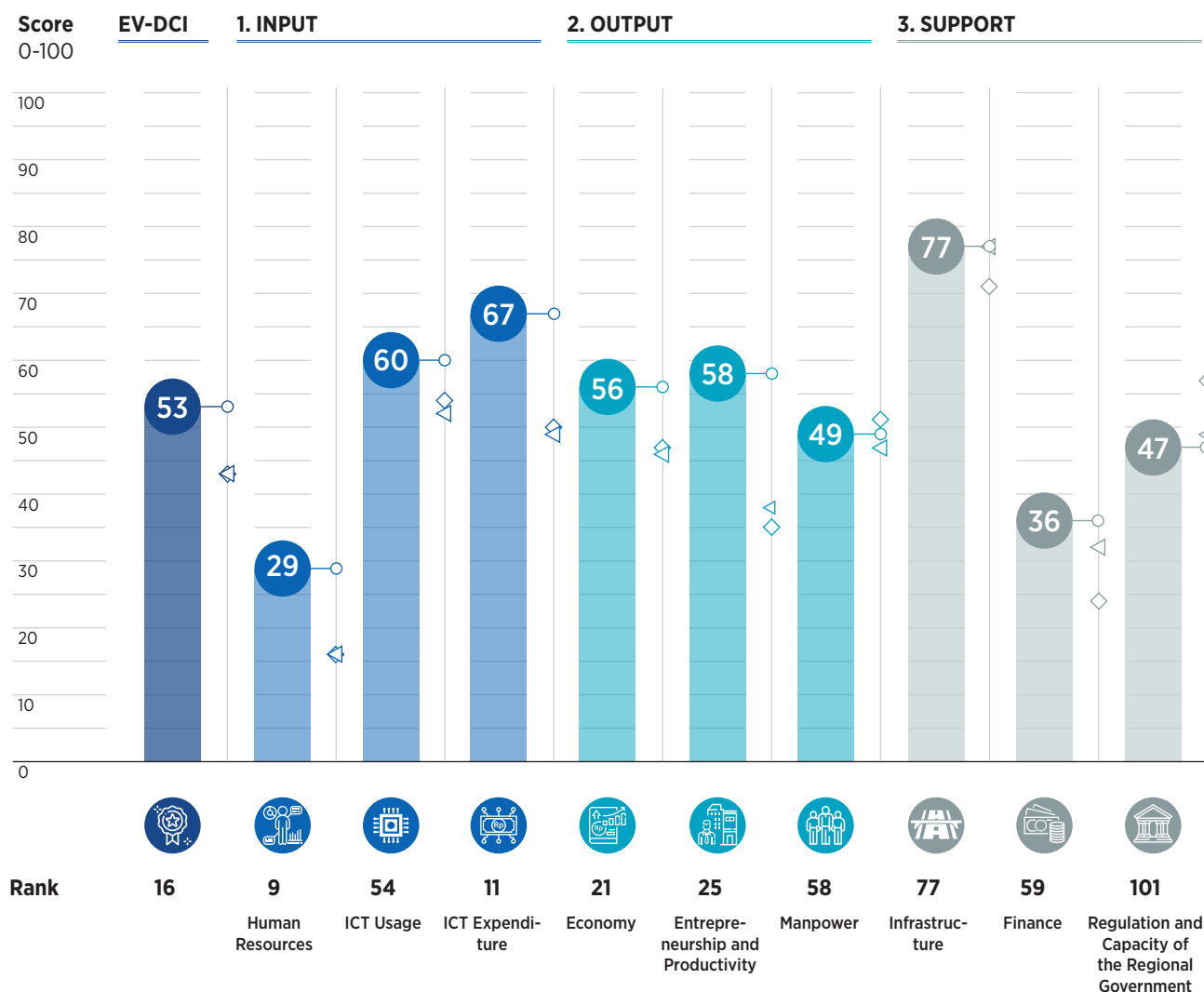
2022 :

16

Performance 2022

◇ Regional Median Score
Sulawesi

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	15.5
Area (km2)	175.8

Economic Growth (percent)	-1.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	178.3
GRDP per Capita (IDR thousand)	115,398

Human Development Index	82.7
Life Expectancy (year)	72.1
School Life Expectancy (year)	15.6
Average School Attendance (year)	11.4

Domestic Investment Realization (IDR billion)	375.5
Foreign Investment Realization (USD million)	124.2

Makassar City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	52,1	10	↑	38,9
1.1	Human Resources	29,3	9	↑	15,9
1.1.01	Number of Students with Digital Capabilities	22,9	9	=	1,4
1.1.02	Growth of Students with Digital Capabilities	10,6	48	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	20,9	8	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	36,7	6	=	2,4
1.1.05	Digital Literacy Index	55,6	80	↑	58,9
1.2	ICT Usage	60,1	54	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	79,3	27	↑	56,6
1.2.02	Ratio of Citizens that Have Computer	57,2	37	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	79,1	32	↑	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	77,4	122	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	52,6	87	↓	56,1
1.2.06	Ratio of Citizens that Access Internet from School	44,7	43	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	51,2	24	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	39,3	151	↓	69,5
1.3	ICT Expenditure	66,9	11	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	85,0	54	↓	76,4
1.3.02	Average Expenditure of Households for ICT	32,5	46	↓	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	92,0	10	=	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	58,2	5	↑	18,2
2	OUTPUT	54,3	17	↓	43,0
2.1	Economy	55,7	21	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	70,7	5	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	62,7	12	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	30,5	79	↓	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	58,0	28	↓	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	7,6	119	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	86,2	105	↓	91,4
2.1.07	GRDP of the Financial Services Sector	89,9	5	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	46,9	31	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	49,3	61	↓	47,4
2.2	Entrepreneurship and Productivity	58,0	25	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	55,0	61	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	54,3	61	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	53,1	44	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	60,0	24	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	76,1	10	↑	22,9
2.2.06	Loan Using Fintech	49,4	54	↑	40,0
2.3	Manpower	49,2	58	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	9,7	16	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	61,1	16	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	30,6	89	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	87,1	117	↓	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	59,4	83	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	47,6	132	↓	58,2
3	SUPPORT	53,4	72	↓	52,4
3.1	Infrastructure	77,4	77	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	80,4	137	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	96,7	64	↓	94,9
3.1.03	Ratio of Villages that Get 3G Signal	97,0	122	↓	100,0
3.1.04	Ratio of Villages that Get 4G Signal	95,8	58	↓	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	17,2	61	↑	11,2
3.2	Finance	36,1	59	↓	32,2
3.2.01	Financial Inclusion Index	77,5	68	=	75,2
3.2.02	Number of Digital Finance Service Agent	14,8	50	-	5,3
3.2.03	Use of E-wallet as a Payment Method	15,9	51	-	15,6
3.3	Regulation and Capacity of the Regional Government	46,8	101	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	47,8	99	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	45,4	20	↑	24,7
3.3.03	Life Expectancy Growth	14,9	131	-	33,3
3.3.04	Poverty Decreasing Rate	79,2	102	-	83,2



Pekanbaru City

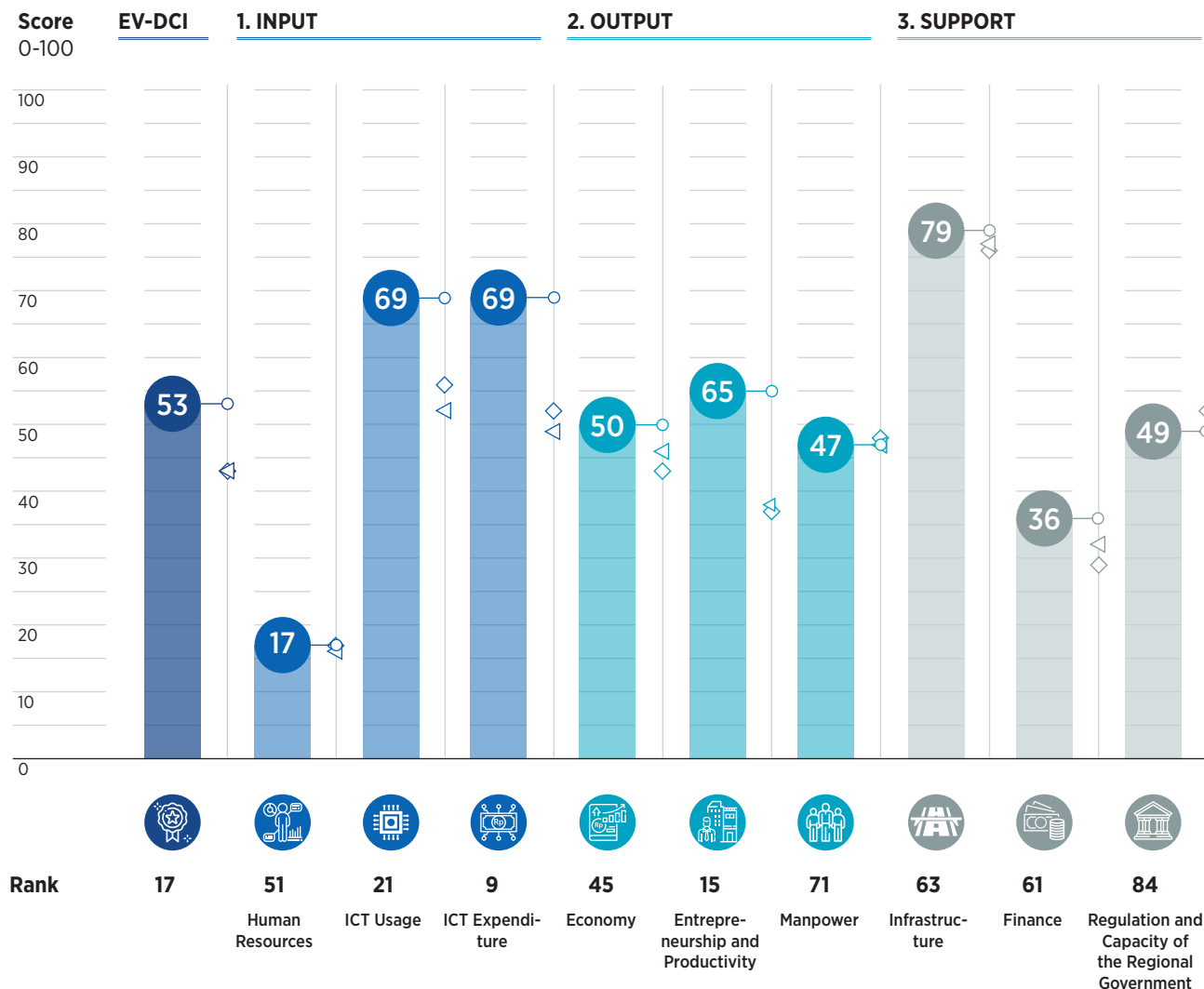
Cities/Regencies Rank

 2021 :
24

 2022 :
17
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sumatera

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	11.7
Area (km2)	632.3
Economic Growth (percent)	-4.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	115.5
GRDP per Capita (IDR thousand)	98,813
Human Development Index	81.6
Life Expectancy (year)	72.3
School Life Expectancy (year)	15.6
Average School Attendance (year)	11.9
Domestic Investment Realization (IDR billion)	910.8
Foreign Investment Realization (USD million)	298.3

