China's Service Sector and the 14th FYP: Trends, Breakthroughs and Policy Outlook

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Abstract: *China's service sector has developed a lot in the 13th Five-Year Plan period, and is positioned to upgrade on all fronts in the new era. In the 14th Five-Year Plan period, China's service sector boasts huge potentials and is expected to maintain steady growth. By 2025, the service sector is expected to account for 59.05% of total value added, 54.96% of employment, 60.51% of fixed asset investment, and 50.04% of consumption. Service labor productivity will rise from 143,400 yuan/person in 2019 to 178,400 yuan/person by 2025. It can thus be concluded that in the 14th Five-Year Plan period, China's service sector will play a dominant role in the economy and head toward higher quality development. To achieve this goal, we must allow for the decisive role of the market and the fundamental role of the government, and open up new prospects in development of the service sector with respect to digilitalization, platform-based operations, smart technology, integration, and standardization.*

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The service-based economy represents a basic trend in economic and social development across the world. Since reform and opening-up in 1978 and the entry to the WTO in 2001, China's service sector potentials have been unleashed as a result of industrial development, urbanization, globalization and technological advances, generating an increasingly service-based economy. Based on the performance of the service sector in the 13th Five-Year Plan period (2016-2020), this paper estimates the key indicators of the development of China's service sector in the 14th Five-Year Plan period (2021-2025) and identifies the pattern, key drivers and policy approach that should be adopted in order for the service sector to develop with high quality in the 14th Five-Year Plan period.

1. Service Sector in the 13th FYP: A New Stage of All-around Upgrade

2020 is the final year for China's 13th Five-Year Plan. There has been great public interest this year in China's fulfillment of various social and economic development indicators and the goal of building a moderately prosperous society in all respects. The service sector, which now accounts for half of China's

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Table 1: Size of the Primary, Secondary and Tertiary Industries and Their Share in the GDP (2016-2019) (100 million yuan, %)

Year	Primary industry	Secondary industry	Tertiary industry	GDP	Ratio of primary, secondary and tertiary industries
2016	63,671	296,236	384,221	744,127	8.6:39.8:51.6
2017	65,468	334,623	427,032	827,122	7.9:40.5:51.6
2018	64,734	366,001	469,575	900,309	7.2:40.7:52.2
2019	70,467	386,165	534,233	990,865	7.1:39.0:53.9

Source: Based on the *Statistical Communique of the People's Republic of China on National Economic and Social Development* for various years.

economy, has come into the spotlight. So far in the 13th FYP, the development of China's service sector has been encouraging. The expanding service sector has created more jobs, made more innovations, and delivered better quality service than ever before, positioning it for a new stage of all-around service sector development.

1.1 The Service Sector Contributes a Rising, Increasingly Dominant Share to China's Economic Growth

According to the preliminary national economic accounting for 2019 released by the National Bureau of Statistics (NBS) in January 2020, China's gross domestic product (GDP) stood at 99.0865 trillion yuan (14.4 trillion US dollars) in 2019, up 6.1% YoY, and its per capita GDP surpassed 10,000 US dollars for the first time. The primary, secondary and tertiary industries saw their value-added reach 7,046.7 billion yuan, 38,616.5 billion yuan and 53,423.3 billion yuan, up 3.1%, 5.7% and 6.9%, respectively. The tertiary industry recorded the fastest growth, above that of the primary industry, the secondary industry, and the overall GDP. For the whole of 2019, the tertiary industry accounted for 53.9% of China's GDP, contributing 59.4% to GDP growth. This is a significant improvement over 2016, the first year of the 13th Five-Year Plan period. In 2016, the ratio of primary, secondary and tertiary industries was 8.6:39.8:51.6, but in 2019, it was 7.1:39.0:53.9. The primary and secondary industries dropped by 1.5 and 0.8 percentage points, respectively, while the tertiary industry grew by 2.3 percentage points (see Table 1). In 2015, for the first time, the value-added of China's service sector was greater than half of the GDP, reaching 50.5%. Over the past few years, this percentage has been rising steadily, reaching nearly 54%. As can be seen, the service sector is playing an increasingly dominant role in China's economy.

