

## **Research on Influencing Factors and Innovative Paths of theater Digital Transformation in China Based on Grounded Theory**

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### **ABSTRACT**

Numerous Chinese theaters have embarked on the digital transformation journey. This transformation facilitates the synergistic integration of art with digital technologies, thereby enhancing the operational and managerial efficacy of theaters. However, the majority of scholarly discourse in China remains centered on the conventional development paradigms of theater. A limited number of studies have ventured into the realm of digital theater transformation, predominantly examining specific cases and the current state of digital evolution. These studies often fall short in providing a comprehensive analysis of the determinants influencing the digital transformation process. This paper endeavors to elucidate the factors that impinge upon the efficacy and quality of theater digital transformation. Utilizing grounded theory methodology, it delineates a systematic approach for theatrical entities to foster innovative progression in their digital transformation endeavors.

[theater, Digital Transformation, China, Grounded Theory]

### **Introduction**

Theater, as a direct bridge and link between artists, performances and audiences, is facing a new turn towards digital transformation. As traditional theatrical paradigms evolve in response to industry shifts, the Chinese theater sector confronts novel landscape and market demands. In recent years, propelled by innovations in digital technology and the digital economy tide, China's theater industry has hastened its digital transformation. The advent of COVID-19 has ushered in an unparalleled period of dormancy for the live performance sector. Concurrently, the proliferation of mass media and internet consumption has propelled the online economy, encroaching upon the offline consumer market and posing significant challenges to the theater industry. These pressing realities compel theater professionals to seek innovative solutions to address these unprecedented historical challenges.

China places a significant emphasis on the digital transformation within the cultural sector. In 2020, the Ministry of Culture and Tourism promulgated the "Opinions on Promoting the High-Quality Development of the Digital Culture Industry," which outlined a strategic directive to foster innovative forms within the digital cultural industry. Building upon this, the 2022 "Opinions on Promoting the Implementation of the National Cultural Digitization Strategy" further emphasized the imperative to cultivate novel digital cultural consumption scenarios and to integrate online and offline experiences to create a seamless digital cultural milieu. This directive aligns with the emergent trajectory of the theater industry, a pivotal component of the broader cultural industry. To remain relevant and

competitive amidst the evolving landscape of cultural business models, the performing arts sector must strategically realign to harness the opportunities presented by digital innovation. Now, a plethora of Chinese theaters are aligning with the national strategy for digital economy advancement, actively exploring the theater digital transformation.

Theater digital transformation, transcending its physical confines, has morphed into an expansive emblem of social and cultural import, embodying spiritual symbols and sustenance. We argue that the digital transformation of theater serves dual imperatives: firstly, to actualize the efficacious integration of artistic creation with digital technology; secondly, to facilitate organizational transformation and the evolution of theatrical ecosystems within the digital epoch. So how should Chinese theater practitioners understand the digital transformation of theaters? What new changes does digital transformation bring to theaters? What factors affect the effectiveness and quality of digital transformation in theaters? How to use these theater digital transformation influencing factors to establish a new path of theater digital transformation? In digital transformation, what is the intrinsic connection that exists between actors, digital technology and transformation cognition? How should theater digital transformation be promoted?

### **Digital Transformation of Chinese theaters**

In the Chinese context, the term "theater" encompasses two distinct definitions, which are pivotal for understanding the landscape of theatrical institutions within the country. The first definition pertains to theaters that possess independent artistic production capabilities, such as the National Center for the Performing Arts, the National theater of China, and the Beijing People's Art theater. They are renowned for their creative autonomy, artistic excellence, and the production of original works. The second definition refers to theaters that primarily engage in the acquisition of plays and the renting, for example Poly theater and Shanghai grand theater.

