

The Adaptability of "Craftsman Spirit": An Ecological Perspective

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Abstract

This paper studies and analyzes the adaptability of "craftsman spirit" from the perspective of ecology. It is considered that the adaptability of "craftsman spirit" is produced by the combination of craftsman's ecological environment and production mode, which has eight characteristics, such as labor participation in the whole process. It is pointed out that the production modes such as "assembly line" and "big machine" pursue "maximization of economic interests", destroy the original ecological environment of "craftsman spirit" and produce "unsuitable" drastic changes. Innovative suggestions: first, there are still some fields, industries or work that preserve the appropriate ecological environment and growth soil of "craftsman spirit"; Second, with the transformation of society to the post consumer era, the manufacturing industry has responded from "personalized customization" to "flexible production", and the ecological environment has been gradually repaired; The "craftsman spirit" remaining at the high end of the manufacturing industry is still possible to develop well.

Keywords: "Craftsman spirit", Ecology; Adaptability, "Big machine", "Assembly line", Piece rate wage system, Personalized customization, Flexible production

I. Preface

In recent eight years, the research on "craftsman spirit" has become a common practice in China. Since the special research on "craftsman spirit" appeared for the first time in 2013, this subject research has been greatly expanded and deepened. Especially after the "craftsman spirit" was first advocated in the work report of the Chinese government in 2016, it attracted extensive attention of researchers in various fields and different disciplines, and the number of research literature increased sharply. According to Li Dehua's statistics, the number of papers published in important journals on this subject was 368 in 2015 and 6937 by 2018 [1]; According to Shi Lin's search statistics, as of February 17, 2019, there had been more than 14600 articles [2]. In general, these studies have made great theoretical achievements. However, for the major key problem most expected to be solved in reality, that is, the "craftsman spirit" originated in the manufacturing industry, but why did it decline in the manufacturing industry "What kind of ecological environment and conditions can the "craftsman spirit" grow healthily? So far, few papers have answered these questions positively, which is a pity.

Zhao Mimi noted in her research that the distribution characteristics of the theme papers of "craftsman spirit" in CSSCI journals are: decoration, publishing wide angle, China Publishing and other issues have the highest number of papers, which is much higher than that of industrial manufacturing and other journals; In terms of industry differentiation, the number of journals published in publishing, editing, Internet plus, and new media is also larger than that in other categories of publications, [3]. This is a research conclusion far beyond normal imagination. It not only shows that the manufacturing industry is far less interested in and Research on "craftsman spirit" than some other industries due to different and wide differences in ecological environment, but also vaguely points out a new research idea.

This is an exploratory research on the above problems of "craftsman spirit" from the perspective of adaptability.

Adaptation is an ecological term, which refers to the survival potential given to organisms through heredity. Organisms live in a very complex environment and are always affected by various ecological factors in the

environment. Only organisms that adapt to the environment can survive and reproduce. This adaptability can only be formed through long-term natural selection.

Because adaptability is the result of the interaction between the stability of genetic basis and multiple changes of environmental conditions, once adaptability is formed, the internal cause heredity is stable and cannot change rapidly and synchronously with the changes of external causes. Therefore, when environmental conditions change greatly or violently, the original adaptation will become maladaptive or even die out.

Both at home and abroad, ancient craftsmen engaged in manufacturing activities in the field of manual manufacturing. After a long time of immersion and environmental running in, they produced the "craftsman spirit". This spirit does not develop due to social recognition, but fits in with the production and survival mode of craftsmen, but is suitable and attached to that era, so it is adaptive to the environmental conditions of the era.

