

The Configuration Effect of Corporate Social Responsibility Based on Digital Transformation Perspective

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ABSTRACT

In order to analyze the complex causal mechanism of multiple antecedents of high corporate social responsibility (CSR) in the context of digital transformation, this study takes configuration mind and uses qualitative comparative analysis (QCA) methods to explore the group effects of factors influencing the level of CSR with a sample of 100 manufacturing enterprises. Results show: single element does not constitute the necessary condition of the high SCR. There are five different conditional configurations of the high level of CSR in manufacturing enterprises and three influence models. The result enriches the research of CSR field and provides path guidance for manufacturing enterprises to improve CSR level and realize sustainable development.

Keywords: Corporate social responsibility, Digital leadership, Policy support, Manufacturing enterprise.

1. INTRODUCTION

Since the reform and opening up, enterprises in various industries have flourished as bricks that build China's economy up. However, a series of phenomena have also emerged that harm the interests of stakeholders and society due to excessive profit-seeking of enterprises, weak awareness of social responsibility of managers, and poor government supervision^[1]. In recent years, accompanying with strengthening of awareness of environmental protection and laws, social requirements for corporate social responsibility activities are getting higher and higher^[2], even some talents consider CSR as valuable as salary, welfare and vacation when choosing a company^[3]. In addition, government regulators are also paying more and more attention to CSR, and relevant institutional regulations are being strengthened^[4]. In particular, as China's economy is in the stage of high-quality development, corporate social responsibility has become a hot issue of common concern among government, academia, and enterprises at the micro level.

With the rapid development of emerging digital technologies represented by big data, artificial intelligence, blockchain and Internet of Things, China has ushered in a new round of technological and industrial revolution. Digital technology provides a powerful engine for high-quality enterprise development,

marks enterprises in various fields have entered the exploration and development stage of digital transformation. At the same time, the information of enterprises is more open and transparent by virtue of the decentralized nature of blockchain and other technologies, which improves the level of CSR to a certain extent^[5].

According to the CSR reports of listed companies released by Runling Global from 2009-2019, it can be seen that the number of CSR reports disclosed by listed companies has been increasing year by year, and the overall score has been increasing year by year, but the overall quality is still low. Although enterprises need to pay certain costs to fulfill their social responsibility, which superficially reduces their short-term benefits, it has a positive impact on their long-term earnings and sustainable development^{[6][7]}.

It can be seen that exploring the factors affecting the fulfillment of corporate social responsibility is conducive to the benign transformation and sustainable development of enterprises. However, most of the studies on CSR are mainly from a single theoretical perspective, confined to the linear causality mindset, focusing on the independent influence effects or mediating and regulating roles of each factor on it^[8], and lacking a

holistic and set-theoretical perspective to explore the complex interactions among many factors.

Therefore, this study selects suitable multi-sample cases, and on the basis of fuzzy qualitative comparative analysis (fsQCA), attempts to integrate three levels: individual, organizational, and external policies, so as to reveal the overall architecture of the internal and external conditions of enterprises that jointly influence the CSR, and further explore the paths of fulfilling social responsibility, as well as the combination of explanatory factors behind different paths.

2. MODEL CONSTRUCTION

2.1. Individual Level

Overseas Background of Executives. As executives with overseas backgrounds have been educated and nurtured by advanced CSR theories abroad, they will pay more attention to CSR^[9]. Based on a study of some companies in China, some scholars argue that compared with executives without overseas experience, those with international experience have a stronger sense of social responsibility. In addition, some scholars have conducted relevant research on CSR information disclosure, and found that the number and percentage of executives with overseas background are positively related to the quality of CSR information disclosure. It can be seen that executives with overseas background still pay attention to CSR after they come or return to China, and influence the whole enterprise through their decision-making behaviors.

Digital Thinking of Executives. Based on the high-level echelon theory, top leaders of organizations make individualized decisions and behaviors based on their personal characteristics when faced with a certain situation, thus influencing the strategy and development of their enterprise^[10]. In the context of the trend of convergence between digital economy and manufacturing industry, executives differ in developing strategies for products and services of enterprises empowered by digital technology due to their different digital thinking. In the era of digital economy, the use of digital technology not only improves efficiency, but also strengthens the production safety of manufacturing enterprises to a certain extent, such as visual production monitoring, traceability tracking, blockchain-based information protection functions, etc., thus improving the level of CSR^[11].