The Chinese theater sector is experiencing a transformative evolution. Since the turn of the millennium, a proliferation of theaters has been established across China's major urban centers, emerging as novel symbols of urban identity. In the midst of cultural system reforms, Chinese arts and cultural institutions have progressively cultivated a heightened sense of proprietorship, achieving significant developmental milestones. They have navigated from the initial forays into a "dual-track system" to the adoption of contemporary corporate management practices, thereby delineating a developmental trajectory that is uniquely tailored to their needs and has catalyzed the vibrancy of the performing arts market. Nevertheless, the advancement of Chinese theaters is confronted with substantial challenges. Firstly, there is a pronounced imbalance in theater construction, predominantly concentrated in the economically affluent southeastern regions and central metropolitan areas of provinces. Secondly, the operational efficiency of these venues is suboptimal, with considerable untapped potential in both the frequency of performances and audience attendance. Thirdly, there exists a dearth of specialized personnel, particularly a scarcity of theater managers with a multidisciplinary educational background. Lastly, despite an uptick in the number of performances, the supply of high-caliber artistic productions remains insufficient to satisfy the burgeoning demand. <sup>1</sup>

Technological advancements have significantly propelled innovation and transformation within the realm of stage performing arts. The classical music channel of the National Center for the Performing Arts has initiated a series of online performances titled "Spring Online" "Sound Like Summer Flowers". They have also ventured into "8K + 5G" live broadcasting, setting a new benchmark for digital performance delivery. Similarly, the China National Opera and Dance Drama theater introduced a paid online performance of "Dance on Spring," while the National Peking Opera

Company embarked on a "5G + 4K" broadcasting project for "Dragon and Phoenix," showcasing the potential of high-definition, high-speed digital networks to revolutionize the way performances are accessed and enjoyed. In the wake of the digital revolution, an increasing number of organizations are harnessing cutting-edge digital technologies, including artificial intelligence (AI), big data analytics, and online computing, to chart a path of digital transformation and advancement. These enterprises are seeking to identify pivotal breakthroughs that will propel them towards high-quality development. Digital technology also empowers businesses with the dynamic ability to respond to changing environments.<sup>2</sup> Digital transformation can accelerate the process of business model innovation and provide a clear direction for business growth and value creation.<sup>3</sup> Numerous theaters are embracing the innovative integration of digital technologies, leading to the emergence of novel performance formats and scenarios. This digital intervention has catalyzed shifts in the production paradigms and the broader industrial ecosystem of performing arts. Digital technology not only augments the visual and auditory impact of performances, accentuating the distinctive features and profound meanings of artistic works, but it also facilitates the evolution of traditional rehearsal processes and performance modalities. Moreover, digital technology enriches the audience experience by offering a unique and immersive digital presence.

Some research has been concentrated on the significance of digital transformation and the impact of digital technologies on the operations and evolution of theaters. The modern theater space is already an immersive experience; the use of technology has had a significant impact on the audience, and the close interaction of images on stage with innovative technology has helped to enable new forms of interaction.<sup>4</sup> Digital technology serves as a catalyst for artistic production, dissemination, and consumption. The convergence of online and offline modalities in a "dual-performance" framework addresses the evolving demands of theater performing arts in the post-pandemic and digital economy eras.<sup>5</sup> Digital technology has ushered in a distinct trend towards digitalization and intelligence in modern stage performing arts. Concurrently, it has given rise to exploratory models which are transforming the traditional paradigms of performing arts production and management, and are instrumental in nurturing the nascent stages of a smart performing arts ecosystem.<sup>6</sup> Chinese academic Chen Wei delineates a comprehensive framework for the future digital architecture of theaters, encompassing six critical components: the presentation layer, application layer, foundational service layer, data storage and processing layer, data acquisition layer, and the fundamental equipment stratum. This structural schema is envisioned to underpin the forthcoming evolution of digital transformation within the theater industry.<sup>7</sup>

Digital transformation is an intricate and holistic endeavor that permeates every facet of an organization. Some scholars have defined the types of digital transformation as five categories of product, service, process, model and organisational digital transformation through literature combing and summarisation.<sup>8</sup> The success of digital transformation is multifaceted, propelled not by a solitary element but by a synergistic amalgamation of internal and external factors. Empirical evidence suggests that digital transformation is not unilaterally achieved by any one factor; rather, it is the confluence of various enabling conditions that collaboratively facilitate an enterprise's digital transformation.<sup>9</sup> Therefore, the digital transformation within theaters presents a formidable challenge, one that is frequently met with a paucity of understanding among numerous theater organizations. These entities often grapple with a multitude of impediments to digital innovation, predominantly stemming from limitations in resources and operational capacity. A prevalent sentiment among theater managers is one of being daunted by the intricacies of digital transformation, leading to a lack of

