The information in the section below has been partly derived from various publicly available government sources, market data providers and other independent third-party sources. In addition, this section and elsewhere in the document contains statistics and facts extracted from the Ipsos Report, for the inclusion in this document. The information from official government sources have not been independently verified by the Company, the Sole Sponsor, the ***[REDACTED]****, the* ***[REDACTED]****, the* ***[REDACTED]****, any of our or their respective affiliates, directors or advisers or any other persons or parties involved in the* ***[REDACTED]****, and no representation is given as to its accuracy.*

For a detailed discussion of the risks relating to our industry, please refer to the paragraph headed "Risk Factors – Risks relating to the industry in which the Group operates" in this document.

SOURCE AND RELIABILITY OF THE INFORMATION

The Group has commissioned Ipsos, an independent market research company, to analyse and report on the industry development and competitive landscape of the telecommunications infrastructure services industry and digitalisation solution services industry in the PRC and Jiangxi Province, for the period from 2019 to 2028 at a fee of HK$965,000. Ipsos is an independent market research company, employing approximately 18,000 personnel worldwide across 90 countries.

The information in the Ipsos Report is obtained by (i) primary research via telephone and face to face interviews with key knowledge leaders; (ii) secondary desk research from government statistics, industry reports and other analyst reports; and (iii) performing client consultation to facilitate the research including in-house background information of the client (such as the business of the Group). The information and statistics as set forth in this section is extracted from the Ipsos Report.

The following bases and assumptions are used in the market sizing and forecasting model in the Ipsos Report: (i) the China economy will remain in steady growth across the period from 2024 to 2028, in the expectation that COVID-19 will continue to be under control; (ii) the supply of and demand for products and services of the telecommunications infrastructure services industry and digitalisation solution services industry in the PRC and Jiangxi Province are stable over the forecast period; (iii) it is assumed that there is no external shock such as financial crisis or natural disasters to affect the supply of and demand for telecommunications infrastructure services industry and digitalisation solution services industry in the PRC during the forecast period; (iv) no industry regulation will have a dramatic or fundamental impact on the telecommunications infrastructure services industry and digitalisation solution services industry in the PRC and Jiangxi Province during the forecast period.

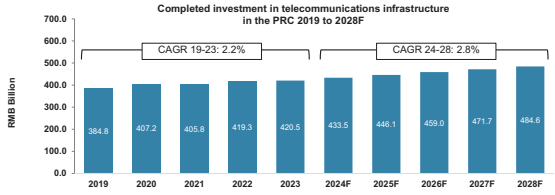
The Directors confirmed that, as at the Latest Practicable Date, after taking reasonable care, there is no adverse change in the market information since the date of the Ipsos Report which may qualify, contradict, or have an impact on the information in this section. Except as otherwise noted, all the data and forecasts contained in this section are derived from the Ipsos Report.

OVERVIEW OF THE TELECOMMUNICATIONS INFRASTRUCTURE SERVICES INDUSTRY IN THE PRC AND JIANGXI PROVINCE

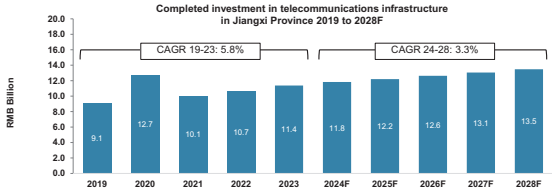
The telecommunications industry in the PRC is dominated by the three telecommunications network operators including China Unicom, China Telecom, and China Mobile (collectively the "**Big Three**"). They are state-owned enterprises, essentially forming a triopoly in the industry. The Big Three as well as the telecommunications tower infrastructure service provider, China Tower, account for over 90% of the completed investments in telecommunications infrastructure in the PRC.

Overall completed investments in telecommunications infrastructure in the PRC and Jiangxi Province

The completed investment in telecommunications infrastructure refers to the capital expenditures of the Big Three, China Tower and the government-led telecommunications infrastructure projects. The capital investments include both the purchase of equipment as well as infrastructure services including network planning and design, and construction. The following charts set out the overall completed investments in telecommunications infrastructure in the PRC and Jiangxi Province:



Sources: MIIT; Annual reports of listed companies; Ipsos research and analysis



Sources: MIIT; Jiangxi Provincial Statistic Bureau; Ipsos research and analysis

The overall completed investments in telecommunications infrastructure in the PRC grew from approximately RMB384.8 billion in 2019 to approximately RMB420.5 billion in 2023, at a CAGR of approximately 2.2%. The increment was mainly attributed to massive 4G and 5G networks development and the government-led investment projects on 5G infrastructure. The overall completed investments in telecommunications infrastructure in the PRC is expected to further increase from approximately RMB433.5 billion in 2024 to approximately RMB484.6 billion in 2028, at a CAGR of approximately 2.8%. The growth is expected to be driven by commercial application of telecommunications technology and digitalisation of urban infrastructure.

The overall completed investments in telecommunications infrastructure in Jiangxi Province grew from approximately RMB9.1 billion in 2019 to approximately RMB11.4 billion in 2023, at a CAGR of approximately 5.8%. In 2020, the province's completed investments in telecommunications infrastructure surged by approximately 39.9% compared to 2019, attributed to the investments by the Big Three and the provincial government in the Three-year Action Plan for the Development of Telecommunications Infrastructure in Jiangxi Province (2018-2020)(江西省信息通信基礎設施建設三年攻堅行動計劃(2018-2020)) which sets the goal to invest over RMB30 billion in telecommunications infrastructure in Jiangxi province, including core networks, transmission networks, access networks, FTTPs, 4G/5G base stations, IoT networks and cloud computing centres.

The overall completed investments in telecommunications infrastructure in Jiangxi Province is expected to continue the growth at a CAGR of approximately 3.3% from 2024 to 2028, exceed the national CAGR of approximately 2.8%. The growth is mainly supported by the favourable policies implemented to promote digital transformation by the Jiangxi provincial government. These policies aim to serve to kick-start the development trajectory during the period, and beyond. Some of these policies would extend into 2035, while some of the policies may cover the period from 2022 to 2025. For policies with an initial end date before 2027, it is expected that these policies will continue to have positive lingering effects on the demand for telecommunications services, and hence, the demand for telecommunications infrastructure on an on-going basis. Some of the policies include:

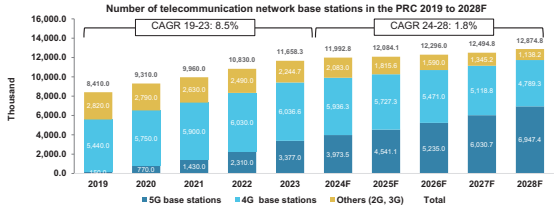
- The Jiangxi provincial government issued the "Notice on the Medium- and Long-term planning for Future Industry Development (2023-2035)"(關於江西省未來產業發展中長期規劃(2023-2035年)的通知) which is set the goal to accelerate the digitalisation of existing industries as well as the commercialization of future technology. While nine cities in have achieved the status of "Dual Gigabit Cities"(雙千兆城市) and over 50,000 units of manufacturing equipment have been upgraded to smart control, the provincial government set the goal to develop over 50 IIoT platforms and 10 IIoT demonstration districts by 2035.

