

Research on Optimizing Technical Innovation of the Enterprises in Ecological Environment

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Abstract Technology is a double edged sword, which could on one hand, bring tremendous development of social productivity and improve the social economy, and on the other hand has greatly affected the social environment and the surface of the earth. The article starts from the research of ecological environment, analyzes the necessity of ecological technical innovation of enterprises, and the condition for lacking technical innovation ecologicalization of the enterprises, as well as explores the way to optimize the technical innovation of the enterprises in ecological environment.

Key words Ecologicalization; Technical innovation; Ecological balance; Optimization

1 Introduction

Technical innovation means the dynamic procedure, in which the enterprise changes technological achievements into products, techniques or service according to the needs of market, and realizes its overall efficiency for the first time. ^[1] Following the tide of knowledge economy globalization and industrial civilization, enterprises keep more and more eyes on the technical innovation and practice. In the recent years, some western scholars like J.A.Shcumpete, Audretesh.D.B. and Free-man who have started their researches on the theory of innovation, theory of economic development and innovative environment. And meantime, some domestic scholars like Liu Dong, Du Zhanyuan and Fu Jiaji have done many theoretical works on technical innovation of enterprises, and have formed a fundamental theoretical system. But China is still in the social transformation which leads to continuous changes of technical innovation of enterprises and their existed environment, and these scholars still haven't enough theories on the subject of enterprise innovation and ecological environment.

According to the theory of Dialectical materialism of Marxism, it is not difficult to find out that the technical innovation and environment are interdependent and promote with each other. That means, if one enterprise would remain invincible and vitality forever in the extreme market competition, it has to adapt to the change of ecological innovation environment, builds good internal and external environment for improving technical innovation system orderly and coordinately, as well as absorbing nutrition, material, information and energy from the changeable environment. Likewise, the conditions of technical innovation environment would directly affect the effects of innovative activities of enterprise, which means good technical innovation environment is the "catalyst" of the enterprise, it could provide technological protection, and accelerate the speed for transfer the innovative achievement into the market, so as to enforce the vitality and sustainability of enterprise. Therefore, the article starts from the research of ecological environment, analyzes the necessity of ecological technical innovation of enterprises, and the condition for lacking technical innovation ecologicalization of the enterprises, as well as explores the way to optimize the technical innovation of the enterprises in ecological environment., so as to brings important research values and practical meanings to continuous progress of enterprise, national economic growth and long-term social development.

2 Necessity of Technical Innovation of Enterprise in Context of Ecological Environment

2.1 Requirement by time change

In the 21st century, population, resource and environment are the three factors to affect the social development and progress of China, and sustainable development is the priority in the development strategy of China. Throughout the history of industrial civilization, it is not difficult for us to find out that modern industry and technical innovation not only strongly help to improve technology, bring treasure and unlimited expectations to the human, but also lead to endless destroy and occupation of the natural resources. Especially following deepening industrial globalization and world trade globalization, the problems of environmental pollution and ecological destroy are not solved slowly, while becoming more and more severe. The problems includes global warming, severe pollution of aerosphere, extinction of some biological species, lack of resources, soil degradation, water loss and soil erosion,

and so on. These problems would directly affect human, and greatly damage the global environment--dependent survival body of human beings, as well as destroy the ecological balance and the ability for the adjustment of the earth. So, both developing countries and developed countries have realized the importance of environment protection. The relation between environment and development has affected the future and destiny of the whole globe and even human beings. Many countries have made strategies of ecological environment and sustainable development and taken measure to protect the environment, in order to coordinate the human and environment, and improve the harmony and unity of the human and the nature.

