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STP Innovation Management Mechanism Optimization Powered by Advanced Evolutionary IoT Arithmetic

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Abstract：Manufacturing has been a key component of a nation's economic growth ever since industrialization. Accelerated national high technology innovation capacity enhancement and high technology policy innovation management mechanism optimization driven by advanced evolutionary Internet of Things (IoT) arithmetic are particularly important given the dual pressures of the new global manufacturing development trend and the manufacturing industry's loss of competitive advantage. With the use of sophisticated evolutionary IoT arithmetic, the major body of this research presents an efficient technique for optimizing high technology policy innovation management mechanisms. A conceptual analysis of currently popular information technologies, including big data, artificial intelligence, and Internet of Things technologies, as well as an overview of their application in microgrids, are provided in order to study the optimization of high technology policy innovation management mechanisms. The STP innovation management mechanism-based approach is used to study all components in the paper. Ultimately, this technique divides all factors into two categories of cause and effect factors, and ranks the significance of each factor. Second, with the technical assistance of advanced information technology like big data and artificial intelligence, a wind power forecast algorithm based on data mining technology, an enhanced algorithm, and a PV power prediction algorithm based on a deep neural network were developed. Lastly, it is suggested to use advanced evolutionary IoT arithmetic to drive the innovation management mechanism for high technology policy majorization.

1. Introduction

All Particularly in developed nations that place greater emphasis on the development of high technology innovation [1], high technology policy and innovation management mechanisms have been formulating numerous high technology innovation policies to ensure and promote high technology innovation activities. High technology innovation is the fundamental driving force of a nation's development, and no country in the world today can maintain a laissez-faire attitude towards high technology innovation in the process of economic development. Humanity has entered an era of economic globalization, informatization, and networking, particularly in the twenty-first century, and the conventional paradigm of economic development has changed significantly. Innovation has become the focus of developed countries' and regions' development strategies, and innovative countries have become a significant symbol of scientific and technological power. According to the international perspective [2], an innovative economy will gradually become the mainstream form of economic development. In the face of economic globalization, scientific and technical innovation is essential to gaining long-term development advantages [3].

A nation's sustainable development stems from its high technology, and when high technology innovation advances in economic and social development, it becomes a crucial factor influencing national competitiveness. Scholars and innovation management mechanisms of high technology policies in many countries have turned their attention to raising the degree of national high technology innovation [4]. Enterprises have long been the primary source of high technology innovation in the leading nations, but the management mechanism of high technology policy innovation is crucial to the process of advancing high technology. Market failure will occur in the process of allocating scientific and technological resources due to the high risk and uncertainty of the market and technology during development, as well as the monopoly of enterprises on scientific and technological accomplishments. The function of the high technology policy's innovation management mechanism, which is powered by an advanced evolutionary IoT calculus, is thus made clear. Innovation fosters growth, and advanced technology will shape the future [5].

According to research on vation management mechanisms for high technology innovation policy orientation, given the speed at which high technology is developing today, it is evident that in order to increase productivity and advance society simultaneously, there is a need for constant innovation. The question of how and by whom to direct this innovation has emerged as a current concern. In order to better understand the role that high technology policy innovation management mechanisms play in the process of high technology innovation and how they encourage the creation of high technology innovation policies, the purpose of this paper is quite clear. Improve the high technology innovation policy assessment index system. To accurately assess the impact of high technology innovation policy, it is necessary to clarify its content, investigate the primary factors influencing its

impact, and develop a rational and efficient assessment index system. This paper selects indicators from three aspects—high technology innovation foundation and input, output and result, and regional economic benefit—based on the structure and composition of high technology innovation policy. It then uses factor analysis to screen the indicators and determines the regional high technology innovation policy assessment indicator system, which serves as a reference for future high technology innovation policy effect assessment indicator systems and is a useful supplement to the construction of the high technology innovation policy effect assessment indicator system. It serves as a reference for the optimization of the STI policy effect evaluation index system in the future and is a helpful addition to the system's construction.