- The Three-year Action Plan to Promote the Development of Big Data Industry in Jiangxi Province (2023-2025)(江西省促進大數據產業發展三年行動計劃(2023-2025年)) announce to enhance communication infrastructure. Efforts are being made to fully deploy gigabit optical networks and accelerate the construction of 10G-PON optical line terminal (OLT) equipment, enabling widespread access to gigabit capability for household users and 10G capability for large enterprises and organisations. Continual optimisation of core networks, transmission networks, and access networks is taking place. Upgrades and renovations are being carried out for facilities such as data centres, cloud platforms, and user terminals. Establishing and utilising the Nanchang national-level backbone direct connection point and the dedicated international internet data channels for Shangrao and Jiujiang are being prioritised.

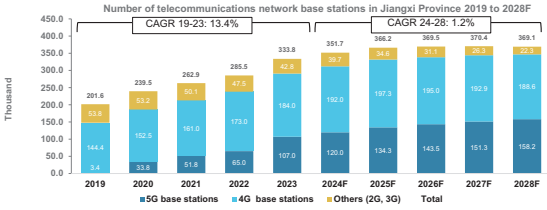
- As the urbanisation rate of Jiangxi Province is approximately 63.1% in 2023 and is lower than the national average of approximately 66.2%, it is expected that the provincial government will continue to accelerate urbanisation policies in Jiangxi Province and result in a higher growth in investment in infrastructure construction, fixed broadband subscribers and mobile phone subscribers in comparison to the national average.

Number of telecommunications network base stations in the PRC and Jiangxi Province

The base station is a fixed transceiver station serving as a central connection point for a wireless device to communicate in a telecommunications network, which is a critical component of a public mobile network that allows telecommunications network providers to deliver continuous telecommunications services to the public. With the deployment of 5G technology, the variety and amount of mobile traffic will increase substantially, and the number of base stations is expected to expand to meet the increased demand. The number of telecommunications network base stations typically reflects the level of investment in mobile telecommunications infrastructure. The following charts set out the number of telecommunications network base stations in the PRC and Jiangxi Province:



Sources: MIIT; Ipsos research and analysis



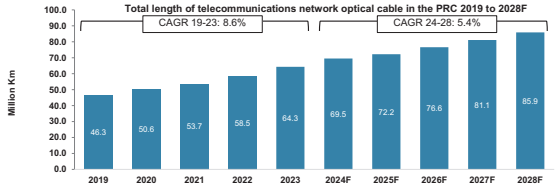
Sources: MIIT; Jiangxi Provincial Statistic Bureau; Ipsos research and analysis

The number of base stations in the PRC grew from approximately 8.4 million in 2019 to approximately 11.7 million in 2023, at a CAGR of approximately 8.5%. The growth is mainly attributed to the expansion of both 4G and 5G network services. The number of 5G base stations is estimated to reach about 6.9 million in 2028, at a CAGR of approximately 15.0% from 2024 to 2028. The 14th Five-year Plan Information and Communication Industry Development Plan (“十四五”信息通信行業發展規劃) sets the penetration target to build 26 5G base stations for every ten thousands people in 2025.

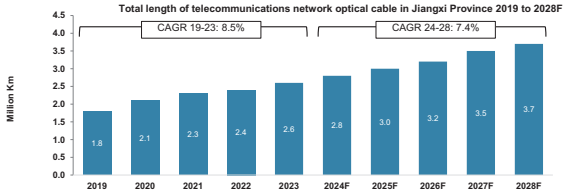
The number of base stations in Jiangxi Province increased from approximately 201.6 thousand in 2019 to approximately 333.8 thousand in 2023, at a CAGR of approximately 13.4%. The sustained growth in base stations is mainly attributed to the 5G telecommunications network development, as new base stations are needed for 5G to penetrate into rural areas. The number of base stations in Jiangxi Province is estimated to increase from approximately 351.7 thousands in 2024 to approximately 369.1 thousand in 2028, at a CAGR of approximately 1.2%, representing sustained growth in Jiangxi Province. The growth in the number of 5G base stations is offset by the retirement of the 2G and 3G base stations. The number of 5G stations is estimated to increase from approximately 120.0 thousands in 2024 to approximately 158.2 thousands in 2028, at a CAGR of approximately 7.2%. The steady growth is mainly driven by the local government's support in the 5G network infrastructure investment in Jiangxi Province. The 14th Five-year Information and Communication Industry Development Plan of Jiangxi Province (江西省“十四五”信息通信行業發展規劃) sets to build more than 100 thousands 5G base stations in Jiangxi Province by 2025, achieving 80% coverage of 5G networks in both urban and rural areas.

The total length of telecommunications network optical cable in the PRC

Optical cable is the core transmission media of the fixed line telecommunications network. The number of telecommunications network optical cable typically reflects the level of investment in fixed-line telecommunications infrastructure. The following charts set out the total length of telecommunications network optical cable in the PRC and Jiangxi Province from 2019 to 2028:



