Research on Strategic Transformation of Medical Enterprises in the Healthy Era

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Abstract: As the world enters the era of health, medical enterprises are facing the need for strategic transformation. The main content of this article is to analyze how big data and artificial intelligence can achieve new changes in the medical industry in the era of health and explore the technical challenges and response strategies brought by medical informatization and the Internet of Things. Through the analysis of the digital transformation of medical industry content, Internet medicine, telemedicine, and virtual medicine, it is proposed that medical enterprises should respond to technical challenges through two-way interaction, risk sharing, and humanistic care reversion to achieve high-quality development. This article concludes that medical enterprises must strengthen quality internal circulation, build interactive mechanisms, and establish evaluation systems to achieve high-quality development and meet people's health needs.

1. Introduction

The strategic transformation of medical enterprises is one of the main responsibilities for the development of the medical industry, and it is also a general term for enterprise transformation in the era of health. It can be divided into basic and non-basic strategies, consisting of internal resources and external environment, respectively. To adapt to the development of the health era, medical enterprises also entrust professional institutions to plan and implement strategic transformation. Since the application of big data and artificial intelligence in the medical industry, smart healthcare has become the key, and medical informatization has become a criterion for evaluation. Unlike traditional healthcare models, smart healthcare emphasizes digitization, personalization, and convenience. Therefore, the issue of strategic transformation for medical enterprises has been raised, and the healthy era provides new development opportunities for medical enterprises.

The strategic transformation of medical enterprises originates from the medical model centered on patient needs, which aims to improve the quality and efficiency of medical services and is also a tool for developing the medical industry. From the perspective of the medical industry structure, medical enterprises pursue high-quality medical services and achieve medical modernization through the combination of technological innovation and market demand. However, this is only at the theoretical level. To this day, the healthcare industry has embarked on a unique patient-centered approach. The comprehensive promotion of the strategic transformation of medical enterprises not only rewrites the development trajectory of the medical industry and reflects the characteristics of the health era but also rewrites the traditional mode of medical services, which has a profound impact on the medical industry. Therefore, discussing the strategic transformation of medical enterprises must have a forward-looking and global perspective. Therefore, the strategic transformation of medical enterprises has been proposed in the era of health.

In short, the strategic transformation of medical enterprises is a necessary condition and guarantee for achieving high-quality development in the era of health. From the development of the medical industry, medical enterprises have made progress, but there are also shortcomings. Medical enterprises have not yet fully identified a practical path to adapt to the health era and are still striving to move forward. Therefore, medical enterprises also need to deepen their strategic

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transformation, which helps improve the quality and efficiency of medical services and is an inevitable choice to meet people's health needs.

Based on the above background analysis, this article proposes a theoretical analysis framework for the strategic transformation of medical enterprises, aiming to solve the challenges faced by medical enterprises in the healthy era through strategic transformation theory and empirical analysis methods. The main content is to explore new changes, technological challenges, and response strategies in the medical industry, effectively addressing the risks of medical enterprises in strategic transformation, which has theoretical and practical significance.

2. The "Smart Healthcare" of Big Data and Artificial Intelligence in the Era of Health Realizes a New Transformation in the Medical Industry

2.1 Digital Transformation of Medical Industry Content

The "smart healthcare" of big data and artificial intelligence in the era of health is an important standard for the new transformation of the medical industry and an innovative expression of future medical models. Scholars have discussed different definitions of smart healthcare from the perspectives of technology and application. Some scholars also believe that smart healthcare is the degree of digitalization and intelligence of medical services or a new model of medical services. It is precise because smart healthcare is more personalized and precise to some extent, belonging to the patient-centered service science. The development history of smart healthcare can even be traced back to the end of the 20th century, and its main activities include digital processing of medical information, remote medical services, etc. The concept and goals of smart healthcare are closely related to the development trend of the medical industry. Through big data and artificial intelligence technology, medical services have become an important responsibility to improve the quality and efficiency of healthcare. The main contribution of the smart healthcare theory in the era of health is the construction of a new model of medical services based on digital and intelligent standard attributes.