2. Studies That Are Relevant

Western economists have delved deeper into the topic of innovation since the term "innovation" was first used in economic theory in the literature. They have done so primarily from two angles: endogenizing technological innovation and introducing it as an exogenous variable into the production function to explain its impact on economic growth [6]. It is thought that endogenous technological advancement, rather than external pressure, is what drives long-term economic growth. The endogenous economic growth theory, which includes organizational, institutional, and management innovation in addition to technological innovation, has been the foundation for a significant number of studies on high technology innovation that have been carried out since the 1980s. The literature examines innovation from a management perspective and contends that relying just on technology advancements is insufficient to generate energy; other possible behaviors, like management innovation, can also enhance the wealth creation of resources [7]. The empirical study of maritime transport productivity from 1600 to 1850 finds that institutional improvements are more likely to lead to productivity growth than technological changes, and the literature includes institutional innovation as an endogenous variable in the innovation process [8]. Therefore, rather than technology determining institutional innovation, the literature contends that institutional innovation determines technological innovation. The literature examines how income inequality affects the evolutionary trajectory of innovative products and the returns on innovation. It concludes that the less income inequality, the more likely it is to encourage innovative behavior and thereby support economic growth; on the other hand, it discourages innovative behavior and does the opposite. The "quality of innovation," as proposed in the literature, further raises the bar for evaluating innovation above the levels of novelty [9], unconventionality, and creativity to the level of quality, which includes low variance, standardization, and systematization. The literature contends that R&D, production, learning, marketing, resource development, organization, and strategic management are all components of a company's innovative capabilities. The price of innovative products is not an exogenous variable, according to the literature that examines the relationship between innovation behavior and price. For example, raising the price of innovative products can boost innovation's profitability when the income gap widens; conversely, a price increase may cause the rate of market demand to decline, which could lower the return on innovation. According to the literature, innovation is a management process, and the effective rate of finishing innovative work may be achieved through the scientific application of procedures, guidelines, and institutions [10].

Technological innovation, according to the literature, is defined as the range of innovative behavior, design, manufacturing, and commercial activities that go into creating new products using new equipment or processes. These activities fall into the following categories: process innovation, product innovation, and innovation diffusion [11]. The literature integrates technical innovation with enterprises and examines innovation from the standpoint of the primary position of enterprises. According to this theory, innovation is a set of actions taken by businesses to reallocate and combine production conditions and elements in order to find possible profit opportunities, quickly gather market data, and create production systems that are extremely effective, efficient, and affordable. Furthermore, the literature notes that, in its broadest definition, technological innovation encompasses the full process of conceiving a new product or process, developing it, distributing it, and determining its market worth [12]. According to the literature, technical innovation can be broadly defined as all activities from the ideation stage to the manufacturing of a new product, encompassing not only the innovation's final result but also the technology's introduction, spread, and use. In addition to conducting a longitudinal and cross-sectional comparative analysis of City A's scientific and technological innovation capability, the literature develops an index system for evaluating scientific and technological capability from three perspectives: scientific and technological research and development capability, scientific and technological achievement transfer capability, and scientific and technological support capability [13].

The literature examines the relationship and development trend between high technology input and high technology output performance in China. It does this by introducing the endogenous knowledge stock into economic growth and measuring the output of high technology activities using high technology funding input, knowledge stock input, capital input and labor input, and human capital input as input indicators. These findings are based on the endogenous economic growth theory. The literature employs an econometric model to examine the impact of scientific and technological advancement on economic growth in country A from 1980 to 2004. It is based on the Cobb-Douglas production letter model, which has GDP as the dependent variable and labor input,

capital input, and the rate of scientific and technological advancement as independent variables. Solow's surplus is used to determine the extent to which scientific and technological advancement contributed to the development of scientific and technological advancement [14]. The literature makes the case that economic development and high technology innovation are complimentary, with economic development strongly supporting high technology innovation and high technology innovation driving rapid economic development. The contribution of economic investment in high technology and investment in scientific and technological talents to economic growth in country A between 2000 and 2007 is empirically studied in the literature using T-shaped correlation analysis. The findings indicate that R&D investment plays a very significant role in economic growth, while the contribution of scientific and technological talents to economic growth is less clear. The introduction of new technology is more important for economic progress. In examining the relationship between blue economic growth and regional maritime high technology innovation, the research highlights regional marine [15].