1.2 The Service Sector Has Become a Major Source of Jobs with a Rising Share of Employment

In 2018, China's service sector comprised 46.3% of the total employment, up 2.8 percentage points from 43.5% in 2016, which is significantly higher than the growth rate of the sector's share in value-added (see Table 2 and Table 1). Employment is the most important issue concerning people's livelihood. Yet the economic downturn and COVID-19 have made jobs scarcer. In this context, employment tops the policy agenda to "bring stability to jobs, finance, trade, foreign investment, domestic investment, and market expectations." Judging by international experience, the service sector offers the greatest potential. In the advanced economies of Europe and North America, the service sector provides some 75% of jobs. As technology advances and industrial structure shifts, the service sector is expected to play a more dominant role in creating jobs.

Table 2: Total Employment and Percentage of Primary, Secondary and Tertiary Industries (2016-2018) (10,000 persons, %)

Year	Total employment	Employment in primary industry	Employment in secondary industry	Employment in tertiary industry	Share of tertiary industry in total employment
2016	77,603	21,496	22,349	33,758	27.7:28.8:43.5
2017	77,640	21,661	21,817	34,162	27.9:28.1:44.9
2018	77,586	20,250	21,414	35,922	26.1:27.6:46.3

Source: Based on the *China Statistical Yearbook* for various years.

Table 3: Fixed Asset Estimates of Primary, Secondary and Tertiary Industries (100 million yuan, %)

Year	Total fixed asset investment in primary industry	Total fixed asset investment in secondary industry	Total fixed asset investment in tertiary industry	Aggregate fixed asset investment in the economy (excluding farming households)	Percentages of primary, secondary and tertiary industries in total fixed asset investment
2016	18,838	231,826	345,837	596,501	3.2:38.7:58.1
2017	20,892	235,751	375,040	631,684	3.3:37.3:59.4
2018	22,413	237,899	375,324	635,636	3.5:37.4:59.0
2019	12,633	163,070	375,775	551,478	2.3:29.6:68.1

Source: Based on the *Statistical Communique of the People's Republic of China on National Economic and Social Development* for various years.

1.3 Fixed Asset Investment Grew Rapidly in the Service Sector

In the 13th Five-Year Plan period, China's service sector investment as a share of fixed asset investment was much higher than that of the primary and secondary industries. For most years, the service sector received more than 59% of total fixed asset investment in China (see Table 3). Although growth in fixed asset investment was outstripped by growth in consumption, the service sector saw a steep rise in investment with an improving investment structure. Amid sluggish fixed asset investment in 2019, the high-technology service sector saw a 16.5% increase in investment. Education, culture, sports and entertainment businesses all recorded investment growth rates above 13.9%.

1.4 Service Consumption Is Becoming the Most Vibrant Sector of Consumption for Urban and Rural Households

Investment, consumption and net export are the three drivers of economic growth. In the 13th Five-Year Plan period, relatively lethargic investment and the backlash against globalization in world trade meant that China was more dependent on domestic consumption to spur growth. In this period, China's growth in consumption was greater than its GDP growth, and was an important factor driving economic growth. From 2016 to 2019, consumption contributed 64.6%, 58.8%, 76.2% and 57.8%, respectively, to the GDP. Despite some volatility, consumption contributed a far greater share to China's GDP growth than investment and net export, which is partly attributable to investment volatility and trade spats. The most important factor in this growth is the rapid growth of urban and rural household disposable incomes and spending above GDP growth in the 13th Five-Year Plan period (see Table 4).

Table 4: Per Capita Household Disposable Income, Per Capita Household Consumption Spending and Share of Service Consumption (2016-2019) (yuan, %)

Year	GDP growth rate (%)	National household per capita disposable income (yuan)	Household per capita disposable income growth (%)	Household per capita consumption spending (yuan)	Household per capita consumption spending growth (%)	Share of service consumption (%)
2016	6.7	23,821.0	8.44	17,110.7	8.89	41.0
2017	6.9	25,974.0	9.00	18,322.0	7.10	41.4
2018	6.6	28,228.0	8.70	19,853.0	8.40	44.0
2019	6.1	30,733.0	8.90	21,559.0	8.60	45.9

Source: Based on the *China Statistical Yearbook* and *Statistical Communique of the People's Republic of China on National Economic and Social Development* for various years.

