



# PwC Indonesia TMT Update 2023

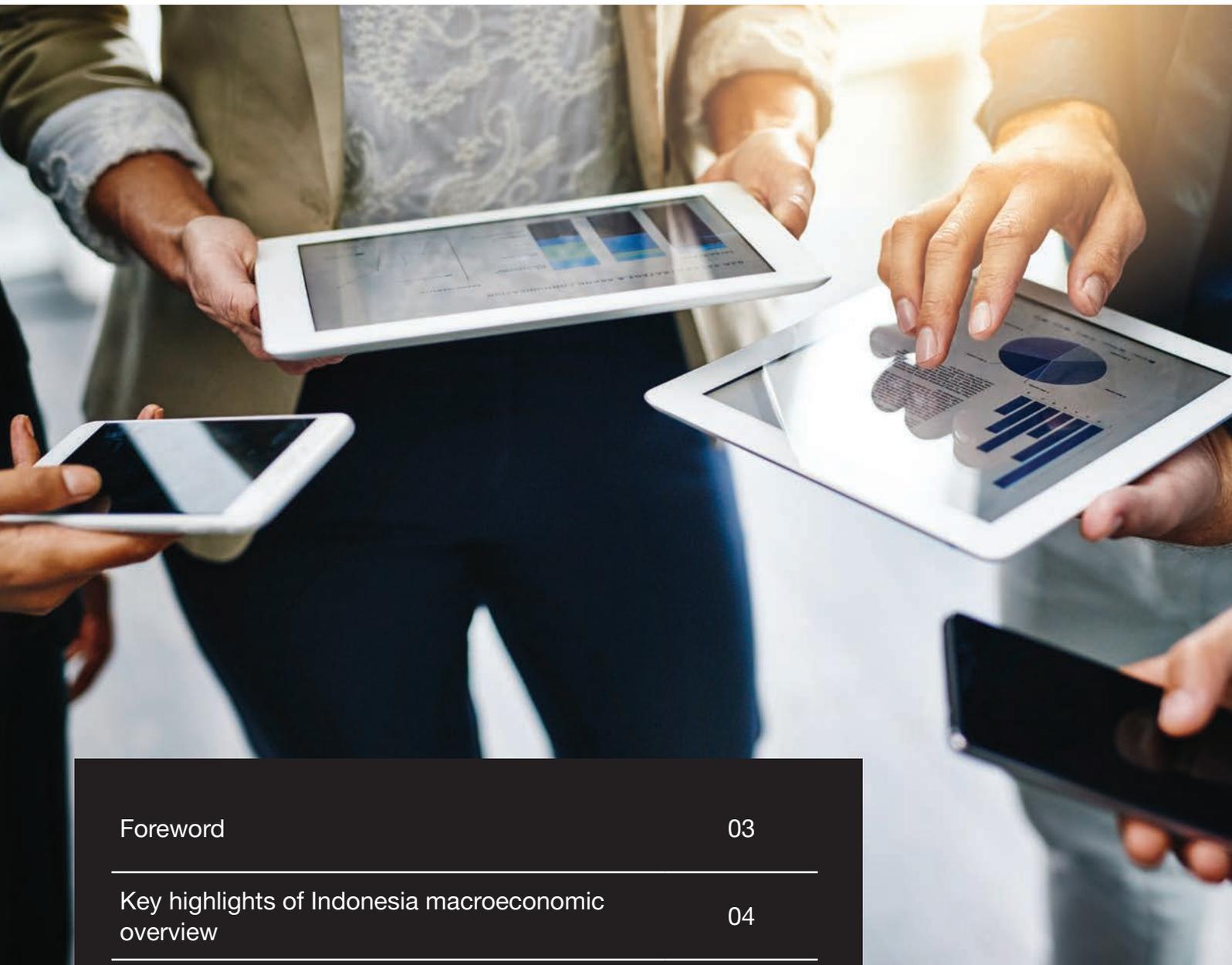
TMT Thought Leadership

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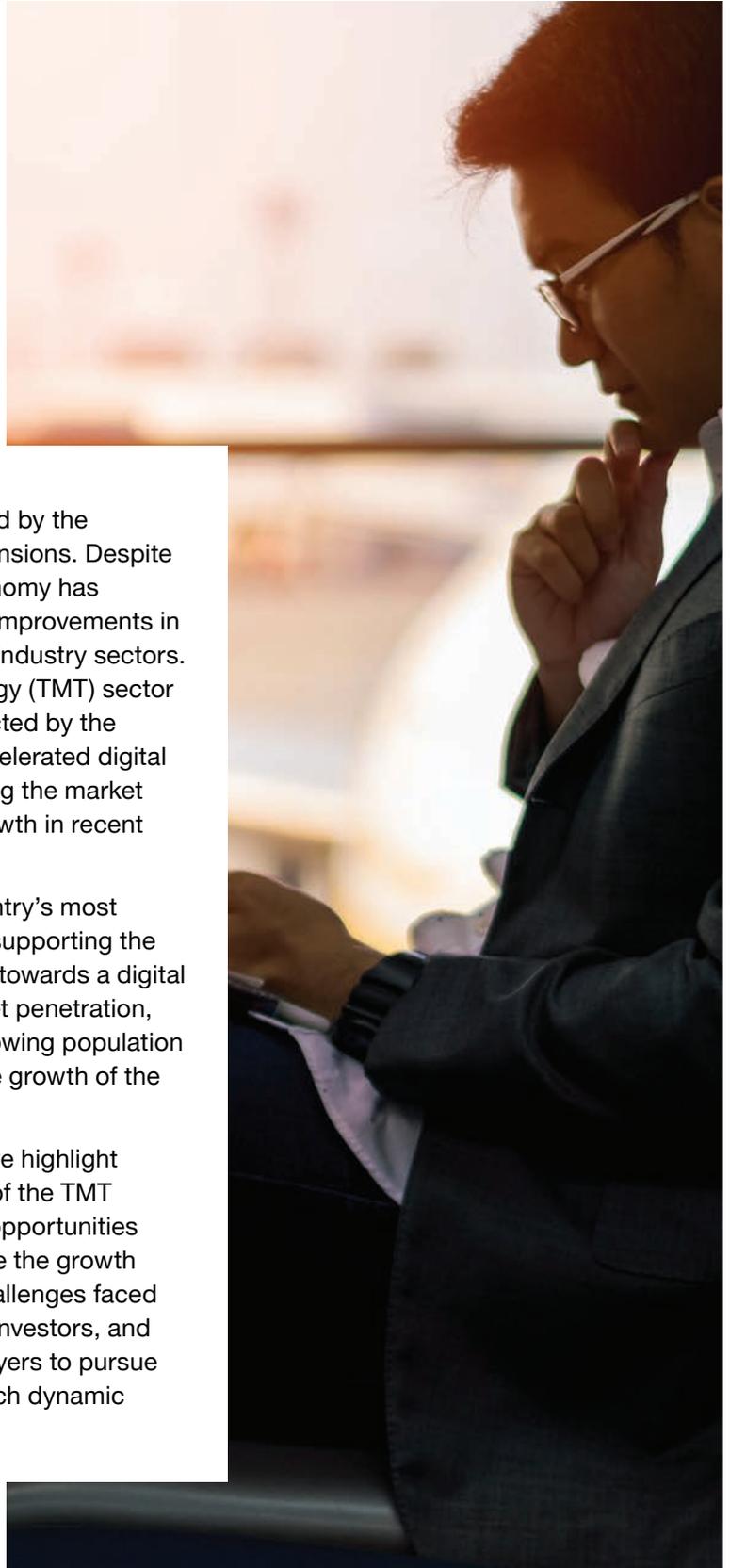
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# 1. Foreword



## **Triono Soedirdjo**

Telecommunication, Media & Technology  
Leader



The global economy was significantly disrupted by the COVID-19 pandemic and global geopolitical tensions. Despite these challenging conditions, Indonesia's economy has remained resilient, beginning to rebound with improvements in consumer spending and the recovery of most industry sectors. The Telecommunication, Media, and Technology (TMT) sector in Indonesia have been among the most impacted by the global pandemic. The COVID-19 crisis has accelerated digital transformation within the TMT sector, reshaping the market landscape and contributing to the sector's growth in recent years.

The TMT sector in Indonesia is one of the country's most rapidly growing sectors, playing a vital role in supporting the nation's economic growth and rapid transition towards a digital economy. Improvements in the nation's internet penetration, the accessibility of mobile phones, and the growing population of the younger generation continue to drive the growth of the TMT sector in Indonesia.

In this year's PwC TMT Thought Leadership, we highlight significant trends and key drivers within each of the TMT sectors in Indonesia, including the promising opportunities this sector presents for the near future. Despite the growth prospects, this report also emphasises the challenges faced by players within the TMT sector. Customers, investors, and the general public are challenging industry players to pursue strategic actions to remain competitive in a such dynamic market.

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# 2. Key highlights of Indonesia macroeconomic overview

## 2.1 Gross Domestic Product

Indonesia's economic resilience persists amidst a global economic downturn, propelled by burgeoning domestic demand and sustained positive export performance. The robust growth is chiefly ascribed to the transportation and storage sectors, driven by heightened community mobility and an influx of foreign tourists.