Pekanbaru City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	51,6	13	↑	38,9
1.1	Human Resources	17,1	51	↓	15,9
1.1.01	Number of Students with Digital Capabilities	13,7	12	=	1,4
1.1.02	Growth of Students with Digital Capabilities	7,7	116	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	12,9	11	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	18,5	12	=	2,4
1.1.05	Digital Literacy Index	32,4	154	↓	58,9
1.2	ICT Usage	68,7	21	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	82,0	22	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	71,4	8	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	82,5	24	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	95,8	22	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	66,1	50	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	57,3	21	↑	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	49,9	27	↓	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	44,6	140	↓	69,5
1.3	ICT Expenditure	69,0	9	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	97,1	7	↑	76,4
1.3.02	Average Expenditure of Households for ICT	67,4	5	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	87,5	22	↓	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	24,0	48	↑	18,2
2	OUTPUT	54,1	19	↑	43,0
2.1	Economy	50,3	45	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	52,0	28	↑	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	15,2	111	↑	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	70,6	17	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	50,8	44	↓	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	6,7	129	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	84,2	112	=	91,4
2.1.07	GRDP of the Financial Services Sector	86,8	14	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	24,8	82	↑	25,5
2.1.09	GRDP Growth of the Financial Services Sector	61,5	21	↑	47,4
2.2	Entrepreneurship and Productivity	64,7	15	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	69,1	28	↑	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	66,6	33	↑	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	78,3	9	↑	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	68,8	15	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	60,6	21	↓	22,9
2.2.06	Loan Using Fintech	44,7	68	↑	40,0
2.3	Manpower	47,4	71	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	5,8	27	↓	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	45,5	39	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	20,6	129	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	90,4	100	↑	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	64,2	60	↑	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	57,9	83	↑	58,2
3	SUPPORT	54,7	66	↓	52,4
3.1	Infrastructure	79,4	63	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	94,5	92	↑	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	97,6	59	↑	94,9
3.1.03	Ratio of Villages that Get 3G Signal	98,1	108	↑	100,0
3.1.04	Ratio of Villages that Get 4G Signal	93,8	68	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	12,8	70	↓	11,2
3.2	Finance	35,5	61	↓	32,2
3.2.01	Financial Inclusion Index	76,0	74	=	75,2
3.2.02	Number of Digital Finance Service Agent	12,7	57	-	5,3
3.2.03	Use of E-wallet as a Payment Method	17,9	48	-	15,6
3.3	Regulation and Capacity of the Regional Government	49,2	84	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	61,3	70	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	34,8	41	↑	24,7
3.3.03	Life Expectancy Growth	25,9	104	-	33,3
3.3.04	Poverty Decreasing Rate	74,7	115	-	83,2



Samarinda City

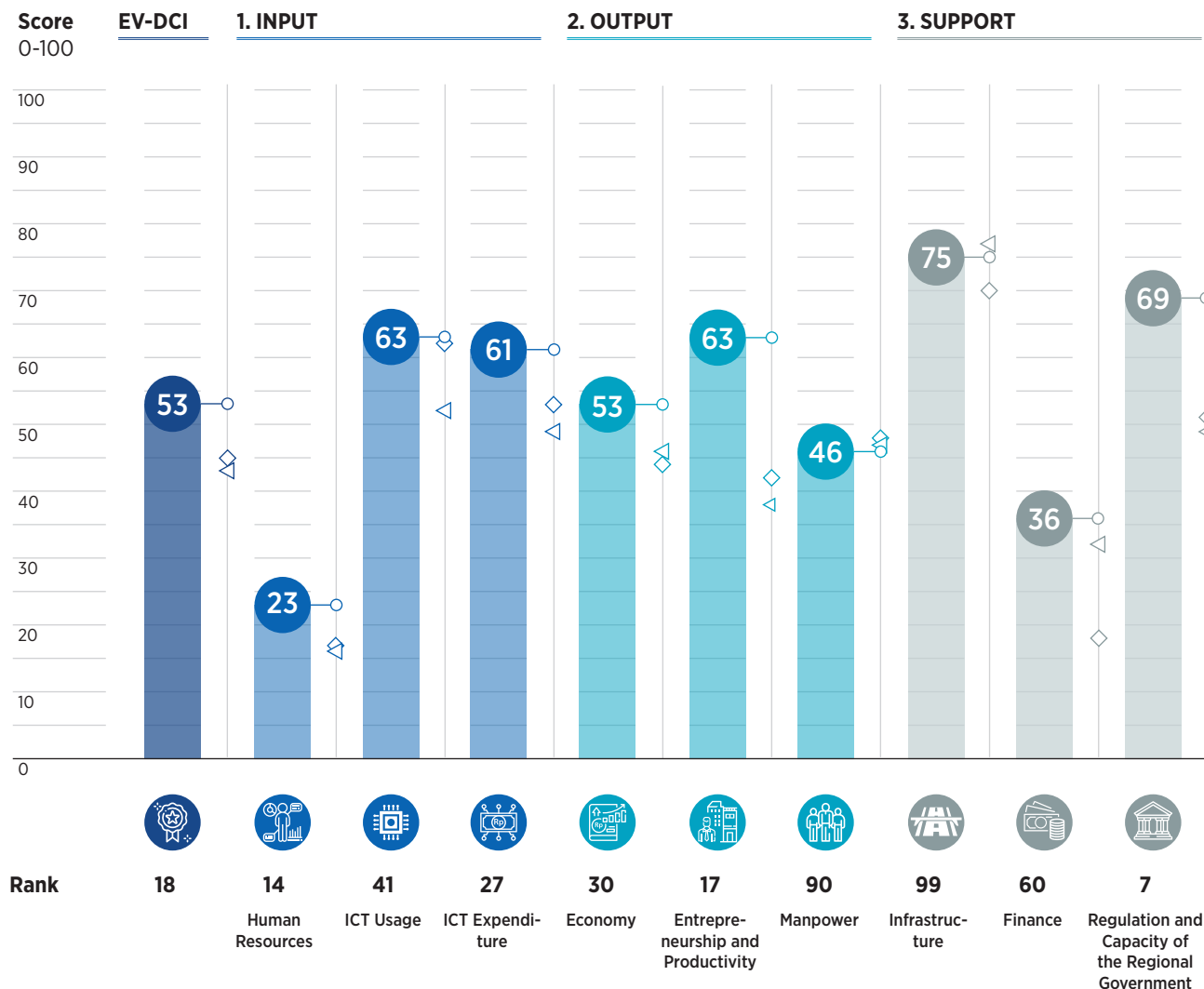
Cities/Regencies Rank

 2021 :
21

 2022 :
18
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Kalimantan

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	8.9
Area (km2)	717.4
Economic Growth (percent)	-1.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	66.5
GRDP per Capita (IDR thousand)	75,036
Human Development Index	80.8
Life Expectancy (year)	74.3
School Life Expectancy (year)	15.1
Average School Attendance (year)	10.5
Domestic Investment Realization (IDR billion)	154.6
Foreign Investment Realization (USD million)	124.9

Samarinda City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	48,8	22	↓	38,9
1.1	Human Resources	22,7	14	↑	15,9
1.1.01	Number of Students with Digital Capabilities	4,8	35	↑	1,4
1.1.02	Growth of Students with Digital Capabilities	13,4	29	↑	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	6,7	23	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	6,1	38	↓	2,4
1.1.05	Digital Literacy Index	82,4	8	↑	58,9
1.2	ICT Usage	62,7	41	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	88,1	7	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	58,7	34	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	72,4	49	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	84,0	97	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	66,4	48	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	21,9	123	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	41,8	43	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	68,3	82	↓	69,5
1.3	ICT Expenditure	60,9	27	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	93,4	21	↑	76,4
1.3.02	Average Expenditure of Households for ICT	51,0	9	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	83,7	46	↓	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	15,5	96	↓	18,2
2	OUTPUT	53,9	20	↑	43,0
2.1	Economy	52,7	30	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	48,9	40	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	20,8	90	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	20,8	130	↓	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	60,3	20	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	26,7	49	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97,9	7	↑	91,4
2.1.07	GRDP of the Financial Services Sector	87,5	10	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	58,4	20	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	52,8	41	↑	47,4
2.2	Entrepreneurship and Productivity	63,1	17	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	75,9	16	↑	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	75,6	17	↑	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	70,6	11	↑	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	63,1	19	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	43,9	38	↑	22,9
2.2.06	Loan Using Fintech	49,3	55	↑	40,0
2.3	Manpower	46,0	90	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	4,5	36	↓	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	44,1	43	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	12,5	150	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	92,4	96	=	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	64,7	57	↑	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	57,7	84	↑	58,2
3	SUPPORT	59,9	22	↓	52,4
3.1	Infrastructure	74,9	99	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	53,8	148	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	96,6	66	↓	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	95,7	60	↓	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	28,6	26	↓	11,2
3.2	Finance	35,9	60	↓	32,2
3.2.01	Financial Inclusion Index	93,2	18	=	75,2
3.2.02	Number of Digital Finance Service Agent	8,7	65	-	5,3
3.2.03	Use of E-wallet as a Payment Method	5,8	130	-	15,6
3.3	Regulation and Capacity of the Regional Government	68,9	7	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	54,0	84	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	41,9	26	↑	24,7
3.3.03	Life Expectancy Growth	97,3	2	-	33,3
3.3.04	Poverty Decreasing Rate	82,5	83	-	83,2



