

Design Development in China: From 1949 to 2015

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ABSTRACT

Chinese design has a unique role in the world. It took just 35 years to develop from the stage of arts and crafts to the position which it holds today. With the rapid progress of the economy, design was transformed from Utopian ideas held in universities at the beginning of 1980s into concrete ideas for the support of industry after 2000. Now, it is believed that every start-up team should have a designer. As one of the largest developing countries in the world, various phenomena of design exist concurrently. On the one hand, there are many design students and design firms. Most overseas design consultancies have established branches in Beijing, Shanghai, or Shenzhen, the first-tier cities of China. On the other hand, some design issues remain controversial, triggering accusations of copying, with consequences for the brand, product quality, and IP. In this paper, the authors introduce the current situation of design with reference to practice in China. Following a review of design status, the current status of Chinese design will be described. On the topic of design for development, there are two issues of relevance. The first is the development of design itself as a critical part of the service industry. The second is that design contributes to business and economic development.

Keywords: Design development, Design history, Design education, Design industry, China

1. THE ORIGINS OF MODERN DESIGN IN CHINA

The development of design has been closely linked to the changing background of the economy in China (Hang, 2009). Two viewpoints on the origins of industrial design in China exist. One contends that Chinese design began in the early Twentieth Century, at the end of the Qing Dynasty. With a series of laws and regulations, the Qing Government not only admitted the legal position of craftsmanship and encouraged invention, but also established modern schools for teaching fine arts and design (Wu, 2006; Li, 2007; Chen, 2009). Another school argues that it was after the establishment of the Peoples' Republic of China in 1949 that industrial design was gradually introduced in to China with the development of the economy, especially after the 1980s, with the introduction of the opening policy (Wang, 1995; Tong, 1999; BMSTC & BIDC, 2000; BIDPO, 2003; Guo & Hu, 2003; Liu, 2006; Hang, 2009). However, both schools of thought suggest that modern Chinese design has lacked opportunities for development because of the nation's continual wars, and has been influenced by foreign design concepts to a great degree because of the disadvantaged state of local technology and manufacturing.

The recognition of industrial design emerged in China at the beginning of the 20th Century. In 1898, the Qing Government released the Regulations for Revitalization of Technology Award¹. It was the first regulation for encouraging technology and craft invention, and protecting intellectual property. In 1906, to meet the demand for specialists from new style manufacturers, the Commerce Department of the Qing Dynasty began to set up various schools, such as the special school of technique and craft apprentice² (Li, 2007). Graduates were sent overseas to study, employed as teachers in other schools, or worked on industrial art in the society (Chen, 2009). At the same time, modern design was first intro-

duced during the economic boom to attract more domestic and foreign investment to the foreign-dominated treaty ports, especially in Shanghai. However, design achieved very limited development in the early stage, except for graphics.

Development of modern design in the West and China differed because the wars which the Western countries suffered were different from those in China. Until the 1950s, China had no modern industry, whereas this had been developing for almost two centuries in the Western nations. Western nations had also benefited from a breathing space between World Wars I and II, but China did not. It has been suggested that China did not have a really modern design movement until 1979 (Wang, 1995).

In the 1950s, Mao Zedong, the Chairman of the Communist Party of the People's Republic of China, approved the national policy for creating conditions which would achieve industrialization via the handicraft industry. Under Mao's direction, the arts and crafts in China were supported (Hang, 2009). Government departments involved in design included the Central Administration of Handicraft, established in 1954, the Light Industry Department in 1958 and management agency of the handicraft industry in 1959.

China's modernity is seen to have begun in 1979. The Four Modernizations proposed by Prime Minister Deng Xiao-Ping included agriculture, industry, science, and defense, but they had little to do with the development of Chinese design. In effect, as a part of a wider pattern of economic activity, design had to be brought to the forefront of China's reform of its economy and the restructuring of its bureaucracy (Wang, 1995).

Of all the forms of design, industrial design or product design has been the most ignored. The reason for this neglect may be attributed to the fact that product manufacturing in many sec-

¹ The Regulations of Awarding Revitalize Technology Award 振興工藝給獎章程

² Special school of technique and craft apprentice 藝徒學堂

tors remains underdeveloped. The issue did not emerge until the opening up policy, when supply gradually exceeded demand, and the shortage of many consumer products became apparent in the Chinese market. Later, with increasing income levels and more people having basic needs satisfied, poorly-designed, old-fashioned products could not be sold anymore. Consumers began to seek better-quality and better-looking products (Wang, 1995). Industrial design was gradually introduced under these conditions.

