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NETWORK MANAGEMENT IN PUBLIC ADMINISTRATION

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ACRONYMS

NPM – New Public Management

PPP – Public-Private Partnership

NGOs – Non-Governmental Organizations

OECD – Organization for Economic Cooperation and Development

PPI – Private Participation in Infrastructure

ICT – Information and Communication Technology

COVID-19 – Corona Virus Disease 2019

BSAM – Beijing State-Owned Assets Management Co., Ltd.

SPV – Special Purpose Vehicle

INTRODUCTION

As the network society evolves, in the field of public administration, hierarchical administration is gradually being replaced by a new form of management – network management.

The government institutions are increasingly dependent on other actors for the production of public goods. Businesses, local, professional and other communities and self-governing entities gain more and more influence and are capable of dealing with the government as independent and equal parties. In this situation of interdependence between public officials, private actors and other non-governmental actors, neither hierarchy nor the market are the only effective enough structures for coordinating interests and building cooperation. While traditional public management is oriented to activities in a market or planned economy, network management is intended to coordinate interactions of the interested actors, taking into account the communicative processes of network society. Under such conditions, network management or policy networks are becoming the dominant model of governance.

The idea that governments operate in a complex world where governance is often a collaborative effort within a network of actors has become widely accepted. Over the past few decades, a rapidly growing literature on governance, collaboration, and networks has emerged that not only explores the concept of networks and network management, but also gradually adds empirical evidence on the subject that attempts to unravel the mechanism of network management, and the conditions that enhance (or hinder) the network management process. Empirical research on network and collaborative governance has focused on the effects of network performance, network trust, network characteristics, etc. The importance of further developing and improving the research results on network management so as to provide scientific theoretical and empirical support for the government in dealing with network governance issues cannot be overstated.

At the present time, although the impact of networked communication technology development is increasing and network organizational structures are becoming more sophisticated, governments still do not pay enough attention to this new management paradigm, and many local governments even ignore the existence of network management. The literature and studies on network management show how it has been applied to deal with the complexities of service delivery and policy making in modern society. It can even be argued that network management has become a mainstream tool in public administration [37]. In the new era, new age and new normal environment, national public administration is facing unprecedented difficulties. It is necessary to conduct special and in-depth research on related issues and try to propose effective coping strategies or solutions to promote the healthy development of national public administration. of national public administration.

The research problem of this thesis is what are the effectiveness, shortcomings and prospects of network management in public administration. Network management is an important element of change in the field of public administration. Public administration under the perspective of network management has obvious differences from traditional public administration in terms of strategies and functions. Network management can not only change the role of the government's "visible hand" and the market's "invisible hand" in the allocation of social resources as well as make up for the deficiencies of the government and the market, but also change the functional focus, the way and means of performing the functions of public administration to a large extent.

This research aims to describe network management and re-examine it, so that to clarify how the government can better apply it in practice, and reveal the management tools suitable for the government.

This thesis accomplishes the following tasks:

1. define the main concepts such as network society, public administration, network management;
2. overview main theoretical models of public sector management;
3. examine the key changes in public services;
4. overview advantages and disadvantages, opportunities and drawbacks of the network approach to public administration problems' investigation;
5. evaluate the heuristic potential of the theory of network management for use in the interaction of state and non-state actors in the implementation of public policy goals;
6. analyze the strategies and functions of network governance in public administration;
7. outline problems and prospects of network management in the governmental sector.

This thesis adopts a combination of comparative analysis method, dialectical analysis method and case study method.

Comparative analysis method: By comparing the similarities and differences of things, we can distinguish things and achieve a deeper understanding of each thing, so that we can grasp each thing.

Dialectical analysis method: Use a comprehensive, linked, developmental view to analyze the problem, and oppose one-sided, isolated, static view of the problem.

Case study method: Select relevant cases for analysis and research.

This thesis is divided into three main parts:

The first part starts with management in the network society. It defines relevant concepts such as network society and state power; discusses the trend of state power transfer in the context of network society; analyzes how New Public Management responds to the challenges of the emerging network society; and introduces the

background, concept, characteristics, and operation mechanism of network management.

The second part focuses on the social practice of new public management – public-private partnership. It clarifies the connotation, classification and characteristics of public-private partnerships; introduces the current development status of public-private partnerships worldwide and their practical application; dialectically analyzes the benefits, significance and drawbacks of implementing public-private partnerships; and provides detailed reflections on the development path of public-private partnerships.

The third part gives a systematic account of network management in modern public administration. It introduces the challenges facing modern public administration; makes a comprehensive comparison of traditional public administration models, new public management models and network management models; outlines the advantages and shortcomings of network management models; analyzes the practical application of network management in specific countries; and discusses the development prospects of network management models.

The research of network management in this thesis breaks through the singularity of previous disciplines of network management research and explores the network management operation model through a combination of multiple disciplines from the perspective of public administration. This is an attempt to research network management in public administration, and it is hoped that further exploration and experimentation can be conducted.

And this thesis examines the latest era of network management in China and Belarus as examples, with a view to making a modest contribution to the promotion of network management in public administration.

MASTER'S THESIS SUMMARY

Keywords: NETWORK SOCIETY, PUBLIC ADMINISTRATION, NETWORK MANAGEMENT, NEW PUBLIC MANAGEMENT, PUBLIC-PRIVATE PARTNERSHIP

The relevance of this topic is determined by the fact that the development of network communication in modern society is accompanied by a growing application of methods and approaches of management from the non-governmental sector in public services.

The purpose of this research is to describe the scales, effectiveness, drawbacks and prospects of network management in public administration.

The object of research – network management in public administration of Belarus and China.

The subject of the research – the application of network management in public administration of Belarus and China.

The following results were obtained in the preparation of the thesis:

State power in the network society is shifting from coercion to flexibility, verticality to flatness, centralization to decentralization, and control to interaction. New public management (NPM) is a response to the challenges of the emerging network society. Public-private partnership (PPP) is the social practice of New Public Management. Network management draws on the advantages of bureaucracy and the new public management model, making up for the shortcomings of both in terms of governance mechanisms, and adapting to the needs of the networked development of modern society. In the future development, the establishment of the network management pattern of public administration should focus on efforts in the direction of changing the role of government, attaching importance to the role of the nongovernmental sector in the network structure, and encouraging citizens to participate in social governance.

The volume of the master thesis is 75 pages. The paper consists of three chapters, 12 figures, 3 tables, 1 appendix, and 69 sources.

The main novelty of this thesis on network management research lies in breaking through the singularity of previous network management research disciplines and exploring the development of network management through the combination of multiple disciplines from the perspective of public administration.

The author confirms that the work was done independently, and the material cited in it correctly and objectively reflects the state of the field being studied, and all theoretical, methodological provisions and concepts borrowed from literature and other sources are accompanied by references to their authors.

ОБЩАЯ ХАРАКТЕРИСТИКА РАБОТЫ

Ключевые слова: СЕТЕВОЕ ОБЩЕСТВО, ГОСУДАРСТВЕННОЕ УПРАВЛЕНИЕ, СЕТЕВОЙ МЕНЕДЖМЕНТ, НОВЫЙ ГОСУДАРСТВЕННЫЙ МЕНЕДЖМЕНТ, ГОСУДАРСТВЕННО-ЧАСТНОЕ ПАРТНЕРСТВО.

Актуальность данной темы определяется тем, что развитие сетевых коммуникаций в современном обществе сопровождается все большим применением методов и подходов управления из негосударственного сектора в сфере государственных услуг. Цель данного исследования – описать масштабы, эффективность, недостатки и перспективы сетевого менеджмента в государственном управлении. Объект исследования – сетевой менеджмент в государственном управлении Беларуси и Китая. Предмет исследования – применение сетевого менеджмента в современном государственном управлении Беларуси и Китая.

При подготовке диссертации были получены следующие результаты: Государственная власть в сетевом обществе переходит от принуждения к гибкости, от вертикальности к плоскостности, от централизации к децентрализации, от контроля к взаимодействию. Новый государственный менеджмент – это ответ на вызовы зарождающегося сетевого общества. Государственно-частное партнерство (ГЧП) – это социальная практика нового государственного менеджмента. Сетевой менеджмент использует преимущества бюрократии и новой модели государственного управления, компенсируя недостатки обеих с точки зрения механизмов управления и адаптируясь к потребностям сетевого развития современного общества. В будущем развитии создание модели сетевого менеджмента в государственном управлении должно быть сосредоточено на усилиях в направлении изменения роли правительства, придании важности роли неправительственного сектора в сетевой структуре и ориентации граждан на участие в социальном управлении.

Объем магистерской диссертации составляет 75 страниц. Работа состоит из трех глав, 12 рисунков, 3 таблиц, 1 приложения и 69 источников. Основная новизна данной диссертации по исследованию сетевого управления заключается в преодолении сингулярности предыдущих дисциплин исследования сетевого управления и изучении развития сетевого управления через сочетание нескольких дисциплин с точки зрения государственного управления. Автор подтверждает, что работа выполнена самостоятельно, а приведенный в ней материал правильно и объективно отражает состояние изучаемой области, а все заимствованные из литературы и других источников теоретические, методологические положения и концепции сопровождаются ссылками на их авторов.

CHAPTER 1

MANAGEMENT IN THE NETWORK SOCIETY

1.1 State power in the Network Society

1.1.1 Overview of network society and state power

The term "Network Society", first appeared in the scholar Jan van Dijk's 1991 book *"De Netwerkmatschappij"* (in Dutch). Van Dijk defines the Network Society as a society in which the combination of social and media networks shapes its main models of organization and the most important structures at all levels (individual, organizational and social) [50]. Then Manuel Castells' book *"The Rise of the Network Society"*, published in 1996, makes extensive use of the concept of the network society to describe the transformation of contemporary society. Manuel Castells points out that, as a historical trend, the dominant functions and processes of the information age are increasingly organized in networks. Network constructs new social forms of our society, and the proliferation of networked logics essentially changes the operations and outcomes of production, experience, power and cultural processes [6].

The network society goes much further than the information society that people often claim. It is not purely technology that defines modern society, but also cultural, economic and political factors that make up the network society. Influence factors such as religion, cultural upbringing, political organization, and social status all shape network society. Society is shaped by these factors in many ways. These influence factors can enhance or hinder the development of these societies. Information constitutes the essence of contemporary society, and the network shapes the organizational forms and infrastructure of the society.

Each development stage of society has its own characteristics, and the network society is no exception:

1. The network society is expanding globally. The network knows no borders and the whole world is interconnected on the basis of a multidimensional network. The network simultaneously communicates and does not communicate. Therefore, although the network society is organized on a global scale, not all regions or people are interconnected in this network society. However, all nations are influenced, shaped and ultimately governed by the logic, interests and conflicts of this network society, a multidimensional network that constitutes a global network of people's lives and is simultaneously shaped and modified by the codes and agendas written by people's actions;

2. The networked organization trumps all other forms of organization. This is how networks expand in the business world. Companies that don't or can't follow this logic will be overtaken and eventually eliminated by leaner, more flexible

competitors. Yes, we live in a world of mergers and alliances, but the successful companies are precisely those that are based on networks and flexible partnerships. Large companies form networks internally, collaborate with networks of small and medium-sized companies, and integrate into broader strategic alliances. Cooperation and competition alternate in various times and spaces, and often with the same actors;

3. The networking of political institutions is a *de facto* response to the crisis of governance suffered by nation-states in a supranational world. The call for global governance has been answered to some extent in the practices of governments and social actors. Not in the utopian forms of world government led by retired politicians and noble intellectuals, but in the daily joint decision-making practices of networked states composed of nation-states, supranational associations, international institutions, local and regional governments, and quasi-public and truly public grassroots' non-governmental organizations;

4. Civil society is reconstructed at the local and global levels through networks of activists, often organized and deliberating through the Internet, formed and reconfigured according to issues, events, emotions and cultural traits. Still, the networked society has not ceased to be a contradictory phenomenon and a realm of conflicts, as all societies have been throughout history;

5. The network society is an exceedingly highly mediated society. The entire spectrum of social practice, both global and local, is communicated in the media space. In the broadest sense, the media is the public space of our time. The elastic and interactive nature of media hypertext, and its power to reorganize, provides media space with an infinite capacity for integration and exclusion, thus defining the boundaries of society within the material world of our ideas and representations;

6. In the network society, power remains the fundamental structuring force for its shape and direction. But power does not only exist in the governmental institutions or large business corporations; it is more located in the networks that structure society. Power relations can be revealed in interactions between governments and citizens, between political systems and the media, between market surveillance authorities and financial companies, and so on [5].

Power is an extremely important concept in the social sciences and has been discussed and defined by many scholars throughout history, with a wide variety of opinions. Thomas Hobbes considered power to be "the present means of obtaining any apparent future benefit" [25]. Max Weber defined power as "the possibility for a person or some people to realize their will in a social activity, even in spite of the resistance of other people involved in such action" [52]. Manuel Castell argues that "power is a relationship between human subjects that imposes the will of certain subjects on others through potential and actual (substantive and symbolic) violence, based on production and experience" [6].

Although the above explanations of power are based on different worldview backgrounds, they all reveal some common characteristics of "power" from different perspectives: power is a kind of force that may or can produce a specific expected situation and result. Power is actually the ability to regulate social relations. The exercise or implementation of any power has the effect and change on some specific society. Power refers to the probable coercive force and an impact that particular subjects exert on society or others by virtue of some advantage.

Power in the network society is exercised through and within the network. In this social and technological condition, there are four different forms of power [4]:

1. Networking power: the power of the actors and organizations included in the networks that constitute the core of the global network society over human collectives and individuals who are not included in these global networks;
2. Network power: the power resulting from the standards required to coordinate social interaction in the networks. In this case, power is exercised not by exclusion from the networks but by the imposition of the rules of inclusion;
3. Networked power: the power of social actors over other social actors in the network. The forms and processes of networked power are specific to each network;
4. Network-making power: the power to program-specific networks according to the interests and values of the programmers, and the power to switch different networks following the strategic alliances between the dominant actors of various networks [4].

Political power refers to the compulsory restraining ability of the political power subject to certain political objects in a specific political relationship, by virtue of certain political resources, to achieve and maintain their own interests. State power is closely related to political power as its main type. State power is the totality of social and political power, it includes governmental power. Since the people are considered the source the supreme holder of state power, the latter is the subordinate power of people's power and the executive power of people's power. This nature of state power determines that its goal is public (people's) interest. State power in general can be divided into legislative power, executive power and judicial power.

According to the theme of the thesis, this paper focuses on the in-depth analysis of the administrative power in the state power. Administrative power, that is, the management power of administrative organizations, refers to the power of state administrative organs to execute laws and manage the administrative affairs of the state. It is a kind of power to manage public affairs and has the compulsory power of the state. Due to the breadth and complexity of administrative matters, they need to be organized and managed by different types of administrative organs respectively. The application of advanced technologies of networked social communication in their daily work is a matter of vital importance for the managerial effectiveness of the government sector in the contemporary highly developed society.

1.1.2 Shift of power in the network society as a problem of contemporary public administration

The network is a new configuration of power relations in society that allows opportunities to be equalized. In the new stage of network society development, information power, which differs from substantive power, has been rapidly promoted, and its most significant feature is the change of power structure. Information power structures people's ideology, which is objectified into social action, and social action forms a new pattern of social power structure. Decentralization, transfer of power, and empowerment all affect and change the political ecology and discourse structure of society, shifting the political power of society from coercive to flexible, from vertical to flat, from centralized to decentralized, and from controlled to interactive.

After the emergence of the network society, the biggest change brought by the Internet is the change in the distribution of power. This change has led to an unprecedented equalization of opportunities in the distribution of power and a shift from coercion to softening of political power. A person's origin, gender, occupation, and status are less and less important in the network era. What matters is his or her personality characteristics and ability to acquire, process and use information, knowledge, and ideas. As long as one possesses knowledge, grasps information, changes one's concept at the right time and puts it into concrete action, one can not only share power but also gain power, which is called "knowledge power" or "soft power" [17]. "Knowledge power" or "soft power" is a kind of non-coercive power, which uses knowledge to guide, attract and persuade with reason, rather than using bribery and coercion to change people's behavior and will. According to the American futurist Toffler, "among the pillars of power – violence, wealth and knowledge – knowledge produces high quality power because it is used not only to punish, reward, persuade, and even to transform, with greater flexibility and therefore greater authority " [49]. The power that used to be possessed through violence and coercion is gradually transforming under the impetus of the network society, and a new kind of knowledge power through persuasion and guidance, i.e., soft power, is gradually emerging, which will change the exclusivity of political power and bring about the sharing of power.