In the third quarter of 2023, Indonesia's economic growth registered at 4.94% Year-on-Year (YoY), following a 5.31% annual cumulative growth in 2022. Despite a slight deceleration compared to the preceding two quarters, Indonesia remains among the swiftest-growing nations globally—an impressive feat amid the prevailing global economic slowdown. We project that the annual economic growth in 2023 will moderate to 5.0%, relative to the previous year, mirroring the anticipated weakening of Indonesia's key global trading and investment partners. Consumption continues to be the primary driver of growth in 2023. However, exports and imports have turned negative since Q2 2023, while government spending has witnessed a significant annual increase.

## 2.2 Inflation

The full-year inflation for 2023, recorded at 2.61% Year-on-Year (YoY) in December, marked a significant reduction from the 5.5% annual inflation observed in 2022. This figure, notably below the pre-pandemic level, underscores Indonesia's economic stability, albeit potentially signaling a weakening demand for 2024.

Looking ahead, Bank Indonesia anticipates that core inflation will remain manageable, staying within the 2.5% ± 1% range throughout 2024. Additionally, the Consumer Price Index (CPI) inflation has re-entered the target range, starting in September 2023. This positive development follows the gradual elimination of the impacts of fuel (BBM) price subsidy adjustments implemented last year.

## 2.3 Investment

In Q3 2023, Indonesia's total investment realisation reached IDR 374.4 trillion. From January to September 2023, the cumulative total amounted to IDR 1,053.1 trillion, equivalent to 75.22% of the targeted investment of IDR 1,400 trillion for 2023. This realised value was predominantly driven by investments outside of Java, with Central Sulawesi emerging as the foremost Foreign Direct Investment (FDI) destination, owing to its abundant mineral resource reserves. Investments outside Java Island constituted 51.8% of the total investment in January to September 2023. The trend of investing outside Java is gaining momentum, propelled by factors such as lower labour costs, enhancements in infrastructure and logistics, improved access to raw materials, and governmental initiatives promoting a downstreaming policy.





Nevertheless, the potential impact of a global economic downturn may impede Indonesia's progress in achieving the Government of Indonesia's growth target of 5.1% for 2023. Furthermore, the domestic reform agenda aimed at enhancing the ease of doing business, coupled with the ongoing political year, has led investors to adopt a 'wait and see' approach.

## 2.4 Infrastructure

In 2023, the infrastructure budget is strategically directed towards expediting the development of infrastructure that underpins economic transformation and facilitates the emergence of new growth centres. This approach aligns with the following policy directions:

- a. **Expeditious Infrastructure Development for Essential Services:** The focus is on accelerating infrastructure development to meet fundamental service needs.
- b. **Promoting Equitable Access to Information and Communication Technology (ICT) Infrastructure:** Efforts are directed towards ensuring fair access to ICT infrastructure to fortify economic activities.
- c. **Prioritising Infrastructure Development for Economic Transformation:** Special emphasis is placed on infrastructure projects that contribute to economic transformation, spanning energy, food, connectivity, and transportation.
- d. **Supporting Gradual and Sustainable Completion of National Strategic Projects (PSN) and National Capital (IKN) Development:** The strategy involves backing the methodical and sustainable conclusion of National Strategic Projects (PSN) and the advancement of the National Capital (IKN).
- e. **Enhancing Synergy in Funding Across Ministries/Institutions:** Collaboration is encouraged among ministries and institutions, both centrally and regionally, with a focus on implementing Public-Private Partnership (PPP) financing schemes to augment funding synergy.

# 3. Telecommunications

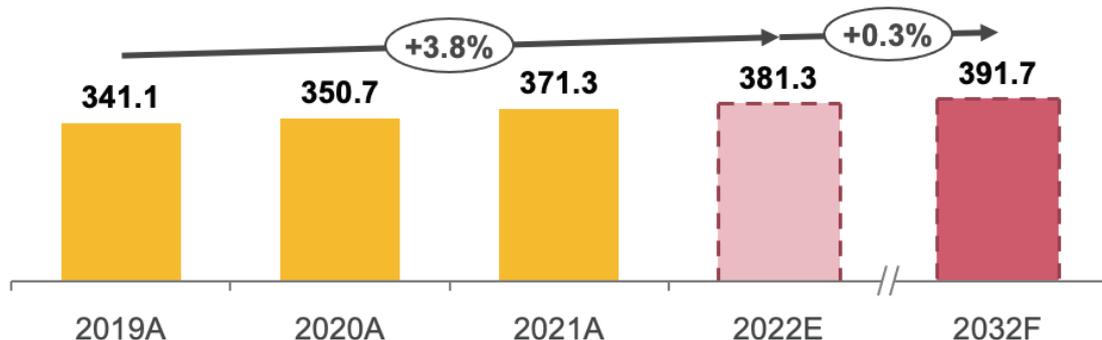
- The telecommunication industry has experienced significant growth over the past several years due to factors such as a decline in mobile-phone prices, reduced mobile data costs, and the further expansion of 4G LTE networks across Indonesia.
- However, forecasts indicate that the saturated mobile phone user market may result in slower growth. Furthermore, operators have observed a declining trend in the actual yield from data sold, potentially diminishing their long-term profitability. In response, operators have initiated further investments to enhance service quality by expanding existing 4G LTE networks and introducing 5G services.
- Operators have formulated strategies to address potential issues in reaction to the prevailing telecommunications market environment. These strategies encompass corporate actions, such as the consolidation and divestment of business units, as well as the expansion of non-core businesses.
- Corporate actions: A trend of consolidation and divestment of operators' business units has emerged in the past several years. The merger of Ooredoo Group and CK Hutchinson is an example, while various operators have opted for divesting their telecommunication towers and choosing leasing alternatives.
- Expansion of non-core business: Operators have explored diversification into other areas outside telecommunication (e.g., some have ventured into domains like data analytics and data centres).

## Telecommunication industry outlook

In recent years, the telecommunications industry has consistently grown, with the number of mobile phone subscribers steadily increasing at an approximately 3.8% compounded annual growth rate (CAGR). Several factors, including a decline in mobile phone prices, a decrease in mobile data prices, and the further expansion of 4G LTE networks across Indonesia, may have contributed to this growth.

However, analyst's projection for the telecommunications industry anticipates a less impressive performance than its historical trend<sup>1</sup>. The forecast indicates that mobile phone subscribers will experience slower growth at a pace of ~0.3% CAGR from 2023 to 2032, as depicted in the figure below<sup>1</sup>. Various factors, such as a saturated market of mobile phone users, could be attributed to this deceleration in growth.

**Total Mobile Phone Subscribers**  
2019 - 2032, in millions of people



Source: Fitch (2023), PwC Analysis

Furthermore, research reveals that the actual data yield of the three largest operators in Indonesia has consistently declined from 2016 to early 2023<sup>2</sup>. This indicates that the yield from data provided to those subscribers has decreased despite the increasing number of mobile phone subscribers, intense competition

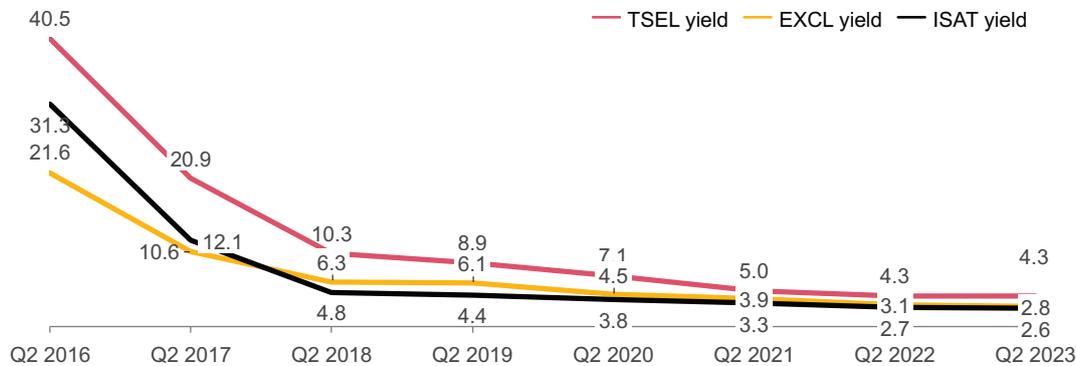
<sup>1</sup>Fitch Solutions Group Limited, "Indonesia Telecommunications Report," FitchSolutions, July 24, 2023.

<sup>2</sup>BRI Danareksa Equity Research. "Telco: 3Q23 preview: expect positive qoq revenues growth, with foundations for more growth to come (OVERWEIGHT)" BRIDS, 2023. <https://www.brights.id/id/riset-dan-berita/laporan-riset/telco-3q23-preview-expect-positive-qoq-revenues-growth-with-foundations-for-more-growth-to-come-overweight>.

between operators, as customers seek the most affordable and efficient data provider among the available options, may be attributed to this decline. If this situation persists, it is likely that the decline in yield will further squeeze the margins of the operators, impacting their overall profitability.