Although there are various interpretations of the "craftsman spirit" of adaptation and stability, the main points are: keep improving and meticulous in work; Meticulous and rigorous attitude, focus and self-discipline; Pursue the perfection and perfection of products, and pay attention to inner aesthetics and feelings. These are largely uncontroversial. Together with the classification of craftsmen, the production and life of craftsmen, the origin of Chinese and foreign craftsmen, the comparison of the spirit of Chinese and foreign craftsmen, and so on, there are generally no controversial concepts and contents, which are briefly described here. The important thing to do is to return to the original logical starting point of "craftsman spirit", and explore what kind of environment it was produced and developed in, and the adaptability made it have those stable characteristics. Analyze how the drastic changes in environmental conditions have made these characteristics suddenly disappear, adaptation has become maladjustment, and the "craftsman spirit" has experienced a historic decline. In addition, it will also be instructive to find out which fields or industries have environmental conditions that are harmonious with the "craftsman spirit", that is, the "microclimate". Finally, we will have an in-depth understanding of the historical background of cultivating "craftsman spirit" for the first time in 2016, and we will have a positive answer to the question "whether the 'craftsman spirit' can return to the manufacturing industry".

II. The Main Characteristics of "Craftsman Spirit"

Adaptability is the result of the interaction between genetic basis and environmental conditions. During and after the formation of adaptability, the environment and itself will have quite stable characteristics, which will become the main characterization of adaptability. In the process of the formation and normal existence of "craftsman spirit", the following main characteristics can be observed one after another or at the same time: first, artisans participate in the whole process of production; second, artisans engage in a work for a long time or even for life; third, the quality standard of products is the final result evaluation rather than process supervision; fourth, the "handy" of artisans in using tools. In addition, most craftsmen pursue value rather than profit, and craftsmen often work in rigid institutions is also an important feature.

2.1 Whole process labor

With the rise and prosperity of handicraft industry, all kinds of craftsmen have developed their own professional direction and craft expertise. Although there are many kinds and different processes, basically all craftsmen produce products alone. Start from product design and raw material selection, participate in the whole process, fully control and independently complete product manufacturing [4]. Generally, the quality of products has been inspected by craftsmen in the production process, and most of the delivery or sales are also borne by craftsmen themselves. Most of the traditional craftsmen are self-employed workers. They devote their personal feelings to the products in the whole production process, and also get a sense of satisfaction and pride from the final product results. Craftsmen obtain the meaning of life through the connection with society by condensing the products of the whole process of work and hard work. This whole process labor of craftsmen has created the excellence of independently manufacturing products and the inevitable independent responsibility, which has become the core

feature of the construction of "craftsman spirit".

2.2 Engage in a job for a long time or even for life

Craftsmen must be workers with special skills, both at home and abroad.

Slightly different from ancient Chinese craftsmen, ancient Western craftsmen added professional singers, low-level clerks and doctors on the basis of China's "hundred workers" [5]. In order to survive and develop, these craftsmen must constantly improve their skills to achieve perfection. However, the cultural level of ancient craftsmen was generally low. Under the restrictions of "apprenticeship" and other educational conditions, the accumulation of skills needed a long time to improve slowly. This determines that a craftsman will engage in a job for a long time in his life. If we consider that "every line is like a mountain", the cost of retraining is extremely high; Be not at all surprising if the workers and artisans, military families and registered residence and personal system are restricted. The positive impact of long-term and repeated work is a stable work attitude and work ethics. Because the cultivation of the spirit of "reaching the highest good" and "scrupulous duty" is a long and uninterrupted process, craftsmen engaged in a work for a long time or even for life has become an important feature of building the "craftsman spirit".

2.3 The quality standard is final result evaluation rather than process supervision

The products produced by ancient craftsmen generally supplied two types of customers, most of which were civilians. The daily necessities they needed were basically manufactured by the "Baigong" of the lower level among craftsmen, and the quality standard was mainly "practical". In fact, the implementation of the standard was completed through the selection and purchase of products by customers [6]. As product quality is directly related to product price and sales, "Baigong" naturally can't slack off at all. And because they participate in the whole process of work, they are also clear about the defects and improvement details reflected by customers, so that the product quality is guaranteed. However, despite the large number of "hundred workers", they have made little contribution to the construction and cultivation of "craftsman spirit".

