ISSN: 2688-8653

Research on Driving Factors of Enterprise Green IT Application based on DANP Method

Junhao Zhang[1], Xianxian Yang[1], Miaomiao Xu[1], Dinghao Zhong[1], Rongyou Li[1], Lei Wang[1], Haili Pan[2]

[1]Guilin University of Electronic Technology, Guilin, Guangxi, China

[2]Guilin University of Technology, Guilin, Guangxi, China

Abstract

Based on the theoretical framework of MOA, this paper analyzes the driving factors of enterprise green IT application from three dimensions of motivation, opportunity and capability under the background of carbon peak and carbon neutral, and establishes a system model.

Keywords

Green IT; Driving Factors; MOA Model; DANP Method.

1. Introduction

Climate change is a global issue facing human beings. With the global emissions of carbon dioxide, greenhouse gases soar, posing a threat to living systems. In 2020, the amount of carbon dioxide in the atmosphere reached record levels, 417ppm (parts per million) in May, and the average temperature was more than 1.2 degrees Celsius higher than in the 19th century. As the largest carbon emitter in the world, China is faced with severe challenges due to high energy consumption. In this regard, China proposes the strategic goals of carbon peak and carbon neutrality.

The rapid development of IT industry has played a positive role in improving production efficiency, promoting production, energy saving and emission reduction, and environmental protection, but the production and use of IT products pollution has also begun to attract people's attention[1]. Under the background of carbon peak and carbon neutral, green IT which can reduce the adverse impact on the environment is a better choice for enterprises. Green IT improves the efficiency of IT equipment and directly reduces carbon dioxide emissions, and green IT products have the characteristics of safety, energy saving, low pollution, and favorable recycling and decomposition. Therefore, the application of green IT by enterprises is of practical significance to the strategic goals of carbon peak and carbon neutrality put forward by China.

Based on this, this paper adopts the Motivation -- Opportunity -- Ability (MOA) model to construct the driving factor system of enterprise application of green IT. Integrated application of Decision Making Trial and Evaluation Laboratory (DEMATEL) and Analytics Network Process (ANP), The interaction mechanism and different influence intensity of each factor are analyzed, the index weight is calculated, the key factors are determined, and corresponding strategy suggestions are put forward according to the research results, providing practical guidance and theoretical support for enterprises to apply green IT.

ISSN: 2688-8653

2. Construction of Driving Factor System for Enterprise Application of Green IT

2.1. Overview of the MOA Model

MOA model, formed from three dimensions of Motivation, Opportunity and Ability, was initially applied in information processing and research on advertising effects [2]. At present, a mature theoretical system based on "MOA" model has been formed, which holds that motivation, opportunity and ability are the factors affecting individual behavior. Motivation, as goal orientation, is the combination of willingness and interest; Opportunity - the external environment that inhibits or promotes the behavior of the subject; Ability - external factors that influence behavior, such as sufficient capital, knowledge and necessary skills. MOA theory believes that individual's motivation, opportunity and ability all determine whether an action can happen or not. Only when the motivation, opportunity and ability meet certain requirements, can an individual produce an action.

According to the MOA model, whether an enterprise can apply green IT is the result of the joint action of motivation, opportunity and ability. That is, whether a good institutional environment can be provided for the enterprise to apply green IT, whether the enterprise has the reason to apply green IT and whether the enterprise has the ability to use green IT all determine whether the enterprise can apply green IT successfully.