Education Level of Employees. Employees can combine their knowledge and skills with the external environment, which affects the culture and long-term development of the enterprise^[12]. The quality level of employees is a key indicator for the recruitment of enterprises, and one of the important criteria is their education level. It has been proved that, on the whole, the

higher the education level of employees, the higher their comprehensive quality and more far-sighted. High-level education can provide individuals with more specialized knowledge and skills, allowing them to think more broadly and long-term, and to be more responsible in dealing with problems.

2.2. Organizational Level

Organizational Structure. It is a structure of authority and responsibility developed in the management process, including mechanical structure and organic organizational structure^[13]. The mechanical organizational structure is highly formalized, standardized, and centralized, in which strict rules and regulations exist and authority is concentrated at the top. In contrast, organic-style organizations, by virtue of their flat, flexible, and decentralized characteristics, have better communication within the organization and employees' opinions are more easily conveyed to their superiors. One of the important points for enterprises to have a high level of social responsibility is to listen to employees' opinions, protect their rights and interests. However, when traditional manufacturing enterprises explore the application of digital technology, the standardized norms of mechanical organization can effectively stabilize the impact effect of random factors on the production system, thus avoiding a bad impact on the external social environment.

2.3. External Policy Level

Qualification Confirmation of High-tech Enterprises. The willingness of enterprises to assume social responsibility is largely related to their external environment. In the context of the digital economy, policy benefits are tilted toward high-tech enterprises. The purpose of government subsidies and tax incentives is to encourage and drive the innovative output of enterprises, while also conferring greater social responsibility on these enterprises^[14]. However, some scholars argue that the policy of recognizing high-tech enterprises results in enterprise rent-seeking behavior, some enterprises do not really invest in green digital innovation but manipulate R&D expenditures to maintain the recognition conditions, which has not produced substantial social benefits to society^[15].

We fuse the above factors into a group model with the following model diagram:

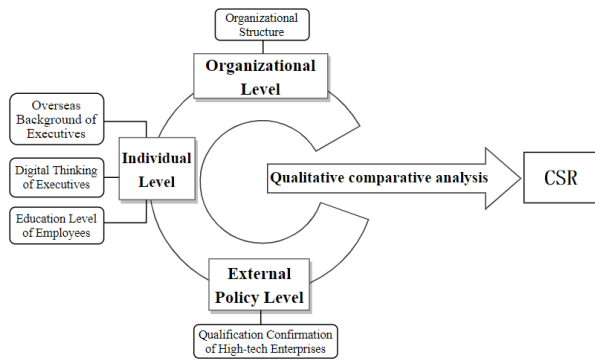


Figure 1 Theoretical model.

3. STUDY DESIGN

3.1. Research Methodology

Qualitative comparative analysis (QCA) is a set theory group analysis method based on Boolean algebra and oriented to inductive analysis of cases to find out the set of multi-factor conditions that affect the case results through inter-case comparison, including multiple sufficient and necessary conditions. QCA method includes clear set qualitative comparative analysis (csQCA) and fuzzy set qualitative comparative analysis (fsQCA). Since some variables are continuous variables, fuzzy sets are used in this paper for the study^[16].

3.2. Data Collection

We randomly selected 50 companies in the top 27% (code “1”) and 50 companies in the bottom 27% (code “0”) of the 2019 CSR reports of listed companies published by Runling Global as the study sample. Executive and employee data were obtained from the CSSAR database and computationally processed.

3.3. Variable Measurements

Overseas Background of Executives (EO). The proportion of executives with overseas background to the total number of executives.

Digital thinking of Executives (ED). The proportion of executives with digital professional background was used as a measure of executives’ digital thinking.

Employee Education Level (EM). The proportion of employees with a bachelor’s degree or above was used as a measure of employees’ education level.

Organizational structure (OR). Mechanistic organizations were coded “1” and organic organizations were coded “0”.

High-tech Enterprise Qualification (HT). High-tech enterprises were coded “1” and “0” otherwise.

4. QCA CONFIGURATION ANALYSIS

4.1. Fuzzy Set Calibration

The calibrated variable values are transformed into fuzzy values in the range of 0 to 1. In this study, organizational structure and qualification are dummy variables, so calibration is not required. The remaining three variables are set to fully affiliated, intermediate, and fully unaffiliated values respectively based on 95%, 50% and 5% quantiles of the sample data.

4.2. Necessary Conditions Analysis

The results of the necessary condition analysis are shown in Table 1. It can be seen that no variable has a consistency value above 0.9, which indicates that corporate willingness to take social responsibility is a complex process of multi-factor interaction that requires the linkage and interplay of individual, organizational and external policy support to jointly influence the level of CSR.