Sources: MIIT; Ipsos research and analysis



Sources: MIIT; Jiangxi Provincial Statistic Bureau; Ipsos research and analysis

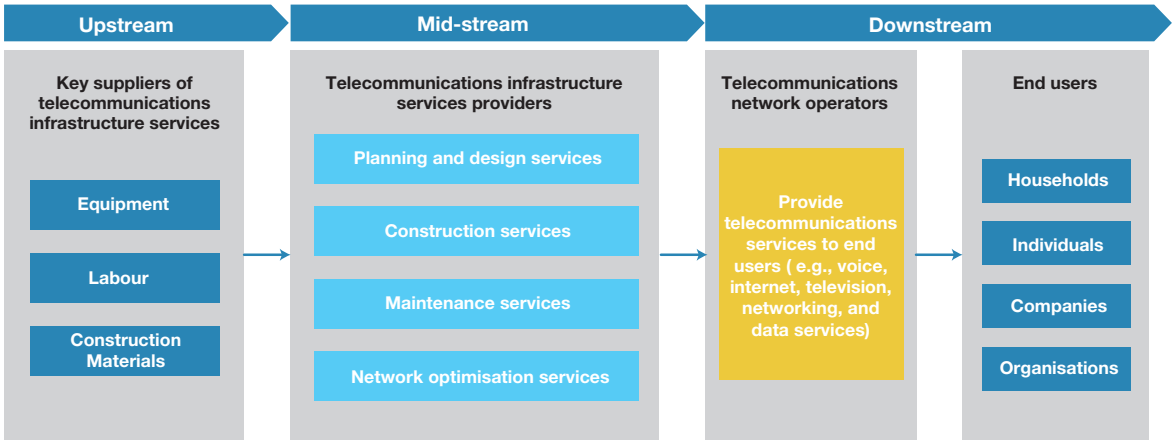
The length of overall telecommunications network optical cable in the PRC grew from approximately 46.3 million km in 2019 to approximately 64.3 million km in 2023, at a CAGR of approximately 8.6%. The constant growth of the telecommunications network optical cable is mainly credited to the Broadband China Strategy and Implementation Plan (「寬帶中國」戰略及實施方案) that sets to accelerate penetration of the high speed broadband services at internet speed of over 100Mbps and 1000Mbps. The length of the overall telecommunications network optical cable in PRC is expected to steadily increase from approximately 69.5 million km in 2024 to approximately 85.9 million km in 2028, at a CAGR of approximately 5.4%. The expected steady growth is mainly attributed to the prospective development of domestic telecommunications networks with the support from the national policy of the Notice on Accelerating the Construction of Broadband Frontiers (關於加快「寬帶邊疆」建設的通知), which is set to accelerate the development of both Fiber-to-the-home (FTTP) and 5G networks to enable the best network efficiency, and to upgrade the telecommunications infrastructure of public facilities in rural areas.

The length of overall telecommunications network optical cable network in Jiangxi Province surged from approximately 1.8 million km in 2019 to approximately 2.6 million km in 2023, at a CAGR of approximately 8.5%. The increase of the telecommunications network optical cable in Jiangxi Province is mainly due to the investment in telecommunications infrastructure, following the local government's action plan for the development of telecommunications infrastructures. The length of overall telecommunications network optical cable in Jiangxi Province is expected to increase from approximately 2.8 million km in 2024 to approximately 3.7 million km in 2028, at a CAGR of approximately 7.4%. The expected growth is mainly attributed to the local government's support of the 5G network development plan in Jiangxi Province in line with national policy to achieve comprehensive coverage of 5G networks in both urban and rural areas. The People's Government of Jiangxi Province issued the 14th Five-year Digital Economy Development Plan in Jiangxi Province (關於印發江西省"十四五"數字經濟發展規劃的通知), which proposes to continuously upgrade the digital infrastructure to accelerate the digital transformation of industries.

Value chain of the telecommunications infrastructure services industry

The PRC's telecommunications infrastructure services industry typically consists of key suppliers of telecommunications infrastructure services, telecommunications infrastructure services providers, telecommunications network operators, and end users.

Value chain of the telecommunications infrastructure services industry

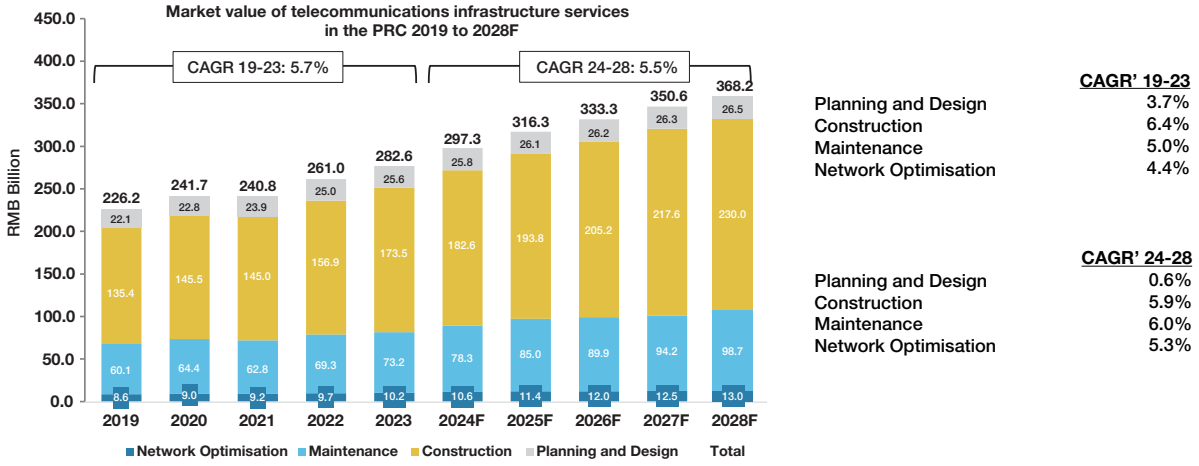


Source: Ipsos research and analysis

The telecommunications infrastructure services providers provide (i) planning and design services; (ii) infrastructure construction services; (iii) maintenance services and (iv) network optimisation. Companies in this industry may be either (i) companies focusing only one or two telecommunications infrastructure services; or (ii) companies providing a full range of services in relation to the telecommunications infrastructure services industry. Telecommunications infrastructure services providers usually award telecommunications infrastructure services projects from the Big Three and China Tower through tendering.

The market value of the telecommunications infrastructure services industry in the PRC

The following chart sets out the market value of the PRC's telecommunications infrastructure services industry:



	CAGR' 19-23
Planning and Design	3.7%
Construction	6.4%
Maintenance	5.0%
Network Optimisation	4.4%

	CAGR' 24-28
Planning and Design	0.6%
Construction	5.9%
Maintenance	6.0%
Network Optimisation	5.3%

Notes: The market size refers to the telecommunications infrastructure services provided to the Big Three and China Tower

