



Recognising the potential of Industry 4.0 in Asia Pacific

Insights from a GSMA Survey

A Digital Societies Companion Report, January 2021



The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with nearly 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

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Authors

Jeanette Whyte, Head of Public Policy, Asia Pacific
Christiaan Segura, Director, Public Policy, Asia Pacific
Vidhi Sharma, Government Affairs Project Coordinator, Asia Pacific
Kenechi Okeleke, Director, Social and Regional Research

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www.gsmaintelligence.com
info@gsmaintelligence.com



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1. About the survey

Responses from 31 stakeholders in the 11 target countries that have been the focus of the Digital Societies report series.



- This is a supplementary report to the 5th [Digital Societies Report](#) published in November 2020.
- In May 2020, GSMA sent questionnaires to government agencies, mobile operators and other digital ecosystem players in Asia Pacific to understand the roles of a **‘Whole-of-Government approach (WGA)’** and **‘Implementation of Industry 4.0’** in advancing digital societies in the region.
- Respondents included 14 government agencies and 17 local and global industry players.
- **The survey explored four key areas:**
 - What are the key digital foundations that need to be in place to deliver Industry 4.0 visions in the focus countries?
 - What are the current approaches by policymakers to deliver Industry 4.0?
 - What and where are the pinch points in the delivery of Industry 4.0?
 - What are the new approaches to address these pinch points?



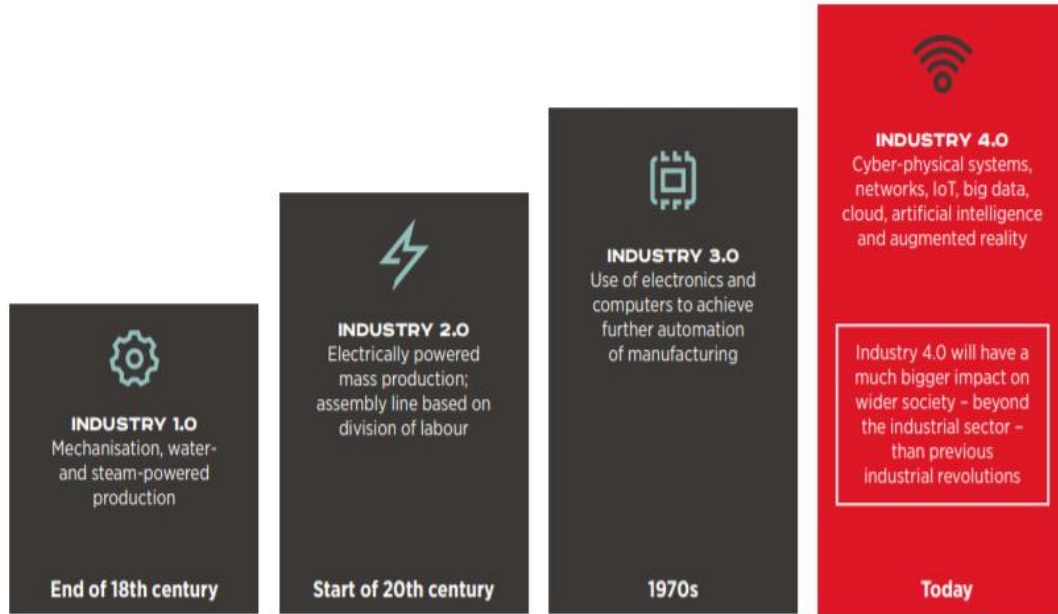
2. Executive Summary

- Countries in Asia Pacific have established frameworks on a national level, recognising the potential of Industry 4.0 to help prepare economic structures for greater productivity and resilience. This will be crucial in the efforts by governments to stimulate economic recovery and build resilient economies for the future post-Covid-19.
- Majority of government agencies and industry players expect Industry 4.0 objectives to be delivered within the next five years. This will rely on effective regulatory frameworks, such as making new spectrum available for enhanced connectivity, and increasing innovations in new solutions.
- Connectivity is a foundational element of a digital society and, by extension, Industry 4.0. Mobile operators have played a critical role in delivering high quality connectivity in the region, having invested in widespread 4G networks and currently doing the same for 5G.
- Leadership and accountability are essential for success. Some countries have adopted a top-down strategy (from the office of prime minister or president) for setting national policies to facilitate collaboration across government and increase engagement with non-government stakeholders.
- WGA is vital to accelerate progress on Industry 4.0 objectives. The case for a WGA hinges on the premise that collaboration across public service agencies to achieve a mutual goal and unified government response is key to the successful implementation of Industry 4.0.



