Mechanical Automation Design and Manufacturing Problems and Countermeasures

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Abstract: With the development of China's economy from high speed to high quality, the development and application of mechanical automation has become an indispensable part of China's industrial field. At present, the large-scale application of mechanical automation in the industrial field of various countries has promoted the labor productivity of domestic enterprises and improved the industrial efficiency. However, it is worth noting that many mechanized design and manufacturing technologies are not yet mature. Based on the practical analysis of the application of mechanical automation in China's industrial development, it is proved that the development of mechanical automation design and manufacturing in China is still in the early stage, and the development of various aspects is not mature, and there are still various problems. Therefore, under the background of the development of modern science and technology, the purpose of this paper is to take the mechanical automation design and manufacturing in the industrial field as the starting point, and to focus on the problems encountered, to analyze these problems and give some improvement measures and methods. In this paper, the actual investigation, literature review and other methods to analyze the current mechanical automation design and manufacturing in China, in order to improve the mechanical automation, improve the quality of mechanical products and the ability of automation workers. The research results of this paper prove that mechanical automation design and manufacturing is the basis to ensure the maximization of mechanical automation. Mechanical automation can ensure the sustainable and healthy development of China's economy in some aspects, ensure the quality of mechanical products and improve the development level of productivity.

1. Introduction

With the accelerated development of science and technology, it not only promotes the social and economic development, but also promotes the accelerated generation of advanced mechanical automation in the industrial field. In a long period of time in China, traditional machinery occupies a dominant position in the industrial field, while mechanical automation does not occupy a mainstream position. However, the development of science and technology in today's society makes traditional industrial machinery unable to meet the needs of today's society for mechanical products and support the rapid development of productivity. With the extensive application of mechanical automation design and manufacturing, mechanical automation is of great significance to the stable development of China's economy. But at present, China's mechanical automation is in the primary stage, which also proves that China's mechanical automation development space is still relatively large, there is a lot of room for progress.

Although the development of China's industrial field has entered the era of mechanical automation, in terms of the development situation, the theoretical aspects of mechanical automation design and manufacturing are not very perfect, and the technical aspects are not mature, and there are various problems [1]. Through the actual investigation and the analysis of literature query, some problems encountered in China are found, including the shortage of design talents, the small scope of industrial application, the general lack of innovation ability, the low precision of technical manufacturing and the low management ability of enterprises [2]. In mechanical automation design

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and manufacture of looking at these problems, the technology industry in China is relatively backward, making the manufactured products to meet the required standards, development of the industry of our country's domestic level received constraints, is clearly not conducive to the high quality of our country economy development and the progress of the whole industry [3].

This paper studies the role of mechanical automation design and manufacturing in our society and the problems faced by current mechanical automation, and finds that the extensive application of mechanical automation not only meets the needs of society, but also greatly improves the productivity of enterprises, but also faces some problems [4]. Starting from the problems faced by automation, this paper has a comprehensive understanding of the new situation and new tasks, a scientific analysis of new opportunities, and a profound grasp of the new development direction [5]. At the same time, innovation is the driving force and innovation leads development. Meet the needs of the advanced machine of the development of the mechanical automation, for the processing of mechanical problems properly, in this article, through comprehensive analysis for mechanical design and manufacturing automation, put forward in the process of promoting its rapid development, through specific training way to make the personnel engaged in related machinery industry in China improve their various aspects ability to, make our country's mechanical automation industry to develop better and better, lay a foundation for modernization of our country socialism power [6-7]. We should attach great importance to mechanical automation design and manufacturing, so as to develop better in the whole industrial system [8-9].

2.Method

2.1 Core Concepts

(1) Mechanical automation

Mechanical automation: automation refers to the process of automatic operation or control of a machine or device according to predetermined procedures or instructions without human intervention, while mechanical automation refers to the process of automatic control of a machine or device through mechanical means [10]. No manual operation, or collaboration manual operation, in the manual operation to give some help, in order to improve the efficiency of the whole industry. At the same time, the application of mechanical automation can also promote the productivity of enterprises, at the same time, it can promote the overall development of people, so that workers can play a role in design and manufacturing innovation [11]. The wide application of mechanical automation in the whole society will improve the productivity of Chinese enterprises and promote the great development of Chinese industry.

(2) Characteristics of mechanical automation

First of all, mechanical automation design and manufacturing is a comprehensive technical subject aiming at many fields. To solve the complex and difficult technical problems in the field of industrial modernization. Secondly, mechanical automation design and manufacturing is an important basic industrial technology in China, which contains many industries, realizing the development from traditional mechanical technology to modern science and technology. Finally, the most essential characteristic of mechanical automation design and manufacturing is high safety, which has the function of automatic identification of problems in the production process, greatly improving safety. Finally, it can improve product quality and production efficiency [12]. Moreover, the future development of mechanical automation is gradually toward the direction of intelligence and diversification.

