Research on the Impact of Manufacturing Digital Technology Transfer on Knowledge Flow Based on Multilayer Regression

The Mediating Effect of Digital Innovation Ecosystem

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Abstract
Manufacturing is the top priority of national development. In the context of the digital economy and knowledge economy, this paper studies the impact of digital technology transfer in the manufacturing industry on knowledge flow. Based on the panel data of 29 manufacturing industries from 2012 to 2020, this paper uses models such as panel fixed effects and multi-level regression to explore the impact of digital technology transfer on knowledge flow from the perspective of digital innovation ecosystem growth. The results show that the digital technology transfer process and digital technology transfer performance have a significant impact on knowledge flow; in the mediation analysis, the mediating roles of the digital innovation ecosystem scale, capacity and environment are significant. It's expected to improve the service capabilities of digital technology transfer and build a sharing platform for knowledge flow, so as to provide a theoretical basis for promoting the development of the digital economy and the high-quality development of the manufacturing industry.

Keywords: *Knowledge Flow, Digital Technology Transfer, Digital Innovation Ecosystem.*

1 INTRODUCTION

At present, in the context of digital economy, technology transfer has become an inevitable trend. Technology transfer is the extension and expansion of technological innovation, which can promote a virtuous circle driven by innovation [4]. Technology transfer in the context of digitalization is closely related to economic development and social progress. In 2020, the CPC Central Committee and the State Council issued the "Opinions on Building a More Perfect Factor Market-oriented Allocation System and Mechanism", which clearly pointed out that it's necessary to accelerate the development of the technology factor market. Digitalization can enhance the collaboration and cooperation between multiple entities, promote the reorganization of elements, and promote the change of the behavioral logic of the innovation ecosystem. A correct understanding of the digital innovation ecosystem not only helps guide innovation practices in the context of digitalization, but also promotes innovation. The expansion and even reconstruction of ecosystem-related theories have important practical and theoretical significance [7]. With the in-depth development of knowledge economy, knowledge innovation has become the focus of academic discussion, and the key of knowledge innovation is to make knowledge flow [5]. Therefore, this paper explores the relationship between digital technology transfer and knowledge flow, and explores the digital innovation ecosystem from the perspective of growth, which provides a basis for the sustainable development of manufacturing industry and has reference value for promoting more efficient knowledge flow.

2 LITERATURE REVIEW AND RESEARCH HYPOTHESES

2.1 Digital Technology Transfer and Knowledge Flow

Technology transfer originated from the first United Nations Conference on Trade and Development in the 1860s, when it was considered that technology transfer was technology input and output between countries. At present, scholars at home and abroad have carried out research on technology transfer from the aspects of cause, formation mechanism, dynamic evolution, evaluation, and influencing factors. Taking the technology transfer process of colleges and universities as an example, Yu Xiaohui and others believe that the process of transfer movement includes the interaction process of technology transfer, cooperative development, technical service and technical consultation [24]. Jiang Yufeng believes that the technology transfer process includes technology licensing, technology introduction,

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technology exchange and cooperative research and development [9]. Scholars have investigated the influencing factors of technology transfer performance from the interaction between various elements of technology transfer, technology transfer service institutions and service quality, and the role of the government in the process of technology transfer.

For the definition of knowledge flow, from the perspective of its flow process, it can be understood as the process of knowledge passing from one party to another [19], and it can also be understood as the process of mutual learning, absorption and co-creation of new knowledge between different organizations. At this time, the supply and demand sides can achieve the purpose of value appreciation through interaction [2]. From the perspective of its flow form, the flow direction of knowledge flow is determined, and there are many forms of knowledge flow, such as: knowledge spillover, knowledge diffusion, knowledge transfer, knowledge integration and knowledge sharing. This paper argues that knowledge flow is a process that first goes through knowledge diffusion and knowledge sharing among subjects, and finally reconstructs, integrates and innovates the original knowledge, and realizes the value-added process, which includes knowledge diffusion, knowledge sharing and knowledge integration. is advisable to keep all the given values.

Technology transfer involves long-term, in-depth exchanges between multiple teams [10]. At the same time, the diffusion and spillover effects brought about by the process of technology transfer play an important role in driving technological progress [6], which provide a certain basis for knowledge flow. Knowledge flow was first discussed by Teece in an article in 1977, arguing that enterprises allow knowledge to flow through technology transfer [20]. Ounjian also proposed in 1987 that the influencing factors of knowledge flow may include technical characteristics, characteristics of technology suppliers and demanders and their communication channels [16]. Based on the above view, the research assumptions of digital technology transfer and knowledge flow proposed are as follows:

H_1: Digital technology transfer has a significant role in promoting knowledge flow.