The growth of the regional blue-blue economy and ocean high technology innovation are highly correlated, and their relationship is not merely linear; in order to ensure and support the positive interaction between the two and to encourage the coordinated development of regional marine high technology innovation and blue economy, a synergistic and effective interactive operation mechanism must be established [16]. The literature examines the mechanisms underlying the relationship between high technology investment, high technology innovation, and regional economic development and suggests that these three factors are causally related; that is, high technology investment fosters high technology innovation, high technology innovation and regional economic development foster one another, and high technology investment and regional economic growth reinforce one another [17].

3. STP Innovation Management Mechanism Optimization Powered by Advanced Evolutionary IoT Arithmetic

3.1. An example of advanced evolutionary IoT arithmetic.

Since its initial proposal in 1991, the Internet of Things (IoT) has progressively come into the public consciousness. Based on the computer Internet, the Internet of Things builds a physical Internet that covers the entire world using technologies like wireless communication and Radio Frequency Identification (RFID). With ideas like "Internet + Internet of Things," "artificial intelligence + Internet of Things," and other ideal combinations, the ongoing advancements in contemporary information technology will significantly accelerate the growth of the Internet of Things in the future [18].

Following the advancement of contemporary information technology to a certain point, the Internet of Things (IoT) is a type of convergence application and enhancement that relies on RFID identification technology to enable people and things to "communicate" with one another, creating an intelligent network that is able to sense the outside world. The radio frequency tag and the decoder are its two primary components, to put it simply. Either the tag actively emits a signal of a specific frequency (active tag or active tag), or it receives the signal from the decoder and, after entering the magnetic field, sends out the product information stored in the chip (passive tag or passive tag) by using the energy from the induction current. The decoder then reads the information, decodes it, sends it to the central information system, and then completes the necessary data processing and analysis. Its logical functions are identified as three tiers, namely the perception layer, network layer, and application layer, in accordance with the three primary components of IoT data processing. In order to ensure the transmission, routing, and control of IoT information data, the network layer acts as a link between the perception layer and the application layer. The application layer is the topmost layer in the three-layer structure, and its primary functions are to process and manage various data and integrate these data with various industrial applications to achieve real-time control of the physical world. The perception layer primarily gathers, identifies, and intelligently controls physical information in the real world. Figure 1 depicts the overall structure of the Internet of Things.

Key technologies in the areas of sensing and identification, intelligent control [19], embedded systems, power supplies, energy storage, new material technology, wireless communication, chip design, and manufacturing are among the core components of contemporary IoT technology. It is a very large technical endeavor because of the intricacy of the arts involved and the range of subjects concerned. Perception layer technology, network layer technology, and application layer technology are the three tiers into which the IoT technological system can be separated, according the presidential framework of IoT.

layer technology. As a component and application field of IoT technology, its fundamental principle is a complement and augmentation of the integration of two. In order to create an intelligent network system that is effective, secure, and energy-efficient, IT technology is integrated into automation control systems. Through the use of a variety of cutting-edge technologies, including automation, artificial intelligence, modern communication, and perception, the Internet of Things (IoT) significantly reorganizes supply chains and

production factors and becomes a viable vehicle for industrialization driven by information technology. Thus, the creation of Advanced Internet of Things Safety—whose realization model is depicted in Figure 3—is a logical progression of industrialization and information technology, a strong instrument and significant motivator to encourage the integration of the two, and a practical necessity to expedite the integration of the two.
The algorithm used in the essay is summed up in the first formula, which also captures the main points of the paper. It serves as the foundation for the algorithm discussed in the article, together with the accompanying formulas. Among these, the application layer technology serves as the terminal for input and output control, the network layer technology as the technical assurance of the entire information transfer, and the sensing layer technology as the foundation of the entire technological framework. Figure 2 depicts the Internet of Things technology system.

