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Research Article

Relationship between External Environment, Internal Conditions, and Digital Transformation from the Perspective of Synergetics

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As the digital technologies develop, traditional pharmaceutical enterprises have also begun the exploration of digital transformation (DT). Previous studies mainly focused on the technology application, strategy, performance, and leadership of digital in manufacturing enterprises and small- and medium-sized enterprises (SMEs), and more qualitative methods were used. However, few researchers systematically investigated the impact mechanism of pharmaceutical enterprises' DT. The purpose of this study is to analyze the influencing factors of Chinese pharmaceutical enterprises' DT by constructing the structural equation model (SEM) based on synergetics. This study shows that the influencing factors of pharmaceutical enterprises' DT include the external environment (customer needs, market competition, government policy, and digital technology) and internal conditions (digital strategy, leadership, and organization capability). The theoretical innovation of this study is to explore the synergistic effect of external environment and internal conditions on DT and put forward that the internal conditions play mediating role in the external environment and DT. Customer needs and digital strategies have great impacts on pharmaceutical enterprises' DT. Therefore, this study finds the main influencing factors, which are helpful in promoting pharmaceutical enterprises' DT.

1. Introduction

Digital transformation is a way of applying digital technology to improve enterprise performance or influence [1]. Information and communication technologies (ICTs) are increasingly important for businesses, consumers, and governments. The development of digital economy can not only promote economic growth, but also improve the quality of economic growth [2]. The development of digital economy has been widely valued by countries around the world, and DT of the global economy is also being promoted continuously. In 2015, China government formulated "Made in China 2025." The proportion of industrial digitization in China's digital economy increased from 49.1% in 2005 to 80.2% in 2019 [3]. DT has completely changed the business mode of many industries. However, the adoption of digital services in the pharmaceutical industry is relatively slow. Nowadays, pharmaceutical enterprises are forced to use and implement DT in order to avoid retreating from competitors in a competitive environment and respond to customer needs. Pharmaceutical enterprises actively participate in DT to achieve the goal of "Medical Internet +," transform traditional pharmaceutical enterprises through network thinking, create a new medical industry chain model, and realize the integration of traditional manufacturing and Internet [4]. According to the literature, there are not many studies related to the DT of pharmaceutical enterprises. The pharmaceutical business mainly has been influenced by digital technology, trust, leadership, cost, and regulatory policies [5]. DT of pharmaceutical enterprises is driven by internal factors and external factors. The impact of external and internal factors on DT is studied, and the relationship between external and internal factors is not studied. Otherwise, previous studies have not proposed a complete model of influencing factors of pharmaceutical enterprises' DT and lack empirical evidence on whether internal conditions play the mediating role between external environment and DT. Therefore, it is significant for pharmaceutical

enterprises to find the key influencing factors and paths affecting DT.

Taking Chinese pharmaceutical enterprises as the research object, the purpose of this study is to explore the influence mechanism of pharmaceutical enterprises' DT and analyze the relationship between external environment, internal conditions, and DT, thus establishing the influencing factor model of Chinese pharmaceutical enterprises' DT. This study will use quantitative analysis method to empirically test and modify the theoretical model through structural equation model (SEM) and regression analysis and then demonstrate the impact of external environment and internal conditions on pharmaceutical enterprises' DT, as well as the relationship between the influencing factors. The main contributions of this study are as follows: based on the synergy theory, it constructs the influencing factor model of pharmaceutical enterprises' DT, reveals the mediating role of internal conditions between external environment and DT, and expounds that customer needs and digital strategy are the main influence of pharmaceutical enterprises' DT, which provides a certain theoretical support and practical basis for pharmaceutical enterprises' DT. It can help pharmaceutical enterprises accurately identify the key influencing factors and influencing paths to implement DT projects.

2. Literature Review and Research Hypotheses

2.1. The External Environment Factors of DT. According to the literature research of scholars in recent years, it is found that the external environment factors of enterprise DT are as follows.

2.1.1. Customer Needs. Customer needs refers to a broad and in-depth understanding of the actual needs of customers, so as to help enterprises make correct decisions. For pharmaceutical enterprises, the government, commercial companies, hospitals, pharmacies, and patients are their customers. With rapidly changing digital technologies and increasingly demanding customer needs in mature markets, digital technologies are becoming increasingly important to help companies upgrade their manufacturing activities and develop new product and service solutions [6]. Many companies see DT as a major challenge. In addition, the industry is heavily affected by DT, as DT and customer expectations drive shifts in the need to adjust strategies, processes, and IT. Therefore, the upgrading of customer demand, diversification of customer behavior, and improvement of customer satisfaction are the driving factors for the DT of enterprises.

2.1.2. Government Policy. Government policies have a direct and indirect impact on the DT of enterprises, and targeted measures should be taken to use ICTs as a tool for environmentally sustainable industries [7]. The strategy of DT has been studied by many governments, multilateral organizations, and industry bodies to develop relevant policies of DT [8]. Policy incentives are designed to promote the cost-effective adoption of digital technologies. Government policy formulation promotes the DT of pharmaceutical enterprises. Besides, grading treatment and" Internet + medical" can help pharmaceutical enterprises expand new sales channels [9].

2.1.3. Digital Technology. The application of digital technology becomes the major benefit for managers at all levels of the enterprise to coordinate all resources. More and more enterprises are being influenced by the development of digital technology and the huge amount of data that systems collect every day to transform their business structure [10]. Modern enterprise marketing is influenced and changed by digital technology and digital tools, which can establish relationships with customers and create more value for enterprises. Regarding big data, the Internet of Things and blockchain are the technical support for the DT of China's industries [11].