2. NATIONAL DESIGN POLICY

The evolution of modern Chinese design is therefore closely connected to the evolution of the economy and politics. In politics, it was influenced by wars and national policies. In the economy, it involves marketing, consumers, and manufacturing. In recent years, there has been a new stage in the development of industrial design, which has been spurred by a series of endeavors from the central government. On February 12, 2007, the China Industrial Design Association (CIDA) submitted proposals to the central government for developing Chinese industrial design. Mr. Wen Jiabao, current Premier of the State Council of the People's Republic of China, approved the proposals with an instruction to 'attach great importance to industrial design'. On March 13, 2008, industrial design was officially included in the modern service industry according to "Suggestions on Implementing Policies of Accelerating the Development of Service Industries of State Council"³. That same year, Premier Wen emphasized the importance of developing industrial design when he inspected Wuxi Industrial Design Park. In 2009, Chinese President Hu Jintao had called on the country's enterprises to recruit more talented workers as well as strengthen research and innovation, in order to facilitate the transition from 'made in China' to 'created in China'. This implied that design had been involved in the national development strategy. In April, Premier

Wen visited Echom, a design-oriented enterprise which is involved in this research, where he praised the function of design in improving the ability of Chinese enterprises to innovate. In the government working paper, reported by Premier Wen in the 2010 Lianghui⁴, industrial design was officially defined as one of the seven service industries which should be developed rapidly. On March 16, 2010, "Advice for Directions about Promoting Development of Industrial Design"⁵ was released by the Ministry of Industry and Information Technology of the People's Republic of China (MIIT). In addition, one month later, "Notice of Cognizing National Innovative Products in 2010"⁶ (April 15, 2010) was given by National Development and Reform Commission, Ministry of Science and Technology, and Ministry of Finance. All these actions and policies have significantly promoted the development of industrial design in China and will bring it to a new stage.

3. BORROWED DESIGN THEORIES

Chinese designers' knowledge of Western modern movements in design is fragmented and full of misunderstandings and exaggerations (Wang, 1995). Previously, Chinese products either imitated foreign modern design or maintained the production of daily necessities, generally with a mechanical and engineering emphasis. With an increasing number of new products and fierce foreign competition, however, the demands for design became strong and urgent. Later, since the majority of Chinese modern enterprises were established without any basis in design in the early 1980s, most of them produced new products through copying or imitation. This approach was referred to as 'more, faster, and better with less investment'⁷ (Tong, 1999). To save time and investment, Chinese designers usually copied foreign models, instead of spending time in designing and planning. This was summarized by the slogan of the Shenzhen project as 'time is money' (Wang, 1995).

³ Suggestions on Implementing Policies of Accelerating the Development of Service Industries of State Council 關於促進服務業加快發展的若干意見

⁴ Lianghui 兩會 refers to the National People's Congress (NPC) and the Chinese People's Political Consultative Conference (CPPCC)

⁵ Advice for Directions about Promoting Development of Industrial Design 關於促進工業設計發展的若干指導意見

In the first decade of the Open Policy starting from 1978, design education was gradually transformed from the old model to a new one. University lecturers in Beijing, Shanghai, Wuxi and other cities were sent to study industrial design in Germany, Japan and other countries perceived as being advanced in the field. These educators brought back the latest industrial design theories and information about the design education systems which they had experienced, in addition to sharing their experiences with domestic scholars. Through their enthusiasm in teaching and introducing their new knowledge of the subject, system and experience, ideas on industrial design were widely disseminated, and design education was established on a new basis (HKTDC, 2004). Later, industrial design programs were expanded both in art schools and in the science and technology schools (Liu, 2006). The development of industrial design in the 1980s demonstrated its idealization and theorization, which relied on the design concepts of the West. The development of Western science and technology also provided the basis

for modern Chinese civilization and determined the blueprint of Chinese design education. As a result, the endeavors of educators and scholars seemed somewhat like a Utopian prospect, which was far beyond the practice in industries. At that time, the primary task of manufacturers was to build mass-production line through learning foreign advanced technologies (Tong, 1999).