### Actual data yield per gigabyte by operators

Q2 2016 - Q2 2023, in IDR thousand/GB

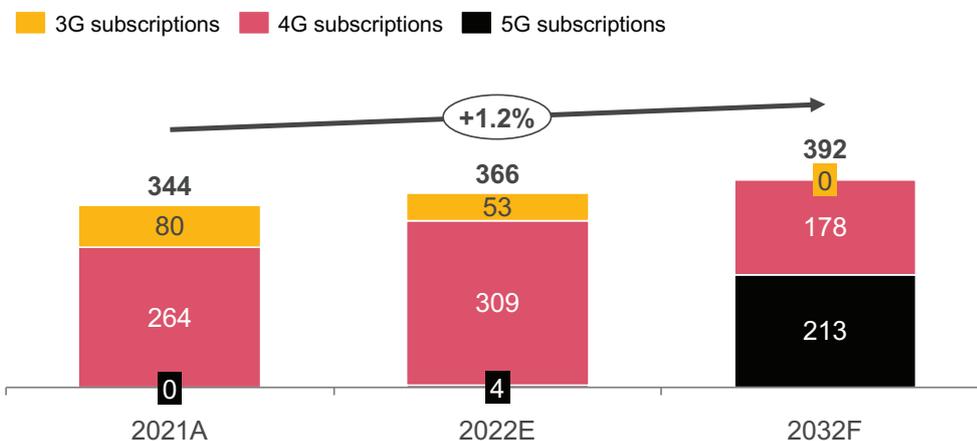


Source: Equity Research Telco by BRI Danareksa Sekuritas (2023), PwC Analysis

Against the backdrop, operators have escalated their investments to enhance services by expanding 4G networks and developing 5G infrastructure. Analyst's projection suggest that carriers will persist in making substantial investments in 4G LTE and 5G services, particularly in areas of Indonesia that were previously underserved and unserved<sup>3</sup>. The forecast predicts that by the end of 2032, Indonesia's mobile market will primarily be driven by 5G, representing approximately 54.4% of total revenue, equivalent to IDR213.2 billion<sup>3</sup>.

### Telecommunication Industry Historical and Forecast Revenue

2017 - 2032F, in IDR billion



Source: Fitch (2023), PwC Analysis

However, it is important to note that 4G LTE remains sufficient for most consumer use-cases. Operators plan to increase the number of broadband-capable base stations (BTS) to meet the growing demand for data. In the meantime, operators will continue to monetise existing 4G LTE networks before eventually focusing on 5G. Nevertheless, to support the growth of 5G through expanding fixed fiber infrastructure, migrating systems to the cloud, and exploring open-source network solutions, operators will need to invest aggressively<sup>4</sup>. Mobile network capital expenditures are expected to surpass fixed broadband investment by 2027 as a result.

<sup>3</sup>Fitch Solutions Group Limited, "Indonesia Telecommunications Report," FitchSolutions, July 24, 2023.

<sup>4</sup>PricewaterhouseCoopers. "Perspectives from the Global Telecom Outlook 2023-2027 | PwC." PwC, 2023. <https://www.pwc.com/gx/en/industries/tmt/telecom-outlook-perspectives.html>.

## Telecommunication industry strategy

In response to the past and current telecommunication market environment, operators have developed strategies to mitigate potential issues. Our analysis indicates that several of these strategies involve operators fostering organic and non-organic growth in their respective companies. It is important to note that the following list of strategies is not exhaustive.

### • Consolidation

The competition in multiplayer markets has motivated companies to deploy capital in enhancing network capabilities in the mobile segment<sup>5</sup>. Various countries, including North America and Europe, exhibit this trend, wherein strong candidates for further mobile-to-mobile consolidation are observed among mobile operators.

In Indonesia, a similar trend is evident with the merger between Indosat Ooredoo and Hutchison. Before the merger, Indosat Ooredoo held the second-largest market share, while Hutchison ranked fourth. The merger has yielded benefits for both entities, transforming them into the country's second-largest carrier with over 100 million customers and revenues exceeding USD 3 billion. Additionally, the company, as per its press release, reported a 35.4% increase in its Earnings Before Interest, Taxes, Depreciation, and Amortisation (EBITDA) for the First Half of 2022, attributable to the merger.

Indosat Ooredoo emphasised the most crucial aspect of the merger—the purpose—in its company presentation<sup>6</sup>. The aim was to ensure that the merger benefits customers, the industry, and the country, as the entire digital economy depends on the success of the telecom sector. The First Half 2022 report supported this, revealing a 50.3% increase in revenues in H1 2022 compared to H1 2021. The increase is mostly attributed to cellular revenues, which rose by 57.5% compared to 1H 2021. However, expenses also grew by 107.7% compared to 1H 2021, with the highest increase in the cost of services. This aligns with the higher number of sites and increased revenue resulting from the merger, leading to elevated frequency fees, interconnection, maintenance, utilities, rent, leased circuit, Universal Service Obligation (USO), and installation costs.

### • Divestment

Some operators, driven by higher financing costs and substantial capital expenditure demands, are choosing to divest their asset-heavy divisions beyond consolidation. This decision allows operators to generate cash and deleverage. However, the pace of divestments in mobile tower assets will be slower due to the declining valuation of strategic acquirers and increased financing costs.

An example of this strategy is evident with PT Telekomunikasi Selular (Telkomsel), which divested its telecommunication towers. Telkomsel transferred six thousand units of telecommunication towers to PT Dayamitra Telekomunikasi Tbk (MTEL) for IDR10.28 trillion in Q3 2022. These towers will then be leased back to Telkomsel for a period of ten years.

PT XL Axiata Tbk (XL) took a similar step by selling 859 telecommunication towers to PT Edotco Infrastructure Indonesia (EII) for IDR750bn in early 2022. XL subsequently agreed to a leaseback arrangement for 791 towers for IDR1,195 trillion, effective for the next 12 years. XL's management stated that the transaction aimed to refocus on their main business line—internet and cellular services. Additionally, they viewed the transaction as a means to optimise costs related to the management and maintenance of telecommunication towers and other operational-supporting infrastructures.

Lastly, PT Indosat Tbk (Indosat) sold more than 4,200 towers worth USD750m in early 2021 to raise capital. Indosat sold the towers to Edge Point Indonesia, a subsidiary of Edge Point Singapore.

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<sup>5</sup>PricewaterhouseCoopers. "M&A Trends in Technology, Media and Telecommunications: 2023 Outlook." PwC, n.d. <https://www.pwc.ch/en/insights/strategy/m-and-a-trends-technology-media-and-telecommunications-2023-outlook.html>.

<sup>6</sup>PT Indosat Tbk. "Results for the Half-Year Ended 30 June 2022," 2020. <https://indosatooredoo.com/dataproductportalcontent/portal/images/products/pdf/637961674254203773.pdf>.

Following the sale, Indosat leased back the towers for ten years to meet their operational requirements.

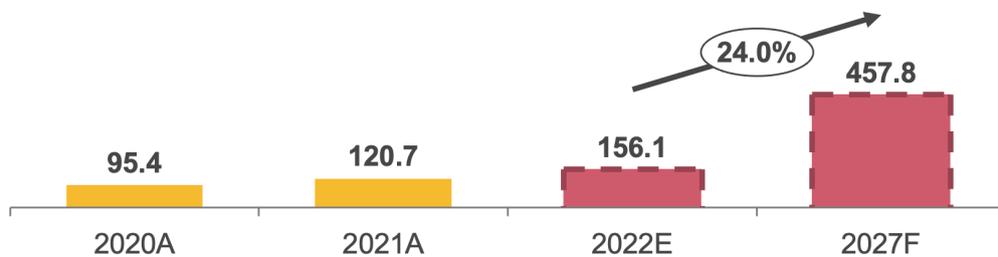
- **Expansion of non-core business**

In addition to the non-organic approaches of consolidation and divestment mentioned earlier, operators are actively exploring alternative avenues to generate revenue. Some operators are venturing into new, non-core businesses. Through our research, we have identified two main types of these businesses: data analytics and data centres. PwC global publication supports this global trend, predicting a nearly threefold increase in global data consumption, from 3.4 million petabytes (PB) in 2022 to 9.7m PB in 2027, emphasising the growing demand for data analytics and data centres<sup>7</sup>.

A notable focus is on data analytics, commonly defined as the activity of collecting, transforming, and organising data to draw conclusions, make predictions, and drive informed decision-making<sup>8</sup>. Several operators are utilising data collected from customer interactions to offer big data services, business insights, and data consultation to corporate clients. This business appears to be lucrative, with research conducted by Market Research Future, forecasting a strong growth in the data analytics market value at a 24.0% Compound Annual Growth Rate (CAGR) from 2022 to 2027, as shown in the graph below<sup>9</sup>.