Consumption is quickly becoming a key driver of China's economy. Increased consumption upgrade among Chinese urban and rural households is the result of quality-oriented economic development, rising household incomes, and technological advances. The increasingly larger share of service consumption is among myriad manifestations of consumption upgrade.[1] According to the *Statistical Communique of the People's Republic of China on Economic and Social Development (2016-2019)*, from 2016 to 2019, service consumption represented 41.0%, 41.4%, 44.0% and 45.9%, respectively, of China's per capita household consumption spending, up 4.9 percentage points in four years (see Table 4). Services led by culture, entertainment, leisure, tourism, healthcare, elderly care, sports and child education industries have emerged as the most vibrant consumption sectors among urban and rural residents.

1.5 Innovations Led to New Service Sectors and New Business Formats

Innovations provide a new driver for service sector development. New service sectors and business formats have stimulated both supply and demand, underpinning service sector growth. At the most fundamental level, service innovations are driven by technological advances. New-generation information technology has breathed life into China's manufacturing and service sectors, giving rise to digital, network and smart operations. Big data, artificial intelligence, mobile Internet and cloud computing have blurred the boundary between manufacturing and services. "Service-based industries" coexist with "industrial services." Manufacturing-service integration has spawned innovations in people's ways of life and work, ecosystems and business models, boosting service productivity and competitiveness. One such innovation is e-commerce platforms, which have enabled the consumer to business (C2B) model. Unlike the planned economy where sales targets are based on production quota, C2B allows consumers to participate in R&D, design and manufacturing, i.e. customized manufacturing. By minimizing inventory and catering to bespoke needs, this new business model has gained great popularity among businessmen and consumers alike.

2. China's Service Development Trends in the 14th FYP

2.1 Forecast of Key Service Sector Indicators

Service sector development can be forecast in many ways, including the total production function model, the input-output method, and the trend extrapolation method. Utilyzing the trend extrapolation

method, this paper forecasts China's service sector's size, employment, fixed asset investment and labor productivity in the 14th Five-Year Plan period, as well as presenting a sector outlook until 2025.

2.1.1 Forecast of indicators of service sector development

The COVID-19 pandemic has presented great challenges to China's socio-economic development. Amid falling domestic consumption and more constricted external environment, both the manufacturing and the service sectors are experiencing financial hardship. Our forecast for China's GDP growth, service sector growth and employment in the primary, secondary and tertiary industries for 2020 must take the impact of COVID-19 into full account. As it is the most effective way to curb the virus's spread, avoiding personal contact has brought many service activities to a halt. Compared with the service sector, Chinese manufacturers will suffer a more severe and lasting impact of supply chain disruptions as they struggle to import raw materials and export finished goods.

Our forecast of China's industrial development should, therefore, factor in COVID-19, especially for 2020. According to China's economic performance in the 13th Five-Year Plan period, service sector growth outstripped GDP growth by 0.8 percentage points and secondary industry growth by 1.5 percentage points. The COVID-19 pandemic is expected to affect China's manufacturing industry more powerfully than it is expected to affect the service sector. The secondary industrys share of the economy will continue to decrease. Service sector growth is also expected to drop a little but it is likely to comprise a larger share in the economy. These temporary external shocks will not change our assessment of China's industrial outlook in the 14th Five-Year Plan period. In the long run, China's economy is positioned to stay on an upward path.

