



Research on China's Standardization Governance Model in the Era of Digital Economy

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Abstract: Standards as part of the "national quality infrastructure" play an important role in driving national economic growth, promoting technological innovation and establishing a fairer and more open global trading system. In the era of digital economy, standards face many challenges such as large demand and rapid speed. How to adapt to the characteristics of the digital economy era and better play the role of standards has attracted more and more attention from scholars. This article studies and analyzes the American standardized governance model, which is characterized by private institutions as the mainstay and government participation as a supplement, and the European standardized governance model, which is characterized by government leadership and extensive participation from all walks of life. It gives the advantages and disadvantages of each, and then discusses This paper discusses China's current government-led standardization governance model, and points out that the "dual-acquisition policy" has fully exerted the technology diffusion role of standards. Standards have become an important channel for technology spillover effects, but they are also currently facing a series of problems. At the end of the article, it is given Ideas and suggestions such as strengthening participation in international standards and supervising the abuse of intellectual property rights, reducing standard decision-making bodies, and lowering the threshold for establishing standardization organizations.

Keywords: Digital Economy, Standardization, Governance

1. Introduction

On May 23, 2023, the Cyberspace Administration of China released the "Digital China Development Report (2022)". The report shows that the scale of China's digital economy reached 50.2 trillion yuan in 2022, ranking second in the world in total, with a nominal growth of 10.3% year-on-year, and its proportion of GDP will increase from 39.8% in 2021 to 41.5%, becoming a driving force for one of the main engines of economic growth.

The World Trade Organization (WTO) clearly stated in the "World Trade Report-Discussing the Relationship between Trade, Standards and the WTO" released in June 2005: "The core issue of this report is standards and international trade." This is the first time that the World Trade Report has explicitly mentioned standardization issues prominently on the international trade agenda, indicating that standardization issues such as information and communication standards, food safety standards and environmental standards have

become a new focus of international trade.

Today, as the digital economy develops day by day, the basic role and strategic position of standardization in promoting economic growth, industrial development and international trade facilitation have become increasingly prominent. The standardized governance model has become one of the important contents and hot issues in the current reform of China's economic system and administrative management system and has also attracted more and more attention from the academic community. This article first analyzes and sorts out the standardization needs in the digital economy era, and then analyzed and studied the current standardization governance model in the United States and Europe based on the 2020 version of the "American Standards Strategy" released by the United States [1] and the EU's latest standardization strategy - "Strategy 2030" [2], and then discusses the development status of China's standardization and gives some development suggestions.

2. Standardization Needs in the Digital Economy Era

The Fifth Plenary Session of the 19th Central Committee of the Communist Party of China proposed to accelerate digital development, develop the digital economy, promote digital industrialization and industrial digitization, promote the deep integration of the digital economy and the real economy, and create an internationally competitive digital industry cluster. It can be seen that vigorously developing the digital economy has become a national strategy, and the digital economy is becoming an important engine driving the high-quality development of our country's economy. Standardization, one of the three pillars of national quality infrastructure, is also facing many new demands.

2.1. Large Quantity of Standards Required

Digital technology is booming and new standards are urgently needed. At the technical level, the digital economy includes big data, cloud computing, Internet of Things, artificial intelligence, 5G communications and other technologies. Big data relies on cloud computing for storage, calculation and analysis, and the Internet of Things is one of the main sources of big data in the future. Artificial intelligence requires big data, cloud computing (providing computing power) combined with algorithms to continuously evolve, learn, and optimize algorithm models. The Internet of Things requires the use of artificial intelligence algorithms to improve the intelligence of IoT devices. As a communication network, 5G plays a linking role in these relationship chains, is a porter of data, and is the blood of the technological era. In general, these technologies are interdependent, mutually reinforcing, and are developing vigorously, putting forward more demands for the formulation of standards.

