

# Towards Indonesia's Digital Golden Era



# Preface

## Towards Indonesia's Digital Golden Era



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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. 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. 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.

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 start-ups.

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.

# Executive Summary

## The Progress of Indonesia's Digitalization

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. Economic recovery started to be shown in mid-2021, 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. 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).

## Mapping the Condition and Needs of Regional Digital Competitiveness

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 median of EV-DCI 2022 for 34 provinces is 35.2, increasing from last year's score of 32.1 (2021). 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.

## The Potential of Regional Digital Competitiveness to Promote Digital Economy

Consistent with previous two reports, provinces in Java still dominate the top rankings. 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.

# Executive Summary

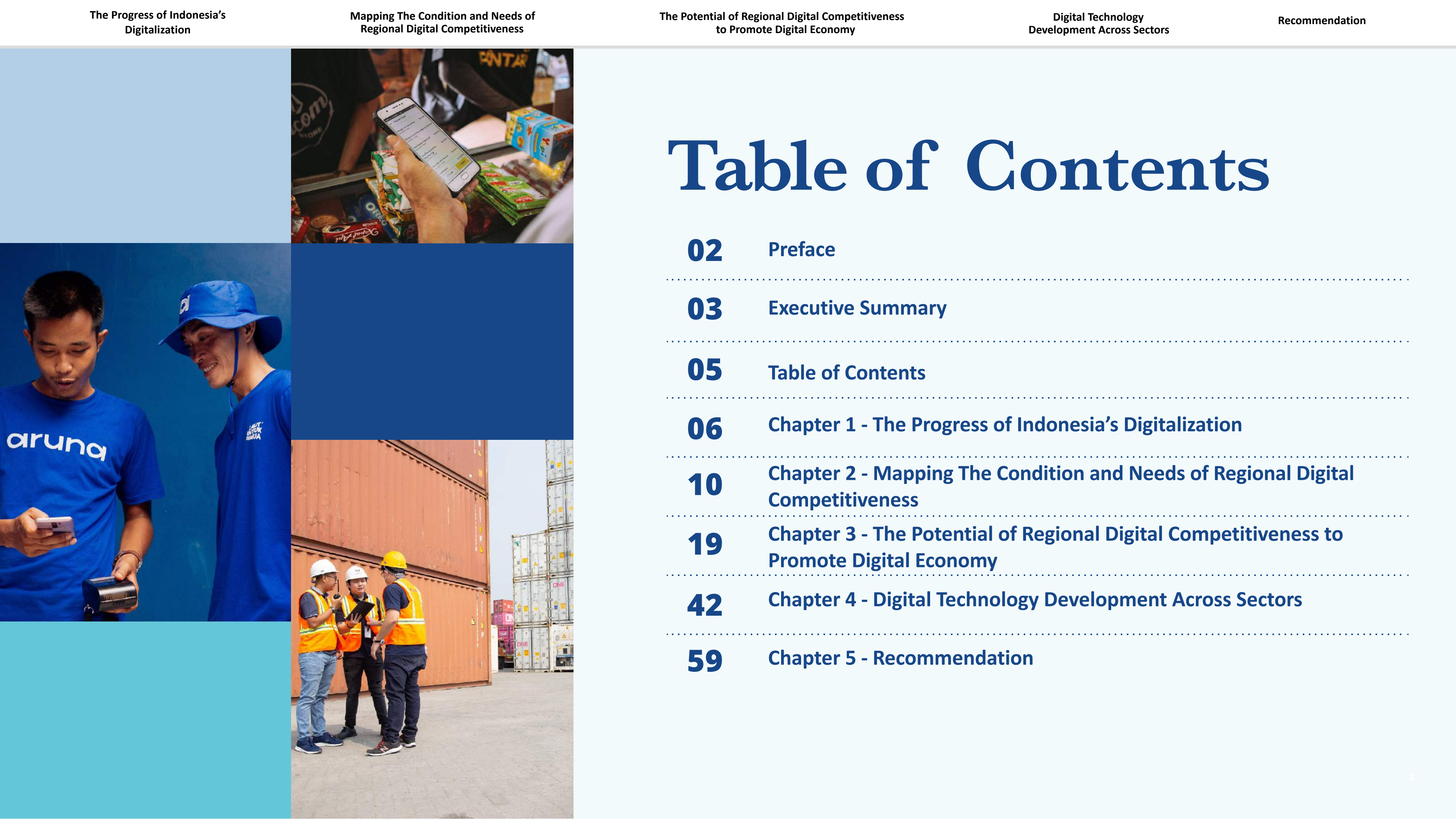
## Digital Technology Development Across Sectors

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 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.
- The **FinTech** sector needs to prioritize financial literacy for all populations of Indonesia to encourage growth in numerous sector. Digital ID implementation can also encourage financial inclusion for society.
- Stakeholders also need to understand and implement sustainability principles to solve **environmental, social, and governance** issues that will impact the development of the sectors.

## Recommendation

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.



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# Chapter I

# The Progress of Indonesia's Digitalization



In 2022, **Indonesia** will begin to enter its **digital golden era**. The COVID-19 pandemic has provided a momentum for widespread digital transformation. The economy is reviving and predicted to continue growing **around 5% in 2022**.

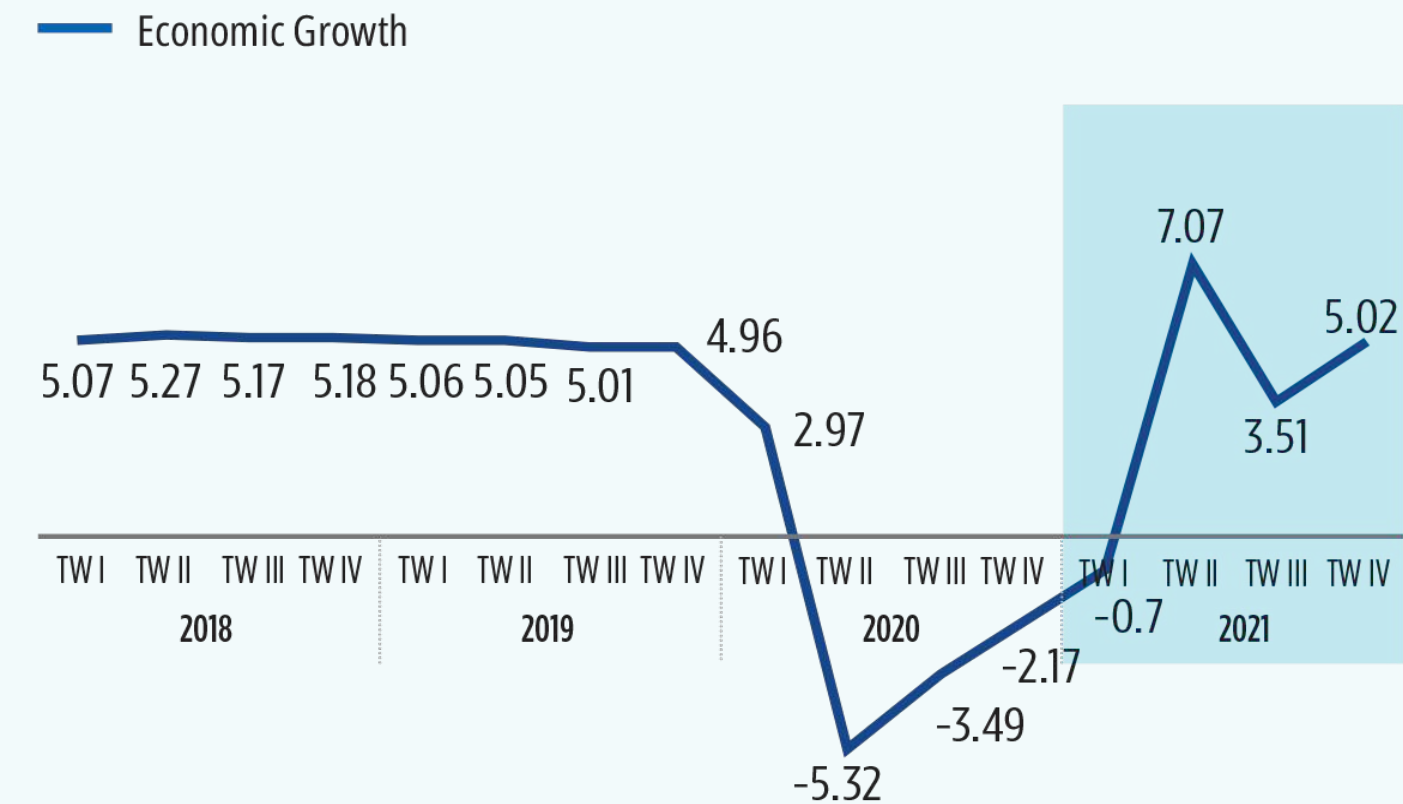


***"Today, our digital economy is relatively outperforming several ASEAN countries. I guarantee that with digitalization, we can compete with other countries because we have the volume, the market, and the talent."***

***Coordinating Minister for Economic Affairs, Airlangga Hartarto***

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

SOURCE: BPS (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 2030 (Kominfo, 2021). By that time, the size of Indonesia's digital Gross Domestic Product (GDP) is estimated to be greater than 55% of ASEAN's (Setkab, 2021).

Indonesia's Internet users, estimated at 202.6 million people (Kominfo 2021), are key to the growth of the digital economy. 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) that shows an increase in online shopping users from 17.5% before the pandemic to 25.5% in 2021.

The map of the state of Indonesia's digital economy across its regions stated in **the East Ventures - Digital Competitiveness Index (EV-DCI) 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.

## The Ministry of Communication and Informatics (Kominfo) has compiled a Roadmap for Digital Indonesia 2021- 2024,

This roadmap is 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.

### Local governments are also encouraging the growth of the digital economy.

Local governments 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.

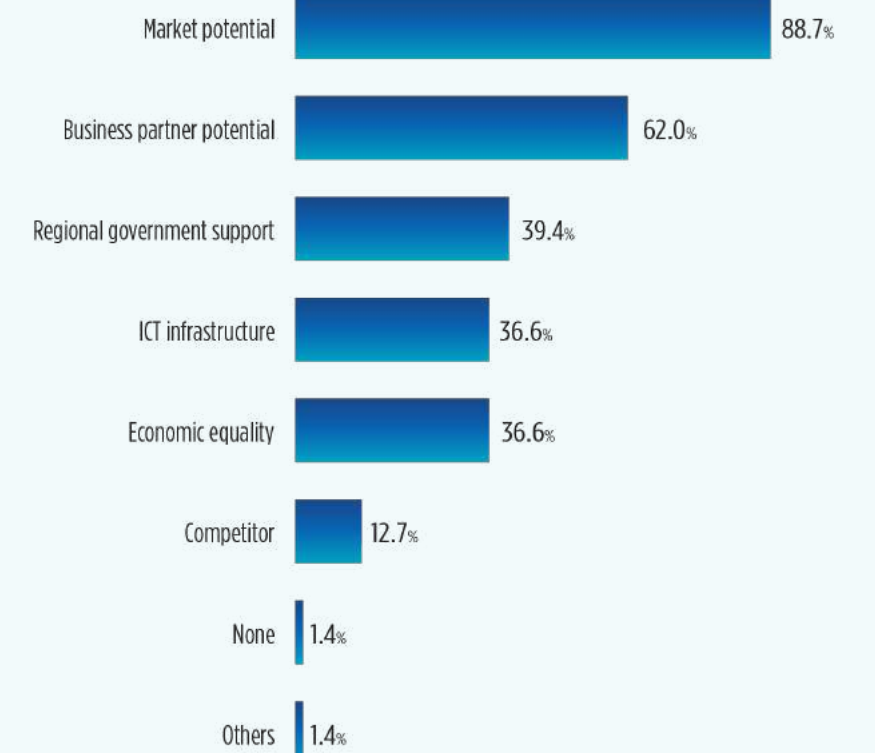
### Understanding the digital competitiveness of a specific Indonesian region is useful if performed when the company is developing its business development strategy.

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 potential.

#### 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



The **digital economy** has **an important role** to play in Indonesia's overall economic recovery. The Indonesian Government has established **major agenda to create a digital ecosystem**.

**The government has been budgeting some of program for economic recovery due to the COVID-19 pandemic**

**16.8%** of State Spending Plan 2022 **455.6 Trillion** Rupiah

In an interview, 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.

Post-pandemic, Indonesia is aiming for greater goals than economic recovery alone, but also economic growth at a higher level compared to that before the pandemic.

**The government is committed to accelerating the development of the digital economy**

Indonesia is 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

**All stakeholders need to take advantage of this momentum**

To realize this goal, the synergy between startups and other digital economy players together with the central and local governments needs to continuously be improved.

**The digital economy could be the main driver of post-pandemic economic growth**

## Chapter II

# Mapping The Condition And Needs Of Regional Digital Competitiveness



# East Ventures - Digital Competitiveness Index (EV-DCI)

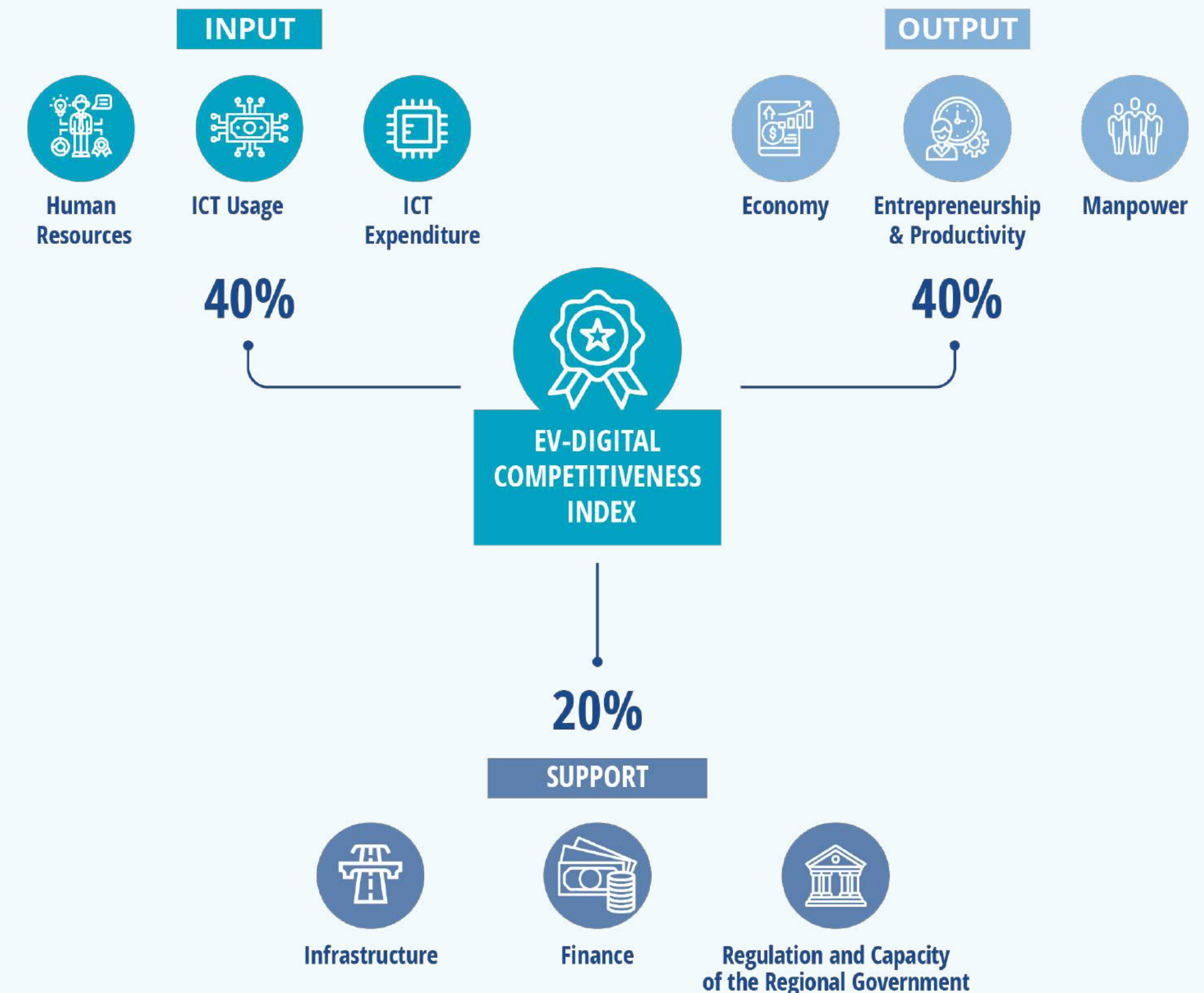
The East Ventures - Digital Competitiveness Index (EV-DCI) measures and compares digital competitiveness among Indonesia's 34 provinces and cities/regencies. The index consists of three main aspects of sub-indexes, namely Input, Output, and Support. Each sub-index consists of three pillars, adding up 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.

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.

## METHODOLOGY SUMMARY EAST VENTURES - DIGITAL COMPETITIVENESS INDEX (EV-DCI)



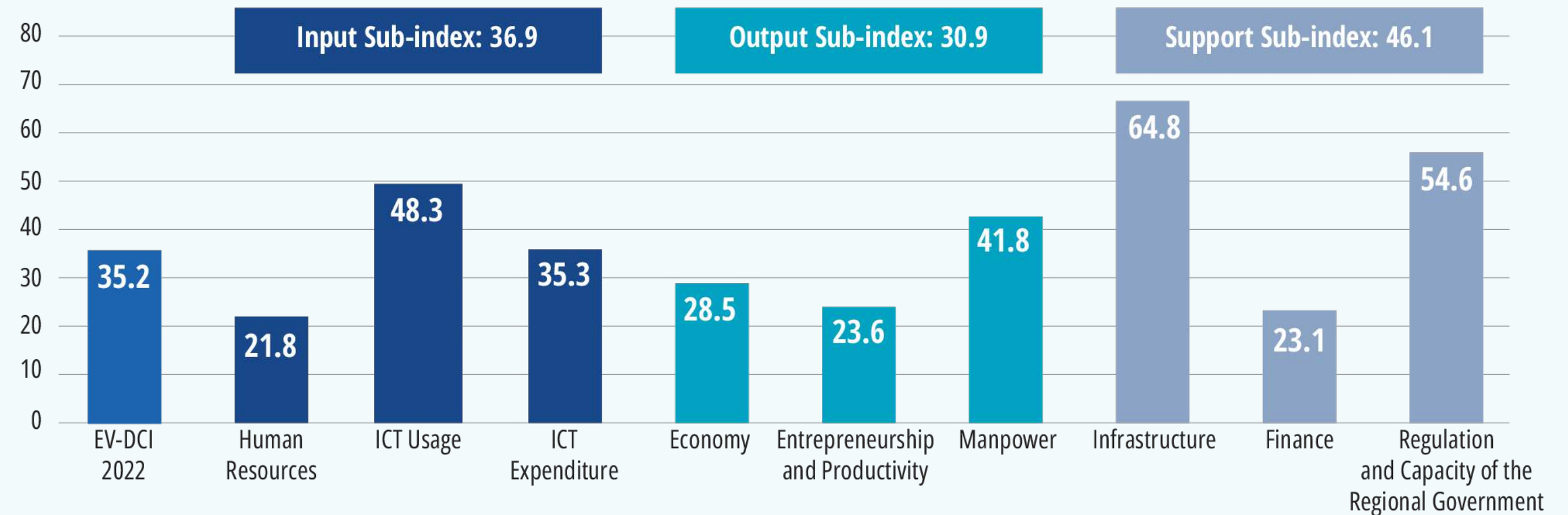
# EV-DCI 2022 Summary

The COVID-19 pandemic has impacted the development of Indonesia's digital economy. The efforts to increase digital skills, develop digital infrastructure, increase internet user 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. 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:

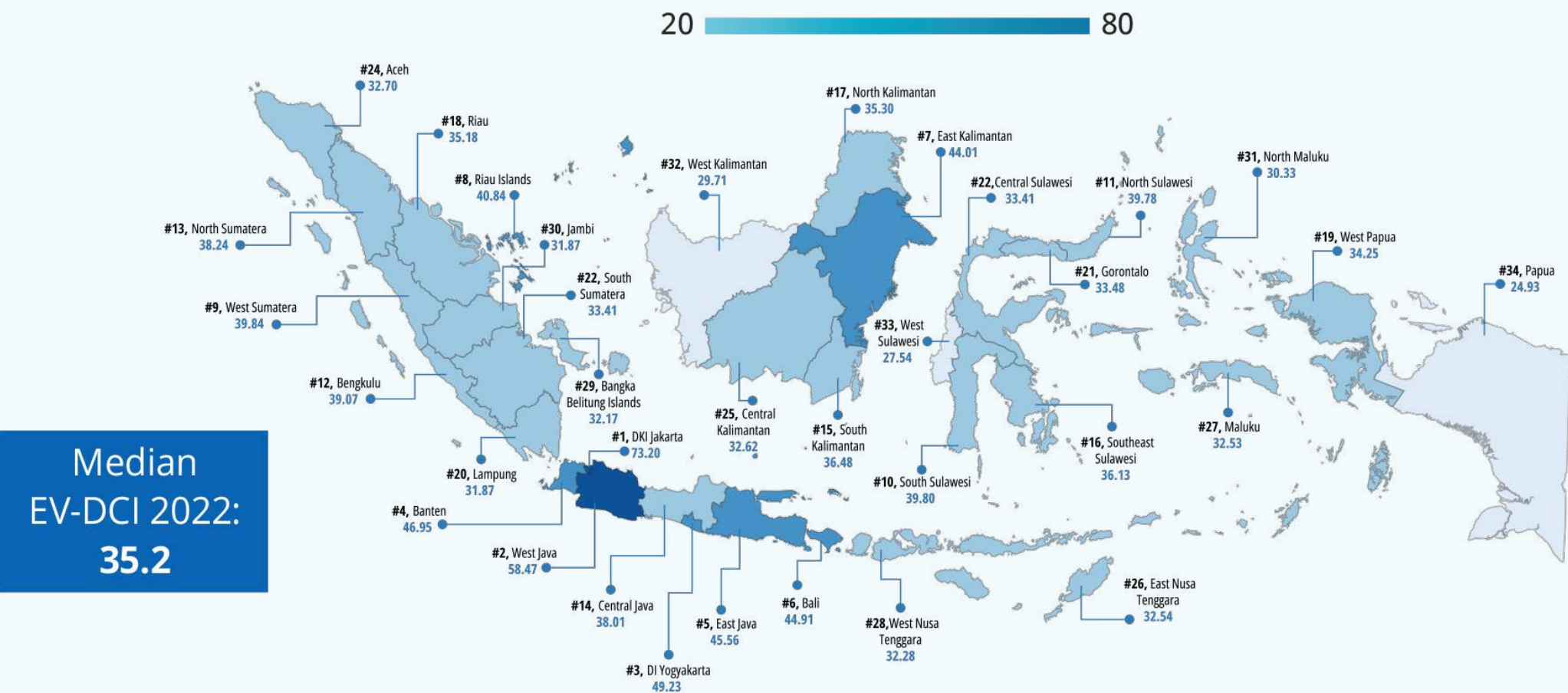
1) The median is the value that divides the distribution of index data for 34 provinces into two, after all the indexes are sorted.