As far as the power organization structure is concerned, the network has continuously deconstructed the traditional power model, which has a great impact on the social organization structure, and political power has shifted from vertical to flattening. The original hierarchical organizations have formed independent power groups in the power structure, with superiors giving orders and subordinates obeying and executing them. Power is placed at the center, which inevitably leads to individual worship of power and obedience to superiors. Network technology not only breaks the bottleneck of information transmission and information processing, but also breaks the information asymmetry in the bureaucratic system, so that the

hierarchical power based on information asymmetry increasingly loses its coerciveness. Most importantly, the technology of peer-to-peer networking makes it possible for each of us to become a node in the network, and each node can communicate directly with other nodes without having to go through a hierarchical arrangement. The decentralized network structure makes it possible to exchange ideas equally and freely. The power structure in which the grassroots and the top can directly exchange information actually reduces the importance of the middle level in the organization, making the original pyramidal organization style evolve into a flat organization style.

When the organizational form tends to flatten, it also means that power shifts from centralization to decentralization. The implementation of power based on information disclosure completely changes the consciousness and behavior of centralization under information monopoly, prompting power holders to give up some of their power and realize the decentralization and downward shift of power. This kind of shift is conducive to the flexibility of the power system to cope with diversified and complex social needs.

At the same time, political power has shifted from control to interaction, and the awakening of citizens' subject consciousness has made them no longer followers, dependents and subscribers of political power, but independent judges of political power, constructors of policy information, participants of social development, and witnesses of the changes of the times. In power decision-making, what dominates is no longer obedience and dependence, but interaction and sharing, transpositional consideration and positive response, going to the whole and to the masses, and the coexistence of online and offline, virtual and physical.

1.1.3 The new public management as a response to the challenges of an emerging network society

In the late 1970s and early 1980s, Western countries launched a market-oriented administrative reform to solve the three crises of finance, trust and politics faced by governments and to improve the efficiency and quality of public services. The government reengineering movement of the 1990s brought this administrative reform to a climax, which is known as the New Public Management movement in academic circles. Guided by the New Institutional Economics, Public Choice Theory and Business Management Theory, government departments have vigorously carried out privatization reforms and promoted the marketization of public services, while actively learning from the advanced management techniques, methods and concepts of the private sector [12].

Contemporary society is developing as a network society. However, the complexity of the relationships between different (social) groups (stakeholders) should be addressed in a timely manner. The shift of public administration paradigm

to New Public Management (NPM) opens the door for outsiders who are willing to participate in public affairs. The traditional administrative model was a great reform relative to the era in which it was built, but that era has passed. In the era of globalization and information technology, public affairs have become increasingly complex and volatile, and the shortcomings of the government's monopoly on public affairs with its inherent structural defects have become more and more obvious. Bureaucratic governments have become too difficult to meet the increasing and diversified public demands, and public affairs are in a crisis of "ungovernability". All over the world, governments have taken a series of continuous reform measures at four levels: government-society relations, government-market relations, internal government relations, and government organization and management mechanisms, etc., to promote the transformation of the traditional public administration model into the new public management model.

Different scholars have different views on the content of the New Public Management, for example, the British scholar Hood summarized the New Public Management into seven points [26]:

1. The public sector should be free from professional management, which means that managers should manage themselves;
2. The objectives must be clear and the performance must be measurable;
3. A strong emphasis on output control, with more emphasis on actual results than on procedures;
4. A shift toward decomposition, i.e., dividing up large departments through the creation of small policy areas;
5. Shift to greater competitiveness;
6. A focus on private sector management practices;
7. Restraint and economy in the use of resources [26].

The old model was primarily driven by processes and rules, emphasizing hierarchical decision-making and control. The new public management environment replaces the old model and is characterized by:

- Adopt more strategic or results-oriented (efficiency, effectiveness and service quality) approaches to decision making;
- Replace a highly centralized hierarchical organizational structure with a decentralized management environment. Focus the attention on matching authority and responsibility;
- Create a competitive environment within and between public sector organizations;
- Strengthen the strategic capacity of the government for responding to external changes and interests quickly, flexibly and cost-effectively;

— Reduce government functions through privatization, market testing, contracting, etc. Distinguishing the purchaser of public services from the provider, i.e., "separating the steersman from the rower".

From the perspective of the historical development of public administration, the theory and practice of New Public Management is an important stage in the process of public administration development. The advantages of this model have been reflected in the practice of administrative reform in various countries, and it has become an important element of public administration reform in Western governments, providing a strong guarantee for improving the efficiency of government management. This also means that the New Public Management has an innovative development of the methodology of traditional public administration, and provides a new perspective for the development of public administration, which is manifested in the following aspects:

1. NPM provides a new perspective on public administration research.

The theoretical foundation of New Public Management has broken through the disciplinary boundaries of traditional public administration, taking contemporary Western Economics and Business Management as its theoretical foundation, making the emphasis on market values in public organizations, and creating a new perspective in public administration. As a result, New Public Management is often referred to as "the new economics-based theory of government management" or "market-oriented public administration".

Practically speaking, market-oriented New Public Management is conducive to improving the efficiency of public administration and stimulating the inherent dynamism of the public sector. For example, the form of cooperation between the government and the private sector can be flexibly adapted to the social environment to overcome the rigid hierarchy; the high emphasis on output and results can correct the shortcomings of traditional public administration, which is only concerned with inputs but not outputs; the flexible contract employment system and performance pay system can overcome the inefficiency of traditional public administration, which is the permanent employment of public employees once they are hired; and so on.

2. NPM expands the scope and orientation of public administration approaches.

Traditional public administration emphasizes a strictly institutionalized, hierarchical and bureaucratic approach to management, and therefore focuses on the study of internal affairs of organizations and the study of government administrative processes, administrative structures and administrative systems, which is an "internally oriented" approach to research. New Public Management focuses not only on the internal aspects of the organization, but also on the external environment of the organization, focusing not only on the relationship between the elements of the system, but also on the interaction between the organization and the external

environment. It uses the methods of strategic planning, results control and strategic management to consider how public organizations adapt to the environment and their strengths and weaknesses, opportunities and threats in the environment, so that they can survive and develop in a constantly changing environment, and to strengthen the public sector's awareness of crisis and the concept of long-term development.

3. NPM promotes an innovative an incentive-oriented public management method.

The assumption of human nature is the logical starting point of organizational structure design and behavior analysis. The premise of traditional bureaucratic system design is based on the assumption of "evil humanity", thus emphasizing the regulatory orientation of management, trying to limit the abuse of bureaucratic power through the formulation of complete rules and regulations to reduce the infringement of public interests by the evil nature of humanity. However, for a long time, the excessive pursuit of rules has made "dogmatism," "red tape," "irresponsibility," and "inefficiency" have become synonymous with bureaucracy. The rules and regulations, which were originally meant to be tools, have become administrative ends in themselves, and the results of their behavior are contrary to the purposes for which the organization was designed. In response to the shortcomings of bureaucracy in the administrative process, the New Public Management movement took the human assumption of "rational economic man" as the logical starting point for public administration reform, and regarded people in both political and economic markets as rational economic men pursuing maximum personal interests. By introducing the market competition mechanism, the focus of public administration has been changed from regulation to incentive, and the incentive-oriented approach to public administration has been innovated.

4. NPM constructs a quantitative results-oriented performance management method

Traditional public administration is a process-oriented management model, which is based on the hierarchical management system of command-obedience and emphasizes the obedience of people to rules, systems and policies in the management process. This type of administrative management emphasizes qualitative management of things and lacks quantitative management methods. While respecting the qualitative management approach, New Public Management introduces a result-oriented quantitative management approach and implements performance management. Performance management constitutes a quantitative management method system through specific management methods such as specific performance goals, performance standards, cost accounting, performance pay, and performance evaluation. The use of performance management methods shifts government behavior from process-oriented to results-oriented, giving subordinates a certain degree of autonomy and focusing on individual motivation. This kind of calculable rational

results as a basis to control the irrational factors on human subjective judgment, so that the evaluation results can achieve the maximum fairness and rationality, in line with the requirements of the scientific and fair value orientation of contemporary public administration.

In fact, the New Public Management model is a direct response to the shortcomings of traditional public administration in the network society, especially the inadequacies of the public bureaucracy [1]. New Public Management responds to several major interrelated practical issues, including: the inefficiency of public service delivery in the functional public sector; changes in economic theory; the impact of changes related to the private sector, particularly the rise of globalization as an economic force; and technological changes that make decentralization while allowing for better control of the whole situation possible.

If New Public Management is a response to the challenges of the emerging network society, then network management can be called a product of the mature development of the network society and a critical development and inheritance of New Public Management.

1.2 Theory and practice of network management

1.2.1 Overview of Network Management

Network Management is a governance model that combines multiple actors, including public sector, non-public sector and citizen organizations, to achieve public goals in a complex social environment through collaborative cooperation. Its network structure, pluralistic collaboration, and resource dependence are the key features that distinguish it from other means of governance. The emergence of network management is based on the reform of public management practices. To trace the roots of network management, it is necessary to start from the evolution of the frontier theories of public administration. Through the evolution from Public Choice Theory, New Public Administration, New Public Management, New Public Service to Governance Theory and Network Management, the core concepts of public administration theory have undergone a radical change. The path of the thought evolution in the public administration circle can be clearly seen in table 1.1.

Table 1.1 – Evolution of frontier theories of public administration [58]

Emergence time	Public administration theoretical waves	Core ideas	Representative events or people
1865	Traditional Public Administration Theory	Politics-administration dichotomy; efficiency and effectiveness are paramount	American Progressive Movement; French Post-Napoleonic Era; German Bismarck Era
Early 1960s	Public Choice Theory	Rational economic man assumption; satisfying individual interest, denying public interest; small government, free market	Buchanan; The Ostroms
Early 1970s	New Public Administration Theory	Criticism of the public choice school; emphasis on the public interest, social justice	Frederickson
Late 1970s and early 1980s	New Public Management Theory	Transforming government with a market approach	Reagan government reforms in the United States; Thatcher government reforms in the United Kingdom
Mid 1980s	Rethinking New Public Management; Refounding Public Administration	Criticism of public choice theory; opposition to Reagan reforms; emphasis on the ethics of public service	Blacksburg Manifesto; Minnowbrook Conference
Early 1990s	Reshaping Government Reform	Improving government performance; customer service; steering rather than rowing	Clinton Administration Reform; Gore National Performance Assessment
Late 1990s	New Public Service Theory	Serving rather than steering; serving citizens; valuing citizenship and public service	The Denhardts
Late 1990s	Governance Theory	Collaboration across sectors, using social participation and networking methods to move away from traditional bureaucratic approaches	First proposed by World Bank experts' research; widely appreciated in recent years
Late 1990s and early 2000s	Network Management, Holistic Governance, Digital Governance, Collaborative Governance	Greater focus on the governance role of social organizations; interactive and cooperative, resource sharing, flexible and efficient network approach	Agranoff; Milward; Rhodes; Stoker

The rise of the network management model is closely related to the specific time background and social environment. The growth of civil society, the strengthening of the third sector in the form of non-governmental organizations (NGOs) are the distinctive features of social development in the 21st century. The waves of globalization and localization as well as the digital revolution have made the boundaries between the state and society increasingly blurred, resulting in the trend of networked social structures. Along with the increasing networking of social structures, a large number of non-routines, more complex and diversified social and public administration problems have emerged, making it ungovernable to rely on the power of government or society alone [57].

1. Wave of globalization and localization

The waves of globalization and localization call for changes in governmental management models toward decentralization and networking. Globalization, as an objective phenomenon, is a process of a series of political, economic and cultural changes in the world today. In this process, relations among countries, regions, organizations, and individuals are becoming increasingly intense and complex. Globalization has led to a trend of decentralization of state power, i.e., the state cedes part of its power to regional and local organizations; decentralization of state power has formed a multi-layered governance structure, with governance subjects including government, market, social organizations, citizens, etc.; the polycentricity of governance subjects has made the traditional hierarchical governance model unable to adapt to the need for coordination of polycentric subjects and has shifted to a networked model.

In parallel with globalization, the trend of localization has been increasing. Localization refers to the autonomy to make decisions and manage local affairs in a local-centered manner according to the development of local society [47]. Localization tends to be diverse, heterogeneous and differentiated, and opposes power, centralized control and integration [45]. Local differences require the central government to give local governments more autonomous decision-making power, while the diversity of social structures requires local governments to share public power with enterprises, social organizations, and citizens. Therefore, the government needs to establish a new management mechanism to coordinate the relations and interests of various parties.

2. The rise of civil society and the development of the third sector

The rise of civil society and the development of the third sector require more democratization of government governance. Civil society is a sphere of social relations formed by non-state institutions and self-organizing groups capable of organized and responsible collective action in defense of their socially significant interests. It is an area of free expression of the will of citizens, extending to spheres of its competence that do not comprise a state monopoly, in which the powers of the

state are highly regulated and limited, and citizens are given freedom of action according to the principle "everything that is not prohibited by law is permitted". Civil society can also be defined as the sum of all civil organizations and civil relations outside the state or government. Its constituent elements are various non-state or non-government-owned civic organizations, including NGOs, voluntary communities, associations, community organizations, interest groups and movements organized by citizens, which are also called the "third sector" [57].

The development of full-fledged civil society inevitably affects the change of governance model. First, the role of government has changed from "rower" to "steersman"; second, government administration should be more transparent, responsible, responsive and accountable; third, the interaction between government and society is more frequent and closer; fourth, citizens and civic organizations participate in political activities in more diverse ways.

3. Advances in Information Technology

The comprehensive penetration of human life by the rapid development of information technology has brought a great shock to all members of society, and has clearly hinted at the inevitable arrival of more far-reaching and profound social structural changes in the future.

Computers and the Internet have changed the way people live in the 21st century, and they have also changed the organizational model. A "peer-to-peer" network structure has been formed between people, organizations, and personal organizations, making it easier than ever to connect, exchange, and communicate with each other. Advances in information technology have facilitated the formation of a network society and made it possible to manage this complex network. From the perspective of governance tools, the network society makes the traditional management model unable to adapt to the complexity of modern society and requires a more flexible management model; from the perspective of governance subjects, the plurality of governance subjects inevitably forms a network management structure.

Hence, the challenges of governability and the impossibility of managing a network society with the methods and means of industrialism predetermine the need for new forms of social and state governance.

The term "Network Management" was first proposed by Harvard University professor Stephen Goldsmith and William Eggers of the Deloitte Institute in their book *Governing by Network: The New Shape of the Public Sector* [19]. The book argues that the bureaucratic era of hierarchical government is coming to an end and is being replaced by a completely different model – network management. In this context, it means a new model of governance in which public services are provided through the cooperation of the corporate sector, non-profit organizations, and a wide range of other actors. In his book *Public Administration: a Different Approach to Traditional Administrative Science*, Chinese scholar Chen Zhenming points out that

network management is a process in which a large number of public administration entities, both governmental and non-governmental sectors (including the private sector, the third sector, and private citizens), cooperate with each other to share public power and manage public affairs in an interdependent environment in order to achieve and promote the public interest [8].

The networking of public administration includes [30, 63]:

1. Networking of public administration organizations. As the organization changes to flattening, the management continues to divide and expand, making the management structure networking;
2. Networking of management operations. The networking of organizational structures has led to an increase in the number of links between management departments and the formation of a networked structure of links;
3. Networking of information transmission. The development of digital information resources makes the information transfer between management departments not only a one-way linear connection, but also a networked connection, collecting digital multimedia information such as text, pictures, sound and images;
4. The establishment of digital and virtualized management model. Virtualization is a product of information technology and network technology, and the development in the field of public administration has led to the formation of virtual society and virtual cities, as well as other aspects of virtualization, such as virtual space meetings, virtual managers, etc.

1.2.2 Network management operation mechanism

As a public management model emerged in the Western world. Network management introduces a new mechanism for dealing with complex public affairs, i.e., collaboration mechanism. Collaboration is the operational mechanism of network management, and collaboration is not only the theoretical basis of network management. It also provides the mechanism guarantee for network management operation. In the network management, collaboration replaces competition or subordination and becomes the basic feature of relations between organizations.

To construct a collaborative mechanism in network management, it is necessary to overcome the obstacles to the formation of collaborative relations between the government and enterprises, social organizations and citizens, and on this basis, identify the participants of the collaborative network, formulate the rules of the collaborative network and clarify the coordinating subjects and methods, and share the responsibility of governance. All this implies the following measures.

1. Identify the participants of the collaborative network

When the government decides the participants of an issue, the first thing it needs to consider is who are the stakeholders involved in the issue; the second thing it should consider is the ways through which the public policy objectives can be

effectively achieved. The former determines the influence scope of the policy issue, and includes the enterprises, social organizations and citizens that may be involved in the governance network. The latter identifies the ways in which governance goals can be achieved, i.e. whether they can be achieved or partially achieved through market-based approaches. Once the participants of the collaborative network are identified, the coordinating subject should be determined. In terms of resource availability, the government naturally assumes the role of network coordinator. Depending on the situation, it may also be possible to establish a coordinating agency consisting of representatives from all parties and to specify the ways in which the flow of information is ensured.