2.2. Accelerated Standard Demand Speed

Digital technology is changing rapidly, and the pace of standard work has accelerated significantly. New concepts, new technologies, and new models in the field of digital technology are emerging one after another. The cycle from concept emergence to R&D implementation to product launch is getting shorter and shorter, and the development of supporting standards also needs to be accelerated.

2.3. The Struggle for Standards Dominance Becomes Increasingly Fierce

Research and development of cutting-edge technologies are accelerating, and competition for standards dominance has become a national strategy. Cutting-edge technologies represented by "quantum computing", "Starlink" and "brain-like computers" are accelerating their research and development and implementation, and standards dominance has become an important battlefield for countries around the world to compete for. Countries are formulating digital rules that are in line with their own interests. Standards are becoming increasingly important as an important

implementation tool. China must proceed from its own national conditions and promote the establishment of a standards system that is in line with China's interests.

2.4. The Burden of Formulating Digital Standards for Traditional Industries Is Heavy

The in-depth integration of digital technology with many industries accelerates the reconstruction of original standards. In 2021, the scale of digital industrialization in the world's 47 major economies will be US\$5.7 trillion, accounting for 15% of the digital economy and 6.8% of GDP. The scale of industrial digitalization will be US\$32.4 trillion, accounting for 85% of the digital economy, accounting for 38.2% of GDP, industrial digitalization has become a key leading force driving the development of the global digital economy [3]. Industrial digitalization represents the integration and penetration of the digital economy into the real economy. It is a key component of the digital economy and has huge development potential. The gradual increase in the proportion of industrial digitalization is a general rule for the development of the global digital economy. Digital technology is accelerating the deep integration with traditional industries such as agriculture, transportation, energy, education, manufacturing, and medical care. Traditional industries are increasingly becoming important users of digital technology. Many standards of traditional industries need to be reconstructed and will give rise to new standard demands. Industrial digitalization does not mean starting from scratch but requires a deep understanding of the logic of traditional industries themselves, just like asking a dancer to dance with shackles or pushing an elephant to dance.

3. Comparison of Standardized Governance Models in the United States and Europe

3.1. American Standardized Governance Model

The basic feature of the American standardized governance model is that private institutions dominate, and government participation is supplemented [4, 5]. This is determined by the American political system and market-oriented economic system. The American standard system includes voluntary standards and mandatory standards, with voluntary standards as the main body. Mandatory standards are procurement or regulatory standards set by government agencies. Voluntary standards are developed through broad participation of all stakeholders, including manufacturers, users, consumers and representatives from government and academic institutions. These voluntary standards are generally formulated by industry associations, professional societies, and other institutions. For example, the American Society for Testing and Materials (ASTM), Underwriters Laboratories (UL), the Institute of Electrical and Electronics Engineers (IEEE), and the American Society

of Mechanical Engineers (ASME) are all professional standards organizations with international influence. They carry out standardization activities in professional fields. The American National Standards Institute (ANSI) recognizes some professional standards organizations as American National Standards Development Organizations (ASD) by providing procedural documents, and approves the voluntary standards developed and qualified by them as American National Standards (ANS). However, the distinction between voluntary standards and mandatory standards is often not clear. Government standard-setting agencies often cite voluntary standards when formulating laws and regulations, thus giving these standards legal effectiveness at the federal, state, or local government level.

The U.S. federal government agencies are not only the largest single setters and users of U.S. standards and specifications, but also have passed legislation that entrusts the National Institute of Standards and Technology (NIST) under the Department of Commerce with the responsibility of coordinating the standards policies of federal agencies. As the federal agency responsible for measurement standards, NIST has a very close cooperative relationship with ANSI. NIST has unparalleled strength and advantages in many high-tech professional fields. NIST staff participate extensively in standardization activities of private organizations, building a communication bridge between the U.S. government and private standardization, and playing a linking and coordinating role.