clarity regarding the prioritization of key factors and the strategic planning required to embark on a digital transformation journey. The prevailing scholarly discourse on digital transformation within the theater sector predominantly centers on qualitative analyses of case studies and contemplations of the status quo. The goal of this paper is to explore in depth the factors affecting the effectiveness and quality of digital transformation of theaters, and to summarize the methodological paths of Chinese theaters to promote the new development of digitalisation. At the same time, this paper builds a bridge between theoretical research and practical strategy design, in order to provide methodological references for the new development of Chinese theater operation and management as well as digital transformation.

### **Method**

As an exploratory study, the use of grounded theory to systematically explore the development of theater in China is considered to be a more appropriate choice. Grounded theory is particularly suitable for theoretical modelling in situations where the research question is not yet perfect.

#### **Data Collection:**

This study used semi-structured in-depth interviews to collect data. In order to ensure the validity of the research sample and the prospective nature of the study, the sample selection for this study is based on the following principles: 1. The interviewees must have been engaged in the industry for more than three years as professional theater managers or senior experts in the field; 2. The theater to which the interviewees belonged to need to be a well-recognised and well-run unit in the industry; 3. The specific duties of the interviewees need to be related to the specific management and execution of the operations of this theater in the past three years.

The interviews were conducted in the form of face-to-face, video or audio communication with 1 respondent of the research sample at a time and lasted 45-90 minutes. The interviews mainly focused on the judgement of the overall development of China's theater industry, how to understand digital theater, the opportunities and impacts of digitalisation on China's theater development, how to achieve digital transformation, and the opportunities for the development of digital theater.

#### **Data analysis:**

Open encoding was the initial step in the grounded theory process, which yielded 188 original concepts. In the axial encoding process, 13 initial categories are formed. Through selective coding, this study grouped the 13 initial categories into five main categories: the extent of intervention of digital technology in theater, the performing arts market environment in the digital era, the degree of adaptation of digital concepts in the theater's artistic ecology, the collection and use of theater's digital resources, and the dynamic capacity of theater's digital transformation. Based on these factors, this paper will further construct a behavioural model of theater digital transformation. Examples of original sentences and selective coding are shown in Figure 1. 2. Influencing Factor of theater Digital Transformation are shown in Figure 3.

Figure 1.

Original Sentence

If a theater is to face market competition, in the long run, the core should be the artistic content. From this point of view, it is also very easy to understand why Beijing People's Art, which owns a large number of classic plays, never has to worry about ticket sales.

The domestic theater market is not fixed, and the groups faced by the theater are also not fixed, making it difficult to make a specific audience portrait.

If the current ticket sales still rely on other platforms that are not the theater itself, then the theater will not be able to collect the user data of the real ticket buyers, and will not be able to know why they make the corresponding choices, and will not be able to follow up and improve the service.

In different times and regions, people's appreciation habits are different for different theater needs. Beijing, due to the precipitation of Chinese classical culture, prefers the original flavor, while Shenzhen is more receptive to fresh and youthful works.

The digitization of performance content is not only a substitute for live performance, but also an extension of the value of the content.

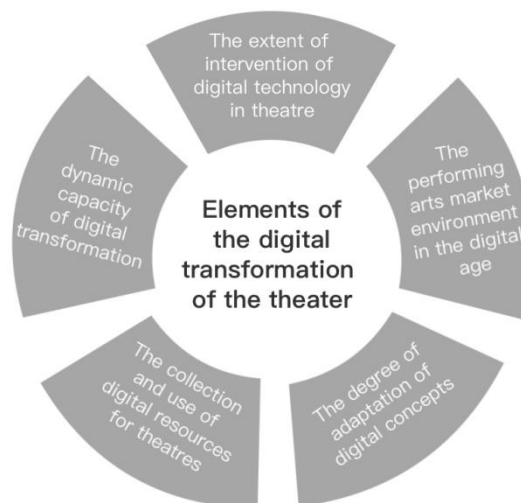
The challenge lies in the openness of the industry, the theater industry is more focused on the innovation of the stage, in the management model and business model of the innovation of the relatively weak. In order to break through this problem, the industry needs to be more forward-looking in its policy making and management model.