Tangerang City

Cities/Regencies Rank

2021 :

8

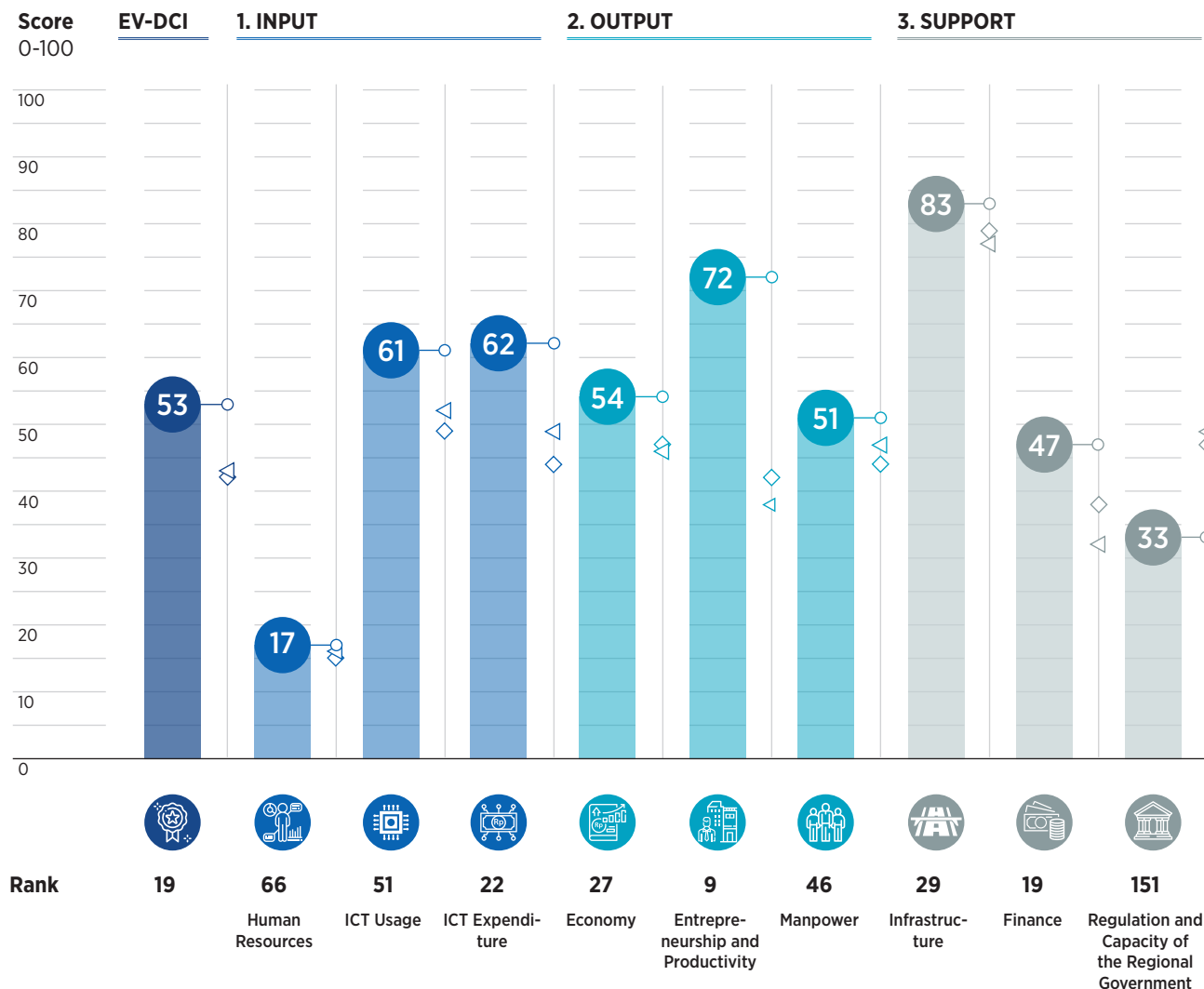
2022 :

19

East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Jabodetabek

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	22.7
Area (km2)	164.6
Economic Growth (percent)	-6.9
Gross Regional Domestic Product (GRDP) (IDR trillion)	143.8
GRDP per Capita (IDR thousand)	63,263
Human Development Index	78.5
Life Expectancy (year)	71.6
School Life Expectancy (year)	13.9
Average School Attendance (year)	10.8
Domestic Investment Realization (IDR billion)	236.5
Foreign Investment Realization (USD million)	124.5

Tangerang City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	46,7	31	↓	38,9
1.1	Human Resources	16,5	66	↓	15,9
1.1.01	Number of Students with Digital Capabilities	10,1	16	↓	1,4
1.1.02	Growth of Students with Digital Capabilities	5,1	141	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	11,4	15	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	19,2	11	=	2,4
1.1.05	Digital Literacy Index	36,9	146	↓	58,9
1.2	ICT Usage	61,4	51	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	78,6	29	↑	56,6
1.2.02	Ratio of Citizens that Have Computer	42,6	65	↓	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	84,6	21	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	73,2	131	↑	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	83,4	10	↓	56,1
1.2.06	Ratio of Citizens that Access Internet from School	32,2	84	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	32,5	64	↓	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	63,9	99	↑	69,5
1.3	ICT Expenditure	62,1	22	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	64,0	105	↓	76,4
1.3.02	Average Expenditure of Households for ICT	44,3	16	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	94,1	6	=	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	46,1	14	↑	18,2
2	OUTPUT	58,7	11	↓	43,0
2.1	Economy	53,8	27	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	62,1	9	=	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	33,8	59	↑	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	27,4	92	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	81,2	3	↓	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	62,0	5	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	49,1	154	↓	91,4
2.1.07	GRDP of the Financial Services Sector	87,4	11	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	24,2	86	↑	25,5
2.1.09	GRDP Growth of the Financial Services Sector	57,4	26	↑	47,4
2.2	Entrepreneurship and Productivity	71,6	9	↓	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	58,6	53	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	57,9	54	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	68,3	14	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	75,6	11	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	100,0	1	↑	22,9
2.2.06	Loan Using Fintech	69,1	7	↓	40,0
2.3	Manpower	50,7	46	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	18,1	8	↓	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	70,1	12	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	27,0	101	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	77,1	143	↓	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	51,2	118	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	60,6	66	↓	58,2
3	SUPPORT	54,3	69	↓	52,4
3.1	Infrastructure	83,1	29	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98,6	7	↑	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	98,1	55	↓	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	96,3	57	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	22,7	38	↓	11,2
3.2	Finance	46,7	19	↓	32,2
3.2.01	Financial Inclusion Index	70,0	87	=	75,2
3.2.02	Number of Digital Finance Service Agent	20,1	30	-	5,3
3.2.03	Use of E-wallet as a Payment Method	49,8	2	-	15,6
3.3	Regulation and Capacity of the Regional Government	33,1	151	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	42,3	112	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	29,0	50	↑	24,7
3.3.03	Life Expectancy Growth	0,0	154	-	33,3
3.3.04	Poverty Decreasing Rate	60,9	147	-	83,2



Madiun City

Cities/Regencies Rank

2021 : 16

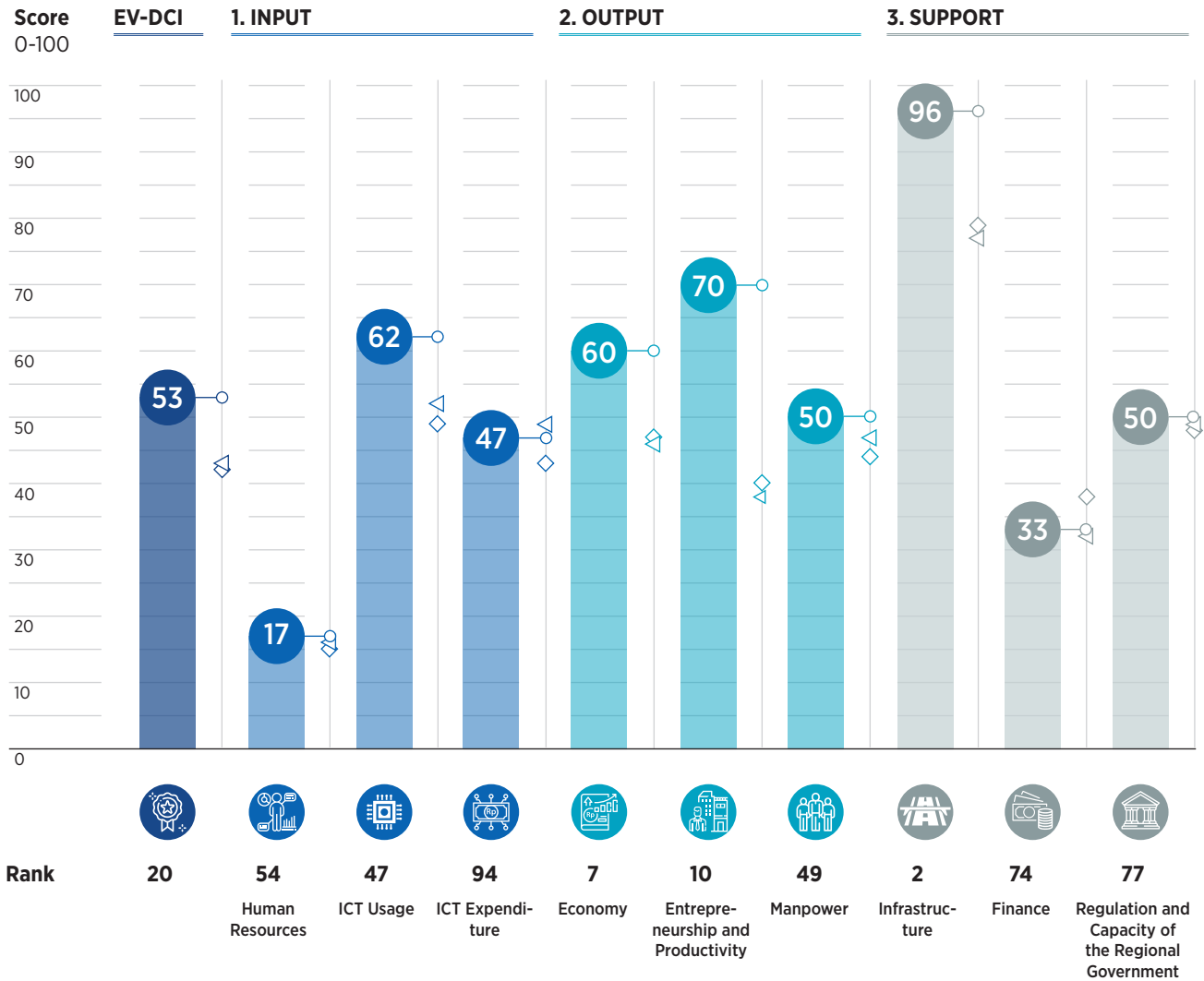
2022 : 20

East Ventures - Digital Competitiveness Index 2022

Performance 2022

◇ Regional Median Score
Jawa

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	1.8
Area (km2)	33.2
Economic Growth (percent)	-3.4
Gross Regional Domestic Product (GRDP) (IDR trillion)	13.8
GRDP per Capita (IDR thousand)	77,618
Human Development Index	81.3
Life Expectancy (year)	72.8
School Life Expectancy (year)	14.4
Average School Attendance (year)	11.4
Domestic Investment Realization (IDR billion)	20.0
Foreign Investment Realization (USD million)	9.1