(1) Estimated service sector value-added and share

As can be seen from Table 5, China's industrial restructuring in the 14th Five-Year Plan period will follow the trend of the 13th Five-Year Plan period. Tertiary industry (services) will comprise a rising share of the economy while primary and secondary indusries' share of the economy will shrink. By 2025, the service sector is projected to account for 59.05% of the total value-added, up 3.77 percentage points from 55.28% in 2020, or close to 0.8 percentage points annually. That is to say, the service sector will remain China's biggest industry and will play an ever more dominant role in China's socio-

Table 5: Estimated Value-added of Primary, Secondary and Tertiary Industries and Share in the GDP (constant price) (trillion yuan, %)

Year	Primary industry	Secondary industry	Tertiary industry	GDP	Ratio of primary, secondary and tertiary industries
2020	7.27	38.61	56.67	102.55	7.08:37.64:55.28
2021	7.48	41.32	60.66	109.46	6.83:37.74:55.43
2022	7.93	42.53	64.48	114.94	6.69:37.00:56.31
2023	7.96	43.64	69.08	120.68	6.60:36.16:57.24
2024	8.25	44.76	73.46	126.47	6.52:35.39:58.09
2025	8.50	45.63	78.04	132.17	6.43:34.52:59.05

Source: Estimated based on relevant data from the NBS annual database.

Table 6: Forecast of Employment in Primary, Secondary and Tertiary Industries (10,000 persons, %)

Year	Total employment	Employment in primary industry	Employment in secondary industry	Employment in tertiary industry	Employment ratio of primary, secondary and tertiary industries
2019	77,471	19,743	21,201	36,527	25.48:27.37:47.15
2020	77,503	19,003	21,442	37,058	24.52:27.77:47.71
2021	78,631	18,887	20,412	39,332	24.02:25.96:50.02
2022	78,787	18,357	19,870	40,560	23.30:25.22:51.48
2023	78,942	17,714	19,459	41,769	22.44:24.65:52.91
2024	79,094	17,408	18,966	42,720	22.01:23.98;54.01
2025	79,274	17,161	18,527	43,586	21.64:23.40;54.96

Source: Estimated based on relevant data from the NBS annual database.

economic development. China's potential growth rate is likely to decrease in the 14th Five-Year Plan period, with the real growth rate down to 4.5%-5%, which will be exceeded by service sector growth. Services based on digital applications are particularly well-positioned to drive China's next round of growth. As a result of COVID-19's challenges to China's service sector, domestic consumption and the external environment, we have lowered our forecast of the rate of China's economic growth in 2020, to some extent.

(2) Forecast of service sector employment and share

Some academics question whether value-added in services and its share in the GDP is comparable, for price accounting reasons. For this reason, the service sector's share in total employment is often used to measure the status of a country or region's service-based economy. NBS data suggest that while China's service sector and agriculture sector employed similar numbers of people in 2010, service employment has exceeded agricultural employment by a growing margin since 2011. In the 13th Five-Year Plan period, the service sector as a share in employment rose sharply. Based on the forecast in Table 6, China's service sector's share of employment from 2019 to 2025 will continue to rise and is expected to reach 54.96% by 2025, up 7.81 percentage points from 2019. Yet even this number is an understatement. Integration is a trend of industrial development. Take the rural economy for instance, modern agriculture is increasingly integrated with industries and services. Some farmers are engaged in the tertiary sector through such as rural e-commerce, folk-culture tourism and bed and breakfast services but statisticians still count this as agricultural employment. The service sector's employment rate is, therefore, underestimated.

(3) Forecast of service sector productivity

Labor productivity reflects the quality and efficiency of service sector development. Services are heterogeneous. Some service sectors are plagued by monopoly and imperfect competition. Taking these challenges into account, we measure labor productivity instead of total factor productivity (TFP) in services. Labor productivity is value-added created by each unit of the workforce. As can be seen from Table 7, therefore, we have estimated China's overall and sector-specific labor productivity over the

Table 7: Forecast of Service Sector Productivity (trillion yuan, 10,000 persons, %)