The other kind of customers are the government, nobles and even the royal family. The requirements for products are exquisite, and the quality standard used is "perfect standard": there is no "highest", only "higher"; There is no "best", only "better". This product can only be produced by high-level "craftsmen", that is, "skilled craftsmen", a considerable part of which worked in ancient official workshops. Although their personal freedom is limited, their spirit is free. The management and Construction officials do not supervise the production process, and do not even care about saving resources and working hours, which provides a relaxed environment for the craftsman's innovation and production. The craftsman's work is no longer just the hard work of rigid machinery. They can fully feel and deeply think about the process in their hands. "Slow work produces fine work" even regardless of the cost, meticulous and even strive for perfection. Only seeking the final product is an unparalleled masterpiece in the world.

The quality standard is the environment for the final result evaluation, which cultivates the craftsman's spiritual realm and professional ethics of loving concentration, paying attention to details and pursuing quality, and becomes the hotbed and main foundation for constructing and cultivating "craftsman spirit". It is the independent responsibility for independently manufactured products that makes artisans' self-assessment and introspection become a common phenomenon in handicraft industry, which has created generations of artisans' enthusiasm for innovation and excellence in products, which has become the core feature of "craftsman spirit".

2.4 "Handedness" of tools

Tool is the most important invention of human beings, which not only greatly develops the productivity, but also

constructs the existence of human society [7]. Tools are the most basic means for craftsmen to work. They can provide craftsmen with more powerful, finer or more difficult operations and improve efficiency and efficiency. "Handy" tools enable craftsmen to focus on the process and pay attention to details, and ensure that craftsmen have a physical foundation in the pursuit of quality and excellence. This is why most craftsmen regard their tools as "family treasures". Although in the process of craftsmen's work, the importance of tools as the extension of human limbs and the expansion of functions is self-evident, its existence is only "handy" by craftsmen. Here, tools are passive, which "should" the craftsman's "hand" and "can fight when they come", but they are "suspended" after use, which does not need the craftsman's deliberate attention. Even if many craftsmen regard their most "handy" tools as "spiritual", the relationship between the two can only be regarded as "master-slave relationship". This "should chirality" and master-slave relationship in the use of tools by craftsmen are also important characteristics of the construction of "craftsman spirit".

III. Maladjustment of "Craftsman Spirit"

After the formation of adaptability, if the positive feedback of environment and itself strengthens each other, it will often make the existing characteristics more stable; However, when the environmental conditions change dramatically, the original ecological conditions disappear one after another, and the environment and its own reverse feedback, the original adaptation will become maladaptive or even die out. History has entered modern times, and the industrial revolution has swept the whole manufacturing industry. It can be observed that the main characteristics of "craftsman spirit" have collapsed one after another, resulting in drastic changes of "maladjustment". "Assembly line" and "big machine" production are the main force of this flood, and economic rationalism and the pursuit of "maximizing economic interests" are the source.

3.1 Industrial assembly line production 2.1 Whole process labor

In the past work, craftsmen designed independently, participated in the whole process, controlled the process and completed the manufacturing of products independently. However, since Ford of the United States invented the circular conveyor belt and standardized parts, the assembly line industrial production mode has rushed to the world like a tide. The workers on the assembly line assemble the standardized parts into a complete product with the lowest cost with the lowest training, the least action and the fastest rhythm. Of course, the wages of the workers are also the lowest.

If we say that the traditional craftsman labor is a kind of comprehensive labor, the industrial assembly line is a kind of decomposition work. Workers do not participate in the whole process of production. Design, process, efficiency, innovation and final results have nothing to do with and cannot participate in workers. Workers are only engaged in simple, mechanical and repetitive operations at a certain node of the assembly line; The higher the automation of the assembly line, the more serious and thorough the separation and fragmentation of workers' body and brain.