2.1.4. Market Competition. Today's market competition is very fierce, and the product cost is closely related to the enterprise benefit. The quality of cost control will directly affect the economic benefits of enterprises and their core competitiveness. The intensive application of advanced technologies leads to the DT that must be experienced by enterprises operating in a constantly changing environment. This increases the competitive pressure among enterprises, whose market share also depends on the speed of DT. DT is the way to improve product competitiveness. In the "Made in China 2025" strategy and "Manufacturing + Internet," traditional manufacturing enterprises use the Internet to promote transformation and upgrading and seek new profit growth [12].

2.2. The Internal Conditions Factors of DT. According to the literature research of scholars in recent years, it is found that the internal conditions factors of enterprise DT are as follows.

2.2.1. Digital Strategy. DT is driven by enterprise strategy. Digital strategy formulation and implementation have become a priority for many enterprises. More and more companies are pursuing digital strategies to create value and access digital resources. Corporate strategic transformation is the main reason why digitalization, AI, and organizational change are at the top of most companies' agendas [13]. The DT under Industry 4.0 is complex and resource-intensive, and making strategic digital guidelines is crucial to the success of SMEs in Industry 4.0 transformation [14].

2.2.2. Organization Capability. Organizations need more agile IT capabilities through DT to explore the application of IT in the digital business environment. Organizations' operations, products, and services are being transformed by digital technology. The way to improve organizational efficiency and effectiveness is through DT of organizations

[15]. Organization development (OD) can make important systematic and conceptual contributions to the successful introduction of agile working methods and mindsets in a company. Dynamic capability has a significant impact on the performance of enterprises. Therefore, manufacturers must strive to improve their dynamic capability to cope with the uncertainty of the environment.

2.2.3. Leadership. Most industries and enterprises can benefit from DT. DT requires strong leadership to drive change. Leadership plays the vital role in DT and can facilitate the more advanced stages of DT. CEOs from most industries are studying the opportunities that digitization brings to businesses. Supportive leadership and investment in R&D are key roles in determining a company's digitalization [16]. In a word, leaders' awareness of DT is very important, which influences the formulation and implementation of DT strategies and plays a driving role in the process of enterprise DT.

2.3. Hypotheses Development

2.3.1. The Relationship between External Environment and DT. External factors can affect DT of SMEs. Tarutė et al. [17] pointed out that the upgrading of consumer demand affects the DT of enterprises, especially the upgrading of consumer behavior and consumer expectations. The consumer centric development trend will also affect the digital transformation of enterprises [18]. The development of digital technology, the improvement of information infrastructure, and technical capacity all promote the DT of enterprises. Market competition (e.g., competition pressure, cost cutting, productivity improvements, and changing competitive landscape) leads to the DT of enterprises. Ebert and Duarte [8] pointed that government policy had a positive impact on enterprises' DT. Based on the above analysis, we propose the following hypothesis.

(i) hypothesis 1: External environment has a positive impact on DT.

(ii) hypothesis 1a: Consumer needs have a positive impact on DT.

(iii) hypothesis 1b: Market competition has a positive impact on DT.

(iv) hypothesis 1c: Government policy has a positive impact on DT.

(v) hypothesis 1d: Digital technology has a positive impact on DT.

2.3.2. The Relationship between External Environment and Internal Conditions. External environment had a positive influence on the change of the internal conditions of enterprises. Tarutė et al. [17] proposed consumer behavior and expectations can drive companies to adopt digital strategies to meet consumer needs. The pressure of market competition needs cost-cutting, and productivity improvements can force enterprises to adopt digital strategy to gain competitive advantage. Ifenthaler and Egloffstein [19] proposed digital technology can promote the change of enterprise organization and make the organization more agile. Burchardt and Maisch [20] pointed out that digital technology can transform the traditional enterprise culture into an innovative enterprise culture. Government policies can incentivize companies to adopt digital strategies [7]. The application of digital technology can help enterprises improve dynamic capabilities. Based on the above analysis, we propose the following hypothesis in Table 1.

2.3.3. The Relationship between Internal Conditions and DT. The internal conditions of the enterprise mainly include digital strategy, organization capability, leadership, and dynamic ability. Kane et al. [21] considered that digital strategy plays an important role in the DT of enterprises. Agile organization and learning organization can provide support for the DT of enterprises [22]. Digital transformative leader can support the organization and digital change. Nasiri et al. [23] pointed out that the dynamic ability of the organization capability (integration ability, learning ability, knowledge management ability, and technological innovation ability) is the guarantee to promote DT. Based on the above analysis, we propose the following hypothesis.

(i) hypothesis 3: Internal conditions have a positive influence on DT.

(ii) hypothesis 3a: Digital strategy has a positive impact on DT.

(iii) hypothesis 3b: Organization capability has a positive impact on DT.

(iv) hypothesis 3c: Leadership has a positive impact on DT.

2.3.4. The Mediating Role of Internal Conditions. Internal conditions have a mediating effect in the external environment on DT, and internal conditions mainly involve digital strategy, organizational ability, and leadership. The formulation of digital strategy is to formulate the strategic direction of digital guiding principles at the company level and a single business level [24]. Using the power of digital technology can help cultivate the ability of organizational learning and innovation [25] and then help promote the digital transformation of enterprises [26]. Based on the above analysis, we propose the following hypothesis.

(i) hypothesis 4: Internal conditions play a mediating role in the relationship between external environment and DT.

3. Study Design and Methods

3.1. Research Model. Synergetics is concerned with the collaboration of various parts of a system [27]. Synergy refers to the overall effect or collective effect produced by the interaction between systems in a complex open system. Enterprise resource integration is one of the key factors that affect performance of enterprises [28]. The synergetic

Table 1: Subhypotheses of H2.