2. Develop collaborative network norms

The construction of collaborative mechanism is also based on norms. In the collaborative network, each governing subject can form a collaborative relationship because such collaborative relationship can help to realize their respective interests, but the difference is that this interest pursuit is in the face of the negotiated "common interest". Thus, the collaborative network embraces the individual interests of each governing subject, never out of the need to regulate private interests, and the individual interests of the governing subjects and the "common interests" of the collaborative network are subordinated to the norms of collaboration. Network management is a common action based on mutual trust. Since the collaborative relationship among the governance actors is based on interdependence and mutual benefit, it is difficult for the command-and-conform mechanism, which focuses on control, to function if there is no binding force between them. In the traditional public affairs management model, the law defines the responsibilities and functions of the government, so that the legality of governance and the attribution of responsibility are ensured by the administration of governance subjects in accordance with the law.

3. Clarify the governance responsibilities of the collaborative network

Which governance responsibilities should be undertaken by which governance participants and what proportion of responsibilities should be shared by each governance entity are important aspects of the construction of the collaborative mechanism. Network management is problem-oriented, i.e., each governance subject takes problem solving as the incentive to participate in governance, and the behavior of each subject in the network is adjusted according to its own ability and changes in reality, without clear boundaries between them, which leads to the existence of "free-riding" behavior. Therefore, governance actors have to implement certain governance actions with their own resources and public power, and at the same time, they have to bear the risk of governance failure. Responsibility for governance should be clearly defined in the norms of collaboration, and institutions and procedures for accountability should be established.

In the public sphere, the network management means that governments, business and social organizations and individual citizens share public power and governance responsibilities within the framework of institutional norms. As a new model of public affairs management, network management will certainly have a profound impact on collective decision-making and public activities of human society. Nevertheless, the features of the design, implementation and operation of the would vary across the world. Therefore, a detailed examination of trends in the transformation of public administration toward systems management should shed light on regional specificities as well as historical, political and cultural factors in the diversification of network management as an approach to improving managerial practices within and outside the state apparatus.

CHAPTER 2

PUBLIC-PRIVATE PARTNERSHIPS: THE SOCIAL PRACTICE OF NEW PUBLIC MANAGEMENT

NPM supplements and replaces government activities aimed at performing public functions and realizes the marketization and socialization of public functions. Public-private partnership is a social practice of NPM and an innovative tool to optimize public service provision. The core realm of network management application in a contemporary world is collaborative development and implementation of infrastructure projects and initiatives carried in such fields as a latest information and telecommunication technologies, public transportation, power plants or recycling. These are, above all, long-term, large-scale projects involving government and private investment. This chapter focuses on public-private partnership as an institutionalized social practice of the new public administration, which forms the principles and sets the track for the development of network management in public administration.

2.1 Overview of public-private partnership

2.1.1 Definition of public-private partnership

A public-private partnership (PPP, 3P or P3) is a long-term arrangement between two or more public and private sectors. The Organization for Economic Cooperation and Development (OECD) formally defines a PPP as "a long-term contractual arrangement between the government and its private partner, where the latter uses capital assets to deliver and finance public services, and shares the associated risks" [43]. Typically, it involves private capital providing up-front funding for government projects and services, and then deriving profits from taxpayers and/or users over the course of the PPP contract. PPPs have been implemented in a variety of countries, primarily for infrastructure projects. They have been used to build, equip, operate and maintain schools, hospitals, transportation systems, as well as water and wastewater systems [42].

The first "P", i.e., Public, usually refers to the government agency, public sector or government budgetary funds. The responsibility for implementing the PPP project and managing the PPP contract usually falls on the entity responsible for ensuring the provision of the relevant assets or services, which is often referred to as the contracting authority in PPPs and acts as the public party to the PPPs.

The second "P", i.e., Private, usually refers to the private sector or social or private capital. It implements the principle of "profit but not profiteering". The private sector, social capital, and private capital are mainly responsible for the design, construction, operation, and maintenance of the project, and also bear the

corresponding risks. Typically, the private sector must assume significant risk and management responsibility.

The third "P", i.e., Partnership, refers to cooperation, that is, a long-term contract between the first "P" and the second "P" for the provision of public goods (quasi-public goods) or services. This is a new model of investment and financing, as well as a new type of partnership management relationship.

2.1.2 Types of Public-private partnership models

There are various types of public-private partnership models, which can be divided into three main categories: outsourcing, franchise and privatization, the specific categorization is shown in figure 2.1:

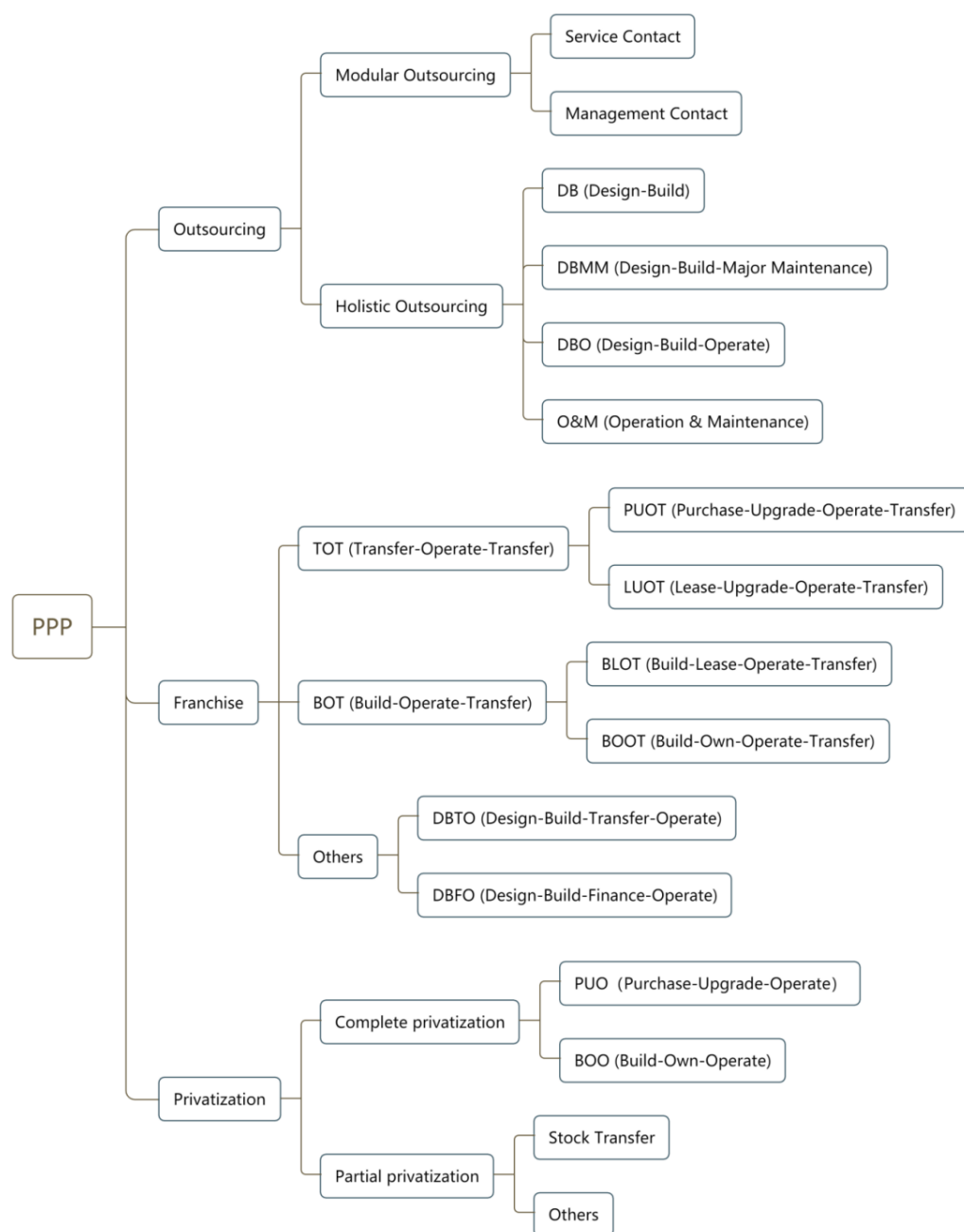


Figure 2.1 – PPP model categories [51]

2.1.3 Public-private partnership characteristics

PPP operates with three important characteristics: partnership, benefit-sharing and risk-sharing.

1. Partnership: Project goals are aligned

All successfully implemented PPP projects are built on partnerships. The public sector and the private sector cooperate and form partnerships because they share a common goal: to achieve the most products or services with the least amount of resources in a specific project. The private sector is pursuing its own interests with this goal, while the public sector is pursuing public welfare and interests with this goal.

2. Benefit sharing

Sharing benefits here not only refers to sharing the social outcomes of PPP, but also includes making the participants (private sectors, private enterprises or institutions) achieve relatively safe and stable investment returns. The design of PPP projects should ensure that the projects can operate normally (slightly profitable) but at the same time can prevent profiteering.

For example, an operational highway, when the initial construction period is below the predicted minimum flow (not caused by poor operation), the government sometimes gives a certain subsidy; when it is above a certain flow, the government adjusts the revenue distribution mechanism in time to prevent profiteering by lowering tolls and other methods.

3. Risk sharing

In PPP, this characteristic of reasonable risk sharing between the public sector and the private sector is a distinctive characteristic that distinguishes it from traditional procurement projects. In the process of PPP project management, companies share the project construction and operation risks in proportion to their respective contributed equity. The government and the project company bear the risks of the aspects in which they have the advantage to deal with respectively through risk transfer.

In general, the PPP model is a "whole process" partnership between the government and social capital for the provision of public goods or services, based on the granting of franchises to improve the quality and supply efficiency of public goods or services through the introduction of market competition as well as incentive and restraint mechanisms. The government is responsible for formulating the corresponding policy framework, service standards and establishing a fair and reasonable system, with the goal of increasing or improving the level or quality of infrastructure services and safeguarding public interests; social capital is responsible for providing capital, technology, scientific management and optimizing resource allocation, with the goal of obtaining effective returns on projects and increasing

market share. Both parties establish partnership through contractual linkage, trust each other, coordinate with each other, make joint decisions, provide public goods/services, achieve a win-win or multi-win outcome, and protect public interests (figure 2.2).

Thus, the essence of the PPP model is to "bring into play the respective endowment advantages of the public and private sectors, cooperate with each other, form equal partnerships, share the risks and benefits [3]."

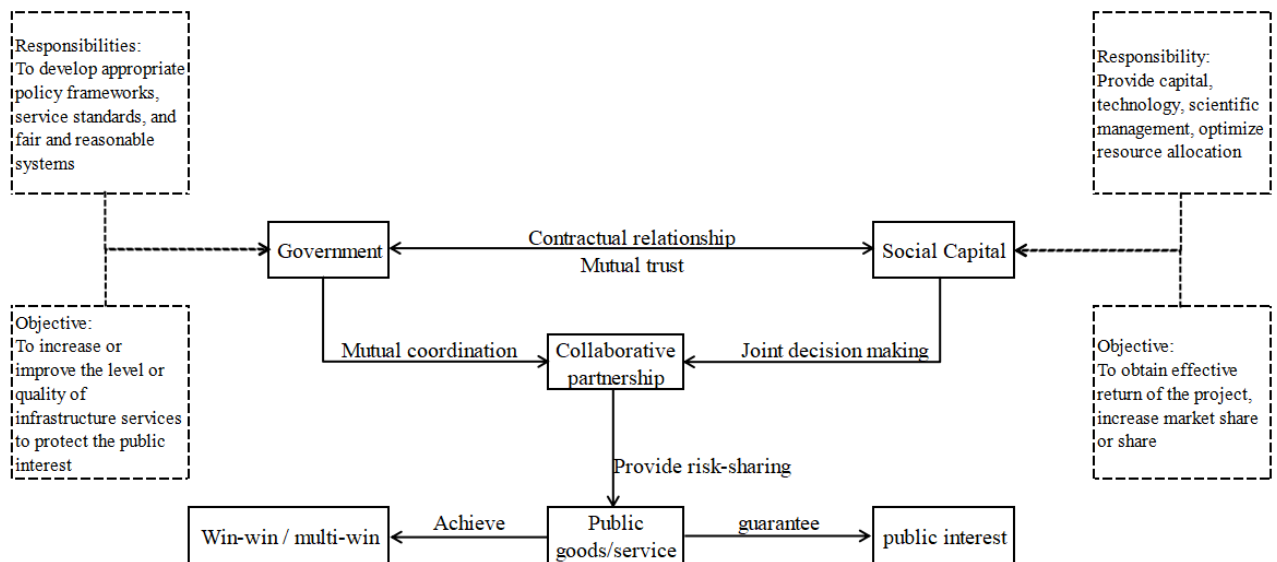


Figure 2.2 – The connotation of public-private partnership [62]

2.2 Application of public-private partnerships

2.2.1 Development of public-private partnerships on a global scale

Since the 1980s, public-private partnerships (PPPs) have become increasingly popular globally as a viable alternative to publicly funded construction and financing of infrastructure projects. Based on the World Bank statistics, the data has been collected to produce an aggregate data table for private participation in infrastructure (PPI) from 2001 to 2021 (Appendix A). According to the figure 2.2-2.6, it can be found that there are 6482 PPI projects in total worldwide in these 20 years, 64% of which can obtain upper middle income, with the largest number of projects in East Asia and Pacific region; mainly concentrated in the five primary industries of Energy, Information and communication technology (ICT), Municipal Solid Waste, Transport, Water and sewerage, and Energy industry accounts for the largest share, of which Electricity is the sector with the largest share of investment, and Greenfield projects are the type of PPI with the largest share in investment and projects.

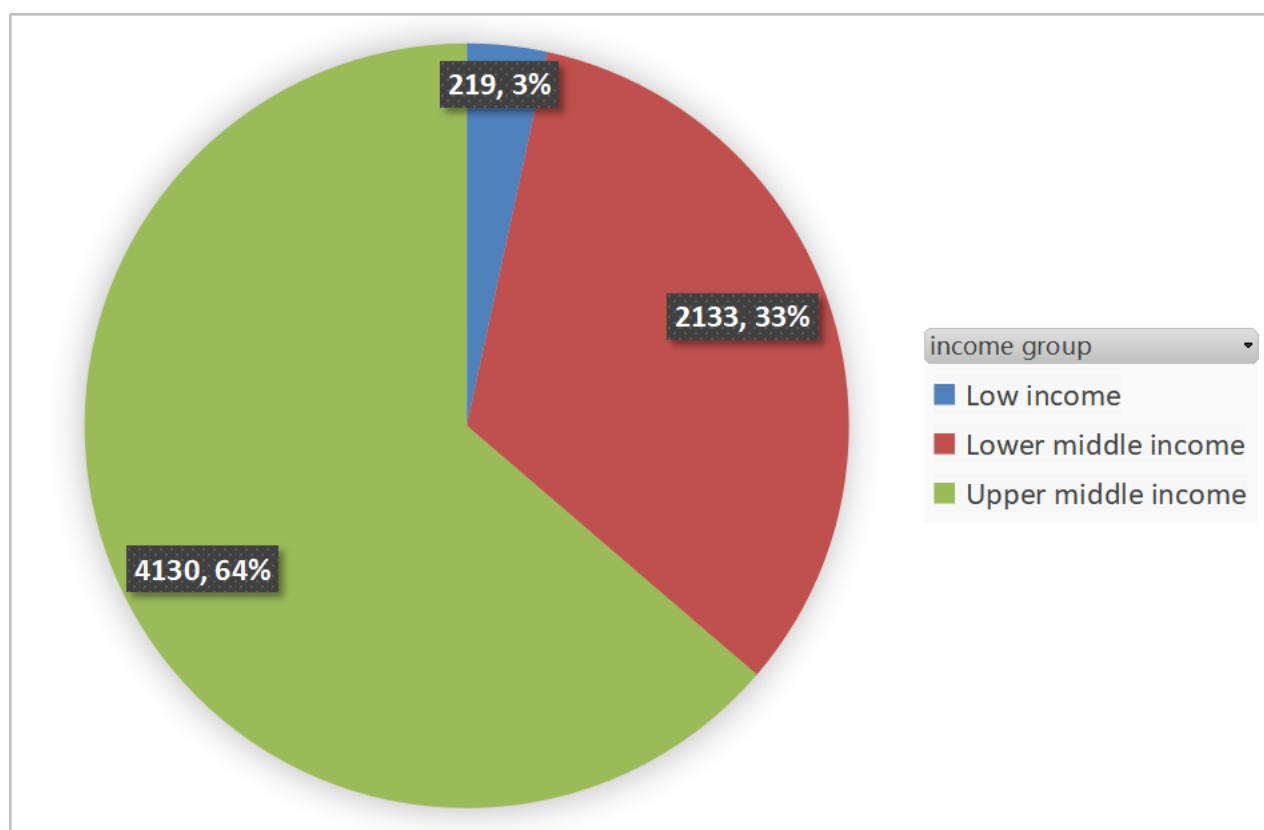


Figure 2.3 – Income group distribution of PPI projects (2001-2021)

