The Promotion of Deep Integration of Modern Service Industry and Advanced Manufacturing Industry

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Industry integration is a significant trend in modern economic system and industrial development. It has been proved by both theory and practice that choosing the path of integrated development is the inevitable course for expanding the modern industrial system, extending the industry boundary and improving industry competitiveness. The modern service industry and advanced manufacturing industry with the core feature of innovation and development under the leadership of technology need to satisfy the high standard and requirement of development quality, comprehensive competitiveness, demand shift and green development. Under the development trend of “integration of two industries”, profound changes have taken place in the status, industrial form and agglomeration mode of producer services. New models are emerging in the integrated development of advanced manufacturing and modern service industries in the aspects of innovation, input, output, demand and region. To accelerate the in-depth development of “integration of two industries”, under the precondition of respecting the choice of market supply and demand and industrial development trends, the government needs to exert targeted force in supporting key integrated areas, organizing working mechanisms orderly and standardizing market access regulations, and fostering diversified integration development entities and establishing talent systems.

Keywords: industry integration, modern service industry, advanced manufacturing industry, integration model

1. Introduction

In 2019, the National Development and Reform Commission, together with the Ministry of Industry and Information Technology and other 15 departments, issued the Implementation Opinions on Promoting the Deep Integration of Advanced

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Manufacturing and Modern Service Industry. This document directly focuses the integration development on advanced manufacturing and modern service industry (abbreviated as “integration of two industries”), and creates some new business type and key areas. It clearly points out the development priorities and direction of the current “integration of two industries”. The Proposal of the CPC Central Committee on the Formulation of the 14th Five-Year Plan for National Economic and Social Development and the Long-Term Goal of 2035 adopted by the fifth plenary session of the 19th CPC Central Committee also clearly put forward “promoting the deep integration of modern service industry with advanced manufacturing industry and modern agriculture”. The development of practice has stimulated the activity of theory. At present, the academic circles are relatively active in research on the integration and development of modern service industries and advanced manufacturing, but there are relatively few theoretical studies on “integration of two industries” and their views are not consistent. The academic circles generally explain the integration and development of modern service industry and advanced manufacturing industry from the theory of industrial integration. However, the academic circles have been controversial about the concept and connotation of industrial integration, and there is no unified expression so far.

The concept of industrial integration can be traced back to the American scholar Rosenberg (1963). British scholar Sahal (1985) and Italian scholar Dosi (1988) also put forward the concept of industrial integration from the perspective of technological relevance. The most representative one is the view stated by the Japanese scholar Professor Masu Uekusa (1988) in the book The Theory of Industrial Organization. He believes that industrial integration is a phenomenon: Driven by technological progress and deregulation, products that originally belonged to different industries or markets but have a mutual substitution relationship due to technological innovation, turns the companies in the two industries or markets into a competitive relationship. Professor Masu Uekusa (1988) revealed the significance of industrial integration from two aspects: the cause and result of industrial integration. His research has a profound impact on the follow-up research of Chinese scholars.

Compared with foreign scholars, the research on industrial integration of domestic scholars started relatively late, and domestic scholars basically follow the research ideas of foreign scholars and study industrial integration from different angles (Yang, 2018). Zhou (2002) believed that industrial integration refers to the establishment of a new type of competitive and cooperative relationship between industries on the basis of the service-oriented economic structure and the blurring of the boundaries of traditional industries, in order to obtain better economic effects. Zhou (2002) also divided industrial integration into three types: alternative integration, complementary integration and combined integration. Now this division has been widely accepted by academic circles. Researchers like Yu (2006) defined the process of blurring or even
disappearing of industrial boundaries as industrial integration. She also summarized the key areas where industrial integration occurred, such as information industry, financial industry, logistics industry and energy industry. In recent years, with the rapid development of information technology, the digital economy has become a new growth point for economic development. The world trend has driven a new round of industrial structural transformation and technological revolution. The methods and contents of industrial integration have undergone great changes. Chu and Shi (2020) believed that industrial integration and innovation in the era of digital economy have undergone subversive changes compared with the era of traditional economy. It is necessary to boldly break through traditional cognition, endow industries with new content, expand the boundaries of integration, and give full play to the shared characteristics of the digital economy and innovate application scenarios. Some scholars hold different opinions on this. Researchers like Li (2020) believed that although industrial integration is first applied in the field of digital technology, it is not a unique phenomenon of information development. As a dynamic industrial development paradigm, industrial integration has been gradually applied to other fields such as finance, logistics, media, service, e-commerce, etc. The essence is that the boundaries between industries where industrial integration occurs are broken, resulting in new industrial formats with economic growth vitality, and the integrated development of the hotel industry and cultural entrepreneurship is a phenomenon of industrial integration that occurs within the tertiary industry.