### Data analytics market value in Indonesia

2020A - 2027F, in USD million



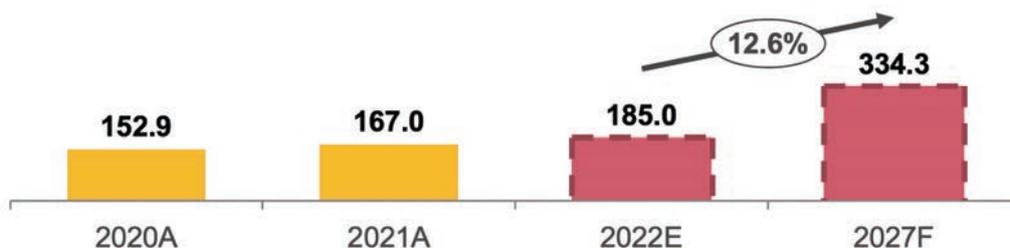
Source: EMIS (2023), PwC Analysis

In its latest annual report, PT Telkom Indonesia Tbk mentions that Telkomsel has established a sizable data analytics business catering to numerous clients in the retail, banking, and telecom industries<sup>10</sup>. This business contributes to the overall revenue of the firm and provides Telkomsel with additional services for their corporate clients.

Furthermore, a significant increase in internet users and smart mobile communication devices has driven strong demand for data centres in Indonesia. The rise of tech companies, such as e-commerce, has drawn attention to the growing demand for data centre services among large organisations and small and medium-sized businesses. Operators seem to have caught on to this trend, and like data analytics, the market is lucrative for operators to enter. Research forecasts the data centre market value to grow by a 12.6% Compound Annual Growth Rate (CAGR) from 2022 to 2027, as shown in the graph below<sup>9</sup>.

### Data centre market value in Indonesia

2020A - 2027F, in USD million



Source: EMIS (2023), PwC Analysis

<sup>7</sup>PricewaterhouseCoopers. "Perspectives from the Global Telecom Outlook 2023–2027 | PwC." PwC, 2023.

<https://www.pwc.com/gx/en/industries/tmt/telecom-outlook-perspectives.html>.

<sup>8</sup>Meta S. Brown, "Transforming Unstructured Data into Useful Information," in Auerbach Publications eBooks, 2014, 227–46, <https://doi.org/10.1201/b16666-14>.

<sup>9</sup>Market Research Future, "Southeast Asia Data Analytics Market Research Report Forecast to 2027," n.d.

<sup>10</sup>PT Telkom Indonesia Tbk, "Annual Report 2022: Bold Moves, Boosting Sustainable Growth," <https://telkom.com>.



A specific illustration of this trend is PT Telkom Indonesia Tbk, where Telkom’s management has expressed their intention to construct more data centers across Indonesia. Telkom currently operates 28 data centres, including five international data centers, three tier three and tier four enterprise data centers, one hyperscale tier 3 and tier 4 data center, and 19 neuCentrIX centers in various domestic cities<sup>11</sup>.

Regarding new opportunities, PwC’s global publication highlights that operators have the chance to provide 5G private networks for businesses across industries<sup>12</sup>. In India, for instance, the government’s spectrum auctions and regulations differentiate between 5G licences for B2C and B2B, leading to the entry of B2B players planning to develop and offer private 5G networks for enterprises. Meanwhile, in Korea, Nokia has launched a 5G Open Lab to showcase 5G private wireless network technology, aiming to encourage adoption. Additionally, Samsung Electronics has begun building dedicated 5G networks for non-telco operators to support the government’s initiative.

Some operators have diversified into content subscriptions and Internet of Things (IoT) applications. In South Korea, for example, all three major mobile operators—SK Telecom, KT, and LG Uplus (LGU+)—have expanded into producing and distributing their own media content, such as dramas. However, operators in certain countries, like the US, have started moving away from content, as seen with examples such as AT&T and Verizon.

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<sup>11</sup>PT Telkom Indonesia (Persero) Tbk. “Annual Report 2022: BOLD MOVES, BOOSTING SUSTAINABLE GROWTH,” 2023. [https://telkom.co.id/minio/show/data/lampiran/1681719090212\\_Annual%20Report%20Telkom%202022\\_website.pdf](https://telkom.co.id/minio/show/data/lampiran/1681719090212_Annual%20Report%20Telkom%202022_website.pdf).

<sup>12</sup>PricewaterhouseCoopers. “Perspectives from the Global Telecom Outlook 2023–2027 | PwC.” PwC, 2023. <https://www.pwc.com/gx/en/industries/tmt/telecom-outlook-perspectives.html>.

## 4. Entertainment and Media

- The Entertainment and Media (E&M) industry globally is expected to experience rapid growth, with the pivotal role of digital transformation driving its overall transformation and expansion. In Indonesia, the industry's growth prospects are promising, evident in the increasing presence of OTT players and the expanding gaming sector. These trends in Indonesia's media landscape and the ongoing growth of the E&M industry are supported by the shift toward digital platforms and evolving consumer preferences.
- Rising trend of OTT platforms: The escalating number of OTT players in Indonesia, combined with a high consumption rate of online media content through these platforms, is expected to fuel revenue growth among OTT players. This, in turn, will contribute to the overall revenue growth of Indonesia's E&M industry in the coming years.
- Growing gaming sector: The large consumer base, supportive governmental initiatives, and the emergence of local gaming developers in Indonesia indicate opportunities for the gaming industry to thrive.
- Despite the numerous growth opportunities in Indonesia's E&M industry, it is not without its challenges. Intense competition with foreign media giants, potential content piracy, and a less stringent intellectual property protection regime pose as the main challenges faced by industry players. Due to the rapid digital shift in the industry, traditional media players such as traditional TV and printed newspapers also confront significant challenges to remain competitive in such a dynamic market.



### Media and entertainment industry revenue outlook

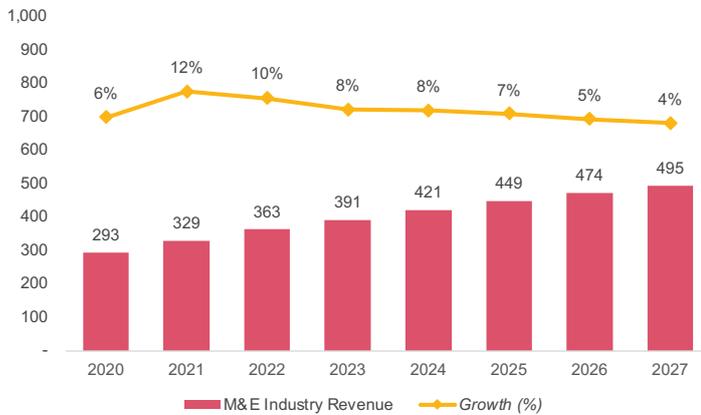
Over the last few years, the Entertainment and Media (E&M) industry experienced a significant inflection point due to the unprecedented COVID-19 pandemic. The entire industry was compelled to undergo a digital shift, prompting many companies to pursue growth strategies to stay competitive. After the subsiding of the pandemic and the global economic rebound, the global entertainment and media industry witnessed a remarkable 10.6% growth.

In 2022, despite numerous growth opportunities in the sector, the global E&M industry revenue increased by only 5.4%—a deceleration compared to the previous year's growth<sup>13</sup>. The rate of growth is expected to continue decelerating, primarily due to sluggish consumer spending. To reignite growth, many companies in this industry are exploring growth strategies by harnessing the power of technology, particularly by tapping into generative AI as a productivity engine for the creative process.

<sup>13</sup>PricewaterhouseCoopers, "Perspectives and Insights: Global Entertainment and Media Outlook 2023–2027," PwC, 2023, <https://www.pwc.com/gx/en/industries/tmt/media/outlook/insights-and-perspectives.html>.

## Key drivers of the E&M industry in Indonesia

### E&M Industry Revenue in Indonesia in IDR trillion



Source: PwC Global Entertainment & Media Outlook 2023–2027



In Indonesia, the revenue of the entertainment and media industry grew by 10.5% year-on-year from 2021A to 2022A and is expected to maintain a Compound Annual Growth Rate (CAGR) of 6.4% during 2022A-2026F. The main drivers of this growth and industry transformation are increasing digitalisation, evolving customer preferences, and strategic partnerships.

The shift towards digital media in Indonesia is evident and significantly driven by the remarkable increase in internet users over the last decade. Nationwide internet penetration reached 78.2% in 2023, up from 64.8% in 2018 of the total population<sup>14</sup>. The global pandemic that began in 2020 further accelerated the growth of the nation's internet penetration rate and the use of online platforms, contributing favourably to the expanding digital media industry.

As a result, the higher number of internet users implies that more consumers are spending increased time in digital environments, where they can be easily reached by digital ads. This explains the rapid growth in digital advertising. Improved internet and mobile accessibility will continue to be key drivers in Indonesia's media industry, fundamentally contributing to the ongoing digital transformation within the media industry landscape.

### Main Drivers of the E&M Industry Transformation and Growth

#### Digitalisation and Technological Advancements

Digitalisation and technological advancements have facilitated the transition from traditional media channels to digital media among industry players. Technological innovations, such as AI and machine learning, enable industry players to understand their consumers' preferences and deliver personalised content, offering a more tailored experience to their audience.

#### Evolving consumer preferences

Consumers are now more inclined towards digital media, seeking a personalised and unified media experience. This shift in preference has prompted many companies in this industry to adapt to changing consumer tastes, remaining competitive in this dynamic market by leveraging technology. They provide personalised on-demand content and continue to bring value-added advancements to reignite growth.