Footnote – Source: own development according Appendix A

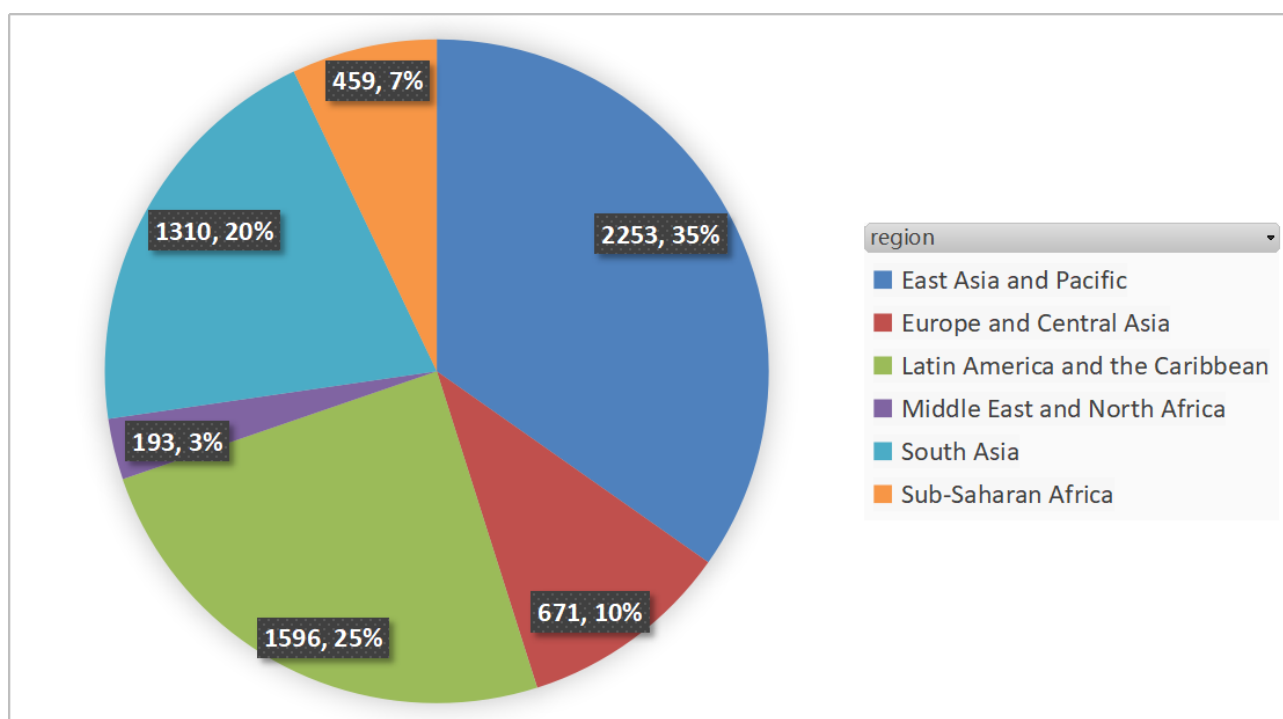


Figure 2.4 – Regional distribution of PPI projects (2001-2021)

Footnote – Source: own development according Appendix A

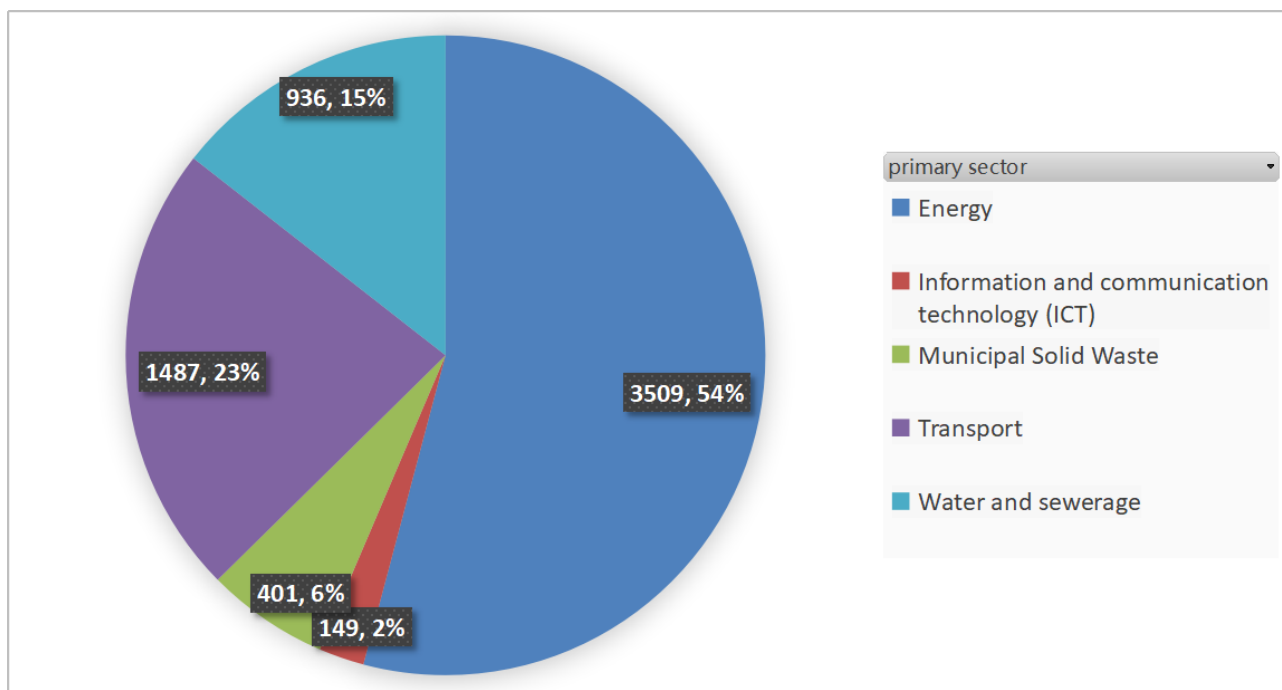


Figure 2.5 – Primary industry distribution of PPI projects (2001-2021)

Footnote – Source: own development according Appendix A

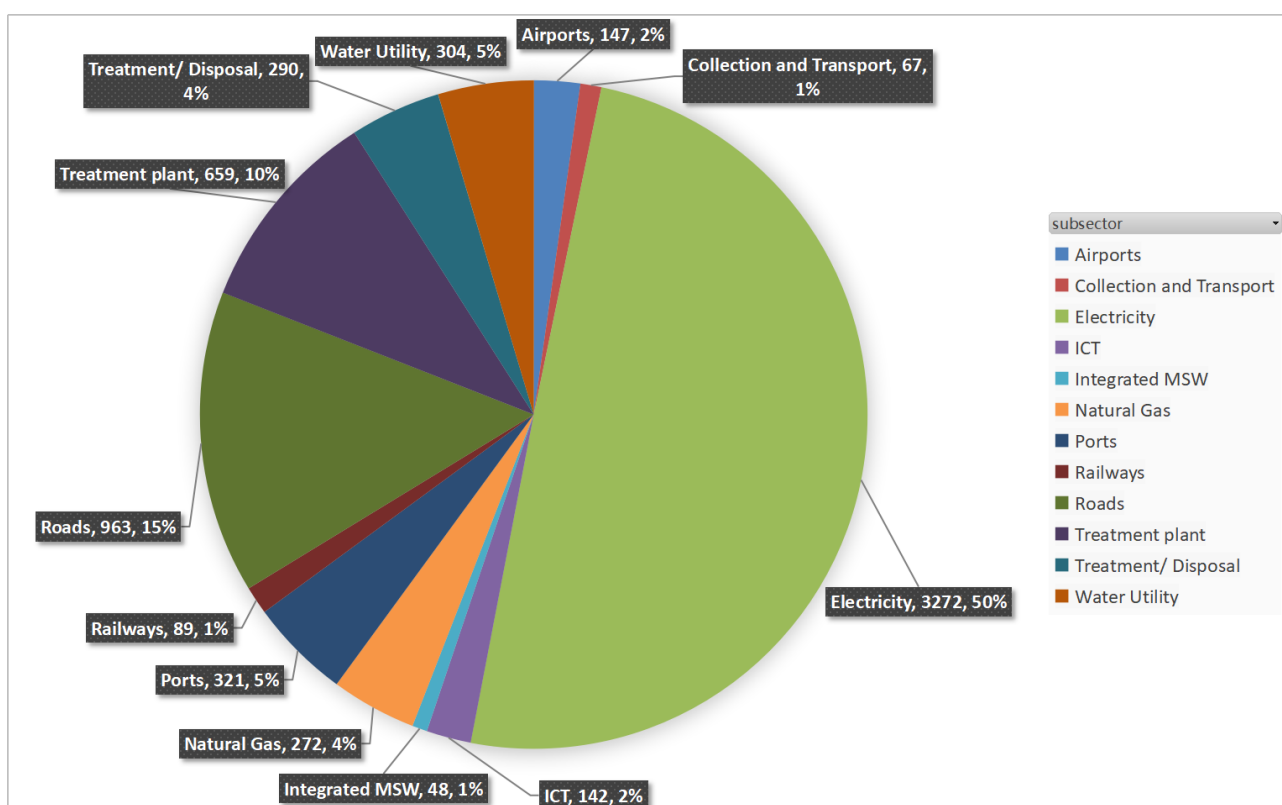


Figure 2.6 – Subsector distribution of PPI projects (2001-2021)

Footnote – Source: own development according Appendix A

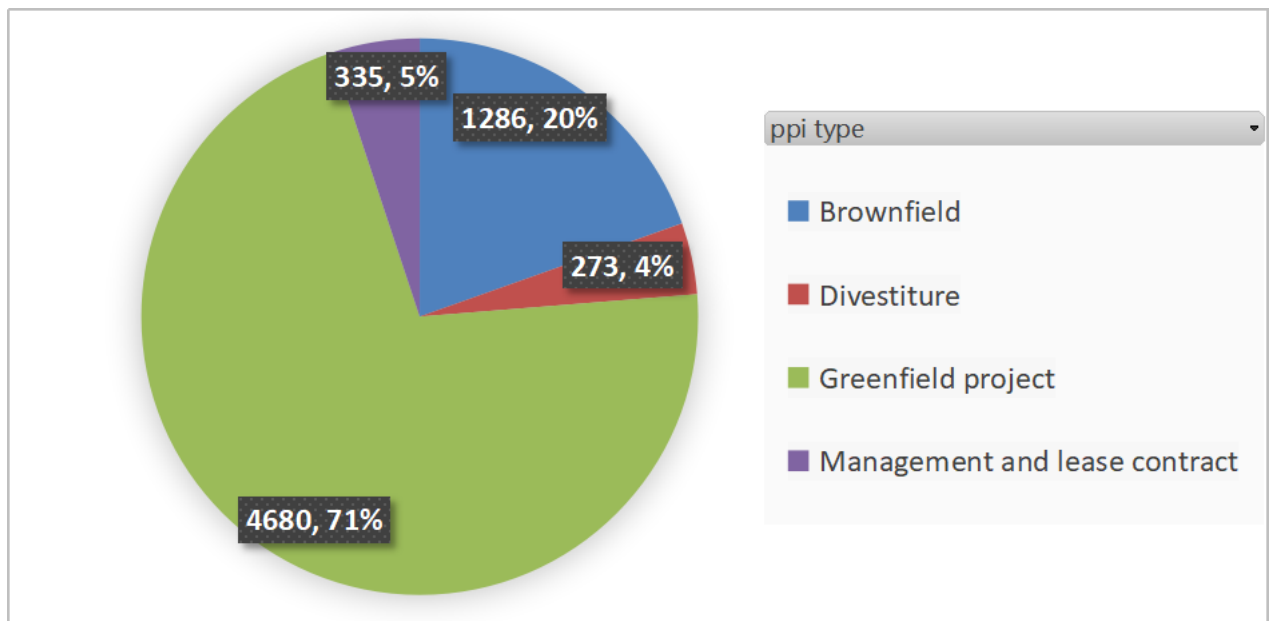


Figure 2.7 – Type distribution of PPI projects (2001-2021)

Footnote – Source: own development according to Appendix A

According to the World Bank's Private Participation in Infrastructure 2021 Annual Report [40], clear signs of recovery in infrastructure investment can be found as the world enters the third year of the COVID-19 crisis. 2020 saw COVID-19 bring the infrastructure sector to a near standstill, with investment levels at their lowest point in history since the creation of the PPI database. While the pandemic continues to wreak havoc globally, investment levels are partially returning to pre-pandemic levels in many countries, suggesting that infrastructure operations are slowly adapting to the new normal in a pandemic. Despite these positive signs, we see some daunting challenges for the global economy, particularly for developing countries. A sharp rise in policy uncertainty and escalating geopolitical tensions, particularly in Europe and Central Asia, have dampened the outlook for infrastructure investment. The recovery from the deep recession triggered by the COVID-19 pandemic has been uneven, leaving some regions behind. To make matters worse, as economic stimulus slows and credit conditions tighten, there will be stronger resistance to a more active role for the private sector in filling infrastructure gaps.

As countries plan their recovery, including using infrastructure spending to stimulate the economy post-COVID-19, it is critical that countries rebuild better and ensure that proposed new infrastructure investments are green, resilient and inclusive. While the need for infrastructure is now higher than ever, many governments are facing severe fiscal constraints as they have spent significant resources trying to mitigate the pandemic's enormous economic and social impact. These fiscal constraints mean that governments will have to rely more and more on private sector investment to help fund infrastructure development.

At the same time, however, there remains much uncertainty among private sponsors and financiers given the uncertain macroeconomic outlook, and as a result,

there has been a clear shift in investment to traditionally "safer" markets and countries that have been more successful in fighting pandemics. Concerns about credit quality, borrower liquidity and counterparty financial soundness, particularly in developing countries, continue to linger, even as investment in the infrastructure sector recovers solidly.

2.2.2 Public-private partnership actual project analysis – Beijing 2022 Winter Olympic Games National Speed Skating Oval PPP Project

On the evening of March 13, 2022, with the slow extinguishing of the main torch of the Beijing Winter Paralympic Games, the Beijing Winter Olympics and Winter Paralympic Games drew to a successful conclusion. But the Olympic venues that have carried the events continue to function. The National Speed Skating Oval (The Ice Ribbon) is a landmark venue for the Beijing 2022 Winter Olympics as well as the first venue to be built using the PPP model. It not only undertakes the competition and training of speed skating events during the Winter Olympics, but will also effectively drive public fitness and promote the development of China's ice and snow industry after the Games.



Figure 2.8 – Beijing National Speed Skating Oval [2]

In September 2016, the Beijing Municipal People's Government clarified that the Beijing Major Projects Construction Headquarters Office, as the government tenderer for the National Speed Skating Oval PPP project, was responsible for the organization and implementation of the project tender, and at the same time established the Beijing 2022 Winter Olympic Games New Venue Social Financing Working Group. Considering that the National Speed Skating Oval PPP project

involves both construction and operation, the final successful social capitalists are both Beijing Capital Development Holding (Group) Co., Ltd. and Beijing Urban Construction Group Co., Ltd, Beijing Uni-Construction Co., Ltd, which are good at engineering construction, and China National Sports Group, which is good at operation.

This is the first time that private capital has been successfully introduced to participate in the construction of a venue for the 2022 Beijing Winter Olympic Games. Beijing State-Owned Assets Management Co., Ltd. (BSAM), as the representative of the government financier, together with the winning social capital, established a SPV (Special Purpose Vehicle) company to actually build and operate the project. Among them, BSAM, as the representative of the government financier of the National Speed Skating Oval, invested 49% and the private capital consortium invested 51%. The project's cooperation period is 30 years, using the BOT (Build-Operate-Transfer) operation model. The project has a construction period of about 3 years, an Olympic service period of about 2 years and a post-competition operation period of about 25 years.

After the partner was selected, a series of cooperation paths were gradually improved. Beijing Major Projects Construction Headquarters Office led the project team to first sort out the delimitation of rights and obligations of both parties agreed in the PPP contract, clearly delineate the contract performance responsibilities of both parties, reasonably guide the government's understanding from the preparation direction and content of the agreement terms and establish a sound contract performance management system. Regular performance inspection is carried out to verify the performance of the project company based on the PPP contract. Adopt the tripal system of key control, dynamic supervision and regular verification to carry out comprehensive supervision [59].

