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Research on the Organization Model of Generic Technology for Manufacturing Industry

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Abstract

The innovation of generic technology for the development of the manufacturing sector has an important basic role, and for the generic technology research and development, there is lack of effective attention. Especially in manufacturing industry, the development of generic technology still can't meet the national economy and the needs of the development of manufacturing industry. Generic Technology has deeply influenced on manufacturing industry and enterprises, which can arose huge economic benefit and social benefit to the society. Because of the characteristics of generic technology for manufacturing itself and the subjects of generic technology innovation for manufacturing, the innovative organizations of generic technology for manufacturing are various. As generic technology for manufacturing is the research object, the paper is based on the research of types and features of the generic technology for manufacturing, analyses constituent and features of innovative subjects of generic technology for manufacturing.

Keywords: Generic Technology, Manufacturing Industry, Organization, Innovative, Project

Introduction

Manufacturing is the foundation of economic development and the competitiveness growing of the region and the nation. As a typical technology intensive industry, manufacturing industry is not only the carrier but also the power of the development of high and new technology (Kotnou, 2000). Generic technology is between the basic technology and proprietary technology, and at the same time has huge influence on one industry or many industries and on enterprises in those industries. The innovation of generic technology for manufacturing plays an important role in the whole industry chain of technology innovation, which is the precondition to other, and relevant industrial technology promotion and development.

In order to achieve the success of the innovation of generic technology for manufacturing, we must have the corresponding appropriate organization (Longcan, 2005). Good organization can not only realize the success of the development of generic technology for manufacturing, promote the innovation, but also can achieve the normal diffusion of technology achievement. We should organize, coordinate and control in generic technology innovation for manufacturing from the

macroscopic level, namely needs to make generic technology innovation for manufacturing and diffusion into a system. Due to different types of generic technology for manufacturing, we must combine the characteristics of manufacturing with manufacturing itself and apply different and appropriate organizations. Thereby, the process of generic technology innovation for manufacturing can be targeted, organized and affordable. The research of generic technology innovation for manufacturing for effective organization and management will greatly enhanced the ability of technological innovation and the ability of independent innovation. Furthermore, it is conducive to technological innovation system formation and improvement (Wang, 2009; Sun, Peng, 2009).

The Constituent Subjects of Generic Technology for Manufacturing Industry

The Subjects of Generic Technology for Manufacturing Industry

The subjects of generic technology for manufacturing are diversity, which including enterprise, government, university, research institute and intermediary organization. The enterprise is the direct beneficiary, which is the subject of technological innovation. The government is the subject of the technology policy, which is the key of national technical policies. The university is the important undertaker and beneficial supplement. The scientific research institution is the bridge of technology transforming into productivity. Every subject’s function, providing the main source and status are shown in table 1.

Table 1. The Comparative Study of Innovative Subjects of Generic Technology for Manufacturing Industry

Subject	Function	Providing the Main Source	Status
Enterprise	Integrating with Information and Resources from Interior and Exterior	Demanded Information of Market and Customer	Core Subject
University	Improving Enterprise’s and the Whole Social Technology Innovation Ability	Talent	Basic Subject
Scientific Research Institution	Solving the Technical Bottleneck and Realizing Industrialization	Technology	Basic Subject
Government	Realizing the Government Investment Publicity	Policy and Fund	Organizing and Guiding

Selection of Innovative organization of Generic Technology for manufacturing Industry

The Innovative Organization of Generic Technology. To classify the organization in its specific developing level, the forms of organization can be divided into single developmental organization, government-organizing and guiding organization, technology cooperation organization. The paper will focus on these three forms of organizations.

Single developmental organization. The single developmental organization includes enterprise that engaged in R&D on generic technology, university and research institute. Due to the differences

of themselves, meanwhile relying on the regulation of market mechanism, they cannot independently take the tusk of research and development on generic technology, or cannot take the tusk completely. The single developmental organization is shown in figure 1.

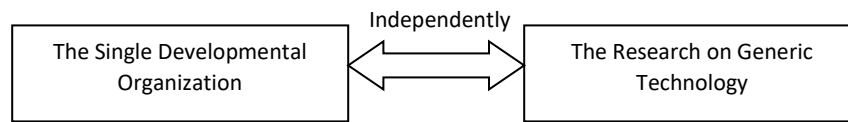


Figure 1 The Single Developmental Organization

Government-organizing and guiding organization. In the government's strong support and with the national research institutions as the leading factors, the government-organizing and guiding organization implements various planning strategies, unites various organizations and carries out all kinds of plans and projects. The government-organizing and guiding organization is shown in figure 2.