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.

# Indonesian EV-DCI 2022

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



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.

## EV-DCI RANKING FOR 2022

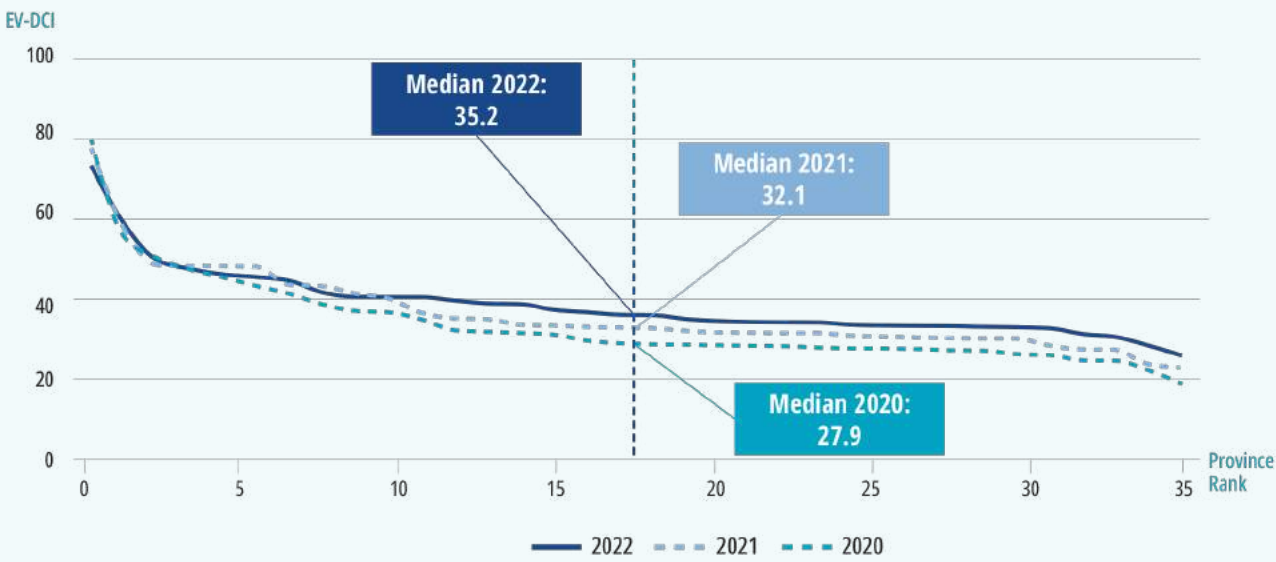
| Ranking | Province                | EV-DCI 2022 Score | EV-DCI 2021 Score | Ranking Change |
|---------|-------------------------|-------------------|-------------------|----------------|
| 1       | DKI Jakarta             | 73.2              | 77.6              | =              |
| 2       | West 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 Kalimatan         | 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              | =              |

The **spread of digital competitiveness** among Indonesia's provinces is **getting better**. This is shown by the **decreasing spread or distance with the highest and lowest** EV-DCI scores for three consecutive years.

The digital competitiveness of provinces in Indonesia is increasing every year.

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.

DISTRIBUTION OF DIGITAL COMPETITIVENESS INDEX SCORE



Despite the decline in rankings in several regions, the index scores in most regions have increased

DKI Jakarta is still leading the province's digital competitiveness. In second place, West Java managed to maintain its position. 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.

| Rank. | Province       | EV-DCI 2022 Score | EV-DCI 2021 Score | Ranking Change |
|-------|----------------|-------------------|-------------------|----------------|
| 1     | DKI Jakarta    | 73.2              | 77.6              | =              |
| 2     | Jawa Barat     | 58.5              | 57.1              | =              |
| ...   |                |                   |                   |                |
| 12    | Bengkulu       | 39.1              | 31.3              | ↑              |
| 14    | Jawa Tengah    | 38.0              | 42.6              | ↓              |
| 19    | Papua Barat    | 34.3              | 27.6              | ↑              |
| ...   |                |                   |                   |                |
| 33    | Sulawesi Barat | 27.5              | 22.9              | =              |
| 34    | Papua          | 24.9              | 22.0              | =              |

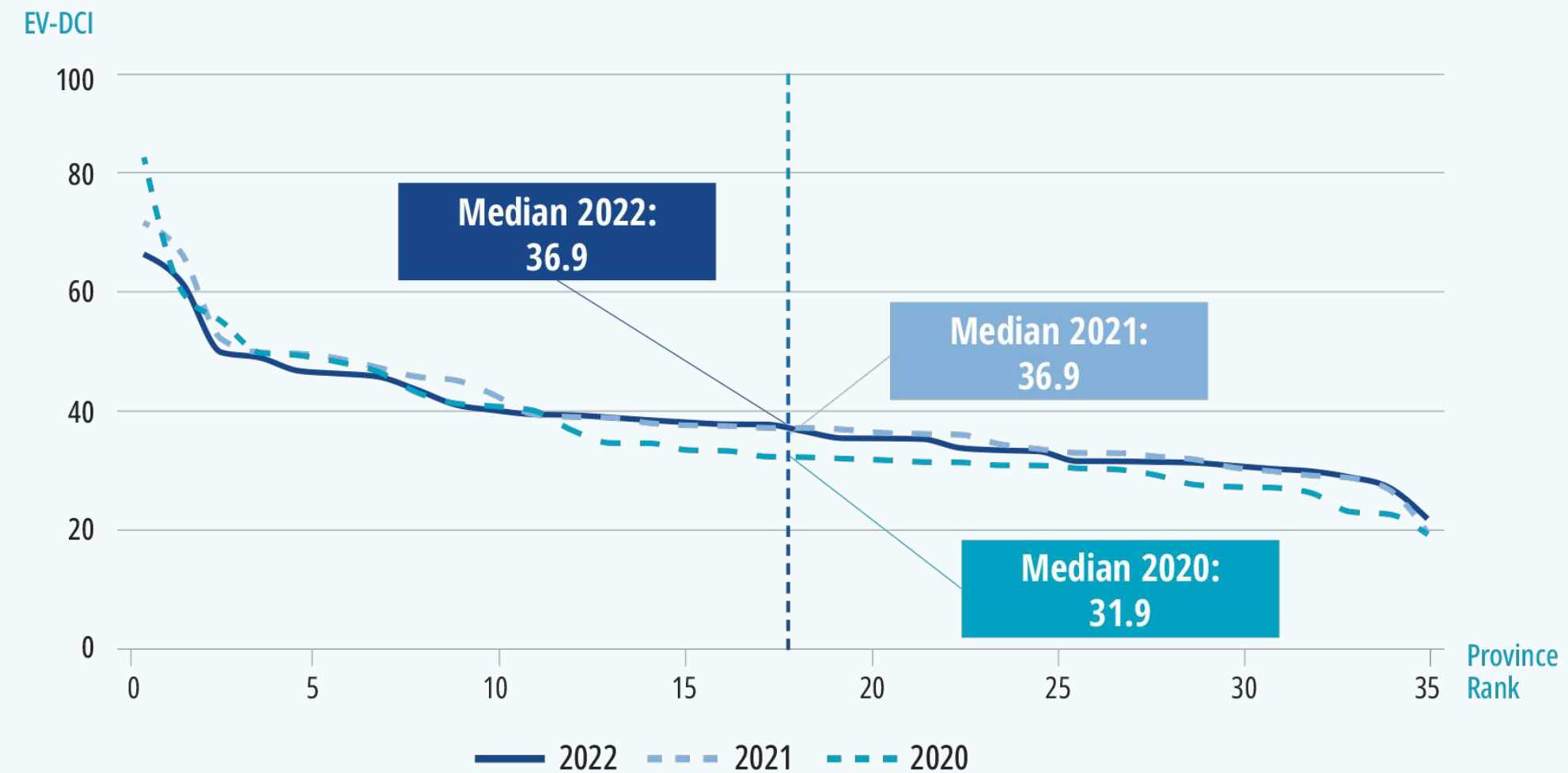
In general, despite the decline in rankings in several regions, the **index scores in most regions have increased.** This shows **improvement of digital economic conditions** across various regions in Indonesia.

The digital competitiveness of Indonesian provinces can be seen in more detail through the **Input, Output, and Support sub-indexes.**

# 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.** 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.

## SCORE DISTRIBUTION INPUT



## Human Resources as the Key Pillar

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.

Input

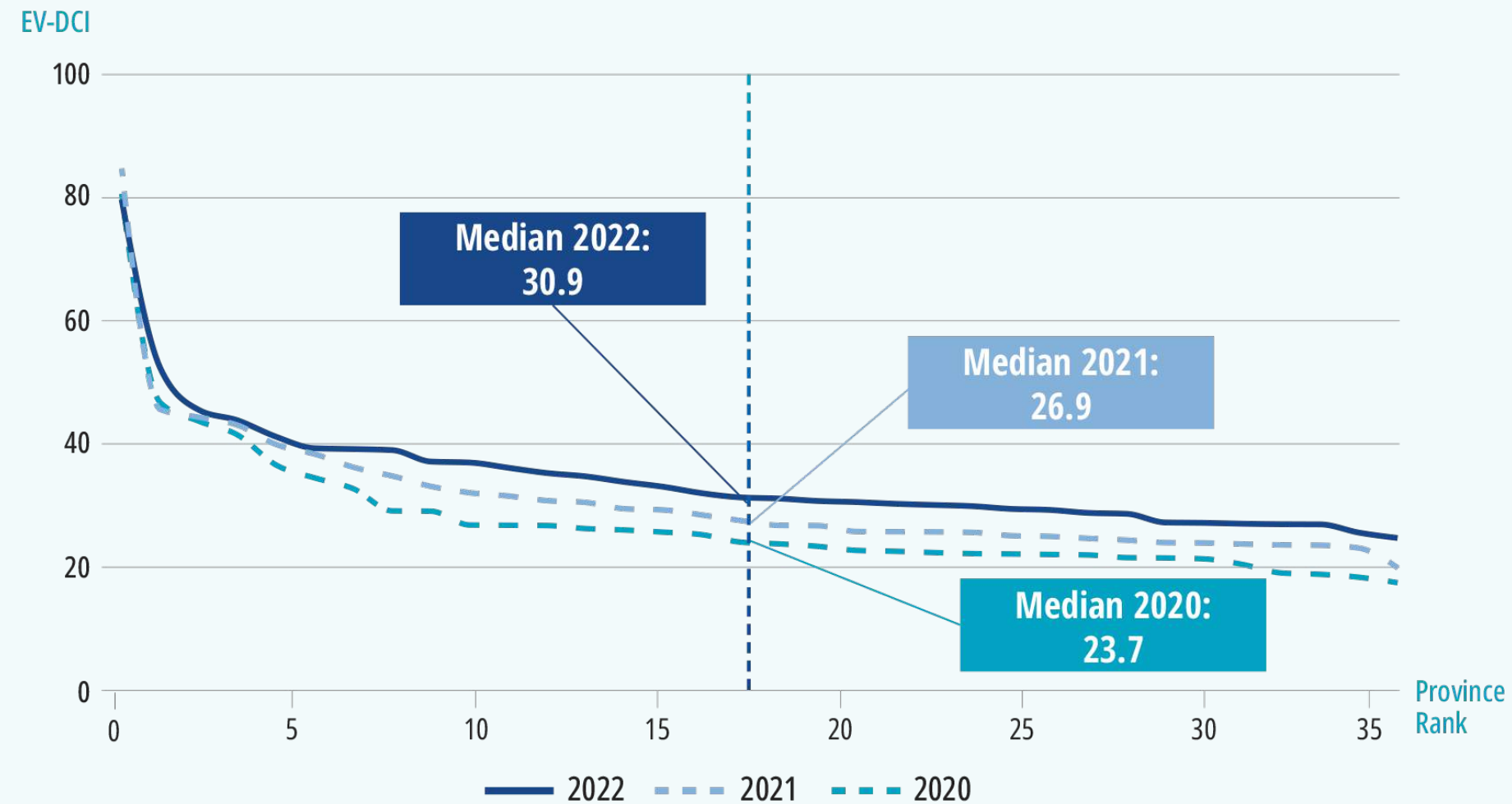
Output

Support

# 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



## Technology as a Key Economy Driver

According to the EV-DCI 2022 survey of digital companies, 76.7% of respondents said technology played a role in helping economic growth. Among the three aspects supporting Output, regions in the middle and lower groups are increasingly competing in digital technology utilization for entrepreneurship.

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.

Input

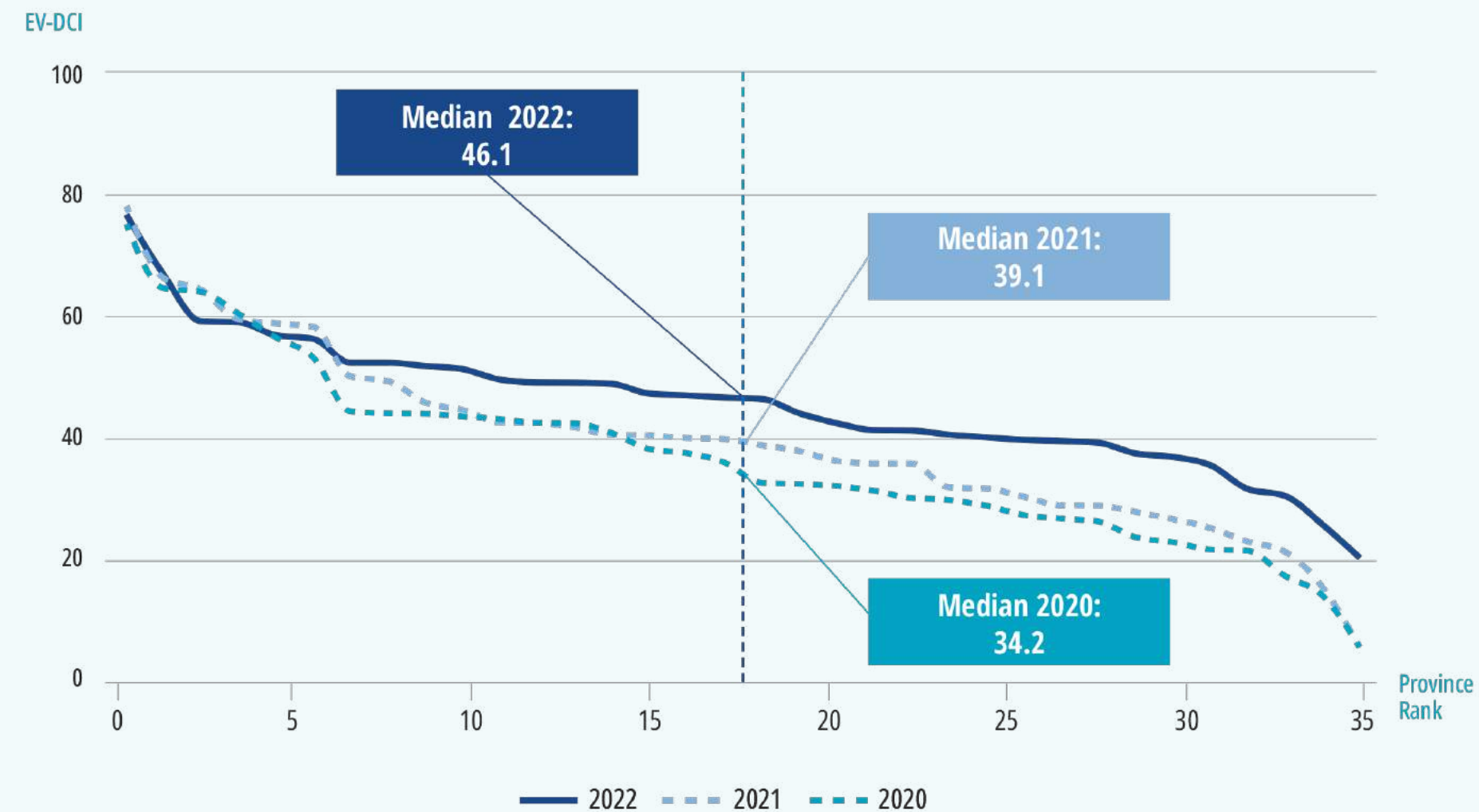
Output

Support

# Support Sub-Index

Support sub-index that supports 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.

## SCORE DISTRIBUTION SUPPORT



## Government Policy Drives Digital Acceleration in Regions

The EV-DCI 2022 survey found that the majority of digital companies view government regulations as the main driver of digital payment adoption. For startups, support from government policy is an important aspect of post-pandemic business development. In order to reduce the digital gap, the Indonesian government accelerates infrastructure development to the frontier, outermost, and underdeveloped (3T) areas.

On the other hand, regions need to prepare appropriate strategies to improve financing and business funding aspects. 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.

Input

Output

Support

## 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. 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.**

# DKI JAKARTA

## Leading in Digital Competitiveness

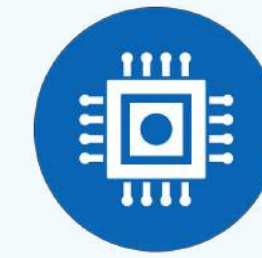
DKI Jakarta has held the top position in the infrastructure pillar for the past three years based on the level of electrical power interruptions, access to mobile signal, and telephone connections.



**1<sup>st</sup>**

**EV-DCI 2022 Index:**  
Same position as last year

ICT  
Usage



**85.02**

Declines in the  
ICT usage pillar

Entrepreneurship  
and Productivity  
Score



**100**

Strong in the  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



**100**

Highest score in the  
Infrastructure and  
Finance pillars

## Improvement in other provinces

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.

## Decline in the IT Usage

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 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.

### Digital training programs as key driver

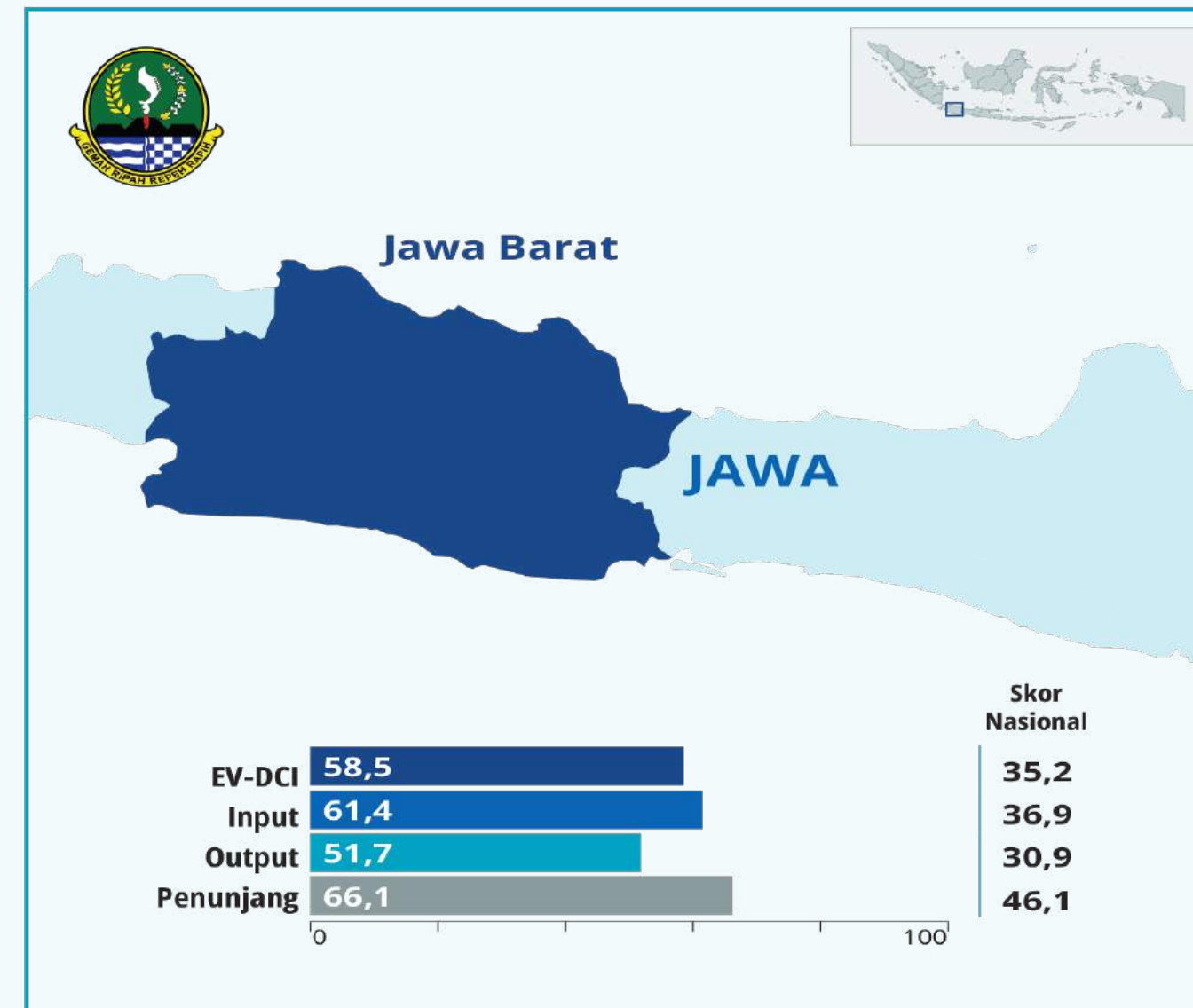
The improvement in the Human Resources and Entrepreneurship and Productivity pillars is driven by various digital training programs for the people of West Java. These programs include the Digital Entrepreneurship Academy Training Program for MSMEs, Digital Talent Scholarships, and the Lintasarta Mengajar.

### Expansion of digitalization-related sectors

The rise of the economy pillar has been aided by the expansion of digitalization-related sectors, including information and communication, financial and insurance services, transportation and warehousing. Furthermore, in the third quarter of 2021, e-commerce transactions in West Java increased by 59% (JabarProv). Both factors stimulated the output of digitalization-related sectors.

### Digital infrastructure as priority

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.