4. DESIGN, THE ECONOMY, AND INDUSTRY

Design development in China shows tight linkages between economy, policies, industries (especially the manufacturing industry), and design which relationships are shown chronologically in Figure 1. Below is the framework of design development in China and its relation to both economic and industrial development.

Before 1978: Design as a Part of Traditional Arts and Crafts in the Planned Economy

Before 1978, the society in China functioned strictly according to the model of the planned

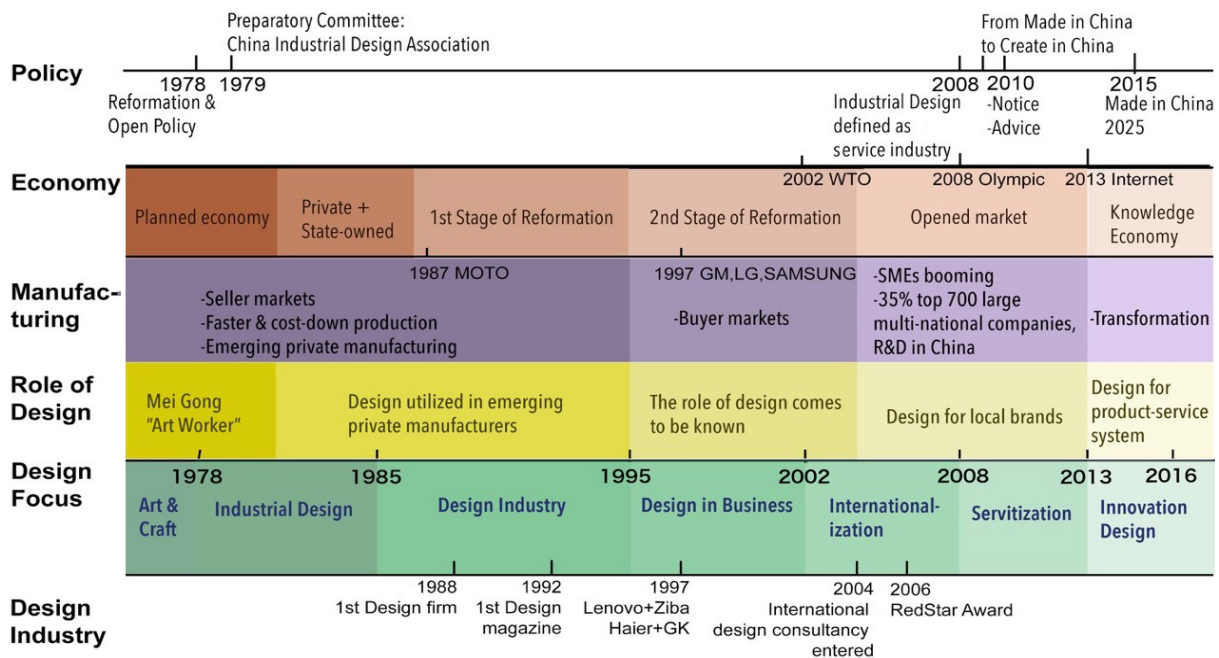


Figure 1. Timeline of design development in China

⁶ Notice of Cognizing National Innovative Products in 2010 關於開展 2010 年國家自主創新產品認定工作的通知

⁷ More, faster, and better with less investment 多快好省

economy. Since private businesses were scarce and most companies were state owned, neither a free market nor competition were evident in the society. The country was governed under the 'code of equality', according to which, consumers had no privileges. Heavy industry constituted the main body of economy, while secondary and tertiary industries were primitive. The concept of modern design was largely absent, and the only work relating to creativity was in the traditional arts and crafts. As a result, the government placed emphasis on the arts and crafts to sustain the export of traditional handicraft products in exchange for foreign currencies.

In the 1950s Chinese manufacturers began to establish design sections, but their work usually involved the decoration of products, or engineering design, rather than industrial design, in line with the Bauhaus (Liu, 2006). In most cases, engineers were responsible for everything, from mechanics to styling. Sometimes, artists were employed to decorate and beautify products and they were known as *Mei Gong*⁸ or 'art workers' (Wang, 1995).