During the construction period (2017-2019), the government led the design program, the project companies completed the specific construction tasks as required by the government, while the government built the coordination mechanism and supervised the whole construction process to ensure that the project schedule and quality met the needs of the Olympic events.

During the Olympic service period (2020-2022), the project facilities were used by the government, and the project companies provided the necessary service guarantee for the test events and the use of the venue by the government side.

During the post-competition operation period (2022-2046), the project company can renovate the venue within the scope of the government's authorization and achieve a reasonable return on investment through independent operation.

The National Speed Skating Oval PPP project has achieved three major goals: first, protect the Winter Olympic events. Give full play to the construction management capabilities of social capital, guarantee the construction progress, create

high-quality projects, and fully implement the needs of the events and supporting services.

Second, the implementation of frugal Olympics. Take into account the needs of the Winter Olympic Games operation and post-competition operation of the venue, control the total investment in the project, effectively reduce the pressure of government investment.

Third, focus on post-competition utilization. Effectively play the social capital party's innovative operation ability, improve the level of post-competition use of the venue, and realize the repeated use, comprehensive use and lasting use of the venue.

Generally speaking, through the PPP model, while implementing the will of the government and protecting the legitimate interests of the public, it takes into account the interests of social capital, fully introduces market mechanisms, shares benefits and risks, and realizes a win-win situation for the government, the public and private capital. It has contributed to the world the "Chinese solution" for the sustainable development of Olympic venues.

The promotion and application of PPP model on the National Speed Skating Oval project is to combine the government's strategic planning, market supervision and public services with social capital's management efficiency, technological innovation and contractual spirit, so that the function of public services and market-oriented management can be combined to achieve the goals of clear positioning of each, mutual benefit and win-win situation for both sides and benign development of public utilities, so as to better enhance the post-games public service level of the National Speed Skating Oval.

2.3 Public-private partnership model of public infrastructure projects

2.3.1 The benefits and significance of implementing the PPP model

The PPP model provides benefits to both partners:

For the public sector, compared to traditional projects, PPPs add value to the public in terms of reduced risk, cost effectiveness, improved service levels, and efficient and rapid completion. In addition, PPPs reduce public capital investment because they unite public and private capital in the hands of a private partner, but under the supervision of the public partner.

At the same time, the private sector has a great benefit in the PPP model. They have the potential to implement better solutions, new technologies and improvements in the construction process. The PPP model also gives the private sector the opportunity to make secure, long-term investments, so they can operate with the relative certainty and security of a government contract. In addition, the private sector gains advantages from PPPs by building on their managerial, technical, financial and innovative capabilities to achieve efficiencies [38].

Management scientist Peter F. Drucker once noted, "Government must face the fact that it really can't do, and isn't very good at, social or community work [14]." In the knowledge economy, resources should be drawn and allocated in an efficient manner. The government is responsible for policy formulation and planning, while the implementation of policies is carried out by the communities or the private sectors. This not only reduces the long-standing financial burden of the government, but also brings the community and the people into the process of public service, which strengthens the sense of citizenship and social identity, and increases the efficiency of resource use, construction, and operation. Therefore, in the development of modern society, the implementation of the PPP model is of realistic and positive significance:

The implementation of the PPP model also has multiple significances:

1. It is conducive to promoting the construction of public infrastructure in society, and to a certain extent, solving the contradiction between basic public needs and economic difficulties;
2. It is conducive to accelerating the transformation of government functions, and through the realization of the separation of government and enterprises, it makes the government gradually reduce its direct involvement in micro affairs and continuously strengthen its responsibilities of development strategy formulation, social management, market supervision and performance assessment, which helps to solve the long-standing problems of misplaced, overstepped and missing government functions, thus improving the national governance system and strengthening its governance capacity;
3. It is conducive to deepening the reform of the investment and financing system, continuously widening the channels of investment in infrastructure construction funds by introducing social capital, and gradually forming a diversified and sustainable capital investment mechanism;
4. It is conducive to deepening the reform of the fiscal and taxation system, improving the financial input and management methods, and improving the efficiency of the use of fiscal funds;
5. It is conducive to breaking the restrictions on industry access, stimulating economic vitality and creativity, thus significantly expanding the development space of private capital, stimulating market vitality and potential, increasing the mobility of private capital, creating new economic growth and enhancing economic growth momentum;
6. It is conducive to giving full play to the role of market mechanism. The quality and efficiency of public services will be greatly improved, thus maximizing public interests.

2.3.2 Disadvantages and contradictions of PPP model

The PPP mechanism is not perfect, and PPP has long been understood as a financing concept rather than a governance concept, and treated as a financing policy rather than a governance policy. In practice, the government only focuses on the financing function of the PPP model, while ignoring its more important governance value and function as a modern national governance model, and may drift away from the process of modernizing national governance.

1. The pattern of shared governance emphasized by the PPP model has not yet been formed

"The logical starting point of the PPP model is that public service provision is the joint responsibility of the government, market and society; the government, market and society share governance, jointly build mechanisms, share risks and responsibilities, and share benefits" [32]. However, in practice, the enthusiasm of local governments, private sector capital and the public to participate in the PPP model is not high, and a benign multi-governance pattern has not been formed.

First, the enthusiasm of local governments to participate in PPP model is low. Since many local governments have not yet changed their traditional concepts and awareness, and still have many doubts about the cost, efficiency and risk of PPP model, they are not strong in organizing and promoting PPP model and actively participating in it.

Secondly, it is difficult for social capital to enter or wait and see. "The PPP project itself has high risks, uncertain returns, lagging concepts and improper behaviors of local governments, conflicting laws and regulations, and financing difficulties have restricted the enthusiasm of private enterprises to participate in PPP projects" [53].

Finally, the main position of the public in the PPP model has not been reflected. A large number of practices at home and abroad show that all countries that have introduced PPP are not quite in place in terms of supporting democratic mechanisms, there is no mature mechanism for power distribution yet, and the partnership is still essentially an agreement between the government and social capital, with little public participation to jointly safeguard public interests [39].

At the same time, the unclear distribution of power, responsibility and benefit among the participating parties in the PPP model also hinders the formation of a benign common governance pattern.

First of all, the power of each participating body in PPP model is not equal. The government often occupies a strong position in PPP projects and holds the dominant power in the division of power, while other subjects such as enterprises can hardly get the right power.

Secondly, the responsibilities of each participant in the PPP model are not rationalized. The government is prone to "overstepping, misstepping and missing", such as the government is too much involved in the operation and financing of PPP projects, ignoring its supervisory responsibilities; and it also binds the hands and feet of other subjects, such as enterprises, so that they cannot play their proper roles with their advantages.

Finally, the PPP model has unreasonable benefit distribution and unequal risk responsibility for each participating entity. The government emphasizes the importance of social responsibility and obligation, but ignores the fact that the source of life of enterprises is capital and the fundamental purpose is to obtain revenue, which is seriously against the market law. The market and society as partners bear a lot of risks in the PPP model, especially from politics and policy changes.

2. The rule of law guarantee required by the PPP model needs to be strengthened

Rule of law guarantee is a prerequisite for the sound operation and healthy development of PPP model. However, there is no systematic and complete legal framework to regulate and restrain the PPP model in practice, and coupled with the lack of contractual spirit of the government, the rule of law guarantee for the PPP model is not reliable enough. The absence of strong regulations increases the risks for investors and the government [16].

In addition, the lack of contractual spirit also makes the implementation of PPP projects suffer greatly. In the process of promoting PPP model, many local governments lack contractual awareness and are accustomed to treating partners in the way of administrative orders, or even changing the terms of contracts and not executing commitments at will for self-interest motives or public interests, especially after the change of major leaders to "push back" the original contracts. This is a serious departure from the spirit of contract, resulting in the legally binding contract or contract becoming a piece of paper, and the legal system being put on the shelf.

3. The goal of good governance pursued by the PPP model is difficult to achieve

Due to the essential differences between the public and private sectors in terms of value objectives, organizational culture and behavior patterns, the public-private interaction in the framework of PPP model is always full of conflicts and games between the public and the private. These conflicts and games may eliminate all the advantages of the PPP model and lead to a significant reduction in its governance performance, thus deviating from the good governance orientation of maximizing the public interest. The PPP model emphasizes benefit sharing, but this does not mean that the interests of all parties are the same. Specifically, the public sector focuses on maintaining and promoting the public interest, while the private sector is naturally profit-seeking, and the inconsistency of interests makes the two parties have different

value objectives. Conflicting goals between public and private actors in PPP model often reduce the willingness and increase the resistance to cooperation between the two parties.

2.3.3 Dilemmas of further PPP development

From industrial society to network society, from mechanized mass production to the rise of communication technology, as global economic and social development enters a new era, the PPP model is bound to usher in new development opportunities and challenges. To promote the sustainable and healthy development of PPP model in the new era, PPP model needs to be consistently aligned with the concept of national governance.

1. Construct the common governance foundation of PPP model

As an artificially agreed cooperation model, the premise of the PPP model is to actively cultivate diversified PPP model participants in order to realize the multi-governance pattern it advocates. Firstly, local governments, as the main body to organize and promote the PPP model, should change their ideology and fit the modern governance concept to promote the use of the PPP model, so that the PPP model can become a powerful tool to promote the modernization of local governance. Second, pay attention to encouraging and guiding all kinds of private capital, to participate in PPP projects and expand the development space of private capital. Break all kinds of unreasonable restrictions on the entry of private capital, into infrastructure and public service fields. Finally, enhance the role and status of the public in the PPP model. This requires the establishment of a sound open and diversified public participation mechanism and a comprehensive and effective information disclosure mechanism, and the enhancement of public awareness and ability to participate in the cooperation by strengthening publicity and education.

Meanwhile, it is necessary to regulate the power, responsibility and benefit relationship of each participating body in the PPP model and clarify their respective power, responsibility and benefit boundaries. The government only needs to manage what should be managed well, restrain its own power, regulate its own behavior and avoid using its power to interfere with the cooperation process improperly. Secondly, the scope of responsibilities of each participating entity in the PPP model should be clarified to ensure that each participating entity performs its corresponding duties and plays its proper role. Finally, based on the mechanism design of benefit sharing and risk sharing, the interests and risks of each participant in the PPP model can be arranged in an integrated manner. In terms of risk sharing, "controllable risk should be borne by the participant with the best ability to control that risk, and exogenous risk should be transferable to the party that can best bear it or promote the decentralization of that risk" [16]. According to the principle of matching the risks borne by each party with the benefits obtained, to achieve a balanced distribution of

benefits for each participant in the PPP model under the premise of ensuring public interests.

2. Improvement of the legal framework for the development of PPP

The key to building a strong rule of law guarantee for the PPP model is to establish a sound and systematic legal system framework. In general, according to the institutional framework of "legal regulation + policy guidance + implementation rules", a sound system of PPP model should be established to clearly solve critical issues such as how to apply the PPP model, how to operate the PPP model and how to protect the rights and interests of all parties in the PPP model, so as to provide a strong legal guarantee for the benign operation and healthy development of the PPP model.

Taking the legal framework for PPP in Belarus as an example, Belarus has enacted a series of legal documents around public-private partnerships, creating a favorable environment for the continued development of the PPP model in Belarus. The period of the most active adoption of the relevant regulations and decrees was concentrated in 2015-2016, which indicates a late start of the PPP model in Belarus.

The Law of the Republic of Belarus No. 345-3 as of December 30, 2015 "On Public Private Partnership" (Law on PPP) is aimed at attracting investments to the economy of the Republic of Belarus. According to art. 2 of the law, "The goals of public-private partnerships are to concentrate material, financial, intellectual, scientific and technical resources, ensuring a balance of interests and risks, attracting funds from extra-budgetary sources to implement projects, plans and programs for the development of infrastructure facilities [65]." The PPP Law defines the legal conditions for PPPs, regulates the public relations that develop in the process of concluding, executing and terminating PPP agreements. The Law on PPPs includes: goals, objectives, principles and spheres of PPP implementation; competence of state bodies in the sphere of PPP; mandatory conditions to be contained in the PPP agreement; stages of the PPP project, guarantees of the rights of the public, private partners and creditors of the private partner, as well as the procedure for resolving disputes.

Resolution of the Council of Ministers of the Republic of Belarus as of July 06, 2016 № 532 "On Measures for the Implementation of the Law of the Republic of Belarus as of December 30, 2015" On Public-Private Partnership" defines the procedure for preparing, reviewing and evaluating proposals for the implementation of PPP projects; the procedure for organizing and holding a tender for choosing a private partner to conclude an agreement on PPPs; the procedure for maintaining the State Register of PPP Agreements. The Resolution regulates the implementation of projects in which public and private partners share the costs and responsibilities for the construction and operation of infrastructure facilities. The private partner is selected as a result of a tender. The private partner that wins a tender will not only

build the infrastructure, but also operate it for 10 to 20 years and receive a stable income from the operation of the facility to the benefit of both parties.

Decree of the Ministry of Economy of the Republic of Belarus as of July 27, 2016 № 49 "On measures to implement the Law of the Republic of Belarus dated December 30, 2015 "On Public-Private Partnership" approves the form of the PPP project concept, including requirements for the PPP project concept; contains requirements for the feasibility study of proposals for the implementation of PPP projects and competitive documentation; determines the methodology for evaluating proposals for the implementation of PPP projects [48].

The draft law on amendments to the Law "On Public-Private Partnership" adopted in the first reading by the House of Representatives of the National Assembly is designed to stimulate investment activity of business in public-private partnership. The decisions on the implementation of PPP projects using funds from local budgets are transferred to the oblast level (previously such decisions could only be taken at the regional level), supplemented the list of objects for the agreements on PPP added objects of information and communication infrastructure, reduces the number of state agencies involved in the preparation of projects and gives the state partner the right to provide for the private partner compensation for costs incurred in carrying out the work [67].

3. Uphold the good governance orientation of the PPP model

To effectively coordinate and balance the conflicts and contradictions between the public and private parties, so that the cooperation between the parties can be in an optimal state and the public interest can be maximized. This requires the design of corresponding systems and mechanisms to resolve the public-private conflicts in the PPP model as much as possible and maximize the public interest, so as to embark on the track of good governance.

First, optimize the design of contractual agreement of PPP model and use legal regulation to coordinate and balance the conflict between public interest and private interest. Second, to establish a sound incentive and restraint mechanism to regulate and guide the behavior of both public and private sectors, and to strengthen the supervision and restraint of both public and private sectors, so that the public and private sectors can cooperate with each other to promote the mission of the partner organization and make it consistent with the maximization of public interests, thus effectively coordinating and balancing public and private interests. Last but not least, the public and private sectors should seek the maximum common denominator based on public responsibility, and shape the common values of mutual trust, mutual understanding, mutual respect, other's organizational norms, ways of thinking and knowledge base through efforts" [24].

The development of PPP model needs the joint efforts of multiple subjects, the perfect legal system to guarantee and regulate, and the balance of responsibilities and

interests among cooperative subjects, to realize the trinity of common governance, rule of law and good governance.

CHAPTER 3

NETWORK MANAGEMENT IN MODERN PUBLIC ADMINISTRATION

3.1 Overview of modern public administration

Public administration is the activity of the state administration in managing the public affairs of the society according to the law. First, public administration is an activity, the subject of which is the state administration, i.e., the government or the administrative authority, excluding the legislative and judicial bodies. Secondly, the object of this activity is the public affairs of society, and the corresponding subject of managing the public affairs of society must be the institution with the public authority of society, and this institution is no other than the government in modern society. Third, as an activity, it must be held in accordance with the law, and must be effective. 69

In studying network management in public administration, it is also important to clarify its relationship to public management. Public administration is often mistakenly thought of as being the same as public management. Indeed, the fields of public administration and public management are both concerned with public policy and how it can be used to improve social conditions. Although there is some overlap, the two concepts are based on different views of civil servants' professional responsibilities. Public administration focuses on the development of public policy and the coordination of public programs. Some scholars argue that these differences appearance of public management is driven by rising social demand for integrity, political impartiality of government, trends for meritocracy its evaluation and its accountability others prefer to explain it through the need for better performance, new staffing procedures and an overall cut in total civil service size or transition from bureaucratic to entrepreneurial government [22]. Meanwhile public management can also be considered a direction (an area) of public administration that deals with the conduct of management activities in non-governmental sector.