2.2 Internet Medicine, Telemedicine, and Virtual Medicine

2.2.1 Analysis of Patient User Profiles and Personalized User Needs

Compared with the traditional medical model, Internet medicine, telemedicine, and virtual medicine emphasize the relationship between medical services and patient needs, characterized by personalization and convenience. Although some scholars doubt that there may be no direct relationship between Internet medicine and patients' personalized needs,[1] most scholars advocate that Internet medicine can rationally evaluate patients' personalized needs.[2] Researchers have proposed a classic model of patient user profiles that includes multiple elements, which has since become a typical tool for analyzing patient needs, leading to the development of personalized user needs analysis. These scholars believe that patient user profiles have dynamism and are "live" profiles.[3] Only when the profiles are constantly updated can medical services become more accurate. Therefore, patient user profiles are the result of personalized medical services. Some scholars have summarized user personalized needs as data-driven profiling models and behavior-based preference models.[4] The former focuses on mining patient data, while the latter focuses on analyzing patient behavior, namely personalized medical services. Although Internet medicine has experienced some practical failures, from the perspective of improving the quality of medical services, it can better meet the needs of patients, and the concept of patient user portraits has gradually become the consensus of Internet medical research and practice.

2.2.2 Market Trends Driving Technological Innovation Decisions

The concept of market trends driving technological innovation decision-making is essentially focused on optimizing medical services. Market demand is the application of innovative thinking in the medical services sector. To overcome the shortcomings of traditional medical services, a new, market-oriented technological innovation framework has entered the research field. The basic

concept of this framework is that medical services should ensure the practical realization of market demand. Setting professional standards for medical technology innovation output is essential. It is suggested to capture patient needs through technologies such as big data. We use quantitative methods to measure service quality. The market-oriented technological innovation framework reconstructs the process of medical service innovation, emphasizing the need to enhance market sensitivity and build personalized, convenient, precise, and efficient medical services.

3. Technical Challenges Brought by Medical Informatization and the Internet of Things

Figure 1 introduces the technical challenges brought by medical informatization and the Internet of Things.

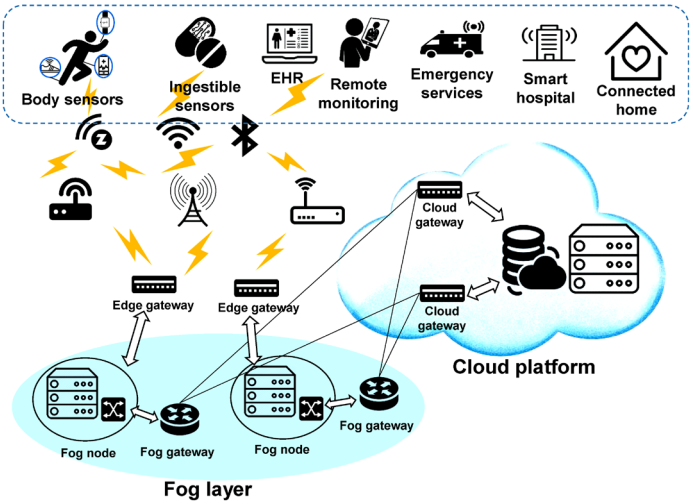

Figure 1 Technical challenges brought by medical informatization and the Internet of Things

3.1 Chaos of Information Overload: Excessive Dispersion of Data Leads to Imbalance in the Medical Information System

The chaos of information overload is the primary manifestation of the challenges faced by medical informatization and the Internet of Things technology, focusing on the complexity of data management. The operation of medical information systems directly reflects the reality of data collection and processing. Some critical elements of the development of medical informatization are gradually taking shape, and data standardization and various information evaluation systems are also gradually receiving attention. However, from a practical operational perspective, some medical informationization practices are still in their early stages, which contradicts the ideal information management logic framework and generation mechanism, leading to the problem of information overload. These issues include excessive dispersion of data, imbalanced information systems, and decreased efficiency and quality of medical information processing, which have adverse effects on the development of the medical industry and the health of patients. Therefore, solving the problem of information overload has become an essential task in medical informatization.

3.2 Technical Prison: The Lack of Humanistic Care under Technological Lingering

3.2.1 Errors in Data-driven Decision-making and Scientific Deviations in Management

From the perspective of medical informatization, data-driven decision-making is the fundamental link of the medical industry and the core manifestation of technological progress. Therefore, medical management is primarily based on data generation logic. Data-driven decision-making is the main characteristic of medical decision-making and an important component of medical informatization. At present, the medical industry strengthens quality control from the perspective of data management in three main forms: The first form involves data standardization. It is essential to ensure consistency between data collection and interpretation. The second is process standardization. By establishing standards for data collection and processing and disclosing these standards to

relevant personnel, standardized control of data management can be achieved. The third is the internal process reengineering of data-driven decision-making. In recent years, the healthcare industry and others have used data-driven methods to improve decision-making efficiency and service quality. However, compared to the ideal state, the scientificity of current data-driven decision-making still needs to be further improved.

