



Research on the Impact of Digital Transformation on Enterprise Innovation Performance Under the Background of Information Management Based on SPSS Statistical Software

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Abstract. In the digital age, the rapid development of modern information technology has promoted the change of enterprise management mode, and the importance of information management and system has become more obvious. In the era of big data, it is necessary to combine information management and computer technology to improve human resource management. Therefore, this paper uses computer technology Python and CiteSpace to make bibliometric analysis, and conducts questionnaire survey. Through SPSS, the data is analyzed and the hypothesis is verified, and finally the regression model of the influence of the digital transformation direction of enterprises on human resource management under the background of information management is obtained. In order to make the human resources work better integrate with information management and digitalization, enterprises must carry out reforms and changes according to their own actual conditions.

Keywords: information management · digital transformation · human resource management

1 Introduction

With the advent of the information age, information economy and digitalization have penetrated into all aspects of people's lives [1]. For enterprises, information management and system update are also very important. At present, enterprises are scrambling to adopt artificial intelligence, computer application technology and digital technology to improve themselves. Therefore, under the background of information management, it is necessary for enterprises to carry out digital transformation, apply various technologies to integrate information and services into one system, carry out better information management, and enhance the comprehensive quality of enterprises [2]. After bibliometric analysis with Python and CiteSpace, this paper determines the questionnaire, takes consulting service companies as the research object, and bases on the actual problems existing in the digital transformation of enterprises under the background of informatization.

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2 Research Hypothesis

In this paper, CiteSpace is used to analyze the literature related to digital transformation on the web of science, and it is found that most of the existing researches are combined with management science, while less information technology and information management factors are considered. Therefore, the innovation of this paper is that it can combine the knowledge of information management to study the digital transformation. At the same time, this paper uses Python to make a bibliometric analysis and then forms a word cloud map. It is found that the factors related to digitalization do include information technology, information management and organization, so this paper assumes that it is also based on these three aspects (Figs. 1 and 2).

Firstly, the digital transformation of enterprises is based on the application of digital technology, which is the foundation of digital human resources [3]. The difficulty and practicability of technology use directly affect the adoption and implementation of digital-HRM. The level of investment in information technology directly affects whether an enterprise can make continuous changes, and investment is the eternal power for enterprises to realize digital transformation, and also the cornerstone of innovation. To sum up, this study puts forward the following hypothesis H1: There is a significant positive correlation between information technology transformation and enterprise innovation performance.

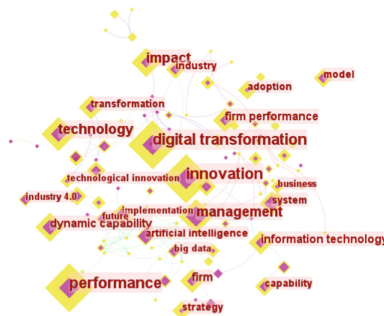


Fig. 1. The Co-occurrence Map of Keywords [Source: Self-drawn by the author]



Fig. 2. Word cloud [Source: Self-drawn by the author]

Secondly, in order to build digital human resources, Enterprises should strengthen information technology, implement digital learning, recruitment, salary and performance management, and establish a digital talent evaluation and development mechanism [4]. In short, it is to introduce the information management system into the process, so as to improve the management efficiency and level [5]. Thus, the following hypothesis are made H2: There is a significant positive correlation between information management transformation and enterprise innovation performance.

Thirdly, with the development of digital technology, the organizational management mode of enterprises has also changed. The digital transformation of organizations affects the success of digital transformation of enterprises to a certain extent [6]. Digital human resource management is the foundation of digital enterprises. Only by promoting the reform of human resource management can we promote the reform of enterprises, meet the needs of technological development and realize the construction of digital enterprises [7]. Combined with the above viewpoints, this study puts forward the following hypothesis H3: There is a significant positive correlation between organizational transformation and enterprise innovation performance.

Combining the characteristics of enterprise digital transformation with the above theoretical analysis, the research model shown in the following figure is obtained.

3 Analysis of Research Results

3.1 Reliability and Validity Test

This chapter uses computer technology for data analysis. This part puts forward the test items about variable measurement factors, as shown in Table 1.

As can be seen from Table 2, the reliability of the scale designed in this study is ideal, that is, it shows that the variables have high consistency and good reliability. At the same time, the reliability of each variable in the scale is above 0.7. In addition, the confirmatory factor analysis of structural equation model is carried out by using computer software amos24.0, the model setting in this paper is reasonable.

3.2 Correlation Analysis

From the correlation test in Table 3, it can be seen that the correlation coefficient between information technology transformation and enterprise innovation performance is $r = 0.716$, and the P value is less than 0.05. Hypothesis 1 is established. There is a significant positive correlation between information management transformation and innovation performance of enterprises. Hypothesis 2 holds. The correlation coefficient between organizational transformation and enterprise innovation performance is $r = 0.756$, and the P value is less than 0.05. Hypothesis 3 holds.

3.3 Analysis of Variance

In this part, the computer technology software SPSS is used for one-way ANOVA.