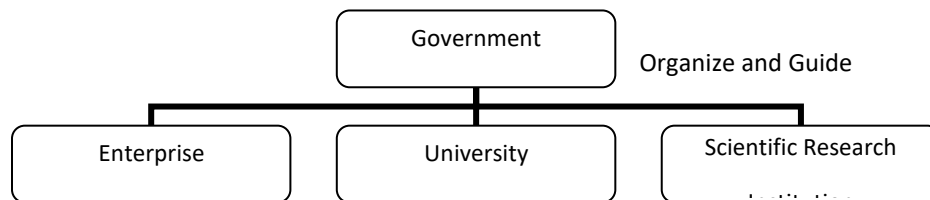


Figure 2. The Government-Organizing and Guiding Organization

Technology cooperation organization. The technical cooperation organization includes project cooperation, technology base cooperation, technological fund R&D and cooperation, etc. For generic technology, the inherent characteristics of generic technology decide the cooperation will be more and wider in the process of the research and development. The technical cooperation organization is shown in figure 3.

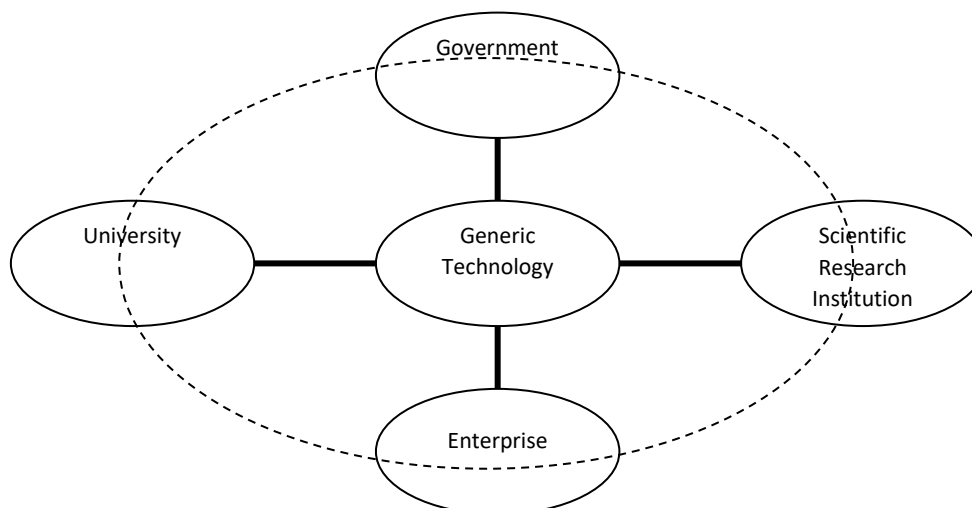


Figure 3. The Technical Cooperation Organization

Innovative Organization of Generic Technology for Manufacturing Industry. Based on the durability of the innovative organization of generic technology for manufacturing industry, it can be

divided into the project organization, technological alliance, research base and the national generic technology research institutions, etc.

Project Organization. Project organization refers to temporarily organization in which all relevant parties to accomplish scientific research project in a specific time and for a specific goal. Its advantages of targeting and timeliness are suitable to apply for the key generic technology research with a clear goal and deadline and to meet the requirements of the complex research process of manufacturing industry. The project organization is shown in figure 4.

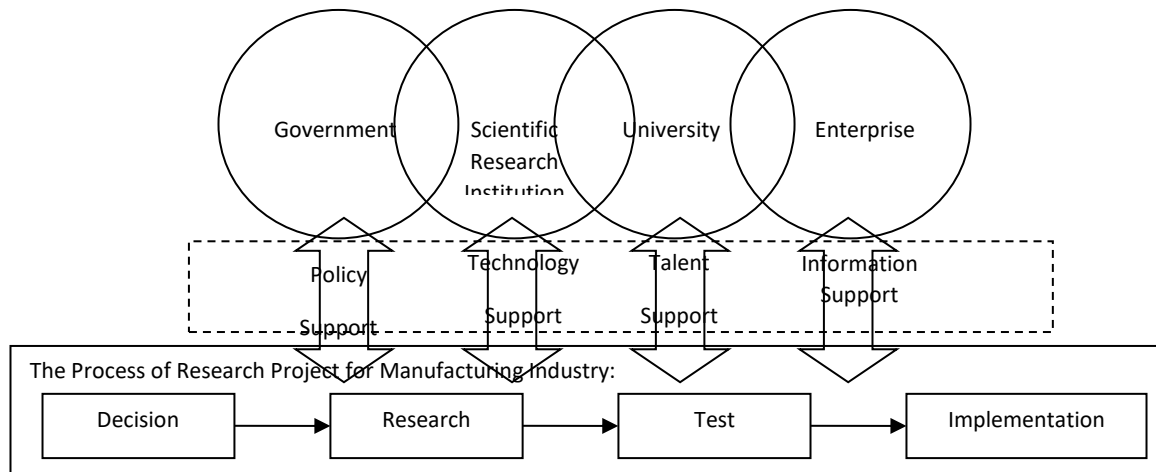


Figure 4. The Project Organization

Technology Alliance Organization. The technology alliance is a cooperation organization made of different enterprises, universities and scientific research institutions on the basis of contract relationship. Different bodies with the same interest form the community engage in research and development activities of generic technology to meet the requirements of technology intensive for manufacturing. The technology alliance is shown in figure 5.