Year	GDP (trillion yuan)	Total employment (10,000 persons)	Overall labor productivity (10,000 yuan/person)	Value-added in secondary industry (trillion yuan)	Employment in secondary industry (10,000 persons)	Labor productivity in secondary industry (10,000 yuan/person)	Value-added in services (trillion yuan)	Employment in the service sector (10,000 persons)	Service sector productivity (10,000 yuan/ person)
2019	99.08	77,471	12.65	38.61	21,201	18.17	53.42	36,527	14.34
2020	102.55	77,503	13.23	38.61	21,442	18.00	56.67	37,058	15.29
2021	109.46	78,631	13.92	41.31	20,412	20.24	60.67	39,332	15.42
2022	114.94	78,787	13.96	42.53	19,870	21.40	64.48	40,560	15.90
2023	120.68	78,942	14.58	43.64	19,459	22.42	69.08	41,769	16.53
2024	126.47	79,094	15.99	44.76	18,966	23.60	73.46	42,720	17.19
2025	132.17	79,243	16.67	45.63	18,440	24.74	78.04	43,586	17.90

Source: Estimated based on relevant data from the NBS annual database.

2019-2025 period based on the forecast value-added and workforce of the service sector. China's overall labor productivity is estimated to rise from 126,500 yuan/person in 2019 to 166,700 yuan/person in 2025. Labor productivity in the service sector is expected to increase from 143,400 yuan/person in 2019 to 179,000 yuan/person in 2025. The service sector will be more productive overall, but remains less productive than the secondary industry. Productivity in the secondary and tertiary industries will diverge instead of converge as we anticipated. In other words, the "Baumol's cost disease" continues to exist. In the short run, IT applications and new business models may raise service sector productivity only a little. Yet, over time, technological advances will play an increasingly more important role in driving productivity in both the service and the manufacturing sectors.

(4) Forecast of fixed asset investments in primary, secondary and tertiary industries

The service sector is often regarded as comprised of asset-light industries with much smaller fixed asset investment than secondary industries. Yet modern services are increasingly dependent on many different kinds of infrastructure and cannot function without fixed-asset investment. Statistically, the transportation sector is also included in the tertiary industry. Over the years, the transportation sector has been a key priority for central and local government investment, and has attracted a great deal of private capital. National industrial policy support of the service sector and flourishing urban and rural consumer markets for services will unleash great potentials for fixed asset investment in services, whose growth rate is expected to exceed those for the primary and secondary industries. By 2025, ss can be seen from Table 8, the ratio of fixed asset investment in the primary, secondary and tertiary industries is likely to be 3.34:36.15:60.51, and the service sector's share of total fixed asset investment will rise by 1.55 percentage points over 2020. The service sector is positioned to play a bigger role in fixed-asset investment.

(5) Forecast share of service consumption

Growth in household service consumption is subject to a multitude of factors, including income,

Table 8: Forecast of Fixed-Asset Investment in Primary, Secondary and Tertiary Industries (2020-2025) (100 million yuan, %)

Year	Total fixed asset investment in primary industry	Total fixed asset investment in secondary industry	Total fixed asset investment in tertiary industry	Total fixed asset investment (excluding farming households)	Ratio of fixed-asset investment in primary, secondary and tertiary industries
2020	22,597	241,813	378,113	644,252	3.51:37.53:58.96
2021	22,619	242,586	381,996	647,201	3.49:37.50:59.01
2022	22,642	243,314	384,326	650,282	3.48:37.49:59.03
2023	22,664	244,045	386,594	653,303	3.46:37.36:59.18
2024	22,687	244,801	409,030	676,527	3.35:36.18:60.47
2025	22,711	245,535	411,119	679,365	3.34:36.15:60.51

Source: Estimated based on relevant data from NBS annual database.

Table 9: Forecast of Household Per Capita Disposable Income, Per capita Consumption and the Share of Service Consumption (2020-2025) (yuan, %)

Year	Per capita household disposable income (yuan)	Growth in household per capita disposable income (%)	Per capita household consumption spending (yuan)	Growth in per capita household consumption spending (%)	Share of service consumption (%)
2020	30,865.15	4.30	22,442.92	4.10	46.50
2021	33,627.58	8,95	24,397.69	8.71	47.31
2022	36,284.16	7.90	26,129.93	7.10	48.23
2023	39,005.47	7.50	27,961.63	7.01	49.02
2024	41,774.86	7.10	29,860.23	6.79	49.71
2025	44,623.91	6.82	31,771.29	6.40	50.40