2<sup>nd</sup>

EV-DCI 2022 Index:  
Same position as last year

Human Resources



71.5

Highest score in the Human Resources pillar

Entrepreneurship and Productivity Score



62.6

Strong in the Economy, Entrepreneurship and Productivity pillars

Infrastructure



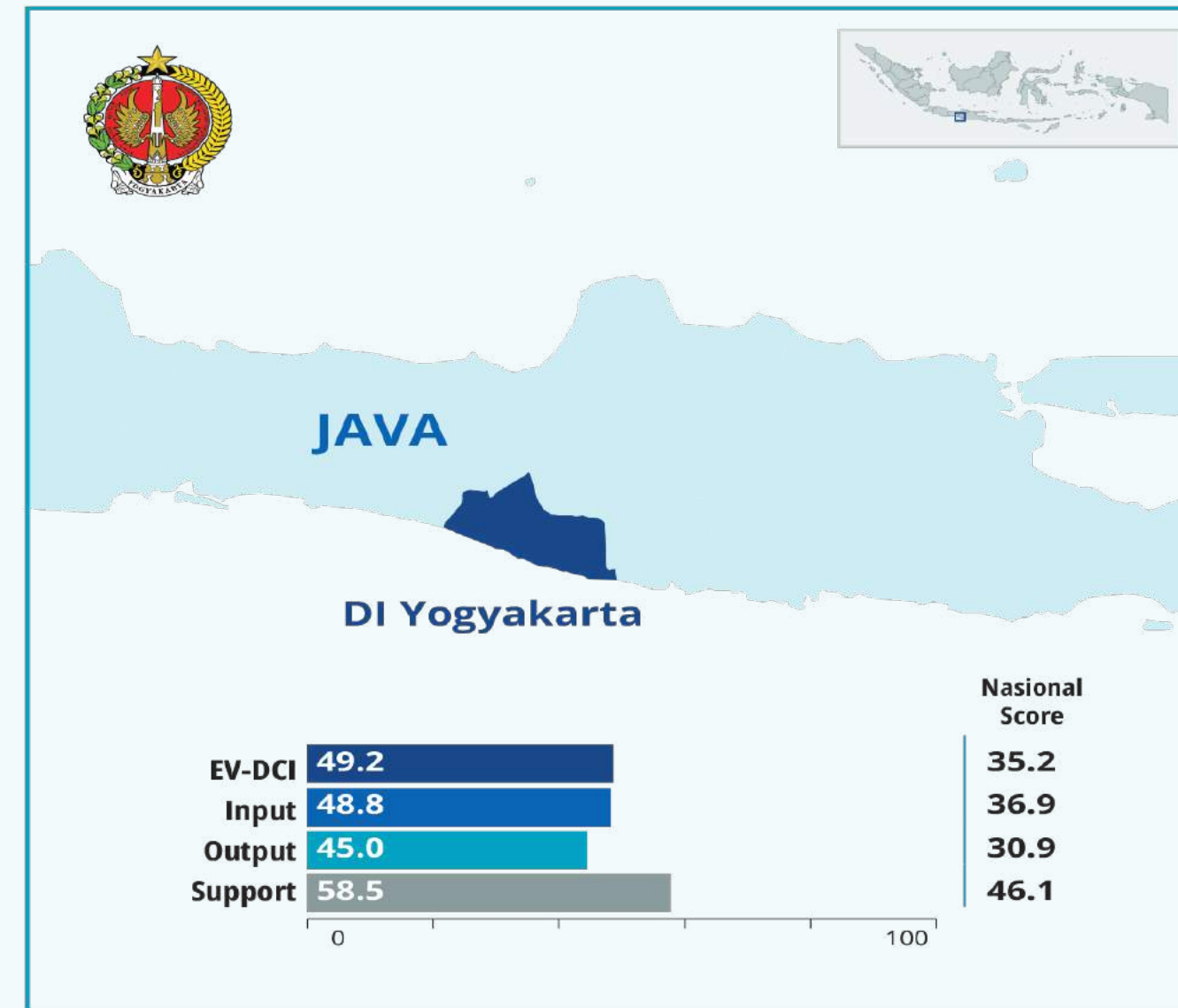
79.4

Strong in the Infrastructure pillar

# DI YOGYAKARTA

## Increasing the Performance of a Large-Scale Ecosystem Development

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.



### Highest digital literacy index

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.

### Digital transformation of MSMEs

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.

### Digital infrastructure development

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.

3<sup>rd</sup>

EV-DCI 2022 Index:  
Improved from last year

Human Resources



40.9

Higher score in  
Human Resources  
pillar

Entrepreneurship  
and Productivity  
Score



63.0

Higher score in  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



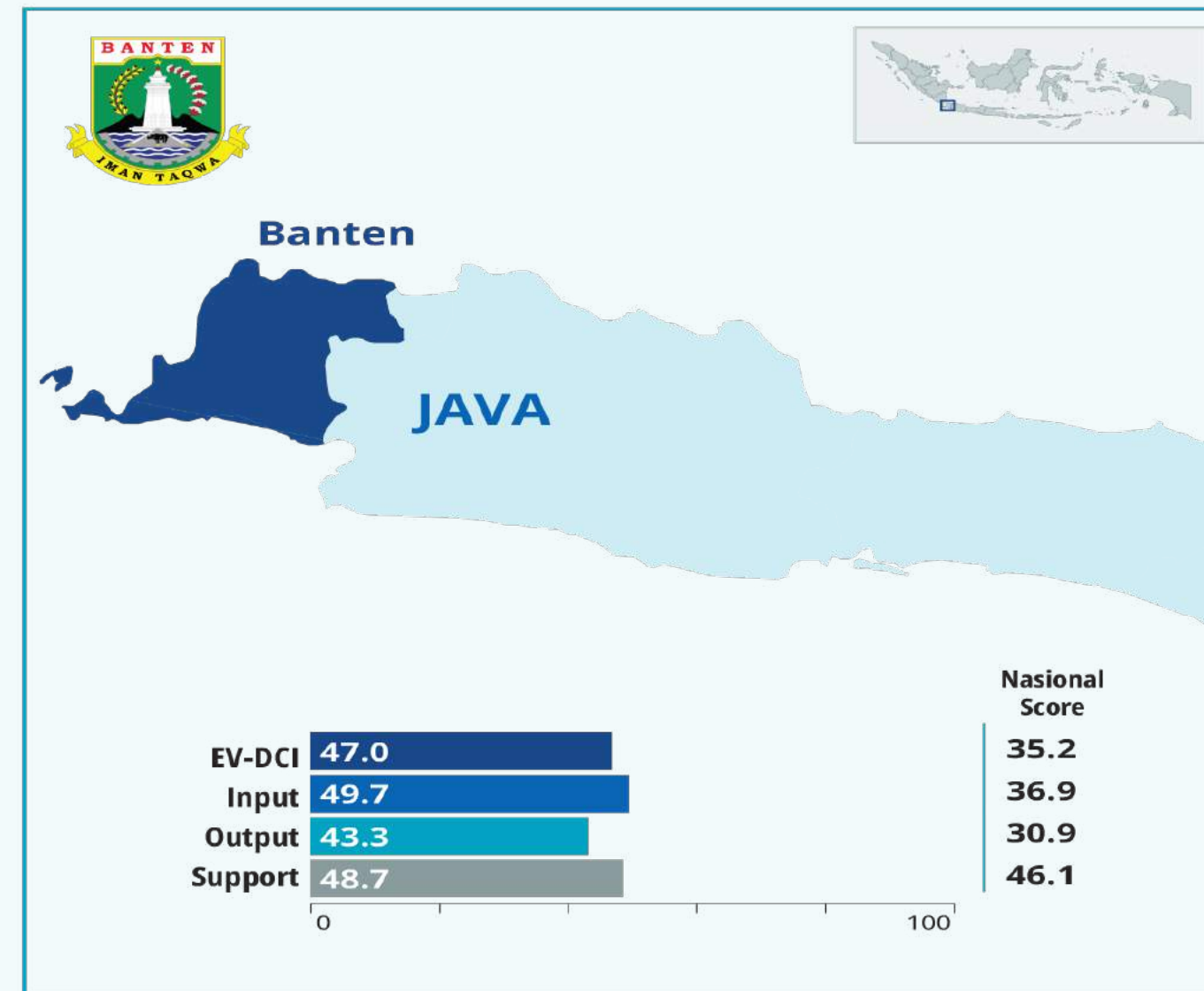
85.1

Higher score in  
Infrastructure pillar

# BANTEN

## Increases In Productivity and Infrastructure Support

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.



### Equitable internet access

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.

### Use of digital technology in jobs

The increase in the productivity and entrepreneurship pillar's score 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.

### Pioneer in production of digital talent

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. 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.

4<sup>th</sup>

EV-DCI 2022 Index:  
Improved from last year

ICT  
Expenditure



65.2

Higher score in  
the ICT  
Expenditure pillar

Entrepreneurship  
and Productivity  
Score



54.8

Higher score in the  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



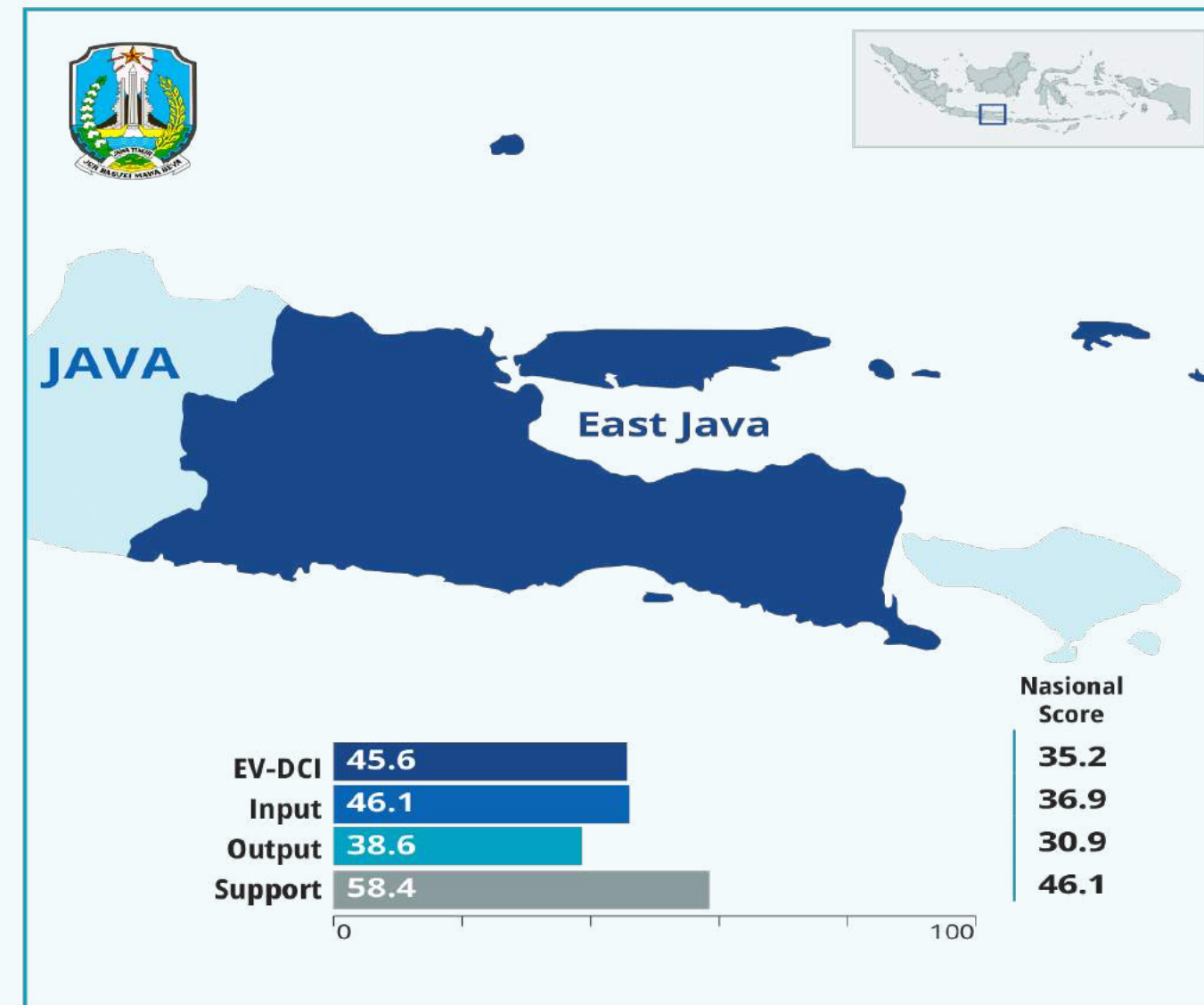
73.8

Higher score in the  
Infrastructure and  
Finance pillar

# 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.



### Increase of the ratio of digitally-adept students

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

### Decreased in the ICT usage and ICT expenditure

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%.

### Use of internet for productive economic activity

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.

5<sup>th</sup>

EV-DCI 2022 Index: Deteriorate from last year

Human Resources



65.4

Higher score in the Human Resources

Economy



41.0

Lower score in the Economy pillar

Entrepreneurship and Productivity



41.1

Higher score in the Entrepreneurship and Productivity pillar

# BALI

## The Development of Digital Creative Industries

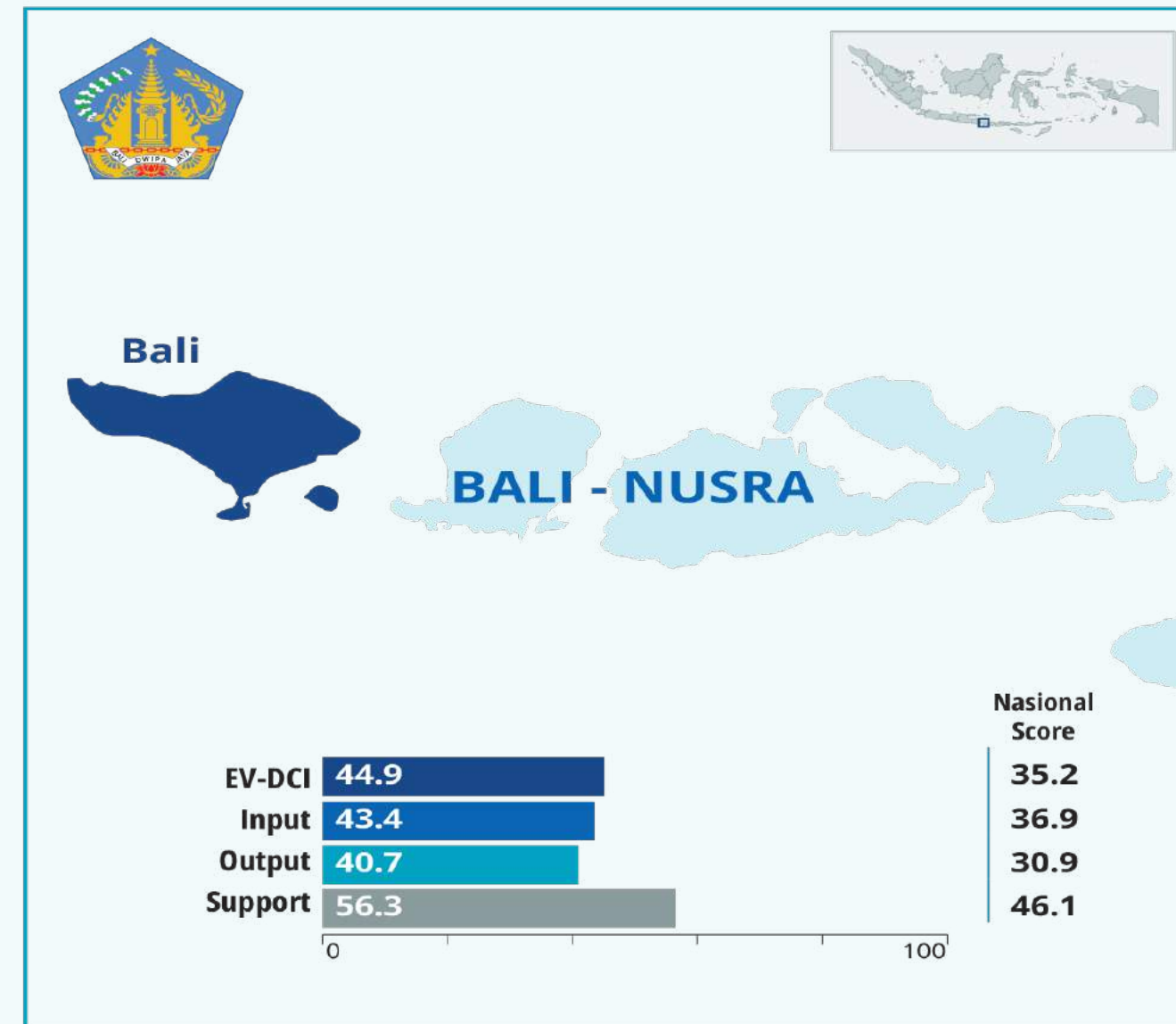
Bali's digital competitiveness index dropped from fourth to sixth place in 2022 due to the prolonged impact of the pandemic on the tourism sector, among others. The most significant drop was in the Input sub-index, which fell by 8.6 points from the previous year, with all three input pillars (human resources,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

### Drop of the internet usage for work

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.

### Digital creative business as a solution

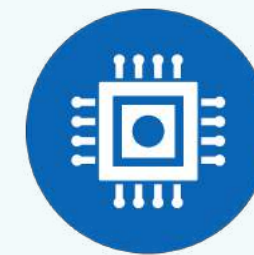
The digital creative industry is seen as a solution to help Bali's economy recover. Kominfo, in collaboration with Pandu Digital Indonesia and Relawan TIK Indonesia (Indonesia's ICT volunteers), held digitalization training for MSME actors, with the program having a positive impact on the number and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



6<sup>th</sup>

EV-DCI 2022 Index:  
Deteriorate from last year

ICT Usage



69.4

Lower score in the  
ICT Usage pillar

Entrepreneurship  
and Productivity



54.3

Higher score in the  
Entrepreneurship  
and Productivity,  
and Employment  
pillar

Infrastructure



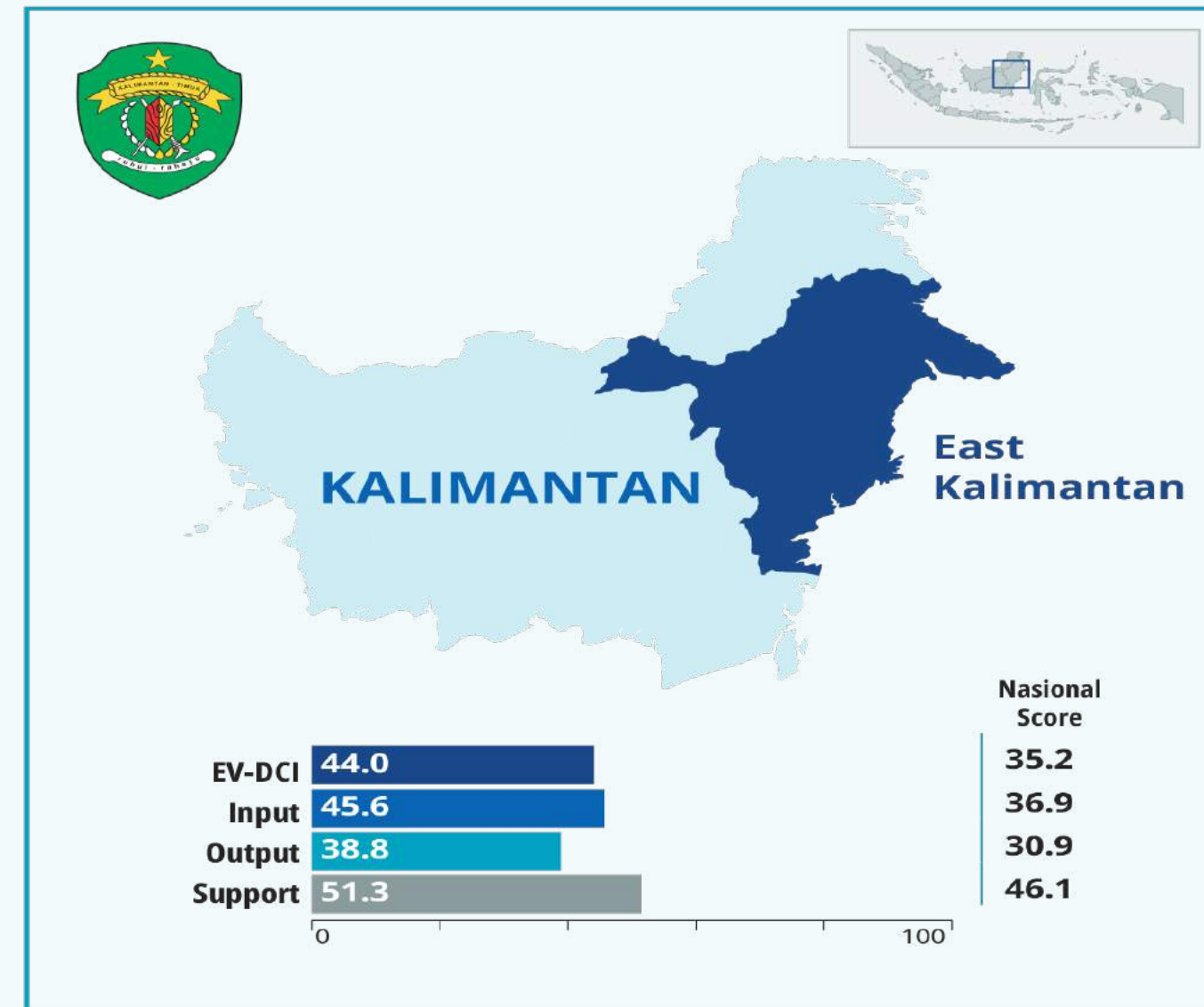
85.7

Higher score in the  
Infrastructure pillar

# 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.



### Improved ICT indicators

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.

### Development of new startups

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.

### Strong GRDP growth

One of the reasons for the economy pillar increase was the substantially stronger growth of the financial sector's Gross Regional Domestic Product (GRDP) than other provinces, despite the fact that this sector slowed down.

**7<sup>th</sup>**

Human Resources



**25.7**

Higher score in the Human Resources pillar

**EV-DCI 2022 Index:  
Improved from last year**

Entrepreneurship and Productivity



**49.8**

Higher score in the Entrepreneurship and Productivity pillar

Regulation and Capacity of the Regional Gov.