3.2.2 Privacy Controversy and Data Risk

From the perspective of privacy protection, medical informatization cannot accurately provide the privacy protection that patients need. The satisfaction evaluation of patients with medical services mainly focuses on privacy and security, but medical informatization lacks a sound privacy protection mechanism and related information. The core of this problem may be the imperfect data management. In medical informatization, privacy protection is often described as "data security", and its protection of patient information directly reflects the trust of medical services. However, most of the existing medical information systems are related to disease diagnosis and other information, and there is a lack of privacy protection measures. Usually, patient privacy data is difficult to obtain or measure. Asymmetric information and imperfect privacy protection mechanisms directly lead to obstacles in patients' trust in medical services.

3.3 The Birth of Derived Risks under the Governance of Technology

3.3.1 Data security risks

From the perspective of data security, the development of medical informatization has long constrained data protection capabilities. Since the 21st century, the integration of big data and artificial intelligence in medical informatization has reshaped the medical industry through technological progress. However, the shortcomings of traditional data management still constrain the development of medical informatization. Not only due to the complexity of technology but also due to the influence of human factors, data security protection still needs to be improved. Under the premise of medical informatization, data security is seen as a direct way to protect patient privacy. However, the practical role of technology-based data security measures in protecting patient information remains to be debated. Meanwhile, due to technical difficulties, medical informatization lacks effective data security protection. Therefore, medical informatization does not always seem to achieve the goal of data security. Data security is not only a technical challenge but also a medical ethics issue.

3.3.2 Privacy Protection Risks

Privacy protection is an important standard for medical informatization and an expression of respect for patient rights. Scholars have discussed different definitions of privacy protection from ethical, legal, and other perspectives. Some scholars believe that privacy protection is a reflection of the level of medical informatization development or an important indicator of the quality of medical services. Privacy protection is more challenging and belongs to patient-centered service science. The history of privacy protection can even be traced back to the end of the last century, with its main activities including data encryption, access control, etc. The concept and goals of privacy protection are closely related to the development trend of the medical industry. Through technological means, privacy protection has become an important responsibility to improve the quality and efficiency of medical services. The privacy protection theory in the era of medical informatization mainly contributes to the construction of privacy protection measures based on ethical and legal standard attributes.

3.3.3 Ethical and moral risks

Compared with traditional medical models, medical informatization emphasizes the relationship between technological progress and ethics and morality, and it has complex characteristics. Although some scholars question the possibility that medical informatization may not have a direct relationship with ethics and morality,[5] most scholars advocate that medical informatization can

provide a rational evaluation of ethics and morality.[6] Researchers have proposed a classic model of ethical and moral risks that includes multiple elements, which has since become a typical tool for analyzing ethical and moral risks in medical informatization,[7] thus developing the concept of ethical and moral risks. These scholars believe that medical informatization has dynamism and is a "living" issue. Only when medical informatization continuously considers ethical and moral standards can medical services be more in line with ethical and moral standards. Therefore, medical informatization is the result of ethical and moral risks. Some scholars have also summarized ethical and moral risks as technology-based ethical models and human behavior-based ethical models.[8] The former focuses on ethical considerations of medical information technology, while the latter focuses on ethical analysis of medical behavior, namely medical information ethics and morality. Although medical informatization has experienced some practical failures, from the perspective of improving the quality of medical services, it can better meet ethical and moral needs. As a result, the concept of ethical ethics in medical informatization has gradually become a consensus in medical informatization research and practice.

4. Response Strategies for the Development Process of the Medical Industry under Technological Challenges

4.1 Bidirectional Interaction: Medical Industry Frees Itself from Technological Challenges

4.1.1 Quality Improvement of Medical Services to Achieve High-quality Migration of Medical Care

The essence of the concept of improving the quality of medical services is focused on the optimization of medical services. Quality improvement is the application of innovative thinking in medical services. To overcome the shortcomings of traditional medical services, it has entered the research field as a new alternative model - the quality improvement framework. The basic concept of this framework is that medical services should ensure the effective realization of patient needs. Professional standards should be set for medical service output. It is necessary to capture patient needs through technologies such as big data. Quantitative methods are used to measure service quality. The quality improvement framework has restructured medical services, emphasizing the need to enhance market sensitivity and build personalized, convenient, precise, and efficient medical services.

4.1.2 Medical service upgrading under technological domestication

The upgrading of medical services under technological domestication is the main strategy for the medical industry to address technological challenges, focusing on the integration of medical services and technological progress. The upgrading of medical services directly reflects the interaction between technological development and medical practice. Some key elements for the upgrading and development of medical services are gradually taking shape, and technical standardization and various service quality evaluation systems are also gradually receiving attention. However, from a practical operational perspective, the practice of some medical services is still in its early stages, which contradicts the ideal logical framework and generation mechanism of technological applications, leading to the problem of improving the quality of medical services. These issues include the adaptability of technology, the reengineering of medical service processes, and the training and education of medical service personnel, which profoundly impact the development of the medical industry and the health of patients. Therefore, solving these problems has become an important task in the process of upgrading medical services.