Num	Hypothesis content
H2	External environment has a significant impact on internal conditions
H2a1	Customer needs have a significant impact on digital strategy
H2a2	Customer needs have a significant impact on organization capability
H2a3	Customer needs have a significant impact on leadership
H2b1	Market competition has a significant impact on digital strategy
H2b2	Market competition has a significant impact on organization capability
H2b3	Market competition has a significant impact on leadership
H2c1	Government policy has a significant impact on digital strategy
H2c2	Government policy has a significant impact on organization capability
H2c3	Government policy has a significant impact on leadership
H2d1	Digital technology has a significant impact on digital strategy
H2d2	Digital technology has a significant impact on organizational ability
H2d3	Digital technology has a significant impact on leadership

method in management provides a new way for effective management and the formation of enterprise development strategy [29]. However, external environment will directly change the internal conditions and indirectly affect the DT of enterprises. Therefore, external environment and internal conditions will jointly affect the DT of enterprises based on Synergetics. Therefore, in order to understand the mechanism affecting the DT of pharmaceutical enterprises, this study puts forward the influencing factor model of pharmaceutical enterprises' DT. The research model of pharmaceutical enterprises' DT is shown in Figure 1.

3.2. Research Samples and Procedures. The research objects are pharmaceutical enterprises of China. The superiority of quantitative analysis is empirical, explicit, and objective. This study adopts quantitative analysis, collects the relevant information of the influencing factors of Chinese pharmaceutical enterprises' DT by means of questionnaire, and uses SPSS and Amos tools to process and analyze the data. In order to ensure that the samples are representative and generalizable, this study uses the purposive sampling method of nonprobability sampling to collect sample data [30]. In order to investigate the impact of external environment and internal conditions on enterprises' DT, the online-questionnaires were mainly sent to the first-line, middle, senior managers, ordinary staff of pharmaceutical enterprises in China through member of China Pharmaceutical Enterprise Management Association (CPEMA), and MBA and EMBA alumni groups of Yunnan University. From January 10 to March 8, 2022, 400 questionnaires of this study were distributed, and 290 questionnaires were recovered, and the questionnaire recovery rate was 72.5%; 246 valid questionnaires were obtained, and the effective questionnaire rate was 84.82%. The statistics of respondents are shown in Table 2.

The respondents in the questionnaire have different positions. Among the ownership types, private enterprises account for a larger proportion than state-owned enterprises, which is in line with China's national conditions. The distribution of sample objects is normal and has good external validity.

3.3. Measurement of Variables. This study uses the Likert scales with five subjective measures. The questionnaire used in this study is based on the measures developed in previous studies. Relevant questions are selected and modified. It selects and modifies relevant questions to adapt to the background of pharmaceutical enterprises research. The independent variable is external environment, which includes four variables: customer needs, market competition, government policy, and digital technology. Cronbach's α coefficient is 0.883.

(a) Customer needs: customer needs dimensions are measured by the scale developed by [17], which consists of 5 questions. For example, "Do you think the upgrading of customer consumption behavior has an important impact on the DT of enterprises?" Cronbach's α coefficient is 0.801.

(b) Market competition: market competition dimensions are measured by the scale developed by [18], which consists of 4 questions. For example, "Do you think the impact of market competition pressure from the same industry on the DT of enterprises is important?" Cronbach's α coefficient is 0.808.

(c) Government policy: government policy dimensions are measured by the scale developed by [31], which consists of 4 questions. For example, "Do you think the government's formulation of financial subsidies and tax relief policies have an important impact on the DT of enterprises?" Cronbach's α coefficient is 0.833.

(d) Digital technology: digital technology dimensions are measured by the scale developed by [32], which consists of 4 questions. For example, "Do you think the development of new generation information technology (5G, cloud computing, big data, artificial intelligence, Internet of Things, and blockchain) has an important impact on the DT of enterprises?" Cronbach's α coefficient is 0.817.

The mediating variable is internal conditions, which include three variables: digital strategy, organization capability, and leadership. Cronbach's α coefficient is 0.855.

(a) Digital strategy: digital strategy dimensions are measured by the scale developed by [32], which consists of 3 questions. For example, "Do you think the development of digital strategy has an important impact on the DT of enterprises?" Cronbach's α coefficient is 0.823.