3a. Defining Industry 4.0

The industrial revolutions: on the cusp of Industry 4.0



Source: GSMA Intelligence


- There are several definitions for the concept of Industry 4.0. However, two thirds of respondents to the GSMA survey identified with the following definition:


“The fourth industrial revolution or Industry 4.0 describes the exponential changes to the way we live, work, and relate to one another due to the adoption of cyber-physical systems, the Internet of Things (IoT) and the Internet of Systems”.


- Intelligent connectivity will be key to realising Industry 4.0. This describes the fusion of advanced networks (e.g 4G and 5G), AI and IoT.
- The intelligent connectivity era has begun in Asia Pacific and will build momentum in the 2020s, facilitating the delivery of Industry 4.0 in the region.





3b. Summary of Industry 4.0 visions in Asia Pacific


 Australia has instituted an Industry 4.0 Taskforce that works through its Testlabs initiative to collaborate with industry to improve the competitiveness of the manufacturing industry.*


 India's Industry 4.0 Vision rests on four key principles: interconnection, information transparency, decentralised decision making, and technical assistance.


 Japan's Society 5.0 focuses on mobility, healthcare and caregiving, manufacturing, agriculture, food, disaster prevention, and energy.


 Digital Pakistan Policy 2018 sets out objectives to establish innovation centres, promote local players, capacity building to develop talent pool, and cross-sectoral collaboration.


 South Korea's Industry 4.0 Vision is the realisation of people-centered Fourth Industrial revolution, participated in by all and enjoyed by all.


 Vietnam's Industry 4.0 Vision aims to facilitate: economic growth, the digital economy, human resources development, the quality of life, the national defense, and the environment.

 Digital Bangladesh focuses on human resource development, people involvement, civil services, and the use of technology in business to improve the lives of its citizens.*

 Making Indonesia 4.0 Focuses on ten priorities, including: SME empowerment, innovation ecosystem, technology investment, and regulatory re-optimisation.

 Malaysia's Industry 4.0 policy framework focuses on labour productivity growth, manufacturing contribution to the economy, innovation capacity, and high skilled jobs.*

 Singapore's key strategies include: transforming facilities and operations, R&D partnerships to develop new talent, and collaborate with manufacturing communities.

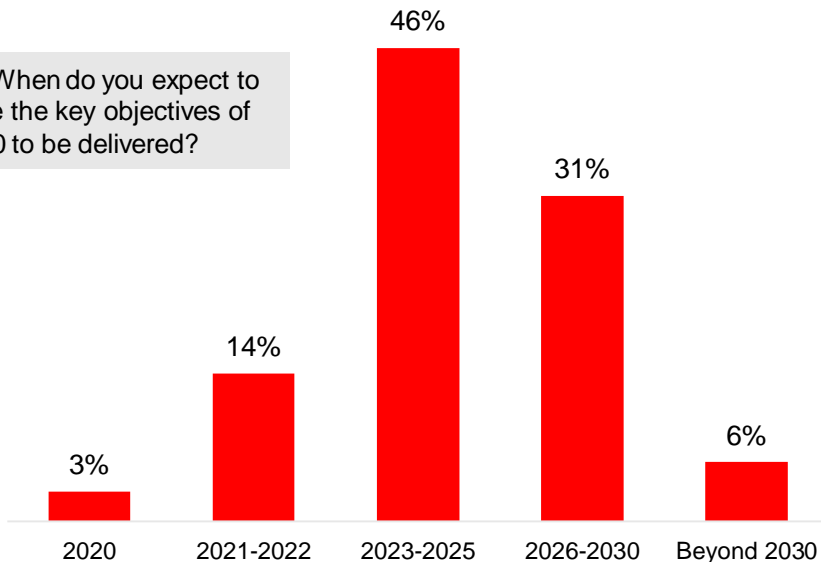
 Thailand 4.0 has four objectives: economic prosperity, social well-being, raising human values, and environmental protection.