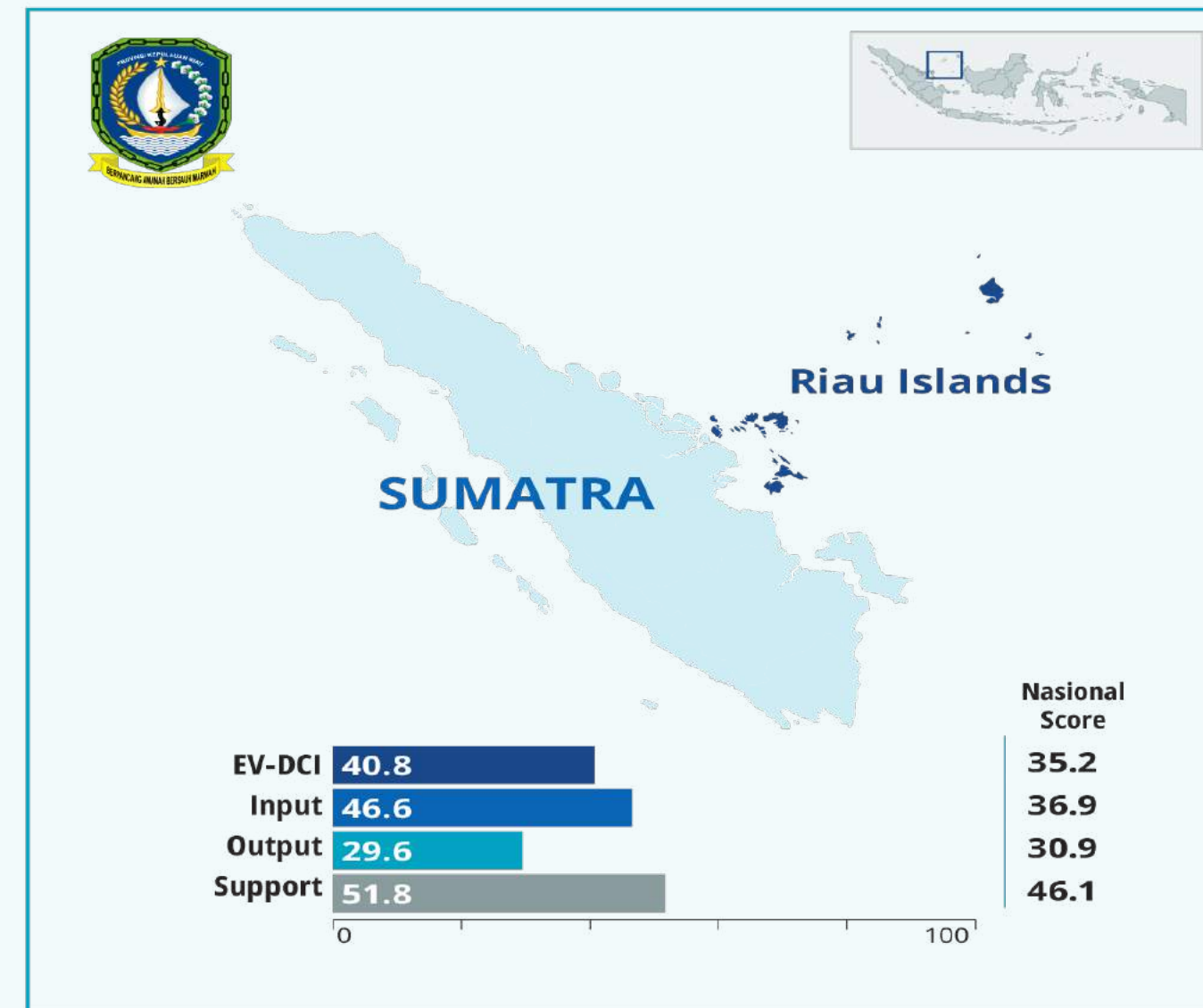
**66.8**

Higher score in the Regulation and Capacity of the Regional Government Pillar

# RIAUI ISLAND

## 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.



### Drop in digitalization-related workers

The employment 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.

### Accelerating digitalization of MSMEs

The increase in the entrepreneurship and productivity pillars, 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.

### Expanding 4G BTS

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.

8<sup>th</sup>

EV-DCI 2022 Index:  
Deteriorate from last year

Human Resources

Entrepreneurship  
and Productivity

Infrastructure



24.0

Lower score in the  
Human Resources  
pillar



48.0

Higher score in the  
Entrepreneurship  
and Productivity  
pillar



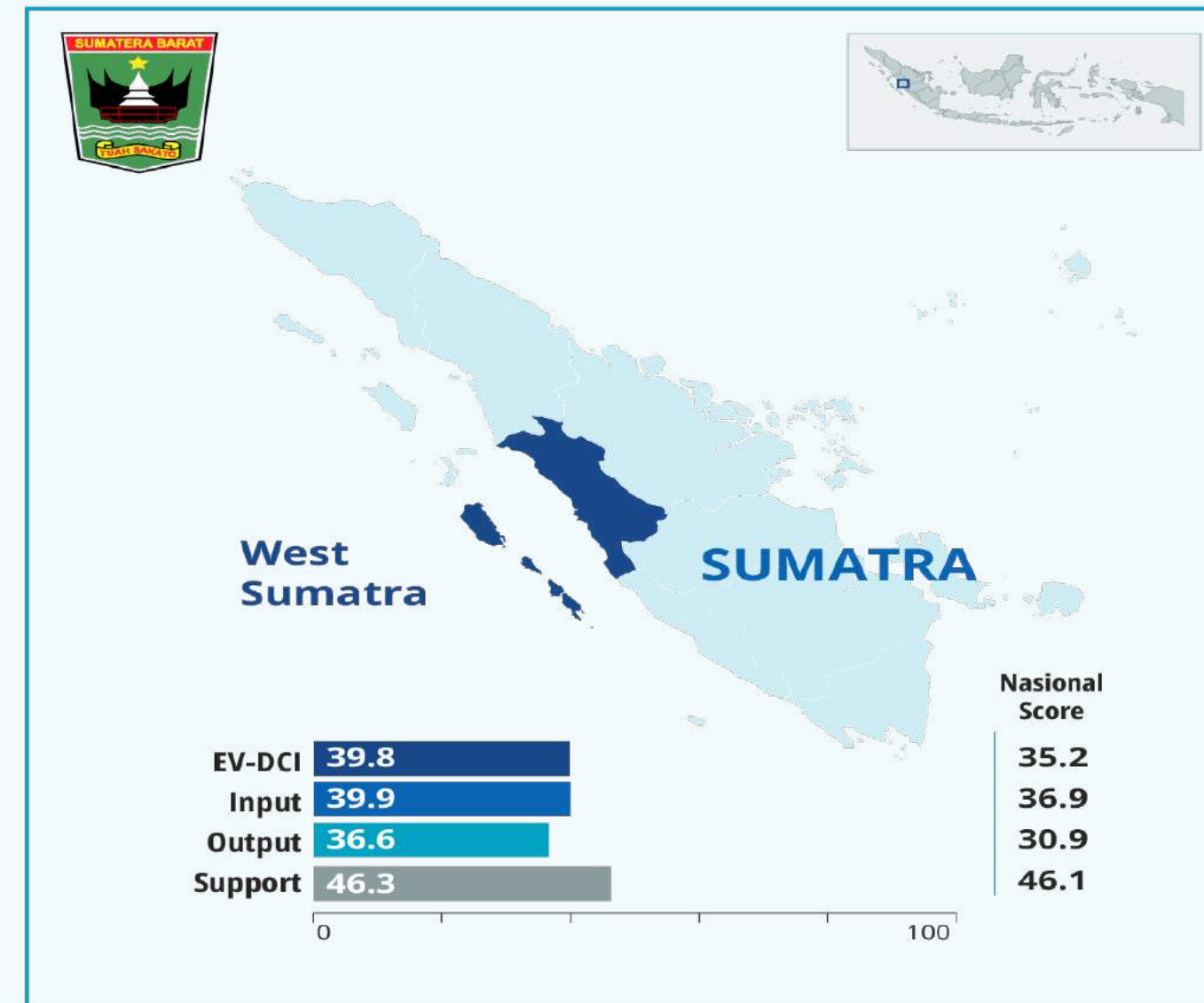
64.1

Higher score in the  
Infrastructure pillar

# WEST SUMATERA

## 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.



### Development of digital infrastructure

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. The initiative promotes greater ICT usage.

### Decline in the unemployment rate

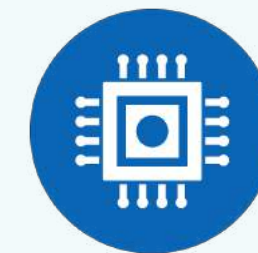
The workforce conditions have improved. This is reflected in the province's unemployment rate, which declined by 10,660 people to 179,950 people in August 2021 compared to the previous year. Such change is due to the fact that as the economy continued to improve, more job opportunities became available, thus reducing the unemployment rate.

### Infrastructure construction to support economic growth

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.

9<sup>th</sup>

ICT Usage



58.2

Higher score in  
the ICT Usage  
pillar

EV-DCI 2022 Index:  
Improved from last year

Manpower



46.3

Higher score in the  
Employment and  
Economy pillars

Infrastructure



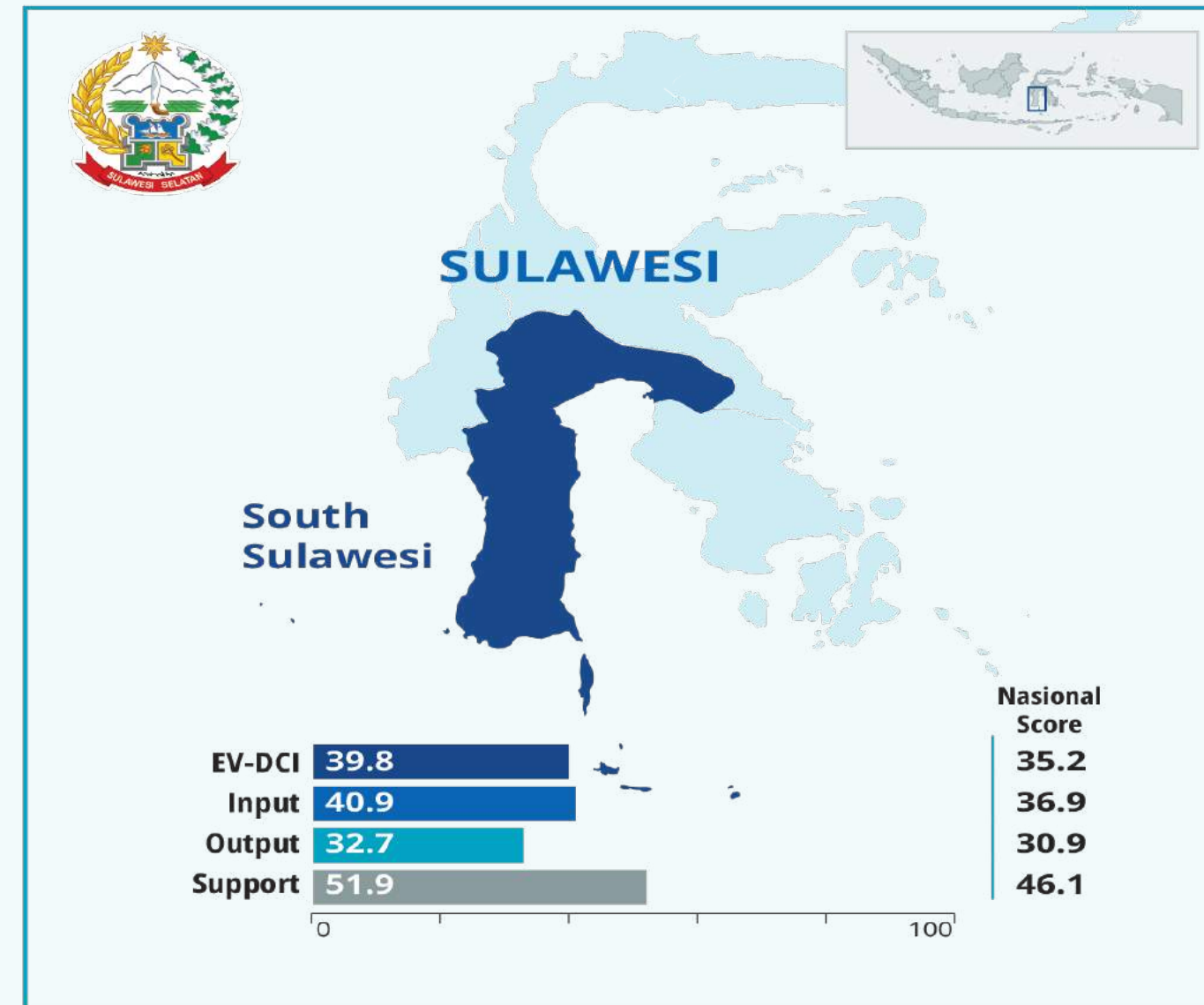
69.0

Higher score in the  
Infrastructure pillar

# SOUTH SULAWESI

## Economic Recovery Process by Training MSMEs to Go Digital

South Sulawesi's 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.



### Slower development in several sectors

The decreased score of the economy pillar is 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.

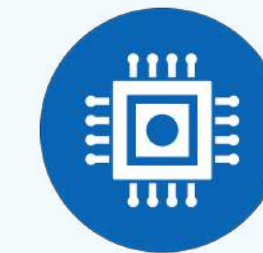
### MSME's digital transformation

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.

# 10<sup>th</sup>

EV-DCI 2022 Index:  
Deteriorate from last year

ICT Usage



47.9

Lower score in the ICT Usage and ICT Expenditure pillars

Entrepreneurship and Productivity



26.0

Higher score in the Entrepreneurship and Productivity pillar

Infrastructure



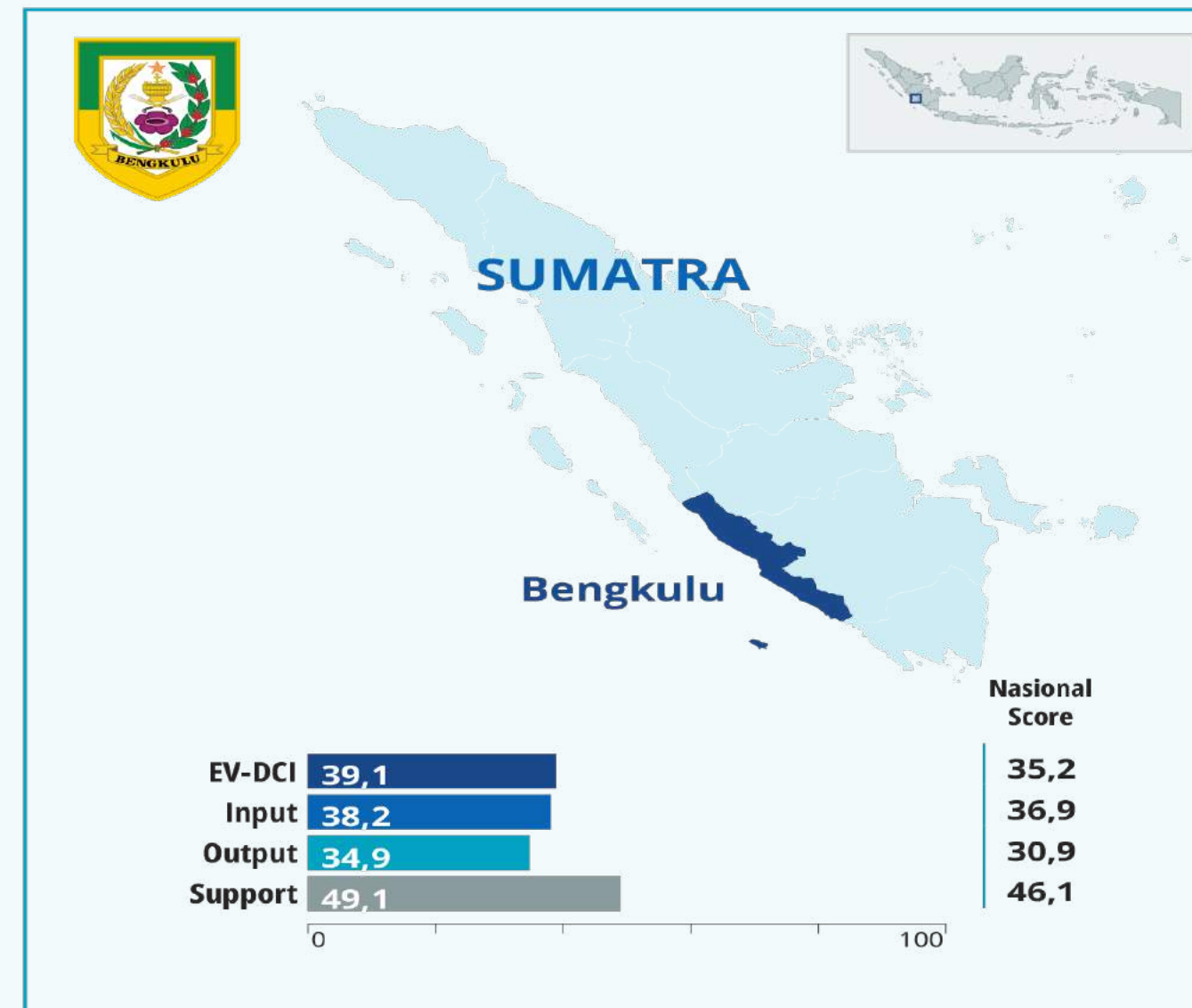
66.3

Higher score in the Infrastructure pillar

# 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.



### Overcoming signal problems

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.

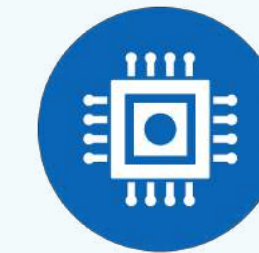
### Expansion of village internet network

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.

# 12<sup>th</sup>

EV-DCI 2022 Index:  
Improved from last year

ICT Usage



## 52.4

Higher score in  
the ICT Usage  
pillar

Entrepreneurship  
and Productivity



## 22.5

Higher score in the  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



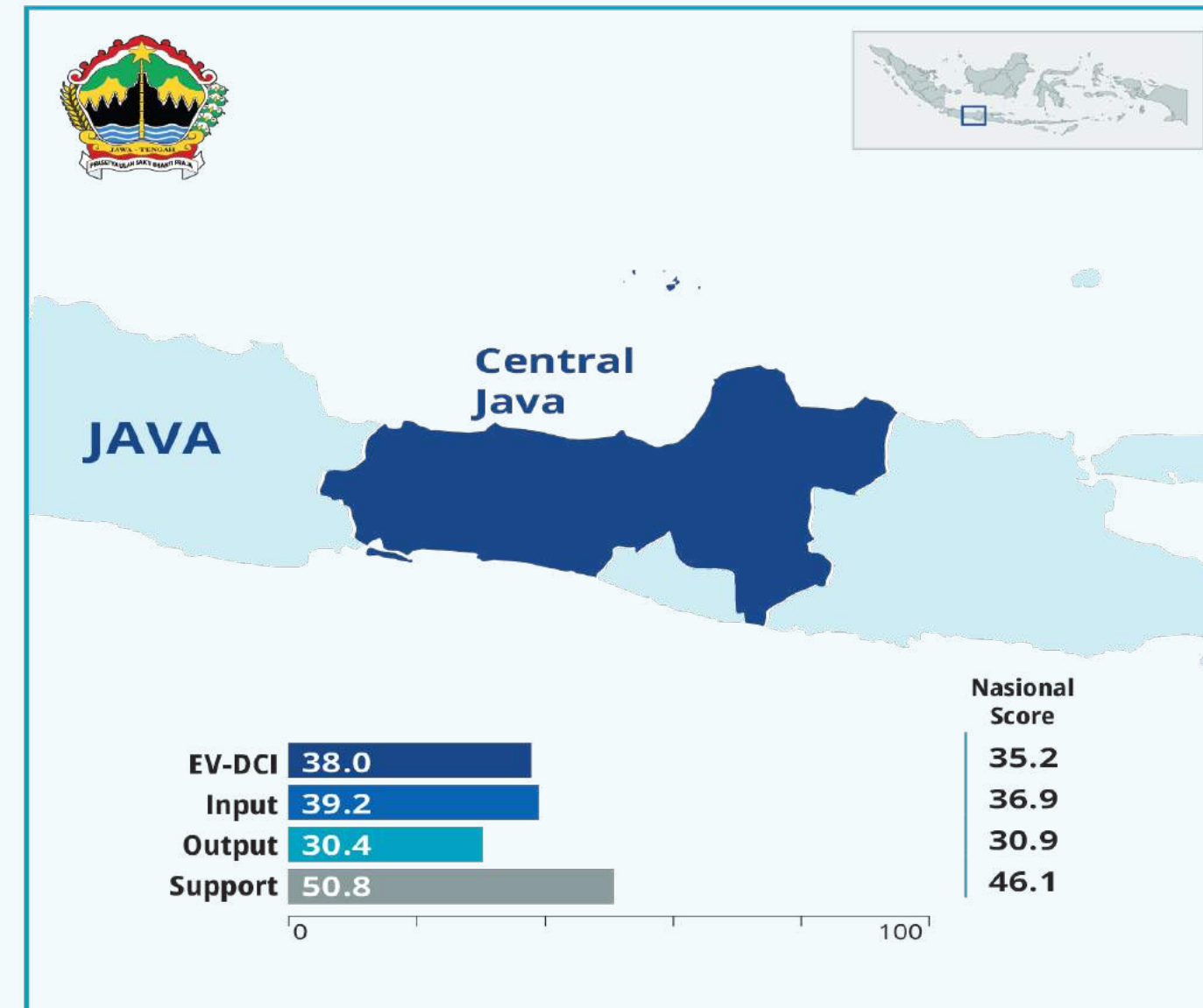
## 66.3

Higher score in the  
Infrastructure pillar

# CENTRAL JAVA

## Preparation for Massive Digital Skills Training

The digital competitiveness index for Central Java Province has changed due to several pillars, including the human resources and ICT expenditure pillars.



14<sup>th</sup>

Human Resource



46.6

Lower score in Human Resources and ICT Expenditure pillar

EV-DCI 2022 Index:  
Deteriorate from last year

Entrepreneurship  
and Productivity



36.3

Higher score in Entrepreneurship and Productivity pillar

Finance



34.3

Lower score in Finance pillar

## Decreased digital literacy index and ICT spending

One of the contributing factors for the decrease score in the human resources pillar is the Digital Literacy Index, which has decreased from 64.1 to 53.4 in 2022. Second, in the pillar of ICT expenditure, although the average spending on ICT in households increased by 12.9%, the average spending growth in Central Java is slower than other provinces.

## MSME digital transformation

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.