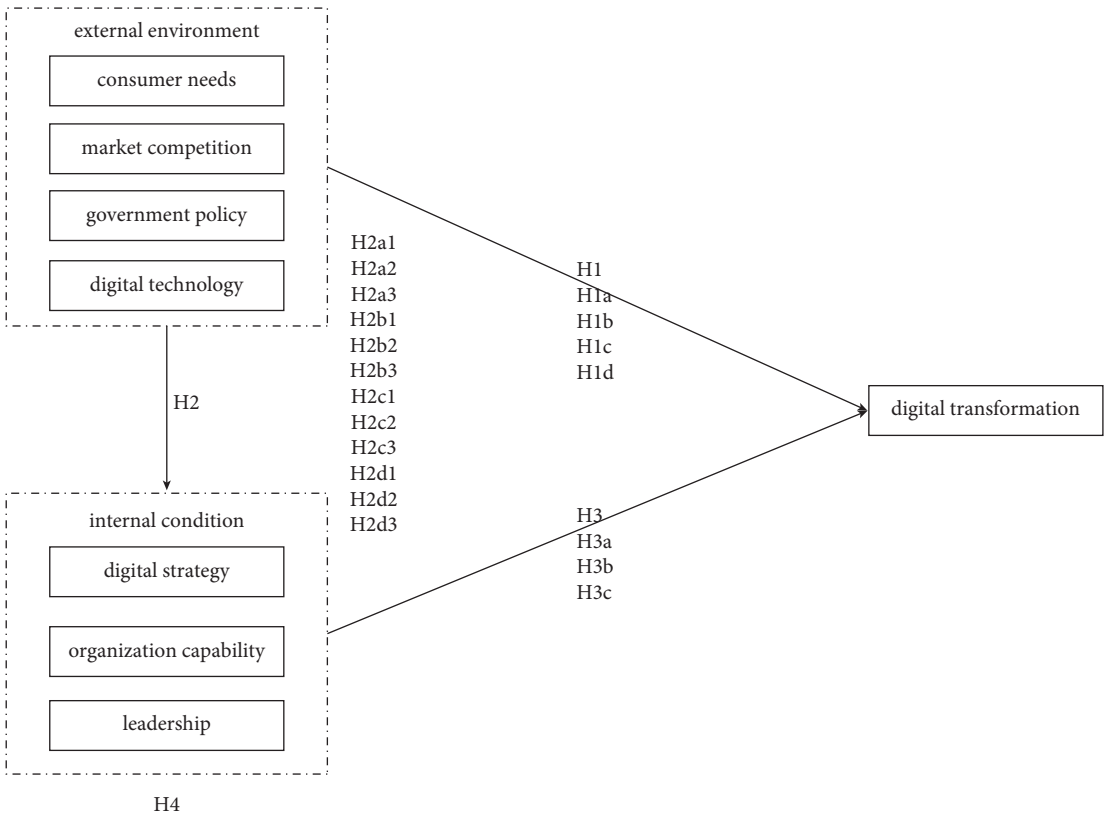

Figure 1: The research model of pharmaceutical enterprises' DT.

Table 2: Demographic statistics.

Item	Category ($N = 246$)	Frequency	Percentage (%)
Position	Ordinary staff	73	29.67
	First-line managers	89	36.18
	Middle manager	31	12.60
	Senior manager	53	21.54
Age	Within 3 years	46	18.70
	Within 3–5 years	65	26.42
	Within 5–10 years	47	19.11
	More than 10 years	88	35.77
Size of employees	Less than 100	46	18.70
	100–300	68	27.64
	300–2000	71	28.86
	More than 2000	61	24.80
Ownership type	State-owned enterprise	83	33.74
	Private enterprise	163	66.26
Situation of digital transformation	No, and there is no intention and plan for DT	24	9.76
	No, but there is a willingness and plan for DT	51	20.73
	Yes, the DT project is in the early stage of construction	91	36.99
	Yes, the DT project has achieved certain results	80	32.52

(b) Organization capability: organization capability dimensions are measured by the scale developed by [33], which consists of six questions. For example, "Do you think the impact of organizational agility on the DT of enterprises is important?" Cronbach's α coefficient is 0.786.

(c) Leadership: leadership dimensions are measured by the scale developed by [18], which consists of six questions. For example, "Do you think it is important for leaders to support the DT of enterprises?" Cronbach's α coefficient is 0.808.

The dependent variable is DT, and the DT dimensions are measured by the scale developed by [34], which consists of four questions. For example, "Do you think the DT of enterprises will lead to performance improvement?" Cronbach's α coefficient is 0.784.

In this study, SPSS 26.0 was used for reliability test, and Cronbach's coefficients for all variables α all are greater than 0.7, indicating that the reliability of the scale meets the requirements, and its internal consistency is high [35]. The questionnaire used in this study has good reliability.

4. Results Analysis

It can be seen from Table 3 that Kaiser-Meyer-Olkin (KMO) values of external environment, internal conditions, DT, and the whole scale of this study are 0.834, 0.844, 0.759, and 0.881, respectively, which are greater than 0.7, and their Sig. is less than 0.05, so the factor analysis can be carried out.

4.1. Confirmatory Factor Analysis. In this study, the second-order factor model of external environment is proposed; that is, there is another high-order dimension (external environment) in the four dimensions of customer needs, market competition, government policy, and digital technology, as shown in Figure 2. In addition, according to the data in Table 4 and 5, each index of the second-order factor model of external environment is within the recommended value range, and the fitting effect of the model is good. Therefore, this study uses the second-order external environment latent variable, which can meet the requirements.

In this study, the second-order factor model of internal conditions is proposed; that is, there is another high-order dimension (internal conditions) in the three dimensions of digital strategy, organization capability, and leadership, as shown in Figure 3. In addition, according to the data in Table 6 and 7, each index of the second-order factor model of internal conditions is within the recommended value range, and the fitting effect of the model is good. Therefore, this study uses the second-order internal conditions latent variable, which can meet the requirements.

4.2. Correlation Test. The purpose of correlation test is to preliminarily explore whether there is a certain correlation between variables and establish a regression model on the basis of verifying the correlation [36]. Pearson correlation was used to analyze the relationship between the variables in this study. The correlation analysis results are shown in Table 8. According to the results of correlation analysis, $P < 0.01$, there is a significant correlation between customer needs, market competition, government policy, digital technology, digital strategy, organization capability, leadership, and DT.

Table 3: Statistical table of variable validity test.