2.2 Need for sustainable development of enterprises

Sustainable development of enterprise means that during the process of pursuing self-survival and development, the enterprise not only needs to consider to reach the target and promote its position in the market, but also needs to keep sustainable increase of benefit and enhancement of abilities in its leading competitive area and future administrative environment to be related, and to make sure that it would be prosperous in the long period.^[2] Enterprise is the main body of technical innovation, and whether it could keep sustainable development in the severe market competition would depend on the coordination and interaction among ecology, economy and society. Technical innovation of enterprise based on ecological environment could combine ecology, economy and society into one organic part. In the organic part of sustainable development of enterprise, it regards ecological environment as the premise, regards sustainable development as the base, and regards technical innovation as the drive, optimizes environmental resources in the innovative activities with high input, high risk and high benefit, so as to make the enterprise to optimize its benefit and keep sustainable development of economy under the support of natural ecological environment.

2.3 Need of innovative values of modern technology

The world view support by conventional technical innovation is built on the base of traditional industrial values in the system of Decca children - Newton mechanistic world view. Traditional industrial values are contrary to the sustainable development values of human's economy and society.^[3] Conventional technical innovation values ignore the organic system of ecosphere, and split human and nature into independent parts, and only pursue economic effects while ignore harmony of natural environment, which result in resource shortage and damage to the nature, and as well as limit the human's development and social progress. In the meantime, traditional industrial values stem from economic benefit and economic value, and deal with the relation between human and nature, human and environment from the perspective of utilitarian, which has betrayed the regulation of ecological development, and leads to ethnics offside which means non-ecological ethnics, even could result in ecological crisis. Therefore, in order to make the harmony and interaction of human and nature, human and technology, the shortages of conventional technical innovative values should be abandoned, and build modern technical innovative values adapting to times and the development of enterprises, so as to make technical innovation to create more benefits.

3 Restraints for Technical Innovation in Context of Ecological Environment

3.1 Lack of modern ecological values

According to the theory of ecologist, the ecological value could be regarded as a new value compared to the traditional industrial value. In the view of ecological value, if human wants to keep sustainable development, human is required to fully understand the value of nature, take good care of nature and respect nature.^[4] Conventional technical innovation derives from revolution of science and technology in Europe after the 17th century, and at that time, science was affected by theology, which focused on human's initiative by the creed of "rationality", promoted human's individuality and how to conquer the nature; science also only focused on the parts but the whole in the scientific research, mechanically and subjectively analyzed problem without accumulation of knowledge and scientific judgment, and that means conventional scientific technology is transforming along the trace of Decca children - Newton mechanistic world view. But modern ecological value focuses on productive practice, which would connect with natural ecological environment, respect diversity of nature and organism, and maintain coordination in the regularly changeable environment, and above all are what the traditional industrial values are lack of or not comparable.

3.2 Prohibition from conventional technical innovation of enterprise

Innovative activities of enterprises include not only innovation in technology, but also innovation in organization, management, principle, and etc. However technical innovation is only one measure in the

innovative activities of enterprise, and it is connected with research & development and popularization of the product. Conventional technical innovation is the combination of technology and economy, which not only focuses on the level of technique of the product, but also the realization of economy. During the traditional industrialization period, some natural materials are very difficult to revert back to natural material after being made into products and those so called natural products are actually artificial products. If things go on like this, the measures of technical innovation which have been taken would produce new artificial products, and these products would produce more waste during the irreducible and re-absorbed process, which leads to negative effect of technology and limit of improving technical innovation, as well as breaking the balance of nature and ecology.

3.3 Loss of environmental marketing resource of enterprises

The conventional technical innovative philosophical theory, which is based on Decca children - Newton mechanistic world view, unilaterally emphasizes the instrumental characteristics of technology, ignores the effect of practice, makes human and nature apart and opposes with each other, and natural material is mechanically regarded as the objective only to be processed, reconstructed and used, which could not react to human. In the meantime, since the loss of environmental marketing resource, this leads to the flow of some products and waste into nature, and increases the negative effects of technology. In the conventional technical innovation, market would misuse and develop the environmental resource because of the price signal disorder, which leads to the conflict between technology and nature, and enlarges the distance of technology between space and time, so as to make real lack of environmental resource and severe damage to the natural environment.