3c. Delivering Industry 4.0 is a medium-term goal

Survey Insight Majority of respondents expect the objectives of Industry 4.0 to be delivered in their market by 2025

Q:When do you expect to see the key objectives of I4.0 to be delivered?



Source: GSMA Industry 4.0 survey 2020

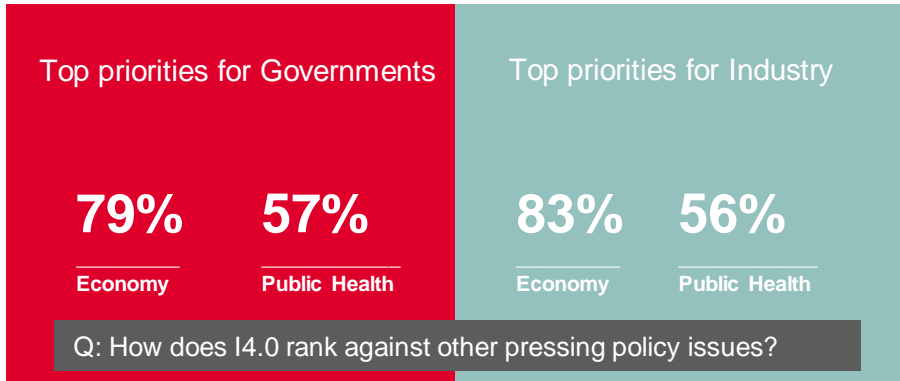
- The articulation of an Industry 4.0 vision is a good first step in the process. Beyond that, many governments in the region have begun laying the Industry 4.0 foundation by updating regulatory frameworks and announcing plans to make new spectrum available for enhanced connectivity.
- A WGA is essential for this process as having all Ministries work together may avoid siloed, duplicative efforts that would otherwise slow down progress. Additionally, a forward-leaning regulatory regime has the potential to incentivise further investment by industry, speeding deployment of new technology.
- In order to utilise WGA, many countries, including Japan, Korea and Singapore, have formed Industry 4.0 task forces to facilitate collaboration.
- These developments, along with technological innovations, underscore the expectation among nearly two thirds of respondents that Industry 4.0 objectives will be delivered in their markets within the next five years.



3d. Industry 4.0 will drive post-Covid-19 recovery

- The Covid-19 pandemic has severely impacted economic output in many countries in Asia Pacific and around the world. A World Bank forecast envisions a 5.2% contraction in global GDP in 2020 - the deepest global recession in decades.
- As countries bring the spread of the virus under control, helped by vaccines and social distancing measures, the focus of governments will shift to rebuilding the economy and laying the foundations for economic growth and resilience in a post-pandemic world.
- This view is supported by the majority of respondents to the GSMA survey who expect rebuilding of economies and addressing public health issues to remain priorities for the foreseeable future.

 **Survey Insight** **Economy is top of mind for Asia Pacific governments and industry players, followed by public health**



The mobile industry played a key role in helping people and businesses stay connected during the pandemic, and is set to play an equally vital role in enabling new services and solutions that will underpin the delivery of Industry 4.0 in the coming years.

Since 2000, mobile technology has contributed 10% of income per capita growth.¹ A flexible, forward-leaning regulatory framework is critical to support the continued contribution of the industry to economic growth.