Variable	KMO	Bartlett's test		
		Approx. Chi-square	Df	Sig.
External environment	0.834	1274.34	78	0.000
Internal conditions	0.844	953.182	45	0.000
Digital transformation	0.759	265.863	6	0.000
The whole scale	0.881	2890.548	351	0.000

4.3. Regression Analysis. On the basis of correlation analysis, regression analysis was used to verify the relationship between variables. Forced entry regression analysis can verify whether all independent variables can explain dependent variables, and multicollinearity will affect the results of regression analysis [37]. This study uses the standard of VIF <5, $P < 0.05$ for screening. Based on the above hypotheses, the regression analysis is carried out. Firstly, the analysis results indicate that external environment (customer needs, market competition, government policy, and digital technology, VIF <5, $P < 0.05$) has a significant positive impact on DT, so H1a, H1b, H1c, and H1d are valid. Secondly, the analysis results indicate that internal conditions (digital strategy, organization capability, and leadership, VIF <5, $P < 0.05$) have a significant positive impact on DT, so H3a, H3b, and H3c are valid. Thirdly, the analysis results indicate that external environment (customer needs, market competition, government policy, and digital technology, VIF <5, $P < 0.05$) has a significant positive impact on digital strategy separately, so H2a1, H2b1, H2c1, and H2d1 are valid. Fourthly, the analysis results indicate that external environment (customer needs, market competition, and digital technology, VIF <5, $P < 0.05$) has a significant positive impact on organization capability separately, so H2a2, H2b2, and H2d2 are valid. But the standardized path coefficient of government policy on organization capability is 0.027 (VIF <5, $P = 0.692 > 0.05$), indicating that government policy has no significant positive impact on organization capability, so H2c2 is not tenable. Fifthly, the analysis results indicate that external environment (customer needs, market competition, and government policy, VIF <5, $P < 0.05$) has a significant positive impact on leadership separately, so H2a3, H2b3, and H2c3 are valid. But the standardized path coefficient of digital technology on leadership is 0.082 (VIF <5, $P = 0.241 > 0.05$), indicating that digital technology has no significant positive impact on leadership, so H2c3 is not tenable. To sum up, it can be deduced that H4 is tenable.

4.4. Model Verification. In this study, Amos24.0 is used to draw the model path map, and the indicators are replaced by letters, in which CN, MC, GP, and TT represent customer needs, market competition, government policy, and digital technology, respectively; DS, OC, and LS, respectively, represent digital strategy, organization capability, and leadership; EE represents the external environment; IC represents internal conditions, as shown in Figure 4.

In this study, Amos 24.0 was used to process the data from the questionnaire, and the parameter estimation and model fitting of the influencing factor model of

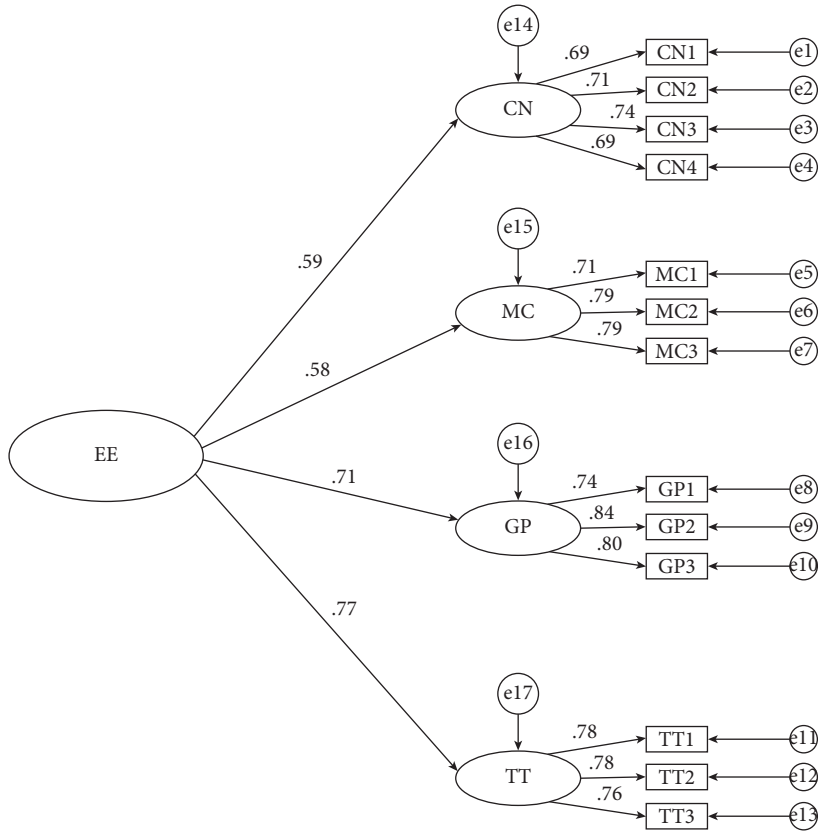

Figure 2: Second-order CFA path analysis chart of external environment scale (standardized).

Table 4: CFA fitting index of external environment scale.

Fitting index	X^2/df	RMSEA	GFI	AGFI	TLI	IFI	PNFI	PCFI
Recommended value	<3	<0.08	>0.8	>0.8	>0.9	>0.9	>0.5	>0.5
Second-order factor model	1.191	0.028	0.958	0.938	0.988	0.991	0.738	0.775

Table 5: Second-order factor convergence validity coefficient of external environment.