Normally, the U.S. government plays more of a coordinator and user role in standardization activities. However, this does not mean that the U. S. government does not value participation in the development of voluntary standards. Both the U.S. Standards Strategy (2015 version) and the U.S. Standards Strategy (2020 version) list strengthening government participation in the formulation and application of voluntary standards as the first of 12 implementation measures. And in the 2020 version of the strategy, it further emphasizes the need to strengthen the participation of governments at all levels in the formulation and application of voluntary standards. At the same time, the 2020 edition also expands on the 2015 edition to describe government participation in the formulation of voluntary standard measures, stating that "Governments should work with the private sector to address common needs related to standards and actively participate in the development of standards to meet these needs wherever possible. Where relevant, they should also strive to strengthen coordination among various departments and organizations."

Both the 2015 version and the 2020 version of the U.S. Standards Strategy emphasize efforts to prevent standards and their applications from becoming technical trade barriers for U.S. products and services. This is because standards have become more prominent as potential barriers to market entry for products and services. Different standards may greatly increase the cost of importing and exporting to the international market and may even become an obstacle to market access. The 2020 version of the strategy emphasizes

that the U.S. government should strengthen cooperation with other countries and ensure standards through intergovernmental organizations to promote global trade and minimize potential trade barriers. In addition, cooperation with WTO members should be strengthened to seek the full implementation of the Technical Barriers to Trade (TBT) Agreement and its annexes as well as decisions made by the WTO/TBT Committee.

The U.S. standards strategy has always attached great importance to international issues, and its main function is to establish macro-level principles and strategies for how the United States formulates standards and participates in formulating international standards. Currently, the United States hosts 130 technical organization secretariats for the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), ranking first in terms of overall number. However, in terms of understanding of international standards, most European countries believe that standards formulated by international standards organizations such as ISO, IEC and the International Telecommunications Union (ITU) are international standards, while the United States adopts a broader recognition principle and believes that as long as Standards that comply with the six principles of the World Trade Organization Committee on Technical Barriers to Trade (WTO/TBT Committee) on the formulation of international standards are international standards. In order to allow more and more standards demanders outside the United States to have a more comprehensive understanding of U.S. standards, participate in the formulation of U. S. standards more efficiently, and use U. S. standards more conveniently, the 2020 version of the strategy directly states the need to Promote U. S. standards, and further refine the global promotion measures of U. S. standards, specifically requiring "standards setters to continue to implement consistent procedures to verify relevant translation manuscripts and promote the rapid dissemination of standards around the world." Shifting the subject of standard translation from standard users to standard developers can greatly avoid and reduce misunderstandings caused by translation, improve the convenience of standard demanders outside the United States to use American standards, thereby further improving the efficiency and quality of the global promotion of U.S. standards.

The American standardization governance model is a public-private collaborative standard-setting mechanism developed based on voluntary standards developed by the private sector. The standards developed by this mechanism are mainly derived from production practice and experience accumulation, are closer to the market, and can at the same time promote active innovation, research and development in various departments and cooperation between departments, thereby promoting scientific and technological progress and social and economic development. In addition, because it is formed spontaneously in production practice, effective processing and production techniques are set as standards. Because it is based on the market, it is easier to be

recognized and widely penetrated the international industry. However, different entities can participate in standardization activities, which has also brought more conflicts and competition to American standardization, ultimately affecting the effectiveness and fairness of the American standards system. In addition, it is easy to ignore the support of standards for public policies, thus affecting public interests.

3.2. European Standardized Governance Model

The European standardization governance model is characterized by government leadership and extensive participation from all sectors of society [6, 7]. The purpose is to better serve the European single market, support the implementation of EU regulations and directives, and provide standardization support for European innovation. Specifically, the European Commission (EC) is responsible for the management and guidance and provides financial support. The three major European standardization agencies (European Committee for Standardization, European Committee for Electrotechnical Standardization, and European Telecommunications Standardization Association) organize and implement it. All standardization industry players in society can participate.