Theater through digital to play the function of art education, to achieve the effect of audience expansion is very considerable.

Figure 2.

Main Categories	Initial Categories
The extent of intervention of digital technology in theatre	Applications in Performance
	Applications in management
The performing arts market environment in the digital era	Market competition
	Market Demand
The degree of adaptation of digital concepts	Artistic Creation
	Performance
	Artistic Reception
The collection and use of theatre's digital resources	Theater Rights
	Audience Preferences
	Digital Platform
The dynamic capacity of theatre digital transformation	Market Operation Capability
	Resource Cooperation
	Transformation Capability

Figure 3.



In this study, 15 in-depth interviews were used to test the saturation of the categories of the established theoretical model, and no new categories or structural relationships were found. As a result, it was concluded that the model developed was theoretically saturated.

## Results

Firstly, digital technology have greatly altered the mode of theater operation and management. With the advancement of digital technology and the continuous integration of culture and technology, 5G, VR, AR, big data, online computing and other technologies are widely used in the cultural industry. On the one hand, digital technology has narrowed the distance between the theater and the users, and the consumers are highly empowered by the information, and the users' needs are more personalised, diversified and fragmented. On the other hand, traditional theaters are faced with rising costs, shorter product life cycles and increased competition. For theater, the use of digital technology to achieve breakthroughs in artistic production and management is the trend of the environment.

Secondly, the performing arts market environment has undergone a great transformation. In the digital wave, recognising the changing environment is a prerequisite for the digital transformation of the theater. The products provided by the performing arts market have become more and more diversified under the intervention of digital technology. More and more theaters are trying to apply digital technology in stage performances, theater operations and other aspects and continue to deepen, and gradually realize the digital transformation of the theater, so as to seize new opportunities for development in the ever-changing environment. From the demand side, the traditional relationship between theater-goers in the digital era is facing new scrutiny. Today's theater audience puts forward more new demands, breaking through the traditional way of watching performances, multi-dimensional, immersive, interactive art products can better harvest the audience's attention.

Thirdly, the adaptation of digital concepts in the artistic ecology also influences the manner and process of digital transformation of theater. The construction of an artistic ecology that incorporates digital concepts is the internal support for the digital transformation of the theater. The creation, performance and acceptance of theater art reveal brand new characteristics in the new external environment. Cooperation between theaters and creators with innovative and digital application capabilities is one of the most important conditions for the digital transformation of theaters in terms of artistic creation and repertoire production, which helps to plant the seeds of digitalisation in the creative process. Today, many directors, playwrights, choreographers and other creators favour the use of digital means to assist their creations, such as the application of ultra-high-definition images, systematic scheduling, and the presentation of analogue 3D stages. At the same time, the rational application of digital technology will bring a new fulcrum for stage performances. There are more possibilities for performers' stage presentation in the digital era, such as the interaction between actors and digital images, and actors' motion capture.

Fourthly, digital resources are the essential point for theater to gain a comparative competitive advantage of digital transformation. Generally speaking, the basic resources of the theater include hardware resources, human resources, financial resources, etc. , which are the basic guarantee for the development of the theater, while in the digital era, digital resources show a more prominent role. Through in-depth interviews and grounded theory analysis, it is found that in the process of digital transformation, the theater's ability to mobilise existing resources will directly affect the effect of transformation. On the one hand, the accumulation of theater resources guarantees the gradual progress of digital transformation; on the other hand, how to make use of and tap the existing resources of the theater to achieve the rational allocation and efficient transformation of theater resources is a more realistic issue, which requires in-depth thinking by theater operators.