H_{1a}: Digital technology transfer process has a significant role in promoting knowledge flow.

H_{1b}: Digital technology transfer performance has a significant role in promoting knowledge flow.

2.2 The Mediating Role of the Digital Innovation Ecosystem

The academic evaluation of innovation ecosystem includes health, suitability, competitiveness, resilience and synergy, etc. The research scenarios of innovation ecosystem include industrial innovation ecosystem, technological innovation ecosystem and knowledge innovation ecosystem, etc. Now that we have entered the digital age, Adner et al. believe that digital innovation will not only change individual enterprises and their business models, but also change the entire innovation ecosystem [1]. Digitization has reshaped the value co-creation model between innovation subjects, expanded the existing innovation ecosystem theory, and triggered thinking about building a digital innovation ecosystem. The digital innovation ecosystem is an ecological organizational system formed around digital technology innovations such as artificial intelligence, big data, and blockchain. The digital innovation ecosystem can be understood as the combination of the two concepts of digital innovation and innovation ecosystem [3]. Based on the previous research framework, Wei Jiang et al. proposed three structural characteristics of the digital innovation ecosystem, namely, the digitization of innovation elements, the virtualization of participating subjects, and the ecologicalization of relationships between subjects. Participate in the governance of the digital innovation ecosystem from three aspects and incentive mechanisms [21]. The success of the digital innovation ecosystem can generate countless innovations with significant social and economic value, thereby creating value. By analyzing the technology innovation and technology transfer strategies of universities and research institutions and enterprises, Li Xianglong et al. revealed the co-evolution law of the military-civilian integration technology innovation ecosystem, and analyzed the trends and trends of the technology innovation ecosystem at different stages [13]. Inspired by the theory of enterprise growth, scholars such as Shang Hui constructed a regional industrial innovation ecosystem growth evaluation index system from three aspects: system growth scale, system growth capability and system growth environment, and discussed the growth of industrial innovation ecosystems [18]. By combing a large number of literatures, this paper constructs a growth indicator system of the digital innovation ecosystem, that is, to explore the growth indicators of the digital innovation ecosystem from three aspects: the scale, capability and environment of the digital innovation ecosystem.

The innovation ecosystem is the continuous sharing, creation and use of new knowledge among innovative subjects to form knowledge advantages, thereby maintaining their own competitiveness. There is a knowledge potential difference in the innovation ecosystem, and the potential difference between subjects with different knowledge potentials will trigger the flow of knowledge [11]. When Peng Can studied the knowledge transfer in the innovation ecosystem, he found that the knowledge transfer is affected by the functional level of the innovation ecosystem, which in turn affects the flow of knowledge [17]. In the same way, the digital innovation ecosystem will have a certain positive effect on the flow of knowledge. In addition, the “technology transfer” approach can promote the dissemination and diffusion of innovative technologies among regions, thereby realizing the optimal allocation of technology and economic development [8]. Therefore, this paper focuses on whether the digital innovation ecosystem plays a mediating role between digital technology transfer and knowledge flow. The research hypothesis is as follows:

H_{2a}: Digital innovation ecosystem scale mediates the relationship between the digital technology transfer process and the flow of knowledge.

H_{2b}: Digital innovation ecosystem capabilities mediate the relationship between digital technology transfer process and knowledge flow.

H_{2c}: Digital innovation ecosystem environment mediates the relationship between digital technology transfer process and knowledge flow.

H_{3a}: Digital innovation ecosystem scale mediates the relationship between digital technology transfer performance and knowledge flow.

H_{3b}: Digital innovation ecosystem capabilities mediate the relationship between digital technology transfer performance and knowledge flow.

H_{3c}: Digital innovation ecosystem environment mediates the relationship between digital technology transfer performance and knowledge flow.

The conceptual model is shown in Figure 1:

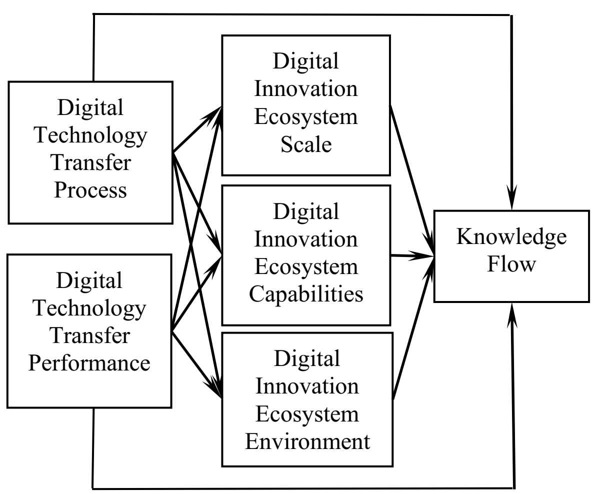

Figure 1: Conceptual model.