2.2. Driving Factor System for Enterprise Application of Green IT

Table 1. Index system of driving factors

Driving factor	Reference	The dimension
Institutional pressure(m_1)	Jiang Xiao, JI Shaobo [3], Wu Dejun [5], Kang Lele, Wang Xiang, Yang Xue, Yang Zeru [6]	Motivation
Social responsibility(m_2)	Jiang Xiao, JI Shaobo [3], Kang Lele, Wang Xiang, Yang Xue, Yang Zeru [6]	Motivation
Economic performance (m_3)	Tian Hong, Wang Yufei [4], Wu Dejun [5], Kang Lele, Wang Xiang, Yang Xue, Yang Zeru [6]	Motivation
Environmental performance (m_4)	Tian Hong, Wang Yufei [4]	Motivation
Social performance (m_5)	Tian Hong, Wang Yufei [4]	Motivation
Executives characteristics (o_1)	Wu Dejun [5]	Opportunity
Market orientation (o_2)	Wang Li, Wang Longwei [8]	Opportunity
Government orientation (o_3)	Wang Li, Wang Longwei [8]	Opportunity
Environmental factor (o_4)	Yang Chaojun, Ma Shuangning [7]	Opportunity
Organizational factor (o_5)	Yang Chaojun, Ma Shuangning [7]	Opportunity
Individual level factor(o_6)	Yang Chaojun, Ma Shuangning [7]	Opportunity
Corporate governance (a_1)	Wu Dejun [5]	Ability
Political resources (a_2)	Wu Dejun [5]	Ability
Customers and Suppliers (a_3)	Wu Dejun [5]	Ability
Foreign capital and technology (a_4)	Wu Dejun [5]	Ability
Environmental management (a_5)	Wu Dejun [5]	Ability

There have been many studies on the drivers of green IT adoption in the enterprise. For example, Jiang Xiao and Ji Shaobo (2015) found that institutional pressure and social responsibility play a role in promoting enterprises' adoption of green IT [3]. Tian Hong and Wang Yufei (2019) analyzed the impact of corporate environmental strategy on economic performance, environmental performance and social performance from different attitudes of enterprises towards corporate environmental strategy [4]. Wu Dejun (2019) proposed that financial performance, executives characteristics, corporate governance, environmental management, institutional pressure, political resources, customers and suppliers, foreign capital and technology have an impact on enterprises' green innovation [5]. Kang Lele, Wang Xiang, Yang Xue and Yang Zeru (2012) proposed that economic motivation, institutional pressure and social responsibility were the main motivations for enterprises to implement green IT [6]. Yang Chaojun and Ma Shuangning (2014) put forward that the driving factors of green IT/IS adoption are mainly environmental factors, organizational factors and individual level factor [7]. Wang Li and Wang Longwei (2018) showed that market orientation and government orientation have a moderating effect on the relationship between green management and financial performance of enterprises [8].

Through literature analysis, this paper combs the driving factors of enterprise application of green IT and determines the driving factor system. See Table 1.

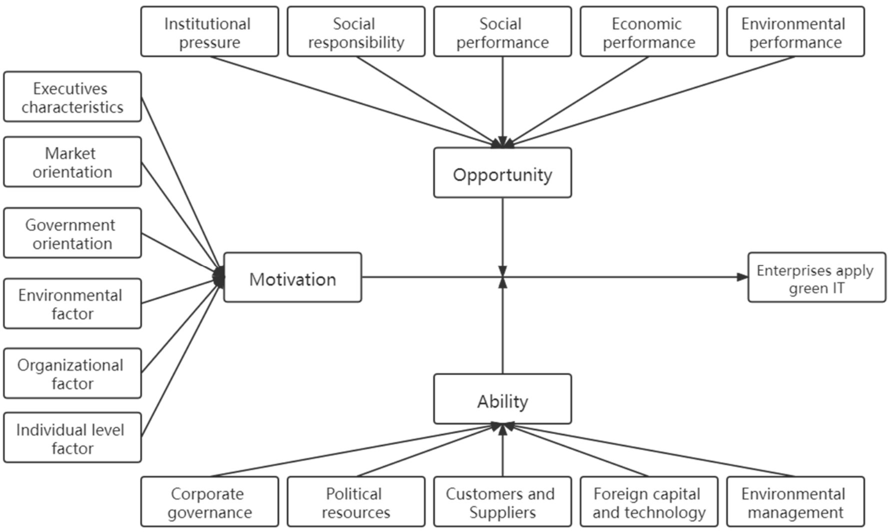

Fig 1. Research model

3. Identification Method Selection of Driving Factor for Enterprise Application of Green IT

3.1. Introduction of DANP Method

DANP method is a combination of DEMATEL method and ANP method, which can reduce the complexity of traditional ANP method, solve the feedback and dependence relationship between various factors, and fully integrate the advantages of the two methods [9]. DANP method has been widely used in various management decisions as an excellent tool for enterprise strategic decision-making and process optimization and transformation. The specific implementation process includes the following steps:

(1)DEMATEL method is used to determine the influence factors of network diagram.

Step 1: Construct the direct impact matrix.