The IoT's core technology is very sophisticated and sophisticated, but China's current overall R&D capacity is lacking. When dealing with complex application requirements, it is discovered that there is still a gap between the international leading level and chip technology, hub components, and other high-precision technologies. In order to prioritize the development of IoT technology and provide the nation's macrodecisions a scientific foundation, it is necessary to integrate it with China's unique national circumstances and the state of industrial development at the moment. In order to raise the general level of IoT technology in China, it is also essential to expedite the establishment of IoT standardization [20] and consistently encourage IoT advancement and use. The IoT market will progressively grow in size due to the quick advancement of information technology, which will not only greatly benefit society economically but also successfully protect national security. IoT technology has broad applications in fundamental strategic domains including food, oil, electricity, security, etc. Additionally, it can stop terrorism, natural catastrophes, and hostile forces from destroying critical resources like public buildings, strategic bases, and forest land. A solid technical guarantee for protecting homeland security is provided by the widespread strategic use of IoT technology at the national level.

3.2. Enhancement of the Innovation Management Mechanism for High Technology Policy.

Government policies that encourage the development of high technology and use it to accomplish national objectives are known as high technology policies. It typically uses circulars, plans, opinions, regulations, and laws and regulations to convey its policy texts. Three theoretical pillars—market failure theory, system failure theory, and scientific social contract theory—form the foundation of high technology policy. Promoting economic and social development, political civilization and national defense development, high technology development, and the enhancement of the nation's overall national power and inter-national competitiveness are the goals of high technology policy. Regarding the development of high technology talent, the high technology policy also includes the high technology talent policy. According to the majority of academics, high technology talent policy is a set of tactics, rules, regulations, decrees, ordinances, measures, and procedures for controlling and managing the conduct of high technology talents. The entire institutional structure of a nation's high technology management, including the establishment and administration of institutions related to high technology, the creation and execution of high technology policies, and many other components, is known as the high technology management system. It is essential to restoring the vitality of national innovation, enhancing the effectiveness of the national research system, and preserving the long-term stability of innovation.

National S&T management systems can be classified as decentralized, dualistic, or centralized. To coordinate the nation's high technology endeavors, centralized systems often entail the creation of national ministries of high technology management at the national level.

Such unification typically makes it easier to fully safeguard and support research institutions as well as undertake long-term studies. The Internet of Things (IoT) uses a range of contemporary information technologies across industries, which it refers to as high-risk research. However, advancements in science and technology can easily conflict with real-world demands or diverge from the goals of other government organizations, which can impact how scientific and technological findings are used. Unlike centralised systems, decentralised systems typically lack a national ministry for the management of macro-high technology. Each government ministry can decide the scope of its work based on its functional areas and management goals thanks to this decentralized high technology management. It can also ensure that high technology development is more focused on external needs and maintain high efficiency in applying high technology results. The national high technology system is typically run by the national and regional administrative ministries of high technology education. High technology policy is primarily formed using a combination of top-down and bottom-up approaches, and the formation process involves the participation of numerous interest subjects, which is typically the result of the coordination of interests between the systems. The dual system is an intermediate type between centralized and decentralized. As high technology has advanced, international competition has grown more intense, and nations' need for innovation has forced them to continuously modify their organizational structures and internal decision-making processes to satisfy their own internal innovation development needs and adjust to a variety of new demands. Due to variations in political and economic systems, there are also a lot of discrepancies in S&T

management systems between nations. Among the various governmental tasks, high technology management is just as crucial as public management of politics, the economy, culture, and society. However, compared to other government management activities, there are significant changes in the methods, systems, and procedures of management because of the unique character of high technology.