3 RESEARCH DESIGN

3.1 *Sample Selection and Data Sources*

This paper selects the statistical data of 29 industries in China's manufacturing industry for nine consecutive years from 2012 to 2020 as a sample. Classification according to the industry standard "National Economic Industry Classification" (GB/T47542017) implemented by the state in 2017. In order to ensure the integrity and continuity of the data, the data of "Repair Service of Metal Products, Machine and Equipment" and " Utilization of Waste Resources" were excluded. The data sources of this paper include the "China Statistical Yearbook", "China Science and Technology Statistical Yearbook", "China Torch Statistical Yearbook", the State Intellectual Property Office, the National Bureau of Statistics, the State Post Bureau's official website statistical annual report, and the communication industry statistical bulletin.

3.2 *Variable Explanation and Description*

Dependent Variable-Knowledge Flow (KF). Based on the existing relevant literature, starting from the form and process of knowledge flow, this paper is divided into three ways: knowledge diffusion [14], knowledge sharing [15] and knowledge integration [25].

Independent Variable-Digital Technology Transfer (DTT). This paper selects digital technology transfer process and digital technology transfer performance to measure digital technology transfer.

Mediating Variable-Digital Innovation Ecosystem (DIE). Drawing on the research of Shang Liang et al. [18], this paper divides the digital innovation ecosystem from the perspective of system growth into the scale of the digital innovation ecosystem, the capability of the digital innovation ecosystem, and the environment of the digital innovation ecosystem.

Control variables-Transport Infrastructure (TI) and Foreign Direct Investment (FDI). After screening and sorting out the existing literature, it is found that the improvement of transportation infrastructure [23] and the improvement of the level of FDI [12] can affect the flow of knowledge.

The specific indicators of all variables are shown in Table 1:

Table 1: Variable measurement

Variable type	Latent variable	Data sources and calculations
Dependent Variable (KF)	Knowledge Diffusion (KD)	Total postal services as a percentage of GDP
		Total telecom business as a percentage of GDP
	Knowledge Sharing	The number of books in the library per capita

	(KS)	The number of academic exchange activities of the society and the association for science and technology
	Knowledge Integration (KI)	Number of Ph.D. and Master's degree personnel in R&D institutions run by all enterprises in the manufacturing industry
		Purchase of instruments and equipment
Independent Variable (DTT)	Digital Technology Transfer Process (DTTP)	The degree of industry-university-research cooperation
		Introducing foreign technology funds
		Purchase domestic technology funds
	Digital Technology Transfer Performance (DTTPE)	Total number of patent ownership transfers and licenses
		The number of contracts in the technical market
		Technical market transaction contract amount
Mediating Variable (DIE)	Digital Innovation Ecosystem Scale (DIES)	Full-time equivalent of R&D personnel
		Fixed asset investment
		Internal expenditure of R&D funds
	Digital Innovation Ecosystem Capabilities (DIEC)	New product sales revenue
		Technological transformation expenses
		Digestion and absorption of expenditures
		New product development expenses
		Number of Employed Persons by Industry in Manufacturing Industry
	Digital Innovation Ecosystem Environment (DIEE)	Number of Internet Access Ports
		Number of companies with R&D institutions in various manufacturing industries
		Mobile phone user
Control Variables	Transport Infrastructure (TI)	Total length of railway and road transport routes
	Foreign Direct Investment (FDI)	

3.3 *Research Method and Model Design*

This paper first uses factor analysis to extract and integrate the factors of digital technology transfer, digital innovation ecosystem and knowledge flow to obtain the final score. Then, the multi-level regression analysis method is used to test the main effect of digital technology transfer on knowledge flow, and the new mediation effect test process of Wen Zhonglin et al [22] is used to test the mediating effect. Among them, model (1) is mainly used to test the impact of digital technology transfer on knowledge flow, model (2) is used to test the impact of digital technology transfer on digital innovation ecosystem, and model (3) tests the mediation role of the scale, capability and environment of digital innovation ecosystem in the relationship between digital technology transfer and knowledge flow.