Design was seen most frequently in areas such as government architecture, political propaganda, and display of the country's achievements. As a tool for ornamenting products, design may be seen as a part of traditional arts and crafts. There were no free-lance designers, no design companies, and no business of design. The design disciplines in colleges were limited to ceramic arts, textiles and dyeing, architectural decorations, book binding and the like. Many design activities were performed around the topics of government buildings, huge political gatherings, and propagandist exhibitions. The government restricted the role of design and its practice to the decoration of 'light' products, which in practice meant household goods and utilities. At this time, design is viewed as a subset of arts and crafts (Ying, 2007).

1978-1985: Emerged Industrial Design in Economic Reformation Policy

From the late 1970s onwards, manufacturing industries in China began to import advanced technologies, which introduced the concepts of modern industrial design. In the period between the late 1970s and early 1980s, China changed from a government-planned economic monopoly to the coexistence and competition of private businesses and state-owned companies.

The implementation of the economic reformation policy triggered a wave of importation of foreign capital and technologies. In 1979, China started to build Export Processing Zones and Bonded Areas along its coasts to attract foreign companies that would bring materials, parts and designs, assembling their products in China before re-exporting them to other countries. At this point, China attracted foreign investments in the construction of Chinese factories. This opened the era in which the business of Chinese enterprises rested on their ability to offer a vast and cheap supply of labor to handle mass manufacturing of products for foreign companies.

In parallel, finished assembly lines for the production of household electrical appliances were imported from Japan, Germany, or Italy. As a consequence, the supply of household appliances for domestic markets improved. At that time, most product categories were a seller's market, and their sales were determined by productivity. Because of a lack of experience in quality control, design, and functional planning, Chinese manufacturers produced goods based on the constraints of the foreign production lines to satisfy the early domestic consumers.

Systematic education in industrial design began to emerge between 1977 and 1985 in China. To facilitate the process, a number of Chinese scholars were sent to study in Germany and Japan. Educa-

⁸ *Mei Gong* 美工 can be literally translated as 'art worker'

tors from Japanese and German academies were invited to visit China and conduct workshops to promote industrial design in local colleges. As a result of these two initiatives, pioneering design schools were established at the beginning of 1980s. These included the Central Academy of Arts and Design, Hunan University, the Guangzhou Academy of Fine Arts, and Jiangnan University.

In the early stages of industrial design in China, there was a conflict between the Utopian ideal of design and the norms observed in the manufacturing sector. On the one hand, as a new discipline, design theories and concepts were all borrowed from overseas, and were advanced and mature. The first generation of designers to return from overseas study had high expectations of design and its contribution to business, economy, and culture. On the other hand, manufacturers focused on faster and cost-effective production. There was limited need for design in the sellers' markets and young industry.

In 1979, the State Council approved the founding of the Preparatory Committee for the China Industrial Design Association, which demonstrates the improvement of design awareness in the Government. The officials had come to understand the function of industrial design in business innovation and development. However, there were more important issues arising from the economic reformation to resolve first. The government's intention of pushing industrial design was more to facilitate the development of the nation's light industries and to increase the range of products, styles and variations available in the market. Design was not elevated or promoted as a tool for nationwide industrial innovation.

1986-1995: Emergence of Design Industry as the Achievement of 1st Ten-year Reformation

By the end of the 1980s, household appliances had become the major manufactured goods in

China, and competition was strong. Enterprises in this industry began to realize the importance of brand building and the role of design in this context. Corporate identity was introduced into China and included in strategy plans. Graphic design firms were established to provide branding services. However, most enterprises in other industries were still under the illusion that visual identity alone could achieve market success for them.

The first freelance design office in China was set up in Beijing in 1986. It did not survive for more than six months. Then, in 1988, Southland Industrial Design was founded in Guangzhou by three staff members from the Guangzhou Fine Arts Academy. It was the first successful and officially registered industrial design firm in China. It focused on providing design services to the emerging private manufacturing companies of household appliances in the Pearl River Delta region⁹.

The modern internal design departments formally emerged in the 1990s, especially in transportation companies. To achieve high quality design, these companies established their design sections as industrial design centers to attract talented designers and experts. Some even cooperated with foreign design consultancies to upgrade their own design capacity (BIDC, 2006). However, the original work of these design sections focused on designing products for China's market, typically with either cheaper versions of Western designs or slightly modified versions of local products (Whitney, 2006).