Sources: Ipsos research and analysis

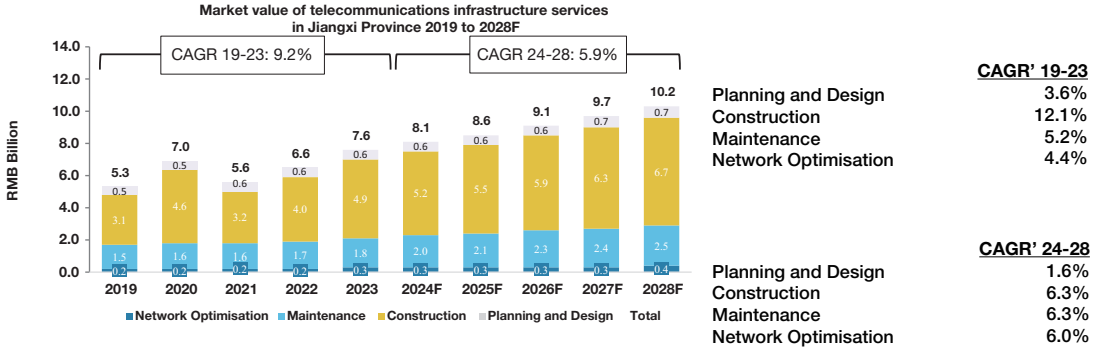
The overall market value of the telecommunications infrastructure services industry in the PRC grew from approximately RMB226.2 billion in 2019 to approximately RMB282.6 billion in 2023, at a CAGR of approximately 5.7%, led by the massive demand for 4G and 5G infrastructure construction services. The overall market value is estimated to grow from approximately RMB297.3 billion in 2024 to approximately RMB368.2 billion in 2028, at a CAGR of approximately 5.5%. Infrastructure construction services will continue to be the key driver of the market in the foreseeable future.

The market value of the telecommunications infrastructure construction services industry grew from approximately RMB135.4 billion in 2019 to approximately RMB173.5 billion in 2023, at a CAGR of approximately 6.4%. The increase in market value of telecommunications infrastructure construction was mainly attributed to the transformation and expansion of 4G and 5G networks as new base stations were required. The overall market value is estimated to grow from approximately RMB182.6 billion in 2024 to approximately RMB230.0 billion in 2028, at a CAGR of approximately 5.9%. The growth will be driven by investments in commercial applications of telecommunications technologies such as the Internet of things (IoT) and Internet Data Centre (IDC), etc.

The market value of the telecommunications infrastructure maintenance services is estimated to grow from approximately RMB78.3 billion in 2024 to approximately RMB98.7 billion in 2028, at a CAGR of approximately 6.0%. The demand for maintenance services is expected to increase due to the expansion of the network of telecommunications infrastructures including both 4G and 5G base stations.

The market value of the telecommunications infrastructure services industry in Jiangxi Province

The following chart sets out the market value of the telecommunications infrastructure services industry in Jiangxi Province:



	CAGR' 19-23
Planning and Design	3.6%
Construction	12.1%
Maintenance	5.2%
Network Optimisation	4.4%

	CAGR' 24-28
Planning and Design	1.6%
Construction	6.3%
Maintenance	6.3%
Network Optimisation	6.0%

Notes: The market size refers to the telecommunications infrastructure services provided to the Big Three and China Tower

Sources: MIIT; National Bureau of Statistics of China; Ipsos research and analysis

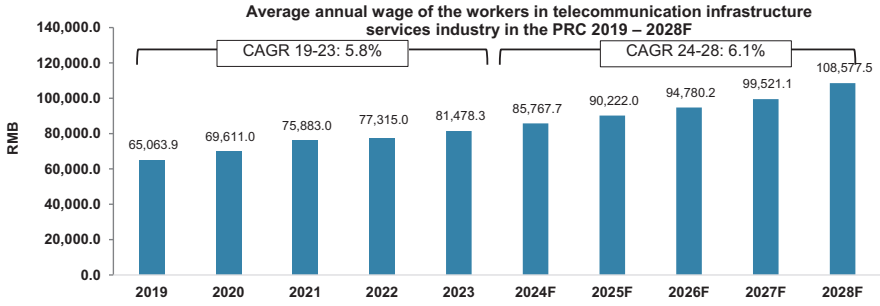
The overall market value of the telecommunications infrastructure services industry in Jiangxi Province grew from approximately RMB5.3 billion in 2019 to approximately RMB7.6 billion in 2023, at a CAGR of approximately 9.2%. The market value increased continuously, which was driven by massive construction of 4G and 5G basic infrastructures, such as base stations, telecommunications pipeline engineering, and other ancillary works that make the base stations work, following a similar developing trend to the PRC. The overall market value is estimated to grow from approximately RMB8.1 billion in 2024 to approximately RMB10.2 billion in 2028, at a CAGR of approximately 5.9%. The steady growth is expected to be driven by the continuous investment in construction of telecommunications infrastructure for commercial and governmental applications.

The market value of the telecommunications infrastructure construction services industry in Jiangxi Province grew from approximately RMB3.1 billion in 2019 to approximately RMB4.9 billion in 2023, at a CAGR of approximately 12.1%. The investments in Jiangxi Province peaked in 2020, the last year of the Three-year Action Plan for the Development of Telecommunications Infrastructures in Jiangxi Province (2018-2020)(江西省信息通信基礎設施建設三年攻堅行動計劃(2018-2020)). The overall market value of telecommunications infrastructure construction services in Jiangxi Province is estimated to grow from approximately RMB5.2 billion in 2024 to approximately RMB6.7 billion in 2028, at a CAGR of approximately 6.3%. Launched in 2022, the 14th Five-year Digital Economy Development Plan in Jiangxi Province(關於印發江西省"十四五"數字經濟發展規劃的通知), sets the development of the digital economy in 5G and IIoT, and proposes to upgrade the digital infrastructure to accelerate the digital transformation of industries.

The market value of the telecommunications network infrastructure maintenance services is estimated to grow from approximately RMB2.0 billion in 2024 to approximately RMB2.5 billion in 2028, at a CAGR of approximately 6.3%. The steady growth is expected to be driven by the expansion of the network of telecommunications infrastructures including both 4G and 5G base stations.

The average annual wage of the workers in the telecommunications infrastructure services industry in the PRC

Telecommunications infrastructure services generally involves labour intensive works, therefore wage of workers is the major cost for providing such services. The following chart sets out the average annual wage of the workers in the telecommunications infrastructure services industry in the PRC:



Sources: IMF; China yearbooks; Ipsos research and analysis

The average annual wage of the workers in the telecommunications infrastructure services industry grew at a CAGR of approximately 5.8% from 2019 to 2023. The growth is mainly attributed to the rapid transformation of the telecommunications network from 3G to 4G or from 4G to 5G, resulting in the surging demand for skilled telecommunications labour. It is forecasted that the average annual wage of workers is expected to grow at a CAGR of approximately 6.1% from 2024 to 2028 owing to the continuous demand for experienced workers for construction of telecommunications infrastructure.