First, the DEMATEL method is used to determine the mutual influence relationship between each factor, and the direct influence matrix A is constructed. Score is given according to the influence degree of each factor, and 0 ~ 4 points are used to indicate the influence degree of

ISSN: 2688-8653

"no", "very weak", "weak", "strong" and "very strong" among factors. The direct influence matrix $A = \left[a_{ij}\right]_{n\times n}$ is established, where a_{ij} represents the influence degree of element i on element j, and n is the number of factors.

Step 2: Matrix normalization.

The following formulas (1) and (2) are applied to process and transform the direct influence matrix A to obtain the normalized matrix R, the formula is as follows:

$$R = kA \tag{1}$$

$$\mathrm{k} = \min\left\{\frac{1}{\max\limits_{i}\sum_{j=1}^{n} a_{ij}}, \frac{1}{\max\limits_{j}\sum_{i=1}^{n} a_{ij}}\right\} \tag{2}$$

$\max\limits_{i}\sum_{j=1}^{n} a_{ij}$ is the largest sum of each row, and $\max\limits_{j}\sum_{i=1}^{n} a_{ij}$ is the largest sum of each column.

Step 3: Calculate the comprehensive impact matrix.

Formula (3) is used to calculate the dimension comprehensive influence matrix T_D and factor comprehensive influence matrix T_C (where I is the identity matrix), and the comprehensive influence relationship of each factor is obtained.

$$T = R + R^2 + R^3 + \cdots = R(I - R)^{-1} \tag{3}$$

Element t_{ij} in matrix T is added in rows to obtain the impact degree d_i of the corresponding factors. The influence degree r_j of the corresponding factors by other factors was obtained by adding the columns. When $i = j$, the center degree $c_i = d_i + r_i$ reflects the importance of the factor t_i in the system. If the cause degree $h_i = d_i - r_i > 0$, it indicates that t_i affects other factors and is the cause factor. $h_i < 0$, it indicates that t_i is affected by other factors and is the result factor.

(2)DANP method was used to determine the weight of influencing factors.

Step 4: Standardize the synthesis influence matrix T_D and T_C obtained by DEMATEL method by using the following formula (4)-(8), and obtain the standardization matrix T_D^{α} and T_C^{α}.

$$T_D^{\alpha} = \left[t_D^{aij}\right]_{m\times m} = \begin{bmatrix} t_D^{11}/d_1 & \cdots & t_D^{1j}/d_1 & \cdots & t_D^{1m}/d_1 \\ \vdots & & \vdots & & \vdots \\ t_D^{i1}/d_i & \cdots & t_D^{ij}/d_i & \cdots & t_D^{im}/d_i \\ \vdots & & \vdots & & \vdots \\ t_D^{m1}/d_m & \cdots & t_D^{mj}/d_m & \cdots & t_D^{mm}/d_m \end{bmatrix} \tag{4}$$

$$d_i = \sum_{j=1}^{m} t_D^{ij}, i = 1,2,\cdots,m \tag{5}$$

$$T_C^{\alpha} = \begin{bmatrix} T_C^{\alpha 11} & \cdots & T_C^{\alpha 1j} & \cdots & T_C^{\alpha 1m} \\ \vdots & & \vdots & & \vdots \\ T_C^{\alpha i1} & \cdots & T_C^{\alpha ij} & \cdots & T_C^{\alpha im} \\ \vdots & & \vdots & & \vdots \\ T_C^{\alpha m1} & \cdots & T_C^{\alpha mj} & \cdots & T_C^{\alpha mm} \end{bmatrix} \tag{6}$$

Where, $T_C^{\alpha ij}$ is the $m_i \times m_j$ order submatrix of matrix T_C^{α}, taking $T_C^{\alpha 12}$ as an example to illustrate the submatrix method:

$$T_C^{\alpha 12} = \begin{matrix} & C_{21} & \cdots & C_{2j} & \cdots & C_{2m_2} \\ C_{11} & t_{11}^{12}/t_1^{12} & \cdots & t_{1j}^{12}/t_1^{12} & \cdots & t_{1m_2}^{12}/t_1^{12} \\ \vdots & \vdots & & \vdots & & \vdots \\ C_{1i} & t_{i1}^{12}/t_i^{12} & \cdots & t_{ij}^{12}/t_i^{12} & \cdots & t_{im_2}^{12}/t_i^{12} \\ \vdots & \vdots & & \vdots & & \vdots \\ C_{1m_1} & t_{m_1 1}^{12}/t_{m_1}^{12} & \cdots & t_{m_1 j}^{12}/t_{m_1}^{12} & \cdots & t_{m_1 m_2}^{12}/t_{m_1}^{12} \end{matrix} \tag{7}$$

$$t_i^{12} = \sum_{j=1}^{m_2} t_{ij}^{12} \tag{8}$$

Step 5: Transpose the normalized matrix T_C^{α} to obtain the unweighted hypermatrix W_{ij}, as shown in Formula (9) below.