The EU's single market policy is the purpose and cornerstone of the EU's establishment. It effectively guarantees the economic and social competitiveness of the European region. As an important element of the single market, the EU has formulated a series of unified directives and regulations that are universally applicable in all member states. To help implement these directives and regulations in specific areas, unified European standards need to be developed and implemented. The European standardization system exists for exactly this purpose. Secondly, like the standardization systems of other countries and regions, the European standardization system is also responsible for formulating advanced standards, promoting the economic and technological upgrading of the region, enhancing the global competitiveness of the region's products and services, and thus maintaining the sustainable development of the economy and society. Finally, through coordination with the international standardization organization ISO/IEC, the European standardization system helps local standards to be highly consistent with international standards, thereby effectively reducing trade barriers and contributing to global economic development.

The specific formulation work of European standards is organized and implemented in two ways. The first is that all stakeholders in the European society can submit standard proposals to the European Standardization Organization and vote on them at the European Standardization Organization. After the vote is passed, European standards can be formulated. The second is for the European Commission to request the corresponding European standardization organization to formulate relevant standards in the form of a commission. The entrusted European standardization organization will analyze the requirements. If the analysis results indicate that there are relevant resources and necessity

to develop corresponding standards, the European Commission's requirements will be accepted. After accepting the commission from the European Commission, the European Organization for Standardization determines the working committee/working group to develop the standard or creates a new standardization working committee/working group. This standardization working committee/working group is generally undertaken by the national standardization committee of a certain member country, while the national standardization committees of other member countries have established mirror standardization working committees/working groups, responsible for organizing domestic standardization forces to participate in the formulation of the standard. organize the preparation of national proposals for draft standards at various stages, and conduct voting at the European Standardization Organization to ultimately produce European standards.

It can be seen from the latest "Strategy 2030" released by the European Union that the European standardization strategy is gradually transforming from the "European Organization for Standardization Strategy" to the real "European Standardization Strategy". "Strategy 2020" points out that the goals proposed in the strategy are the result of extensive consultation and discussion among members and stakeholders of the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC) and provide a basis for the two major organizations to carry out their key work. common framework. But in fact, the scope of the implementation entities of "Strategy 2020" is not clear. That is, the strategy implementers are only the two major organizations CEN and CENELEC, or it also includes members from various countries, because some European countries are also formulating and publishing their own national standardization strategies. This issue was clarified in "Strategy 2030", which pointed out that "Strategy 2030" is the direction that CEN, CENELEC and their members are committed to, and emphasized that "Strategy 2030" is the strategic framework followed by the entire European standardization system.

Regarding the future development of European standards, the EU pointed out in "Strategy 2030" that the economic and political environment of the European standardization strategy in the next few decades will be shaped by two intersecting and mutually reinforcing driving factors, namely digital transformation, and green transformation. These two major transformations are also closely related to the United Nations' 2030 Sustainable Development Goals. The European standardization strategy is to exert the influence of European standardization and contribute greater value against the background of these two major transformation factors. First of all, regarding the trend of digital transformation, the European standardization strategy mainly carries out two-pronged layout: First, in the new and rapidly developing fields of digitalization, such as the Internet of Things, artificial intelligence, network security and quantum technology, the development of world-leading technical

standards that are in line with best practices, to help Europe better obtain the benefits of digitalization; the second is to provide unique standardized tools for issues such as transparency, privacy, and security that may be brought about by economic and social digitalization to ensure that relevant digital solutions are safe, reliable, and reflect common European values and fundamental rights. Secondly, regarding the trend of green transformation, the Strategy 2030 proposes to reduce the environmental impact of related products, processes, and services by strengthening European standardization work, especially in the fields of transportation, construction and travel, and effectively support the EU's circular economy, carbon neutralization and other policy initiatives.

The EU Standards Strategy has always attached great importance to international standards. Strategy 2030 clearly states that it is necessary to ensure Europe's leadership and ambition at the international level by strengthening Europe's influence in ISO and IEC and promoting global sustainable development through standardization. Europe will enhance the global influence of European standards by strengthening participation and cooperation in ISO and IEC, including promoting the application of ISO and IEC standards in Europe based on the "international priority" principle of CEN and CENELEC standardization, and leveraging member states to Leadership within ISO and IEC safeguards the common interests of CEN and CENELEC. CEN and CENELEC will also use the influence of their members in ISO and IEC to promote international standards to better support and connect the realization of the United Nations Sustainable Development Goals and their sub-goals.