Madiun City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	41,8	62	↑	38,9
1.1	Human Resources	16,9	54	↑	15,9
1.1.01	Number of Students with Digital Capabilities	1,5	73	↑	1,4
1.1.02	Growth of Students with Digital Capabilities	9,4	57	↑	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	1,7	66	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	3,1	64	↑	2,4
1.1.05	Digital Literacy Index	69,0	38	↑	58,9
1.2	ICT Usage	61,9	47	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	84,9	12	↑	56,6
1.2.02	Ratio of Citizens that Have Computer	66,5	19	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	81,8	26	↑	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	89,3	69	↑	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	71,2	38	↓	56,1
1.2.06	Ratio of Citizens that Access Internet from School	22,3	122	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	56,7	13	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	22,4	156	↓	69,5
1.3	ICT Expenditure	46,5	94	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	73,2	88	↓	76,4
1.3.02	Average Expenditure of Households for ICT	21,8	91	↓	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	76,1	114	↑	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	15,0	99	↑	18,2
2	OUTPUT	60,2	8	↓	43,0
2.1	Economy	59,9	7	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	47,7	46	↑	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	100,0	1	=	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	46,0	45	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	30,3	118	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	12,6	92	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95,8	33	↓	91,4
2.1.07	GRDP of the Financial Services Sector	83,8	50	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	83,6	7	=	25,5
2.1.09	GRDP Growth of the Financial Services Sector	39,6	132	↓	47,4
2.2	Entrepreneurship and Productivity	70,5	10	=	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	69,1	27	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	69,4	28	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	87,7	6	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	84,5	7	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	79,1	8	↑	22,9
2.2.06	Loan Using Fintech	33,1	102	↓	40,0
2.3	Manpower	50,3	49	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	0,7	126	↓	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	31,1	78	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	17,5	140	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	98,8	18	↑	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	79,6	21	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	74,1	8	↓	58,2
3	SUPPORT	59,5	24	↓	52,4
3.1	Infrastructure	95,9	2	↑	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95,5	49	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	=	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	↑	100,0
3.1.04	Ratio of Villages that Get 4G Signal	100,0	1	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	83,9	2	↑	11,2
3.2	Finance	32,8	74	↓	32,2
3.2.01	Financial Inclusion Index	80,5	48	=	75,2
3.2.02	Number of Digital Finance Service Agent	2,3	109	-	5,3
3.2.03	Use of E-wallet as a Payment Method	15,6	64	-	15,6
3.3	Regulation and Capacity of the Regional Government	49,7	77	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	77,6	36	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	24,7	70	↓	24,7
3.3.03	Life Expectancy Growth	7,4	148	-	33,3
3.3.04	Poverty Decreasing Rate	89,0	36	-	83,2



Manado City

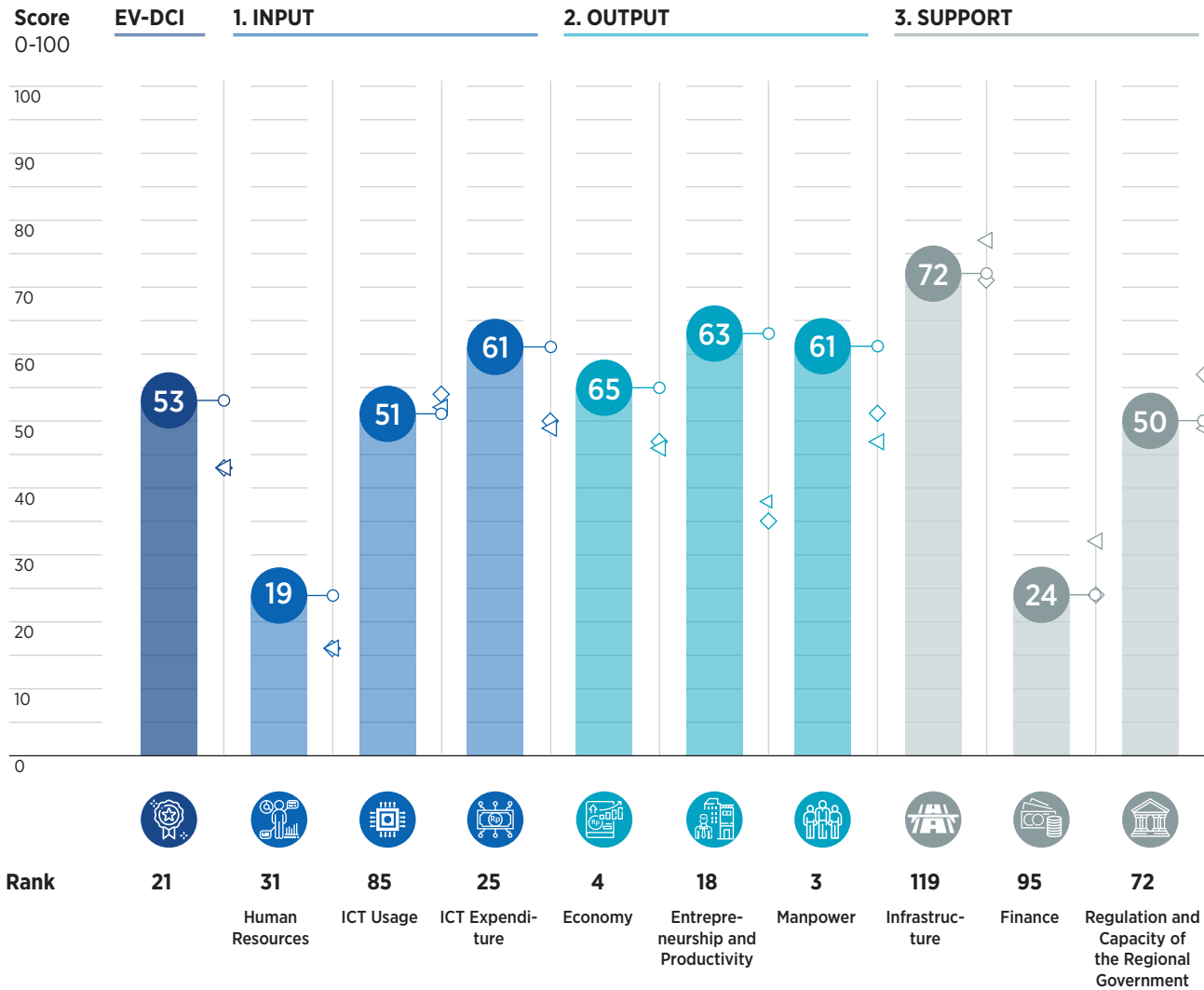
East Ventures - Digital Competitiveness Index 2022

Cities/Regencies Rank
2021 : 23
2022 : 21

Performance 2022

◇ Regional Median Score
Sulawesi

◁ 157 Cities/Regencies Median Score



Cities/Regencies Profile

Population (thousand)	4.4
Area (km2)	162.5
Economic Growth (percent)	-3.1
Gross Regional Domestic Product (GRDP) (IDR trillion)	36.6
GRDP per Capita (IDR thousand)	84,144
Human Development Index	79.2
Life Expectancy (year)	71.9
School Life Expectancy (year)	14.2
Average School Attendance (year)	11.4
Domestic Investment Realization (IDR billion)	142.3
Foreign Investment Realization (USD million)	10.9

Manado City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	44,0	54	↓	38,9
1.1	Human Resources	19,1	31	↑	15,9
1.1.01	Number of Students with Digital Capabilities	4,6	36	↑	1,4
1.1.02	Growth of Students with Digital Capabilities	11,4	41	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	5,7	27	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	8,5	25	↑	2,4
1.1.05	Digital Literacy Index	65,4	58	↑	58,9
1.2	ICT Usage	51,4	85	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	82,4	19	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	47,8	56	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	70,7	54	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	37,2	154	=	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	47,3	102	↓	56,1
1.2.06	Ratio of Citizens that Access Internet from School	17,8	140	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	45,6	40	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	62,7	104	↑	69,5
1.3	ICT Expenditure	61,3	25	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	87,7	44	↓	76,4
1.3.02	Average Expenditure of Households for ICT	36,5	34	↓	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	86,2	30	↑	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	34,9	28	↑	18,2
2	OUTPUT	63,2	7	↑	43,0
2.1	Economy	65,3	4	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	54,8	23	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	71,6	7	↑	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	36,3	64	=	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	63,0	16	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	60,6	6	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	84,7	109	↓	91,4
2.1.07	GRDP of the Financial Services Sector	86,2	19	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	68,3	12	=	25,5
2.1.09	GRDP Growth of the Financial Services Sector	62,3	20	↑	47,4
2.2	Entrepreneurship and Productivity	63,0	18	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	63,3	41	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	62,7	41	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	58,8	27	↑	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	64,6	18	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	87,6	3	↑	22,9
2.2.06	Loan Using Fintech	41,3	76	↑	40,0
2.3	Manpower	61,1	3	↑	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	3,7	42	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	88,9	2	↑	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	41,9	43	↑	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	96,5	73	↑	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	55,8	98	↑	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	79,8	6	↑	58,2
3	SUPPORT	48,9	101	↓	52,4
3.1	Infrastructure	72,1	119	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	65,8	144	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	94,3	86	↓	94,9
3.1.03	Ratio of Villages that Get 3G Signal	96,4	128	↓	100,0
3.1.04	Ratio of Villages that Get 4G Signal	88,2	95	↓	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	15,9	64	↑	11,2
3.2	Finance	24,3	95	↓	32,2
3.2.01	Financial Inclusion Index	69,2	92	=	75,2
3.2.02	Number of Digital Finance Service Agent	3,8	87	-	5,3
3.2.03	Use of E-wallet as a Payment Method	0,0	141	-	15,6
3.3	Regulation and Capacity of the Regional Government	50,2	72	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	76,8	38	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	32,2	45	↑	24,7
3.3.03	Life Expectancy Growth	11,2	139	-	33,3
3.3.04	Poverty Decreasing Rate	80,6	94	-	83,2