We believe that industrial integration is an important feature and trend of the modern industrial system. Technological revolution is the original driving force of industrial integration, but it does not mean that there must be industrial integration, and it also needs to be promoted by external factors, such as government deregulation, enterprises’ pursuit of new profits and consumers’ demands for new products and services. Industrial integration is manifested in many fields, and its scope of integration is also expanding, but the most basic and most important thing is the integration and mutual promotion of modern service industry and advanced manufacturing industry.

2. Literature Review

2.1. Relevant Literature Review

2.1.1. Improvement from Producer Services to the Transformation and Upgrade of Manufacturing Industry

A view generally accepted by academic circles at home and abroad is that the service industry mainly affects the manufacturing industry and promotes the improvement of labor productivity and management level of the manufacturing industry mainly by
reducing transaction costs and improving labor productivity. Zheng and Xia (2004) are scholars who paid attention to the role of productive service elements as the main input in promoting the transformation and upgrading of manufacturing industry and efficiency improvement. They believed that there is a high degree of correlation and interaction between manufacturing and producer services, and the development of manufacturing needs the support of producer services. Researchers like Zhao (2015) believed that although China as a whole has entered a post-industrial period, there is still a big gap between the development of the service industry and the “Four 70%” standards of western developed countries. Tan and Zheng (2012) believed that problems such as the “riddle of deviation” between the development of service industry and economic development and the lower productivity of service industry than that of manufacturing industry still exist. This is mainly because the producer service industry has not integrated into the global division of labor system like manufacturing industry, and has been excluded by the producer service industry in developed countries.

As a result, the TFP growth rate of producer service industry continues to be low. Huo and Xia (2007) further studied the two-way interaction between the producer service industry and the manufacturing industry from the perspective of manufacturing servitization. They pointed out that the servitization of the manufacturing industry includes two aspects. One is that producer services are an important input of the manufacturing industry, and the other is that a large proportion of the output of the manufacturing industry is services. Transaction cost theory can better explain the process of manufacturing servitization. Yuan and Guo (2018) discussed the impact of producer services on manufacturing from the perspective of technological innovation. They believed that the agglomeration of producer services plays a role in promoting technological innovation, among which the agglomeration of wholesale, retail and financial industries plays the most significant role. The producer service industry has promoted the development of manufacturing industry through technological innovation.