$$W_{ij} = (T_C^{\alpha})' \tag{9}$$

Step 6: The weighted hypermatrix W^{α} is established by formula (10).

$$W^{\alpha} = T_C^{\alpha} W_{ij} = \begin{bmatrix} t_D^{a11} \times W_{11} & \cdots & t_D^{a1i} \times W_{i1} & \cdots & t_D^{a1n} \times W_{n1} \\ \vdots & & \vdots & & \\ t_D^{aj1} \times W_{1j} & \cdots & t_D^{aji} \times W_{ij} & \cdots & t_D^{ajn} \times W_{nj} \\ \vdots & & \vdots & & \\ t_D^{an1} \times W_{1n} & \cdots & t_D^{ani} \times W_{in} & \cdots & t_D^{ann} \times W_{nn} \end{bmatrix} \tag{10}$$

Step 7: Calculate the limiting hypermatrix W^*. By using the weighted hypermatrix W^{α} to perform the power operation $\lim_{h \to \infty} (w^{a})^{h}$, the convergence stability limit hypermatrix W^* is obtained, and the weight of each factor is obtained.

4. Enterprise Application Green IT Driving Factor Analysis

4.1. Data Collection

According to the driving factor system of enterprise application of green IT constructed above, 10 experts (including 3 experts and scholars, 5 IT industry workers, and 2 enterprise managers) were given questionnaires, and the degree of impact was scored on a scale of 0~4. The empirical data results of the experts were used for follow-up research.

4.2. Build a Network Diagram

According to the questionnaire survey, the arithmetical average of the scoring results of 10 experts was carried out to obtain the direct influence matrix. According to formula (1)~(3), the impact degree d_i, influence degree r_i, center degree $c_i = d_i + r_i$, and cause degree $h_i = d_i - r_i$ of each dimension and factor are obtained, as shown in Table 2.

ISSN: 2688-8653

Table 2. Center degree and cause degree of driving factors affecting enterprise application of green IT

The dimension	d_i	r_i	d_i+r_i	d_i-r_i	Driving factor	d_i	r_i	d_i+r_i	d_i-r_i
					m_1	2.5007	1.5768	4.0775	0.9239
					m_2	1.3321	2.4633	3.7954	-1.1312
M	1.3914	2.5555	3.9469	-1.1641	m_3	1.3652	2.0511	3.4163	-0.6859
					m_4	1.8066	1.8445	3.6511	-0.0379
					m_5	1.5799	1.873	3.4529	-0.2931
					o_1	1.8243	1.3248	3.1491	0.4995
					o_2	2.0837	1.588	3.6717	0.4957
O	1.9401	1.5658	3.5059	0.3743	o_3	2.7917	1.51	4.3017	1.2817
					o_4	2.3523	1.6373	3.9896	0.715
					o_5	1.5974	2.0652	3.6626	-0.4678
					o_6	1.6228	1.5025	3.1253	0.1203
					a_1	1.8982	2.1964	4.0946	-0.2982
					a_2	1.7917	2.0156	3.8073	-0.2239
A	2.3355	1.5457	3.8812	0.7898	a_3	1.3964	1.618	3.0144	-0.2216
					a_4	1.6668	1.8431	3.5099	-0.1763
					a_5	1.66	2.1602	3.8202	-0.5002

Centering degree d+r and cause degree d-r are respectively taken as horizontal and vertical coordinates to obtain the network diagram of driving factors for enterprise application of green IT, as shown in Fig. 2.