Banda Aceh City

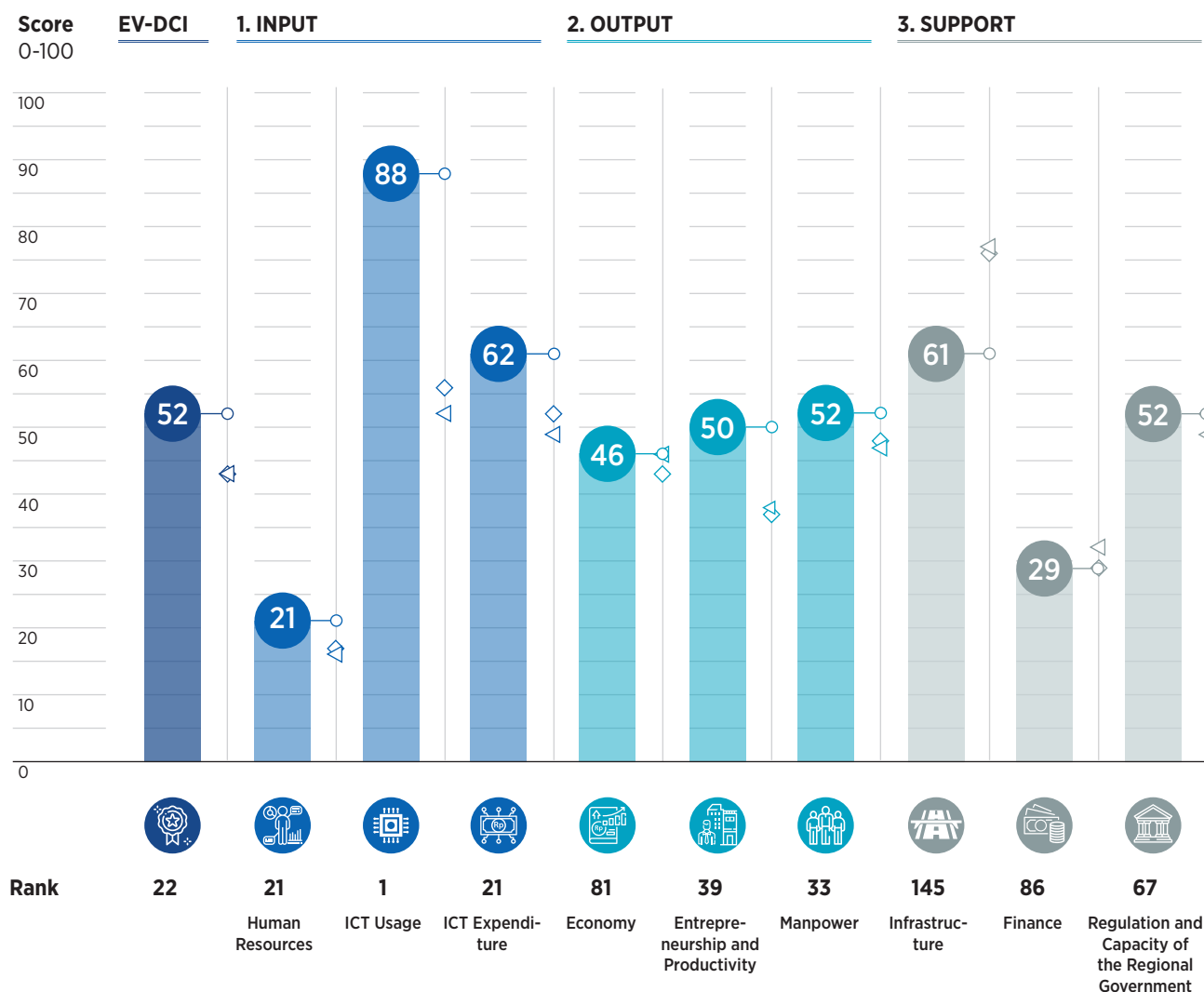
Cities/Regencies Rank

 2021 :
26

 2022 :
22
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Sumatera

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	2.8
Area (km2)	61.4
Economic Growth (percent)	-3.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	18.3
GRDP per Capita (IDR thousand)	66,186
Human Development Index	85.7
Life Expectancy (year)	71.5
School Life Expectancy (year)	17.8
Average School Attendance (year)	12.8
Domestic Investment Realization (IDR billion)	110.3
Foreign Investment Realization (USD million)	10.4

Banda Aceh City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	57,4	3	↑	38,9
1.1	Human Resources	21,4	21	↑	15,9
1.1.01	Number of Students with Digital Capabilities	5,7	29	↓	1,4
1.1.02	Growth of Students with Digital Capabilities	9,6	56	↑	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	5,9	26	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	11,4	17	↑	2,4
1.1.05	Digital Literacy Index	74,5	27	↑	58,9
1.2	ICT Usage	88,3	1	↑	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	85,9	10	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	100,0	1	↑	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	92,6	9	↑	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	98,6	7	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	87,2	6	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	92,1	2	↑	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	100,0	1	=	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	50,3	132	↓	69,5
1.3	ICT Expenditure	62,5	21	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	96,4	10	↑	76,4
1.3.02	Average Expenditure of Households for ICT	54,3	8	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	83,4	51	↑	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	15,7	92	↓	18,2
2	OUTPUT	49,3	42	↑	43,0
2.1	Economy	45,6	81	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	39,1	84	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	32,5	64	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	38,3	57	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	42,8	71	↓	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	25,5	51	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	74,0	133	↑	91,4
2.1.07	GRDP of the Financial Services Sector	81,4	96	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	25,7	77	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	50,9	48	↑	47,4
2.2	Entrepreneurship and Productivity	50,2	39	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	79,6	7	=	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	79,1	8	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	56,9	31	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	35,5	76	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	28,3	66	↓	22,9
2.2.06	Loan Using Fintech	21,9	141	↑	40,0
2.3	Manpower	52,2	33	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	1,1	105	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	35,3	67	↑	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	26,4	105	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	98,4	33	↑	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	91,2	6	↑	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	61,0	59	↓	58,2
3	SUPPORT	47,1	117	↓	52,4
3.1	Infrastructure	60,7	145	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	0,0	153	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	=	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	100,0	1	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	3,5	127	↓	11,2
3.2	Finance	28,9	86	↓	32,2
3.2.01	Financial Inclusion Index	75,2	77	=	75,2
3.2.02	Number of Digital Finance Service Agent	3,1	95	-	5,3
3.2.03	Use of E-wallet as a Payment Method	8,5	121	-	15,6
3.3	Regulation and Capacity of the Regional Government	51,7	67	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	62,0	68	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	49,3	7	↑	24,7
3.3.03	Life Expectancy Growth	26,2	102	-	33,3
3.3.04	Poverty Decreasing Rate	69,1	132	-	83,2



Madiun City

Cities/Regencies Rank

2021 :

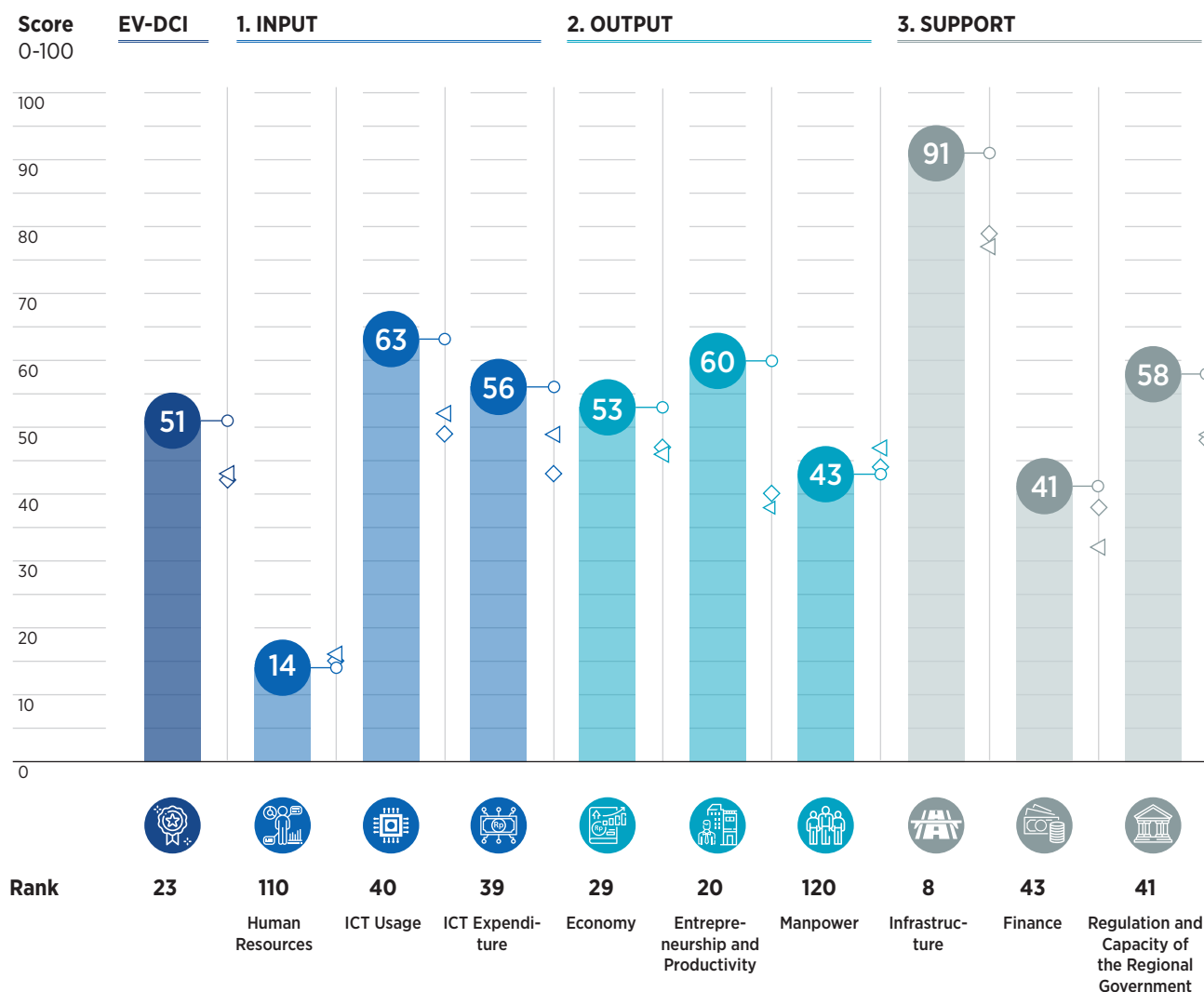
28

2022 :