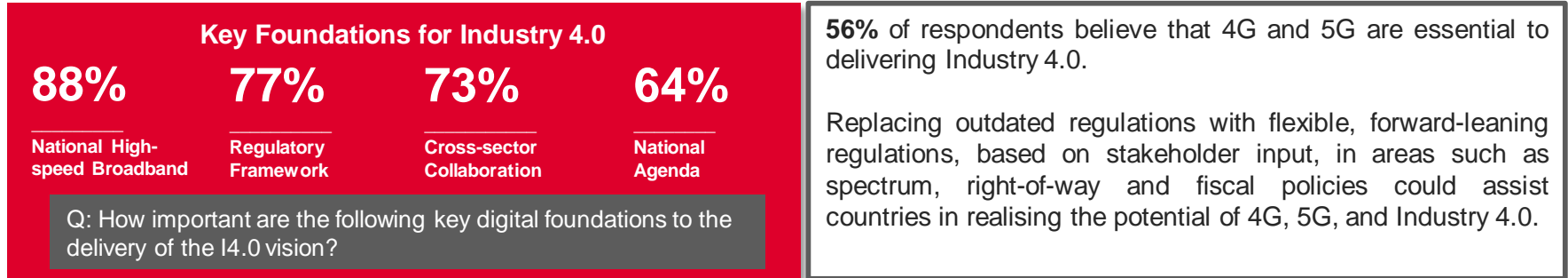
Source: GSMA Industry 4.0 survey 2020



4a. Connectivity is the foundation for Industry 4.0

- Connectivity is a foundational element of a digital society and, by extension, Industry 4.0. The majority of respondents to the GSMA survey view a national high-speed broadband network covering more than 90% of the population, and underpinned by forward-leaning regulatory framework and cross-sector collaboration, as essential to realising Industry 4.0 ambitions.
- Mobile operators have played a critical role in delivering high quality connectivity in the region, having invested in widespread 4G networks and currently doing the same for 5G. Beyond connectivity infrastructure, mobile operators are also investing in technologies that support Industry 4.0 solutions, such as IoT and Mobile Edge Computing (MEC).
- 4G will continue to expand the reach of mobile, making it an important driver for wider digital inclusion. More advanced Industry 4.0 use cases, such as autonomous driving and smart factory, need to be delivered by URLLC and MEC, for which 5G is best suited.