			Estimate	S.E.	C.R.	*P*	Standardized estimate
CN	<---	EE	1				0.595
MC	<---	EE	1.078	0.218	4.944	***	0.584
GP	<---	EE	1.351	0.253	5.35	***	0.708
TT	<---	EE	1.377	0.258	5.338	***	0.769
CN1	<---	CN	1				0.686
CN2	<---	CN	1.045	0.115	9.099	***	0.71
CN3	<---	CN	1.13	0.121	9.365	***	0.742
CN4	<---	CN	0.969	0.108	8.947	***	0.694
MC3	<---	MC	1				0.793
MC2	<---	MC	1.017	0.094	10.868	***	0.792
MC1	<---	MC	0.869	0.085	10.252	***	0.714
GP3	<---	GP	1				0.798
GP2	<---	GP	1.055	0.084	12.492	***	0.842
GP1	<---	GP	0.918	0.081	11.36	***	0.736
TT3	<---	TT	1				0.76
TT2	<---	TT	0.979	0.089	11.024	***	0.784
TT1	<---	TT	0.998	0.091	10.951	***	0.775

*** $P < 0.001$.

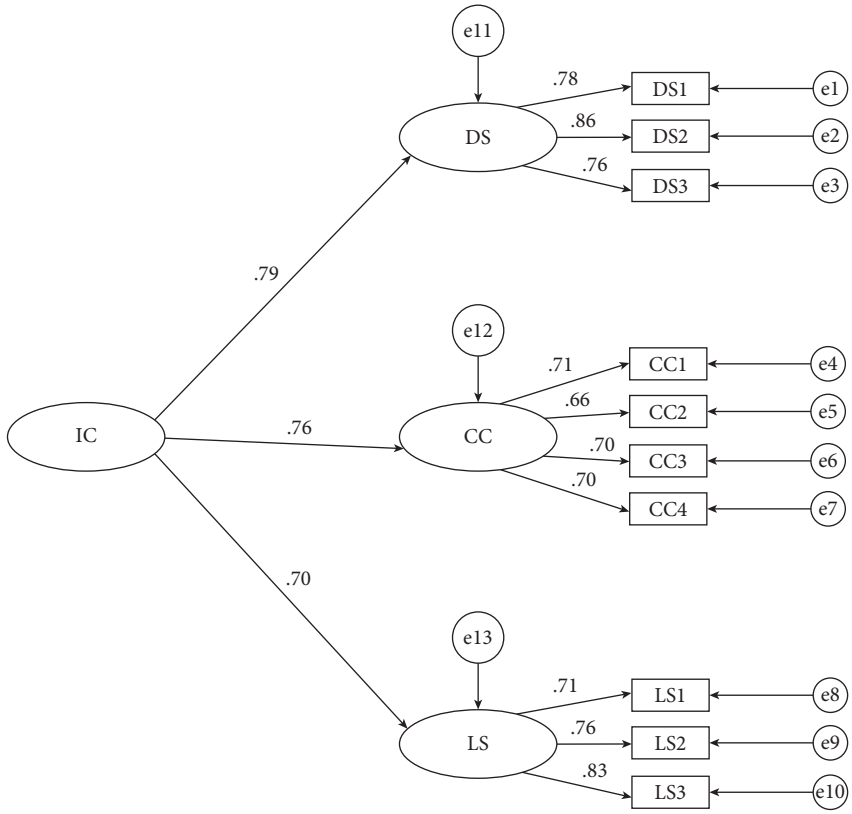

Figure 3: Second-order CFA path analysis chart of internal conditions scale (standardized).

Table 6: CFA fitting index of internal conditions scale.

Fitting index	X^2/df	RMSEA	GFI	AGFI	TLI	IFI	PNFI	PCFI
Recommended value	<3	<0.08	>0.8	>0.8	>0.9	>0.9	>0.5	>0.5
Second-order factor model	1.881	0.06	0.955	0.928	0.957	0.97	0.667	0.689

Table 7: Second-order factor convergence validity coefficient of internal conditions.

			Estimate	S.E.	C.R.	P	Standardized estimate
DS	<---	IC	1				0.79
OC	<---	IC	0.917	0.155	5.895	***	0.765
LS	<---	IC	0.977	0.158	6.193	***	0.703
DS3	<---	DS	1				0.758
DS2	<---	DS	1.043	0.092	11.343	***	0.801
DS1	<---	DS	1.074	0.096	11.145	***	0.778
OC3	<---	OC	1				0.703
OC4	<---	OC	0.967	0.106	9.092	***	0.697
OC2	<---	OC	0.927	0.107	8.664	***	0.656
OC1	<---	OC	0.987	0.108	9.181	***	0.707
LS3	<---	LS	1				0.831
LS2	<---	LS	0.855	0.077	11.085	***	0.755
LS1	<---	LS	0.769	0.073	10.536	***	0.708

*** $P < 0.001$.

pharmaceutical enterprises' digital transformation were carried out. It can be seen from Table 9 that the influencing factor model of pharmaceutical enterprises' DT has good fitting effect. The standardized path coefficient of external environment on internal conditions is 0.825 ($t = 5.92$, $P = *** < 0.001$), indicating that the external environment has a significant positive impact on internal conditions, so H2 is valid. The standardized path coefficient of the external environment on DT is 0.287 ($t = 2.572$, $P = 0.01 < 0.05$), indicating that the external environment has a significant positive impact on DT, so H1 is valid. The standardized path coefficient of internal conditions to DT is 0.385 ($t = 2.141$,

Table 8: Correlation coefficient of variables.

