

Research on International Relations Model Based on Global Economy

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Abstract: The evolution of global economic development and cooperation plays a crucial role in facilitating the transfer and utilization of the national demand perspective in international collaboration, serving as a vital theory and method in modern international development and cooperation. This paper analyzes the hierarchy of national interests and associated needs in the global economy. We propose a methodology for analyzing the hierarchy of needs in global economy research by analyzing the comparability of national needs. Additionally, we show possible integration paths between national needs and the global economy using the example of the development path of countries' participation in international development cooperation. It offers a fresh concept and a new research framework for enhancing worldwide development partnerships and global collaboration innovations.

1. Introduction

Regarding the evolution of global economic development and cooperation, "Research on the Transformation of China's International Development Cooperation from the Perspective of National Demand" clearly states that it is necessary to strengthen the connection of international development cooperation, and international development and cooperation should reflect the continuity and advancement between different demands. Government should understand the development characteristics of different periods and international political economy to prepare for deepening international cooperation. The analysis of needs hierarchy is a crucial factor in shaping national demand ideas and methods, and it also serves as the foundation for analyzing international development and cooperation and developing a multi-level concept [1].

This study adopts the methods of historical comparison, interdisciplinary research, and the combination of theory and case. Based on the quality of the analysis of the needs hierarchy, we make a comparative analysis of the needs of sovereignty, development, and international responsibility. The research discovered strong similarity and connectivity among these needs, indicating a significant correlation. Most of the content pertains to various stages of growth, with the content learned in the later stage being more intricate than the simpler content in the initial stage. The elements of the demand for international responsibility are the continuation and higher requirements of the concepts put forward for sovereignty and development needs. We utilized qualitative data collection methods to gather pertinent information about the shifts in the global landscape and the evolving domestic needs China is encountering in the new era. We chose various stages of China's development as the control group, conducted a case study, engaged in thorough discussions, and ultimately drew a conclusion. Subsequently, we conducted a detailed analysis of the existing problems. Based on the cultivation of literacy at the national level, this paper gives the following strategies: First, pay attention to learning the hierarchy of needs theory. Second, prioritize the development of capabilities for coordinating demand across countries. Third, use real examples to create intuitive insights. Fourth, attach importance to policy guidance. After analyzing the relevant literature and the current international situation, we selected three parts, including sovereign needs, development needs, and international responsibility needs, to conduct case design, taking the above strategies into application.

Finally, we summarize the evolution of global economic development and cooperation in the

new era and the outlook for countries, the international community, global governance, and the development of national needs.

2. Theoretical Construction of Global Economy

2.1 Global Economy: Construct a Theoretical Framework from the Perspective of National Interests

The research on global economy involves two main fields: international political economics and national interest analysis. International political economics focuses on the international economic system's operating mechanism and development model. The researchers usually use comparative historical analysis and case study methods to discuss countries' economic growth, trade relations, capital flow, and policy formulation. It covers international trade, finance, development economics, political science, sociology, and law. The analysis of national interests typically focuses on why a country acts the way it does in the global arena, examining larger international issues like foreign policy, security strategy, and international collaboration through game theory. Although there are some differences between international political economy and national interest analysis in theory, "international economic activities" and "national interest pursuit" are closely linked and inseparable. The characteristics of individual countries have a significant impact on global events, and any analysis of the international political economy will consider national interests. Therefore, this study aims to summarize the broad contents of the theoretical construction of the global economy without making a specific classification or distinction [2].

2.2 The Interoperability Between National Interests and the Needs of the Global Economy

The research field of interoperability between national interests and the needs of the global economy involves complex data types, and the classification standards vary. This study focuses solely on defining and distinguishing data sources and data structures [3].

2.2.1 Source of Data

From this perspective, the data involved in the study of national interests and the global economy can be divided into original data and second-hand data, in which the former refers to the data collected and processed by researchers through questionnaires, field trips, and in-depth interviews. In contrast, the latter refers to data from published research reports and public databases. Diversified data sources reflect great value and present practical challenges for unifying and utilizing data standards on a large scale.