Survey Insight Broad consensus on the importance of connectivity



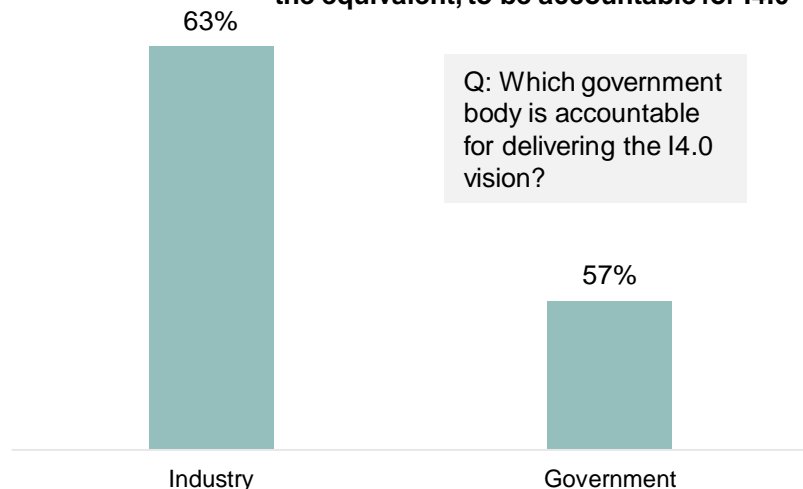
Source: GSMA Industry 4.0 survey 2020



4b. Leadership and accountability are key success factors

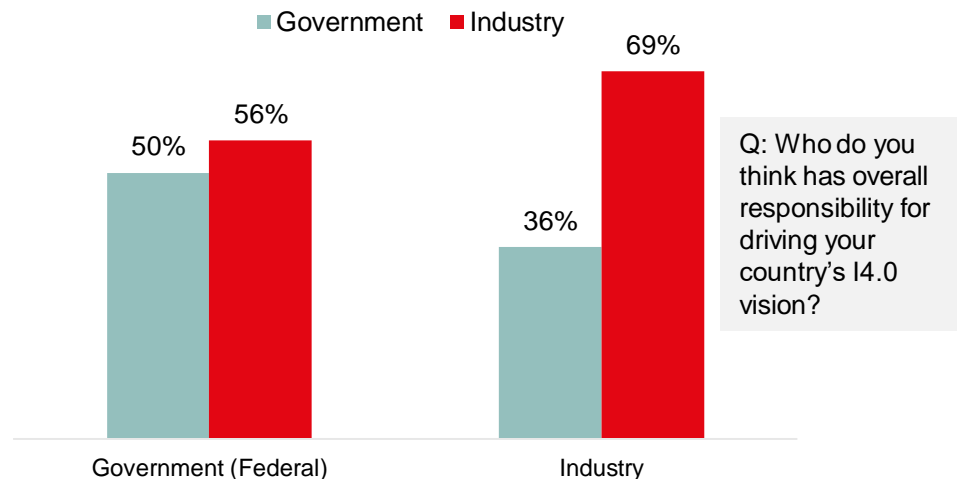
Respondents highlighted the lack of ownership, responsibility and accountability as main challenges to the delivery of Industry 4.0. To address these challenges, some countries such as Japan, have adopted a top-down strategy (from the office of prime minister or president) for setting national policies to facilitate collaboration across government and increase engagement with non-government stakeholders.

 **Survey Insight** Majority on both government and industry sides expect the Prime Minister's office, or the equivalent, to be accountable for I4.0



Source: GSMA Industry 4.0 survey 2020

 **Survey Insight** Mobile operators and the digital ecosystem have a vital role to play in driving the I4.0 vision

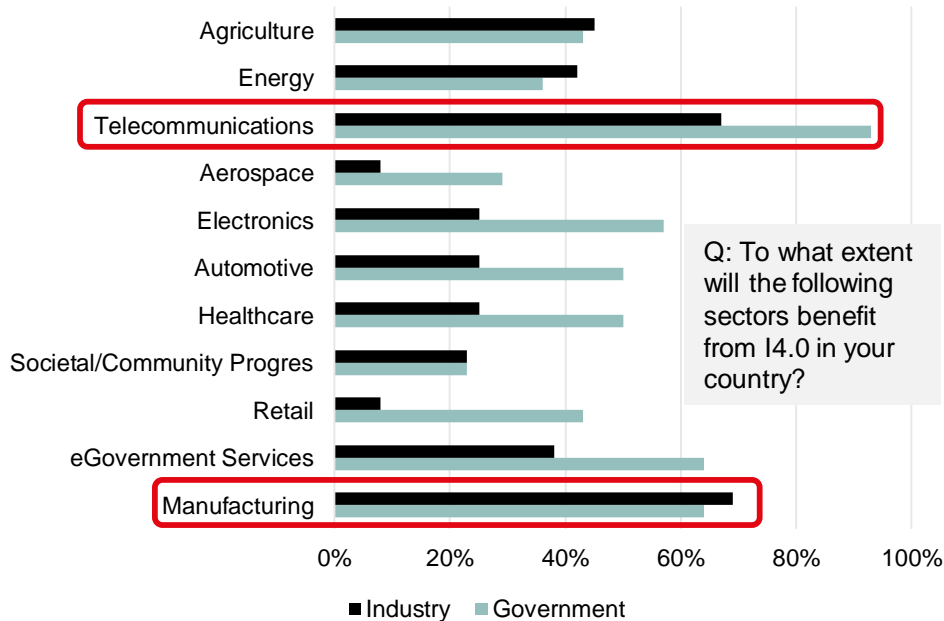


Source: GSMA Industry 4.0 survey 2020



4c. The benefits of Industry 4.0 will be widespread

Survey Insight Industry 4.0 will have a profound impact on society



Source: GSMA Industry 4.0 survey 2020

- Unsurprisingly, a majority of respondents believe that the telecommunications and manufacturing sectors will receive very significant benefits from Industry 4.0.
- However, Industry 4.0 has the potential to benefit multiple sectors and society at large, a feature unique to Industry 4.0 relative to previous industrial revolutions.
- Telecommunications networks, and mobile in particular, sit at the centre of innovative technologies and solutions to address society's challenges. From smart agriculture and smart health solutions to smart manufacturing and e-government services, the impact of mobile-enabled Industry 4.0 solutions may be felt across society.
- Given the impact that Industry 4.0 will have on people's everyday lives beyond industrial processes, coordinated governments actions could drive efforts to meet overall targets through the alignment of policies and regulations that support the Industry 4.0 vision.