Source: Estimated based on relevant data from the NBS annual database.

age structure, the demonstration effect of consumption in developed countries, new technology, and business innovations. Yet household income growth still plays a decisive role. In the 14th Five-Year Plan period, China's household disposable income is likely to grow at a slower pace than in the 13th Five-Year Plan period. Also, COVID-19 has motivated households to save for bad times and curtail consumption spending. The public health emergency helped online service consumption, but brick-and-mortar service businesses will struggle to continue to exist. Despite the positive trend, challenges lie ahead in the 14th Five-Year Plan period. Growth in the share of service consumption will continue at a

slower pace. By 2025, the service sector is expected to account for 50.4% of total consumption in China, up 4.5 percentage points from 45.9% in 2019 (se Table 9). Despite a slower increase in its share, service consumption is expected to account for half of urban and rural household consumption at the end of the 14th Five-Year Plan period.

2.2 Basic Assessment: China Is Quickly Moving towards a Service-based Economy

The "service economy era" is a controversial topic. This concept was first developed by US economist Victor R. Fuchs. In his book *The Service Economy* published in 1968, he offered a standard definition of the "service economy era." He wrote that "the United States is unveiling a new era in economic development. After the end of the World War II, the United States is now pioneering in a new stage of economic growth. At some point during the past decade, this country became the first 'service economy' - that is, it became the first nation in which more than half of the employed population was not involved in the production of food, clothing, houses, automobiles, or other tangible goods."[2] In this statement, Victor Fuchs defines "service economy" by service employment as a share of total employment. For a large economy like China, this indicator, though important and accurate, is insufficient. Other criteria such as the ratio of service consumption and fixed-asset investment in the service sector may also reflect the degree of a service-based economy.[9] In 2018, China's service sector employed 46.3% of the total working population, which fell short of Victor Fuchs's criterion, but the service sector generated more than 52% of China's GDP and received 68% of foreign capital. Service as a share of total household consumption exceeded 44%.

By such criteria, the conclusion that China had entered an era of service-based economy in the 13th Five-year Plan holds true. As forecast in Section 2 of this paper, China's service sector has broad potential and will grow steadily in the 14th Five-Year Plan period. By 2025, China's service sector will generate value-added equivalent to 59.05% of the GDP and will account for 54.96% of the total employment, 60.51% of nationwide fixed-asset investment and 50.04% of household consumption spending. By 2025, the service sector will account for much more than 50% of employment and fixed-asset investment and, for the first time, over 50% of consumption. Foreseeably, the service sector will play a dominant role in China's economy in the 14th Five-Year Plan period.

3. Priorities for China's Service Sector Development in the 14th FYP

In the 14th Five-Year Plan period, we expect China's service sector to account for a higher share of total value-added and employment. This goal is not difficult to achieve considering China's huge market, urban and rural household income growth, consumption upgrade and urbanization. Yet the real challenge lies in shifting the pattern of development, increasing competitiveness, and utilyzing service functions better. To accomplish this transition, we should adopt numerous policy initiatives to open up new prospects in key service sectors and emerging business formats.

3.1 Digitalization

3.1.1 Service digitalization

The flourishing digital economy is considered representative of the new economy, new business formats, and new growth drivers.[6] Digital technology has ushered in a new era of digital services. Amid emerging digital and internet+ solutions, traditional firms should embrace opportunities from big data, cloud computing and artificial intelligence to develop innovative products and services and boost productivity. Only in this way will they thrive in the digital era. As services become integrated with the internet, big data and cloud computing, service digitalization not only enables the service sector to grow faster and more efficiently, but allows digital industries to flourish as well.

3.1.2. Service trade digitalization

Amid the digital transition of the world economy, digital trade is recognized as a vital trend among major economies. China's hefty trading volume and digital economy are conducive to digital trade development.[4] Digitalization allows the cross-border purchase, consumption and payment for services otherwise untradable among firms and individuals. In the era of the digital economy, countries vie for domination in new-generation information technologies such as the internet, big data, artificial intelligence, and cloud computing.[11] China should endeavor to become a digital trade powerhouse by the end of the 14th Five-Year Plan period.