The European standardization governance model is a mechanism that relies mainly on government leadership, treats standards as a public good or quasi-public good, and public-private collaboration to develop standards. Under this mechanism, there will be no conflicts caused by parallel standards, which reduces coordination costs. In addition, the standards formulated by the government are mandatory and relevant companies must meet the standards before they can enter the market, making it more enforceable. However, because the market environment is changing rapidly and the government does not have direct contact with the market, the information it possesses may not be the most timely and effective at the moment, resulting in deviations between the final standards and the market. In addition, after the standard is formulated, promulgated, and implemented, if it is found that the content of the standard needs to be modified, a series of procedures will be required, making it difficult to modify the standard in a timely manner and unable to flexibly adapt to market changes.

4. Analysis of China's Current Standardization Governance Model

China's current standardization governance model is one dominated by the government and supplemented by the

participation of social forces. Before the 2018 revision of the Standardization Law, China's standards system consisted of mandatory standards and recommended standards, excluding the existence of voluntary standards. The latest "Standardization Law of the People's Republic of China" implemented on January 1, 2018 clearly states: "Encourage societies, associations, chambers of commerce, federations, industrial technology alliances and other social groups to coordinate relevant market entities to jointly develop group standards that meet market and innovation needs." thus clarified the legal status of group standards for the first time, established the space for the survival of voluntary standards, and established a common governance system between government standards including countries, industries, and regions, and market standards represented by enterprises and groups. structure. This governance structure provides basic legal support for promoting the development of voluntary standards by market entities and social groups to meet the practical needs of improving industrial competitiveness and promoting innovation in the post-industrial society.

According to the Standardization Law, mandatory national standards are issued with the approval or authorization of the State Council; recommended national standards are formulated by the standardization administrative department of the State Council; industry standards are formulated by the relevant administrative departments of the State Council and reported to the standardization administrative department of the State Council for filing; local Standards are formulated by the standardization administrative departments of the people's governments of provinces, autonomous regions, and municipalities directly under the Central Government; group standards are jointly formulated by social groups such as societies, associations, chambers of commerce, federations, and industrial technology alliances in coordination with relevant market entities, and are adopted by agreement among the members of the group or are for voluntary adoption by the society in accordance with the group's regulations. The standardization administrative department of the State Council, together with the relevant administrative departments of the State Council, regulates, guides and supervises the formulation of group standards; Enterprise standards are formulated by enterprises themselves according to their needs, or jointly with other enterprises. As of April 2023, China has a total of 42,625 current national standards, 79,462 industry standards, 55,995 group standards, and millions of enterprise standards [8]. These standards constitute China's technical standard system and play an important role in regulating and guiding the production of Chinese enterprises, improving product quality, reducing production costs, standardizing market order, and conducting domestic and foreign trade, thus promoting China's economic development and social progress. In addition, in terms of international standardization, China has joined 21 international certification and accreditation organizations, signed 13 multilateral mutual recognition agreements, and 117 bilateral cooperation and mutual recognition agreements. As a founding member of ISO, China is responsible for the

work of 72 TC/SC secretariats, accounting for 9.5% of the total, and participates in standardization activities as a P member in 733 TC/SCs. A total of 142 experts serves as conveners of working groups. The Chinese expert currently serves as the chairman of IEC and is a member of 89 technical committees and 107 subcommittees of IEC, as well as a member of the IEC Council, Executive Committee and Conformity Assessment Bureau. The Chinese expert has served as the secretariat of 10 TC/SC, accounting for approximately 5% of the total, and participate in standardization work as P members in 180 TC/SC; in addition, Chinese experts also serve as the Secretary-General of ITU [9, 10].