4 Proposals for Enterprises to Optimize Technical Innovation in the Ecological Environment

4.1 To build technical innovative values of enterprises which could advance with the times

In order to realize the harmony of technical system, natural system and other social systems, the mechanical way of industrial natural theory is required to be fully banished, and scientific technical innovative value is required to build which could advance with the times. This new value which depends on ecology is building on the base of systematology, ecology, ethnics, modern sciences and other basic theories, and regards things as connected and interacted with each other. It could widen people's view, change people's way to think, which starts from the perspective of the whole and ethnics, and build the ecological idea of civilization and ecological idea of ethnics in the pattern of green earth, healthy civilization and harmony. And the new value would respect the right and value of the nature, be responsible for protect the nature, build idea of equality between human and the nature, harmoniously develop the relation between human and nature, finally build a peaceful, happy and harmonious home for our descendants. Ecological value could also improve people's practice; and help to form ecological practical idea for being harmony with each other between human and nature. The new practical idea means, based on virtuous circle of ecological environment, to transfer resourced-based economy into benefit-based economy rationally, transfer polluted production into clean production, so as to fully consider the ability of living in harmony between human and nature and the ability to bear for environment. All these would help to save the resource, develop economy, and maintain the virtuous circle of ecology.

4.2 To deepen the technical innovative marketing environment of enterprise

In order to effectively improve the technical innovative marketing environment of enterprise, measures are required to be taken to strengthen to protect technical innovative intellectual property, to increase the initiative and motivation of technical innovative research and development, as well as to actively collect environment pollution tax. The tax collection would be functioned to lower the gap between production cost of enterprise and social cost to minimal margin, to guide people from the perspective of economic benefit to reduce the damage of environment and waste of resource, to urge innovative main body to simultaneously choose the productive way and technical process with environmental protection, and to lead consumers to enjoy green consumption with the guidance of market mechanism. At the same time, some measures are also need to be taken such as, to further nurture market system, to fully increase the effect of resource allocation of market mechanism, to further deepen market of commodity and factors of production, to increase the fluidity of factors and technical information, so as to create better competitive environment for enterprises, and to fasten the process of technical innovation and transfer from scientific achievement to productivity. In the process of deepening the market reform, it is important to build united and open market system, to conquer the

fortress of local protectionism, and to abolish local monopolized market, so as to let the enterprises to be equal to participate the competition, and to push innovative process, finally make the market construction equally and openly.

4.3 To set goal for sustainable technical innovation of enterprise

If enterprise wants to fully make the positive effects of technology in the process of technical innovation, and minimize the negative effects of technology, the traditional single equalized technology is required to transfer to sustainable technology with multiple goals, which means that technology would be scientifically evaluated in the development and dynamics of things, and to build technology which is benefit for the balance of nature and ecology, so as to minimize the waste of resource. Of course, in the process of constructing sustainable technology for multiple goals, it is very useful to focus on the outside coalition of technology and sustainable and effective utilization of waste, to build networking contact platform, so as to realize good interaction among technology, nature and society. In the meantime, green technical innovation is required to be strengthened, and effective measures are required to be taken to develop innovative clean productive technology and green product development technology, which could actively prevent the environmental pollution, push social economy toward the way of virtuous circle with the help of green technical innovation, as well as improve the society following the direction of the times and modernization. That's to say, in the practical process of green of technical innovation, it would decrease the negative effect of technology to some extent, and fully increase the resource allocation of environment so as to rationally use the resource, finally promote the sustainable development of society and enterprise.

5 Conclusions

In a summary, the whole article starts from the perspective of ecological environment, combines the condition for lacking technical innovation ecologicalization of the enterprises, and explores the shortage of conventional technical innovation, as well as realizes that new ecological value and sustainable development are the bridge to solve the environmental crisis, so as to find the way to optimize the technical innovation of the enterprises in ecological environment, and provide theoretical base and support for social economic development, sustainable progress of enterprises, and balance of environmental balance. Of course, the innovative research of technology of enterprises based on ecological environment is still required to be further explored in the practice of innovative activities, so as to make real harmony and unity between human and society.

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