$$\mathrm{KF} = \alpha + \beta \begin{bmatrix} \mathrm{DTTP} \\ \mathrm{DTTPE} \end{bmatrix} + \gamma\mathrm{TL} + \gamma\mathrm{FDI} + \varepsilon \tag{1}$$

$$\begin{bmatrix} \mathrm{DIES} \\ \mathrm{DIEC} \\ \mathrm{DIEE} \end{bmatrix} = \alpha + \beta \begin{bmatrix} \mathrm{DTTP} \\ \mathrm{DTTPE} \end{bmatrix} + \gamma\mathrm{TL} + \gamma\mathrm{FDI} + \varepsilon \tag{2}$$

$$\mathrm{KF} = \alpha + \beta_1 \begin{bmatrix} \mathrm{DTTP} \\ \mathrm{DTTPE} \end{bmatrix} + \beta_2 \begin{bmatrix} \mathrm{DIES} \\ \mathrm{DIEC} \\ \mathrm{DIEE} \end{bmatrix} + \gamma\mathrm{TL} + \gamma\mathrm{FDI} + \varepsilon \tag{3}$$

4 EMPIRICAL ANALYSIS

4.1 *Factor Analysis*

Due to the large difference in the magnitude of each index of the sample data and the correlation between the indexes is reduced, factor analysis is selected to process the variables. First, to test whether the indicators selected by dependent variable, independent variable and intermediary variable are suitable for factor analysis, the KMO values of the involved variables are all greater than 0.5, and the significance level of Bartlett's sphericity test is less than 0.05, indicating that they are all suitable for factor analysis. The following takes the process of knowledge flow as an example to introduce the factor analysis process.

Table 1: Knowledge flow variance contribution rate.

Element	Initial Eigenvalues			Extract the Load Sum of Squares			Rotational Load Sum of Squares		
	Total	Percent Variance	Accumulation%	Total	Percent Variance	Accumulation%	Total	Percent Variance	Accumulation%
1	4.385	73.084	73.084	4.385	73.084	73.084	2.412	40.202	40.202
2	1.032	17.204	90.287	1.032	17.204	90.287	1.815	30.247	70.449
3	0.483	8.052	98.340	0.483	8.052	98.340	1.673	27.891	98.340
4	0.064	1.067	99.406						
5	0.029	0.487	99.893						
6	0.006	0.107	100.000						

Note: KMO test: 0.697; Sig: 0.000.

It is more appropriate to extract three common factors from knowledge flow, and the cumulative contribution rate of the factors reaches 98.34% (as shown in Table 2), indicating that these three factors can well explain the concept of knowledge flow. In order to make the factor variables more interpretable, the correlation coefficient matrix is rotated by the maximum variance method to obtain the factor load matrix after the rotation of the main factor. In addition, it can be seen from the rotating component matrix that these three common factors agree with the three dimensions of knowledge flow divided above, and these three common factors can be named after the names of the above three dimensions.

Table 2: Knowledge Flow Component Matrix and Scoring Coefficients.

	Rotation Component Matrix			Score Coefficient Matrix		
	1	2	3	1	2	3
KD_1	0.928	0.223	0.280	0.492	-0.096	-0.124
KD_2	0.963	0.107	0.214	0.560	-0.188	-0.145
KS_1	0.632	0.687	0.349	0.189	0.433	-0.252
KS_2	0.098	0.949	0.286	-0.194	0.867	-0.329
KI_1	0.270	0.271	0.916	-0.212	-0.406	1.004
KI_2	0.378	0.555	0.712	-0.104	0.055	0.461

Note: The extraction method is principal component analysis, and the rotation method is the maximum variance method, which converges after 5 iterations.

Therefore, the scores of knowledge diffusion, knowledge sharing and knowledge integration are calculated according to the above factor score coefficients in Tabel 3, and the comprehensive score of knowledge flow is calculated according to the variance contribution rate of common factors.

$$KD=0.492KD_1+0.560KD_2+0.189KS_1-0.194KS_2-0.212KI_1-0.104KI_2 \quad (4)$$

$$KS=-0.096KD_1-0.188KD_2+0.433KS_1+0.867KS_2-0.406KI_1+0.055KI_2 \quad (5)$$

$$KI=-0.124KD_1-0.145KD_2-0.252KS_1-0.329KS_2+1.004KI_1+0.461KI_2 \quad (6)$$

$$KF=0.409KD+0.308KS+0.284KI \quad (7)$$

4.2 Analysis of Regression Results

4.2.1 Research on the Main Effect of Digital Technology Transfer on Knowledge Flow

The empirical findings of this paper are as follows:

Table 3: Test of digital technology transfer process on knowledge flow and mediating effect.