In ancient feudal corvée and official workshops, even officials did not supervise the production process. The use of tools, the arrangement of processes, the control of rhythm, etc. these specific operations are carried out independently, independently and completely by craftsmen. Craftsmen create their own "craftsman spirit" meaning world in the process of wholeheartedly engaging in labor. However, after the industrial assembly line decomposes and separates the whole production process, the operation, action and time rhythm of workers are regulated by the assembly line and stuck, so they have no autonomy. On the assembly line, you must give up independence, free thought, innovation and creation, and even human dignity in order to become a recognized operator [8]. Therefore, the work and mental state of the operators of the industrial assembly line characterized by mass, standardized and homogeneous production is basically passive and negative, and their interest, concern and love for the final product have been greatly reduced. Most operators believe that their labor accounts for only a few percent or even a few thousandths of the final product, and they have no obligation or ability to be responsible for any situation (good or bad) of the final product. The important working environment for the construction of "craftsman spirit" has

changed greatly, and the craftsman's independent spirit has been seriously shaken. The industrial assembly line production makes the "craftsman spirit" "unfit."

3.2 Large machinery industrial production

The "handedness" of craftsmen using tools is an important feature of constructing "craftsman spirit". However, with the evolution of tools into machines in modern times, earth shaking changes have taken place in productivity and production mode, and the labor and living environment of workers (craftsmen) have irreversibly changed.

In the past work, tools were used "by hand", and people and tools were integrated; Now tools have become machines. Machines can not directly "handle", but turn workers into "servants" of machines. Machines have become "skilled craftsmen", with both skills and power; The original work of craftsmen involved in the whole process has been ruthlessly separated, and complex work has been decomposed into simple steps. Workers operate simply and mechanically under the regulation of machines. Machines have become an alien force restricting workers.

Secondly, in the past work, craftsmen processed raw materials into utensils or products through tools. Therefore, tools have become the connection between craftsmen and the external world. Tools play an important role in craftsmen's understanding of their position in society. Nevertheless, it is only a passive "response", and its relative status with craftsmen has not been improved. When tools evolved into machines, their relative status with craftsmen was reversed. Machines were not only independent of workers, but also had considerable autonomy; It not only stipulates the operation and rhythm of workers, but also blocks the connection between workers and society. In the past, tools were worthless without craftsmen; Now, workers leave the machine not only worthless, but even lifeless. Workers have completely lost the independence of labor. The weak labor contribution of a single worker to the final product can no longer arouse the heartfelt love and pride of the product, or even be regarded as out of the box. The important foundation for the construction of "craftsman spirit" has undergone major environmental changes, and the production of large machinery industry has made the "craftsman spirit" "unsuitable."

3.3 Pay according to the piece rate system and assess the quality according to the "use" standard

The scientific spirit, which has become the mainstream in modern society, especially in western capitalist society, is characterized by quantifiable. Once this scientific spirit is combined with modern economy, it will produce technical rationality and economic rationality, which is characterized by fine calculation on the basis of quantifiable [9]. When economic rationalism has become the mainstream value of industry and post industrial society, the maximization of economic interests has become the pursuit, goal and driving force of the whole society. Economic society requires that the capital invested in industrial and agricultural production and manufacturing, tertiary industry services and other economic activities must obtain the maximum profit in the shortest time and at the lowest cost. Under the impact of the frenzy of pursuing the maximization of economic interests in an all-round way, the humanistic spirit including "craftsman spirit" naturally appears very pale and powerless.

A typical way to maximize economic benefits is to pay according to the piecework wage system: when workers complete their possible maximum workload within the specified time, they can naturally obtain the corresponding remuneration in proportion, but only a small part of the profits created, and the vast majority of the profits are seized by capital to maximize. This salary system, which encourages workers to do their best to maximize benefits per unit time, completely eliminates the self-respect and awe attitude of independent responsibility for product quality in the craftsman era. It is common for workers to make shoddy products regardless of quality in order to achieve high yield in quantity. This corresponds to and matches that the overall industrial production has fully entered the "short-sighted" production mode with "fast" as the rhythm, "short-term" as the boundary and "profit maximization" as the goal. At this time, the quality problem is the biggest crisis affecting profits, and it is not related to the moral problems of producers and managers [10]. The solution is to set out from the purpose of

"maximizing interests" and establish a systematic and multi-level quality supervision and management mechanism for different industries from the manufacturing industry, focusing on technical and process standards, product quality standards, sales and after-sales service systems, etc. So far, the quality assurance system with craftsman self-respect and introspection as the core and supplemented by apprenticeship and guild rules has completely collapsed, and the modern quality supervision system has been replaced and fully established.