5a. The journey to realising the benefits of Industry 4.0

Key foundational pieces:

- Wide spread intelligent connectivity.
- Forward-leaning regulatory regime.
- National Industry 4.0 agenda.
- Whole-of-Government implementation.

Public-private collaboration

Once the proper foundational pieces are in place, a collaborative effort between government and industry is important to help a country in achieving its Industry 4.0 goals.

Societal benefits

Industry 4.0 has the potential to bring significant benefits to society as businesses integrate new digital solutions to drive productivity and efficiency, and governments seek new ways to engage with citizens.



5b. WGA is vital to accelerate progress on Industry 4.0 goals

Survey Insight

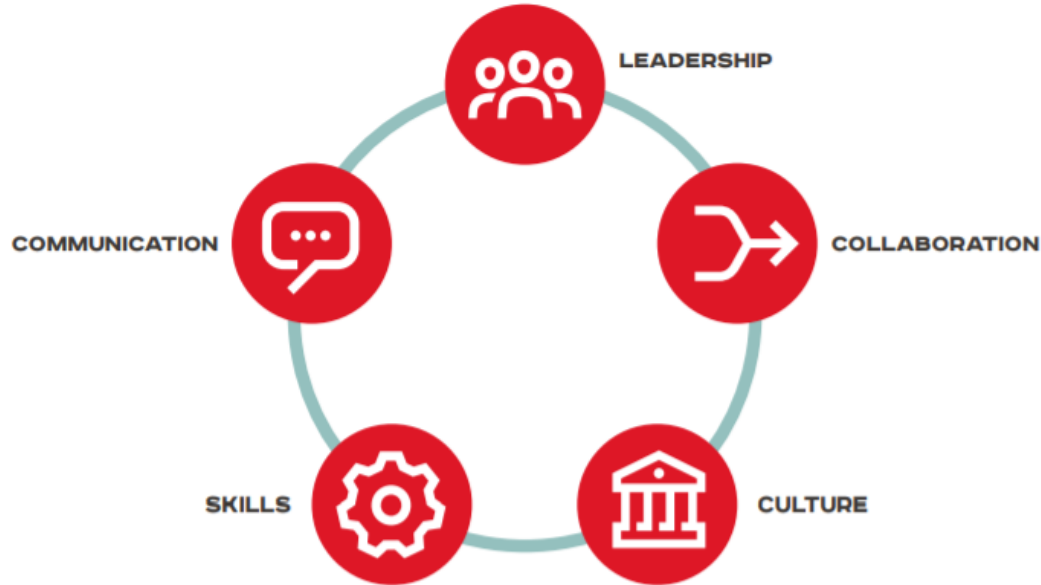
70% of respondents believe WGA is extremely important to realise the objectives of Industry 4.0.

65% of respondents are aware of a collaborative process already in place.

- A WGA means taking a cross-sectoral and cross-organisational view of the formulation and implementation of digitalisation policies and frameworks to realise intrinsic collaborative efficiencies, streamlining decision-making.
- Insights from the GSMA survey show that governments and industry players in Asia Pacific acknowledge the importance of a WGA in deliver Industry 4.0.
- The case for a WGA hinges on the premise that collaboration across public service agencies to achieve a mutual goal and unified government response is key to the successful implementation of Industry 4.0.
- For example, Ministries of public works can facilitate infrastructure deployment with flexible regulatory frameworks. Ministries of finance can cultivate a sustainable investment environment that builds national economic competitiveness. Ministries of trade policy that encourages cross-border data flows could drive economic growth.