In the emerging network society public administration deals with the organization, management, coordination and control of the operations of not only government public sector but nonprofit organizations as well. Government officials coordinate public servants in running public policies and achieving policy goals. Professionals in the field also work to develop strong relationships between governmental agencies and private groups by advocating consensus and interest through policy. Public managers carry out the management operations of non-governmental organizations (NGOs). In practice, the purpose of public management is to improve the quality and efficiency of services provided by NGOs. Managers

interpret public policies and implement public services in a manner that is expected to achieve the most desirable results for the interests they serve.

Both professions actively support the adoption and implementation of public policy. The fundamental difference between the two fields lies in the core definitions of administration and management. Management involves planning and action, while administration involves the application of policies that determine how managers should act. The rules of public administration play a key role in the process of developing policies, providing a degree of guidance on how those policies should be presented to society. In contrast, the rules of public management dictate how civil servants should implement those policies. Whereas public management is a hands-on approach that focuses on the day-to-day tasks associated with the introduction of policies, public administration prioritizes control over the hierarchy, rules and regulations that contribute to the development of public policies [41].

3.2 Challenges of modern public administration

The public administration environment of the 21st century is changing dramatically, and our world is facing enormous technological, economic, environmental and social transformations that pose great challenges to the development of contemporary public administration. These challenges fall under four main areas of focus: protecting and promoting democracy (responding to the challenge of further democratization); enhancing social and economic development; ensuring environmental sustainability; and information technology development.

1. Protecting and promoting democracy (responding to the challenge of further democratization)

Citizens' participation in the administrative process throughout, mature and extensive citizens' administrative participation can not only enrich the content of public management, strengthen the public responsibility of the government, but also promote the formation of civil society, and promote political democracy. Modern administration is a product of democratic politics, the core value of democracy is that the power of the state comes from the people. "Modern political democracy is a system of governance in which rulers are held accountable for their actions in the public realm by citizens, acting indirectly through the competition and cooperation of their elected representatives" [44]. So, even in a representative democracy people are the subject of society as well as the subject of power.

In the traditional "politics-administration dichotomy" citizen participation is only the proper domain of the political sphere, while administration is performed by professional administrative officials. Woodrow Wilson, in his book *Studies in Administration*, comments on the dangers of citizen participation in day-to-day administrative activities: "It is certainly a foolish nuisance to impose direct public

criticism on the supervision of the details of the daily work of government and the choice of its daily administrative measures" [55]. The bureaucratic system described by Max Weber based on the rules of "impersonalization" [52].

The purpose of administrative reform is to realize "good governance", which is essentially characterized by the cooperative management of public life between the government and citizens, a novel relationship between the political state and civil society, and the best state for both. The process of good governance is actually a process of keeping power in the hands of the people, which depends on the direct participation of citizens in the management of public affairs, rather than passively acting as "taxpayers" and consumers of public services. Without the active participation and cooperation of citizens, there will be at best good politics, but not good governance.

2. Enhancing social and economic development

In the public administration environment, the economic environment plays a decisive role in the public administration system. Therefore, the increasing economic globalization is bound to cause significant changes in public administration, forcing the main body of public administration – the government to adjust and reform the concept, model, structure, methods and approaches of public administration.

The marketization of the global economy has given a new dimension to market failures – world market failures – which compel governments to reform and adjust their relevant public administration functions [61]. For national governments, the public administration function includes not only the management of market failures in their own countries, but also the management of world market failures. For developing country governments, public administration functions include not only working to overcome market failures, but also actively pursuing development administration to implement catch-up strategies and play a guiding and driving function for their own economies.

In the process of economic globalization, the interdependence of the world economy is a combination of consent and conflict. As a result of the contradictions in the national interests of different states, primarily developed and developing nations, the process of economic globalization is naturally accompanied by many factors that threaten the economic security of nation states, such as trade wars, tariff wars, economic sanctions, economic penetration, etc. All governments are trying to enhance their public administration function of maintaining their own "economic security" in order to strengthen their own power and increase the dependence of other countries on them, and to minimize their own costs.

Economic globalization has complicated the maintenance of economic, political and social stability in any particular country, which poses a great challenge to the public administration function in maintaining national political, economic and social stability around the world.

3. Ensuring environmental sustainability

In the 21st century, as global environmental problems become more and more serious, human beings are increasingly concerned about the crisis of their common ecological environment. The concern about ecological crisis forces people to re-examine the relationship between themselves and nature, and re-examine their habitual way of thinking, production and consumption, development mode and ethical view. Therefore, this also puts forward the demand for sustainable development for public administration.

Public administration should not only pay attention to efficiency but also pay attention to effectiveness. The efficiency of public administration is a comprehensive indicator to measure the merits of public administration activities, and it is the central sign of the vitality of public administration activities and an important means to measure the quality of public administration employees. Therefore, public administration agencies and their employees attach great importance to the evaluation of the efficiency of public administration by the target groups and the whole society, and pay attention to the input of cost when carrying out public administration activities, expecting more output with less input. However, this sometimes has its drawbacks. Public administration agencies and their staffs tend to maximize benefits and avoid harm, and incorporate into their public administration activities those public affairs that are less costly and have the prospect of achieving higher public administration efficiency, while avoiding other, no fewer necessary activities. This is obviously contrary to the long-term interests of society and the state, and is not conducive to the long-term sound operation of society. The concept of sustainable development pursues not only economic, social and ecological benefits, but also the balance of the three benefits. This will certainly prompt public administration agencies and their staffs to pay more attention not only to efficiency but also to effectiveness when carrying out public administration activities.

Public administration should not only focus on general public affairs but also on ecological and environmental issues. Human beings must use a certain ecological environment, a specific ecosystem, as the basis for their survival and reproduction, and they depend on this ecological environment all the time. The ecological environment affects the structure, function and interaction between public administration regions on a macro level. Public administration must be based on the public administration environment and the ecological environment, and must think and solve public administration problems with the sustainable development concept of harmonious development of human beings and nature. It should not only focus on the handling of general social and public affairs and the provision of general public goods and services, but also pay special attention to the solution of ecological and environmental problems and long-term protection, so that the process of public administration activities follows the basic principles of self-regulation and recycling

of the ecological system, reflecting the fairness, sustainability and coordination of public administration.

Public administration should not only focus on economic and political functions but also on social functions. The end of neglecting population problems and environmental problems is unimaginable. The coordinated development of political, economic and social development and global ecological environment is the inevitable trend of the future world. In the face of ecological crisis, public administration should not only focus on economic and political functions, but also strengthen the use of social functions such as environmental protection.

Public administration should not only focus on the organization's own behavior, but also on international cooperation. Ecological crises are global in nature; dust storms in China can cross the ocean to Japan, and the destruction of the ozone layer in Antarctica can lead to global warming and rising sea levels around the world. Ecological crises have no national boundaries, and the handling of ecological crises often cannot be solved by the power of a single country. Therefore, public administration must seek and strengthen international cooperation in addition to facing the strengthening of the organization's own administrative behavior in order to achieve sustainable development in its own region along with global sustainable development.

4. Information technology development

The rapidity of information transmission has greatly changed people's habits and rhythm of life, as well as their ideology. On the one hand, information technology provides advanced material conditions for the reform and improvement of public administration, and on the other hand, it puts forward new requirements for public administration, forcing it to carry out reform and improvement.

Information technology challenges the organizational structure and behavioral model of public administration. In the network society, on the one hand, citizens demand high-quality, diversified, fast and efficient public services, and on the other hand, the development of information technology and production capacity has led to the extreme complexity and rapid changes of social public affairs. The traditional hierarchical estate system of social inequality lags behind and turns to be inefficient in managing contemporary public affairs. Its reproduction today makes it difficult to meet the needs of modern public administration and forces public administration to reform and adjust its organizational structure and behavior model. Current trends in the development of public administration are the promoting the transformation of the traditional hierarchical system into a flat network, reducing unnecessary hierarchical links, and greatly improving the responsiveness and efficiency of the organization.

Information technology challenges the public administration to manage its staff. In the traditional hierarchical system, each member is an appendage of the position, unemotional, strictly procedural, and mechanically replaceable

parts. However, in the information technology society, where individuality is prominent and needs are diverse and constantly changing, the mechanical hierarchy is not only inefficient but also unsuitable in the face of the diversity and complexity of information. Personnel with individuality are bound to replace the staff of the original hierarchical system of assembly line operations. Therefore, the employees of public administration organizations are no longer just parts of the assembly line, but actors who work creatively with knowledge and technology.

Information technology challenges the function of public administration. The network society, the explosion of knowledge, the Internet spreads information almost uncontrollably. The ubiquity of Internet technology allows citizens, as potential consumers of public services, to connect and interact online, which increasingly provides them with information power and promotes their self-organization. Through the creation, publication, and mutual exchange of content, citizens have acquired the ability to manage themselves without government agencies in solving problems for which the unification of their own material, organizational, intellectual, and creative efforts is sufficient. This way information technology challenges the function of public administration. The network society, the explosive and almost uncontrollable growth of information available leads to a condition that "Wired" columnist and founder of MIT's Media Lab Being Digital N. Negroponte described in his book "Being Digital" in the following way: "Each piece of information can be transmitted from A to B through different transmission paths. It is this decentralized structure that allows the Internet to be as superhuman powers as it is today. Whether through laws or bombs, politicians have no way to control this network" [35].

This way of information dissemination makes it easy for the public to receive all kinds of information and imposes higher demands on the provision of public services from content to form. At the same time, the ease of access to information and the large amount of information available to the public have also enhanced their ability to self-manage and participate in public administration. Hence, nowadays, public administration agencies have to meet stricter requirements in terms of administrative management.

3.3 Network management in public administration

3.3.1 Models of public administration in comparative perspective

Bureaucracy is an organizational form characterized by hierarchical and centralized power, and it is the organizational form in which legitimate rule is exercised in modern society. Bureaucracy has had a profound impact on the present organizational system and has become an important organizational structure. However, with the development of the times, bureaucracy has gradually become a synonym for inefficiency, which suppresses the motivation of people and makes the

organization lifeless and uninspiring. Bureaucracy is rooted in the organizational structure of society. According to Max Weber, a hierarchical structure facilitates the pursuit of efficiency and the control of goals, and the best form of organization to achieve efficiency is bureaucracy, which relies on the monopoly of information and the monopoly of professional omnipotence [31].

The administrative approach defined by New Public Management was also rooted in organization and structure, and as economic organizations became increasingly socialized, the traditional hierarchical bureaucracy failed to meet the needs of organizations, and New Public Management emerged to solve the public administration problems of the time. However, New Public Management also resulted in a weakening of moral binding. The government's inherent weaknesses such as lack of competition and incomplete information can lead to "rent-seeking" behavior. The traditional administrative model establishes a set of rules and criteria to discipline members of the organization to prevent corruption. The New Public Management, through the introduction of private sector contracting, has weakened the moral constraints of the traditional administrative model and has created new problems of corruption. In this way, New Public Management has abandoned the practices and principles that instilled ethical standards in traditional administration and has become a breeding ground for corruption.

In the background of the continuous advancement and development of society, various public administration paradigms have emerged. Network management is the fusion and transcendence of traditional section governance and market governance theories, and it is gradually gaining attention and recognition as a way of governance adapted to the development of modern network society.

Traditional public administration is primarily based on bureaucracy and politics-administration dichotomy, which is characterized by: (1) hierarchical authority, with a top-down command system; (2) legal system, with a set of administrative rules and procedures; (3) politics-administration dichotomy, the bureaucrats are technical and transactional people with expertise as policy implementers; (4) professional operation, where public service delivery is monopolized by professionals and bureaucrats play a central role in policy decisions and implementation; (5) impersonal model of operation. New Public Management is entrepreneurial and market-oriented, using privatization, market mechanisms, and business methods, tools, and technologies to improve government efficiency and provide quality public services. Network management is based on the characteristics of "interaction", "collaboration" and "trust" as applied to the practice of public administration.

On the whole, each of the three governance models – Hierarchy, Market and Network – has its own characteristics and is not exactly the same governance concept. The governance logic presented by the three governance models is:

- (1) Traditional public administration – the variation of the hierarchical governance model;
- (2) Market governance model – the application of new public management;
- (3) Network management model – the construction of the network society.

It can be said that the development of governance models is a paradigm shift, forming a spectrum of governance theories (figure 3.1), which evolves from a state in which the government alone assumes the function of rule, to public management using the logic of the market, and then to a form of joint governance between government and society [46].

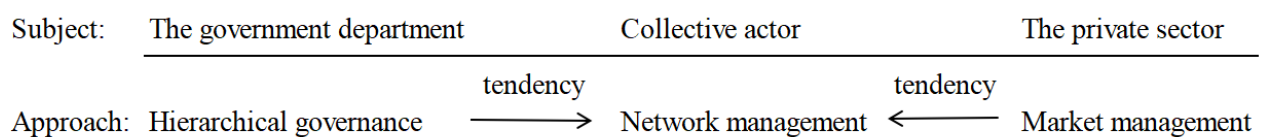


Figure 3.1 – Spectrum of governance theories

Footnote – Source: own development

Compared with the hierarchy and market governance model, the network governance model implies a series of changes in governance subjects, governance structures, and governance mechanisms. It is necessary to recognize its internal components to effectively play the specific role of the policy network governance model in social governance.

1. Governance subject

Under the hierarchical governance model, the government is the absolute authoritative governing body. The government dominates the right to manage public affairs, and the nongovernmental sectors are mostly passive in following instructions. The New Public Management and Network Management models both have many actors, such as the central government, local governments, interest groups, private organizations, citizens, and the third sector, etc. However, the main body of governance in New Public Management is still the government, but it is the government that extends the domain of the governance process to the private sector and the third sector, and the market plays a more prominent role than before; Network Management, on the other hand, treats the participants in the policy area as actors in the policy process, and although they have unequal control over each other's resources, they are all able to influence the policy process, while the government no longer becomes a single authoritative core due to the scarcity of resources and interdependence, and management is achieved through collective action based on mutual agreement. Understood from this perspective, Network Management is, in a way, a modification of New Public Management.

2. Organization structure

Anthony Downs argues that bureaucratic organizations must be large organizations [13]. The large scale represents a horizontal multi-sectoral and vertical multi-level with an overall linear structure. In contrast to bureaucratic organizations, in the market-based model, the government pursues miniaturization of organizational size and outsources operations to the private sector or social organizations through a market-based, social approach. In the network management model, a non-linear web-like structure of actual or potential equality and mutual benefit, resource sharing and interdependence is formed among network actors. In general, it is a partnership of mutual benefit and cooperation based on the interdependence of resources, rather than a mere contractual relationship based on the market; it is an equal, horizontal structure based on common network rules, rather than a hierarchical structure based on formal authoritative orders. According to Castells' analysis of power in a network society, the formation of a network must first have compatible goals and second must be able to communicate with each other, induce synergies and limit contradictions through a switching process formulated by a network of actors. Programmers (actors) and switchers (networks of actors) are key elements that are indispensable in the organizational structure of network management [4].

3. Power structure

Under the traditional public administration model, politics is the process of shaping and expressing of the state's will, and administration is the execution of the state's will. The affairs officer only needs to implement the policies made by the political officer [20]. Power is concentrated in the hands of the government. A market-based organizational power structure is a delegated structure. The government gives companies the responsibility of providing public goods and also grants them certain public powers. The power structure of network management is a power-sharing structure based on resource dependence. The many public actors of network management cooperate with each other, share public power under the condition of interdependence, and jointly manage public affairs.

4. Operation mechanism

The bureaucracy operates as an order-obedience mechanism. First, appropriate departments are created or social problems are internalized in the existing bureaucratic organization. Second, the front-line personnel summarize the situation to their superiors up to the organization's decision-making level. Then, the decision makers give orders based on the reports, and the orders are cascaded down to the front-line personnel and carry out the requests of the superiors. This is, of course, a circular process, i.e., multiple information transfer communications are required between the grassroots and the top level.

The operational mechanism of marketization is the principal-agent mechanism. In market-based governance, the government, the state, and the third sector enter into

contracts with implementing agencies, purchasing agencies, and regulatory agencies, allowing the latter to acquire the right to supply public services, and the parties form a principal-agent relationship. The agent in turn transfers the right to supply to entrepreneurs, public or private companies, and third sector organizations in the form of a contractual system [27].

Network operation mechanisms are dependency-cooperation mechanisms. Network management relies more on informal rules such as trust, interaction, and coordination to form implicit behavioral guidance for actors. In the network environment, good governance outcomes are guaranteed to be achieved by trust relationships, political accountability, and the power and obligations of actors.

Different operating rules exist for the three models, with network management by collective negotiation, while the hierarchy practices based on clear sanctions of punishment, and competitive markets operate out of fear of economic decline and loss of control [29]. Trust mechanisms and coordination mechanisms, as the core operating rules of network management, guarantee that the network subjects are able to coordinate public affairs on an equal footing.