To cope with the increasingly fierce competition in technical standards in the international market, the Ministry of Science and Technology of China proposed the implementation of three major science and technology strategies at the end of the last century, namely: talent strategy, standards strategy and patent strategy. In 2002, it invested special funds to carry out technical standards strategy research; In 2006, the National Standardization Administration issued the first China standardization strategy - the "Standardization "Eleventh Five-Year Plan" Development Plan", which clarified the goal of China's overall standardization level reaching the level of moderately developed countries by 2010 and proposed eight key standardization fields and five major standardized scientific research tasks. In addition to periodically releasing the outline of the standardization development plan, the National Standardization Administration also launched the "China Standards 2035" project in March 2018 as a major measure to promote the implementation of the standardization strategy.

Since the reform and opening, China's government-led standardization governance model has played an important role. The "dual acquisition policy" has given full play to the technology diffusion role of standards, and standards have become an important channel for technology spillover effects. However, as the economy develops to a certain level, especially the rapid development of digital technology, the following problems arise.

4.1. The Latest Digital Technology Has No International Standards to Adopt

The standard-setting process of international standards organizations (ITU, IEC and ITU) is relatively slow and long, and there is often a situation where the latest digital technologies have no international standards to adopt. For example, with the rise of the Internet, traditional relational databases have become unable to handle Internet websites, especially ultra-large-scale and highly concurrent social dynamic websites, and many insurmountable problems have arisen. However, non-relational databases have developed very rapidly due to their own characteristics. It can solve the challenges brought by large-scale data collections and multiple data types, especially big data application problems. Currently, typical non-relational databases include key-value

databases, document databases, in-memory databases, and graph databases. They are widely recognized for their ease of large-scale development, powerful functions, and good performance, and have shown strong vitality [11, 12]. However, by So far, there are no international standards in this regard.

4.2. International Standards That Are Strongly Bound to Patents Create Passive

Many international advanced standards are de facto standards for multinational enterprises or standards of civil alliances in developed countries. These standards are often strongly bound to patents, and if adopted, will cause great passivity. At present, many standards in the field of information and communication in the world are developed by European and American private alliances. For example, the 4G/5G standards are developed by the European 3rd Generation Partnership Project (3GPP), and the wireless LAN technology (WiFi) is developed by the American Institute of Electrical and Electronics Engineers (IEEE), these standards contain many standard essential patents (SEPs), and the licensing fees are high. For example, in July 2020, Huawei and Qualcomm reached an agreement on wireless communication 2G, 3G, and 4G patent licenses. Huawei will pay a one-time payment of US\$1.8 billion. According to statistics, among the top ten countries holding ISO standard essential patents, the United States ranks first, followed by South Korea, Finland, Japan, Germany, France, the Netherlands, Austria, China, and Australia. Chinese enterprises or institutions hold 104 ISO standard essential patents, ranking 9th. Compared with developed countries, there is still a large gap in the number of technical fields and standard essential patents.

4.3. Multiple Decision-Making Entities in Standards Bring Disadvantages

With the development of economy and science and technology, the independent innovation capabilities of Chinese enterprises have gradually increased. Many times, they hope to transform independent innovation technical standards into industry standards or national standards. At this time, multiple decision-making bodies on standards (National Standardization Administration Committee, industry authorities) etc.) are beginning to appear, and it is easy to have problems such as repeated formulation of certain standards and conflicting contents of some standards.

4.4. The Emergence of Private Standardization Organizations Is Restricted

Although China has given clear legal status to group standards, the Chinese civil affairs department has set very special thresholds for the registration of non-profit organizations. If you want to register an association, you need to find a government agency as its "supervisory unit", otherwise the civil affairs department will not allow registration. The result of implementing this policy is that

only when a certain government agency wishes to establish an association, the association can find the competent unit and registration is possible. It is almost impossible for spontaneous associations to register with the Ministry of Civil Affairs because no government agency is willing to take responsibility for such associations [13, 14]. This makes China's current non-governmental self-organized standardization associations lack the conditions for the emergence, which greatly limits China's ability to produce non-governmental standardization organizations with high international influence.