COMPETITIVE LANDSCAPE OF THE TELECOMMUNICATIONS INFRASTRUCTURE SERVICES INDUSTRY IN THE PRC AND JIANGXI PROVINCE

The telecommunications infrastructure services industry in the PRC is highly fragmented with low concentration. In 2023, there were approximately 6,004 companies in the PRC certified with Communications Project Implementation General Contracting Enterprises Qualification (通信工程施工總承包資質) Class 1, Class 2, or Class 3. 366 companies or approximately 6.1% of which were certified with the Class 1 qualification. Class 1 enterprises are eligible to undertake all scale of telecommunications infrastructure projects, Class 2 enterprises are eligible to undertake telecommunications infrastructure projects with a contract value of RMB20 million or below, and Class 3 enterprises are eligible to undertake telecommunications infrastructure projects with a contract value of RMB5 million or below.

The following table sets out the leading telecommunications infrastructure construction and maintenance services companies in the PRC by revenue in 2023:

Rank	Company	Company description	Company listed	Estimated revenues in 2023	Market share
				(RMB Billion)	
1	Company A	The company mainly engages in providing telecommunications infrastructure construction and maintenance services.	Yes	51.4	20.8%
2	Company B	Established in 2003, the company mainly engages in telecommunications infrastructure construction services. The company is now a wholly-owned subsidiary of a leading telecommunication network operator.	Yes	17.6	7.1%
3	Company C	The company mainly focuses on providing telecommunications infrastructure construction and maintenance services.	Yes	3.9	1.6%
4	Company D	The company mainly manufacture telecommunications equipment and engages in telecommunications infrastructure construction and maintenance services.	Yes	3.3	1.3%
5	Company E	The company mainly engages in telecommunications infrastructure construction and maintenance services.	Yes	2.1	0.9%
	Others			168.4	68.3%
		Total		**246.7**	**100.0%**

Notes:

1. The revenue refers to the telecommunications infrastructure services provided to the Big Three and the world's largest telecommunications tower infrastructure service provider.

2. The revenue figures refer to revenue generated by offering telecommunications infrastructure construction and maintenance services. Thus, the revenue figures shown above are different from the figures disclosed in the respective companies' annual report.

3. Percentage/figure may not add up to 100%/amount due to rounding.

Source: Annual reports of listed companies; Ipsos research and analysis

In 2023, there were approximately 246 companies certified with Class 1, Class 2, or Class 3 qualifications that had won at least one telecommunications infrastructure project in Jiangxi Province. Among these companies, approximately 12 active players certified with Class 1 qualification had secured construction and maintenance projects in Jiangxi Province with an aggregate contract value of more than approximately RMB20 million in 2022 and 2023. Additionally, approximately 5 active players certified with Class 1 qualification had secured construction and maintenance projects in Jiangxi Province with an aggregate contract value of more than approximately RMB50 million in 2022 and 2023.

The following table sets out the leading telecommunications infrastructure construction and maintenance services companies in Jiangxi Province by revenue in 2023. The Group ranked the third with revenue of RMB209.1 million derived from the Telecommunications Infrastructure Services business segment for projects located in Jiangxi Province in 2023, representing a market share of 3.1%.

Rank	Company	Company description	Company listed	Estimated revenues in 2023	Market share
				(RMB Million)	
1	Company F.	The company engages in providing telecommunications infrastructure construction and maintenance services. The company is now a wholly-owned subsidiary of a leading telecommunications infrastructure construction and maintenance services provider.	Yes	862.2	12.9%
2	Company G	Established in 2003, the company mainly engages in telecommunications infrastructure construction services. The company is now a wholly-owned subsidiary of a leading telecommunication network operator.	Yes	801.6	11.9%
3	The Group	Established in 2002, the company focuses on providing telecommunications infrastructure construction and maintenance services.	No	209.1	3.1%
4	Company H	The company engages in providing telecommunications infrastructure construction and maintenance services. The company is now a wholly-owned subsidiary of a leading telecommunications infrastructure construction and maintenance services provider.	Yes	199.4	3.0%
5	Company I	The company mainly engages in providing telecommunications network infrastructure construction services. The company is now a wholly-owned subsidiary of a leading telecommunications infrastructure construction and maintenance services provider.	Yes	170.3	2.5%
	Others			4,466.6	66.6%
		Total		**6,709.2**	**100.0%**

Notes:

1. The revenue refers to the telecommunications infrastructure services provided to the Big Three and the world's largest telecommunications tower infrastructure service provider.

2. The revenue figures refer to revenue generated by offering telecommunications infrastructure construction and maintenance services. Thus, the revenue figures shown above are different from the figures disclosed in the respective companies' annual report.

3. Percentage/figure may not add up to 100%/amount due to rounding.

Source: Ipsos research and analysis

Factors of competition

- **Proven track record of projects**: Past project experience proves how a company can manage and execute the project under different scenarios in different geographical locations. Companies are required to list their project experiences in the designated provinces in the tender documents to demonstrate capabilities to manage projects in specific provinces. During the bid evaluation process for major telecom infrastructure construction projects offered by the Big Three, the past performance of telecommunications infrastructure services providers plays a crucial role. It accounts for 20% of the score used to evaluate the bids. This assessment is based on the telecommunications infrastructure services providers' track record and performance in previous projects, underscoring the importance of a strong and proven history in successfully securing contracts.

Market drivers and opportunities

- **Urbanisation and rural development**: Urbanisation helps to spur growth and demand for telecommunications infrastructure, as the number of potential users would increase over time. The national policy such as the 14th Five-year Plan Information and Communication Industry Development Plan（"十四五"信息通信行業發展規劃） and provincial policies such as Notice on Advancing the Systematic Development of New Information Infrastructure in Jiangxi Province（關於推進新型信息基礎設施體系化發展的通知）set a roadmap for the penetration of 5G network as well as 1,000M FTTH in urban and rural areas in the PRC and Jiangxi Province.

- **5G application and 5G Industrial Internet of Things (IIoT)**: The national policy has planned to develop new digital infrastructures with the integration of 5G, AI, IoT, cloud computing and big data, turning the traditional industry into an entire digitalised economy. The telecommunications network operators work closely with large and small enterprises to launch pilot IIoT cases in different industries, particularly in digital industrial management. As the close partnership working with telecommunications network operators, telecommunications infrastructure services providers can take part in IIoT projects, including projects that request the infrastructures construction.

Entry barriers

- **High capital requirements**: The execution of an infrastructure construction project typically involves significant amounts of resources and costs, including the machinery, tools, equipment and workforce necessary for the successful completion of a project. In addition, customers will typically pay after the work has been verified for quality. Companies must maintain a strong cash flow and financing capacity to maintain liquidity of business operations because the customer payment cycle could be long. Besides operating cash flow, new entrants must meet the net assets pre-requisite to qualify for the licenses. For example, the net asset capital requirement for the first tier Communications Project Implementation General Contracting Enterprises Qualification（通信工程總承包一級資質）is RMB80 million.