4.2 Risk Sharing: Optimization of Medical Response System and Data Governance

4.2.1 Data Regulation and Information Governance

From the perspective of data governance, data regulation and information governance are fundamental links in the healthcare industry and core manifestations of risk sharing. Therefore, the medical industry is primarily driven by data regulation and information governance. Data regulation

and information governance are the main characteristics of the healthcare industry and an important component of risk sharing. Currently, the medical industry strengthens quality control from the data management perspective in three main forms: first, data standardization is of vital importance. It is crucial to ensure consistency between data collection and interpretation. The second is process standardization. Standardized control of data management can be achieved by establishing standards for data collection and processing and disclosing these standards to relevant personnel. The third is the internal process reengineering of data regulation and information governance. The medical industry and others have used data regulation and information governance methods to improve management efficiency and service quality in recent years. However, compared to the ideal state, the maturity of data regulation and information governance in the current medical industry still needs to be further improved.

4.2.2 Decision support and talent cultivation

From the perspective of medical informatization, data-driven decision-making cannot accurately provide personalized services that patients need. The satisfaction evaluation of patients with medical services mainly focuses on personalized needs, but medical informatization lacks a comprehensive mechanism for analyzing patients' personalized needs. The core of this problem may be the imperfect data management. In medical informatization, the personalized needs of patients are usually described as "patient portraits", and their satisfaction with patient needs directly reflects the quality of medical services. However, most of the existing medical information systems are about disease diagnosis and other information, and there is a lack of analysis of the personalized needs of patients. Usually, the personalized needs of patients are difficult to obtain or measure. The information asymmetry and imperfect personalized demand analysis mechanism directly lead to obstacles to the quality of medical services.

4.2.3 Risk sharing and benefit governance

From the perspective of medical informatization, risk sharing and benefit sharing have long constrained the service capacity of the medical industry. Since the 21st century, the integration of big data and artificial intelligence in medical informatization has reshaped medical services through technological progress. However, the shortcomings of traditional data management still constrain the development of medical informatization. Due to the complexity of technology and the influence of human factors, medical informatization still needs to be improved. Under the premise of medical informatization, risk sharing and benefit sharing are seen as direct ways to improve the quality and efficiency of medical services. However, the actual impact of technology-based risk sharing and benefit sharing on the quality and efficiency of medical services remains to be debated. Meanwhile, due to technical difficulties, medical services lack effective risk-sharing and benefit-sharing. Therefore, medical informatization does not always seem to achieve the goals of medical service quality and efficiency. It is evident that risk sharing and benefit governance are not only technical challenges but also face issues with the quality of medical services.

4.3 Return of Humanistic Care

Rectify medical technology and restore the essence of medical care. Medical informatization cannot avoid the limitations of being a technical concept in medical services. In medical informatization, technology is a standardized and effective medical service tool, playing an essential role in medical services. It also makes medical informatization not only a technical concept but also a service-oriented concept. Therefore, medical services primarily based on "technology" have become the technical mechanism of medical services. The practical interpretation of medical informatization is generally a medical service path gradually formed based on technology, although this path includes attempts at services. From technology to service, medical services are closely centered around the needs of patients from beginning to end. Medical services should strive for technological progress to meet the needs of patients. However, in the case of technology being magnified, this also brings a dilemma, which is the phenomenon of technology. Overall, there is still room for improvement in terms of technology and service quality in medical services, which is

also an important task of medical informatization.

5. Conclusion

Medical informatization has entered the era of health, which poses new challenges and requirements for the medical industry. Medical informatization is a symbol of medical intelligence and an essential means of the medical industry. There is an urgent need to achieve the quality of medical services and protect the rights and interests of patients, fundamentally reflecting the inherent requirements of the medical industry. Medical informatization is the construction of a theoretical analysis framework and practical mechanism for healthcare under the guidance of the health era. In recent years, modern information technologies such as big data and artificial intelligence have promoted medical informatization, empowering the accuracy and scientificity of medical services and decision-making through technology. Its value aligns with the inherent logic of the medical industry. Therefore, based on medical informatization, it also provides a new path for the medical industry. In short, sustainable improvement and development of medical informatization can help better meet the needs of patients and contribute to the healthy and stable development of the medical industry.

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