Variables	CN	MC	GP	TT	DS	OC	LS	DT
CN	1							
MC	.377**	1						
GP	.482**	.500**	1					
TT	.485**	.288**	.417**	1				
DS	.476**	.482**	.515**	.431**	1			
OC	.568**	.389**	.506**	.499**	.493**	1		
LS	.377**	.376**	.366**	.240**	.318**	.472**	1	
DT	.541**	.514**	.556**	.485**	.546**	.593**	.468**	1

**Correlation is significant at the 0.01 level (one-tailed).

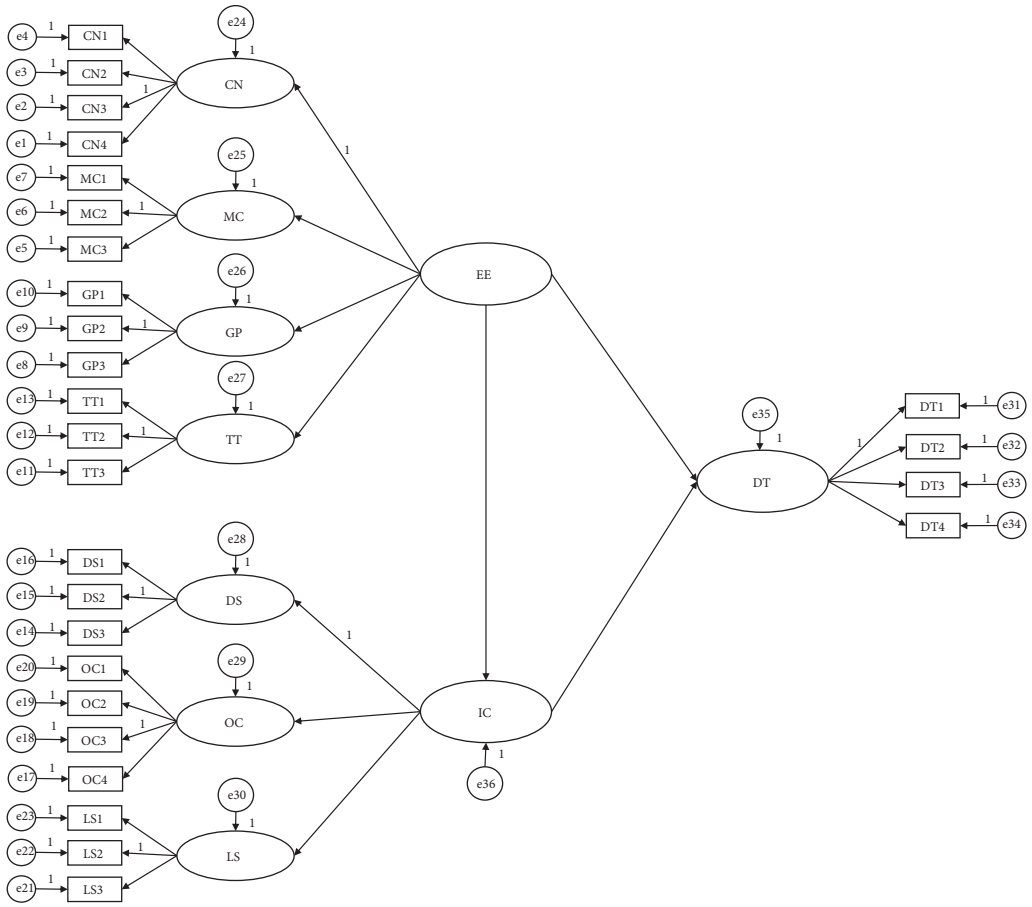

Figure 4: SEM of pharmaceutical enterprises' DT.

Table 9: Fitting indexes of influencing factor model of pharmaceutical enterprises' DT.

Fitting index	X^2/df	RMSEA	GFI	AGFI	TLI	IFI	PNFI	PCFI
Recommended value	<3	<0.08	>0.8	>0.8	>0.9	>0.9	>0.5	>0.5
Second-order factor model	1.175	0.027	0.908	0.889	0.977	0.98	0.785	0.876

$P = 0.032 < 0.05$), indicating that internal conditions have a significant positive impact on DT, so H3 is tenable.

The results are shown in Figure 5. Comparing the influence degree of several influencing factors, it is found that the external environment (path coefficient = 0.483, $t = 2.572$) has a greater positive impact on DT than the internal conditions (path coefficient = 0.385, $t = 2.141$). Therefore, the external environment is more important than the internal conditions for pharmaceutical enterprises' DT. That is, when carrying out DT, pharmaceutical enterprises should firstly pay attention to the external environment, followed by the internal conditions. In addition, for the external environment, customer needs (path coefficient = 0.238, $t = 4.104$) have a greater positive impact on DT than market