23
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Jawa

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	6.2
Area (km2)	40.4
Economic Growth (percent)	-2.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	32.2
GRDP per Capita (IDR thousand)	51,920
Human Development Index	78.1
Life Expectancy (year)	74.0
School Life Expectancy (year)	13.8
Average School Attendance (year)	11.1
Domestic Investment Realization (IDR billion)	39.6
Foreign Investment Realization (USD million)	107.9

Madiun City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	44,4	49	↑	38,9
1.1	Human Resources	14,1	110	↓	15,9
1.1.01	Number of Students with Digital Capabilities	3,0	54	↓	1,4
1.1.02	Growth of Students with Digital Capabilities	7,9	114	↓	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	2,3	52	↑	1,1
1.1.04	Number of Digitalization-Related Study Programs	2,9	72	↓	2,4
1.1.05	Digital Literacy Index	54,5	86	↓	58,9
1.2	ICT Usage	63,0	40	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	78,5	30	↑	56,6
1.2.02	Ratio of Citizens that Have Computer	57,5	36	↓	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	93,7	7	↑	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	88,9	72	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	68,1	45	=	56,1
1.2.06	Ratio of Citizens that Access Internet from School	18,0	139	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	46,4	33	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	53,3	124	↓	69,5
1.3	ICT Expenditure	56,0	39	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	45,5	137	↑	76,4
1.3.02	Average Expenditure of Households for ICT	37,3	30	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	86,9	26	↓	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	54,4	10	↑	18,2
2	OUTPUT	51,8	27	↑	43,0
2.1	Economy	53,1	29	↑	45,8
2.1.01	GRDP of the Information and Communication Sector	46,9	52	↑	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	38,0	44	↑	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	84,5	8	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	43,0	70	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	14,3	84	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	97,8	9	↑	91,4
2.1.07	GRDP of the Financial Services Sector	82,7	69	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	22,5	92	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	48,7	67	↓	47,4
2.2	Entrepreneurship and Productivity	59,6	20	↓	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	68,3	32	↑	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	68,2	30	↑	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	59,6	24	↓	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	55,9	32	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	52,7	29	↓	22,9
2.2.06	Loan Using Fintech	53,0	40	↑	40,0
2.3	Manpower	42,7	120	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	2,4	66	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	36,7	61	↑	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	26,5	103	↑	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	94,2	87	=	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	39,8	140	=	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	56,7	89	↓	58,2
3	SUPPORT	63,6	9	↑	52,4
3.1	Infrastructure	91,3	8	↑	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	95,0	69	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	=	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	100,0	1	=	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	61,6	9	↑	11,2
3.2	Finance	41,4	43	↓	32,2
3.2.01	Financial Inclusion Index	82,0	26	=	75,2
3.2.02	Number of Digital Finance Service Agent	9,9	63	-	5,3
3.2.03	Use of E-wallet as a Payment Method	32,4	14	-	15,6
3.3	Regulation and Capacity of the Regional Government	58,2	41	↑	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	66,9	58	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	17,8	106	↓	24,7
3.3.03	Life Expectancy Growth	65,1	33	-	33,3
3.3.04	Poverty Decreasing Rate	82,9	81	-	83,2



Kendari City

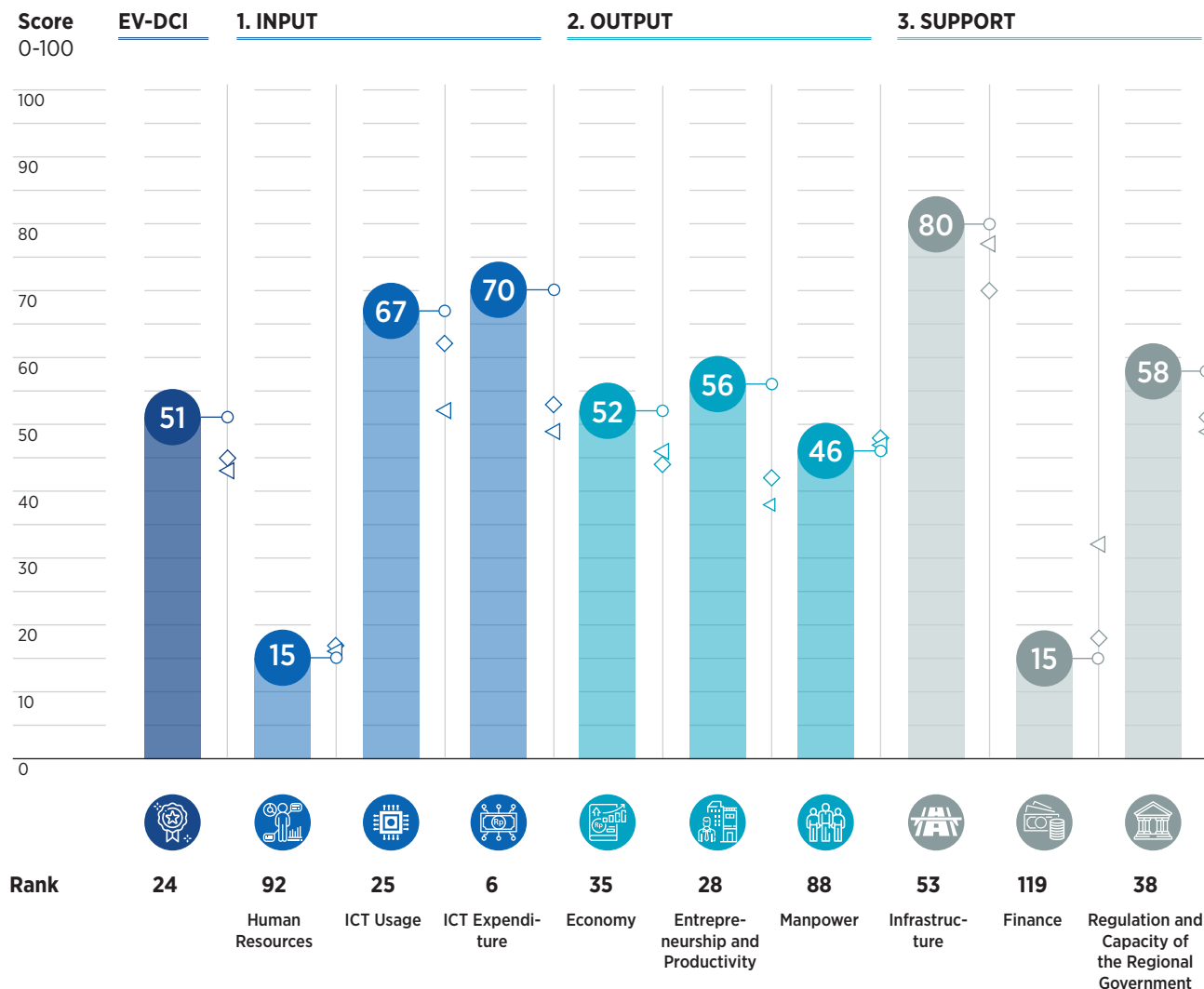
Cities/Regencies Rank

 2021 :
22

 2022 :
24
East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Kalimantan

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	4.0
Area (km2)	271.8
Economic Growth (percent)	-1.3
Gross Regional Domestic Product (GRDP) (IDR trillion)	22.0
GRDP per Capita (IDR thousand)	54,537
Human Development Index	84.2
Life Expectancy (year)	73.8
School Life Expectancy (year)	16.9
Average School Attendance (year)	12.5
Domestic Investment Realization (IDR billion)	110.2
Foreign Investment Realization (USD million)	103.6