Variable	KF	DIES	KF	DIEC	KF	DIEE	KF
DTTP	0.071* (1.72)	0.096** (2.24)	-0.002 (-0.16)	0.106 (1.37)	0.029** (2.15)	0.279*** (8.22)	0.012 (0.34)
DIES			0.762*** (13.89)				
DIEC					0.397*** (4.28)		
DIEE							0.212*** (3.44)
TI	0.208*** (3.96)	0.240*** (4.28)	0.025 (0.99)	0.283 (4.91)	0.096* (1.92)	0.134** (2.63)	0.180*** (3.77)
FDI	-0.000 (-0.00)	0.000 (0.38)	-0.000 (-0.82)	0.001 (1.42)	-0.000 (-0.99)	0.002 (0.79)	-0.000 (-0.77)
Intercept term	-1.138*** (-4.66)	-1.40*** (-5.04)	-0.075 (-0.58)	-1.491*** (-5.08)	-0.546** (-2.33)	-0.198*** (-4.84)	-0.884*** (-3.88)
Industry and Year	control	control	control	control	control	control	control
R^2	0.76	0.77	0.91	0.69	0.81	0.78	0.81
Adjusted R^2	0.75	0.76	0.91	0.68	0.81	0.78	0.80

Note: ***, **, and * respectively represent the significance levels of 1%, 5%, and 10%; the value in ( ) is the t-test value.

Table 4: Test of digital technology transfer performance on knowledge flow and mediating effect.

Variable	KF	DIES	KF	DIEC	KF	DIEE	KF
DTTPE	0.119*** (3.04)	0.178** (4.22)	-0.020 (-1.51)	0.203** (2.62)	0.039 (1.36)	0.635*** (4.95)	-0.041 (-0.65)
DIES			0.780*** (13.66)				
DIEC					0.395*** (3.82)		
DIEE							0.251*** (3.92)
TI	0.209*** (3.84)	0.239*** (4.18)	0.023 (0.9)	0.281*** (4.77)	0.098* (1.94)	0.113** (2.20)	0.180*** (3.72)
FDI	-0.000 (-0.16)	0.000 (0.21)	-0.000 (-0.77)	0.001* (1.73)	-0.001 (-1.00)	0.002 (1.02)	-0.001 (-0.81)
Intercept term	-1.106*** (-4.45)	-1.332*** (-4.84)	-0.067 (-0.53)	-1.415*** (-4.82)	-0.547** (-2.31)	-0.888*** (-3.16)	-0.883*** (-3.88)
Industry and Year	control	control	control	control	control	control	control
R^2	0.76	0.79	0.91	0.71	0.81	0.85	0.81
Adjusted R^2	0.75	0.78	0.91	0.70	0.80	0.85	0.80

Note: ***, **, and * respectively represent the significance levels of 1%, 5%, and 10%; the value in ( ) is the t-test value.

Table 4 shows the regression results of the digital technology transfer process on knowledge flow. The regression coefficient is 0.071. It passes the significance test at the 0.1 level, indicating that the digital technology transfer process has a significant role in promoting knowledge flow, and verifies hypothesis H_{1a}. In Table 5, the regression coefficient of the independent variable digital technology transfer performance is 0.119, which has passed the significance test at the 0.01 level, indicating that digital technology transfer performance can significantly promote knowledge flow, which verifies the hypothesis H_{1b}.

4.2.2 Research on the Mediating Effect of Digital Innovation Ecosystem

Table 4 reports the hierarchical regression results of the mediating effects of digital innovation ecosystem scale, capacity, and environment in the process of digital technology transfer and knowledge flow. The regression coefficient of DTTP on KF (c=0.071, p<0.1) passed the significance test. The regression coefficient of DTTP to DIES (a=0.096, p<0.05) passed the significance test. When DTTP and DIES jointly affected KF, the regression coefficient of DTTP to KF (c'=-0.002, p>0.1) failed the significance test , the regression coefficient of DIES on KF (b=0.762, p<0.01) passed the significance test, indicating that DIES has a major mediating role in the influence of DTTP on KF, which verifies the hypothesis H_{2a}; the regression coefficient of DTTP on DIEC (a= 0.106, p>0.1) did not pass the significance test, when DTTP and DIEC jointly affected KF, the regression coefficient of DTTP to KF (c'=0.029, p<0.05) passed the significance test, and the regression coefficient of DIEC to KF (b= 0.397, p<0.01) passed the significance test, and the Bootstrap test ab passed the significance test at the 95% confidence interval, indicating that there is a partial mediation effect of DIEC in the effect of DTTP on KF, which verifies the hypothesis H_{2b}; The regression coefficient of DTTP on DIEE (a=0.279, p<0.01) passed the significance test. When DTTP and DIEE jointly affected KF, the regression coefficient of DTTP on KF (c'=0.012, p>0.1) failed the significance test, and DIEE had no effect on KF. The regression coefficient of (b=0.212, p<0.01) passed the significance test, indicating that DIEE has a major mediating role in the effect of DTTP on KF, validating the hypothesis H_{2c}.