Table 1. Necessary conditions analysis

Antecedent conditions	Result Variables	
	Corporate Social Responsibility	
	Consistency	Coverage
EM	0.499	0.571
~EM	0.501	0.472
EO	0.466	0.560
~EO	0.534	0.484
HT	0.500	0.451
~HT	0.500	0.605
OR	0.239	0.550
~OR	0.760	0.507
ED	0.428	0.560
~ED	0.571	0.489

4.3. Conditional Configuration Analysis

In the conditional configuration analysis, we set the sample number quantity value of configuration coverage as 1 and the consistency threshold value as 0.7 based on the sample characteristics and theoretical analysis. The results are shown in Table 2, which are plotted on the basis of the parsimonious and intermediate solutions. It can be seen that the consistency of the five paths obtained by the joint action of overseas background of executives, digital thinking, education level of employees, organizational structure, and qualification of high-tech enterprises is above 0.7, indicating that all five paths are sufficient conditions for high CSR. The overall consistency of the five paths is 0.78, indicating that 78%

of all manufacturing firms that meet these 5 categories of conditional configurations achieve a high level of CSR. The overall coverage is 0.62, indicating that these 5

categories of configurations can explain 62% of the manufacturing firms with high CSR.

Table 2. The configuration results

Antecedent conditions	High Corporate Social Responsibility				
	Path 1	Path 2	Path 3	Path 4	Path 5
EM		●	⊗	●	●
EO	⊗	●		⊗	●
HT	⊗	⊗	⊗	⊗	●
OR	⊗	⊗	●	●	●
ED	●		●	⊗	●
consistency	0.765	0.714	0.727	0.826	0.829
solution coverage	0.621				
solution consistency	0.784				

Note: ● is a symbol for the core condition, ● is a symbol for the edge condition, ⊗ is a symbol for absence of the core condition, ⊗ is a symbol for absence of the edge condition, and "blank" indicates that the condition may or may not exist.

Since there is overlapping coverage in QCA, we further combine the above five types of groupings with the same core conditions in the intermediate solutions according to the simplistic solution consistency logic, and finally obtain three higher-order configurations of high social responsibility of manufacturing enterprises: ~EO*ED, EM*EO and EM*OR. As can be seen from the table 2, the qualification of high-tech enterprises does not appear in any of these 3 higher-order configurations, indicating that it is not an important antecedent variable affecting the social responsibility of manufacturing enterprises.

(1) Digital-oriented model (~EO*ED). The core conditions in this model are non-foreign executives and their digital mindset. This configuration suggests that local executives with a digital mindset are better able to promote CSR in listed manufacturing companies. Local executives understand the national context better, focus on practical work, and use digital thinking to improve the digital transformation, which contributes to the green development of enterprise.

(2) Quality culture model (EM*EO). The core conditions in this model are the education level of employees and the overseas background of executives. This configuration suggests that in listed manufacturing companies, a better education among executives and employees can contribute to the fulfillment of CSR. Both executive and employee cultural cultivation influence the

overall corporate culture and, accordingly increase the willingness of companies to be socially responsible.

(3) Functional cooperation model (EM*OR). The core conditions in this configuration are the level of education of employees and the organic organizational structure. This configuration shows that the higher the competency of employees, the higher the level of corporate social responsibility in a democratic and well-informed platform.

5. CONCLUSION

We selected 100 manufacturing enterprises as the research objects, used the research method of fuzzy set qualitative comparative analysis to organize the framework of antecedent factors, focused on the group effect analysis, and teased out the paths of taking CSR.

The results show that: (1) the formation of high social responsibility level of manufacturing enterprises includes five micro-paths including individual and organizational level factors, and each path has alternative characteristics, indicating that the social responsibility level of manufacturing enterprises is the result of the combined effect of multiple antecedent factors; (2) This study innovatively proposes three influence models of high social responsibility level of manufacturing enterprises in the context of digital transformation, which are digital orientation model, quality culture model and functional cooperation model. model and functional cooperation model.

AUTHORS' CONTRIBUTIONS

The findings of this paper enrich the related research on CSR, and have some implications for traditional manufacturing enterprises to improve CSR level and promote sustainable development from both individual and organizational levels in the context of enterprise digital transformation. In order to consciously fulfill social responsibility and actively improve the level of CSR, regulation and policy support from the external environment only play a supporting role, while the internal digital mindset of executives, the quality connotation of employees and the organic organizational structure are the keys to sustainable development of enterprises.

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