#### Strategic partnerships

In response to ever-evolving consumer preferences, media companies are extending their reach beyond traditional media through strategic partnerships. These collaborations, along with the business consolidations frequently observed among major industry players globally, aim to expand their media offerings and enhance the user experience for consumers.

<sup>14</sup>Asosiasi Penyelenggara Jasa Internet Indonesia, "2023, accessed October 16, 2023, <https://survei.apjii.or.id/>.

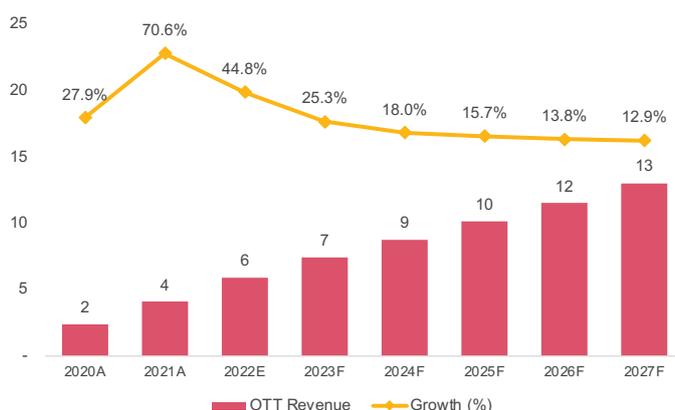
## Highlights of Indonesia's media and entertainment industry

### Rising Trend of Over-the-Top (OTT) Platforms

Emerging countries, such as those in Southeast Asia, are identified as growth hotspots for the media and entertainment industry, with the emergence of OTT platforms as the main catalyst for this growth<sup>15</sup>. Indonesia, in particular, was estimated to have the highest OTT consumption rate in Southeast Asia, with nearly one-third of the population using streaming services and the number of hours watched growing at 40% annually. The growth prospects for this sector are further fuelled by the construction of subsea cables to expand the coverage of high-speed broadband services across the nation.

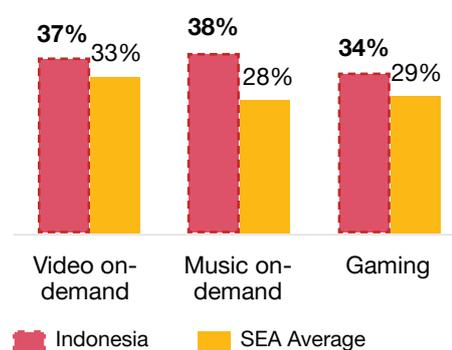
#### OTT Revenue in Indonesia

in IDR trillion



#### Media Usage Frequency

% using at least once a week



Source: PwC Global Entertainment & Media Outlook 2023–2027, Google Indonesia e-Conomy SEA Report 2022

Revenue from OTT platforms in Indonesia is projected to experience notable growth from 2022A to 2027F, with a Compound Annual Growth Rate (CAGR) of 17.1%. This growth is primarily driven by the emerging trend of subscription-based on-demand platforms and an exponential rise in demand for OTT. Indonesia witnessed the highest growth in OTT platform subscribers among Asia-Pacific countries, with more frequent weekly media usage compared to Southeast Asian countries on average.

Among Southeast Asian countries, Indonesia boasts the highest number of OTT viewers, with 83m users streaming 3.5bn hours' worth of content each month. In 2022, 38% of the population accessed video-on-demand content at least once a week, a rate higher than the average Southeast Asian country. Additionally, Indonesia emerged as one of the most ad-tolerant markets in Southeast Asia. As stated in the PwC global publication, around 58% of Indonesian viewers are open to watching one to three ads per hour in exchange for free content<sup>15</sup>. The rising popularity of OTT content opens a significant opportunity for advertisers, as advertising through these platforms has been known to improve brand recall.

The OTT market in Indonesia is still heavily dominated by foreign international OTT giants, with Netflix and Disney+ Hotstar leading the market, holding market shares of 24% and 20%, respectively<sup>16</sup>. Despite facing tight competition from local OTT players, these foreign OTT giants are increasingly becoming more accessible and relevant to the Indonesian market by investing in more local content and original productions that cater to local preferences, ensuring they remain competitive. In addition to the fierce competition in the market, OTT players in Indonesia must still contend with online content piracy, which, although on a declining trend in recent years, poses a threat to OTT players' revenue due to the availability of free pirated content.

<sup>15</sup>PricewaterhouseCoopers, "Perspectives and Insights: Global Entertainment and Media Outlook 2023–2027," PwC, 2023, <https://www.pwc.com/gx/en/industries/tmt/media/outlook/insights-and-perspectives.html>.

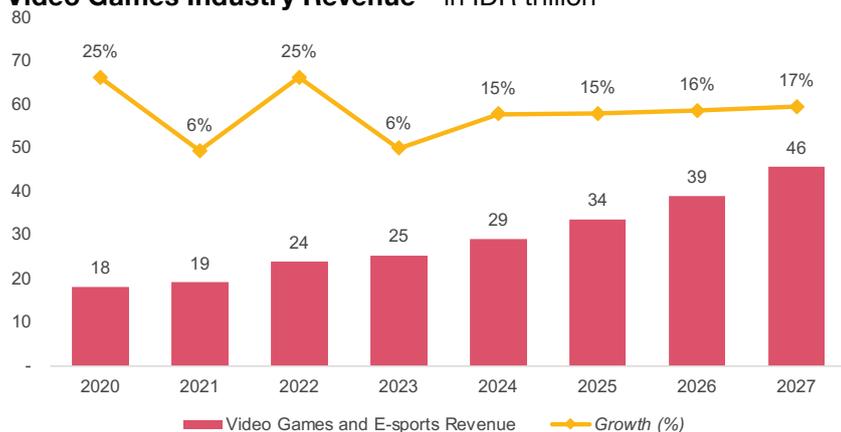
<sup>16</sup>JustWatch - the Streaming Guide. "JustWatch - Streaming Charts Indonesia (Q3 2023)," 2023, <https://www.justwatch.com/>

## Growing gaming market in Indonesia

In light of the transition towards digital media, the gaming sector globally continues to grow and capture the attention of broad age demographic groups, particularly the younger generations. PwC global publication estimates that total gaming revenue globally will reach USD314.6bn by 2027, representing a significant increase of 8.0% CAGR, higher than the estimated overall entertainment and media industry revenue growth during 2023-2027<sup>17</sup>.

In Indonesia, the gaming sector is indeed a growing media segment, positioning Indonesia as the 6th largest gaming market in Asia and 16th globally. One of the key drivers for such growth is the increased engagement for social and casual games, forecasted to achieve a 13.8% CAGR for the next five years.

### Video Games Industry Revenue – in IDR trillion



Source: PwC Global Entertainment & Media Outlook 2023–2027



Aside from the strong demand and a large consumer base for video games, the country is also home to many game developers and publishers that are starting to make their own names in the gaming world. A few of the most recognised Ugame developers are Agate, Touchten Games, Toge Productions, and PT Benua Integrasi Global.

### Game Developers in Indonesia

Agate	Touchten Games	Toge Productions	PT Benua Integrasi Global (BIG)
Agate has published ~50 games across different platforms, including Android, iOS, PlayStation, Nintendo Switch, Steam, and Xbox, accumulating more than 10m downloads.	Touchten Games is an award-winning mobile games company based in Jakarta. The company's key achievements include winning the Google Play Indonesia Game contest and receiving the Forbes Indonesia Rating Global Stars Award.	Toge Productions has announced the release of their games titled Coffee Talk 2: Hibiscus and A Space for The Unbound in 2023. These games will be available on multiple platforms, including Nintendo Switch, PS4, PS5, Xbox Series X/S, Xbox One, and PC.	BIG launched a metaverse-themed game called Bridge in Gain in July 2022. The platform presents a realistic and futuristic dystopian concept, with a virtual world created as similarly as possible to the real world. It offers a variety of game genres to be played. The CEO of the company also elaborated on how each asset element of the game holds economic value in the form of NFT, and the game platform features a virtual shopping center integrated into the real world.

Sources: Agate Website, Touchten Games Website, Toge Productions Website, PwC Global Entertainment and Media Outlook 2023, Media Indonesia (2023)

<sup>17</sup>PricewaterhouseCoopers, "Perspectives and Insights: Global Entertainment and Media Outlook 2023–2027,"

The local gaming industry presents significant opportunities as the government continues to encourage the growth of Indonesia's game developer industry through various national accommodative governmental initiatives.

- **Government support for the gaming industry:** The Ministry of Communication and Informatics (Kominfo), in collaboration with the Indonesian Game Association, organised the Indonesia Gaming Developer Exchange (IGDX) programme. This programme aims to increase the capacity, capability and product value of game developers in Indonesia. Participants can engage in business matchmaking, recruit potential game talents and exchange information among other game industry players. These programmes are expected not only to strengthen the gaming ecosystem but also to encourage the growth of both consumers and gaming developers in the country, contributing to the overall gaming industry growth in Indonesia<sup>18</sup>.
- **National scale tournaments:** Various major Indonesian esports organisations participated in many national-scale tournaments. These tournaments attract millions of viewers, with several Indonesian teams competing at regional and global levels.