Table 5 reports the hierarchical regression results of the mediating effects of digital innovation ecosystem scale, capacity, and environment in digital technology transfer performance and knowledge flow. The regression coefficient of DTTPE on KF (c=0.119, p<0.01) passed the significance test. The regression coefficient of DTTPE to DIES (a=0.178, p<0.05) passed the significance test. When DTTPE and DIES jointly affected KF, the regression coefficient of DTTPE to KF (c'=-0.020, p>0.1) failed the significance test, the regression coefficient of DIES on KF (b=0.780, p<0.01) passed the significance test, indicating that DIES has a mediating role in the influence of DTTPE on KF, which verifies the hypothesis H_{3a}; the regression coefficient of DTTPE on DIEC (a= 0.203, p<0.05) passed the significance test. When DTTPE and DIEC jointly affected KF, the regression coefficient of DTTPE to KF (c'=0.039, p<0.05) passed the significance test, and the regression coefficient of DIEC to KF (b=0.395) , p<0.01) through the significance test, indicating that DIEC has a mediating role in the effect of DTTPE on KF, which verifies the hypothesis H_{3b}; the regression coefficient of DTTPE on DIEE (a=0.635, p<0.01) passed the significance test, When DTTPE and DIEE jointly affected KF, the regression coefficient of DTTPE to KF (c'=-0.041, p>0.1) failed the significance test, while the regression coefficient of DIEE to KF (b=0.251, p<0.01) passed the significance test The test showed that DIEE had a mediating role in the effect of DTTPE on KF, which verified the hypothesis H_{3c}.

5 CONCLUSION AND IMPLICATIONS

This paper takes the panel data of 29 manufacturing industries from 2012 to 2020 as a sample, and based on the dimensional deconstruction and analysis of the concept of knowledge flow, this paper introduces the scale, capability and environment of digital innovation ecosystem as an intermediary to deeply explore the relationship and mechanism between digital technology transfer and knowledge flow. The research results show that: 1) The process and performance of digital technology transfer have a significant role in promoting knowledge flow, which indicates that industry-university-research cooperation, technology introduction and technology purchase can promote knowledge flow in the process of digital technology transfer, and the improvement of digital technology transfer performance can significantly improve the level of knowledge flow. 2) The scale, capability and environment of the digital innovation ecosystem have significant mediating effects in the relationship between digital technology transfer and knowledge flow.

The innovations of this paper are as follows: 1) Exploring the impact of manufacturing technology transfer on knowledge flow from the perspective of digitalization is a supplement to the research perspective of technology transfer. 2) Dividing the dimensions of the digital innovation ecosystem from the perspective of system growth is the improvement of the digital innovation ecosystem theory. 3) This paper explores the influence of digital technology transfer on knowledge flow under the mediating effect of digital innovation ecosystem, and enriches the research methods of digital technology transfer.

For the above research conclusions, in order to accelerate the digital technology transfer of China's manufacturing industry and promote the process of knowledge flow, the following policy recommendations are put forward: Firstly, we should actively cultivate a modern talent team with knowledge, ability, knowledge sharing concept and innovative ideology, and realize the key core technology of "stuck neck" is tackled. Secondly, we should establish more and better communication platforms, build a shared database of knowledge flow, and encourage high-tech talents to share and integrate more knowledge in the process of innovation, so as to achieve sustainable development. Thirdly, technology transfer is the key to technological innovation in the manufacturing industry, and the process requires multiple entities and multiple industries to be realized. Therefore, it is necessary to speed up the construction of technology transfer platforms, improve technology transfer cooperation networks, and improve the openness and mobility of innovation resources. Finally, cultivate and create a good digital innovation ecosystem, and use the energy of the digital innovation ecosystem to maximize the value of knowledge flow.

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