And fifthly, the dynamic capability of theater digital transformation is a key condition for theater digital transformation. The dynamic ability of theater transformation includes but is not limited to the

ability of digital resource cooperation, the ability of market operation in line with the performing arts market in the digital era, and the ability of enterprise change in line with the current situation of rapid development of digitalisation. Digital resource cooperation capability is different from the theater's ability to mobilise existing internal resources, and is more focused on the theater's ability to achieve reciprocity of external resources with other subjects on the basis of its own resources, including the integration, construction, updating and reengineering of digital resources. Digital resource cooperation with multiple subjects such as digital technology enterprises and other theaters provides more choices and space for the digital transformation of theaters. In addition, the ability to operate in the market in line with the performing arts market in the digital era means that the theater has more autonomy in digital transformation, and the ability to change in response to the rapid development of digital status quo will have a direct impact on the theater's future development and direction.

### **Innovative Paths of theater Digital Transformation**

#### **1. Altering the value creation paradigm during the theater digital transformation**

The metamorphosis of value creation methodologies within the theater sector is facilitated by the strategic deployment of digital technologies to reconfigure the prevailing transactional frameworks, operational processes, and business models. This evolution is characterized by innovation hallmarked by non-linear dynamics, swift product iteration, and the decentralization of organizational structures, which are emblematic of the digital age. Specifically, the theater has changed the traditional linear art production and operation management model, emphasizing the dynamic iteration of products, services and management. Concurrently, organizational structures within theaters are increasingly oriented towards flatter, networked, and collaborative forms, thereby enhancing organizational agility and innovation capacity. These transformative features empower theaters to navigate market vicissitudes and cater to evolving consumer demands with greater dexterity. The confluence of cutting-edge technological advancements and consumer expectations propels the ongoing process of digital value creation in theater. To adeptly navigate this paradigm shift, it is imperative for theaters to deepen their understanding of digital transformation and to remain steadfast in their commitment to dynamic, ongoing innovation and optimization.

#### **2. Building an open collaborative relationship for the theater digital transformation**

The virtual world of the Internet provides unlimited collaboration potential. With the enhancement of information circulation and interactivity, under the open collaboration mode, multiple subjects can participate in part of the management and decision-making by means of information technology to achieve different degrees of element exchange, resource sharing, information exchange, knowledge diffusion and strategic collaboration. Collaboration is a pivotal element within the artistic domain, where the governance of performing arts organizations must be predicated on the continuous collaboration between public and private entities to generate enhanced value. The modalities of collaborative governance should be applied at both the micro and meso levels, as these levels are instrumental in creating value for audiences.<sup>10</sup> Digital technology provides technical support, platform guarantee for promoting collaborative behaviours and building interactive systems, and reduces the coordination cost between subjects. theater in the digital era shows a more distinctive open and sharing characteristics, and needs to actively explore the possibility of cross-border integration, to form a synergy within the industry, to be more open-minded, to work with all stakeholders, and jointly create maximum value for the audience. Thus, it can achieve multi-level, multi-subject and multi-scene collaboration and symbiosis between theaters, different art disciplines, and other subjects. For example, The China National Opera and Dance Drama theater and Huawei have cooperated in the



development of performance platforms and the development and operation of online performing arts products to open up various links in the development of the online theater industry chain. The Dance on Spring was broadcast on Huawei Video Internet, and new technologies such as 4K multi-viewing and VR ultra-high-definition empowered the high-quality performance.

### **3. Expanding the theater industry boundaries through digital transformation**

Impelled by the digital economy's ascendancy and the proliferation of digital technologies, the traditional theater industry is experiencing a dissolution of its conventional boundaries, thereby achieving enhanced flexibility and adaptability. The digital economy has catalyzed a fundamental shift in the behavior of economic agents, engendering novel economic activities and principles. The integration of Internet technologies, blockchain, and big data has amplified the inter-industry network effects, leading to a radical redefinition of the traditional industry's conceptual and operational boundaries. The interplay and synergy between internal and external creative forces, resources, knowledge, technology, and models have catalyzed a more intimate and integrated relationship between the theater and the broader cultural sectors and even non-cultural sectors. In the digital epoch, the physical confines of theaters are transcended, extending into the boundless realms of virtual space and time. The performing arts and cultural industry's value chain is undergoing a transformation, and its ecosystem is being restructured. This metamorphosis paves the way for an expanded growth trajectory and innovation frontiers for the theater industry. The evolution of networking and platform technologies has opened up new avenues for the proliferation and lifecycle extension of digital theater products. It enables the expansion of theater platforms and venues and the creation of digital art resource platforms. Furthermore, an intelligent performing arts ecosystem, characterized by the convergence of diverse technological elements, is progressively taking form.