Kendari City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	50,7	16	↓	38,9
1.1	Human Resources	15,4	92	↓	15,9
1.1.01	Number of Students with Digital Capabilities	5,8	28	↑	1,4
1.1.02	Growth of Students with Digital Capabilities	11,8	38	↑	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	2,6	45	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	10,2	22	↑	2,4
1.1.05	Digital Literacy Index	46,7	143	↓	58,9
1.2	ICT Usage	66,8	25	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	82,2	20	↓	56,6
1.2.02	Ratio of Citizens that Have Computer	69,1	12	↓	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	84,0	22	↑	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	84,6	94	↓	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	58,7	67	↓	56,1
1.2.06	Ratio of Citizens that Access Internet from School	50,1	33	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	66,7	6	↑	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	39,5	150	↓	69,5
1.3	ICT Expenditure	69,7	6	↑	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	96,0	12	↓	76,4
1.3.02	Average Expenditure of Households for ICT	43,6	17	↓	24,0
1.3.03	Total Renumeration and Wage of Information and Communication Sector Workers	86,4	28	↑	80,5
1.3.04	Average Renumeration and Wage of Information and Communication Sector Workers	52,8	11	↑	18,2
2	OUTPUT	51,6	28	↑	43,0
2.1	Economy	52,4	35	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	43,4	65	↓	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	40,4	36	↓	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	25,3	104	↓	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	47,5	52	↑	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	30,4	39	↑	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	95,4	42	↑	91,4
2.1.07	GRDP of the Financial Services Sector	83,9	48	↑	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	51,4	25	↓	25,5
2.1.09	GRDP Growth of the Financial Services Sector	53,8	35	↑	47,4
2.2	Entrepreneurship and Productivity	56,4	28	↑	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	67,6	33	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	67,4	32	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	66,6	16	↑	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	52,2	36	↑	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	56,4	26	↑	22,9
2.2.06	Loan Using Fintech	28,0	124	↑	40,0
2.3	Manpower	46,2	88	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	2,2	76	↓	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	46,4	35	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	42,7	40	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	96,3	76	↓	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	55,1	102	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	34,4	151	↓	58,2
3	SUPPORT	51,4	84	↓	52,4
3.1	Infrastructure	80,2	53	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	83,3	135	↓	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	100,0	1	↑	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	100,0	1	↑	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	17,9	55	↓	11,2
3.2	Finance	15,5	119	↓	32,2
3.2.01	Financial Inclusion Index	43,6	106	=	75,2
3.2.02	Number of Digital Finance Service Agent	2,8	98	-	5,3
3.2.03	Use of E-wallet as a Payment Method	0,0	141	-	15,6
3.3	Regulation and Capacity of the Regional Government	58,4	38	↓	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	98,0	2	↑	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	49,5	5	↑	24,7
3.3.03	Life Expectancy Growth	21,8	114	-	33,3
3.3.04	Poverty Decreasing Rate	64,3	138	-	83,2



Cimahi City

Cities/Regencies Rank

2021 :

14

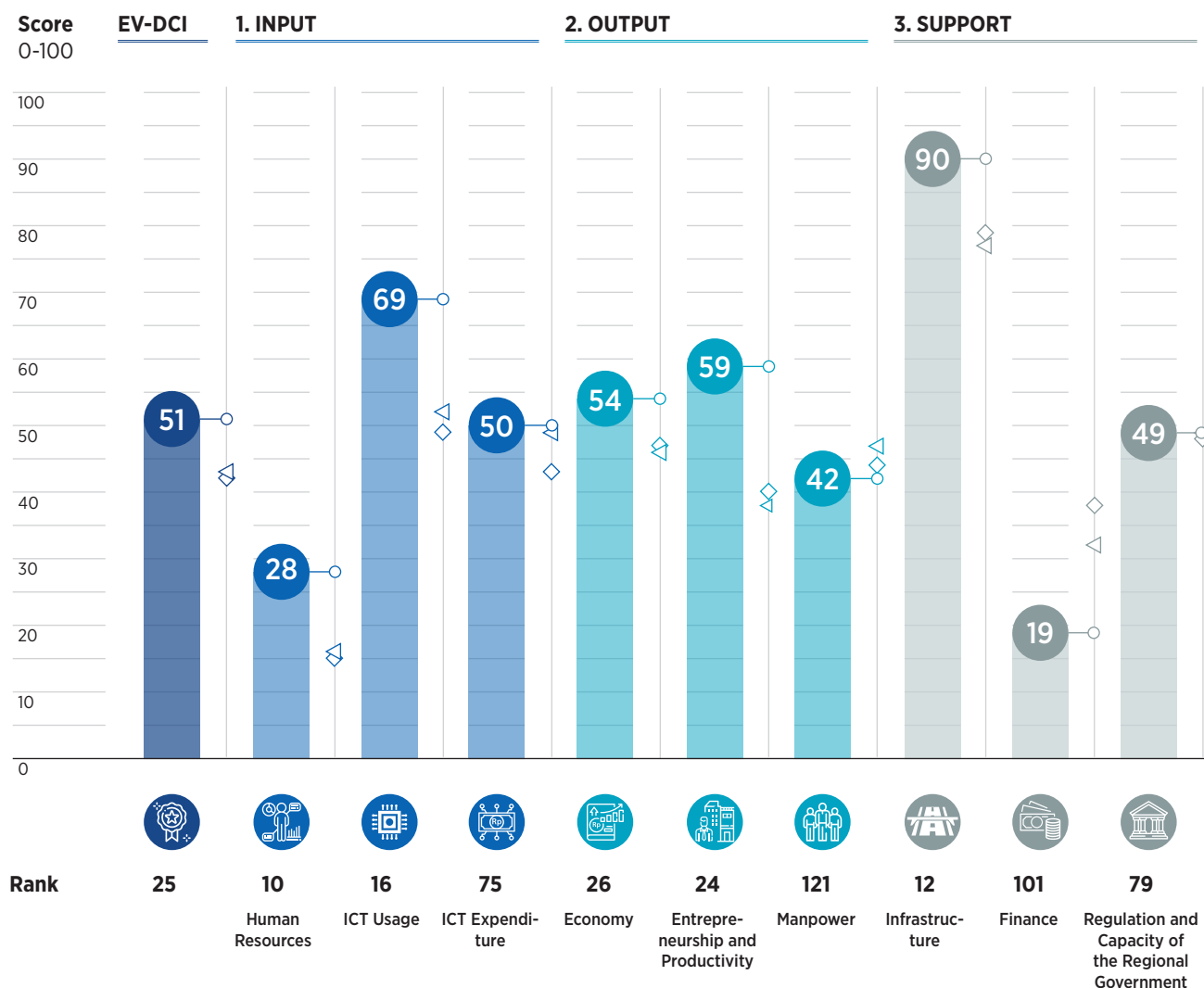
2022 :

25

East Ventures - Digital Competitiveness Index 2022
Performance 2022

 ◇ Regional Median Score
Jawa

◁ 157 Cities/Regencies Median Score


Cities/Regencies Profile

Population (thousand)	18.4
Area (km2)	373.8
Economic Growth (percent)	-1.6
Gross Regional Domestic Product (GRDP) (IDR trillion)	189.3
GRDP per Capita (IDR thousand)	102,701
Human Development Index	83.6
Life Expectancy (year)	77.3
School Life Expectancy (year)	15.5
Average School Attendance (year)	10.8
Domestic Investment Realization (IDR billion)	390.9
Foreign Investment Realization (USD million)	453.0

Cimahi City

		Score (0-100)	Rank	Status	157 Cities/ Regencies Median Score
1	INPUT	49,2	20	↓	38,9
1.1	Human Resources	27,9	10	↓	15,9
1.1.01	Number of Students with Digital Capabilities	25,7	8	↓	1,4
1.1.02	Growth of Students with Digital Capabilities	8,6	71	↑	8,3
1.1.03	Number of Lecturers in Digitalization-Related Study Programs	20,4	10	↓	1,1
1.1.04	Number of Digitalization-Related Study Programs	31,3	7	↑	2,4
1.1.05	Digital Literacy Index	53,4	108	↓	58,9
1.2	ICT Usage	69,5	16	↓	52,2
1.2.01	Ratio of Citizens that Have Cellular Phone	78,1	34	↑	56,6
1.2.02	Ratio of Citizens that Have Computer	59,0	33	↓	35,2
1.2.03	Ratio of Citizens that Have Access to Internet	87,4	14	↓	59,7
1.2.04	Ratio of Citizens that Access Internet from Home	92,6	47	↑	88,0
1.2.05	Ratio of Citizens that Access Internet from Office	95,5	2	↑	56,1
1.2.06	Ratio of Citizens that Access Internet from School	29,9	89	↓	34,0
1.2.07	Ratio of Citizens that Access Internet with Laptop	56,3	14	=	27,0
1.2.08	Ratio of Citizens that Access Internet with Cellular Phone	56,8	115	↓	69,5
1.3	ICT Expenditure	50,4	75	↓	49,5
1.3.01	Ratio of Households that Have ICT Expenditure	52,8	127	↓	76,4
1.3.02	Average Expenditure of Households for ICT	33,1	43	↑	24,0
1.3.03	Total Remuneration and Wage of Information and Communication Sector Workers	87,4	24	↓	80,5
1.3.04	Average Remuneration and Wage of Information and Communication Sector Workers	28,3	35	↓	18,2
2	OUTPUT	51,6	30	↓	43,0
2.1	Economy	54,0	26	↓	45,8
2.1.01	GRDP of the Information and Communication Sector	70,8	4	↑	40,0
2.1.02	GRDP Contribution of the Information and Communication Sector	59,4	14	↑	24,3
2.1.03	GRDP Growth of the Information and Communication Sector	56,6	25	↑	30,5
2.1.04	GRDP of Warehousing, Transportation Support, Post & Courier Subsectors	59,5	23	↓	39,3
2.1.05	GRDP Contribution of Warehousing, Transportation Support, Post & Courier Subsector	8,2	114	↓	16,1
2.1.06	GRDP Growth of Warehousing, Transportation Supporter, Post & Courier Subsectors	60,3	151	↓	91,4
2.1.07	GRDP of the Financial Services Sector	89,1	6	=	82,2
2.1.08	GRDP Contribution of the Financial Services Sector	33,3	51	↑	25,5
2.1.09	GRDP Growth of the Financial Services Sector	48,8	65	↑	47,4
2.2	Entrepreneurship and Productivity	58,5	24	↓	38,2
2.2.01	Ratio of Population Using the Internet in their Main Job	74,1	20	↓	43,1
2.2.02	Ratio of Population Using the Internet in their Job for Communication	73,9	20	↓	42,7
2.2.03	Ratio of Population Using the Internet in their Job for Marketing	61,1	20	↑	34,2
2.2.04	Ratio of Population Using the Internet in their Job for Sales via Social Media	43,2	52	↓	35,0
2.2.05	Ratio of Population Using the Internet in their Job for Sales via E-commerce	44,1	37	↓	22,9
2.2.06	Loan Using Fintech	54,6	30	↓	40,0
2.3	Manpower	42,2	121	↓	46,7
2.3.01	Number of Workers in Digitalization-Related Sectors	10,4	15	↑	2,0
2.3.02	Ratio of Workers in Digitalization-Related Sectors	41,8	49	↓	30,7
2.3.03	Growth of Workers in Digitalization-Related Sectors	24,8	111	↓	33,5
2.3.04	Number of Workers in Digitalization-Prone Categories	78,8	139	↓	95,5
2.3.05	Ratio of Workers in Digitalization-Prone Categories	47,5	128	↓	60,8
2.3.06	Growth of Workers in Digitalization-Prone Categories	49,8	118	↓	58,2
3	SUPPORT	53,1	73	↓	52,4
3.1	Infrastructure	90,3	12	↓	77,2
3.1.01	Level of Electricity Disturbance (Reverse Indicator)	98,1	19	↑	95,0
3.1.02	Ratio of Villages that Get Strong and Very Strong Signal	96,6	66	↑	94,9
3.1.03	Ratio of Villages that Get 3G Signal	100,0	1	=	100,0
3.1.04	Ratio of Villages that Get 4G Signal	94,9	64	↓	90,4
3.1.05	Ratio of Households with Fixed Phone Connection	61,8	8	↓	11,2
3.2	Finance	19,5	101	↓	32,2
3.2.01	Financial Inclusion Index	16,8	119	=	75,2
3.2.02	Number of Digital Finance Service Agent	29,5	16	-	5,3
3.2.03	Use of E-wallet as a Payment Method	12,2	84	-	15,6
3.3	Regulation and Capacity of the Regional Government	49,4	79	↑	49,4
3.3.01	Gross Enrolment Rate of Senior High Schools/Vocational Schools	42,4	111	↓	55,5
3.3.02	Gross Enrolment Rate of Higher Education (Diploma-Bachelor)	14,5	129	↓	24,7
3.3.03	Life Expectancy Growth	58,9	42	-	33,3
3.3.04	Poverty Decreasing Rate	82,0	86	-	83,2