2.2.2 The Structure of the Data

Broadly speaking, the data types involved in scientific research activities can be divided into three categories: structured, semi-structured, and unstructured [4]. Specifically, structured data refers to data that can be directly used for statistical analysis, such as economic indicators or data from trading platforms released by the government, which is characterized by strict standardization and can be expressed by relational database structure logic. Semi-structured data refers to data with an irregular or incomplete structure. It does not have a predefined data model and can exist in various formats, such as common e-mails, social media posts, documents, and web pages. Unstructured data refers to data that cannot be directly parsed and has a basic fixed structure pattern, such as self-describing XML files and PDF documents. This type of data is characterized by a mix of structure and content. The data in the field of national interests and global economy are mainly semi-structured data and unstructured data [5]. In other words, one data point holds a vast amount of information with a weak structure and a flexible presentation mode, making it challenging for researchers to analyze and utilize effectively. As a result, it must undergo standardization, unification, and preprocessing before research, which sets it apart from structured data and is essential for the subsequent tasks of "data cleaning" and "data mining".

3. Progress and Direction of the Evolution of Global Economic Development and Cooperation

3.1 The Evolution Process

The evolution of global economic development and cooperation is also called the transformation of international development cooperation or the hierarchical analysis of international cooperation demand from the perspective of national demand. It is an interdisciplinary theory that combines international political economics and national interest analysis with international relations. The fundamental purpose is visually displaying national sovereignty, development, and international responsibility in a structured format to organize and structure global economic cooperation knowledge. From the perspective of map application scale, the evolution of global economic growth and cooperation is divided into macro map and micro map. Macro-map is a comprehensive, structured knowledge base with information spanning various disciplines and topics, although it has low accuracy. The micro map is a specialized knowledge base (like national demand) centered on a particular subject or area. In contrast to the macro map, the micro map is typically created by specialists in this area, with a focus on detailed extraction of essential information, resulting in increased accuracy that can effectively aid in in-depth research and decision-making [6-7].

The evolution of global economic development and cooperation is shown in Figure 1.