- **Track record of past project experience**: The lack of sufficient past project experience is a barrier to new entrants since past project experience is one of the key bidding evaluation criteria to demonstrate a company's capability to complete a project of a similar type. Existing players in the industry have accumulated a high number of successful projects with excellent proven records.

- **License**: Licenses are the prerequisites for a company to participate in the project bidding from the Big Three. It is challenging for new entrants to meet all licensing requirements, as licensing is strictly controlled by responding departments under the evaluation of the business operation, technology standard, net asset, and past project experience.

Threats and challenges

- **Increasing labour cost**: The average annual wage of the workers in the telecommunications infrastructure services industry in the PRC grew from approximately RMB65,063.9 in 2019 to approximately RMB81,478.3 in 2023, at a CAGR of approximately 5.8%. The upward trend reflects the continuous demand for a skilled labour force, especially in some provinces that are short of labour, resulting in a lower profitability of telecommunications infrastructure services providers.

- **The potential reduction of expenditure on 5G infrastructure**: The Big Three may slow down investments in 5G base stations after achieving a high penetration of 5G network and shift the investments to 5G applications and development of digital economy. For example, China Mobile expects total capital expenditure of RMB183.2 billion in 2023, of which 5G-related capital expenditure will be approximately RMB83.0 billion.

OVERVIEW OF DIGITALISATION SOLUTION SERVICES INDUSTRY IN THE PRC AND JIANGXI PROVINCE

The PRC government has been actively promoting the development of smart cities in the recent decade. In 2012, the Ministry of Housing and Urban-Rural Development issued the Interim Management Measures Management Guideline for Pilot National Smart City（國家智慧城市試點暫行管理辦法）to encourage the development of the smart cities. Together with the Guideline for Healthy Development of Smart Cities（關於促進智慧城市健康發展的指導意見）issued by the National Development and Reform Commission (NDRC) in 2014. Smart city is defined as the use of data and technology in upgrading infrastructure that brings more efficient life to people.

Digitalisation solution services refer to the turnkey solution from planning, developing, installing, and optimising the hardware and software that integrates physical infrastructure, information infrastructure, social infrastructure, and commercial infrastructure, encompassing an area's population, transportation assets, energy resources, commercial activity, and communications. This involves the application of traditional technologies including digitalisation, information and communication technology (ICT) to design system that connects different infrastructures for collection of data and operation of infrastructure, as well as the use of advanced technologies such as the Internet of Things (IoT), cloud computing, and Artificial Intelligence (AI) for real-time data collection, real-time incident response, rapid analytics and automated decision making.

INDUSTRY OVERVIEW

The concept of digitalisation solution services refers to an integration of physical infrastructure, information infrastructure, social infrastructure, and commercial infrastructure, encompassing an area's population, transportation assets, energy resources, commercial activity, and communications with the use of information and communication technology (ICT) as well as the advanced technologies such as the Internet of Things (IoT), cloud computing, and Artificial Intelligence (AI) for decision making optimisation. Digitalisation applications can generally be categorised into the following scenarios:

Industry vertical digitalisation applications	Examples
Digital urban management	Digital city governance, digital public facilities management, automated energy control, traffic management, etc.
Digital industrial management	Automated manufacturing, predictive maintenance and AI robotics, etc.
Digital healthcare	Digital appointment, electronic health record, digitalisation in hospitals, AI diagnosis and remote diagnosis, etc.
Digital government	Digital appointments of public services, digital payment, and digitalisation of administration process, etc.
Digital grain depot	Unattended monitoring of grain depot including energy management, environmental controls and security systems etc.
Digital education	Remote learning, machine learning-powered personalised learning, classroom management, school safety management
Digital management	Digital staff management, digital and automated supply chain management, advanced operation analytics and management
Digital surveillance	Surveillance system with advanced analytics for crime prevention, accident prevention and traffic management, etc.
Digital finance	Cloud-based audit, digital banking, fraud detection with big data analytics, customer services with AI chatbot, insurance underwriting with machine learning, etc.
Digital telecommunications construction	Digital procurement, supply chain management, digital project and budget management, equipment damage detection, etc.

AI technology in digitalisation solution services

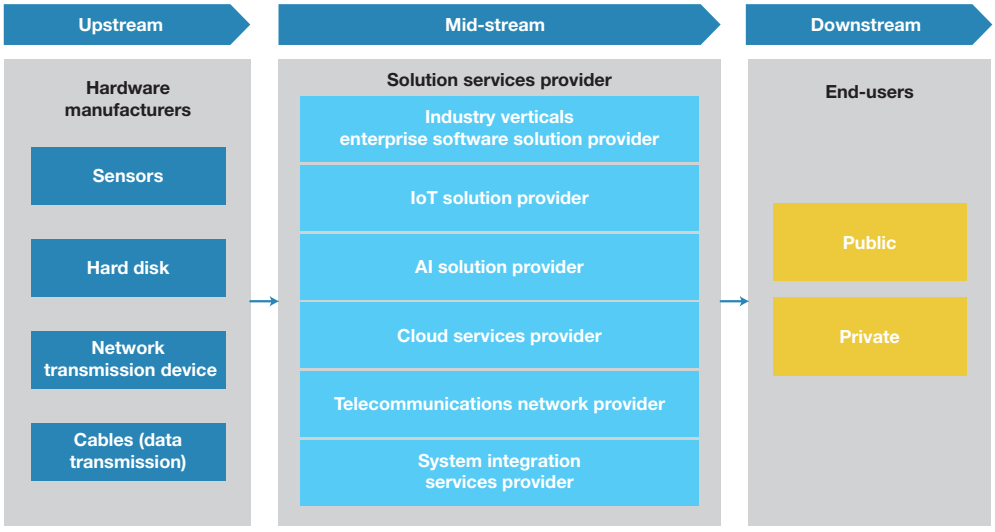
AI technology can be broadly categorised into "discriminative AI" and "generative AI". Discriminative AI is a type of AI model which mainly focuses on data classification and statistical analysis based on given parameters or examples. Generative AI is a more advanced form of AI model which is to create new data and content that the model has been trained on, and provide a window into the intricate structures within the data, allowing for creative data generation and synthesis.