From Table 4, it can be seen that the job categories and organizational transformation of the respondents participating in the research show obvious significance ($p < 0.05$), so

Table 1. Measurement Items [Source: Self-drawn by the author]

	Measurement item
Information technology transformation	Pay attention to the application of information technology in enterprises.
	Enterprises attach importance to the improvement of information technology ability of employees.
	In recent years, enterprises have increased their investment in information system research and development funds.
	Have enterprise information technology software and hardware facilities.
	Enterprises have their own information technology platform.
Information management transformation	Enterprises can provide accurate and efficient scheduling plan through e-HR.
	Enterprises can use digital drive to update attendance data in real time.
	Enterprises can uniformly control salary data.
	Enterprises can establish a fair salary system through E-HR system.
	Enterprises can automatically identify illegal information in labor contracts through digital management system.
	Enterprises can find ways to solve labor disputes in time according to the practice case base.
Organizational transformation	Enterprises pay attention to training professionals in traditional modules of human resources.
	Enterprises can adopt flexible management rules for humanized management of employees.
	Enterprises advocate team collaboration.
	The product market information of the enterprise can be fed back to the decision-making level more quickly.

different job categories have great influence on organizational transformation, but there is no significant difference between different job categories on information technology transformation, information management transformation and innovation performance of enterprises ($p > 0.05$), indicating that different job categories have little influence on information technology transformation, information management transformation and innovation performance of enterprises.

Table 2. Reliability and validity test results [Source: Self-drawn by the author]

category variable	variable	N	Alpha	index	value	Fitting effect
Digital transformation	Information technology	5	0.946	GFI	0.932	good
	Information management	6	0.925	NFI	0.969	good
	Organizational transformation	4	0.923	RFI	0.896	good
Innovation performance	Cronbach Alpha	5	0.940	IFI	0.970	good
Table Cronbach Alpha value of total amount		20	0.971	CFI	0.970	good

Table 3. Correlation coefficient [Source: Self-drawn by the author]

	1	2	3	4	5	6	7	8	9
Gender									
Age	-0.172								
Working years	-0.149	0.704**							
Job	-.236*	-0.059	-0.123						
Industry	0.029	-0.035	-0.045	0.144					
ITT	-0.016	0.181	0.183	-0.103	.716***				
IMT	-0.052	0.136	0.024	-0.186	0.018	.810**			
OT	0.002	0.190	0.172	-.240*	0.039	.846**	.839**		
InnP	-0.067	0.834	-0.047	-0.19	0.011	.716**	.840**	.756**	
Mean	1.670	1.830	3.470	1.690	3.700	3.823	3.590	3.760	3.554
Sd	0.471	0.703	1.520	0.825	1.343	1.037	0.977	0.939	0.910

As can be seen from Table 5, the significant level P values between respondents in different industries and enterprises' information technology transformation, information management transformation, organizational transformation and innovation performance are all greater than 0.05, indicating that the different industries of respondents will not affect the information technology transformation, information management transformation, organizational transformation and innovation performance of each enterprise.

Table 4. Category difference [Source: Self-drawn by the author]

		Sum of Square	df	MS	F	Sig.
ITT	Regression	0.488	2	0.244	0.215	0.807
	Residual	114.687	101	1.136		
	Total	115.175	103			
IMT	Regression	3.42	2	1.71	1.822	0.167
	Residual	94.798	101	0.939		
	Total	98.218	103			
OT	Regression	5.416	2	2.708	3.201	0.045
	Residual	85.449	101	0.846		
	Total	90.865	103			
InnP	Regression	3.133	2	1.567	1.926	0.151
	Residual	82.165	101	0.814		
	Total	85.298	103			

Table 5. Industry difference [Source: Self-drawn by the author]

		Sum of Square	df	MS	F	Sig.
ITT	Regression	3.183	4	0.796	0.703	0.591
	Residual	111.992	99	1.131		
	Total	115.175	103			
IMT	Regression	2.285	4	0.571	0.589	0.671
	Residual	95.933	99	0.969		
	Total	98.218	103			
OT	Regression	3.541	4	0.885	1.004	0.409
	Residual	87.324	99	0.882		
	Total	90.865	103			
InnP	Regression	1.093	4	0.273	0.321	0.863
	Residual	84.205	99	0.851		
	Total	85.298	103			

3.4 Construction of Multiple Regression Model

According to the above theoretical analysis and data analysis, an appropriate multiple regression model is established. In this study, four variables are introduced into the factors that affect human resources change, innovation performance is dependent variable Y, information technology transformation, information management transformation

Table 6. Multiple Regression Analysis [Source: Self-drawn by the author]

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
Cons	0.595	0.204		2.925	0.004
TT	0.025	0.094	0.029	0.269	0.038
IMT	0.638	0.098	0.685	6.537	0.000
OT	0.152	0.112	0.157	1.360	0.017

and organizational transformation are independent variables, which are X_1 , X_2 and X_3 respectively. The independent and dependent variables meet the following conditions: $Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$. The results obtained by SPSS analysis are shown in Table 6. Indicating that information management transformation has the greatest impact on the innovation performance of enterprises.

4 Conclusion

This study considers the background of informatization, and combines digital transformation to study the impact of information technology transformation, information management transformation and organizational transformation on enterprise innovation. In terms of information technology transformation, it is necessary to combine information construction with digital construction to improve the level of information technology. For the information management transformation, combine enterprise information management with emerging computer technology to enhance the efficiency of information management. For organizational transformation, enterprises should optimize organizational structure and promote information exchange among organizations.

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