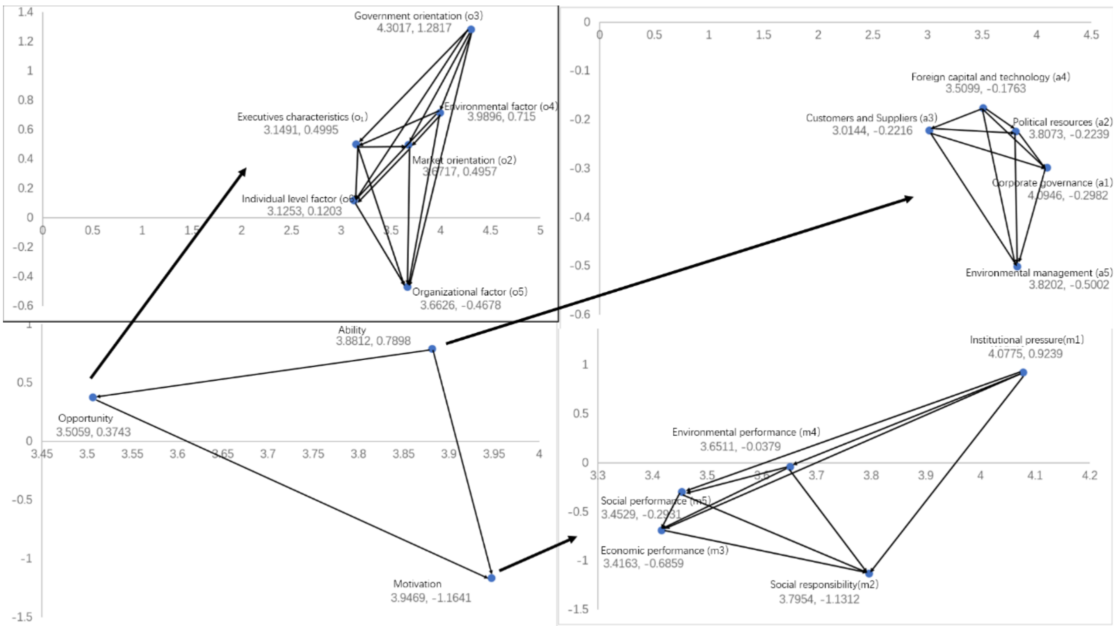

Fig 2. Network diagram of drivers influencing enterprise adoption of green IT

ISSN: 2688-8653

4.3. Calculation of Index Weight

Formula (4)~(9) was used to calculate the unweighted matrix W_{ij}, and then the normalized dimensional comprehensive influence matrix weighted super matrix and unweighted matrix W_{ij} were substituted into Formula (10) to obtain the weighted matrix W^{α}, as shown in Table 3.

Table 3. Weighted matrix W^α among driving factors of green IT application in enterprises