East Ventures is a pioneering and the most active sector-agnostic venture capital firm in Indonesia and Southeast Asia (SEA). Founded in 2009, East Ventures has transformed into a holistic platform that provides multi-stage investment, including Seed and Growth for over 200 companies in SEA. East Ventures is one of the best performing venture capitals in the world, consistently delivers high IRR (Internal Rate of Return), and listed as one of the top 10 seed investors globally headquartered in Asia based on Crunchbase 2021 report.

Indonesia is the world's largest archipelago consisting of more than 17,000 islands; and home to over 270 million people, ranking it as the most populous country in Southeast Asia and the 4th globally. Indonesia's growing young and middle class is the country's unparalleled growth engine. With an average growth target of 5.7% per year. Indonesia is aiming to become a high income country by 2036 and the world's fifth-largest economy by 2045. This high growth would gradually increase the middle-income class to about 70% of Indonesia's population by 2045.

East Ventures has been working alongside entrepreneurs to build Indonesia's digital ecosystem from the ground up since day one. Spotting opportunities early, the firm is the first venture capital to support Indonesia's two homegrown unicorns: Tokopedia and Traveloka.

The firm has since then invested in other industry verticals, including supporting infrastructure to e-commerce such as Waresix (logistics), Paxel (last-

mile delivery), Xendit (payment), SIRCLO and Shopback (e-commerce enabler), and Sociolla (new retail beauty); fintech industry ALAMI (Sharia-compliant P2P lender), Komunal (P2P lending serving Neo-rural bank services) and Julu (digital lending); education Ruangguru and Geniebook (education platform); and media such as IDN Media (millennials and gen-Z) and Katadata (business and economy audience).

Other portfolios of East Ventures are startups that provide technology platforms for SMEs such as Warung Pintar (micro retail solutions), Praktis (supply chain), Aruna (fisheries supply chain); mental health and self-development platforms such as Mindtera, Intellect and Riliv; digital transformations such as Advotics (supply chain analysis) and Nodeflux (computer vision and AI); ESG-focus platforms such as Waste4Change (waste management), Xurya (renewable energy) and TreeDots (food surplus marketplace); automobile such as Carro and Moladin; and bio-tech companies such as Nalagenetics and Nusantics (microbiome).

East Ventures officially merged with EV Growth and has become a holistic platform that provides multi-stage investments. The firm has delivered more than 30 exits, including Kudo's acquisition by Grab, Loket's acquisition by Gojek, Bridestory's acquisition by Tokopedia, Warung Pintar's acquisition by SIRCLO, and multiple exits to local and regional business groups. In 2021 alone, East Ventures closed over 80 deals, welcomed 48 new companies—double the amount from the preceding year, and had USD 750 million follow-on funding

(30% higher than the previous year).

In March 2020, in response to the COVID-19 pandemic, East Ventures formed the Indonesia PASTI BISA (IDPB) movement: a platform to mobilize all the strengths of the company's digital ecosystem to support government and private sectors' efforts in tackling the COVID-19 outbreak in Indonesia. The first IDPB movement managed to raise more than IDR 10 billion in one month, which was used to carry out research, produce and distribute 100,020 local PCR test kits made in Indonesia to all provinces. The second IDPB movement, Safeguards PPE, was initiated to distribute personal protective equipment (PPE) to Indonesian health workers. Using e-commerce technology, we made the procurement of PPE units easier and more seamless. Health-workers could request PPEs from anywhere, while donors could provide

PPEs to where it is most needed. The latest IDPB movement is Safeguards Oxygen, which successfully raised USD 1,213,354 from 790 individual and corporate donors to distribute 1,450 oxygen concentrators to hospitals in need across Indonesia. The fund raised exceeded the donation target (121.34% of USD 1 million target) within 10 days. The distribution is still ongoing.

East Ventures continues to be committed to investing in potential young Indonesians, because we believe that every young person should have the opportunity to pursue their dreams and develop their skills for a sustainable Indonesia.

East Ventures' dream is realizing digital justice for all Indonesians and creating bigger impacts.

Because if not now, when? If not us, who?

East Ventures is a pioneering and the most active sector-agnostic venture capital firm in Indonesia and Southeast Asia. Founded in 2009, East Ventures has transformed into a holistic platform that provides multi-stage investment, including Seed and Growth for over 200 companies.



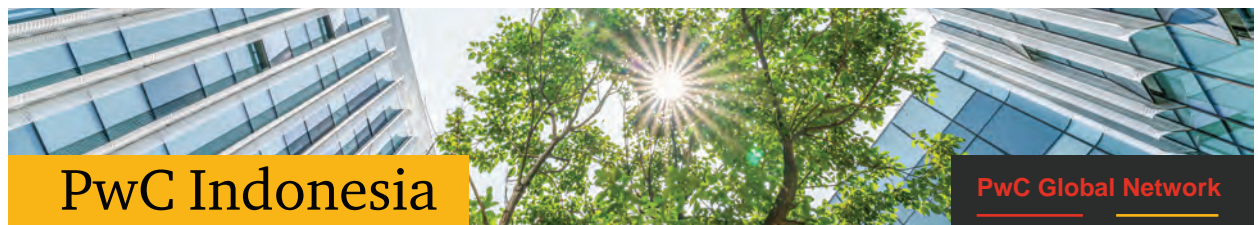
Katadata Insight Center (KIC) is a business unit of Katadata, specialized in research and data analytics. KIC provides in-depth insights to understand market, customers, and business landscape to help client to a better decision making. The research is exclusively designed to fit specific needs.

Our forte includes the ability to simplify complex matters without losing its essence, data and research driven, strong and comprehensive nationwide network, solid and professional team, highly influential and has become a reference for strategic stakeholders such as policy makers, business players and opinions makers.

Nationwide Networks
34 provinces and
514 cities and
regencies

**20+ focus
industries**

**10 years in
delivering data and
research-based
journalism**



PwC Indonesia

PwC Indonesia is comprised of KAP Tanudiredja, Wibisana, Rintis & Rekan, PT PricewaterhouseCoopers Indonesia Advisory, PT Prima Wahana Caraka, PT PricewaterhouseCoopers Consulting Indonesia and Melli Darsa & Co., Advocates & Legal Consultants, each of which is a separate legal entity and a separate member firm of the global PwC network in Indonesia. We provide assurance, advisory, tax, consulting, and legal services that focus on the industry. PwC Indonesia works closely with PwC firms across both Asia Pacific and the wider global network.

PwC Indonesia established PwC NextLevel in 2020. PwC NextLevel is the leading engagement platform for value creation between start-ups, corporates and investors in Indonesia. PwC NextLevel supports start-ups, scale-ups, corporates and investors in a range of different ways to help them fulfil their needs and growth ambitions. We are a combination of people with strong interests and experience in the start-up ecosystem, which enables us to understand the challenges and the support our clients need to grow to the next level. PwC NextLevel provides the tools to enable clients to effectively and efficiently scale their business and bring the ecosystem together.

www.pwc.com/id

www.pwc.com/id/en/services/entrepreneurial-and-private-clients/pwc-nextlevel.html

PwC Global Network

295,000

Our global staff
in total

742

The number of
PwC firms in PwC
Global network

156

Countries

#1

Global Ranking for
Audit & Assurance,
Tax Assurance,
Tax Accounting,
Finance Consulting
services according
to Vault in 2021

420

Fortune 500
Global
Companies are
our clients

PwC Indonesia

50

Years in
Indonesia

2.9K+

Employees

74

Partners and
Technical Advisors

23

Industry Focus



PwC Indonesia is comprised of KAP Tanudiredja, Wibisana, Rintis & Rekan, PT PricewaterhouseCoopers Indonesia Advisory, PT Prima Wahana Caraka, PT PricewaterhouseCoopers Consulting Indonesia, and Melli Darsa & Co., Advocates & Legal Consultants, each of which is a separate legal entity and all of which together constitute the Indonesia member firm of the PwC global network, which is collectively referred to as PwC Indonesia.

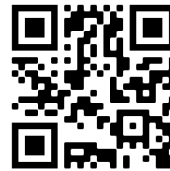
© 2022 PwC. All rights reserved. PwC refers to the PwC network and/or one or more of its member firms, each of which is a separate legal entity. Please see <http://www.pwc.com/structure> for further details.

Previous EV-DCI Reports



EV-DCI 2021

Indonesia's Accelerating
Digital Economic Transformation



www.east.vc/dci-2021/

EV-DCI 2020

Opportunities and Challenges of
the Digital Economy in Indonesia



www.east.vc/dci-2020/



East Ventures Ecosystem

Growth Stage

Venture

Early Stage

Exits



200+ Companies (SEA)

400+ Founders

20+ Exits



-  www.east.vc
-  [East Ventures](#)
-  [eastventures](#)
-  [eastventuresofficial](#)
-  [eastventures](#)
-  ev-dci@east.vc

Download
the Report Here