Despite these growth opportunities and governmental incentives for the local community of gaming developers to thrive, the gaming sector in Indonesia faces challenges. The market is still dominated by international foreign game companies (e.g., Tencent, Moonton, Garena) with a worldwide audience reach. According to statistics provided by AppBrain, the top five grossing games in Indonesia on the Google Play app are published by foreign gaming developer companies such as Moonton, Garena, Electronic Arts, and Roblox Corporation<sup>19</sup>. Local developers, therefore, must compete with these gaming giants.

There is an increasing need to strengthen intellectual property protection regulations in the country. Based on the International Property Rights Index (IPRI) data in 2022, Indonesia ranks 97 out of 123 countries for its Intellectual Property Rights (IPRI) score, with the lowest score in copyright protection among other IP protection categories. This implies that intellectual property protection in the country is considered weak by global standards. The lack of a stringent IP protection regime can be detrimental to the growth of the nation's gaming industry. Piracy and copyright infringement remain major challenges faced by creators in the country, making it difficult for them to protect their creations. This might discourage gaming developers from continuing to invest in original content and eventually stifle the growth of the gaming sector in the country.

## Strategic partnerships among media players

Media companies globally are engaging in a high number of M&A deals and strategic partnerships to expand the range of their media services. Consumers increasingly enjoy a unified experience across different media channels, and expanding their customer network is a competitive advantage for these companies. This trend is highlighted by the merger of AT&T WarnerMedia Business with Discovery, forming a US streaming giant to compete with Netflix and Disney+ intensifying the competition in the market<sup>20</sup>. Microsoft's proposed acquisition of Activision Blizzard is also another example of a strategic collaboration, which enables access to some of the world's most popular games (e.g., Call of Duty, Overwatch), allowing Microsoft to tap into a large consumer base and extend their gaming options to Xbox players. For game creators, such collaboration will provide better access to players, improved revenue, and fair marketplace rules through Xbox's Open App Store principles<sup>21</sup>.

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<sup>18</sup>"IGDX 2023 Kembali Digelar, Akselerasi Developer Game Indonesia," *Indonesia Game Developer Exchange (IGDX)*, October 7, 2023, <https://igdx.id/article/PSO3N-IGDX%202023%20Kembali%20Digelar,%20Akselerasi%20Developer%20Game%20Indonesia>.

<sup>19</sup>AppBrain. "Google Play Ranking: Top Grossing Games in Indonesia." *AppBrain*, 2023. [https://www.appbrain.com/stats/google-play-rankings/top\\_grossing\\_game/id](https://www.appbrain.com/stats/google-play-rankings/top_grossing_game/id).

<sup>20</sup>PricewaterhouseCoopers, "Perspectives and Insights: Global Entertainment and Media Outlook 2023–2027," *PwC*, 2023, <https://www.pwc.com/gx/en/industries/tmt/media/outlook/insights-and-perspectives.html>.

<sup>21</sup>Microsoft News Center, "Microsoft to Acquire Activision Blizzard to Bring the Joy and Community of Gaming to Everyone, across Every Device - Stories," *Stories*, January 21, 2022, <https://news.microsoft.com/2022/01/18/microsoft-to-acquire-activision-blizzard-to-bring-the-joy-and-community-of-gaming-to-everyone-across-every-device/>.

In Indonesia, a similar trend is observed in how media and entertainment companies pursue strategic partnerships with other firms to remain well-positioned in the market and enhance their current product offerings. OTT players are partnering with local telco providers to drive usage of their media offerings. This collaboration strategy allows OTT players to reach a wider audience and enhance their accessibility, especially considering that slow internet speed continues to pose a major challenge for these OTT providers.

- **Telkomsel** partners with multiple OTT providers (e.g., VIU, Vidio, Disney+ Hotstar) with the aim to support their mission to be a digital telco company and enhance their customers' user experience by providing extensive entertainment services.
- **Netflix** collaborates with local telco operators (e.g., XL Axiata, Tri), offering mobile data packages with unlimited streaming of Netflix's content.
- **Esports** – Local esports streaming has been boosted by a collaboration agreement between GOX, an Indonesian video game streaming site, and Tencent Cloud. This collaboration allows GOX to utilize Tencent Cloud's streaming capabilities to offer high-quality streaming content to GOX viewers, empowering Indonesia's growing esports and live streaming ecosystem<sup>22</sup>.

## The “Underdogs” of the E&M digital transformation

**Traditional TV Network** – The introduction of digital OTT players in the media sector poses a significant challenge for traditional TV network companies in Indonesia (e.g., SCTV, RCTI, Indosiar, etc.). The competition among TV broadcasters in Indonesia with OTT players is indeed heightened. Although traditional TV offers more affordable options compared to subscription-based OTT platforms such as Netflix and Disney+ Hotstar, OTT streaming services provide a wider variety of contents and can be accessed anytime, on any device – at the consumers' convenience. For this reason, many consumers, especially the younger ones, find OTT streaming services more compelling than the alternatives.

In response to the fierce competition introduced by the growing demand for OTT streaming services, traditional TV network companies have started to invest in their own OTT platforms and offer exclusive content for their audience to stay ahead of the curve. For example, SCTV invested in its own OTT platform by acquiring Vidio, offering on-demand content and premium sports content (e.g., the English Premier League Soccer) that caters to the strong demand for sports content in the country. In 2022, Vidio was considered the fastest-growing local streaming service with 60m active users per month.

**Printed newspapers** – Printed newspapers are expected to see a sizable decline over the coming years due to the rapid transition towards digital media. Around 88% of Indonesians primarily rely on online news as their source of information, and 68% prefer to get their news through online platforms<sup>23</sup>. Local newspaper players such as Kompas and Jakarta Post now offer most of their news offerings via online platforms, using paywalls and membership models in an effort to monetise the utilisation of the digital news platform.

Digital news platforms are found to be more accessible and convenient, offering the ability to be accessed anytime and anywhere, making them a more attractive alternative compared to traditional printed newspapers. Online news sources are also more frequently updated, providing real-time information. The key to the survival of these newspaper companies is how they can adapt and evolve to the ever-changing media landscape and find new ways to reach a wider audience.

We can observe more closures of printed newspaper operations around the world. For example, many Australian media conglomerates have ceased their printing operations to focus on their digital operations. One of them, Rupert Murdoch's News Corp, announced in 2020 that it had shut more than 100 of its printed newspaper businesses, becoming digital-only or disappearing entirely<sup>24</sup>.

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<sup>22</sup>Jakarta Post, “GOX Partners with Tencent Cloud to Empower Indonesia's Esports Live Streaming Market - Companies - The Jakarta Post,” *The Jakarta Post*, January 10, 2022, <https://www.thejakartapost.com/business/2022/01/10/gox-partners-with-tencent-cloud-to-empower-indonesias-esports-live-streaming-market.html>.

<sup>23</sup>Newman, Nic, Richard Fletcher, Kirsten Eddy, Ct Robertson, and Rk Nielsen. “Reuters Institute Digital News Report 2023.” *Reuters Institute Digital News Report 2023*, 2023. [https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2023-06/Digital\\_News\\_Report\\_2023.pdf](https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2023-06/Digital_News_Report_2023.pdf).

<sup>24</sup>BBC News, “Murdoch Shuts 112 Australia Print Papers in Major Digital Shift,” *BBC News*, May 28, 2020, <https://www.bbc.co.uk/news/business-52829347>.

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# 5. Technology

- Recently, the tech industry has faced a “tech winter,” induced by various global factors, shaking numerous companies and compelling them to take survival measures.
- The tech winter presents a unique opportunity for investors to engage with startups, benefiting from discounted valuations. The challenges faced by tech companies over the past two years do not always accurately reflect the true prospects of their businesses. Indonesia’s digital economy, crucial in the region, remains strong, providing a positive outlook for the startup industry.
- Given Indonesia’s resilient economy compared to other nations, tech companies in Indonesia would leverage this momentum by adopting a business strategy prioritising profitability. This involves product modification, cost reduction, and organisational changes.
- Despite the challenges posed by the “tech winter,” Indonesia’s tech sector retains significant potential and growth opportunities, driven by factors such as the country’s unique demographic composition—largely young and tech-savvy—and the increasing trend of mobile device usage. Additionally, Indonesia’s tech ecosystem enjoys robust support, contributing to the improvement of Gross Merchandise Value (GMV).

## Tech Winter

- In 2022, the global tech industry experienced the “tech winter” phenomenon, where the rising cost of capital led investors to become more selective, prioritising maximum return on investment and risk reduction. This impacted technology startups, making investors more risk-averse due to the increased cost of available funds. The factors contributing to tech winter included: (i) rise in interest rates by the US central bank to combat inflation; (ii) unstable macroeconomic conditions, driven by the Russian-Ukraine war, causing supply chain disruptions and a surge in global energy prices; (iii) inefficient management systems in startups (e.g., over-hiring talents, excessive spending, inadequate business models, unmet growth expectations); and (iv) consumers returning to offline services post pandemic, leading to corrections in demand predictions.