In conclusion, the following particular elements are part of the best high technology management program: (1) The planning function. Predicting future actions based on the current circumstances is known as planning. High technology planning is the process of using the current state of high technology development as the foundation for implementing high technology activities in the future to create a program. In order to maximize the promotion of high technology for social and economic development, the planning function of government high technology management primarily refers to creating plans for future high technology development work by defining the goals of high technology development, judiciously allocating high technology resources, and indicating the direction for high technology development. The planning function of local government high technology management is that the local government develops plans, strategies, and policies for high technology development and high technology for economic and social development in a specific time frame in the future and formulates corresponding laws and regulations according to the actual situation of local high technology development. This is done based on the implementation and execution of national guidelines, policies, laws, and regulations on high technology development. In order to more effectively promote the development of local high technology, local governments at all levels have developed a plan for the development of high technology in line with the actual local situation and planning as the basis for scientific and technological activities to improve the level of local scientific and technological development, to better promote the development of the local wild economy. High technology plans are the fundamental guides to scientific and technological activities carried out by the main body of scientific and technological activities. (2) Functions of the organization. The foundation of government high technology management's specialized work is its organizational role, which also serves as a means of achieving the high technology management guarantee's objectives.

The organization functions of local government high technology management refer to the ways in which the local government accomplishes particular high technology management objectives by establishing the proper organizational structure, having high technology management personnel, granting departmental authority for high technology management, and maintaining a clear line of communication between the relevant ministries and personnel. The establishment of orderly high technology management operating mechanisms to ensure the orderly implementation of government high technology management activities is one way that local governments at all levels are actively improving their high technology management organizational functions. These functions serve as both the foundation for the orderly conduct of high technology management activities and the prerequisites for the realization of other high technology management functions. (3) Functions of coordination. A key component of the government's high technology management operations, the coordination function ensures the seamless development of high technology initiatives. It is necessary to coordinate the relationship between various ministries and agencies in order to ensure the orderly conduct of high technology management. The coordination function of local government high technology management includes both internal and external coordination. Internal coordination is the coordination between government high technology management related ministries because the government's high technology management functions are dispersed across a number of government ministries, in addition to the ministry in charge of high technology management. In addition to government ministries that carry out high technology management functions, universities, research institutions, businesses, and intermediary organizations that offer services for government high technology management are all subjects of high technology activities. The purpose of external coordination is to coordinate the relationship between the government and other subjects of high technology activities. We must coordinate the relationships between the subjects of scientific and technical activities and make clear each subject's position in the management of high technology in order to guarantee the seamless development of these fields. The government must coordinate the relationships between the subjects of high technology activities in order to provide an orderly social environment for the development of local high technology, as it has a special position in many high technology-related fields and is responsible for managing high technology. Figure 4 displays its STI efficiency diagram following optimization.

4. Analysis and Results of the Experiment

4.1. Results of the experiment.

In country A, the mechanism for the mobility and allocation of scientific and technological personnel is gradually improving, as evidenced by the increase in policy texts involving the departure and on-the-job entrepreneurship of scientific and technological personnel during the period of scientific and technological innovation. However, the proportion of policies on the management of scientific and technological personnel only accounts for 15% of all policy categories, indicating that the system of scientific and technological personnel in the context of dual innovation still has weak management of scientific and technological personnel,