Source: GSMA Industry 4.0 survey 2020

5c. Five key principles for an effective WGA strategy



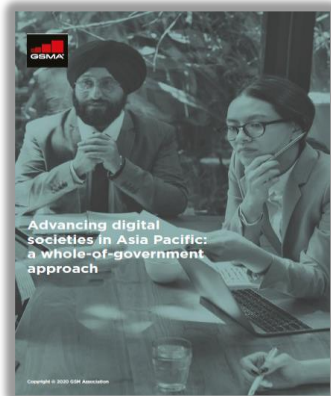
- Provide effective leadership within government.
- Facilitate collaboration within the digital ecosystem.
- Build and sustain a supportive culture to implement policy on a WGA basis.
- Ensure that the workforce is equipped with the right skills and knowledge for the digital age.
- Communicate relevant information to all stakeholders.

Source: GSMA Intelligence

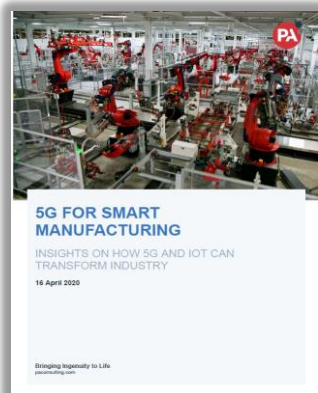


Annex 1: GSMA Resources

APAC Digital Societies Report 2020



5G for Smart Manufacturing



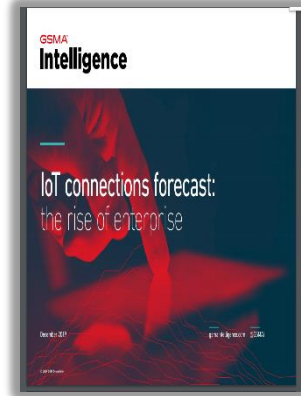
Mobile technology and economic growth



Global Mobile Trends 2020



IoT Connections Forecast





Annex 2: Survey details and questions

The key digital foundations that need to be in place to deliver the Industry 4.0 vision, including:

- High-speed mobile networks (4G and 5G in particular).
- Policies/regulatory frameworks in place that enable the safety and security of data within and across borders.
- Digital talent (leaders, data scientists, technologists and engineers).

The current approach by policymakers to deliver Industry 4.0:

- Which government body is accountable for delivering the Industry 4.0 plans?
- Who are the key government stakeholders (i.e. ministries, quasi-government agencies and regulatory bodies) that have responsibility for delivering the Industry 4.0 plans?
- Are there any formal mechanisms (e.g. MoU, committees, processes) with government stakeholders? Are there any informal mechanisms (e.g. personal networks, discussions at other meetings)?
- Who are the non-government bodies that are critical to the delivery of the Industry 4.0 plans (e.g. telecoms industry, ICT businesses, manufacturing companies, educational bodies)? Is there a formal process between government and non-government stakeholders to ensure the Industry 4.0 plans are delivered? If so, describe the process.



Annex 3: Survey details and questions (cont'd)

The pinch points in the delivery of the Industry 4.0 vision:

- What are the main obstacles that are preventing the delivery of Industry 4.0 objectives?
- What is the impact of these obstacles for different agencies and organisations?
- What changes can be made to overcome these obstacles?

New approaches to address roadblocks:

- What measures would agencies consider to improve the success of meeting their Industry 4.0 vision?
- How are agencies working with partners across the globe to reduce regulatory barriers to trade in innovative products and services?



GSMA Asia Pacific focuses on the promotion and execution of the GSMA's global programmes and advocacy initiatives at the regional level, as well as managing and delivering regional priorities defined by its members through GSMA governance bodies. We work closely with operators and members in the wider ecosystem through our regional communities and international events including MWC Barcelona and the Mobile 360 series Digital Societies. The teams represent the GSMA's views and initiatives at regional institution meetings and events, with offices in Hong Kong and New Delhi.