As a result, the tech winter’s impact has led to startup failures due to a lack of cash injection, prompting companies, both large and small, to announce significant layoffs. Investors now scrutinise startups more rigorously, favouring concepts with predictable revenue and affordable operational costs.

- To survive, global tech companies have implemented job cuts and stopped hiring as cost-cutting measures. In Indonesia, various tech companies have taken similar steps to weather the tech winter. General marketplaces are also considering increased business efficiency and diversification. Although the tech winter is challenging, many see it as the start of a new phase where companies prioritise generating business value without high burn rates. The tech winter is expected to last until the end of 2023 or early 2024, aligning with improving macroeconomic indicators, such as increased inflation and decreased interest rates.
- Given Indonesia’s resilient economy compared to other nations, tech companies in Indonesia can enhance their prospects by fortifying their business fundamentals and aligning their products and services with market dynamics. Startups in Indonesia need to adopt a business strategy that prioritises profitability, such as product adjustment, cost optimisation, and corporate action. In implementing product adjustment, startups should evaluate if product modification is necessary to achieve product-market fit by considering shifts that are happening at the consumer, competition, or governmental levels. As for cost optimisation, businesses can adjust their cash flow to mitigate the effects of reduced funding by reviewing large cost components and implementing automation in their business operations. Last but not least, tech companies should also consider taking corporate moves such as asset, product, or service divestitures, or mergers and acquisitions (M&A), whichever suits their condition best.

## Opportunity for technology industry in Indonesia

Despite the challenges arising from the tech winter phenomenon, the tech industry in Indonesia still has significant potential and opportunities supported by the uniqueness of Indonesia's demography, its tech ecosystem, and improving GMV.

### Uniqueness of Indonesia's Demography

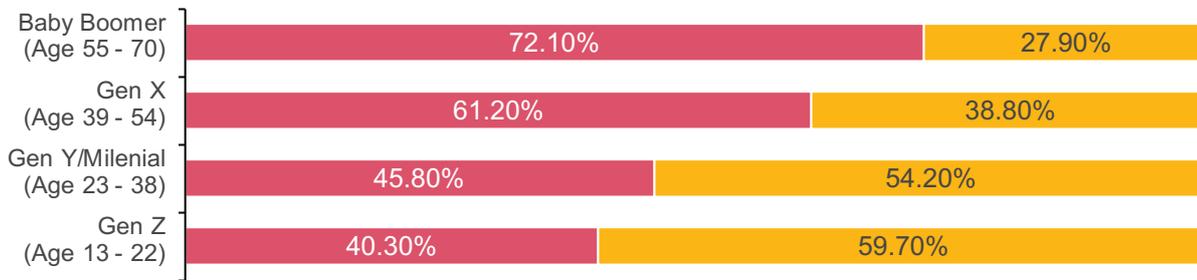
- As a developing and populous country, Indonesia faces numerous challenges across various sectors, presenting a vast market size. This makes it feasible for businesses to focus on capturing the domestic market, which is the most accessible to pursue. Indonesia has become an attractive market for investors due to the unique advantage of establishing large-scale startups, supported by the following factors:

#### A. Majority of the population is young and tech-savvy

In Indonesia, 60.00% the total population falls within the productive age group (15 to 64 years old), and the median age in the country is 29 years<sup>25</sup>. This young population is highly receptive to and supportive of the adoption of new technology, contributing to Indonesia's talented and tech-savvy workforce.

#### Indonesia digital literacy index based on age group

2021A, in %



Source: Kominfo, Katadata (2021), PwC Analysis



Based on age group classification, the Digital Literacy Index shows that the younger generation has higher DLI scores compared to the older generation, which is indicated by the scores that are above the national average. This means that there is a sizeable young population who's under the productive age range that is technologically literate and serves as potential talents which can support Indonesia's digital economy.

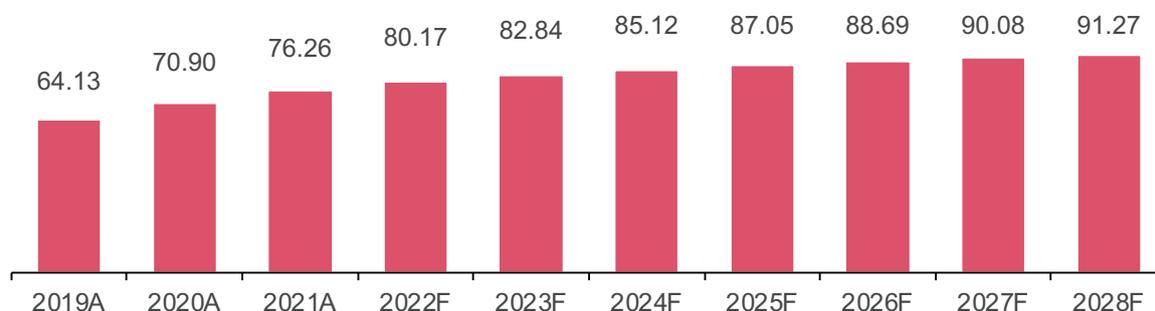
<sup>25</sup>UNFPA Indonesia. "UNFPA Indonesia Monograph Series: No.2: Youth in Indonesia," 2014. [https://indonesia.unfpa.org/sites/default/files/pub-pdf/BUKU\\_Monograph\\_No2\\_Youth\\_in\\_Indonesia\\_ENG\\_05\\_Low-res.pdf](https://indonesia.unfpa.org/sites/default/files/pub-pdf/BUKU_Monograph_No2_Youth_in_Indonesia_ENG_05_Low-res.pdf).

## B. Increasing mobile device usage trend

Users in Indonesia exceeded five hours per day in mobile app usage in 2022<sup>26</sup>. This figure ranks among the highest globally, rendering the nation highly attractive for mobile-first startups.

### Indonesia smartphone penetration rate

2019A – 2028F, in %



Source: Statista (2023), PwC Analysis

In 2021, 76.26% of the Indonesian population used smartphones. By 2028, the number of smartphone users in the nation is anticipated to reach 91.27%. The relatively high mobile penetration is made possible by the availability of low-cost devices. The increasing number of low-priced smartphones being sold is predicted to increase smartphone penetration, especially among people with low-income levels.

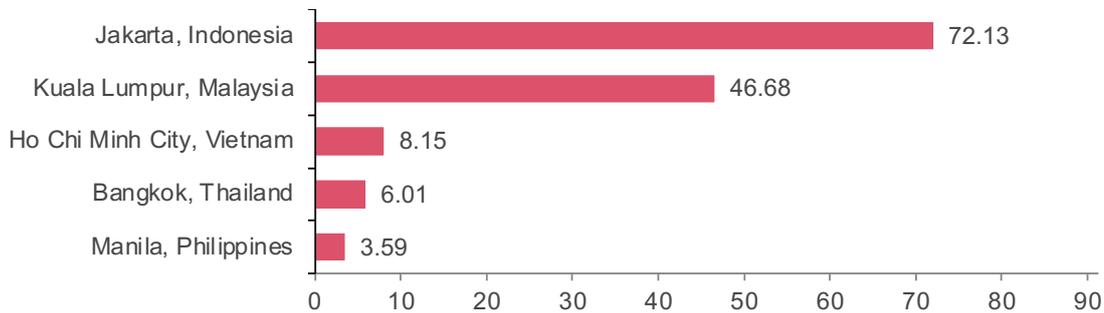
## Indonesia's tech ecosystem

- The development of the startup ecosystem is supported by various key components that are interdependent and overlapping. These key components include: (i) incubators and accelerators; (ii) finance (i.e., venture capital and angel investors); (iii) government (i.e., through policies and programmes); (iv) digital infrastructure, literacy, access, and services; (v) talent (i.e., the founder, the team, and the management); and (vi) demand (i.e., product, innovation, market, and timing).
- Overall, Indonesia's tech ecosystem has flourished with the support of each key component mentioned above. Numerous incubators and accelerators, sponsored by the government, non-profit organisations, universities, or private (large) businesses, have played a crucial role. Indonesian startups also receive support from notable venture capital firms operating regionally and internationally, as well as institutional or individual angel investors.
- The Indonesian government actively backs the tech sector, striving to enhance the business environment for tech companies. For instance, it has introduced tax exemptions and incentives for tech firms and is working to improve the country's infrastructure, including internet connectivity.
- Indonesia hosts businesses in various industries, including e-commerce, fintech, digital media and entertainment, agriculture technology and education technology. The diversity within the ecosystem fosters innovation and allows businesses to address a wide range of challenges.

<sup>26</sup>data.ai. "Mobile Users in Two Regions Now Spend 5.7 Hours A Day In Apps | Data.Ai Blog," 2022. <https://www.data.ai/en/insights/market-data/q2-2022-market-pulse-regional/#:~:text=ai's%20Q2%202022%20Regional%20Pulse,hours%20a%20day%20on%20mobile>.