Quite different from the "perfect" standard actually implemented by the craftsman quality system, the modern quality system adopts the "use" standard based on the principle of "benefit maximization", that is, a balance standard between the limit that customers can tolerate and the lowest possible cost, which is far lower than the lower limit of "perfect". But since then, whether the workers who implement the piecework wage system or the workers on the production line, they only need to meet the standards required by the operation; As long as we don't touch the bottom line of the qualification standard, it is natural to pursue absolute quantity. With piecework pay, workers cannot be expected to use self-discipline to ensure product quality, even if the standard is not high. Therefore, the important role of quality inspector appeared in industrial production, and the "heteronomy" in the machine age completely replaced the "self-discipline" in the craftsman age. Whether workers' professional ethics is high or low is no longer considered. The key is that quality management must be very strict and in place [11]. Under the concept and system of "the standard of 'use' is the minimum standard of qualification", if workers give up the pursuit of quantity and continue to be obsessed with perfection after reaching the standard, it will be difficult for them to be understood by their families and colleagues, and accepted by the factory and society.

After the economic and social consensus that the piecework salary system and the "use" standard are used to assess the quality, the quality consciousness and self-discipline system of building the "craftsman spirit" have undergone subversive changes, and the basis for craftsmen to be responsible for and proud of product quality no longer exists. The craftsman spirit continues to have major "maladjustment".

IV. "Craftsman Spirit" is the Field or Work to Which We Adapt Today

In modern industry, agriculture and manufacturing, the ecological environment where the "craftsman spirit" can survive and develop has been severely damaged, and its growth soil has almost been lost. It will be a long and arduous systematic project to return the "craftsman spirit". However, in a large and open social system, can some fields, industries or jobs still preserve the ecological environment and growth soil suitable for the "craftsman spirit", that is, the so-called adaptive "microclimate"?

Let's make some conditional assumptions first. These fields, industries or jobs should have some important characteristics as follows:

Firstly, employees participate in the whole process of labor; secondly, employees engage in a work for a long time or even for life; thirdly, they use final result evaluation rather than process supervision; fourthly, employees generally use single, simple and "handy" tools; fifthly, employees pursue ultimate value more than profit; Sixth, employees have the guarantee of medium and above stable income. Seventh, employees often work in rigid institutions. Eighth, these fields, industries or jobs often have an ancient or long history.

According to the satisfaction of these important characteristics, we select the following fields, industries or jobs:

The first category is education, medical treatment, competitive sports, art, culture and other fields;

The second category is publishing, printing, decoration, ancient architecture, cultural relics and archaeology, high-end manufacturing and other industries or jobs.

The above two categories basically fully meet the eight important characteristics. In fact, there are more fields, industries or jobs that generally meet the above important characteristics than we think.

These characteristics are very obvious. For example, if a teacher teaches a course completely for at least one semester, the surgeon must complete an operation from beginning to end; Singers, film actors, editors and writers are engaged in a job for a long time or even for life; The evaluation of athletes only depends on his style and medals. Only when a book is printed and published can someone comment on the exquisite pages and wonderful contents of the book; In order to achieve the goal of "repairing the old as the old and exquisite", ancient architectural engineers and cultural relics restorers not only "work slowly and work carefully", but also ignore the cost of work and pursue the ultimate value, they always have the upper hand; Teachers, doctors, writers, actors, editors, athletes, ancient architecture or cultural relics engineers, senior technicians and other schools, hospitals, troupes or theatres, publishing houses, sports teams, museums and large enterprises are very stable rigid institutions, most of which have a long history; These employees have a stable income higher than the upper middle level of society and are generally respected by the society.