and that the mechanism for the selection and use of scientific and technological personnel needs to be further improved. The identity barriers that prevent scientific and technological workers from quitting their jobs and launching their own businesses while still employed, as well as the vagueness of the policies pertaining to innovation and entrepreneurship among these workers, are the primary issues that arise in the management mechanism of scientific and technological workers. China's human resources can only flow and be distributed efficiently if the geographical and identity constraints of scientific and technology personnel are broken. Figure 5 displays its efficiency diagram following the implementation of high technology management principles. The government's high technology management department will consider itself the leader in high technology management, attempting to carry out a full range of high technology work without omission of control. This is a problem with the government's high technology management work, which is subject to the traditional administrative management model. However, the government's role in high technology management should be macro-level guidance; excessive government intervention will only cause high technology development to veer off course and impede its advancement. Government intervention in high technology activities should compensate for market shortcomings and allow the market to fully play its role in promoting high technology development. Therefore, the local government must create the concept of service, manage high technology macrocontrol effectively as the primary task, and create a positive social environment for high technology management in order to provide services as the objective and pursuit. Following optimization, high technology innovation significantly improves, and Figure 6 illustrates how its quantity changes.

4.2. Analysis of Experiments.

The ministry in charge of high technology or a specialized agency in charge of compiling and re-leasing high technology information on the information platform for sharing by high technology activity subjects must create a sharing platform for high technology information in order to guarantee the seamless implementation of high technology management. Clarifying the functional positioning of the high technology information-sharing platform is the first step in its development. It should be a comprehensive, vertical, and horizontal exchange of information, and all high technology-related information and resources should be shared on the sending platform.

In order to prevent blindness of high technology activities and maximize benefits, the government's high technology management department can use the information-sharing platform to understand the progress of local high technology work, and other subjects of high technology activities can use the information platform to understand the government's high technology trends. Second, the information-sharing platform's core content needs to be made clear. The high-technology information-sharing platform should be collaboratively developed by government ministries of high technology management, other pertinent ministries, large high-technology-based enterprises, universities, and institutes, rather than being a means for government ministries to release information. Professionals should be in charge of classifying the high-tech information that will be released, creating a systematic information network, breaking down the regionalization and compartmentalization of information, increasing the effectiveness of supervision, compensating for the information asymmetry issues of ministries and related high-tech industries, and eventually creating an information-sharing platform with the local high-tech management ministry as the lead and other relevant high-tech activity subjects as the cooperation. This will ensure that the high-tech information released by the information platform is comprehensive. Figure 7 illustrates the pattern of the system of mechanisms' efficiency.

China's administrative decision-making has historically relied primarily on official advisory bodies, establishing a pluralistic decision-making advisory system. The Ministry of High Technology Management of the Government typically controls high technology decision-making advice, and the administrative tendency of decision-making advice is rather serious. Enhancing the scientific aspect of high technology decision-making is the goal of establishing an expert consultation system. The role of expert consultation can only be fully utilized by guaranteeing the advisory body's independence and creating a diverse advisory system. Figure 8 displays the efficiency trends when this strategy was adopted.

5. Conclusion

High technology assessment is a professional consultation and evaluation activity conducted by a specialized assessment agency in accordance with specific client assessment requirements, adhering to specific assessment standards, procedures, and principles, and using scientific assessment methods to evaluate high technology policies, plans, projects, results, and other pertinent high technology activities that require assessment. A thorough evaluation of high technology can raise the standard of scientific research, guarantee the caliber of scientific and technological accomplishments, increase the effectiveness of the use of scientific and technological resources, and serve as a foundation for the development of pertinent high technology policies. The majority of developed nations have already constructed a reasonably comprehensive high technology assessment system and have made the high technology assessment mechanism a crucial component of high technology management and

decision-making. Standardized and institutionalized assessment mechanisms can significantly improve the quality of high technology assessments.

Enhancing the legal standing of high technology evaluation through legal regulation is the first step in allowing the assessment mechanism to fully fulfill its function of ensuring the scientific nature of high technology management. The legal status of high technology assessment is established through laws, and the legal system of high technology assessment is promoted through the development of explicit legal norms of assessment. These factors are some of the reasons why high technology assessment can be beneficial in developed nations. Only then will the benefits of the advanced evolutionary IoT calculus be reflected in the majority of the management mechanism of high technology policy innovation. In order to increase the algorithm's speed and efficiency, the code used in the article should adopt a more efficient algorithm language, and the algorithm itself should consider how efficiently it operates in the course of further development.

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