3.1.3 Digital transformation of traditional services

The 19th CPC National Congress presented a strategic vision for building a modern economic system. To achieve realization of this vision, we must integrate the value chain and nurture industrial ecosystems - a key enabler of what is digitalization. The 14th Five-Year Plan should highlight the role of digital technology in reshaping traditional services, emphasizing the digital economy's dividends and multiplier effect. Digitalization offers great promise in making consumer services more accessible, affordable, and efficient. With digital solutions, the lack of service productivity will no longer be an issue.

3.1.4. Digitalization of public services

Public services have been slow to take advantage of new technology. In the 14th Five-Year Plan period, we should speed up the development of "digital China," smart cities, and smart society, focusing on the digital transformation of public services. Digital technology should be applied to reduce urban-rural public service gaps, to bridge the digital divide and to deliver full coverage of digital public services in cities and in the countryside for the betterment of public welfare.

3.2 Intelligence

3.2.1 Promoting intelligent services

Computers, robots and sensors are extensively applied across a wide variety of service sectors. Artificial intelligence (AI) has brought smart services to a whole new level. From data-intensive sectors like finance, retail, healthcare and education to labor-intensive sectors such as legal services, human resources management and translation, AI applications offer exciting possibilities to replace human labor. We must be fully aware of the positive effects and potential impacts of smart services.

3.2.2 Embrace AI

The 14th Five-Year Plan should encourage the application of AI technologies such as machine learning, big data and the internet of things (IoT) in services, especially knowledge and data-intensive services such as new retail, finance, healthcare, media and eduction, sports and automonous driving. AI enables services to upgrade and become more efficient. However, we should also be aware of the employment, ethical and privacy challenges posed by AI-based services.

3.3 Platforms

3.3.1 Platform-based producer services

Producer service innovations are vital for countries to stay competitive in the global value chain.[5] One such innovation is platform-based producer services. Producer service platforms allow upstream and downstream businesses, suppliers and buyers to access information, procurement, logistics, finance and e-commerce to bring about synergy in R&D, manufacturing and services.

3.3.2 Platform-based consumer services

Enabled by big data, the mobile internet and AI, consumer service platforms have transformed the ways in which services are delivered and consumed. Without visiting any brick-and-mortar place, consumers pay for meals and utilities, check their credit line and social security, and apply for various certificates with mobile apps and bank client terminals.[8] With internet-based big data and cloud computing, consumer service platforms match supply with demand more efficiently and with less cost. By enhancing consumer experience and diversity of choice, consumer service platforms represent a key trend in consumer service transition.

3.4 Integration

3.4.1 Integration: a hallmark of modern industries

Both manufacturing and services are key components of a modern industrial system. Their integration and interplay are increasingly evident amid a new round of technological revolution. Many successful companies, including IBM and Apple, have shown how manufacturing services and service-based manufacturing help boost corporate performance. The Chinese government has attached great importance to building a strong manufacturing nation and promoting quality in service sector development. The goal of these correlated priorities is to integrate manufacturing with services.

3.4.2 Promote manufacturing services and service-based manufacturing

In the 13th Five-Year Plan period, the Chinese government enacted a swathe of policy documents on "service-manufacturing integration," which were vigorously implemented by local governments and industrial parks. As a result, there has been some progress in integrating manufacturing services and service-based manufacturing. However, previous policies were targeted at either manufacturing or services. Without a clear statistical scope and guidance in implementing the new policy, little progress has been made in service-manufacturing integration. In drafting the 14th Five-Year Plan, we should revise statistical rules and policy guidance, promote IT-based industrialization, smart digital manufacturing, service-manufacturing integration and network coordinated and flexible manufacturing, expedite the transition to service-based manufacturing, and support intelligent elements in services.