Discriminative AI models are widely adopted in digitalisation solutions and used in tasks such as image recognition, language processing, fraud detection, automation, prediction and recommendation systems. As opposed to the advanced forms of AI (such as generative AI), discriminative AI is a more basic form of AI which simply analyses the patterns or features in the input data with relatively higher reliability and accuracy.

Value chain

The industry value chain for the digitalisation solution services industry in the PRC and Jiangxi Province typically consists of hardware manufacturers, solution services providers and end-users.

Value chain of the digitalisation solution services industry



Source: Ipsos research and analysis

INDUSTRY OVERVIEW

Digitalisation solution services providers provide turnkey solutions for clients by integrating hardware and software solution. The process involves site planning, customised software system design, hardware and software installation, solution system testing and maintenance. Solution services providers are further categorised according to the core capability of the services providers:

- Industry verticals enterprise software solution providers provide industry-specific digital solutions to assist end users in managing different management issues such as information management, data analysis and customer services.

- IoT solution providers develop the solution platform that connects the devices with other devices and systems for the exchange of data and remote control. Similar to AI solution providers, IoT solution providers develop industry specific digitalisation applications.

- AI solution providers adopt deep learning frameworks to simulate human thought and develop solutions for different industry verticals to assist and optimise decision-making.

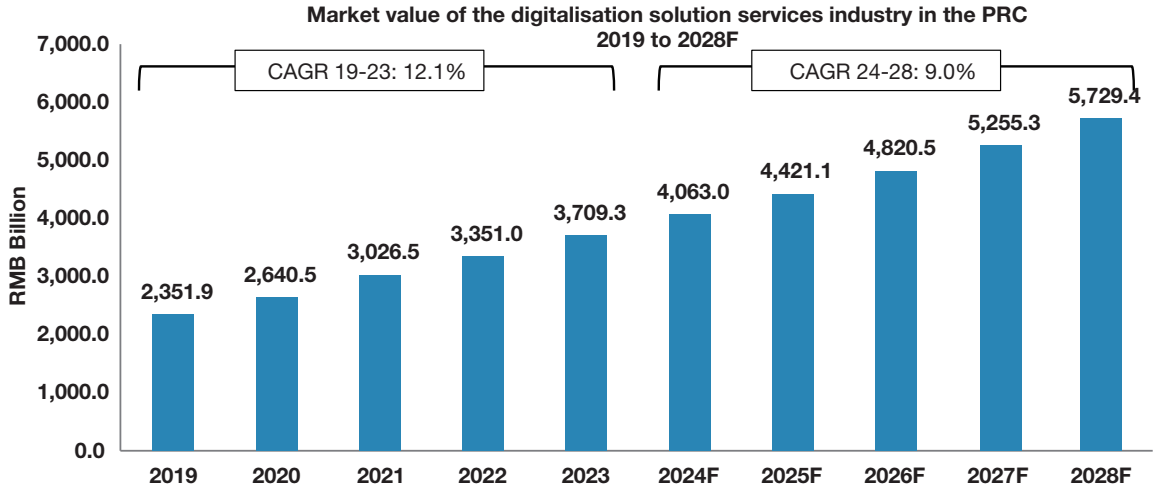
- Cloud services providers provide the digital storage and analysis system for data. Cloud technology enables convenient, on-demand network access to a shared pool of configurable computing resources, such as networks, servers, storage, applications, and services.

- Telecommunications network provider refers to the Big Three that provides telecommunications network services to support data transmission.

- System integration services providers provide digitalisation turnkey solutions without owning any proprietary solutions, cloud services and telecommunications. Often they are commissioned or subcontracted by other solution services providers to implement the solution. Their main solutions include site planning, designing a customised software architecture or application, installing of hardware and software, and testing and optimising the systems.

The market value of the digitalisation solution services industry in the PRC and Jiangxi Province

The following chart sets out the market value of the digitalisation solution services industry in the PRC:

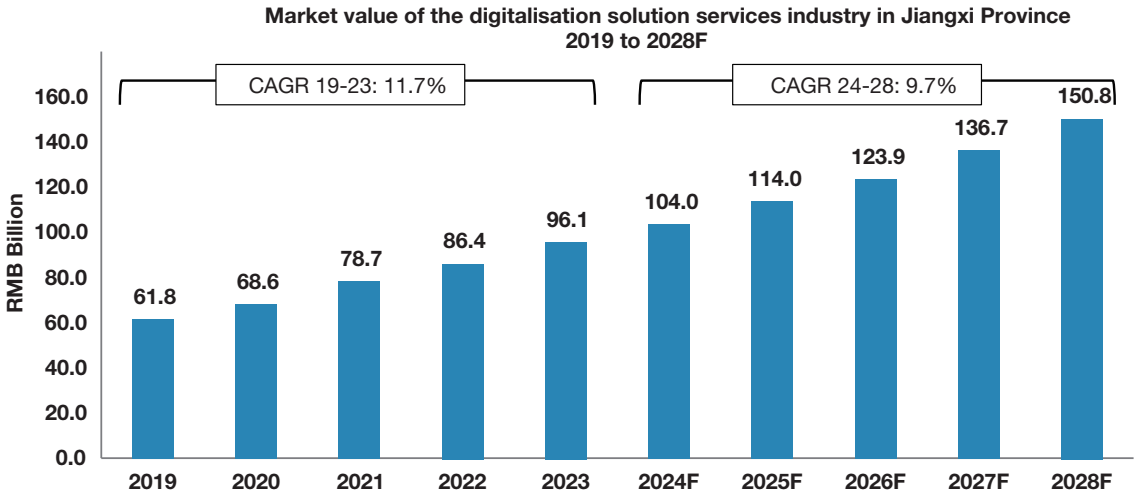


Notes: The above market value includes digitalisation solution services of digital urban management, digital industrial management, digital healthcare, digital government, digital grain depot, digital management, digital surveillance, digital finance, digital telecommunications construction and digital education

Sources: Ipsos research and analysis

The market value of the digitalisation solution services industry in the PRC grew from approximately RMB2,351.9 billion in 2019 to approximately RMB3,709.3 billion in 2023, at a CAGR of approximately 12.1%. Various urban infrastructure digitalisation projects have been launched for city governance, for example, the "Safe and Smart Community" project in Wuhan, leveraged IoT and AI technology to collect real-time data on access control systems, and water pressure, etc., to automate and actively control security in the community. The market value of the digitalisation industry in the PRC is estimated to grow from approximately RMB4,064.0 billion in 2024 to approximately RMB5,729.4 billion in 2028, at a CAGR of approximately 9.0%. The 14th Five-year Plan for National Informatisation（"十四五"國家信息化規劃） aims to accelerate the development of city infrastructure digitalisation applications such as public transport, healthcare, and education by 2025.