2.2.2. Promotion from Manufacturing Industry to the Development of Modern Service Industry

The role of the manufacturing industry in promoting the development of producer services is also a hot topic of academic research, but the research on this question has not achieved a consistent answer. Yin (2011) found that there is a two-way spillover effect between China’s manufacturing and service industries by constructing different forms of econometric models and input-output analysis, but not all scholars think so. For example, Li (2019) concluded from his research that the expansion of China’s manufacturing industry in recent years is more dependent on inputs from various material sectors of the national economy, not based on increasing the consumption of producer services, and the manufacturing industry has a serious shortage of demand
for modern services such as scientific and technological consulting, information transmission, computers and software. The reason is closely related to the reasons such as China’s premature de-industrialization of the economy, enterprises’ pursuit of large and complete production, and imperfect service supply system. In the future, we should learn from foreign development experience and, on the basis of improving the development level of manufacturing industry, continuously change and innovate manufacturing methods and service business form, vigorously promote the process of manufacturing service, and realize the integrated development of manufacturing industry and producer services. Feng and Xu (2020) showed that the advanced manufacturing industry and modern service industry are mutually causal. Manufacturing industry is the main demand side of producer service industry, while producer service industry is the catalyst for upgrading the manufacturing industry. Both are indispensable. However, Zhang (2014) believed that in the early stages of China’s industrialization, the role of manufacturing in the development of producer services was not as great as people imagined. Because China’s industrialization for a long time depends on extensive investment, the demand for producer services is relatively small, and the degree of dependence on producer services is relatively low. Extensive production hinders the development of domestic producer services, but fortunately, this situation has been alleviated in recent years. Ni and Xia (2015) conducted a more detailed study on this issue. Their research results showed that the demand for producer services in manufacturing industry is determined by many factors, among which regional GDP per capita and industry characteristics play a very important role. In general, the relationship between the direct consumption and total consumption coefficient of manufacturing services and GDP per capita varies from industry to industry, showing positive correlation (e.g. leasing and business services, science and technology research industry), negative correlation (public service industry), U-shape (e.g. financial industry, information transmission, computer service industry and software industry), invariability or stability (e.g. transportation, warehousing and postal industry, accommodation and catering industry), and uncertainty.

3. Main Goals of “Integration of Two Industries” Process

3.1. Maintain Stable Proportion of Manufacturing Industry in the “Integration of Two Industries” Process

The trend of industrial structure evolution is that the proportion of service industry is higher and higher, while the proportion of manufacturing industry is relatively lower. The changes in the economic structure of developed countries and the industrial evolution of China in the past 10 years all show this feature and trend.
However, this trend is not the ideal choice. In recent years, these developed countries are fully aware of the harm to the modern industrial system caused by the declining proportion of the manufacturing industry, and have proposed “remanufacturing” or “reindustrialization”. The historical experience of international development shows that before completely crossing the middle-income stage, a country’s early deindustrialization tends to plunge its economy into the middle-income stage for a long time, such as Brazil, Argentina, Venezuela and Colombia. These countries began the process of deindustrialization before they fully crossed the middle-income stage. On the contrary, the proportion of manufacturing industry in those countries that have successfully crossed the middle-income stage and entered the high-income ranks has basically remained stable throughout the process of crossing the middle-income stage. The proportion of manufacturing industry only gradually decreased after reaching the high-income level and maintaining it for a period of time (Tan and Xia, 2020).

Under the background of the integration of modern economic system and industry, the methods, elements and contents of new industrialization and modern manufacturing are completely different from those in the past, and rely more on the input of knowledge service elements to expand the scale and enhance the competitiveness of modern manufacturing industry. In 2019, China’s GDP per capita was US$10276. According to the latest standards announced by the World Bank in 2017, it has just reached the upper middle-income level. It is still far from the high-income level of GDP per capita of US$12236. Keeping the proportion of manufacturing industry basically stable during the 14th Five-Year Plan and for a long period of time in the future will help China successfully leap over the middle-income stage (Tan and Xia, 2020). No matter from which point of view, in promoting the strategic process of “integration of two industries,” we must not be biased, and we must give consideration to both the modern service industry and the advanced manufacturing industry, while actively developing the modern service industry. It is necessary to maintain the basic stability of the proportion of the manufacturing industry. A strong manufacturing industry is the “cornerstone” of the country’s sharp weapon, the “foundation” of China’s economic stability, and the key for our country to get rid of the “throat lock” of external forces. Therefore, independent innovation and industrial upgrading are the inevitable choice for the high-quality development of the manufacturing industry.