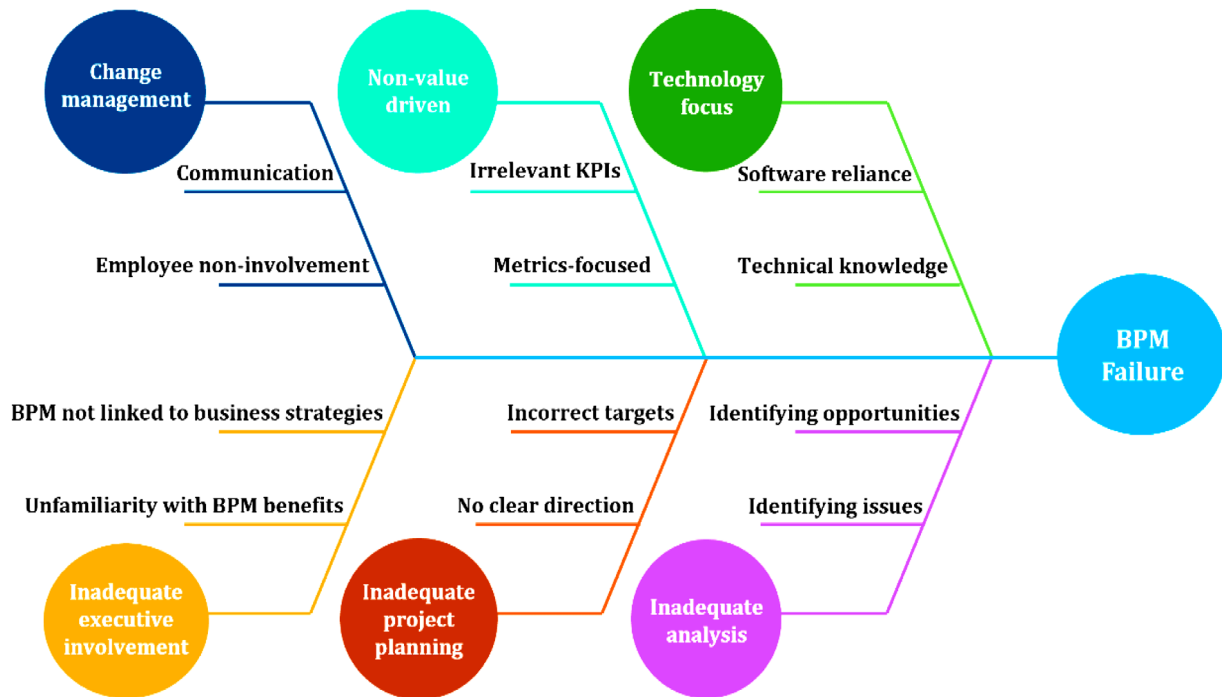


Figure 1 The evolution of global economic development and cooperation

Contrary to macro data, microdata necessitates distinct precision, expertise, and punctuality standards, with unique issues to address. In the research field of global economic development and cooperation, using the hierarchy of needs analysis as an example, the uniqueness of the data is as follows: First, it is necessary to address challenges posed by unstructured data for the data foundation. As mentioned above, most data about world economic cooperation are difficult to express in a structured way. Therefore, it is necessary to use natural language processing to extract information and build a basic database when constructing demand hierarchy analysis. Second, when it comes to modeling logic, constructing demand hierarchy analysis based on a one-dimensional approach is ineffective due to international relations knowledge's subjective and complex nature. Hence, it is essential to fully consider the knowledge structure using complete strategies and overlapping parameters. Third, interdisciplinary expression in the construction process needs to consider the significance of different disciplines and the unification of concepts between disciplines to achieve comprehensive expression from the perspective of the international relations discipline. Fourth, it is important to achieve a balance between individual decision-making and group wisdom.

The study of the evolution of global economic development and cooperation is an integration study of the hierarchy of needs analysis in the field of international relations, which is mainly manifested in the introduction of "national will" (the hierarchy of needs analysis with the participation of the state) in the hierarchy of needs analysis. Swarm intelligence algorithms focus on enabling group intelligence to emerge and surpass individual intelligence. However, they lack the mechanism to evolve individual intelligence. As a result, a significant contradiction arises: individual intelligence cannot become a self-evolving agent without substantial expansion. To sum up, its effective construction depends on the mastery, coverage, and accuracy of experts' prior knowledge in the demand analysis stage. We can improve the analysis's practicality, professionalism, and accuracy by achieving unity among individuals and groups.

3.2 Analysis of the Drivers of the Evolution of Global Economic Development and Cooperation

The motivation analysis of the evolution of global economic development and cooperation is also an analysis of the transformation of international cooperation or the demand analysis of international cooperation from the perspective of national demand. It is an interdisciplinary theory that combines international political economy, national interest analysis, and other disciplines with international relations. Its basic application logic is to present the needs of national sovereignty, development, and international responsibility in a structured way through visual graphics so as to achieve the systematization and structuring of knowledge about cooperation in the world economy. From the perspective of the application scale of the map, the evolution of the development and cooperation in the world economy can be summarized into macro-maps and micro-maps. The macro-map is a comprehensive, structured knowledge base with information spanning various disciplines and subjects, although it has low accuracy. The micro map is a specialized knowledge base (such as national demand) centered on a particular subject or area. Unlike macro maps, micro maps are usually created by experts in the field, focusing on the detailed extraction of key information with greater accuracy to effectively support in-depth investigation and decision-making.

Different from macro maps, micro-data has different requirements in accuracy, professionalism, and timeliness, and specific problems must be solved. Using the hierarchy of needs analysis in this study as an example, we analyzed its particularity: First, it is necessary to address challenges posed by unstructured data for the data foundation. As mentioned above, most data about world economic cooperation are difficult to express in a structured way. Therefore, it is necessary to use natural language processing to extract information and build a basic database when constructing demand hierarchy analysis. Second, constructing a demand hierarchy analysis based on a one-dimensional approach is ineffective due to international relations knowledge's subjective and complex nature. Therefore, it is essential to consider the entire knowledge structure, utilizing comprehensive strategies and overlapping parameters. Third, the interdisciplinary expression in the construction process must consider the significance of different disciplines and the unification of concepts between disciplines to achieve comprehensive expression from the perspective of international relations. Fourth, it is of significant importance to achieve a balance between individual decision-making and collective wisdom. The study of the evolution of global economic development and cooperation represents integrating the hierarchy of needs analysis within international relations. This integration is primarily evidenced by introducing the concept of "national will," which represents a hierarchy of needs analysis involving the state's participation. Swarm intelligence algorithms focus on enabling group intelligence to emerge and surpass individual intelligence. However, they lack the mechanism to evolve individual intelligence. As a result, a significant contradiction arises: individual intelligence cannot become a self-evolving agent without substantial expansion. In conclusion, the success of its construction relies on experts' thorough understanding, scope, and precision of prior knowledge during the demand analysis phase. By promoting unity among individuals and groups, we can enhance the analysis's practicality, professionalism, and accuracy.