5. Suggestions and Conclusions

With the development of society and economy, the demand for standardization in the digital economy era is becoming increasingly strong. China's standardization governance work is developing rapidly, but there are still some problems. By comparing and learning from the experience of American and European countries, this article puts forward the following suggestions.

5.1. Encourage Enterprises to Actively Participate in the Development of International Standards

In recent years, China's digital technology has developed rapidly, and corresponding technical standards have emerged one after another. This has provided a very good opportunity to promote the application scope of our standards and elevate Chinese standards to international standards. We should increase our efforts to guide enterprises to participate in the development process of international standards, and promote more standards that are original in China or in fields with strong industrial strength into international standards. In addition, a corresponding international conformity assessment system must be established based on the international standards that China leads to formulate, so as to better help Chinese standards, technologies, and products "go global."

5.2. Both the Government and Enterprises Should Pay More Attention to Intellectual Property Rights

At present, there are more and more disputes over the voice of SEP on an international scale. Many countries, including the European Union and the United States, intend to seize the voice of SEP from the government level. The scale of China's digital economy industry is huge, and the government should also play a necessary guiding role to balance the relationship between protection, anti-monopoly, and fair competition. Our country should improve the standard essential patent system, promote the establishment of a linkage working mechanism between standards and intellectual property rights, and promote corresponding standard work while innovating. As an enterprise, while actively innovating, it should also actively participate in the formulation of standard essential patent rules, so as to further acquire and efficiently utilize standard essential patents at a

strategic level.

5.3. Integrate Multiple Decision-Making Subjects of Standards into a Single Decision-Making Subject, and Establish a Mixed Government and Private System

Integrate multiple decision-making subjects of government standards into a single decision-making subject to avoid multiple decision-making subjects from forming an uncoordinated chaotic state, thereby avoiding conflicts in the content of some standards. Whether it is the United States or Europe, the standard decision-making body is either the government or a private organization. They are all unique. The United States is the national standards association, and Europe is the European Commission. In contrast, China's standard decision-making power is distributed among the State Council, various industry authorities, and more than 30 local governments. Management is relatively decentralized and fragmented, which brings certain difficulties to the development of China's standardization work, especially for the formulation and promotion of standards is a constraint, and it is necessary to effectively integrate the current multi-decision-making system, establish a single decision-making body, and unify the leadership and management of the development of standards. It is also recommended to establish a mixed system between the government and the private sector to clarify the scope of their respective responsibilities and avoid the current situation where the government occupies a dominant position in all standards. Standards can be divided into four types according to economic purposes: Compatibility/Interface Standards, Minimum Quality/Safety Standards, Variety Reduction/Focusing Devices and Information /Measurement (Information/Measurement) [15]. With reference to the U.S. standardized governance model, the government can play a leading role mainly in safety regulatory standards and government procurement standards. Other standards can give greater play to the power of the market and be led by the private sector, so as to better meet market demand. In this way, standards can not only support public policies and protect public interests, but also keep a good foothold in the market, closely track market changes, and effectively avoid possible deviations between the formulation of standards and the market.

5.4. Relax Restrictions on the Establishment of Non-Profit Standardization Organizations and Lower the Threshold for the Establishment of Standardization Organizations

Relax restrictions on the establishment of non-profit standardization organizations, eliminate the requirement that establishing an association must be affiliated with a government agency, lower the threshold for the establishment of non-profit standardization organizations, create a relaxed standard-setting environment, and enable non-governmental organizations to become the main body in formulating voluntary standards. At present, many existing standards

associations and alliances in China are not truly independent and non-governmental and are inextricably linked to government departments. The operation of these organizations is affected by various influences from the government. If you want to become a standardization organization that can truly respond to market needs, you must independently formulate standards to achieve this. Our country should strive to create truly internationally influential non-governmental organizations like the European 3rd Generation Partnership Project (3GPP) and the American Institute of Electrical and Electronics Engineers (IEEE).

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