3.2. Realizing High Quality Development of Service Industry in “Integration of Two Industries” Process

After more than 40 years of reform and opening up, China’s service industry has reached a new level. As early as 2013, the service industry has become the largest
sector of China’s economy. From scale expansion to high-quality development is an important strategic transformation in the development of China’s service industry during the 14th Five-Year Plan. However, the development of the service industry has a strong permeability. Its development is not isolated, but integrated and interactive with agriculture, industry and so on. The service industry promotes the development of itself and related industries through integration and interaction. Therefore, we should realize the high-quality development of the service industry in the process of industrial integration and mutual promotion. In this way, we can not only expand the space for the development of the service industry, improve the quality of the development of the service industry, but also enhance the role of the service industry in promoting advanced manufacturing and modern agriculture. It is a choice of “killing two birds with one stone” (Xia, 2019).

The practical experience of many developed regions in China shows that the high-quality development of manufacturing industry promotes the high-quality service industry to a great extent. Under the background of knowledge and flexibility of production factors, modern service industry, especially knowledge-intensive service industry, must be leveraged to promote the deep integration and mutual interaction between manufacturing and modern service industry, so as to transform manufacturing into service oriented manufacturing and flexible manufacturing. This is a win-win choice, which not only promotes the development of manufacturing industry, but also finds new development space for the innovative development and high-quality development of modern service industry (Xia, 2015). Agriculture is the foundation of the national economy and an important part of the modern economic system. China’s economic development cannot be separated from the powerful modern agriculture. The stable development of agriculture is the basis for stable economic and social development and stable prices. For a large developing country with a large population like us, food security is the most basic security guarantee. Modern agriculture is a concept of big agriculture. In order to realize agricultural modernization, we should not only focus on “planting”, but also pay special attention to the problems before and after agricultural production, which basically belongs to the category of service industry. The experience of developed countries and the practice of agricultural development in China over the years have shown that actively developing service industries that serve agriculture and establishing an agricultural industrialization service system are effective means to realize agricultural modernization and low-carbon green development. A powerful, efficient and high-value-added modern agriculture cannot be separated from the high-quality development of service industries for agriculture, including rural finance, agricultural science and technology, agriculture-related logistics, animal and plant disease prevention and control, quality and safety supervision of agricultural products, rural labor force training, agricultural machinery leasing, etc (Xia, 2019).
4. Main Modes of “Integration of Two Industries” Process

4.1. Integration Driven by Innovation

From the impact of innovation and application, the application of new technologies has brought about profound innovative changes in the manufacturing industry in terms of product generation, business model, production organization, operation model and industrial form. On the one hand, driven by emerging technologies, manufacturing industries are changing and upgrading from traditional product-oriented to customer-oriented and service-oriented manufacturing, and service outsourcing in manufacturing industries is becoming increasingly marketization under the influence of technological innovation. On the other hand, the reform content in the transformation and upgrading of the manufacturing industry is exactly the content that the modern service industry, especially the modern producer service industry, should strive to develop. Modern service industry needs to better serve the development of real economy by constantly updating technology. Therefore, the innovative applications represented by emerging technologies are profoundly changing the breadth and depth of the integration of advanced manufacturing and modern service industries.

4.2. Integration Driven by Mutual Input Promotion

From the perspective of production input, as the value created by producer services is getting higher and higher, the transformation and upgrading of the manufacturing industry is increasingly dependent on modern producer services. In the whole process of manufacturing production and operation, service input is becoming more and more important as an intermediate input, such as market research, R&D and design, employee training, management consulting, legal counsel and other productive services. At the same time, in the process of providing the final products of many service industries, the proportion of manufacturing products input is also increasing. For example, services such as mobile communications and the Internet, big data and cloud computing also require a large amount of manufacturing “hardware” input. Only with these “hardware inputs” can its services be effective.