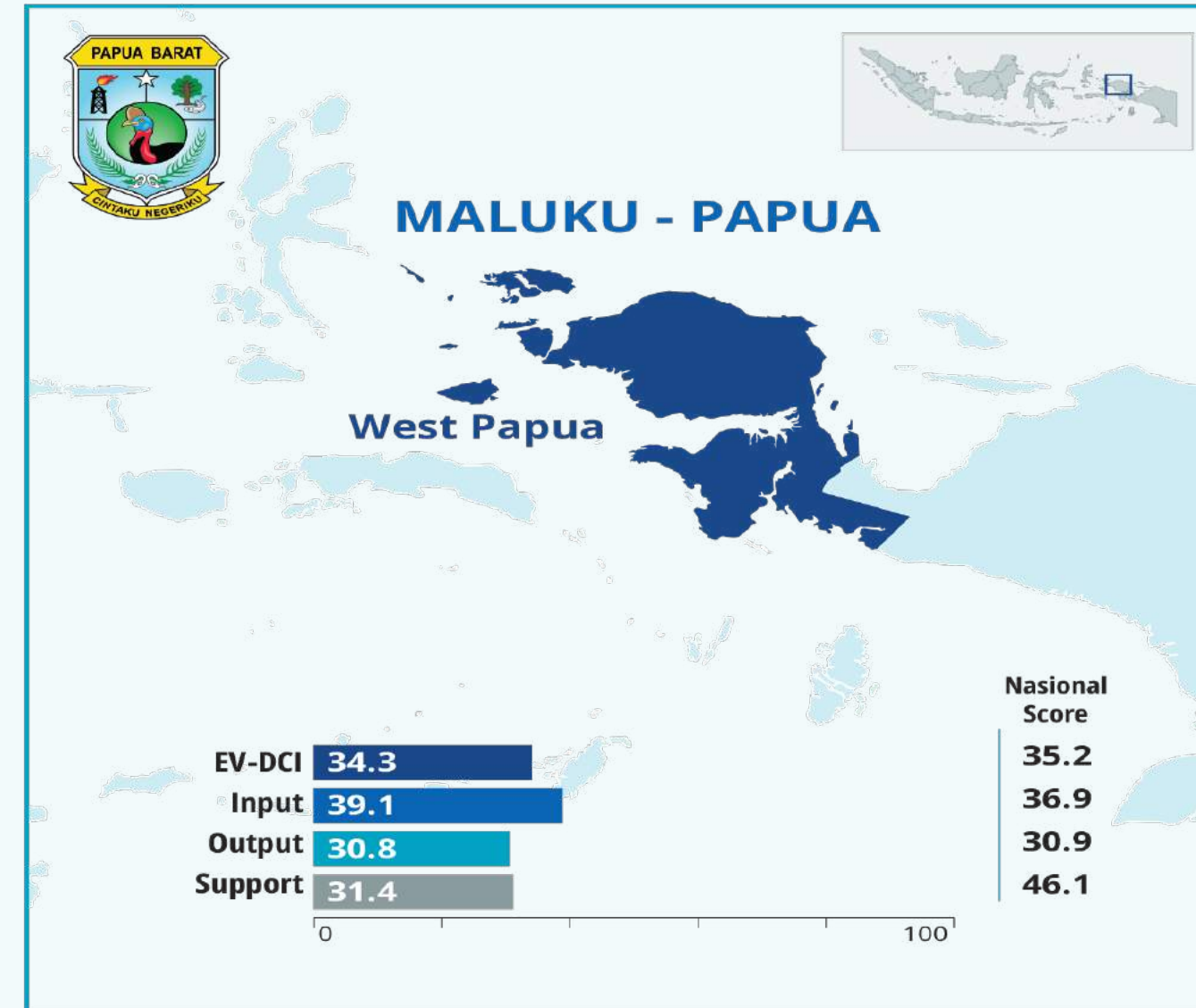
## Increased of workers negatively prone to digitalization.

EV-DCI data indicate an increase in the number of workers who are negatively prone to digitalization from 0.28% in 2021 to 6.81% in 2022. 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

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.



### Improvement in digital literacy

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.

### Development of digital infrastructure

The ICT pillar has also gained significance. This is because the Communication and Information Department in West Papua 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.

19<sup>th</sup>

EV-DCI 2022 Index:  
Improved from last year

Human Resource



21.6

Higher score in the Human Resources and ICT Usage pillar

Entrepreneurship and Productivity



17.1

Higher score in the Entrepreneurship and Productivity pillar

Infrastructure



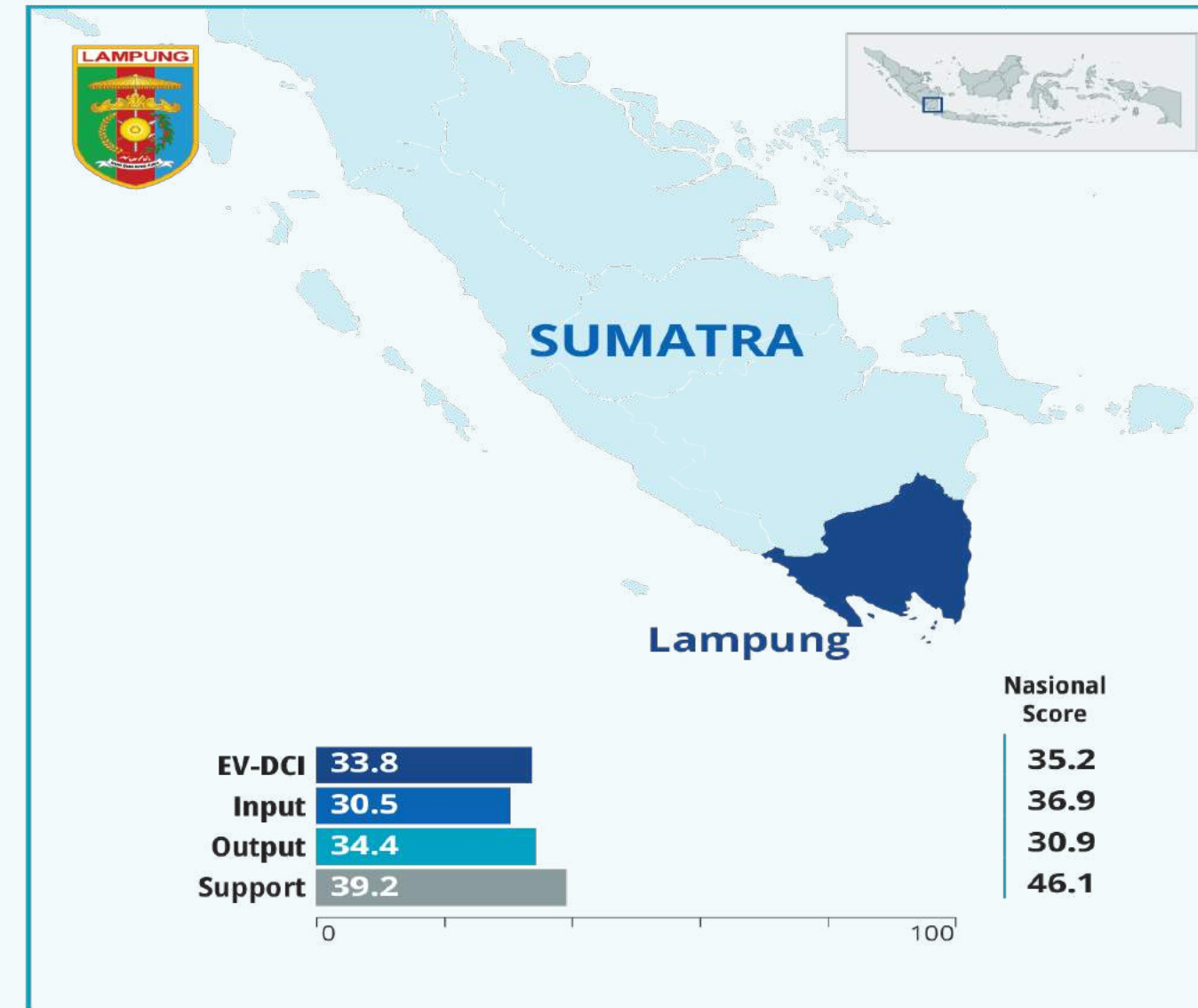
37.2

Higher score in the Infrastructure pillar

# 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.



20<sup>th</sup>

EV-DCI 2022 Index:  
Improved from last year

Human Resource



23.9

Higher score in the  
Human Resources  
pillars

Entrepreneurship  
and Productivity



23.8

Higher score in the  
Economy,  
Employment,  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



67.5

Higher score in the  
Infrastructure  
pillars

### Human resources as key driver

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.

### MSME's digital ecosystem

The pillar 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.

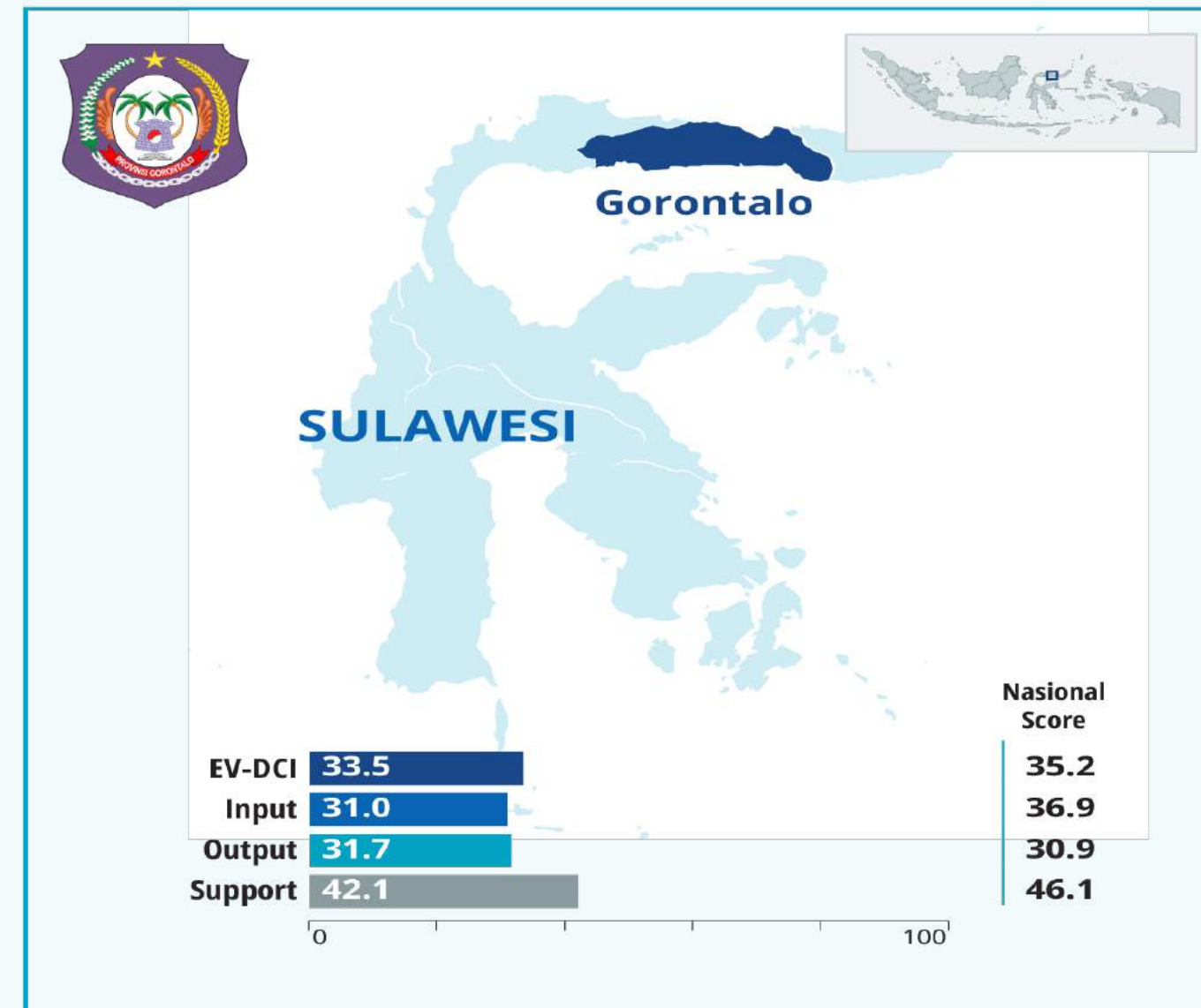
### Increased employment rate and improved infrastructure

Labor conditions in Lampung Province have generally improved, owing it to an increased absorption of workforce and job opportunities available in the province. In the infrastructure area, Lampung Provincial Government has collaborated with several private companies to implement an acceleration program for the smart village initiative.

# GORONTALO

## Towards the Acceleration Expansion of Digitalization

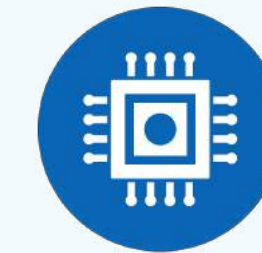
Gorontalo's digital competitiveness rank has dropped from 16th in 2021 to 21st in 2022. Overall, the score increased from 32.3 in the previous year to 33.5 this year. Gorontalo is one of the provinces that constantly improves its EV-DCI scores although slower than the other progressing provinces, resulting in a lower position among 34 provinces.



**21<sup>st</sup>**

**EV-DCI 2022 Index:  
Improved from last year**

ICT Usage



**48.0**

Lower score in the  
ICT Usage and ICT  
Expenditure pillar

Entrepreneurship  
and Productivity



**17.5**

Higher score in the  
Economy,  
Entrepreneurship  
and Productivity  
pillar

Infrastructure



**65.5**

Higher score in the  
Infrastructure  
pillars

### Disparate distribution of internet connectivity

The disparate distribution of internet connectivity and electricity in numerous regencies of Gorontalo coincides with reduced users of information technology tools.

### Increased in the entrepreneurship and productivity pillar

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 (Kemenparekraf) to foster digital transformation of MSMEs in Gorontalo through several initiatives.

### Reduced electrical disturbances

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.

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.

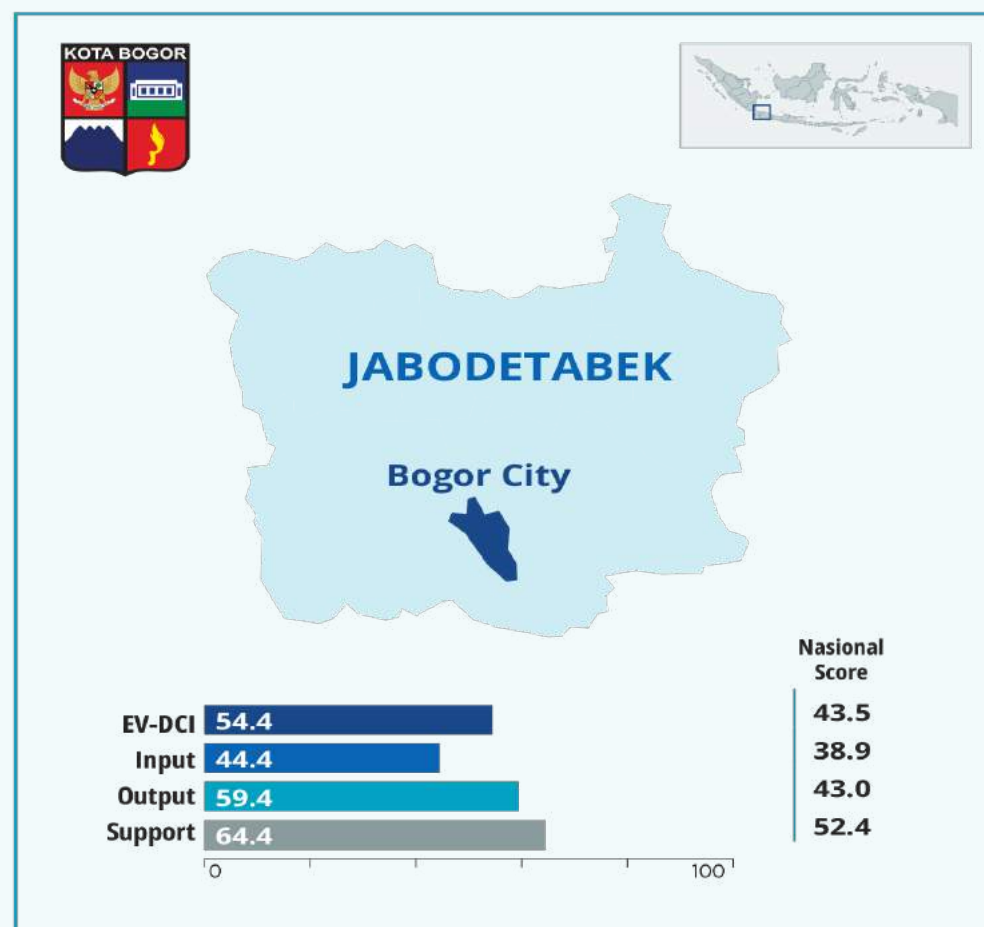
# BOGOR

## Efforts to Increase Business Scale for Startups and MSMEs

EV-DCI 2022 Index:  
Moved up by 9 places

11<sup>th</sup>

Bogor City Government  
collaborates with startups to  
provide digital training  
programs for MSMEs.



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.

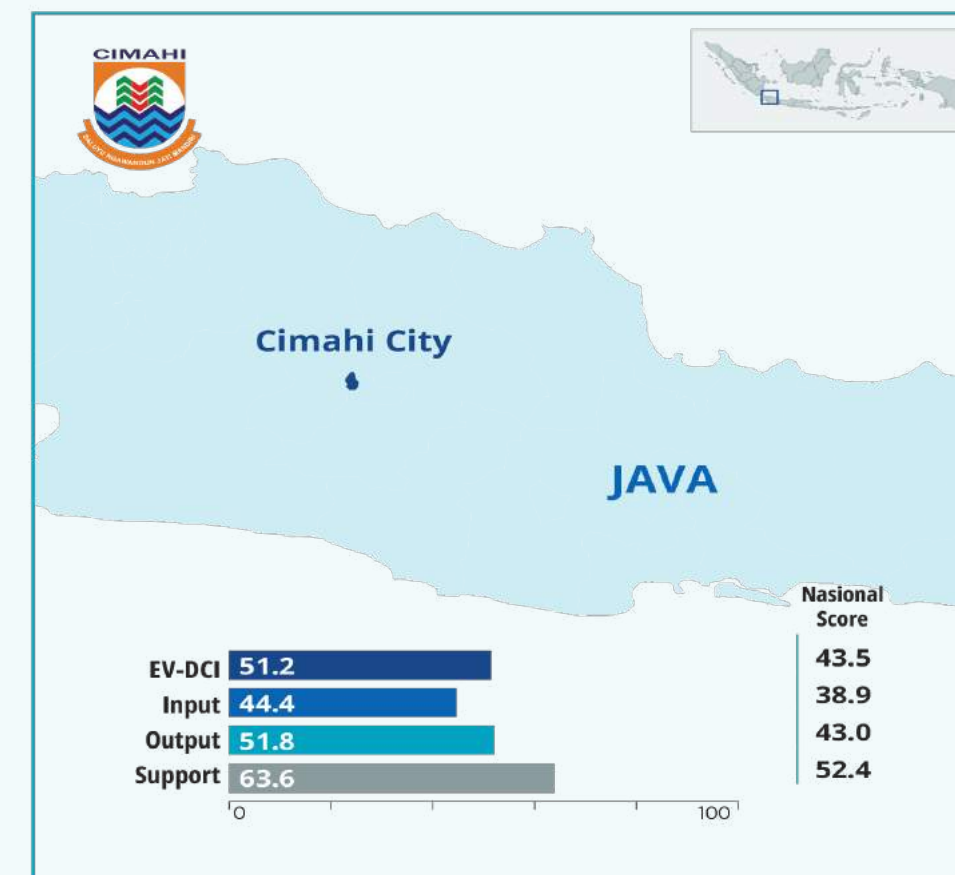
# CIMAHI

## Positive Trends in Information and Communication Sector Push Digitalization

EV-DCI 2022 Index:  
Moved up by 15 places

23<sup>rd</sup>

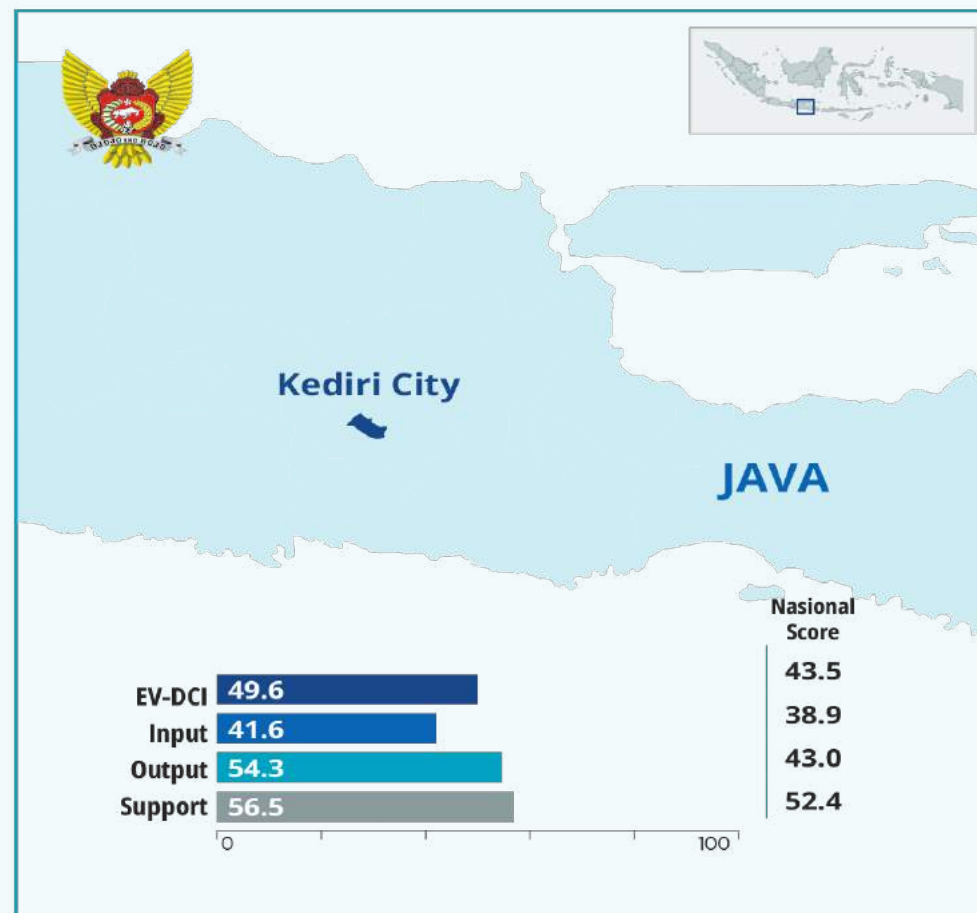
The Cimahi City Government has  
launched LAPAKU portal to  
support and assist the  
expansion of MSMEs in the city.



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 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.