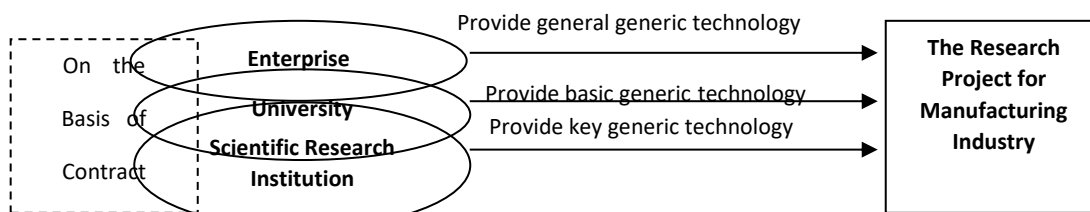


Figure 5. The technology alliance Organization

Generic Technology Scientific Research Base Organization. The generic technology scientific research base is the research and development organization, whose capital contributed by the government or enterprise, relying on enterprise, university or scientific research institute, focusing the task of generic technology research. The scientific research base is the long-term organizational mode for generic technology R&D, which does not target for the special technology or industry, however, it has general applicability and wider impact areas and is suitable for long research time and complex process for manufacturing. The generic technology scientific research base is shown in figure 6.

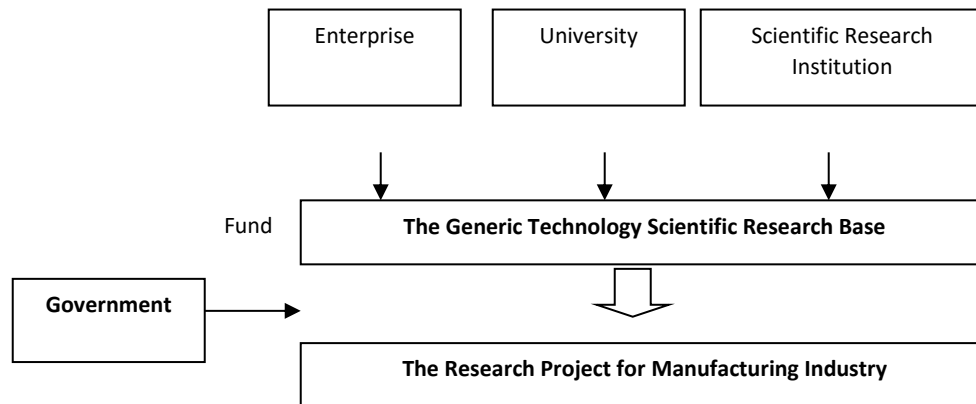


Figure 6. The Generic Technology Scientific Research Base Organization

National Generic Technology Research Institution Organization. The national generic technology research institution is an organization whose fund is almost or totally from government, mainly engages in generic technology and key technology research. It is suitable for the basic generic technology research, which refers to the test, measurement and standards for these provides necessary basic supports in the process of industry technology improvement. The national generic technology research institution is shown in figure 7.

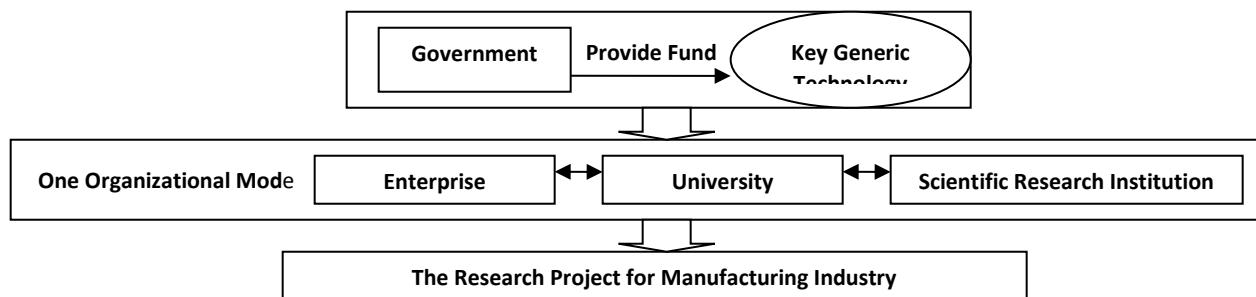


Figure 7. The National Generic Technology Research Institution Organization

Conclusions

The innovative organization of generic technology for manufacturing should be sound, multilevel and multiform. It should encourage and promote the development of generic technology for manufacturing on the basis of mobilizing market resources and innovation subjects. We should choose corresponding organizations for different types of generic technology, and consider types and basic characteristics of industrial generic technology, the factors of internal, social, economic environment etc.

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