The following chart sets out the market value of the digitalisation solution services industry in Jiangxi Province:



Notes: *The above market value includes digitalisation solution services of digital urban management, digital industrial management, digital healthcare, digital government, digital grain depot, digital management, digital surveillance, digital finance, digital telecommunications construction and digital education*

Sources: Ipsos research and analysis

The digitalisation solution services industry in Jiangxi Province has experienced significant growth, with its market value increasing from approximately RMB61.8 billion in 2019 to approximately RMB96.1 billion in 2023, representing a CAGR of approximately 11.7%. It is expected that the market will continue to expand from approximately RMB104.0 billion in 2024 to approximately RMB150.8 billion in 2028, at a CAGR of approximately 9.7%. To drive the development of the digital economy, Jiangxi Province has issued the Three-Year Digital Economy Development Plan (2020-2022)(數字經濟發展三年行動計劃(2020-2022年)). This policy emphasises the enhancement of Jiangxi Province's position as a digital economy hub. The provincial government has actively sought to attract technology talents who can contribute to the advancement of industrial digitalisation in Jiangxi Province. Furthermore, the integration of government and company surveillance data is encouraged, with the aim of establishing a comprehensive data platform in the province. IoT plays a crucial role in digitalisation, and the development plan set to accelerate the IoT application on urban management, industrial management and tourism. Investments have been directed towards promoting AI products and supporting Nanchang as the primary city for the IoT industry. These factors collectively contribute to the growth of the digitalisation solution services industry in Jiangxi Province.

COMPETITIVE ANALYSIS OF THE DIGITALISATION SOLUTION SERVICES INDUSTRY IN THE PRC AND JIANGXI PROVINCE

Industry structure

It is estimated that there are more than 21,500 digitalisation solution services providers in the PRC. It is estimated that the Group's market share in the digitalisation solution services industry in Jiangxi Province in 2023 is approximately 0.11% and in the PRC is approximately 0.003%. The Group's market share in the digitalisation solution services industry in both the PRC and Jiangxi Province is comparatively insignificant. Considering the emerging demand of digitalisation for smart cities development in the PRC, a growing number of upstream companies tend to diversify their revenue by offering turnkey services on top of provision of hardware. The industry is also highly fragmented, with top players dominating in different provinces. Companies have their geographical focus, which they diversify their business in various provinces to provide localised aftersales services.

Key factors of competition

R&D capability with constant innovation: The market demand for digitalisation solution services has been rising. Companies in the digitalisation solution services industry differentiate themselves from competitors in the following two ways. Industry players must recruit and retain technical talents capable of innovating and developing new digitalisation solutions that meet evolving needs of end-users. In addition, as technology in the digitalisation solution industry is constantly evolving, industry players need to keep track of the latest trends and developments of advanced technologies and adopt them quickly to stand out from competitors.

Value-added services: On top of providing innovative solutions, value-added services such as maintenance and technical support services, and 24/7 after-sales support services can be decisive factors for end-users in the selection of digitalisation solutions providers. For instance, companies that can offer immediate support to fix malfunctioning solutions or software bugs would prevent the loss of important end-users information. Such value-added services would increase customers' loyalty to the company.

Key drivers and opportunities

Growing urbanisation rate: The PRC government implemented urbanisation policies which created a great initiative for digitalisation solution providers to expand their businesses and fostered the growth of the digitalisation solution services industry. In 2022, The NDRC issued the Key Tasks in New style Urbanisation and Integrated Urban rural Development（新型城鎮化和城鄉融合發展重點任務）to drive the expansion of digitalised infrastructure into rural areas.

Policies on smart city development: The China's 14th Five-Year Plan (2021-2025)（"十四五"規劃（2021-2025））placed its focus on building China into a self-reliant technological powerhouse that bolstered the development of the digitalisation solution services industry. Two of the main goals of the 14th Five-Year Plan focus on supporting the R&D of midstream manufacturers and the development of smart cities, smart communities and smart homes. The plan has also put forward higher standards for digitalisation solutions. China continued its existing 75% R&D expense deduction policy for enterprise income tax. The policy has been beneficial for IT industries and offered a 100% expense deduction for R&D manufacturing companies. The policies drove digitalisation solution services companies such as AI, IoT and big data companies to increase their R&D expenses and thus innovate digitalisation solutions.

In 2022, Jiangxi issued the 14th Five-year Digital Economy Development Plan in Jiangxi Province(關於印發江西省「十四五」數字經濟發展規劃的通知). The plan is set to continuously upgrade the digital infrastructure to accelerate the digital transformation of different industries in Jiangxi Province.

Threats and challenges

Uncertain AI accuracy: Despite recent investments put into AI development and its applications in digitalisation solutions, industry players raise concerns about the accuracy fallacy of AI technology. Although the accuracy rate of discriminate AI is normally 80%, AI algorithms might not be sophisticated to the extent of ensuring 100% accuracy in identifying critical transportation accidents or criminals. There might be underreporting risks in delivering promises to the end-users such as the government and police. Some end-users tend to seek an optimised accuracy of AI and currently might not have confidence in implementing AI-driven digitalisation solutions on a full scale.

Competitions from upstream manufacturers: Given that the demand for turnkey digitalisation solutions has been surging recently, upstream manufacturers such as Huawei extend their operations by not only manufacturing basic hardware components but also providing system integration and maintenance services. They aim to achieve economies of scale and diversify their revenue stream. They might shrink the available customer base and hence decrease the market share of existing solutions services providers.

Entry barriers

High cost of investment: Since technology is constantly evolving, high capital investment is required for enhancing technologies, developing innovative solutions, training IT talents and obtaining intellectual property. New entrants or start-ups need to invest a large amount of capital to invent leading solutions so that they can compete with competitors who have gained a certain market share in the digitalisation solution services industry.

In some of the digitalisation solution services projects, system integration services providers are also required to source and purchase the hardware equipment without advance payment from the customers. Cash flow requirements is high for companies in the industry to operate the business and ensure completion of the project.

Talent competition: The success of innovative digitalisation solutions highly relies on the technical talents to conduct research and develop new solutions that meet end-users' needs. It is important for these IT professionals to develop innovative solutions to meet the three to five years product lifecycle. Not only do they need to equip with theoretical knowledge of technologies like AI, IoT and 5G, but they also need to have gained rich working experience in the industry. Due to the competitive remuneration and reputation of scalable industry players, most of the top professionals devote their efforts to these existing industry players. It is challenging for new entrants to acquire top talents and form their R&D teams in the short term.