4.3. Integration Driven by Output Complementation

From the perspective of output, the manufacturing entity products must be bounded together with the corresponding supporting services to form a complete complementary relationship, so as to enable consumers to obtain a complete functional experience. It is a “universal product” that integrates product consultation, construction and installation, use guidance, maintenance management and scrap recycling into a whole life cycle.
Its connotation has been expanded from a single entity product to a comprehensive solution oriented to the needs of users. Today, with the wide application of new technologies, the complementary integration of the outputs of advanced manufacturing and modern service industries is becoming more flexible, and the degree of on-line and intelligence has been continuously increased.

4.4. Integration Driven by Demand Coupling Effect

From the perspective of demand, along with people’s pursuit of high-quality life, the life service industry is revitalized, which has led to the production demand for many peripheral derivative products and led to the common development of related manufacturing industries. For example, the prosperity and development of the “Five Happiness Industries” of tourism, culture, sports, health and old-age care can drive a large number of derivative manufacturing needs, thus linking the production needs of physical products including local specialty foods, craft souvenirs, cultural and creative products, professional clothing, health food and medical equipment, and constitute a huge linked industrial chain. While the industrial chain brings effective support to related service industry companies, it also brings huge business opportunities to related manufacturing companies. The closely integrated linkage development model has greatly enriched the content of “integration of two industries”.

4.5. Integration Driven by Clustered Mutual Support

From a regional perspective, the ultimate goal of cluster mutual support is to achieve transformation and upgrading and value increase. In the concrete practice, there are at least two kinds of situations of cluster mutual support: The first situation is the development of mutual assistance and integration between manufacturing clusters and “service industry clusters relying on manufacturing.” In order to realize the interdependence, penetration and integration of the two clusters, we need to pay attention to the optimization of the supply chain, the connection of supporting functions, the promotion of specialization and standardization. The second situation is the mutual promotion and integration development between the manufacturing cluster in different regions and the single service cluster. To realize the effective connection between the two clusters in the mutual market relationship, efforts need to be made in the market supply and demand mechanism and cross-regional coordination and cooperation mechanism.

5. Manifestations of “Integration of Two Industries” Process

In the specific industrial practice, a certain integration innovation practice often has the characteristics of multiple models, which is also the performance of the deep
integration of advanced manufacturing industry and modern service industry. In the choice of a variety of models, “integration of two industries” mainly has the following three manifestations.

5.1. Service Oriented Manufacturing

Service-oriented manufacturing is essentially the mutual support and penetration of manufacturing industry and service industry in the value chain, driven by changes in market demand and value enhancement of manufacturers. The change in demand is represented by the service of manufacturing output supply, while the increase in value is represented by the service of inputs. For advanced manufacturing enterprises, integration involves creative incubation, R&D and design, shared platform construction, supply chain management, product life cycle management and other areas of modern productive services. The acceleration of the process of “integration of two industries” provides more new options for collaborative profits for service-oriented manufacturing, which helps to maintain the advancement of service-oriented manufacturing. There are many typical models of operation in service-oriented manufacturing, and customized production is more popular at present. In an increasingly developed market system, the division of production is becoming more and more detailed, and enterprises need to adopt flexible, small-batch and various manufacturing methods to adapt to the changes of market demand. For example, there are more than 8000 products in the industry catalog of large multinational companies such as Emerson Engineering Company and Sigma Electric Company, and they can be produced in a minimum batch of 100 pieces to meet customer requirements for product customization.

5.2. Specialized and Socialized Productive Services

The modern producer service industry has higher requirements for specialization and socialization. On the one hand, on the basis of expanding global vision and focusing on the latest applications, the existing producer service industry needs to closely connect with the service support urgently needed by advanced manufacturing; On the other hand, qualified advanced manufacturing enterprises also need to actively use advantageous business sectors to provide third-party professional services to the society and expand profitability in a market-oriented manner. Some manufacturing companies with weak service support and no comparative advantage turn to the specialized productive service market to seek cooperation.