4. The Challenges in the Evolution of Global Economic Cooperation

4.1 The Global Economic Environment Is Becoming Increasingly Uncertain

In the era of globalization, the volatile elements of the global environment have intensified, and the interconnection of the global financial system due to the multinational multilateral trading system has further exacerbated this phenomenon. The first and most critical step in studying global economic development and cooperation evolution is constructing the demand hierarchy analysis framework. It is commonly called "requirement definition". The demand hierarchy is a conceptual model for describing the transformational structure and organization of international cooperation, defining the types of and relationships between demands for national sovereignty, demands for development, and demands for international responsibility, usually represented by a hierarchical diagram. This process requires that sample data of comprehensive knowledge systems of national interest be represented in a unified form. Moreover, researchers must have certain abstraction skills and comprehensive control over entire knowledge domains to restore known semantic relationships between existing knowledge as far as possible. Using Maslow's hierarchy of needs theory as an example, the narrative is focused on human needs and includes information on physiological, security, social, esteem, and self-actualization needs. We simplify it into a basic hierarchical format, allowing us to fully depict the related demand structure.

However, the global economy's uncertainty and the factors causing instability have increased due to anti-globalization. This phenomenon is aggravated by the bundling of the global financial system caused by the multinational multilateral trading system. It brings new challenges to the evolution of global economic development and cooperation in the new era. The changing economic situation requires the international cooperation mechanism to be more flexible and adaptable. In addition, countries should master and adjust their respective needs to better cope with uncertainty and complexity.

4.2 National Identity Raises Doubts

Due to the uncertainty in the multilateral political system, the country's multiple roles in the financial and cooperation systems have led to the risk of a change in the model of international relations, as national identity is questioned. Information extraction (automated information extraction) automatically extracts structured and meaningful information or knowledge from text. This process is significant to the international relations field, which is dominated by unstructured and semi-structured data. This process aims to extract information from many texts to store, organize, or analyze them. It usually involves identifying entities, relationships, and attributes and mining their associations. There are several key steps in this process, including entity identification, relationship extraction, event extraction, and attribute extraction. The specific choice depends on the structure of the information extraction task.

Researchers introduce new digital research tools, such as traditional rule-based methods or machine learning, for this complex task. The rule-based approach extracts information from text by matching entities, relationships, or events using predefined rules and patterns. Moreover, natural language processing technology incorporates statistical analysis, supervised or unsupervised learning, and deep learning (neural network) techniques. These methods are often combined in practical application to form a comprehensive information extraction system.

Due to the uncertainty of the multilateral political system, the country's multiple roles in the financial and cooperation systems are at risk of changing its international relations model. In this case, effective information extraction technology assists decision-makers in efficiently obtaining and comprehending countries' identity changes and their potential effects on international collaboration, enabling better policy adjustments and strategic planning. It assists in reducing uncertainty in cooperation due to unclear national identity and facilitates effective communication and collaboration in a complex and unpredictable global setting.

5. Conclusion

The increasing unpredictability of the worldwide economic situation brings new obstacles and needs for advancing global economic growth and cooperation. National identity is an influencing factor in the stability of international cooperation. Building trust between countries is crucial for achieving common development and maintaining international order. It essentially maintains the harmony and stability of international relations. Due to the advancement of big data and artificial intelligence, information extraction technology is conducive to constructing the theoretical analysis framework and practical mechanism of global economic development and cooperation evolution. In recent years, modern information technologies such as natural language processing have promoted the development of data-driven decision-making. The information extraction technology allows for precise and scientific policy formulation and international cooperation, aligning with the internal logic of modern international cooperation. Hence, technology for extracting information offers a fresh approach to managing worldwide unpredictability. To sum up, advancing information extraction technology sustainably will enhance our understanding of national needs and boost the efficiency and adaptability of global economic development and cooperation.

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