• **Ecosystem Value of Southeast Asian Cities within the Lower-Middle Income to Upper-Middle Income Economies<sup>27</sup>**

H2 2020 – 2022, in USD billion



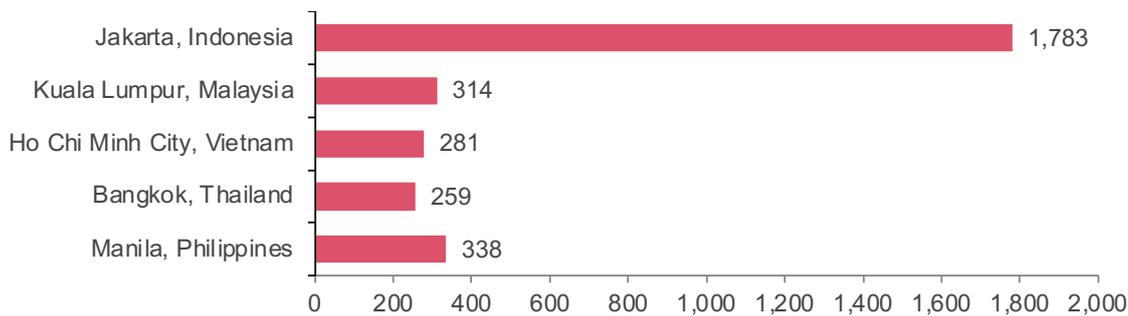
Source: Startup Genome (2023), PwC Analysis

Note: Ecosystem value is defined as the economic impact, calculated as the value of exits and startup valuations.

The chart above shows that Jakarta, the capital city of Indonesia, has the highest ecosystem value in comparison to the other capital cities of Southeast Asian countries with similar income groups. The Southeast Asia area is being propelled forward by digital disruptions in Indonesia, which continues to be one of the startup world’s favoured settings.

• **Early-Stage Funding of Southeast Asian Cities within the Lower-Middle Income to Upper-Middle Income Economies**

H2 2020 – 2022, in USD million



Source: Startup Genome (2023), PwC Analysis

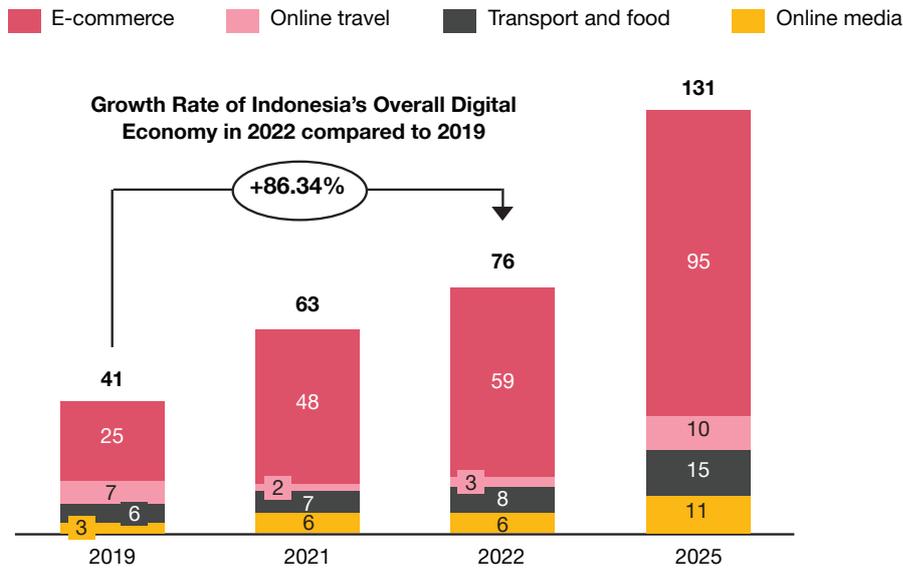
Note: Early-stage funding is defined as the total seed and Series A funding in tech startups.

Jakarta is also leading as the capital city that receives the largest early-stage funding in comparison to the other capital cities of Southeast Asian countries with similar income groups. In addition, a lot of Indonesian startups have raised their funding through vehicle companies established in Singapore to attract more prominent investors. Early-stage funding is an important indicator of potential success because most firms that accomplish Series A rounds have demonstrated their viability through the development of a minimum viable product, the generation of revenue, or the indication that a product launch is imminent. Hence, the chart above shows that the amount of early-stage funding has proven the success and growth of Indonesia’s ecosystem.

Early-stage startups often experience rapid growth and can produce substantial returns for early investors, allowing investors who engage in these startups an advantage in terms of high potential returns. Additionally, investors can participate in the expansion and development of the business by offering advice and recommendations to guide the business’s trajectory.

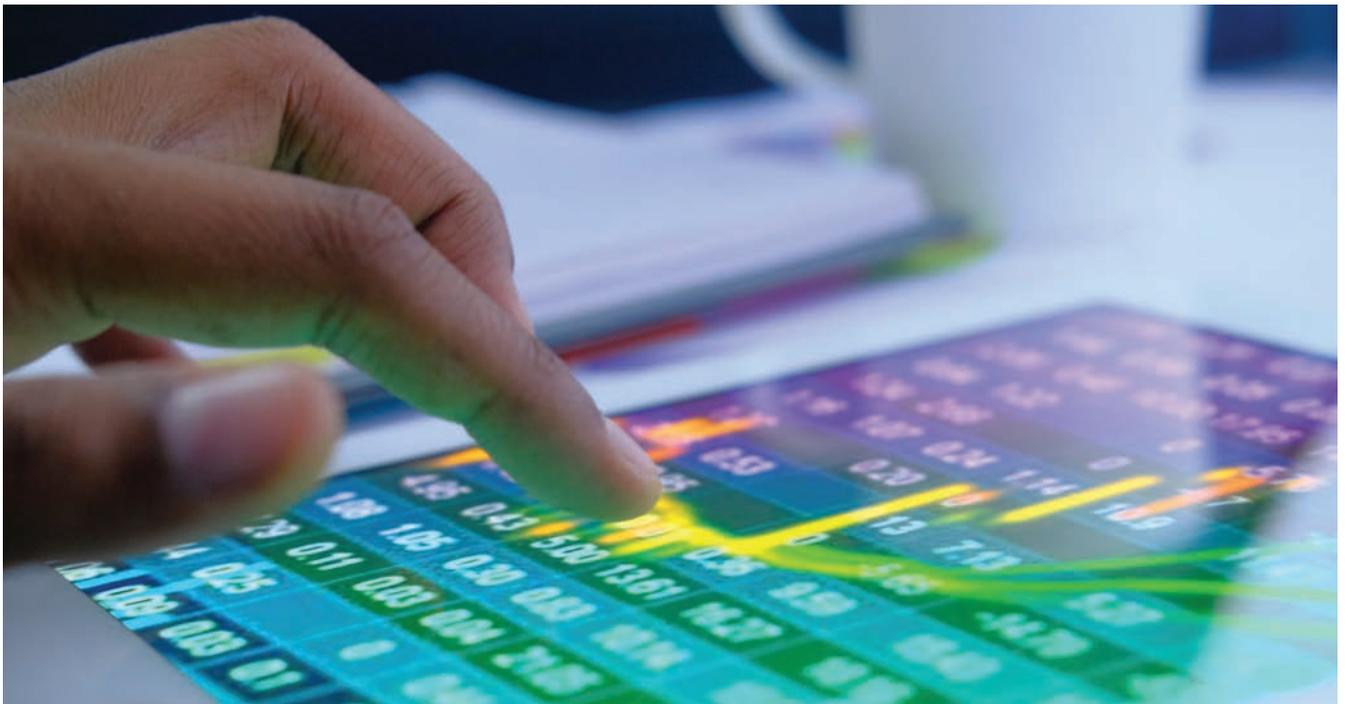
<sup>27</sup>A measure of economic impact, calculated as the value of exits and startup valuations from H2 2020–2022. Ecosystem Value growth (CAGR) is calculated based on companies founded in the ecosystem in H2 2018–H2 2020 vs. H2 2020–H2 2022. Ecosystem Value growth is calculated based on companies founded in the ecosystem in H2 2018–H2 2020 vs. H2 2020–H2 2022.

## Indonesia's Overall Digital Economy – GMV in USD billion



Source: Google, Temasek, and Bain & Company (2022), PwC Analysis

Indonesia's digital economy grew by 86.34% between 2019 and 2022, encompassing the pandemic era<sup>28</sup>. The pandemic accelerated the growth of Indonesia's digital economy, as observed in the wider region, driven by social restrictions and distancing policies that hastened the adoption of online platforms. Consequently, the surge in e-commerce, online content and services consumption, mobile payments, and remote work has significantly contributed to a higher volume of online sales. Projections indicate that Indonesia's digital economy is poised to surpass USD131bn by 2025.



<sup>28</sup>Google, Temasek and Bain, e-Conomy SEA 2022," 2023. [https://services.google.com/fh/files/misc/e\\_conomy\\_sea\\_2022\\_report.pdf?utm\\_source=bain&utm\\_medium=website&utm\\_campaign=2022](https://services.google.com/fh/files/misc/e_conomy_sea_2022_report.pdf?utm_source=bain&utm_medium=website&utm_campaign=2022).



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