5.3. Service Derived Manufacturing

Service-derived manufacturing is a kind of manufacturing caused by service
demand, which is developed under the guidance of the interaction between production and demand. Specifically, in the modern service industry, it is manifested as the extension and expansion to the manufacturing link. For example, enterprises with strong market demand such as brand e-commerce and cultural tourism actively integrate factor resources to expand to the related manufacturing field by means of commissioned manufacturing and brand authorization. Scientific research institutes, professional R&D and design enterprises actively apply the achievements to the manufacturing field by using the advantages of knowledge and technology; creative consulting enterprises extend the cultural and creative industries to the manufacturing field, which is also widely recognized by the market. According to China’s national conditions and the existing market and industrial base, it is a realistic choice to encourage e-commerce, R&D, cultural tourism and other service enterprises to give full play to the advantages of big data, technology, channels, creativity and other elements and to realize the development to manufacturing through commissioned manufacturing, brand authorization and other means.

6. Policy Proposals

Modern service industry and advanced manufacturing industry represent the innovation direction and demand change of industries in the future, and promoting the deep integration and development of the two industries will help to realize the mutual promotion of the industry. The “integration of two industries” will not only help to achieve the goal of high-quality development of Chinese manufacturing and Chinese services, but also have a far-reaching impact on the influence of China’s economy in the world in the future. On the premise of respecting the choice of market supply and demand and the development trend of the industry, looking for policy proposals for the practical problems faced by “integration of two industries”, we need to pay attention to the following aspects.

6.1. Focusing on Key Integration Fields While Establishing Customized “Policy Toolbox”

Combined with China’s industrial foundation and the global competitive environment, around the key areas that can reflect the development direction of innovation and application and the changing trend of future market demand, accurate efforts should be made in fiscal and taxation policies, guidance funds, land use for employment, standard construction, planning coordination and other aspects, and the construction of a “policy toolbox” conducive to integrated development is the primary issue that the government urgently needs to implement at the policy level. Ten areas of integration have been identified in the Implementation Opinions on Promoting the Deep Integration of Advanced Manufacturing and Modern Service Industry issued
in 2019. The content involves raw material industry, consumer goods manufacturing, equipment manufacturing, automobile manufacturing, “Internet +”, modern logistics, R&D and design, production and use of new energy, key consumer services, financial services and other industries. In the specific explanations, it highlights the integration and innovation of intelligence, platformization and derivation. It should be emphasized that in the future, when promoting the pilot work of “integration of two industries”, attention should still be paid to the actual development situation of each region and the surrounding regions, the “integration of two industries” should be based on local conditions, and the integration experience should be promoted flexibly to avoid waste of resources on projects.

6.2. Studying on Trends of Innovative Application and Expanding Integration Range

The government and enterprises have a growing understanding of the “integration of the two industries”, but in the specific development, the reform efforts to adapt to the new development trend and face the long-term competition need to be strengthened. Therefore, we should actively study the development trend of innovation and application, clarify the development direction of modernization represented by technology innovation and application, pay full attention to innovation and application practice in industrial development, continuously accumulate innovation content and experience in technology landing, business model, production organization, operation management and other aspects, and encourage and expand the breadth and depth of the development of “integration of two industries”. We should strengthen the connection and cooperation of all links of the industrial chain and the mutual support of resource allocation, and strive to enhance the comprehensive competitiveness of the overall industrial chain. We should also actively encourage the omni-directional digital transformation of enterprises, promote digital empowerment through “integration of two industries”, and constantly expand the boundary and space of “integration of two industries”.