### **4. Integrating user demand scenarios in the theater digital transformation**

The user demand in the digital era is highly embedded in the scene, "scene" combines people, goods, information and other elements, and becomes a new entrance to attract users. The digital era is a human-centred era, the traditional "goods, scene, people" product-centred logic is gradually replaced by the "people, goods, scene" user-centred logic. The digital transformation of theater is the result of the joint shaping of leading-edge digital technology and user demand, and the shift to user-centred logic highlights the need for theaters to continuously iterate on demand feedback. In the contemporary landscape, social media platforms have eclipsed traditional word-of-mouth mechanisms by disseminating substantial, enduring, and real-time information and opinions, thereby further mitigating the uncertainty of demand. Social media has emerged as a novel and potent tool for gauging theater demand.<sup>11</sup> While providing artistic products, theaters also need to create rich consumption scenarios. Digital technology not only enhances the interactivity and sense of presence of the consumption scene, but also brings users a richer, more authentic, and freer experience. For example, through the deep integration of interactive technology, artificial intelligence and other technologies with the real scene, it significantly enhances the user's perceptual experience in entertainment, social interaction and other consumption scenes. The imaginative space built by the deep extension of the demand scene lays the foundation for the commercial application of digital technology in the consumer scene.

### **Conclusion**

This paper presents data based on interviews with business managers of a number of theaters in China. We have found that the degree of intervention of digital technology in theaters, the performing arts market environment in the digital era, the extent to which digital concepts are adapted in the theater's artistic ecology, the collection and use of theater's digital resources, and the theater's dynamic ability

to digitally transform itself affects the theater's digital transformation. This is to some extent a result based on the development of China's digital economy and the digital transformation of the cultural industry as a whole.

The development of China's digital economy has benefited from its huge user base, accumulation of social scenes and the advanced layout of 5G communication technology. The Chinese government's policy support and strategic planning in the field of digital economy have played a crucial role in promoting the rapid and healthy development of digital economy. The application of digital technology is becoming more and more widespread, market maturity is rapidly increasing, and huge amounts of data are being generated. People are increasingly accustomed to the extensive involvement of digital technologies in their daily lives and social scenes. At the same time, China's digital culture industry has seen notable development, and is actively building a digital industry development pattern that is culturally led, technologically advanced, and with a complete chain. Under the joint action of the government and the market, China's cultural industry has shown a unique reform and development mode. The government's policy leadership and digital technology infrastructure have played a key role in the development of digitalisation of cultural industries. The structure of the cultural industry has been upgraded continuously, the structure of the cultural market has been increasingly optimised, and a new cultural management structure has been gradually formed.

Under technological and market environment in China, the iterative upgrading and value creation of the theater industry shows new opportunities. The process of digital transformation of theater can be embodied as follows: with the constant changes in digital technology, art consumption market and cultural policy, theater responds to the creative ecology of art jointly constructed by creators, performers and audiences, and promotes the generation and transformation of digital resources on the basis of its own basic resources, and actively mobilises the dynamic capabilities of digital transformation, so as to realise the new development of the theater and innovation of its model.

Further, we propose that theaters can create greater value in this era by transforming traditional ways of thinking and acting, building an open and collaborative model, breaking through industrial boundaries, and focusing on user demand scenarios. The digital development of theater is the transformation of the traditional theater industry, which specifically involves a variety of issues such as industry innovation, technology application and management change. In the future, the digital tendency of stage performing arts will be more significant, and the theater industry and cultural consumption mode will be more diversified.

By adopting these strategies, the paper posits that theaters can not only survive but also flourish in the digital landscape, positioning themselves as vital cultural hubs that resonate with contemporary audiences and societal trends. This research contributes to the discourse on digital transformation, offering strategic insights for the sustainable evolution of the performing arts in the digital age.

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