Table 3.1 – Comparison of three administrative governance models

	Hierarchy	Market	Network
	Bureaucracy	New Public Management	Network Management
Governance Subjects	Government-led	Government-led	Pluralistic Subjects
Organizational structure	Linear structure	Miniaturized scale	Network structure
Power structure	Centralization	Authorization	Decentralization Sharing
Operational mechanism	Command – obedience	Delegation – agency	Dependence – cooperation
Focus	Differentiation and coordination within bureaucracies	Internal functioning of government agencies and contractual relationships with the outside world	Relationships between governments and with other actors (inter-organizational focus)

Footnote – Source: own development

3.3.2 Advantages of the network management model

The rise of network management provides an alternative governance model choice for different political systems in a pluralistic, globalized, and networked political development. Network management overcomes the shortcomings of both hierarchy and market governance structures and is more in line with the governance needs of modern society than hierarchy and market governance. The network management model has become a fairly common trend in Western countries and has significant advantages in the practice of public administration.

1. Promote the effective integration of resources

Effective governance requires the effective integration of people, capital, materials and information, and in modern society, neither the government, enterprises, social organizations, nor individual citizens can provide the all the needed resources for governance. Only the collaboration among government, market, social organizations and citizens can make up for the relative lack of resources and achieve complementary advantages.

2. Improve efficiency and validity

The efficiency of governance pursued by New Public Management and the effectiveness of governance advocated by New Public Service can be effectively combined in the network management model: the collaboration of stakeholders is conducive to the formation of unified governance goals, as well as to alleviating the resistance faced in the process of governance, shortening the time and improving the efficiency of policy implementation.

3. Guarantee of civil rights

The "collaboration" advocated by network management aims to provide a platform for citizens to fully exercise their political rights. At the same time, the participation of citizens and social organizations in governance is not only a process of exercising political rights, defending and realizing their own interests, but also a process of continuous learning and improving civic awareness.

4. Respond to the public's demands effectively

Considering citizens as the government's "customers" is a major progress of modern government philosophy, but due to the government's "natural monopoly" status, it still fails to solve the "time lag" problem of government response to public demands. In network management, the collaboration between the government and other subjects to determine goals and implement actions on the basis of consultation minimizes the response time of the government.

5. Strengthen the professionalism of public affairs management

Network management positions the government not as a single monopoly of authority, but as an important actor in a policy network that operates in a broader space through network connections, encompassing stakeholders in both the public and private spheres. Network management has further developed into a "prescription model". The so-called "prescription" refers to the specific analysis of specific problems. In the face of complex social environment and relationship changes, network management adopts targeted strategies to build relationships between actors and establish effective links for collaboration among them. For example, the government outsources its information technology operations, urban airport management and sewage systems to more specialized companies or institutions through public bidding. Highly specialized technical knowledge and management talents make the management of public affairs more professional and efficient.

6. Expand the influence

By joining the network, cities can expand their geographic boundaries and share customers with other cities. Doing so not only enables them to share their technology costs on a larger scale, but also reduces risk and removes the size limitations imposed by authority. For this reason, a small or medium-sized city is no longer forced to turn away good programs simply because of these barriers, because network partners can provide solutions to problems, take on risk, or reduce marginal costs by attracting other government customers.

In addition, networks can help governments expand their influence in addressing key social issues by borrowing the innovative spirit and creativity of nonprofit organizations. Networks allow governments to perform important government functions in solving social problems by supporting, rather than crowding out, the functional elements of civil society. Government can help those in distress by networking, or by raising more effective funds for appropriate and effective neighborhood, religious and other kinds of organizations. Through programs and policies, this approach can encourage citizens to govern themselves rather than become passive recipients of government funding and helpless victims of outside social forces.

3.3.3 Deficiencies of the network management model

Network management has certain advantages and adaptability in the new situation, but its practical application in public administration has certain shortcomings due to the structural problems of network management as a governance model itself.

1. Hollowing out of government power

Network management requires extensive power decentralization, which fragmented the governmental organizational structure and created an impact on central government command and order: the fragmentation undermines the centralization of governmental power and indirectly destroys the coordination capacity of the administrative center; the increased dependence on organizational externality weakens the administrative capacity of the government, and the excessive power decentralization of networked public organizations causes the hollowing out of governmental power.

The hollowing out of the state will also continue to exacerbate a problem – the lack of state autonomy, in fact one of the main criticisms of the new public management reforms that began in the 1980s was the loss of publicness at the state level, and network management for the interaction between the public and private sectors will further lead to a blurring of the boundaries between the two, which also implies a certain loss of power and authority.

2. Distorted supervision and management

Many governments mistakenly view PPPs as a shortcut to solving service management headaches, and neglect to adequately monitor and manage them. In turn, government officials may abuse their power and overly censure partners for every detail in the delivery of public services. However, the power to monitor outputs or outcomes often leads to government regulators interfering with the work processes of network members.

3. Communication disaster

When a service is provided by an organization's internal agencies, informal communication channels can increase the workload and information flow of formal communication. These internal communication channels are often frustrated in the network model because of the communication difficulties that arise from the network's distribution channels and decentralized format. In addition, the government sometimes imposes unnecessary confidentiality constraints on a partner but not on itself, which can further disrupt the flow of information. On the other hand, if partners use separate and incompatible information systems, this can lead to poor communication and ineffective collaboration. The lack of continuous, common and informal communication channels means that it takes longer to identify problems and deal with crises.

4. Partitional coordination

Networked governments generally have to coordinate among multiple levels of government, nonprofit organizations, and for-profit companies. Each party has its own constituency, customers, consumers or target groups and coordination problems can hinder the operation of the network when the complexity of the problem is high and responsibilities are not clear. Poor performance by any one organization or a breakdown in the relationship between any two organizations can jeopardize the overall performance of the network. This crisis suggests that the government must manage the relationships with each supplier in addition to dealings between the organizations within the network. Not only must network managers coordinate with these agencies, they must also ensure that each service is provided, and some government agencies or nonprofits handle this issue perfectly. In fact, some government programs may look like a network form of provisioning, but the complete lack of coordination between these programs fundamentally distorts the true meaning of a network.

5. Inadequate capacity of managers

Managing networked government requires a different set of inherent competencies than managing public employees. Good network management personnel need to have broad experience and the ability to predict that different configurations will produce different results and that different partners will bring different outcomes. Unfortunately, most government employees are still stuck in the

traditional command-and-control model, and there is a critical need to develop emerging management talent.

Bureaucracy, new public management, and network management are governance models in different contexts. With the continuous development of the network society, it is an inevitable trend for network management to become the dominant governance model. Compared with the first two models of governance, network management has significant advantages in promoting effective integration of resources, improving efficiency and validity, guaranteeing citizens' rights, effectively responding to public demands, strengthening the professionalism of public affairs management, and expanding influence. However, at the same time, the problems of hollowing out government power, distorted supervision and management, communication disaster, partitional coordination, and insufficient capacity of existing members under the network management model should not be ignored.

3.4 Implementation of network management solutions in particular countries

3.4.1 Belarus: Waste Management

The United Nations' Sustainable Development Goals call on all countries, whether poor, rich or middle-income, to act to protect the planet while promoting economic prosperity. Its Goal 11, "Make cities inclusive, safe, resilient and sustainable," specifies that "by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management [9]."

In recent years, within the framework of the goals and objectives of the strategy of sustainable social and economic development and the strategy of environmental protection, the Republic of Belarus has made some progress in waste management by adopting a network management model.

National Strategy for the Management of Municipal Solid Waste and Secondary Material Resources in the Republic of Belarus for the Period up to 2035 (Decree of the Council of Ministers of the Republic of Belarus dated July 28, 2017 № 567 as amended. Resolution of the Council of Ministers dated June 26, 2020 № 373). It envisages achieving the level of utilization of municipal solid waste in the Republic of Belarus in 64% of their formation by 2025 and up to 90% by 2035 [35]. For this purpose, government agencies, non-governmental organizations, citizens and other parties work together to establish a collaborative, mutually beneficial and efficient network management system.

Waste management is led by the government. The Ministry of Housing and Utilities is the central government agency of Belarus, which coordinates the implementation of housing and utilities industry policy. The implementation of

measures to carry out a unified national policy on municipal waste disposal is one of its main tasks [34].

A special organization was established to coordinate activities in the field of secondary material resources management. On August 1, 2012, the "Operator of secondary material resources" was established, which is a special non-profit authorized organization established by the Ministry of Housing and Utilities. In order to ensure coordination of activities in the field of processing of secondary material resources and waste products and packaging, the Operator of secondary material resources takes measures to organize the interaction of state bodies, legal entities and individual entrepreneurs in the field of processing of secondary material resources and waste products and packaging; concludes agreements with manufacturers and suppliers on the organization of collection, neutralization and/or use of waste products and packaging; takes measures to organize the collection, neutralization and/or use of waste products and packaging, etc. [64].

Introduction of professional companies to improve waste management system. Remondis JLLC is a German company, a world leader in the field of waste and water management, and in 2010 Minsk City Executive Committee and Remondis signed a framework agreement on the establishment of a Belarusian-German enterprise in waste management, Remondis Minsk, which was the first enterprise established by the Belarusian municipal sector on the basis of a public-private partnership [21]. In addition, Belarus has made several international investments in the field of waste management.

Table 3.2 – Major international investments in waste management in Belarus [21]

Project description	Private partner	Country of origin
Construction of a waste recycling plant in Brest	STRABAG	Germany
Introduction of a cogeneration plant at the boiler house Oktyabrsky	TEDOM	Czech Republic
Construction of a complex for the collection and recycling of biogas in Novopolotsk and Orsha landfills	Vireo Energy	Sweden
Construction of a cogeneration plant at the boiler house in Chaussy	Elteco	Slovenia
Construction of a cogeneration plant at the boiler house in Chaussy	TDF Ecotech AG	Austria
Construction of a plant operating on biogas obtained from municipal waste (TKO Trostenets landfill, Minsk), etc.	TDF Ecotech AG	Austria

To achieve the goals of green economy and sustainable development, the participation of citizen subjects is indispensable. In January 2015, Belarus launched the "Target 99" campaign (target99.by) to foster a responsible attitude toward consumer waste and to promote separate collection and recycling of waste among Belarusian residents. The "Target 99" campaign unites Belarusians around the idea that everyone is personally involved in improving their country. Success in recycling depends on how responsibly each individual handles the household waste he or she generates at home.

Information technology has helped the campaign immensely, and the flexible use of online media has made it far-reaching (figure 3.2). "Target 99" created official accounts on YouTube, Telegram, Tik Tok, Instagram and many other social media platforms, where documentaries, animations and public service announcements on waste management and recycling were posted, which gained the attention of the Belarusian public and led to the participation of the public in the campaign.

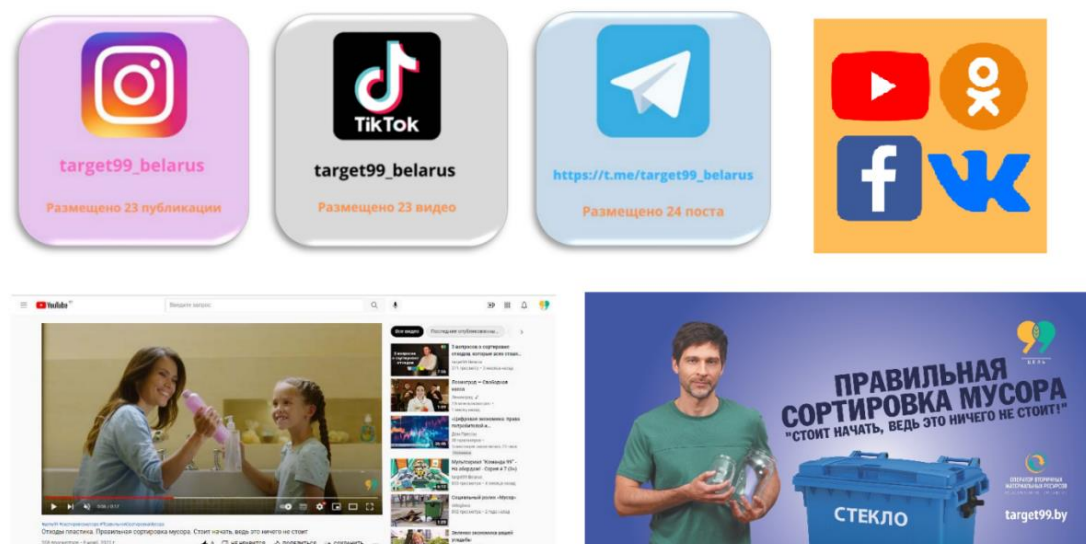


Figure 3.2 – "Target 99" campaign media propaganda [66]

In addition to the media propaganda, the "Target 99" campaign has also made efforts in education, aiming to develop and raise students' awareness of environmental protection and knowledge about waste separation and recycling (figure 3.3). Educational hours were held in Minsk schools for elementary school students on separate waste collection and sorting. The Safety Education Center of the Ministry of Emergency Situations in Minsk held an exhibition on the topic of separate collection and recycling of waste – "Ecosphere" interactive area, the creation of which was financed by the State Agency for Operator of secondary material resources. 39,744 students have visited the exhibition in 2021.



Figure 3.3 – "Target 99" campaign education popularization [66]

3.4.2 China: Shanghai Dapugiao Community Cultural Service Center

Network management was born on the institutional basis and social pattern of western society, and in practice, and China is still in the experimental stage in terms of practice. As an important economic center, trade center and financial center in China, Shanghai has unique advantages in introducing advanced governance concepts and practices, and therefore has been in the forefront of the country. Shanghai's exploration of network management has taken various forms. The areas covered include education, public health, poverty alleviation, elderly care, disabled services, community development, urban planning, environmental protection, policy consultation and many others. The construction and operation of the Dapugiao Community Cultural Service Center is one of the typical examples.

The Dapugiao Community Cultural Service Center is invested by the Dapugiao Street Office, which is responsible for the day-to-day costs of running the center as well as staff costs. In terms of operation and management, the center is run by an independent private non-enterprise unit, the Hua'ai Community Service Management Center (hereinafter referred to as Hua'ai).

The management of the Dapugiao Community Cultural Center is composed of two main lines: property management and community management. Property management is a completely market mechanism and is carried out by a professional company. Community management, on the other hand, is mainly carried out by Hua'ai, with several offices, some of which are directly managed by Hua'ai and are mainly responsible for the community cultural center's projects; others are in partnership with Hua'ai and only use the community cultural center to carry out their activities, such as the management office of the mass organizations in Dapugiao Street. The supervisory and management body of the community cultural center is the management committee, which is composed of representatives of community residents, Hua'ai and the street office. The management committee regularly hears

reports on the work of Hua'ai and makes supervisory comments. Through the purchase of services, the Dapugiao street office uses the professional management of Hua'ai to improve the quality of community services [68].

Based on the concept of "advocating culture, learning culture and enjoying culture", the Dapugiao Community Cultural Service Center provides diversified services for the community, such as education, health, entertainment and leisure, and is a service center with modern characteristics.

The management network of the Dapugiao Community Cultural Service Center is mainly composed of three main parties: government, private non-enterprise unit organization, and residents.

The government takes the helm. The Dapugiao street office set the work goals for the community, funded the purchase of services, and had a special system to monitor the quality of services. The community government has allocated 50,000 RMB (annually) as a special fund to provide free cultural services to the residents in the community.

The private non-enterprise unit organization, namely Hua'ai Community Service Management Center, provides services. Balancing mass services and special services. Specifically, on the one hand, different fees are used to guide the cultural and sports consumption activities of different groups of people. For example, during the daytime, when there are more elderly people, the gym charges lower fees to attract the elderly to participate in fitness activities during the day; while at night, the fees are appropriately increased to provide equipment for office workers returning from work. In fact, it is to take care of the different needs of the community through different prices. On the other hand, it is free for special groups of people. For example, some training courses are free for people with disabilities in the community. There are also some cultural performances and other activities that are given out as free vouchers to the community's underprivileged, which are distributed through the neighborhood committee. Since it is not responsible for its own profit and loss, the income from the operation of the Dapugiao Cultural Center will be reused for community activities or returned to government departments. Ultimately, a full-coverage network service system is realized [56].

Residents' participation, that is, the community resident volunteers to provide services. Hua'ai community management service center selects a number of resident volunteers to work in the center, and organizes and carries out a variety of activities on a regular basis according to the needs of the residents, and keeps detailed records of the services and provides timely feedback to help the street grasp first-hand the dynamics of residents' lives. This operation model has changed the monotonous entertainment activities of playing cards, chess and mahjong in the community center in the past (figure 3.4).