Attracted by growing markets in China, foreign companies began to expand their business by establishing local design offices to offer products tailored to Chinese consumers. These included Motorola's Beijing office in 1987, General Motors Chinese design team in Shanghai in 1997, LG electronics design shop in Beijing in 1998, and

⁹ Pearl River Delta is rich in heritage and home to some of China's most dynamic cities, the advanced infrastructure of the Pearl River Delta region puts Macau, Shenzhen, Guangzhou and the cultural and natural attractions of the entire province of Guangdong within easy reach of Hong Kong.

Samsung studio in Shanghai in 1999 (Balfour & Roberts, 2003; Rocks, 2005; Whitney, 2006).

With increasing pressure from these international brands and with the intention of expanding global markets, some Chinese companies changed their attitude toward design, especially leading companies. They managed to enhance their design capacity in various ways, through focusing on design research, collaborating with foreign design consultancies and establishing overseas design offices.

In 1992, *Design*, published by the China Industrial Design Association, was the first magazine in China focusing on industrial design. The magazine was critical to the dissemination of industrial design knowledge to the society of the time. Now it is one of the most influential magazines in design in China.

Industrial design education began to bloom in the 1990s. Design programs were established within two streams, arts and engineering. The first stream offered design education in the arts and crafts tradition, while the latter focused on the contexts of engineering and architecture. Development in these two streams remained largely independent. When the system of design education both in the arts and engineering streams became well established, its collaboration with other disciplines became possible.

1996-2002: Growth of Design before World Trade Organization

The market of design in China grew rapidly after 1999. Among the reasons were consumer demand and market competition. With improved manufacturing capacity, the seller's market was transformed into a buyer's market. Enterprises had to consider differentiable products, instead of relying solely on cost-cutting. Consumers' needs were not limited to single products, but rather, to concepts of lifestyle. This in turn led to increased demand

for newly designed products. A second reason was that overseas design companies began to enter the market of China to develop joint businesses with large firms. A key example is the startup of collaboration in design between Lenovo and the American design company Ziba. In this period of time, the rapid emergence of the mobile phone market had also nurtured many design houses, which specialize in providing full services from styling design to prototyping for the industry.

At the same time, the capacities in all areas of manufacturing became further advanced in China. More multinational companies began to set up production for more sophisticated products. According to the research findings presented at the United Nations Conference on Trade and Development in 2004, among the world's 700 largest multinational companies, thirty-five percent had set up R&D sections in China. This percentage fell just below that of the US and UK (Shi, 2006).

However, in joint-venture companies in China, design is often the cause of internal conflicts. Instead of systematically importing foreign designs from joint partners, Chinese firms wish to develop more suitable products for the domestic market and strengthen their own innovation ability. In general, foreign partnering companies are not willing to develop products in China, and they stipulate that all design and development must be done abroad. Some even reject the involvement of the Chinese team in their design and development processes. Design thus became the source of discontent between the joint-venture partners for reasons of values, intellectual property rights, and ultimate interests of the involved parties. For these reasons, the progress of design was stifled. For example, because of such conflicts, the Volkswagen Santana model produced in China has taken over fifteen years to upgrade.¹⁰

On December 11, 2001, China eventually became a member of the World Trade Organization,

¹⁰ The joint-venture between Shanghai Auto Group and Volkswagen began in 1980. Santana was the first model in production. 1,684 Santana were sold before 1985, under the brand Shanghai Volkswagen. The main target at the initial stage was the localization of technology and production. 60% localization was finally achieved in 1990, taking 10 years. The first generation Santana in China was its original model in foreign markets and was not modified to fit the lifestyles of local consumers. The firm's first model for local markets was the Santana 2000, which was produced in 1995. Local designers were involved in the design team. See "Thirty-year History of Shanghai Volkswagen" at <http://www.autohome.com.cn/culture/>

which signified not only her success in the transformation from planned economy to market economy, but also her transition to become a major economy. Since then, the economic development of China has been more closely aligned to the global economy, and the consumption power of the Chinese market has risen rapidly. As a consequence, the society has taken a more positive view of design.