One interesting feature is that these practitioners are generally still using single function, simple form, especially "handy" tools. For example, a pen (chalk, pen, brush, brush, electric pen, etc.), a knife (scalpel, carving knife, cooking knife, props knife, etc.), a hammer (process hammer, testing hammer, etc.), a needle (embroidery needle, acupuncture needle, probe, etc.), a gun (welding gun, match gun, props gun, javelin, etc.), and an earpiece (medical earpiece, testing earpiece, etc.). The more people like to use simple tools, the more they can have unique insight in their work; The more creative people are, the more they can use simple tools. What's more, without any tools, for example, the old Chinese medicine can identify the disease and apply the medicine to the case by gently taking the pulse with two fingers; Diving athletes only use their muscles and strength to present thrilling and bodybuilding shapes in the air, which can provide beautiful enjoyment for the audience.

In these fields, industries or work, we can see that the ecological elements on which the "craftsman spirit" depends remain good, and its growth environment and soil are still suitable. Whether engaged in material production or spiritual production, most of these two types of employees can do it: keep improving and meticulous in their work; Meticulous and rigorous attitude, focus and self-discipline; Pursue the perfection and perfection of products, and pay attention to inner aesthetics and feelings“ "Craftsman spirit" has become their main working spirit.

V. Discussion on the Return of "Craftsman Spirit" to Manufacturing Industry

The decline of "craftsman spirit" in modern manufacturing industry has become a social consensus, and some scholars even assert that it has disappeared. Looking forward to the return of "craftsman spirit" to the manufacturing industry seems to be the call of most people. It is necessary to explore the historical background and possibility of return..

5.1 "Craftsman spirit" is not far away from manufacturing

To be sure, history has entered modern times, and the industrial revolution has swept the whole manufacturing industry. Under the repeated impact of "big machine" and "assembly line", the ecological environment and hotbed of "craftsman spirit" collapsed, and the "maladjustment" upheaval took place. However, these mainly occur in the large-scale production of industrial products that can be mass-produced, standardized and parts assembled, which is similar to the production of daily necessities required by the common people previously engaged by "Baigong". Although the production of these industrial products accounts for the vast majority of the manufacturing industry, just like the "hundred workers", in fact, they are not the backbone of the "craftsman spirit" or the main inheritor of the "craftsman spirit", and they make little contribution to the construction and cultivation of the "craftsman spirit". Some scholars believe that craftsmen must be professionals who master high technology, skills and skills and can participate in the whole profession “Ordinary workshop workers and simple skilled workers cannot be called "craftsmen" [12]. From this perspective, real craftsmen are not far away from the manufacturing industry, but towards the high end. Although these "craftsmen" account for only a few percent of the employees in the

manufacturing industry, they are shining with the light of "craftsman spirit" and have all or most of the eight corresponding characteristics.

For example, the eight top technicians from all walks of life introduced by CCTV in the program "craftsmen in a big country - ingenuity to build dreams" are their representatives: Ma Rong, carving technician, is "finger dancer on steel plate"; Hu Sheng, senior technician of CNC lathe, can "carry out artistic carving on metal"; Wang shuqun, the youngest super technician, made "every test data to be extremely accurate". What's more, Zhou pinghong, a doctor of Shanghai Zhongshan Hospital, was able to build a "medical tunnel" with minimally invasive digestive endoscopy in the patient's esophagus wall with a thickness of only 0.4 cm, creating the most in the world; For example, Zhang Dongwei, an electric welder, manually welded the "hydrogen bomb" inner tank. It took five hours to weld a weld with a thickness of only 0.7mm and a length of 3.5m, with a total length of 14km. A total of 4000 welds were welded into the best quality in his hands. Of course, these craftsmen are rare, but it is enough to show that the fire of "craftsman spirit" is still alive, not far away, but collected to the high end of the manufacturing industry. As long as a large area of ecological environment is restored, "craftsman spirit" can still start a prairie fire.

5.2 "Individuality" and "flexibility" are improving the ecological environment of manufacturing industry

"Personalized customization" and "flexible production" are the sharp tools to repair the ecological environment of manufacturing industry. This is not an artificial way of strong reversal, but a natural choice. It is the need of social transformation in the post consumption era and post industrial era, and a strong driving force from the consumer end to the production end.