# KEDIRI

## Various Programs for Strengthening Human Resources and MSMEs



EV-DCI 2022 Index:  
Moved up by 29 places

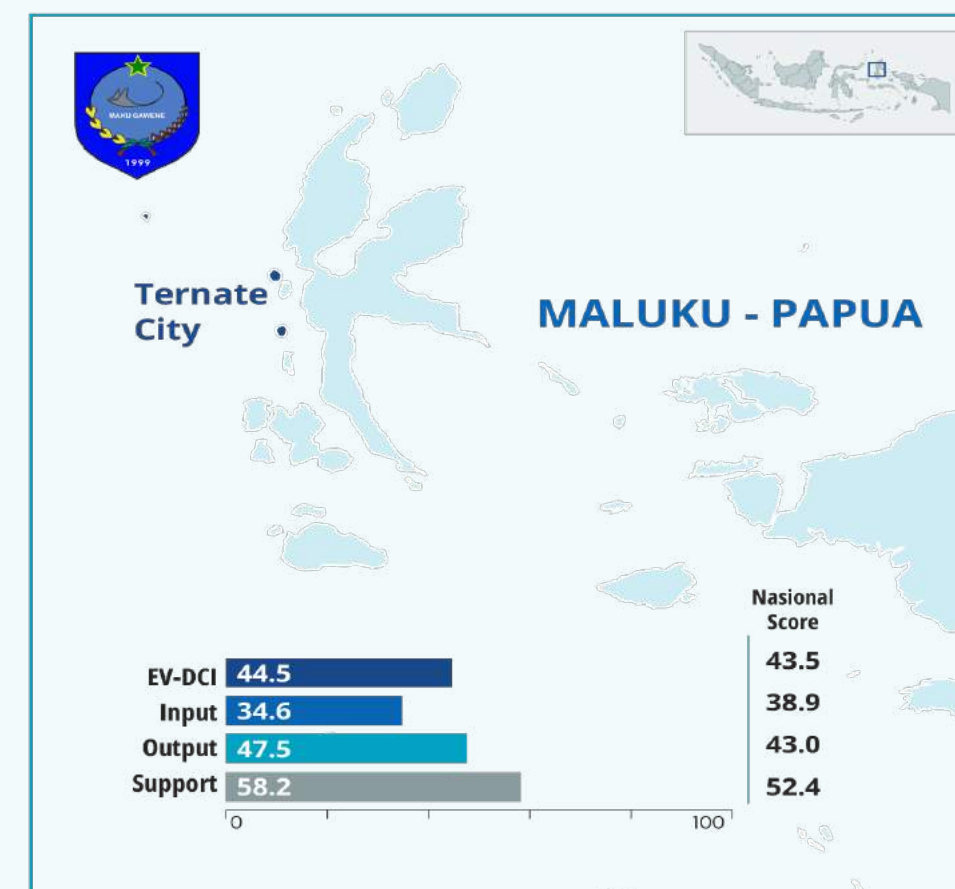
33<sup>rd</sup>

Kediri City Government  
promotes community  
empowerment through the  
Scale Up Prodamas.

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. The considerable improvement in the entrepreneurship and productivity pillars also 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.

# TERNATE

## Accelerating Digitalization through Trainings and Infrastructure Development



EV-DCI 2022 Index:  
Moved up by 18 places

35<sup>th</sup>

XL and Telkom are in close  
collaborations with Ternate City  
Government to accelerate the  
expansion of internet  
connectivity to remote areas.

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 development of digital infrastructure in the area is also supporting the initiatives to accelerate digitalization.

# PADANG PANJANG

**Boost Performance  
through Digitalizing  
MSMEs and the Financial  
Sector**

EV-DCI 2022 Index:  
Moved up by 24 places

**44<sup>th</sup>**

Padang Panjang City  
Government collaborates with  
state-owned banks to provide  
people with services and  
facilities.



The expansion of KUR distribution by Bank Nagari Padang Panjang shows progress in the region's financial sector. 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). In addition, Padang Panjang City Government offers Pakan Akaik Manggaleh Virtual initiatives, which aims to encourage MSMEs to digitize their operations.

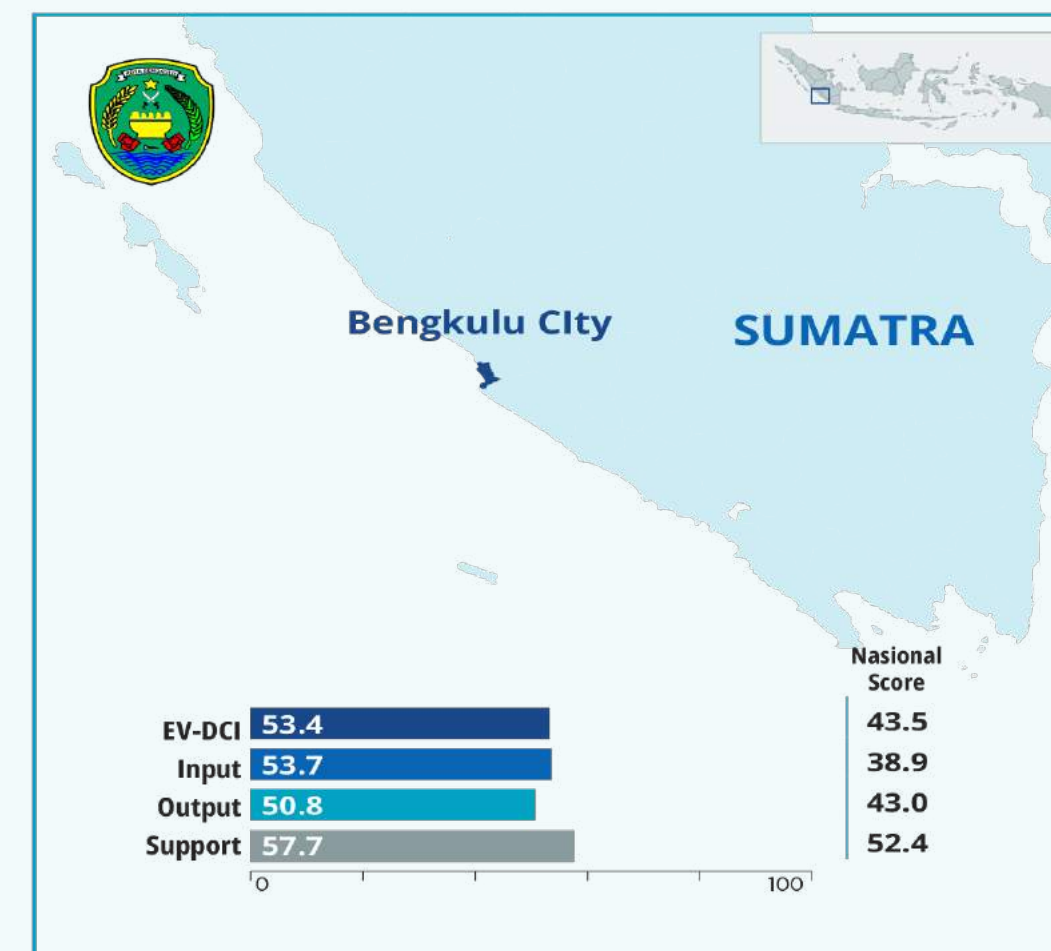
# BENGKULU

**The Role of Digital Culture,  
Digital Infrastructure, and  
Manpower**

EV-DCI 2022 Index:  
Moved up by 28 places

**14<sup>th</sup>**

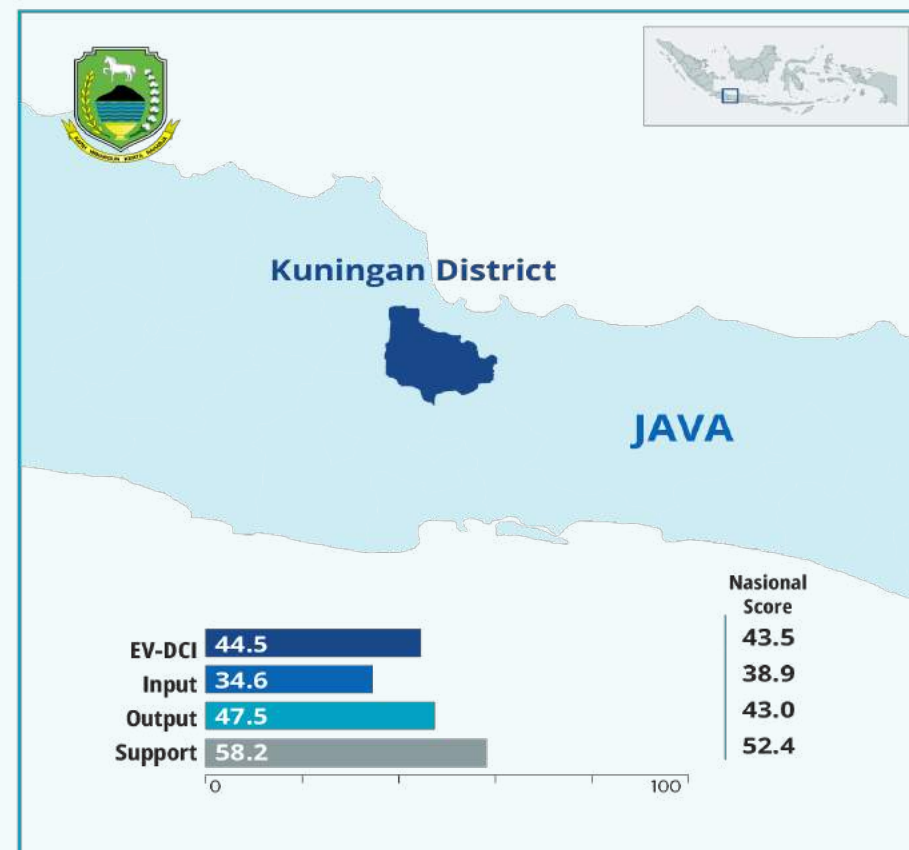
The Bengkulu City  
Government is working  
with Telkom to strengthen  
the internet network by  
installing BTS in numerous  
villages.



Bengkulu City's digital literacy has increased since last year. Digital culture is one of the driving forces for an improved digital literacy. This is in accordance with various Bengkulu local government programs that support digital literacy. The ICT usage pillar has also improved. The Bengkulu City Government enables people to access the internet by providing free wi-fi access 24/7 at strategic locations. Another growing pillar was the manpower pillar, which is shown in the increase of employment rate. Finally, the Infrastructure pillar has been improved with the increased the number and proportion of villages receiving reliable 3G and 4G signals.

# KUNINGAN

## Towards a Smart City by Improving Digital Infrastructure



EV-DCI 2022 Index:  
Moved up by 48 places

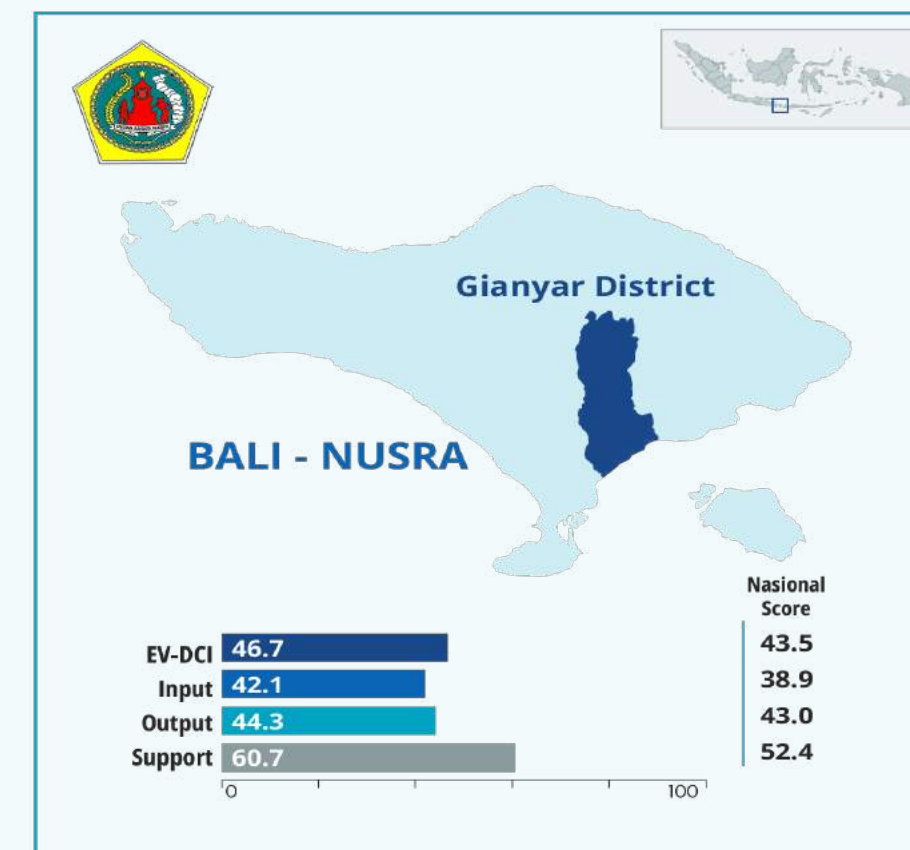
75<sup>th</sup>

The Kuningan Regency  
Government promotes digital  
literacy activities, such as  
providing digitalization advice  
and hosting a digital literacy  
workshop.

Kuningan Regency has increased in digital literacy over the previous year. There is also 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. 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 economy pillar is also seeing improvements with the Increased production in all business categories.

# GIANYAR

## Affected by the Decline in the Tourism Sector in Bali



EV-DCI 2022 Index:  
Moved up by 15 places

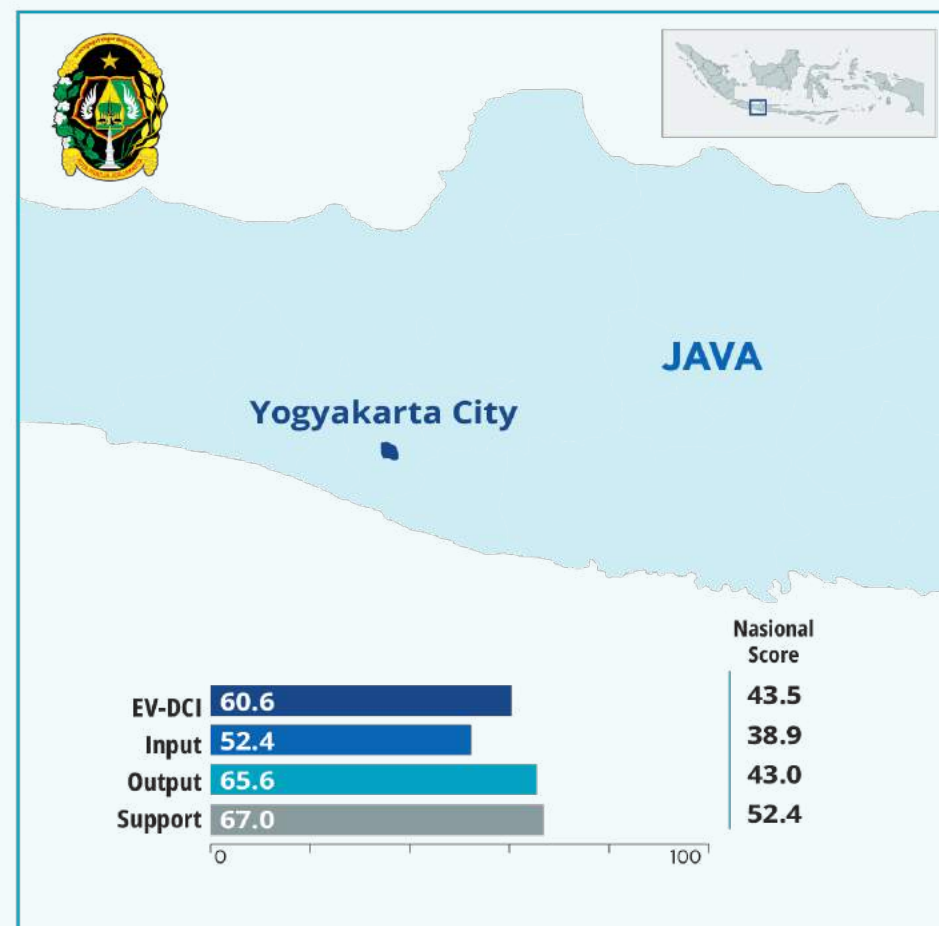
52<sup>nd</sup>

The closure of hotels and  
restaurants, as well as  
restrictions in various tourist  
destinations, contributed to the  
reduction in employment in  
Gianyar Regency.

The pandemic continued impacting on the tourism sector, which is the main driver of Bali's economy. The decline in the number of tourists, as well as many other travel limitations, has negatively impacted the economy of Gianyar Regency. 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. 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.

# YOGYAKARTA

## The Development of New Digital Talents



EV-DCI 2022 Index:  
Moved up by 6 places

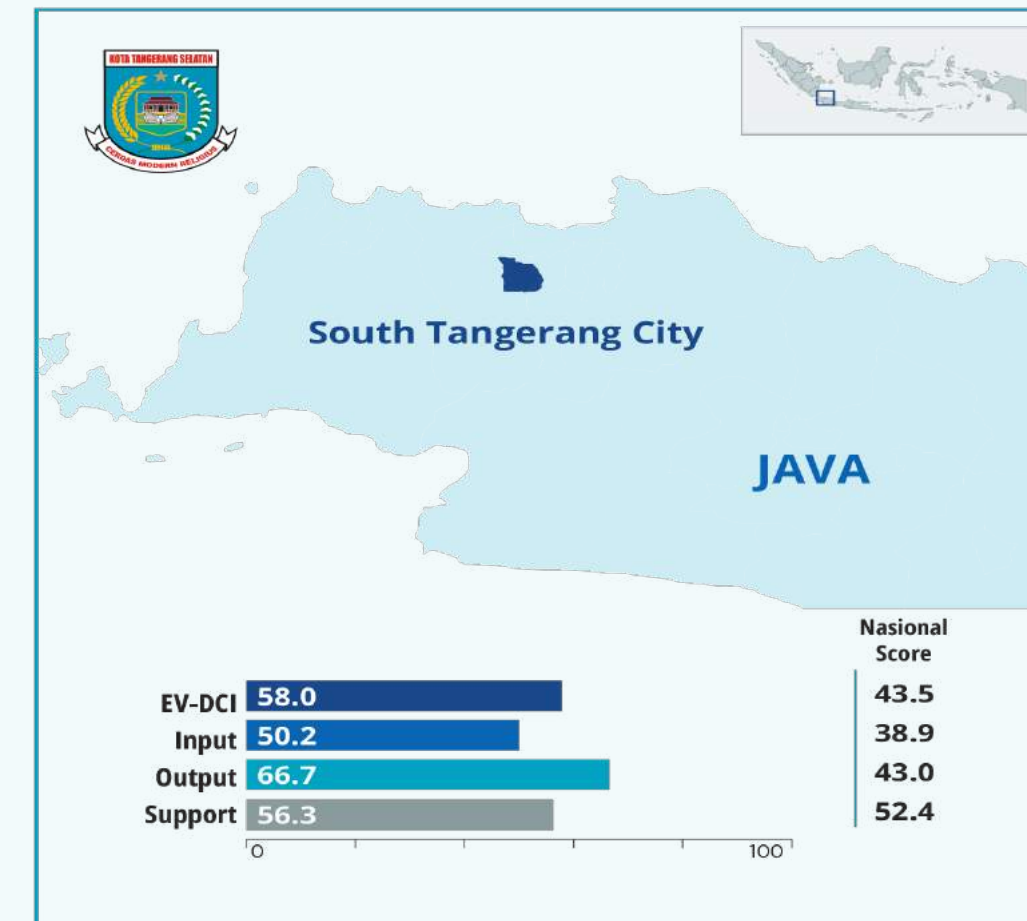
3<sup>rd</sup>

The digital sector's participation has expanded, particularly in the logistics sector.

DI Yogyakarta Province enjoys a substantial improvement in the digital competitiveness index for 2022. The human resources pillar is one of the main drivers of this increase. 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. 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.

# SOUTH TANGERANG

## Provision of Wi-Fi in Public Spaces and Digitalizing MSMEs



EV-DCI 2022 Index:  
Moved down by 1 places

6<sup>th</sup>

The city government of South Tangerang has installed 875 free wi-fi hotspots in public areas.

One of the pillars that suffered a decrease was manpower. The pandemic has caused the closure and bankruptcy of businesses and business sectors have suspended work for staff. Furthermore, the ICT expenditure pillar has decreased due to the reduced budget of households spending on information and communication technology. Despite the declines, there were improvements in numerous other pillars, such as the entrepreneurship and productivity pillar, the ICT usage and the human resources pillar. Wi-fi installation is one of the initiatives aimed at achieving a Smart City, resulted in the increased of the population with internet connection.

## Chapter IV

# Digital Technology Development Across Sectors





## ICT

### The Backbone of Indonesia's Digital Economy

The Information, communications, and technology (ICT) sector is the **foundation for establishing a digital environment** that will support Indonesia in strengthening its digital economy.

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.**

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 year. (BKF, 2021)

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



Sources: Statistics Indonesia (BPS)

**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.**

ICT Infrastructure Still Requires Improvements

- Low ICT infrastructure development in Indonesia
- Uncompetitive in mobile and fixed broadband speed

Capital to Drive Digital Transformation

- Digital transformation will require significant capital to implement

Supply of Skilled Human Resources

- Digitally skilled workforce availability is still lower than the demand (EV-DCI 2022)
- Disparity of availability the workforce across regions



## ICT

### The Backbone of Indonesia's Digital Economy

With more economic opportunity brought by digital technology, **Indonesia should be ready to grab it and become more competitive** than ever.

### Efforts to Catalyze ICT Infrastructure Development

Indonesia is bridging the ICT infrastructure gap in the country to improve its competitiveness.

➔ **342,000 km**  
fiber optic cable networks

➔ Expanding 4G in least developed regions across  
**7,904** points

➔ 5G development roadmap by **2024**

➔ ▲ **39%** growth in EV-DCI 2022 score in  
Indonesia's ICT infrastructure Indicator

### Keeping Up with the Digital Human Capital Development Trend

The government plays a key role in facilitating the human capital upgrade with new skill sets at a national level.

The Ministry of Communication and Information devised a three-level plan to improve digital talent in Indonesia:

#### 1st Level

→ The National Digital Literacy Movement

#### Medium Level

→ Digital Talent Scholarship

#### Advanced Level

→ Digital Leadership Academy

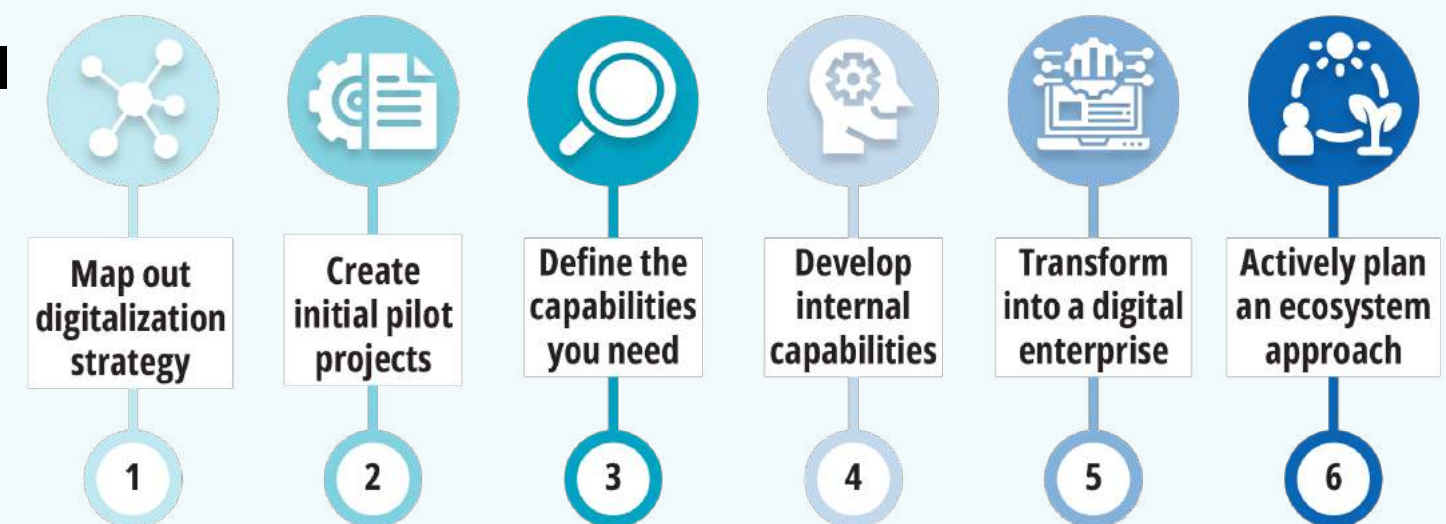
**Airlangga Hartarto**

Coordinating Minister for Economic Affairs

“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.”