2002-2008: Design Enrichment in the International Markets

The design evolution in China has accelerated since 2002. More and more medium and small design firms were established in this period, especially in the Yangtze River Delta and Pearl River Delta regions. As revealed in the China Industrial Design Annual (2006) published by the China Industrial Design Association in 2006, there were 328 industrial design firms in China in 2005. The number has increased since 2007. Most design firms were located in cities like Shanghai, Beijing, and Shenzhen in Guangdong. In 2006, the China Red Star Design Award was launched, the first national design award. It was endorsed by the International Council of Societies of Industrial Design (ICSID) in January 2009. This award is offered annually and attracted 400 design submissions from 200 participating companies at the beginning. Numbers increased to 758 companies and 3,821 design entries by 2009. This shows the rapid progress of design in China.

Correspondingly, a highly competitive design market and expanding design businesses arose. International design consultants also started to enter the Chinese market. This wave was set off by Korean design firms that specialized in mobile phone design. American, European, and Japanese design firms such as IDEO, Ziba, and GK quickly followed. Their main clients were large manufacturers. In this competitive market,

design businesses gradually diversified. Foreign and local design companies focused on their own market segments to achieve differentiation of services and models.

From 2004 to 2009, the automobile industry entered a boom, averaging 20% growth annually (Polk & Co, 2010). Since 2006, domestic automobile enterprises have occupied over 28.7% of the China market, the first time they passed international companies.¹¹ Proprietary brands, such as Geely, Chery, Great Wall, and Brilliance autos, quickly recognized the value of design under market competition. Huge consumer demand shaped their subsequent strategies and policies toward the importation of technology and research and design development success.

The year 2008 was significant in the history of contemporary Chinese design. China successfully hosted the twenty-ninth Olympics in Beijing. For the first time, design was received and recognized at the higher governmental levels. Design was not only an essential tool for communication, but also a strategic instrument for the promotion and enhancement of China's global image. Through the process of the Olympics, the Government was able to understand design in more depth, which in turn helped in future policy making for the further development of design and innovation.

2008-2013: From Product to Service Design in Internet Times

This period witnessed the rise of the internet industry. Of the estimated 2.9 billion internet users worldwide as of 2014, China accounted for more than 20%. As in other parts of the world, widespread use of smartphones, tablet computers, and other electronic devices has had a massive impact on internet access for the Chinese populace. The number of mobile internet users in China ballooned from some 50 million in 2007

¹¹ The original data is from Brandt & Rawski (2008): "Notwithstanding allegations of intellectual property rights violation, the Chinese indigenous automobile makers have emerged from anonymity and irrelevance to become significant market players. In January 2006, they accounted for 28.7 percent of the domestic Chinese market, followed by Japanese (27.8), European (19 percent), American (14 percent), and Korean brands (10.3 percent). This was the first time Chinese indigenous brands had leapt ahead of foreign brands in China." (p. 318).

to 500 million in 2013, and it continues to grow. Since June 2014, more people in China have accessed the internet via mobile devices than via computers. Mobile shopping and mobile payment methods have also gained in popularity. The Alibaba Group, which went public at the New York stock exchange in September 2014, was one of China's first internet pioneers and currently is the largest operator of online shopping sites and payment platforms in China. Alibaba's net income surpassed the combined profit of Amazon and eBay during the second quarter of 2014.

This implies changes in consumer behavior and purchase channels, leading to an emphasis on new areas of design, including service design, interaction design and community design. The importance of design in the industry is unprecedented. Because of online shopping and mobile shopping, the physical styling of a product is more important to attract consumers than before. This is not only a matter related to aesthetics, but also extends to the cognition of the consumer. Moreover, with updated technologies and improved manufacturing capacity, the focus in developing new products is transformed from usefulness to usability.

2013 to Present: Innovation Design for Knowledge Economy

In the new economy, characterized by new technologies and new environments, such as cyber-physical system, intelligent manufacturing, 3D printing, big data, and so on, the content and context of design are shifting. To study the future direction of design in China and approaches to using design to improve competitiveness at the industrial and national level, a research project in design was launched by the Chinese Academy of Engineering. Based on a review of the evolution of design, features of China, economic basis, and experience in successful industries, the research team proposed the concept of 'innovation

design' to replace traditional industrial design and represent the new role of design in knowledge economy.