2.2 Research Objects and Methods

This paper takes mechanical automation and manufacturing as the main basic research object, analyzes the current role and significance of China's mechanical automation in China's social development, and objectively and truly analyzes some obvious deficiencies and problems in China's mechanical automation development compared with western developed countries. Aiming at the problems and improvement measures of mechanical automation, this paper discusses and studies

the whole paper. In the discovery of some current thorny problems and explore solutions, based on the famous academic websites in China, we can fully search and query relevant literature, and formulate feasible research routes and ideas.

As the researcher of this paper, he drew up the concrete practice plan and steps when the practical problems were investigated. The specific practice plan and steps mainly cover the discussion of professional technicians in the industry, aiming at the advantages of mechanical automation design and manufacturing, the current problems and some solutions to these problems. Conduct professional software analysis and research on statistical products and service solutions to collect good data, so as to ensure that the research of this paper stands on an objective and neutral position, and ensure the credibility of the research results. And put forward the effective solution strategy from the Angle of specialization.

3. Experiment

3.1 Experimental Data Sources

In this paper, the research on mechanical automation design and manufacturing is carried out based on the related literature query and the discussion of the actual industry professionals, and the relevant conclusions are taken as the verification link of the investigation. In the process of investigation and research, mechanical automation design and manufacturing as a keyword to search. The objectivity of the research results is ensured by taking its reference point.

3.2Experiment Implementation

In the process of literature inquiry, this study took "mechanical automation" as the key word. After inquiry, it was found that relevant literature had a relatively large reference, so its views and improvement measures were adopted. On the basis of critical thinking, this paper has fully absorbed the excellent results of previous studies to ensure that this article has its own characteristics.

In the actual investigation and study, the opinions of professional technicians on mechanical automation were followed strictly according to the specified plans and procedures to ensure the accurate recording of professional opinions. In order to ensure the research ability of this paper, a strict and objective analysis and description are conducted on the recorded data.

4. Discuss

4.1Problems in Mechanical Automation Design and Manufacturing

Through the experiment and the actual investigation, the results reflect that the current mechanical automation design and manufacturing for China's economic development has an important fundamental role. The economy of a country is the primary condition for the development of a country. The economic development cannot be separated from the great development of modern industrialization. From the perspective of the development process of human history, the development of industry plays an important role in every historical stage. At the same time, the development of modern industry mainly depends on the development of mechanical automation, mechanical automation design and manufacturing is the necessary condition for industrial development. Gradually into the industrial manufacturing, along with our country within the industry and gradually achieve modernization in all areas of the application of mechanical automation, research shows that mechanical automation in recent ten years, get rapid development and extensive application in the whole society, this article in the form of a table for nearly a decade of mechanical automation applications has made the investigation, the results of the survey are shown in table 1.

Table 1. Survey results of degree of application of mechanical automation (percentage of application)

Year Field	Printing	Power generation	Engineering	Mechatronics	Environmental protection
2010	100	80	50	/	/
2012	100	100	80	/	/
2014	100	100	100	20	20
2016	100	100	100	60	50
2018	100	100	100	80	75
2019	100	100	100	100	80

Can be found from table 1, for the application of mechanical design and manufacturing in China begins in recent years, from traditional industries such as printing machinery,

power machinery and engineering machinery these technologies use mechanical automation first, then gradually in the mechanical and electrical integration, environmental protection and other fields also cited the mechanical automation technology step by step. Therefore, it can be seen that mechanical automation design and manufacturing have an important role in the development of the whole industry in China.

However, due to the late start of China's industry and the short development history of modern industry, the lack of mechanical automation experience and technical level leads to some thorny problems in China's mechanical automation design and manufacturing. The survey results of the main problems facing China are shown in figure 1 below.