### Progressing Companies' Digital Transformation Journey

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





## E-COMMERCE

### E-Commerce to Catalyze Digital Economy Growth

Despite its devastating impacts, COVID-19 has turned out to be a **blessing in disguise** to the e-commerce sector in Indonesia.

In 2021, Indonesia's e-commerce sector experienced significant growth

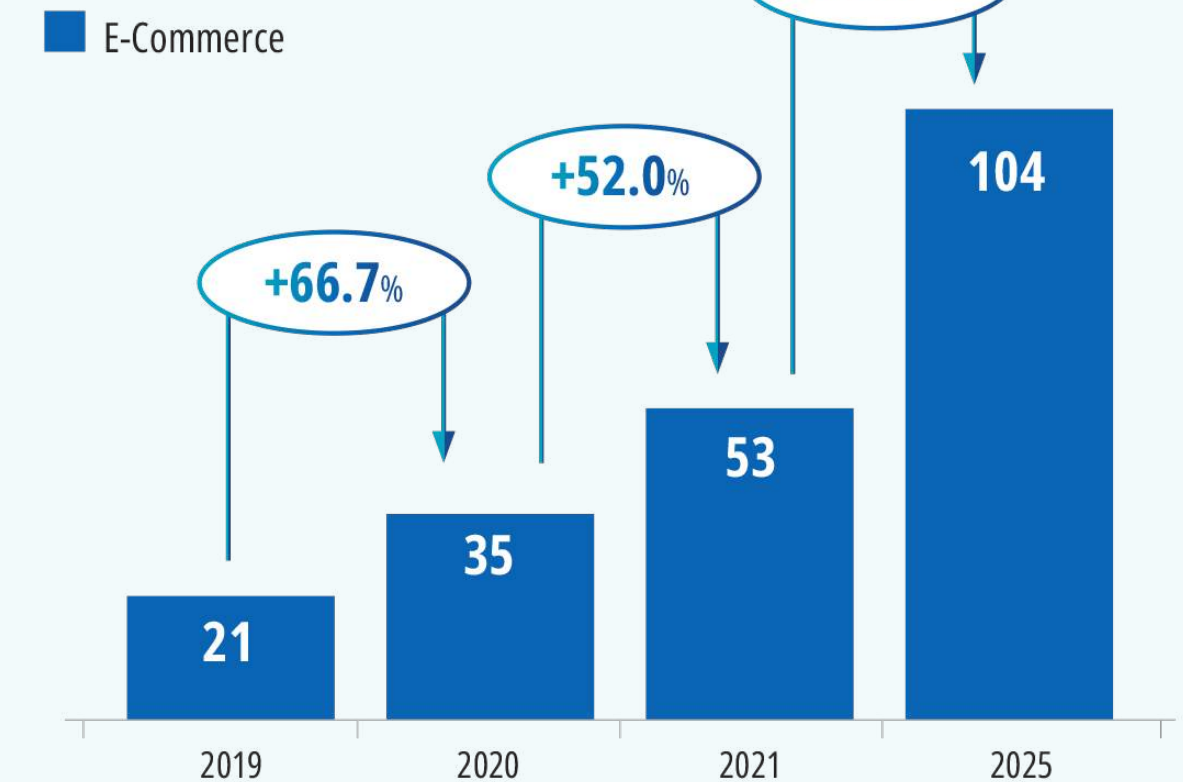
↑ **52%**

Growth in Indonesia's e-commerce sector reached **\$53 billion** (e-Conomy SEA, 2021)

↑ **88%**

The number of online shoppers in Indonesia increased from 17 million to **31 million** (NielsenIQ, 2021)

#### E-COMMERCE GMV in USD Bn.2019-2025F



Source: eConomy SEA 2021

Despite its significance and growth, only around 25% of Indonesia's MSMEs have been utilizing online platforms for their businesses. MSMEs in Indonesia are facing obstacles in taking the digital turn

**1** Lack of digital literacy

**2** Limited access to fundings and start-up investments

**3** Large discrepancy between Jakarta and other provinces in terms of workers' utilization of online platforms

### Development of the B2B Market

The market share of B2B e-commerce in Indonesia is only 27% of the total e-commerce market, which is still very small compared to Malaysia's 62% and Singapore's 68% (Reogma, 2021)

This untapped potential is mainly due to the slower adoption of digitalization:

**01** Higher Operational Complexity

**02** Higher Price Value

**03** Advanced technical capability requirements



## E-COMMERCE

### E-Commerce to Catalyze 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**.

#### Consumer-First Strategy

In order to stay relevant in the new normal, e-commerce companies must devise a customer-centric approach to make their platforms 'stickier'. In preparing for the next 'new normal', the upcoming stage is O2O (online-to-offline) conversion, especially for online-made brands. We recommend three ways to devise its customer-centric strategies:

- 1 Think beyond the physical supply chain
- 2 Strategy for enhancing digital capabilities
- 3 Understanding customers' priorities

#### Case Study

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). It 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.



### 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. government must provide continued clarity and certainty through its flexible policies and regulations to promote:

- Fair competition
- Enabling innovations
- Creating opportunities for local SMEs
- Consumer protection in terms of data protection and cyber security



## Sustaining the Momentum of Supply-Chain and Logistics Transformation

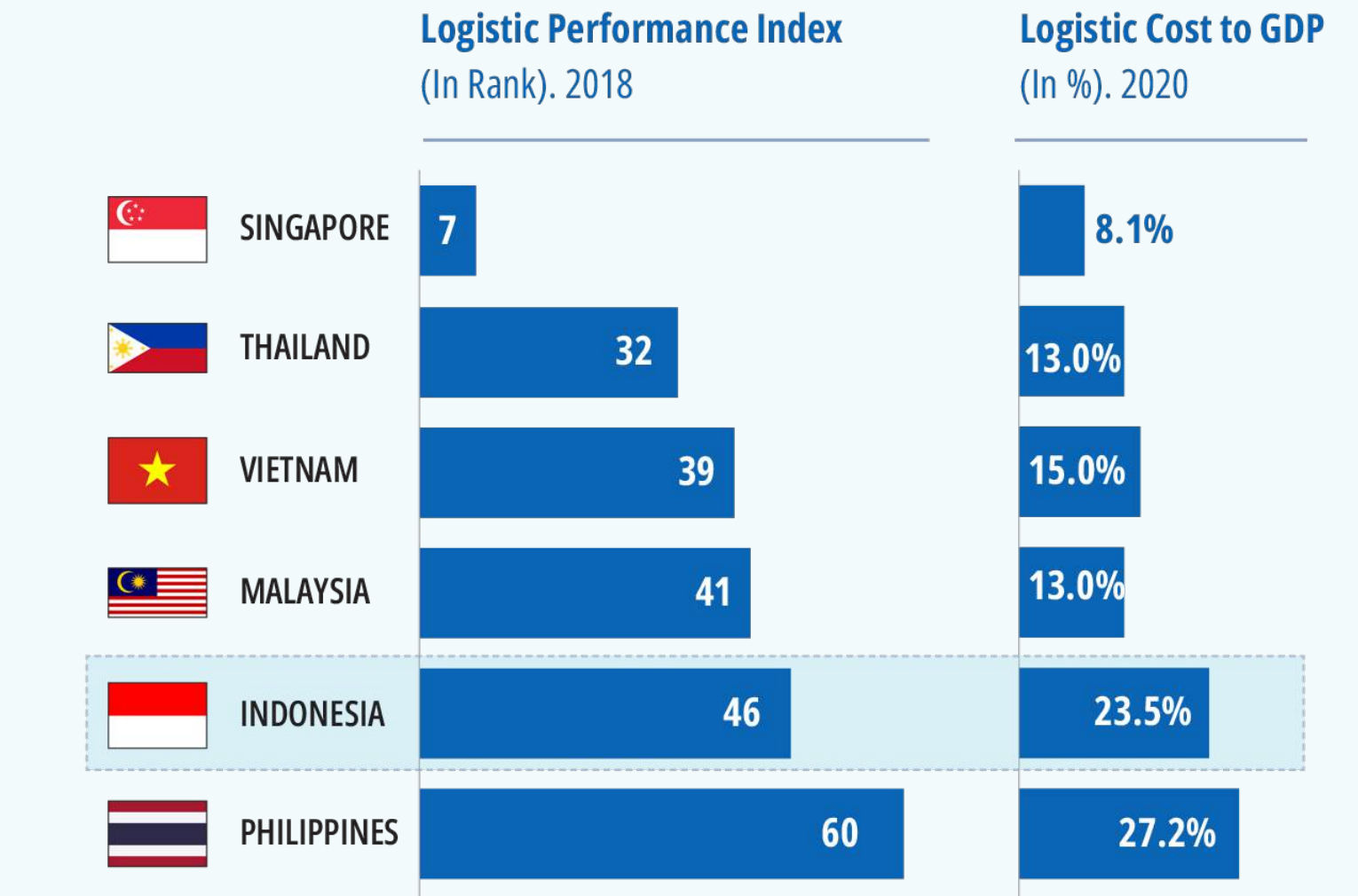
The logistics sector is **the lifeblood of Indonesia's economy** and has been facing a time of extraordinary change during the pandemic.

**↑ 40.6%**  
from 2020 to  
**79.1**  
In EV-DCI 2022

The median for the growth of the Gross Regional Domestic Product (GRDP) of warehousing, transportation support, post and courier has increased.

Despite that, the current supply-chain ecosystem in Indonesia still needs improvements in several key factors:

- In the World Bank's Logistics Performance Index (LPI) in 2018, Indonesia still lags behind many neighboring countries.
- Indonesia has one of the highest logistics costs to GDP percentages in the region.



Source: World Bank. PwC Analysis

## The long-standing challenges of Indonesia's logistics sector

### Proper Infrastructure

- Poor quality of district roads
- Shortage of large-scale ports
- Inadequate intra-island connectivity
- Maritime supply chains are long and fragmented

### Red Tape Bureaucracy and Regulations

- Inspections and permits are causing delays
- Lack of coordination and unclear and overlapping regulations

### Utilization of Resources Across the Logistics Value Chain

- Lack of supply-demand planning and cost optimization
- Scattered economic activity and population dispersion
- Fragmented trucking industry, which lacks transparency and real time information

### Standardized Procedures

- Many basic things such as freight and truck sizes standards that have yet to be harmonized and embraced.



## LOGISTICS

### Sustaining the Momentum of Supply-Chain and Logistics Transformation

It is imperative for the logistics sector to **revolutionize the status quo with digital innovations** to grow and be more competitive.

#### Strengthening Connectivity Through Infrastructure Development and Technological Adoption

- Improving connectivity through equitable infrastructure development between territories, particularly in eastern Indonesia.
- Incorporating technology into the development of infrastructure.
- Implementing intelligent transport systems (ITS) that monitor, evaluate, and manage transportation systems to boost efficiency and safety.

#### Case Study:

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 owners. (Dailysocial)

Indonesia has digitized its business licensing system through Indonesia National Single Window (INSW), and introduced the National Logistic Ecosystem (NLE). To support the success of these programs:

#### Government

Provide socialization to stakeholders and set a clear guidelines, including mutual agreements on the standards and technology.

#### Stakeholder

Continue committing from conceptualization until the development and implementation stages.

Embracing  
Digitalization of  
Procedures to Boost  
Efficiency

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.

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.



## HEALTH

### Improving Healthcare Resilience in Managing COVID-19 Pandemic and Beyond

Digital health is increasingly emerging as one of the **most prominent tools** in fighting COVID-19, making it a **lucrative investment opportunity**.

The digital transformation in health industry is accelerating:

63%

projected Digital Health CAGR in 2022 since 2017 (Asialink)

Record high of

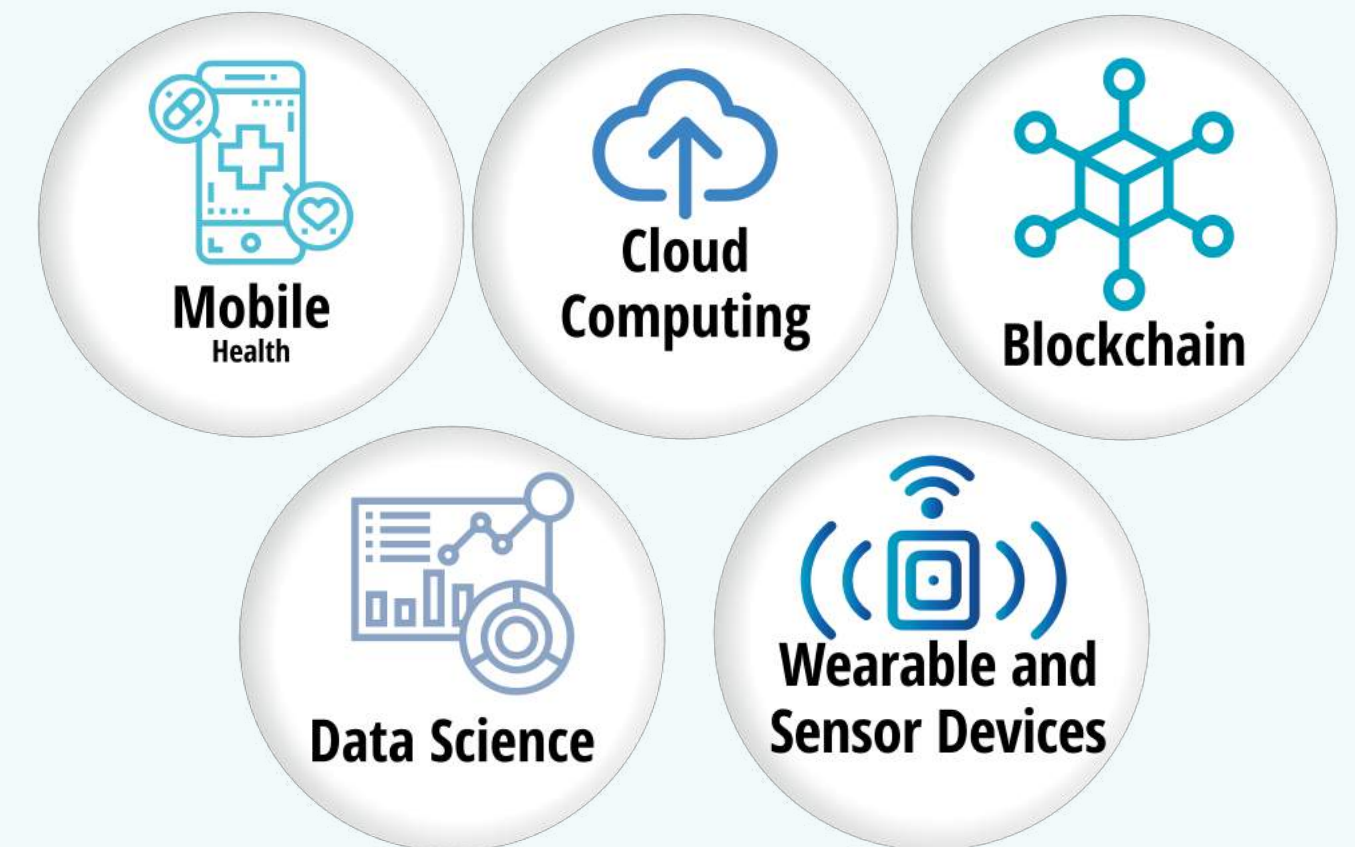
US \$1.1 billion

funding was invested in the six largest ASEAN economies in H1 2021

> 400

health applications developed by the central and local governments.

There are a wide range of different technologies being implemented in digital health with varying complexity. Some examples of the types of new and existing technologies being applied to the healthcare sector.



### Indonesia's Digital Health is Still at Its Infancy. There are problems that should be addressed:

#### Shortage of healthcare workers

- 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 (World Bank).

#### Lack of quality service

- Out of Indonesia's 2,925 hospitals, only around 40 hospitals are internationally accredited.
- The number of medical schools in Indonesia has nearly doubled as it increased from 38 in 2000 to over 75 today.

#### Lack of Regulations

- Indonesia has yet to develop rules and regulations regarding the digital health care system.
- Health data that is still fragmented become a challenge to stipulate digital health regulations.

#### Lack of technological adoption

- Operational data such as products and raw materials are still not standardized in hospitals.
- There is still a gap between the demand for virtual care and the capacity to deliver it effectively.



## HEALTH

### Improving Healthcare Resilience in Managing COVID-19 Pandemic and Beyond

The use of digital technologies for health should be promoted as it will address key healthcare systems challenges.

WHO proposed four key objectives that should be taken into consideration carefully to establish a country's digital health systems.



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

- Collaboration with digital platforms can increase digital health technology adoption as Singapore did for AI adoption.
- Health professional capability building is also vital in overcoming Indonesia's inequity of quality healthcare.
- 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

- The use of data in digital technologies will also help in discovering and developing new products and therapeutics.
- 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.
- With machine learning adoption, EHR can facilitate and accelerate the use of data analytics.

### Advocate Human-Centered Digital Health Service Systems

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.
- Make research interactive, personal and action-oriented.

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



## EDUCATION

### A Key Sector in Developing Social and Economic Progress

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.



Kemendikbud Ristek has introduced initiatives, such as Rumah Belajar, to facilitate remote learning, expediting the adoption of digital technology.

As of February 2022,

**276,000** teachers and **667,000** students have joined the platform.



Ruangguru, the largest EduTech company also recorded

a **46%** increase in users to reach **22 million** users in 2020.

However, despite the growth, Indonesia is still facing challenges in improving education systems. According to the United Nations Development Programme's HDI, Indonesia is ranked 107th out of 189 countries, far behind Singapore, Malaysia and Thailand.



SINGAPORE

11



MALAYSIA

62



THAILAND

79



INDONESIA

107



PHILIPPINES

107



VIETNAM

117

Source: United Nations Development Programme

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

#### 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.

#### Preschool (PAUD) and Higher Education Participation Rates

The participation rate of students in PAUD and higher education is still low. The main factor that contributes to these are the limited access to PAUD services in certain areas, especially in underdeveloped and remote parts of Indonesia, as well as the shortage of higher education capacity.

#### Employment Rates Among Graduates

Despite the growing demand, the pace of the development of skilled digital talent in Indonesia is decreasing. The slow growth of digital talent has created a mismatch between the supply of graduates and demand in the graduate labor market in Indonesia.



## EDUCATION

### A Key Sector in Developing Social and Economic Progress

While the pandemic presents challenges to the education sector, it has indeed **presented opportunities that expedite the adoption of digital technology** in the sector.

#### Utilizing Massive Open Online Course (MOOC) Improve Inclusivity in Education and Upskilling

- 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, 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.
- To optimize MOOCs in Indonesia, collaboration between multiple stakeholders such as domestic and foreign higher education institutions, industries, EduTech startups, research institutions and the government should be encouraged.
- 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.

#### Collaboration Between Multiple Stakeholders to Improve the Quality of Education

- 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.
- 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.
- it is crucial to encourage collaborations with startups to improve the quality of education in Indonesia. This can be done through collaborations between the regional government and EduTech companies in generating innovations to improve the quality education.



## TOURISM

### The Importance of Resilience and Agility for the Industry Players

The tourism sector contributed **4.2% to Indonesia's GDP** and employs **around 10.2% of total workforce** in 2021. This makes tourism an important sector that plays a critical role in Indonesia's economic growth and job creation.

### 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 year (Euromonitor International, 2021).

### The tourism landscape during pandemic

Tourism is one of the sectors most affected by the COVID-19 pandemic

- ➔ At least **409,000** workforce in tourism are affected.
- ➔ Decrease in revenue in the tourism sector from IDR 244 trillion in 2019 to **53 trillion** in 2020.
- ➔ **73% decline** in the number of tourist in Indonesia in 2020.

The pandemic spillover is still seen in 2021 although it started to bounce back.



In 2021, the industry faced a tremendous industrial shift, called "Industry Megashift".



2021's revenue in tourism increased by IDR 2 trillion.



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.

**Caesar Indra,**  
President of Traveloka

"One of the business strategies prepared by Traveloka is that we 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."





## TOURISM

### The importance of Resilience and Agility for the Industry Players

Tourism development post pandemic has accelerated the characteristics of the new tourism economy, what is commonly referred to as **personalized, personalized, customized, localized, and smaller** in size with the concept of 3A (attraction, amenity, access).

### How to compete in the digital tourism industry

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

- Improving these areas through collaboration with universities and other relevant organizations.
- Continue the development of access to tourism and infrastructure.
- Enhance ICT infrastructure and the sufficient internet connection/broadband.

#### Emergency response

Recovery

Focuses on health, such as initiating social protection programs, coordinating tourism crises with tourism areas, and preparing for recovery.

#### Recovery

Normalization

Tourist attractions in Indonesia will be opened in stages. The preparation includes the implementation of the CHSE certification and protocol in tourist attractions, as well as supporting the optimization of MICE activities.

#### Normalization

The government began to prepare destinations with the CHSE protocol, increase market interest, and to offer discounts for tour packages and MICE.

#### Support Policies and Promoting Digital Adoption

- Governments play an important role to help tourism businesses get back to business through promotion, campaign and favorable policies.
- The industry players can use the opportunity to transform their operation by adopting relevant technologies.

#### Improving and Promoting Indonesia's Medical Tourism

- The Government of Indonesia also continues to intensify efforts to develop health tourism or medical tourism.
- Industry player should increase the quality of healthcare services and involvement of reputable health experts .