On March 26, 2015, at a business meeting held by the State Council, the government working group reported for the first time that based on the new policy "Made in China 2025"¹², Chinese manufacturing would be strengthened via the strategic blueprint for the "Internet +"¹³ and, linked to the development trend of integration, industry would comply with the "Internet +" trends in information technology and industrialization depth of integration as the main line. Innovation design is viewed as a main solution for integrating traditional manufacturing industry with internet industry. Design faces the time to transform product design for manufacturing into service and strategic design for "Internet+".

5. CHALLENGES FOR DEVELOPING DESIGN IN CHINA

In developing to keep in step with the progress in communications and knowledge, the content and context of design in China faces great changes. This creates challenges for improving design capacity in industries as summarized below.

5.1 Improve the Capacity of Design Firms in Design Strategy and Total Solution Services

Design firms have changed roles in business and industry in the past five years. Some local design firms, such as LKK, Newplan, and Artop, have transformed from design service suppliers into total solution experts. They have extended their services from styling to the entire product development process through resource integration. Although they remain focused on China's local markets, their clientele have extended from local enterprises to international brands, such as Samsung, Panasonic, Siemens, GE, and Audi. Other design firms have started to launch their own brands, such as Daye, and R&D design. With

¹² Made in China 2025 is China's first action plan focusing on promoting manufacturing. It is a ten-year national plan, endorsed by Premier Li Keqiang and unveiled by the China's State Council on 19 May, 2015. It was designed to transform China from a manufacturing giant into a world manufacturing power.

¹³ Internet + 互聯網 + refers to the application of the internet and other information technology in conventional industries. It is an incomplete equation where various internets (mobile Internet, cloud computing, big data or

encouragement from central government, R&D design has gone public, becoming the first China industrial design stock. These traditional local design firms have developed to follow a new and successful business direction. However, they face bigger challenges, such as how to establish and maintain their competitiveness.

5.2 Integrate Design in New Business Models

Manufacturing has become increasingly popular in China, especially in Shenzhen. Having achieved fame as the cradle of copyists ten years ago, Shenzhen is now a magnet for manufacturers from all over the world. With plentiful resources, including a talented workforce, R&D ability, IC, prototyping, design firms, and all the hardware for intelligent products, the city has been transformed into a huge incubator. New business models have emerged in the new era, built around a series of new technologies, including internet, 3D printing, big data, and intelligent hardware. In the start-up businesses, design plays a critical role, because all the entrepreneurs have an awareness of design. This has introduced another challenge to design, specifically, how design can create or add value to these new businesses. If design knowledge is still thought of in the traditional way as styling, then it cannot assist in the success of the new business in this new age.

5.3 Revolution in Design Education

In the rapidly changing industrial and economic context, the current design education system cannot satisfy the new demands. What is taught in design schools is still the theories and knowledge body borrowed from overseas at the beginning of 1980s as a result of overseas study. It is considered necessary, in the light of this experience, that a totally new system be introduced to match the new demands of industrial practice. In addition to domain knowledge of design, designers should broaden their knowledge to incorporate strategic thinking and an understanding of communication with and between a multiple of disci-

plines. This not only means a signification change of curriculum in design schools, but also new requirements for teaching staff in design schools.

6. CONCLUSIONS

China, with its distinct history and economic environment, is a special context for understanding the value of design. Within 35 years, Chinese design shifted from zero experience of modern design to an enrichment stage, and is now facing the new age. With famous brands in global markets such as Lenovo, Huawei, and Haier¹⁴, Chinese design is now determining the styling of a product. In the manufacturing industry, design is widespread, while it is also integrated into new business models as critical in start-ups. The rapid progress in the economy suggests that the basis of Chinese design should be enhanced, instead of relying on borrowed theories, and its leading role in entrepreneurship should be emphasized. The future direction of Chinese design is also a topic to be studied. These are challenges faced by Chinese designers, design firms, design organizations, and the government. The government has introduced innovation design a critical part of "Made in China 2025". A new design policy is to be released. In it, design is no longer classified as either a part of the manufacturing industry or as a service supplier. It will take a leading role in all the activities in business, industries and economic planning through the application of design thinking, design methods, and design processes.

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Internet of Things) can be added to other fields, fostering new industries and business development in China. It is similar to Information Superhighway and Industry 4.0, is proposed by China's prime minister Li Keqiang in his Government Work Report on March 5 in 2015.

¹⁴Lenovo, Huawei, Haier are original brands from China in the fields of home appliances and communication respectively.

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