How attractive "personalized customized" products are, you can take an example of "Tang costume": as soon as the leaders of all countries attending the APEC meeting held in China in 2001 appeared, their "Tang costume" won the envy of the world. It turns out that the fabrics of each "Tang costume" are specially made, the patterns and colors are personally selected by each leader, and the size is customized according to their body shape, which is very natural and glorious.

In contemporary society, there has been a trend of personalization, diversification and hierarchy in consumption, which is a consumption mode of seeking innovation and difference brought by the differentiation of class, income and demand. "Personalized customization" is the best strategy for manufacturing industry to meet personalized needs. If we say that in the era of "product supremacy", the manufacturing industry pursues "profit maximization"; In the era of "market supremacy", the manufacturing industry pursues "the maximization of share"; Then, in the era of "customer supremacy", what the manufacturing industry must pursue is to lock customers and fully explore the maximization of their internal value. When different customers have different needs for the same commodity in various details, in order to try their best to meet customers, the manufacturing industry will naturally adopt the production mode of "personalized customization". Qingdao Haier is the first large-scale enterprise in China to implement "personalized customization" and "order management". In the first 20 days since it began to accept customers' orders for "customized refrigerators" according to individual requirements in major shopping malls, the number of orders exceeded 1 million, which can be called a world miracle. The trend of "personalized customization" has led to the decline of "mass production", "assembly line" and "homogenization" commodity production.

With the tide of "personalized customization", flexible production has become a hot direction in today's manufacturing industry. Although the basic concept of "flexible production" and "flexible manufacturing system" were first introduced as early as 1967, they remained calm for 50 years and did not get attention until 2016. This is because "flexible production" is a manufacturing idea rather than technology. When "assembly line" and "big machine" production are in full swing, "flexible production" can only enjoy itself in the manufacturing industry, and it is difficult to have a foothold. However, the vigorous development of "personalized customization" in recent ten years has finally given "flexible production" a place to play its skills. In addition, it also benefits from various

conditions required by "flexible production", such as communication and software, which are now very perfect.

"Flexible production" is a flexible response ability to minimize the cost of external and internal changes in the commodity production system. The most important significance of its "flexibility" is to make the "personalized customization" production also have cost advantages. Imagine that if "personalized customization" is carried out on the traditional "mass production" and "assembly line" manufacturing mode, the increase of cost is inevitable and inevitable. It is also certain that it is unsustainable to implement "personalized customization" at the expense of cost and efficiency. "Flexible production" is to "flexibly" adapt to the changes inside and outside the system and minimize the cost through the adjustment of planning and design, system architecture, software preparation and team self adaptation.

Thus, from the emergence of "personalized customization" to the response of "flexible production", the middle and low-end manufacturing industry is undergoing slow and profound changes. The ecological environment of "craftsman spirit" destroyed by the production mode of "mass production", "assembly line" and "homogenization" is gradually recovering because this mode has been ignored. Perhaps no one will notice that when Japanese rice cookers and toilet covers are wildly bought, bought and bought by Chinese tourists, a new consumption era is actually coming. More and more affluent consumers are no longer satisfied with the quality of goods, but pay more and more attention to the aesthetics and quality of goods. The creativity, aesthetics, fashion, emotion, significance, environmental protection and other services attached to commodities have increasingly attracted the continuous attention of consumers. When the details of goods become the biggest buying point, and when customers are more willing to pay for beauty rather than durability, is it not enough to drive the manufacturing industry to change its course and turn rough manufacturing into excellence? The commodities with thousands of people have been aesthetic fatigue, and the bulging wallet makes people have the courage to spend money for specialization and personalization;

The trend of focus is stirring up the already discouraged nerves of past craftsmen, and gradually moving towards a good ecological environment, which is full of hope for "craftsman spirit" and "spring breeze".

The original words of the 2016 government work report are: "encourage enterprises to carry out personalized customization and flexible production, cultivate the craftsman spirit of excellence, increase varieties, improve quality and create brands." This is a complete idea and expression that is coherent from top to bottom, echoes back and forth, advances layer by layer and completes at one go. Seeing this historical background, fully understanding the careful thinking of the report, and then thinking about whether the 'craftsman spirit' can return to the manufacturing industry, it suddenly becomes clear.