3.5 Standardization

3.5.1 Standaridization is key to service productivity

Heterogeneity means services cannot be provided in a standard manner. With higher labor and transaction costs, services tend to be less productive than manufacturing. It is also difficult to create a set of standards for the supply of hetereogenous and bespoke services. Yet with technological advances and business innovations, more and more services can be subject to standards or criteria for all suppliers and consumers to follow. Financial, logistical, retail, hotel, domestic service and nursing home sectors have all developed their own industry service standards. Standardization is key to raising productivity in the service sector. Only with common standards will services be able to be delivered en mass at low cost and subject to consistent regulatory rules and dispute settlement practice. Service standardization is, therefore, an essential and fundamental task.

3.5.2 Standard internationalization

Over the years, China's service openness has been subject to various restrictions, Chinese policymakers have lacked the awareness of service standardization, nor have they taken an active part in setting international service standards. From now on, we should take advantage of the opportunities presented by service openness and raise China's right of discourse and influence in global governance by

promoting Chinese service standards. We should also meet international practices for service supply and consumption in the international market and assist Chinese services in going global.

4. Policy Approach for Service Sector Development in the 14th FYP

4.1 Enhance Property Rights and Investor Protection

As an important issue in economics, property rights are of great interest to both Chinese and international scholars. Property rights are the cornerstone of trust between parties to a transaction in a market-based economy. They serve as incentives for business innovations. Without property rights, we cannot explain economic growth and service sector development since the Industrial Revolution.[3] For firms to act as market players and entrepreneurs to act as drivers of innovation, we must encourage them to use their initiatve to bring about vibrant investment and business deals. In spite of all the business climate improvements that have been made over the years, some entrepreneurs in China are still nervous about property rights, among other concerns. More work remains to be done to improve the business climate and create stable investment expectations.

4.2 Deepen the "Negative List" Reform and Broaden Market Access

Over the years, administrative monopoly and market control have plagued China's service sectors such as finance, telecome, education, culture, mass media, transportation, and municipal utilities. In addressing these issues, we must tackle the obstacles to deeper reforms, pursue institutional innovations, implement the negative list, phase out unreasonable market access rules, and broaden service market access.[1]. Except for key service sectors concerning national security and public welfare, we should adopt a market access system in which "whatever is not prohibited is permitted," we should implement the "competition neutral" principle, encourage equal-footed competition, and nurture the integration of openness, reform and development. The goal is to promote the transition to a quality-oriented service sector.[10]

4.3 Promote Social Credibility and Open Public Information System and Data Resources

Online transactions of intangible services are vulnerable to asymmetric information, moral hazard, and reverse selection. Considering these risks, credit systems offer an effective mechanism for transactions to be conducted with fewer risks and more security. We should endeavor to build a financially strong credit environment for firms and individuals through legislation, enforcement, and nationwide credit registration and disclosure. We should actively utilize big data and innovative ways to share information and break through data islands, penalize acts in breach of trust, raise the cost of default and bring order to the service market. We should put into place a "blacklist" system for service companies that breach their quality obligations, and support the building of well-known brands by quality-minded service companies.[7] We should create an open public information system and share public resources, encourage qualified information platform service companies to engage in various forms of cooperation, and take steps to make payment and clearing systems available to qualified internet finance companies, helping them to use public information for business development.

4.4 Improve the Governance System and Policy Coordination for Service Innovations

New technologies and business models have generated numerous service innovations. As the most vibrant sector in China's service market, digitalized services have great potential for driving service productivity improvement and industrial upgrade. The COVID-19 pandemic has greatly aided digitalized services as online service consumption becomes the norm. Apart from fighting COVID-19, digital services are likely to emerge as a new driver of service sector growth. While market-based

mechanisms should play a decisive role in advancing digital and other emerging services, policy support is also necessary. We should develop a governance system compatible with service sector development by (i) further improving the market system for the digital economy and forming a data factor market to enable data sharing; (ii) reforming government administration and market supervision, encouraging data platform development, breaking through the data divide, and promoting science-based regulatory decision-making and efficient public services; (iii) simplifying administration, delegating powers, improving regulation, and strengthening government services for the service sector, establishing laws and regulations, regulatory rules, executive ordinance, an evaluation system and industrial statistics systems for emerging services such as the platform economy, sharing economy and experience economy, to provide a sound regulatory and business environment for the development of digitalized services.

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