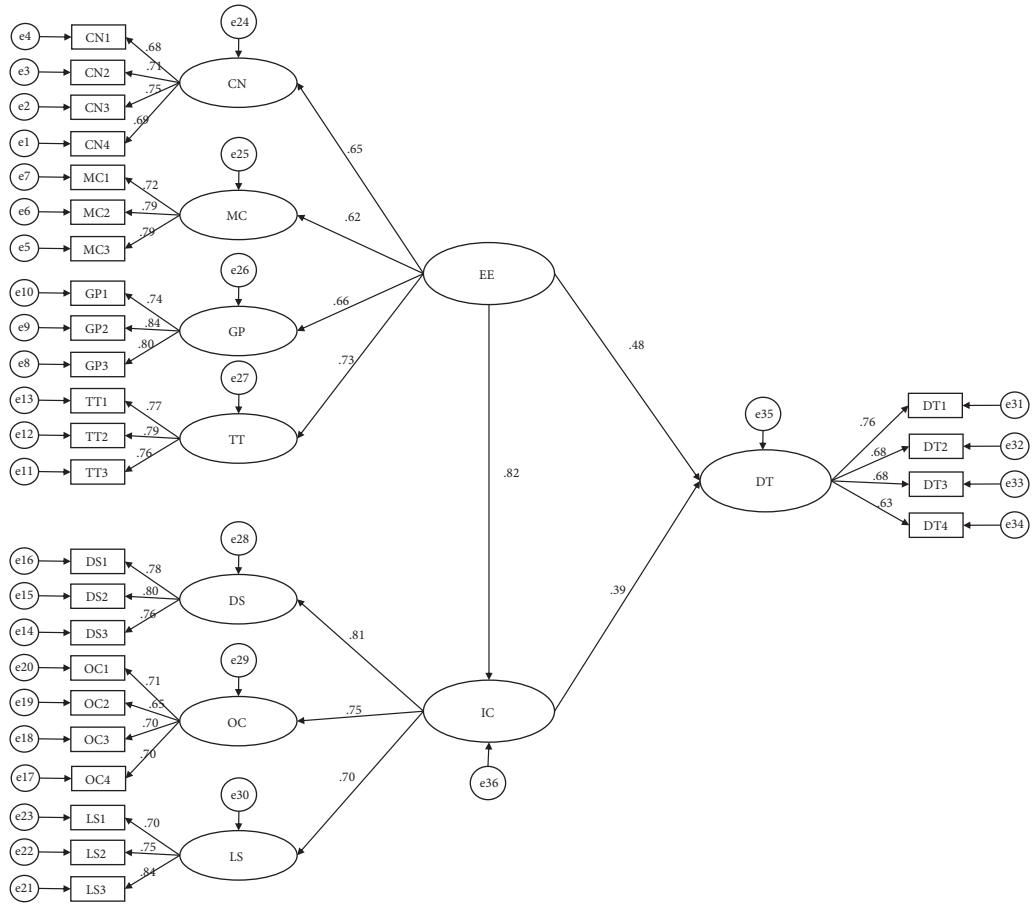

Figure 5: Influencing factor model of pharmaceutical enterprises' DT (Standardization).

competition (path coefficient = 0.229, $t = 3.931$), government policy (path coefficient = 0.125, $t = 2.043$), and digital technology (path coefficient = 0.222, $t = 3.579$). Therefore, customer needs are more important than market competition, government policy, and digital technology for pharmaceutical enterprises' DT. For internal conditions, digital strategy (path coefficient = 0.285, $t = 4.599$) has a greater positive impact on DT than organization capability (path coefficient = 0.235, $t = 3.812$) and leadership (path coefficient = 0.217, $t = 3.6$). Therefore, digital strategy is more important than organization capability and leadership for pharmaceutical enterprises' DT.

5. Conclusions

Based on the synergy theory, this study constructs the influencing factor model of Chinese pharmaceutical enterprises' DT and discusses the influencing mechanism of Chinese pharmaceutical enterprises' DT. Further research found that, firstly, external environment (customer needs, market competition, government policy, and digital technology) and internal conditions (digital strategy, organization capability, and leadership) have a positive impact on the DT of pharmaceutical enterprises. Secondly, internal conditions play a mediating role between the external environment and the DT of pharmaceutical enterprises. Thirdly, customer needs and digital strategy have the greatest impact on the digital transformation of pharmaceutical enterprises. Finally, this study provides a methodology for other industries and enterprises to carry out DT projects.

5.1. Theoretical Implication. Firstly, based on synergy theory, this study will propose a new influencing factor model of Chinese pharmaceutical enterprises' DT. It makes up for the theoretical gap in the research on the influencing factors of Chinese pharmaceutical enterprises' DT. It can make more DT researchers obtain valuable information.

Secondly, this study effectively identifies the influencing factors of digital transformation of pharmaceutical enterprises, including external environment and internal conditions. It improves the shortcomings of previous studies on the influencing factors of digital transformation of pharmaceutical enterprises.

Thirdly, this study discusses the mediating role of internal conditions in the relationship between the external environment and pharmaceutical enterprises' DT, which makes up for the shortcomings of previous studies.

5.2. Practical Implication. Firstly, this study confirms that the external environment (customer needs, market competition, government policy, and digital technology) and

internal conditions (digital strategy, organization capability, and leadership) have positive impacts on the DT of pharmaceutical enterprises. Pharmaceutical enterprises should actively explore the influencing factors, so as to effectively carry out DT projects.

Secondly, this study verifies the mediating role of internal conditions in the relationship between external environment and DT. Pharmaceutical enterprises should pay attention to the external environment and internal conditions, effectively collaborating to promote DT.

Thirdly, this study also confirms that the influence of customer needs and digital strategy on the DT of pharmaceutical enterprises is greater than that of other factors. Pharmaceutical enterprises should focus on customers, grasp customer needs, and actively respond to market competition, and the government should formulate relevant policies to guide and promote pharmaceutical enterprises' DT. Pharmaceutical enterprises can improve the digital capability by applying advanced digital technology, so as to meet customer needs. Before carrying out DT, pharmaceutical enterprises need to establish an effective digital strategy, combine with organization capability, and get the support of leaders, so as to better promote DT.

6. Future Research

This study still has the following three limitations. Firstly, this study has the limitation of small sample size. In the future, it is necessary to increase the number of samples for analysis. Secondly, this study only studies pharmaceutical enterprises of China. For enterprises in different countries and industries, whether the influencing factors of DT are the same still needs to be further studied in the future. Thirdly, this study mainly explores the impact of external environment (customer needs, market competition, government policy, and digital technology) and internal conditions (digital strategy, organization capability, and leadership) on enterprises' DT and their relationship. However, this study lacks the researches on the impact of regulatory variables on DT, such as enterprise scale. This study lacks the impact of control variables on DT, such as enterprise age, ownership type, and region. In the future, we need to further evaluate and study the results of enterprises' DT under the influence of these factors to develop effective digital transformation plans for them.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

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