	m_1	m_2	m_3	m_4	m_5	o_1	o_2	o_3	o_4	o_5	o_6	a_1	a_2	a_3	a_4	a_5
m_1	0.0386	0.0501	0.0576	0.0682	0.0658	0.0563	0.0848	0.0959	0.0932	0.0632	0.0628	0.0549	0.0956	0.0653	0.0860	0.0854
m_2	0.0883	0.0556	0.0857	0.0878	0.0954	0.1365	0.1238	0.1182	0.1233	0.1310	0.1196	0.1268	0.1223	0.1256	0.1169	0.1180
m_3	0.0725	0.0693	0.0601	0.0618	0.0614	0.1231	0.0987	0.0958	0.0858	0.1266	0.1079	0.1128	0.1043	0.1254	0.1218	0.0758
m_4	0.0669	0.0732	0.0602	0.0455	0.0689	0.0952	0.1001	0.0955	0.1004	0.0790	0.1077	0.0922	0.0780	0.0790	0.0723	0.1064
m_5	0.0675	0.0856	0.0702	0.0703	0.0423	0.0899	0.0935	0.0953	0.0981	0.1011	0.1028	0.0927	0.0791	0.0840	0.0823	0.0937
o_1	0.0368	0.0398	0.0469	0.0357	0.0357	0.0196	0.0220	0.0272	0.0350	0.0352	0.0402	0.0497	0.0482	0.0519	0.0355	0.0327
o_2	0.0578	0.0529	0.0505	0.0557	0.0637	0.0240	0.0241	0.0393	0.0318	0.0388	0.0281	0.0406	0.0453	0.0615	0.0561	0.0504
o_3	0.0597	0.0478	0.0482	0.0473	0.0459	0.0246	0.0383	0.0224	0.0365	0.0304	0.0245	0.0464	0.0555	0.0445	0.0493	0.0616
o_4	0.0587	0.0590	0.0393	0.0650	0.0625	0.0266	0.0389	0.0403	0.0222	0.0272	0.0309	0.0405	0.0645	0.0386	0.0533	0.0755
o_5	0.0538	0.0719	0.0771	0.0640	0.0660	0.0561	0.0455	0.0418	0.0407	0.0278	0.0534	0.0787	0.0548	0.0791	0.0741	0.0589
o_6	0.0466	0.0419	0.0513	0.0456	0.0396	0.0479	0.0300	0.0278	0.0326	0.0395	0.0217	0.0629	0.0504	0.0431	0.0504	0.0395
a_1	0.0733	0.0844	0.0775	0.0818	0.0850	0.0719	0.0631	0.0621	0.0687	0.0725	0.0784	0.0290	0.0459	0.0520	0.0494	0.0437
a_2	0.0754	0.0626	0.0622	0.0666	0.0773	0.0587	0.0629	0.0621	0.0668	0.0544	0.0578	0.0459	0.0316	0.0395	0.0493	0.0519
a_3	0.0588	0.0585	0.0655	0.0507	0.0640	0.0405	0.0557	0.0508	0.0461	0.0430	0.0433	0.0383	0.0326	0.0227	0.0438	0.0333
a_4	0.0681	0.0561	0.0894	0.0604	0.0530	0.0582	0.0545	0.0597	0.0467	0.0588	0.0423	0.0437	0.0455	0.0520	0.0259	0.0373
a_5	0.0773	0.0913	0.0583	0.0934	0.0736	0.0711	0.0643	0.0657	0.0721	0.0716	0.0787	0.0451	0.0464	0.0358	0.0336	0.0359

The limit $\lim_{h\to\infty}(w^{a})^{h}$ of W^{α} is further calculated to obtain the limit hypermatrix W^{*}, and the weight of each index is shown in Table 4.

Table 4. Influence weights of driving factors influencing enterprise application of green IT

The dimension	Global weight	Weight sorting	Driving factor	Local weight	Weight sorting
			m_1	0.0681	5
			m_2	0.1055	1
Motivation	0.4238	1	m_3	0.089	2
			m_4	0.0793	4
			m_5	0.0819	3
			o_1	0.0379	16
			o_2	0.0473	13
Opportunity	0.2826	3	o_3	0.0446	14
			o_4	0.0489	11
			o_5	0.0609	8
			o_6	0.043	15
			a_1	0.0666	6
			a_2	0.0588	9
Ability	0.2938	2	a_3	0.0486	12
			a_4	0.0547	10
			a_5	0.0651	7

Among them, the weight of social responsibility, economic performance, social performance, environmental performance, institutional pressure, corporate governance, environmental management and other factors are significantly higher than other factors, which are the key factors for enterprises to apply green IT.

4.4. Results Analysis and Suggestions

Under the background of carbon peak and carbon neutral, enterprises' motivation, opportunity and ability to apply green IT influence and promote each other, which is indispensable. The ability dimension has the highest cause degree, which has a significant impact on motivation and opportunity. The motivation dimension has the highest center degree, which is the most important for enterprises to apply green IT. In terms of specific factors, the driving factors (d-r >0) can be ranked from high to low according to the research results, including government orientation, institutional pressure, environmental factor, executive characteristics, market orientation, and individual level factor. All other factors are result factors (d-r <0). Among the cause factors, the government orientation cause degree is the highest, which has great influence on other factors. Among the result factors, social responsibility has the lowest cause degree and is affected by many factors. Among the 7 key factors obtained by ranking the weight of indicators, social responsibility, economic performance, social performance, environmental performance and institutional pressure belong to the motivation dimension, while corporate governance and environmental management belong to the ability dimension. By analyzing the research results, the following conclusions and suggestions can be obtained:

(1) Formulate relevant policies and regulations to support the development of green IT industry. Government orientation is the driving factor with the highest cause degree and has a great influence on other factors. Government orientation is also the direction of the development planning of green IT industry and the formulation of relevant policies, which has a great influence on the green IT industry. The use of green IT can effectively reduce greenhouse gas emissions, which is of practical significance to achieve the strategic goal of carbon peak and carbon neutrality. Therefore, the government needs to realize the promotion effect of government orientation on the application of green IT, and do a good job in the development planning of green IT industry. Relevant preferential policies will be given to the green IT industry to promote the popularity of green IT products and technologies. Institutional pressure is a key factor in the motivation dimension, and it provides the possibility for enterprises to maintain sustainable development. Different from the general sense of information technology and services, the application of green IT by enterprises has obvious institutional pressure. The intensity of institutional pressure on enterprises is closely related to their adoption of green IT [4]. Therefore, the government should investigate and formulate reasonable policies to not only reduce the negative impact on the environment, but also enable enterprises to gain development from IT.

(2) Increase investment, use green IT products and technologies, and train IT talents. Realize the popularity of green IT, need to deal with old IT equipment, also want to green IT equipment procurement, corresponding technical talents, also need to invest a lot of money and resources necessary to support projects, dealing with the possible risk in the project, sufficient funds can ensure the success of the enterprise application of green IT. Economic performance and environmental performance are two key factors in the motivation dimension. The application of green IT by enterprises can reduce costs, save energy and improve efficiency. Green IT has a positive impact on the economic performance of enterprises while reducing the negative impact on the environment, so that the development and social responsibility of enterprises can be satisfied. Ability is a necessary condition for enterprises to apply green IT, and corporate governance is the most important factor in Ability. The application of green IT in enterprises requires that the managers themselves have enough IT literacy, which requires enterprises to

ISSN: 2688-8653

strengthen the cultivation of IT talents, strengthen the introduction of talents, set up a special IT technology team, track and learn the latest green IT technology, and apply the latest green IT technology into practice.

5. Conclusion

In this paper, the MOA theoretical framework model is applied to the analysis of enterprise behavior, emphasizing the importance of considering motivation, opportunity and ability in the application of green IT in the context of carbon peak and carbon neutral, and the driving factors of enterprise application of green IT are integrated. The application scope of MOA theoretical model is extended and the research has theoretical value. On the basis of MOA model, DEMATEL method was used to construct the network diagram of dimensions and driving factors, and analyze the interaction between dimensions and factors. The DANP method is adopted to calculate the index weight and identify the key factors, which not only reflects the relationship between the factors influencing each other, but also avoids the shortcomings of ANP method. The analysis results are more reasonable and scientific, and the relevant conclusions and suggestions provide reference for enterprises to apply green IT.

References

[1] Long Can. The Classification and Application Status Analyse of Green IT Technologies[J]. Computer Systems & Applications,2008(08):124-127.

[2] Chen Zeqian. The Formation, Development and Core Constructs of MOA[J]. Research on Library Science, 2013(13):53-57.DOI:10.15941/j.cnki.issn1001-0424.2013.13.017.

[3] Jiang Xiao, Ji Shaobo. Corporate green IT Adoption based on Institutional pressure and corporate social responsibility[J]. Lanzhou Academic Journal,2015(12):192-196.

[4] Tian Hong, Wang Yufei. The Impact of Corporate Environmental Strategy on Corporate Triple Performance [J]. Journal of Xi'an Jiaotong University(Social Sciences), 2019,39(04):19-26. DOI: 10. 15896/j. xjtuskxb.201904003.

[5] Wu Dejun. Research trends of green innovation at home and abroad[J]. Friends of Accounting, 2019 (16): 2-7.

[6] Kang Lele, Wang Xiang, Yang Xue, Yang Zeru. Theoretical Model of Corporations' Green IT Practice [J]. Network Security Technology & Application,2012(06):45-48.

[7] Yang Zhaojun, Ma Shuangning. Reviews on Adoption, Implementation and Environmental Performance of Green IT/IS[J]. World Sci-Tech R & D,2014,36(04):470-475+483.

[8] Wang Li, Wang Longwei. How Does Green Management Affect Corporate Financial Performance?--Effects of Strategic Orientation and Technological Uncertainty[J]. R&D Management, 2018, 30 (06): 34-46. DOI:10.13581/j.cnki.rdm.2018.06.004.

[9] Wen Xin, Yang Mengke, Wang Lei. The Research on ldentifying the Key Factors that Influence the Virtual Community Knowledge Sharing Based on DANP Methodology[J]. Journal of Modern Information, 2018, 38(12):57-64+69.