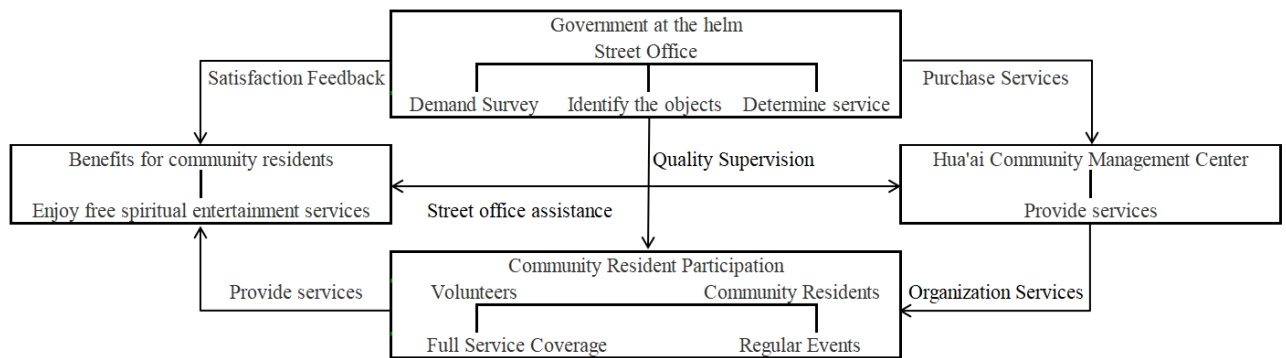


Figure 3.4 – Dapuqiao Community Cultural Service Center network management model

Footnote – Source: own development

In terms of operating procedures, there was a two-way selection process in this case. The Luwan District government chose four streets, including Dapuqiao, to pilot the service, while the other three streets were taken over by different organizations. In other words, the government department will compare the performance of the four streets, so there are potential competitors for Hua'ai. At the same time, Hua'ai was invited by several other streets due to its professionalism, and finally chose Dapuqiao street.

As to the evaluation mechanism, a reporting and inspection process is used, including bi-weekly coordination meetings between Hua'ai and the street office to discuss the operation of the community cultural center; Hua'ai submits a sub-report every month and a general report every six months, so that the street office, as the commissioner, can clearly understand and grasp the situation of the community cultural center in a timely manner. In addition, the Luwan District Government has routine inspections and unannounced visits. Every six months, there is also a public assessment, the results of which are directly linked to Hua'ai's project management fees, incentives and the possibility of contract renewal [28].

3.5 The prospects of network management in public administration

The manifestation of the interdependence, contingency and uncertainty of the public administration governance process has forced the government, which is caught in a regulatory failure, to choose to establish partnerships with other social actors to jointly cope with the crisis of governability coming as a network society develops. In this context, the formulation and implementation of public policies need to be accomplished in interdependent governance networks, and network management becomes the result of the synergistic interaction of a series of public and private actors. Network management is a form of governance that can explain emerging phenomena or solve complex social problems that cannot be handled by traditional hierarchies or markets. It is based on an interactive and consultative mechanism composed of multiple actors in a horizontal direction, which challenges the

traditional vertical command-and-control management model and the market-based model that emphasizes free competition. Because it adapts to the flattening, pluralism and dynamic characteristics of the current society, the network management model of governance in public administration has been highly praised by all walks of life. Nevertheless, governments still have a long way to go to form a systematic, stable and institutionalized network management pattern, and government governance. Therefore, reform needs to be further strengthened and deepened.

The development direction of such reform should focus on changing the role of government, strengthening the role of the non-governmental sector in the network structure, and encouraging citizen participation in networked governance.

1. Changing the role of the government

Within the framework of multiple subjects constructed under the network management model, the government is no longer the absolute controlling party, but continues to exercise its mission as the organizing and supervising party. In terms of micro-management affairs and specific approval matters of government agencies, the government should minimize its direct allocation of market resources and direct intervention in market activities, and devolve more power to local government departments and enterprises, the third sector and even citizen representatives, so that the liberalized market can give full play to its resource allocation capacity. In this collaborative model, the government should change from being the manipulator with full control in the hierarchy to being the supervisor behind the scenes. Its responsibility should be to provide a suitable external environment for multi-party collaboration in the network, and to ensure the competitive behavior of network participants and guarantee the rule of law and rights of actors in network collaboration.

2. Strengthening the role of the non-governmental sector in the network structure

The rise of the network society has given the non-governmental sector organizations unprecedented confidence and momentum. They have become increasingly important in the network collaboration and have taken on more responsibilities in the network structure by virtue of their numerous participants, their vast areas of accessibility, and the unsurpassable mobility and flexibility of government. In recent years, the non-governmental sector such as private enterprises, association organizations, nonprofit organizations, community organizations, and charities have become increasingly vocal in public administration. Especially in mass events, a large number of social groups express their opinions on public services and policy processes through the Internet, contributing to the resolution of public affairs and even the establishment of formal rules through informal means. Therefore, it is no longer advisable to restrain non-governmental sector actors from participating in social governance. Only by assessing the role of the nongovernmental sector and

expanding its capabilities to participate in the network structure of public administration can the socially useful capabilities of the nongovernmental sector be fully realized.

3. Encouraging citizen participation in networked governance

Civil society is the soil for innovative forms of governance such as network management. In countries where the cultivation of civil society is not yet mature, government support and investment should be appropriately strengthened to enhance society-wide awareness of civil society and public administration reform. Broad participation of the whole society is the driving force of governance enhancement. Striving to build a good interactive relationship between government and citizens, constructing a mechanism for individuals and organizations to participate in the policy process, establishing the government-public partnership, and encouraging citizens to become participants in social governance are crucial elements of modern public administration adjusting to the conditions of the network society. This is also an important direction of the current administrative reform in many western developed countries and international organizations.

CONCLUSION

Since the 21st century, the policy environment facing public administration has changed dramatically – the network society has expanded globally along with the development of information technology. One notable change it has brought to society is the change in the distribution of power. The decentralization, transfer and empowerment of non-governmental sector has caused the governmental power to shift from coercion to flexibility, from verticality to flatness, from centralization to decentralization, and from control to interaction.

With the development of the network society, the structures and processes of public policy making and implementation are changing rapidly. The failure of many national-wide and local governments to address specific policy issues through hierarchical command and control has triggered the increasing use of market regulation in the provision of public goods and services. New Public Management responds to the challenges of the emerging network society by revising the tools for delivering government services, introducing market competition, and adopting performance management.

New Public Management breaks through the constraints of traditional public administration theory, uses economic theory as its theoretical foundation, and adopts the competitive management approach of the market economy as its orientation, forming a system of management approaches that are result-oriented performance goal management approach, customer-oriented responsive management approach, and externally-oriented strategic management. New Public Management has expanded the scope of public administration research, enriched the methods of public management, improved the theoretical basis and practice, improved the efficiency of government management, and played a vital role in the practice of public administration.

As a social practice of the New Public Management, the public-private partnership (PPP) model is an innovative means of public service provision and an effective way to bring into play the effect of market resource allocation. In recent years in the current government projects, the PPP model has been widely used worldwide and is an important cooperation model for social infrastructure construction, and the Beijing 2022 Winter Olympic Games National Speed Skating Oval project is a successful case of the PPP model.

The implementation of the PPP model has brought multiple benefits to both the cooperating public and private sectors, and is also of great significance to social and economic development. It is conducive to accelerating the transformation of government functions, deepening the reform of the investment and financing system, stimulating economic growth and creativity, giving full play to the role of market mechanisms, and improving the quality and efficiency of public services, thereby

maximizing public benefits. However, at the same time, it must be recognized that the pattern of multi-faceted governance emphasized by the PPP model has not yet been formed, the required guarantee of the rule of law needs to be strengthened, and the goal of good governance pursued is difficult to be achieved. In the future development, it is necessary to construct the foundation of common governance of the PPP model, enhance the rule of law of the PPP model, and uphold the good governance orientation of the PPP model.

The changing environment of public administration has brought new challenges to modern public administration. Four major challenges – protecting and promoting democracy, strengthening social and economic development, ensuring environmental sustainability, and information technology development – have forced public administration to undertake further reforms and innovations, placing more complex demands on public administration.

The wave of globalization and localization, the rise of civil society and the development of the third sector, and the progress of information technology have made network management both possible and necessary. The emergence of network management has not only changed the situation of government and market in the allocation of social resources, making up for the shortcomings of government and market, but also changed the system of government management in the field of public affairs to a large extent, and changed the focus of government management functions and the way and means of performing them.

Public administration has also changed in many ways under the network management model: networked public administration organizations; networked management operations; networked information delivery; and digital and virtualized management models established. Network management adopts a collaborative mechanism, and its operation requires identifying the participants of the collaborative network, developing collaborative network norms, and clarifying the governance responsibilities of the collaborative network.

Different approaches to governance come from an understanding of the social contextual situation. With the change of governance form, network management has become an alternative model of governance to bureaucracy and fundamentally new modified version of the new public management. In comparison, bureaucracy emphasizes authority and order, New Public Management emphasizes government efficiency and the role of the market, and network management emphasizes democracy and collaboration. The network management model draws on the strengths of bureaucracy and new public management, makes up for the shortcomings of both in terms of governance mechanisms, and adapts to the needs of the networked development of modern society.

As a new model of governance, the network management model meets the realistic needs of solving public problems and handling public affairs in a complex,

changing and diversified social environment. With the development of information technology in the digital era, based on the collaborative and trusting way of thinking, through the network management structure, the powerful synergy that is formed by the proprietary resources and comparative advantages of diversified and heterogeneous public management subjects, can be brought into full play to provide the public with public goods and services that meet their needs faster, better and at lower costs. The waste management in Belarus and the Dapugiao Community Cultural Service Center in Shanghai, China are excellent practical examples of the network management model effectiveness.

However, no governance model is perfect. While network management certainly has significant advantages and adaptability in modern public administration, it also has flaws that cannot be ignored. Hollowing out of government power, deformed supervision and management, communication disasters, segmented coordination, and insufficient capacity of existing members are all problems that need attention in the future development of the network management model.

The establishment and improvement of the network management model in modern society is a long-term project that will take a long time. After all, new integration skills, changes in organizational culture and the establishment of mutual trust require patience. In the future development, the establishment of the network management pattern of public administration should focus on the efforts in the direction of changing the role of government, paying attention to the role of the non-governmental sector in the network structure, and encouraging citizens to participate in social governance.

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APPENDIX A

Table A1 – Aggregated Data Report of Private Participation in Infrastructure (PPI)
(2001-2021) [10]

region	primary sector	income group	Project Count	
East Asia and Pacific	Energy	Low income	19	
		Lower middle income	289	
		Upper middle income	707	
	Subtotal – Energy			1015
	Information and communication technology (ICT)	Low income	2	
		Lower middle income	13	
		Upper middle income	4	
	Subtotal – Information and communication technology (ICT)			19
	Municipal Solid Waste	Lower middle income	9	
		Upper middle income	225	
	Subtotal – Municipal Solid Waste			234
	Transport	Low income	6	
		Lower middle income	60	
		Upper middle income	296	
	Subtotal – Transport			362
	Water and sewerage	Lower middle income	23	
Upper middle income		600		
Subtotal – Water and sewerage			623	
Subtotal – East Asia and Pacific			2253	
Europe and Central Asia	Energy	Lower middle income	104	
		Upper middle income	367	
	Subtotal – Energy			471
	Information and communication technology (ICT)	Lower middle income	5	
		Upper middle income	9	
	Subtotal – Information and communication technology (ICT)			14
	Municipal Solid Waste	Lower middle income	1	
		Upper middle income	52	
	Subtotal – Municipal Solid Waste			53
	Transport	Lower middle income	14	
		Upper middle income	82	
	Subtotal – Transport			96
	Water and sewerage	Lower middle income	11	
		Upper middle income	26	
Subtotal – Water and sewerage			37	
Subtotal – Europe and Central Asia			671	

Continuation of table A1

Continuation of table A11

region	primary sector	income group	Project Count	
Latin America and the Caribbean	Energy	Low income	2	
		Lower middle income	62	
		Upper middle income	904	
	Subtotal – Energy			968
	Information and communication technology (ICT)	Low income	1	
		Lower middle income	5	
		Upper middle income	19	
	Subtotal – Information and communication technology (ICT)			25
	Municipal Solid Waste	Lower middle income	1	
		Upper middle income	42	
	Subtotal – Municipal Solid Waste			43
	Transport	Low income	1	
		Lower middle income	8	
		Upper middle income	346	
	Subtotal – Transport			355
	Water and sewerage	Low income	1	
		Lower middle income	3	
		Upper middle income	201	
	Subtotal – Water and sewerage			205
Subtotal – Latin America and the Caribbean			1596	
Middle East and North Africa	Energy	Lower middle income	52	
		Upper middle income	55	
	Subtotal – Energy			107
	Information and communication technology (ICT)	Lower middle income	8	
		Upper middle income	12	
	Subtotal – Information and communication technology (ICT)			20
	Municipal Solid Waste	Lower middle income	6	
		Upper middle income	2	
	Subtotal – Municipal Solid Waste			8
	Transport	Lower middle income	18	
		Upper middle income	15	
	Subtotal – Transport			33
	Water and sewerage	Lower middle income	5	
		Upper middle income	20	
	Subtotal – Water and sewerage			25
Subtotal – Middle East and North Africa			193	

Continuation of table A1

region	primary sector	income group	Project Count
South Asia	Energy	Low income	36
		Lower middle income	631
	Subtotal – Energy		667
	Information and communication technology (ICT)	Low income	4
		Lower middle income	15
		Upper middle income	1
	Subtotal – Information and communication technology (ICT)		20
	Municipal Solid Waste	Lower middle income	52
	Subtotal – Municipal Solid Waste		52
	Transport	Low income	1
		Lower middle income	543
		Upper middle income	1
	Subtotal – Transport		545
	Water and sewerage	Low income	1
		Lower middle income	25
Subtotal – Water and sewerage		26	
Subtotal – South Asia			1310
Sub-Saharan Africa	Energy	Low income	94
		Lower middle income	77
		Upper middle income	110
	Subtotal – Energy		281
	Information and communication technology (ICT)	Low income	20
		Lower middle income	20
		Upper middle income	11
	Subtotal – Information and communication technology (ICT)		51
	Municipal Solid Waste	Low income	1
		Lower middle income	6
		Upper middle income	4
	Subtotal – Municipal Solid Waste		11
	Transport	Low income	26
		Lower middle income	55
		Upper middle income	15
	Subtotal – Transport		96
	Water and sewerage	Low income	4
		Lower middle income	12
Upper middle income		4	
Subtotal – Water and sewerage		20	
Subtotal – Sub-Saharan Africa			459
Grand Total			6482

Table A2 – Aggregated Data Report on the Industry Distribution of Private Participation in Infrastructure (PPI) Projects (2001-2021) [10]

primary sector	subsector	ppi type	Project Count
Energy	Electricity	Brownfield	99
		Divestiture	159
		Greenfield project	2976
		Management and lease contract	38
	Subtotal – Electricity		3272
	Natural Gas	Brownfield	52
		Divestiture	29
		Greenfield project	191
	Subtotal – Natural Gas		272
Subtotal – Energy			3544
Information and communication technology (ICT)	ICT	Divestiture	42
		Greenfield project	90
		Management and lease contract	10
	Subtotal – ICT		142
Subtotal – Information and communication technology (ICT)			142
Municipal Solid Waste	Collection and Transport	Greenfield project	7
		Management and lease contract	60
	Subtotal – Collection and Transport		67
	Integrated MSW	Brownfield	1
		Greenfield project	38
		Management and lease contract	9
	Subtotal – Integrated MSW		48
	Treatment/ Disposal	Brownfield	18
		Divestiture	1
		Greenfield project	263
		Management and lease contract	8
Subtotal – Treatment/ Disposal		290	
Subtotal – Municipal Solid Waste			405
Water and sewerage	Treatment plant	Brownfield	134
		Divestiture	7
		Greenfield project	462
		Management and lease contract	56
	Subtotal – Treatment plant		659
	Water Utility	Brownfield	177
		Divestiture	8
		Greenfield project	48
		Management and lease contract	71
Subtotal – Water Utility		304	
Subtotal – Water and sewerage			963

Continuation of table A1

Continuation of table A.1

primary sector	subsector	ppi type	Project Count	
Transport	Airports	Brownfield	67	
		Divestiture	6	
		Greenfield project	36	
		Management and lease contract	38	
	Subtotal – Airports			147
	Ports	Brownfield	134	
		Divestiture	14	
		Greenfield project	155	
		Management and lease contract	18	
	Subtotal – Ports			321
	Railways	Brownfield	21	
		Divestiture	6	
		Greenfield project	58	
		Management and lease contract	4	
	Subtotal – Railways			89
	Roads	Brownfield	583	
		Divestiture	1	
		Greenfield project	356	
		Management and lease contract	23	
	Subtotal – Roads			963
Subtotal – Transport			1520	