V. Conclusion

"Craftsman spirit" only fits in with the production and living mode of craftsmen, but is suitable and attached to that era, so it is adaptive to the environmental conditions of the era. Once the adaptability is formed, it cannot change rapidly and synchronously with the change of external factors. Therefore, when environmental conditions change greatly or violently, the original adaptation will become maladaptive or even die out.

The main characteristics of "craftsman spirit" are: participating in the whole process of production, long-term or even lifelong work, product quality standard is final result evaluation rather than process supervision, and "handy" of tools.

Modern "assembly line" and "big machine" production are the main reasons for destroying the ecological environment of "craftsman spirit". Economic rationalism and the pursuit of "maximizing economic interests" are the root causes. The quality consciousness and self-discipline system of building "craftsman spirit" have been completely subverted after the consensus of economy and society has become that the piece wage system is used to calculate remuneration and the "use" standard is used to assess quality.

In modern society, in the fields of education, medical treatment, competitive sports, art and culture, publishing, printing, decoration, ancient architecture, cultural relics archaeology, high-end manufacturing and other industries or work, the ecological elements on which the "craftsman spirit" depends remain good, its growth environment and soil are still suitable, and the "craftsman spirit" is still their main working spirit. Personalized customization and "flexible production" are slowly and deeply improving the ecological environment of manufacturing industry.

While achieving the above original results, as the research scene is mainly in China, there is a lack of in-depth understanding of European and American countries, especially the comparison and analysis of Germany and Japan with concentrated craftsmen and developed "craftsman spirit", the depth and breadth of the research need to be improved.

In recent years, the vigorous development of "personalized customization" has made "flexible production" useful. In the future, when consumers pay more and more attention to the aesthetics and quality of goods, as well as the creativity, aesthetics, fashion, emotion, significance and environmental protection attached to goods, together with services, the ecological environment of "craftsman spirit" will be repaired faster. This is the focus of the next research on the adaptability of "craftsman spirit".

References

- [1] D.H. Li, "Hot spots and trends of domestic craftsman spirit research -- CiteSpace visual analysis based on documents from 2015 to 2018," Vocational technology, no. 10, pp.1-8, 2019.
- [2] L. Shi, "Origin and evolution of Chinese craftsman spirit," Cultural heritage, no. 2, pp. 17-24, 2019.
- [3] M.M. Zhao, H. Ding, "Research status and trend analysis of craftsman spirit in recent ten years," Cultural heritage, no. 3, pp. 72-76, 2019.
- [4] X.Z. Zhuang, "Craftsman spirit from a multidimensional perspective: Connotation Analysis and interpretation," China Higher Education Research, no. 5, pp. 92-97, 2017.
- [5] P.P. Zhang, "The internal logic of the return of craftsman spirit in the Internet age," Zhejiang Social Sciences, no.1, pp. 75-82, 2017.
- [6] D. Xue, "Research on Chinese craftsman spirit," Vocational and technical education, no. 25, pp. 8-12, 2016.
- [7] Y.L. Sun, "Criticism of machine system and capital logic -- an investigation based on Das Kapital and its manuscripts," Marxism and reality, no. 3, pp. 56-63, 2019.
- [8] Y.W. Wang, F. Chen, "Review and reconstruction of craftsman spirit in the new era," Research on Dialectics of nature, no. 11, pp. 52-56, 2019.
- [9] Q.Z. Xiao, Y.C. Liu, "Craftsman spirit and its contemporary value," Hunan Social Sciences, no. 6, pp. 6-10, 2015.
- [10] X.J. Fang, "Multiple contradictions in craftsman cultivation and expressions of Vocational Education," Vocational and technical education, no. 4, pp. 25-30, 2019.
- [11] D. Zhang, "Craftsman spirit and its historical evolution in China," Research on ideological education, no. 10, pp. 45-48, 2016.
- [12] X.L. Li, "Criticism and positive reading on the understanding of vulgarization and superficialization of craftsman spirit," Contemporary vocational education, no. 5, pp. 4-5, 2016.