## FINTECH

### Advancing Financial Inclusion Through Fintech

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.**

Fintech sector is flourishing in the time of COVID-19



**182%** increase

in EV-DCI 2022 entrepreneurship and productivity pillar



**84%** increase

in EV-DCI 2022 median score for ICT



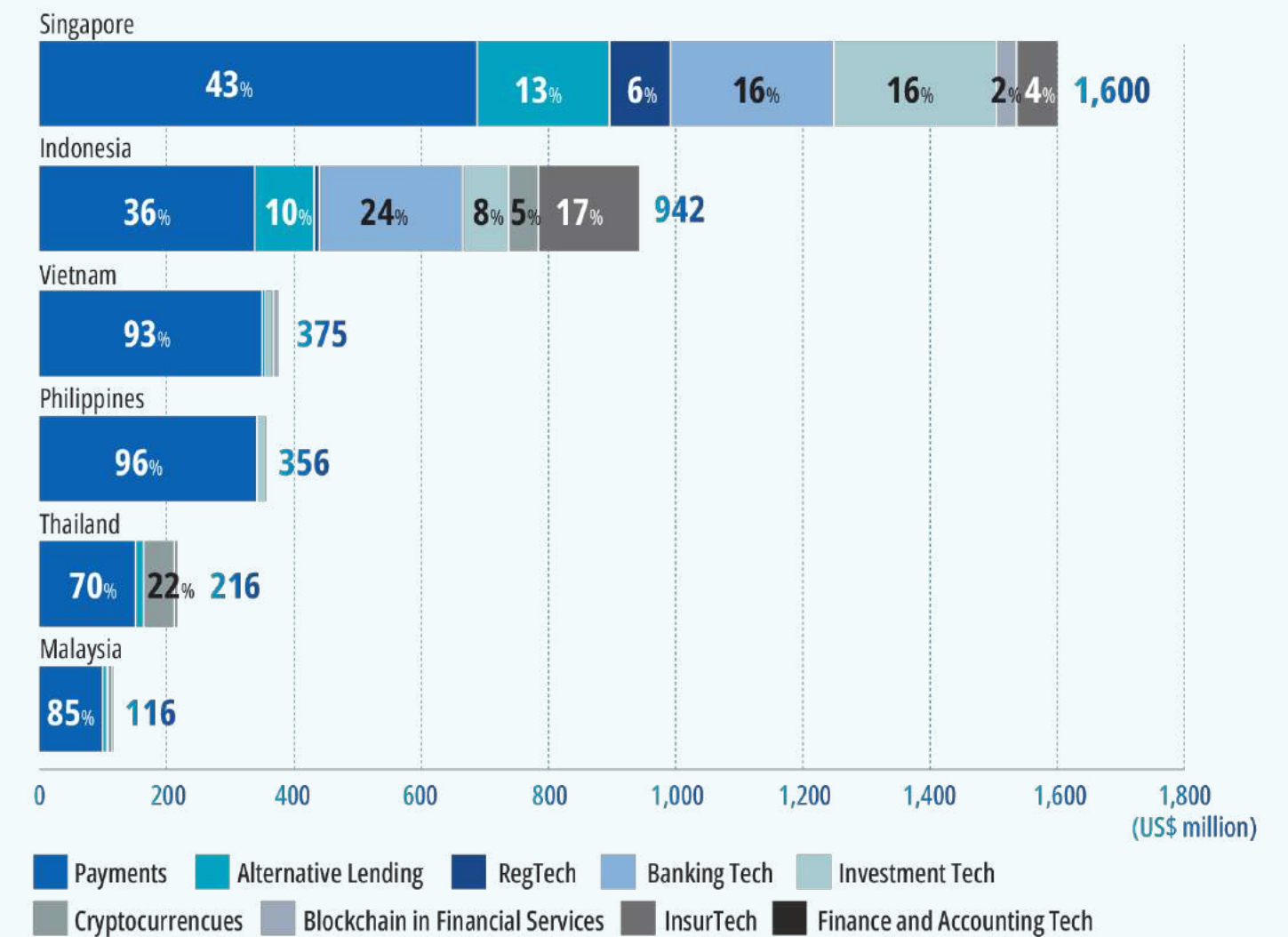
**> 3x** growth

of Fintech funding in the six largest ASEAN countries (Fintech in Asia, 2021)



**2nd** largest funding in ASEAN

#### FINTECH FUNDING IN ASEAN



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

## Fintech Current Condition

### Payment

- The average e-wallet payment spending per month has increased by 9.5% to approximately IDR 810,000 (PwC Survey).
- The number of e-money transactions has reached IDR 35.1 trillion, an increase of 59% from December 2020 (BI).
- The accumulated transaction value of QRIS has increased by 248% (YoY) to hit IDR 2.9 trillion (QRIS).

### Peer-to-peer (P2P) Lending

- The number of borrower accounts increased by 287% to reach 71.8 million accounts in 2019-2021 (OJK).
- the proportion of productive loan to total loan disbursement grew from 42.5% to 63.2% in January-November 2021 (OJK).
- Koinworks, P2P Lending startup has successfully secured USD 108 million in its series C round in January 2022.

### Wealth Management

- The number of capital market investors increased by 93.0% to 7.5 million, while mutual fund investors increased by 115.41% in 2021 (KSEI).
- The high growth of investment tech is also driven by fintech investment players' aggressive promotions and beginner friendly products.



## FINTECH

### Advancing Financial Inclusion Through Fintech

It is vital for Indonesia to **accelerate the adoption of fintech to democratize access** to financial services.

### Improving Financial Literacy to Accelerate the Growth of Fintech

Key approaches to introduce effective and innovative provision of financial education:

- 1 The stakeholders need to facilitate access to information and advice through multi-channel delivery.
- 2 The government should harness existing learning environments and networks.
- 3 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.

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

### Integration of Digital ID into Fintech to Facilitate Financial Inclusion

Financial inclusion is a key factor of social inclusion, particularly effective in combating poverty and income inequality by unlocking blocked advancement opportunities.

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 funds, and accumulation of wealth.

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.

### Case Study:

India implemented digital IDs to increase financial inclusion. In 2009, the government launched Aadhaar card, a unique 12-digit individual identity number that combines demographic information with biometric information. 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 2021. It has helped bring tens of millions of people into the financial system by being accepted as valid identification for KYC banking regulations.



## ESG

### ESG as the Development Principle to Maximize Digital Economy Potential

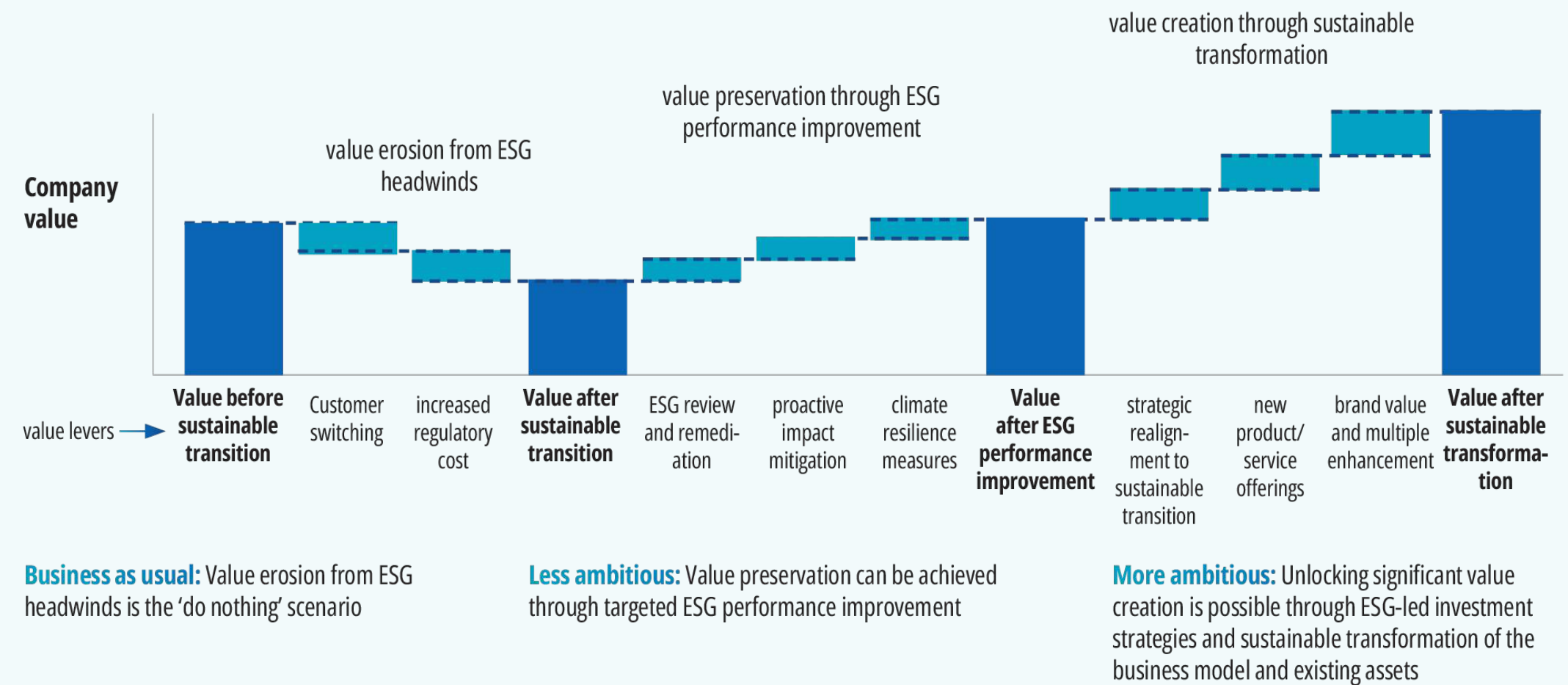
PwC State of Climate Tech report in 2021 revealed a **210% year-on-year increase on global investments in climate tech**. Climate tech consists of technologies that focus on reducing greenhouse gas emissions or addressing the impacts of climate change.

There are two key factors that have led Indonesia to speed up its ESG principle incorporation:

- 1 Increased awareness among Indonesia's consumers about the importance of ESG.
- 2 Growing global stakeholders' pressure to find solutions to sustainability challenges.

### Why ESG Matters

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.

However, there are several key barriers to why Indonesian companies and investors are hesitant to focus on incorporating ESG into their strategy and operations:

- The lack of ESG proficiency across industries leads to missed potential of value creation and mitigation of ESG-related risks.
- A reporting trap that is rooted in a lack of a single international ESG reporting framework that can enable comparability across industries and markets.
- There is still a lack of data utilization to quantify the parameters in calculating ESG impacts.



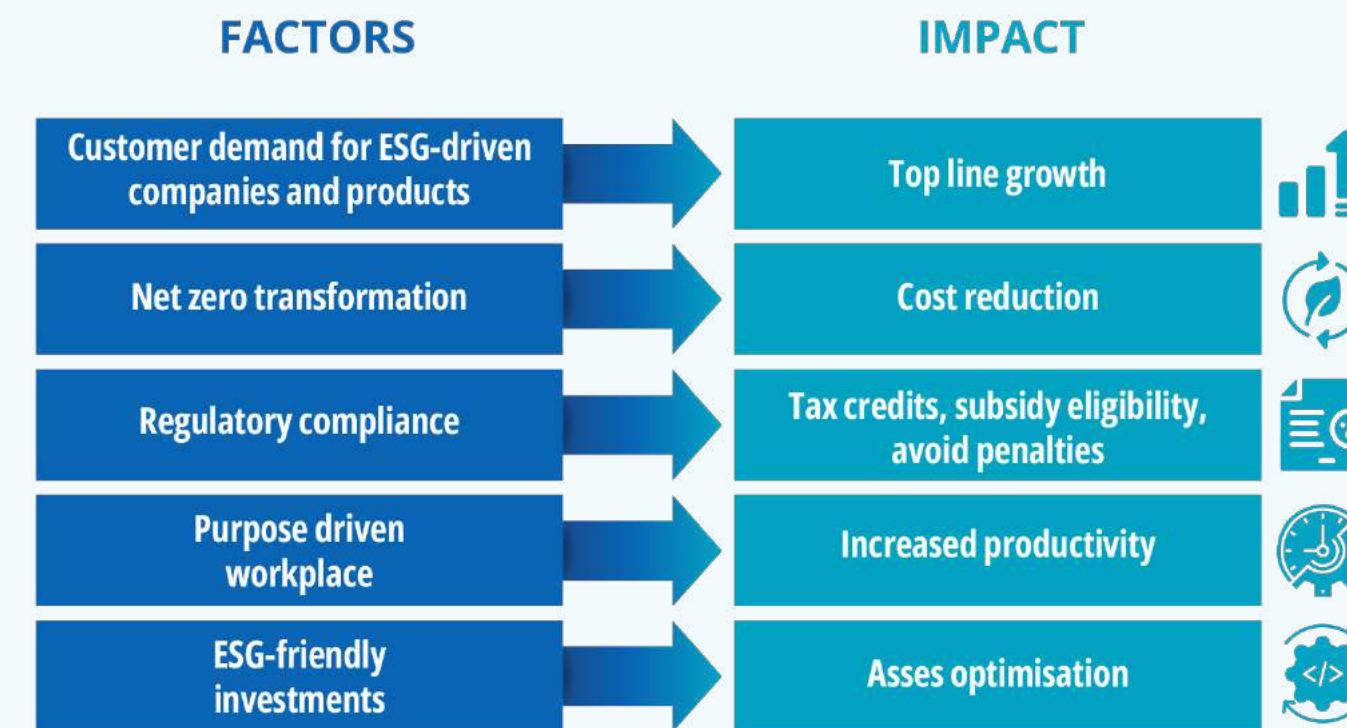
## ESG

### ESG as the Development Principle to Maximize Digital Economy Potential

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.

### Stakeholders can accelerate ESG implementation empowered by digital technology

Being aware of ESG's importance is the initial step for companies to start their transition.



- 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.
- Utilizing digital technology as an enabling tool to support ESG-aligned strategic development may open new opportunities that companies had never considered before.

Utari Octavianty, S.M.B  
CSO ARUNA

**“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.”**



### Strengthening Indonesia's ESG Landscape through several initiatives

Implementing digital technology along the value chain can come as a tool that enables companies to ease monitoring processes—tracking and measuring ESG metrics.

The Indonesian government plays an important role in helping companies detach from the reporting trap that is yet to be developed.

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.

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.

# Chapter V

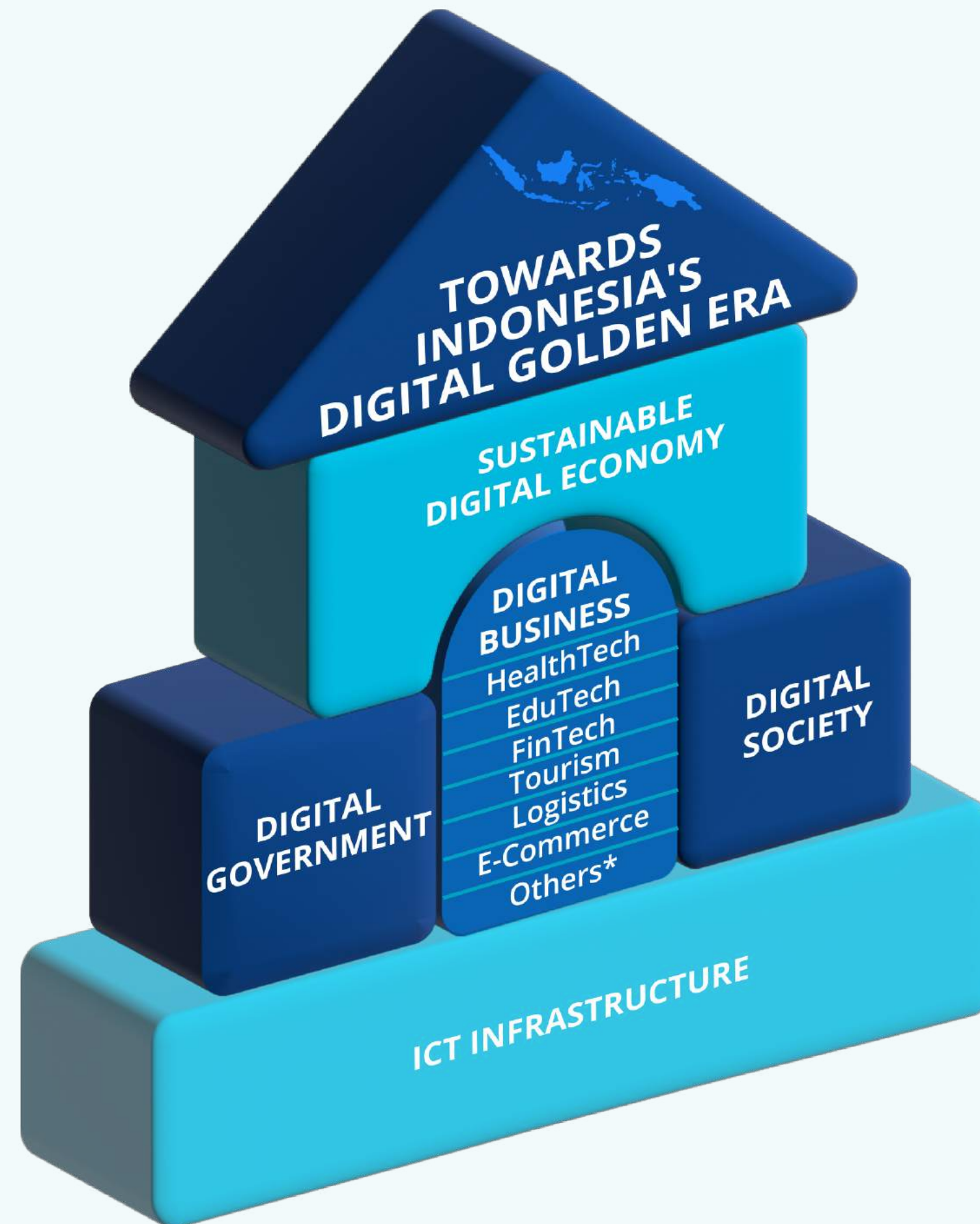
# Recommendation



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.

## EV-DCI 2022 report

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.



# Building Blocks Towards Indonesia's Digital Economy Golden Era

The building blocks 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.

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

# KEY RECOMMENDATIONS

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

In developing ICT infrastructure, 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.

Another point is 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 and it was successful in implementing innovative solutions.

## Creating a Digital Government Focusing on Efficiency and Transparency

The digitalization of government services can increase efficiency. In Indonesia, the PeduliLindungi application has been one of the successful services that 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. Another example 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.

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 to improve efficiency in streamlining processes as it acts as a Know Your Customer (KYC) verification tool. The government must also ensure that besides widening the accessibility of these services, the data and information are well-protected and well-managed.

**Luhut Binsar Pandjaitan,**  
Coordinating Minister for Maritime and Investment Affairs

“A minimum of 40% of the estimated IDR 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.”



# KEY RECOMMENDATIONS

## 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).

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

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.

## Focusing on Enhancing the Adoption of Digital Technology Across Sectors

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. Indonesia can further grow the creative sector by encouraging collaborations between stakeholders. Such collaborative efforts will drive the growth of the creative economy in Indonesia.

For sectors that rely on natural resources and manufacturing, the government can help 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.

## Achieving the Digital Golden Era Through Sustainability

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. To address the risks, businesses can leverage digital technologies such as IoT to streamline their operations and become more sustainable.

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.



East Ventures is a pioneering and leading sector-agnostic venture capital firm headquartered in Singapore. 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 Southeast Asia.

An early believer in the startup ecosystem in Indonesia, East Ventures is the first investor of Indonesia's unicorn companies, namely Tokopedia and Traveloka. Other notable companies in the portfolio include Ruangguru, SIRCLO, Kudo (acquired by Grab), Locket (acquired by Gojek), Xendit, IDN Media, MokaPOS (acquired by Gojek), ShopBack, KoinWorks, Waresix, and Sociolla.

East Ventures was named the most consistent top performing VC fund globally by Preqin, and the most active investor in SEA and Indonesia by various media.

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?



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## 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.



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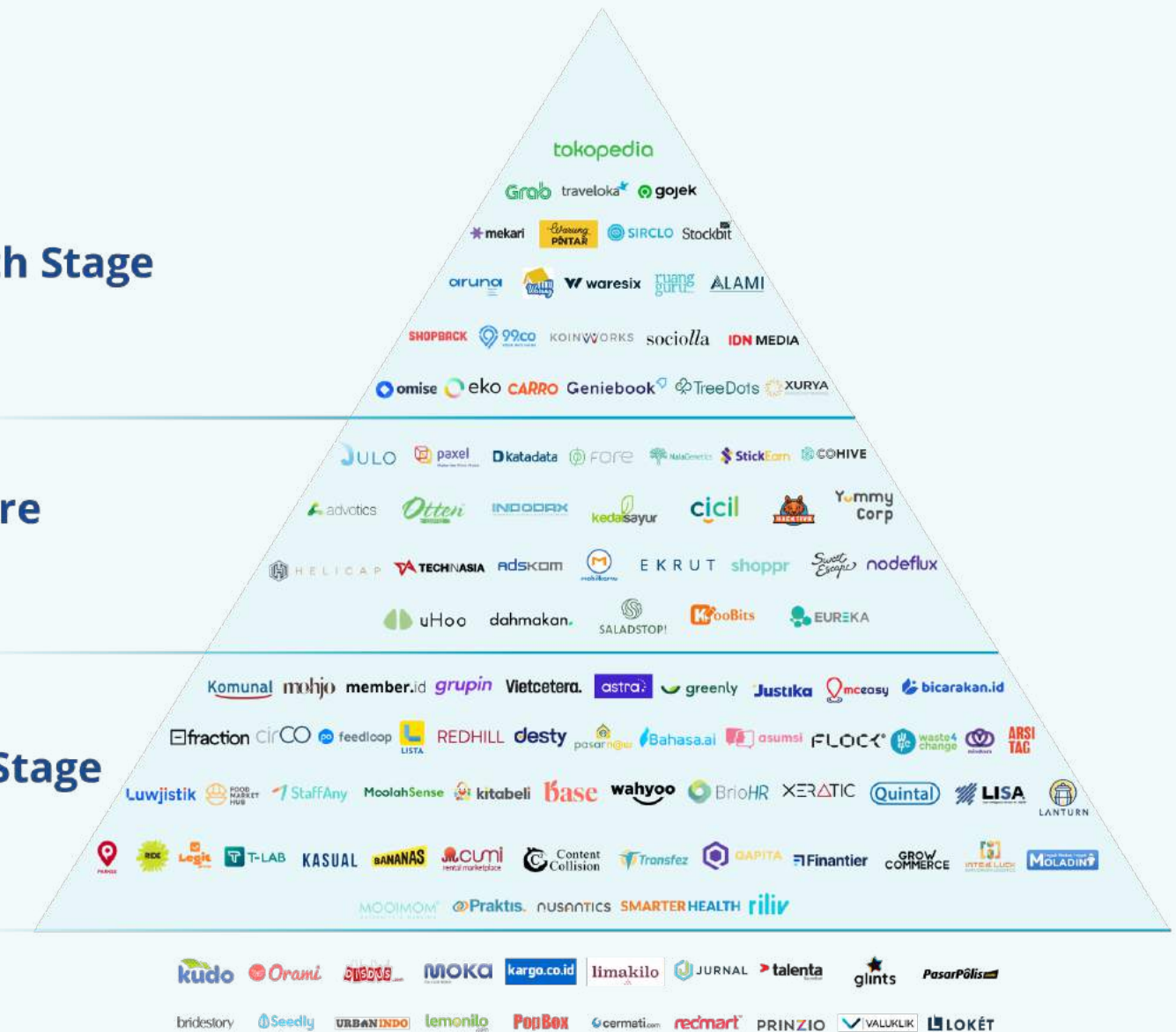
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### Growth Stage

### Venture

### Early Stage

### Exits



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# Thank you

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