6.3. Setting Up Working Mechanisms and Rules to Promote “Integration of Two Industries” Process

Government departments should strengthen inter-departmental coordination and cooperation, with the purpose of serving the development of “integration of two industries”, improve the work flow, and establish an efficient and cooperative working mechanism, such as setting up the office of “integration of two industries” led by the National Development and Reform Commission and the Ministry of Industry and Information Technology, to deal with the daily problems encountered in “integration of two industries”, and coordinate related affairs. In particular, it
is necessary to clarify the market access rules for cross-industries derived from industrial integration. Some cross-industries produced by industrial integration, such as e-commerce, network culture industry, Internet of things and so on, often involve multiple regulatory departments. For example, in terms of competition mechanism, some modern service industries closely related to the digital economy, such as science and technology finance and mobile internet, still have access restrictions, which make it difficult for the non-public sector of the economy to enter. Therefore, it is necessary to coordinate the regulatory departments and clarify the market access and supervision mode. Government departments should follow the bottom line thinking as far as possible, reduce administrative regulation, lower the threshold of entry, avoid excessive government intervention and encourage the natural growth of new business type services that may be generated by industrial integration (Xia, 2017). In order to develop the emerging service industry resulting from industrial integration, we should cultivate a public environment conducive to industrial integration. For example, the intelligent transportation industry needs the government to open real-time traffic data and geographic information data; electronic medical records need the cooperation of health, hospitals and other departments; intellectual property operation services need to open intellectual property databases; telecommunication service need to regulate the monopoly position of large operators. Therefore, the government can formulate relevant policies to build a good public environment for industrial integration.

6.4. Cultivating Diversified Integrative Development Entities and Boosting Enterprise Innovation and Development

We should cultivate diversified integration entities through various methods such as support and cultivation, attracting new investment, and mass entrepreneurship, so as to implement the support policies. Specifically, for the leading enterprises, we should strengthen the leading effect of enterprises and explore feasible paths for the integration practice of enterprises in the industry from the aspects of innovative application, business model, brand construction and classic projects. For enterprise characterized by specialization, refinement, specialization and novelty, we should increase support and training for these enterprises, give full play to the advantages of flexible innovation of small and medium-sized enterprises, and support enterprises to carry out business cooperation and integration through trade associations, enterprise alliances, collaboration, etc. For platform enterprises, we should improve the efficiency of resource integration and encourage them to expand the scope and depth of services. For universities and scientific research institutions, we should give full play to the advantages of these institutions and promote the practice of industry-university-research integration, which is conducive to “integration of two industries”.
For trade associations, we should support them in their work around “integration of two industries”. At the same time, we should encourage qualified advanced manufacturing enterprises and modern service enterprises to respond to the national “Belt and Road Initiative” strategy and go out to participate in global competition and cooperation. Strengthen the coordination of technology R&D and application, market consulting research, management innovation, product life cycle solutions and supporting legal, financing and risk management, so as to improve the ability of integration and innovation and collaborative development among enterprises around the world. In addition, we should also support the export of advanced products and modern services, reshape the brand image of made in China and services in China, and enhance the comprehensive competitiveness and influence of China’s economy on a global scale.

6.5. Enhancing Construction of Integrative Talents System and Preserveing Talents as Human Resource Assets

Cultivating integrated talents is the key to promoting industrial integration. We should introduce and cultivate high-level compound talents with both integration vision and cross-industry practical experience, increase the reserve of industry management talents and technical innovation talents, explore the training mode of grass-roots managers and operational talents, take the market as the guide, innovate the order education and precise training mechanism, and encourage universities, vocational schools and professional training institutions to train all kinds of talents in short supply for the development of “integration of two industries”. For example, the government takes the lead in building a talent structure system for the development of “integration of two industries”, formulating and implementing special talent training plans, setting interdisciplinary subjects in universities and vocational education institutions, and cultivating special talents for “manufacturing + service” and “digital + integration” (Su and Huang, 2020). It is possible to implement a new enterprise apprenticeship system, support integrated enterprises to cultivate and reserve compound talents needed by enterprises, break through the existing talent management evaluation system, explore flexible talent management methods, and establish cross-industry and cross-regional skills training and talent exchange cooperation long-term mechanism. Local governments should also be encouraged to optimize their talent development strategies according to their own development needs, and formulate preferential policies to meet demand. In areas where it is difficult to attract talents, it is necessary to change the traditional way of thinking, and put more emphasis on the training, cultivation and support of local young people for practical purposes.
References