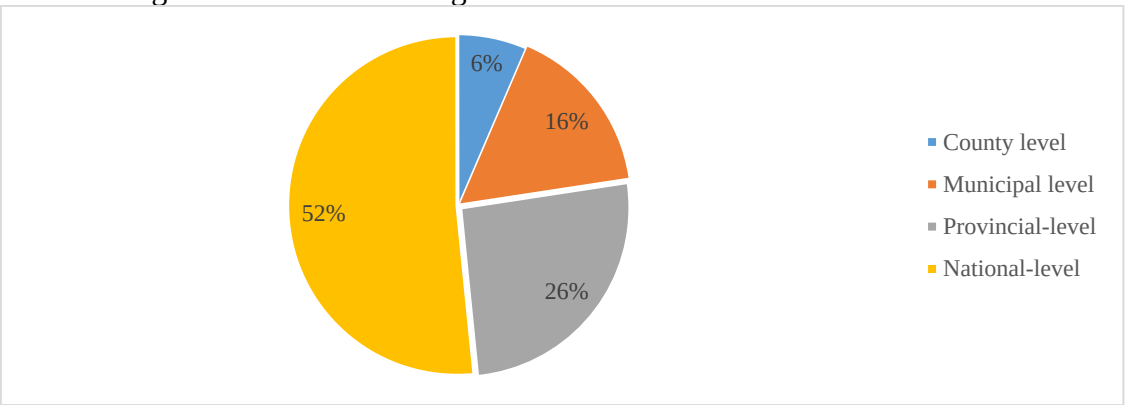

Figure 1. Problems with mechanical automation

From the above we can find that, because our country industrialization in many technology is not yet mature, in the application of mechanical design and manufacture of industrialization is not skilled, and there is lack of design talent, industry application range smaller, innovation and technology to manufacture precision is not high enough and lack of efficient management system, etc. Therefore, in view of these problems, we need to proceed from the reality, put forward effective improvement measures and solve the problem.

4.2 Improvement Measures

In view of these problems, our country needs to strengthen in the mechanical automation design personnel actual control ability training, strict control product quality, to pursue high speed development on the basis of high quality. At the same time, we should pursue innovative development and seize the initiative in development. Strengthen the construction of enterprise management ability and control of machining accuracy. This article combines the actual situation, the concrete analysis and the research, proposed some concrete improvement measures.

(1) Strengthening and accelerating the training of high-quality talents

The application of modern mechanical automation design and manufacturing needs high-quality talents. Comprehensive talents are the primary productive forces in the development of modern society, so we must strengthen the cultivation of comprehensive talents. Under the background of

the modern economic market, the competition among various enterprises is more and more fierce. In fact, it is the competition for talents among various enterprises in essence. Only when an enterprise has talents with higher ability and quality can it gain greater development momentum. At the same time, the same can be said of mechanical automation design and manufacture in mechanical automation only has many high-quality professional talents, make the professional personage of mastering the core of mechanical automation technology, to make our country in the industrial area to gain the advantage in the world, leading the western developed countries, keep our country economy sustained, stable and healthy growth to improve international competitiveness. We should strengthen the relationship between mechanical industry and professional colleges and lay emphasis on the practical process of training talents.

(2) Expand the application in multiple fields

In today's society, the theoretical level of mechanical automation is relatively fast, but the specific application in society is relatively backward, there is still a certain disconnect between theory and practice. Therefore, in this context, the requirements of mechanical automation staff must combine theory with practice, from the practical reality, explore the application of mechanical automation in various fields, pay attention to the application of theory in the process of practice. Make the advantage of mechanical automation technology in all fields, formed gradually in the aspect of mechanical automation comparison system of a set of procedures, attaches great importance to the application in all fields, promote the progress and development of the whole industry system, and to sum up the experiences of the development of our country through this process, in order to better use in the future.

(3) Focus on innovation

In order to make mechanical automation design and manufacturing application more handy, we must adhere to the innovation development, adhere to the independent innovation development of enterprises. Innovation is an important driving force for the development of all sectors of society. Whoever takes a step ahead in innovation will have the initiative to lead development. At present, the mechanical automation design and manufacturing in China needs to give full play to the capability of independent innovation at the technical level, to improve the technical deficiencies and shortcomings, increase the investment of research funds, so as to improve the original innovation capacity of the whole industry. Better application and development of mechanical automation, improve mechanical automation during the operation of skilled technical level. Make the social development of our country more comprehensive, improve the production efficiency of the industry.

(4) Improving the enterprise management system

To improve the management system of enterprises is the basic condition for more efficient development of mechanical automation design and manufacturing. In order to ensure the normal operation of mechanical automation design and manufacturing, enterprises must formulate a strict production and management system, the power and responsibility of the staff to be implemented in place, to do the right must have responsibility, power and responsibility. At the same time pay attention to the enterprise management personnel's quality assessment, ensure the enterprise in the daily operation of scientific management. At the same time, strengthen the construction of enterprises, in the application process of mechanical automation, pay attention to the core industry and technology in the industrial field, pay attention to the industrial efficiency, improve the comprehensive competitiveness of industrial enterprises in the modern society, promote the development of China's modern market economy from all aspects.

5.Conclusion

In general, only the continuous promotion of the development of China's mechanical automation design and manufacturing, continuous improvement of technical capabilities, improve the technical level, in order to make China's economic development in the direction of greater advantages. For the mechanical automation application problem in our country, also need to all areas of professionals and all aspects of the various assistance and hard work, innovative new advanced technology actively, increase personnel training, and improve enterprise management system, to

make our country in the field of industrial automation design and manufacture of the development of better and better meet the needs of the society.

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