Direct Effect of Technology, Human Resource Flexibility, Leadership and Culture on Firm Performance

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Abstract

The objective of this study is to examine the direct effects of Technology, HR Flexibility, Leadership and Culture on firm performance. This study is based on a structured mail survey questionnaire to HR managers in the manufacturing industry. The direct effect of these variables on firm performance is empirically tested using data collected from companies listed in the Federation of Malaysian Manufacturers directory. Direct effects of each independent variable on the dependent variable are evaluated with using structural equation modeling- Partial Least Square method. Technology, Human resource flexibility and leadership were found to have positive significant relationship with firm performance. The overall findings indicate a significant positive relationship between technology, human resource flexibility, leadership on performance, providing support and extension to the resource-based view (RBV).

Keywords: Technology, HR Flexibility, Leadership, Culture, Firm Performance, Malaysia.

Introduction

The increasing pressure causing by rapid changes happening in the business world, such as globalization of production and markets, fluctuation in consumer demands and faster rate of technological innovation, push up the dynamism of the business competitive environment, therefore forced the industrial organizations to make various kind of responses to meet the challenges. There is intensified interest by business firms in the western developed world in search of organizing employment to enhance organizational performance. Since firm performance is one of major organization goals, much of the independent variables have been focusing on the relationship between technology, human resource flexibility, leadership, culture and firm performance. The main aim of employer in introducing the new innovations has been to attain/retain competitive advantage in increasingly complex product markets. The product markets experienced the intensified and increasingly differential pressure, introduction of new innovations allowed much more varied response to this pressure, demanding greater attention to quality and customization. Hence, such response pushes for development of new production system with greater flexibility, enhanced employee involvement in decision-making and emphasis on team working. Hence, this study examines the relationship between the independent, and dependent variables, on the respective relationship between technology, human resource flexibility, leadership, culture and performance.

Literature Review

Technology

Technology is a key environmental factor, closely linked with the organization of work and work processes [1,2] have reported that the relationship between different employment modes, specifically knowledge-based employment and job-based employment, and firm (financial) performance, vary across levels of technological intensity. Technology imposes certain requirements that influence the optimal mix of human resource policies to be
applied, and hence the potential impact on firm’s operational performance. Advanced production technology means applying the latest scientific or engineering discoveries to the design of production processes'. Information technologies have been the driving force in the evolution of production technology [3].

**Human Resource Flexibility**

Consistent with research on strategic flexibility [4] and dynamic capabilities [5], organizational and strategic management scholars contend that one of the most crucial managerial roles is to develop the firm’s capacity to respond quickly to changes in customer and competitive demands, as well as to emerging market threats and opportunities [6]. Human resource management scholars have extended these ideas to human resource management, proposing that HR flexibility may be instrumental in fostering the capacity of firms to be responsive to changes in market demands, be adaptive, and operate successfully in dynamic environments, and thus may positively influence firm performance [2, 7]. The most comprehensive description of the HR flexibility construct was presented by Wright and Snell [7], who conceptualized HR flexibility as a firm-level capability consisting of (1) people who possess a variety of skills and behavioral repertoires and (2) the HR practices that can be used to effectively utilize those people to be responsive to changes in market demands, be adaptive, and be successful in a dynamic environment. Building on the work of Sanchez [4], Wright and Snell identified human resource flexibility and coordination flexibility as two general types of HR flexibility and proposed that HR practices, employee skills, and employee behaviors could be characterized in terms of these two general types.

**Leadership**

A great deal of scholars over the past 30 years has been devoted to the analysis and comparison of different leadership styles. Much of this work has dealt with transactional [8,9], transformational [8,9], and charismatic leadership [10], whereas more recent work is beginning to address styles and approaches such as authentic [11], servant [12], and responsible leadership [13].

These efforts have provided a better understanding of how the influence of leadership styles is reflected in individual, team, and group performance outcomes. Knowledge of strategic leadership is essential as the role has become more critical and the demands have increased in complexity. Strategic leaders are no longer responsible for simply maximizing shareholder wealth, but instead are expected to meet an increasing array of stakeholder expectations. From sustainability initiatives to socially driven demands from customers, strategic leaders and their top management teams (TMTs) are trying to meet the challenges of diverging stakeholder expectations. Previous research by Thomas [14] found that leadership by CEOs had substantial impact on firm profit and sales, which represented a departure from the Lieberson and O’Connor [15] view. With the development of upper echelons theory [16], it was argued that “executives’ experiences, values, and personalities greatly influence their interpretations of the situations they face, and, in turn, affect their choices” [16]. These choices, in turn, influence organizational performance.

**Culture**

Culture has been characterized as “something to do with the people and unique quality and style of organization” [17], “the way we do things around here” [18], or the “expressive non-rational qualities of an organization”. The beginnings of formal writing on the concept of organizational culture started with Pettigrew [19]. He introduced the anthropological concept of culture and showed how related concepts like “symbolism”, “myth” and “rituals” can be used in organizational analysis. Dandridge, Mitroff and Joyce [20] showed how the study of these myths and symbols aid in revealing the “deep structure” of an organization. More recent researchers introduced various definitions of the culture concept.

The introduction of the concept of organizational culture has generally been attributed to several individuals, including
Hofstede [21] and Schein [22]. Although organizational culture has been defined in various ways, the definitions share a common view that “culture consists of some combination of artifacts (also called practices, expressive symbols, or forms), values and beliefs, and underlying assumptions that organizational members share about appropriate behavior” [23]. Culture, therefore, is an explanatory variable that distinguishes one organization from another [24]. Literature on organizational culture commonly focuses on two major aspects of culture: content, which signifies the types of values and behaviors held by members of a firm, and strength or the depth and breadth of those behaviors embedded among the members. As such, both strength and content of culture are important for achieving a high level of performance [25,26].

**Firm Performance**

Operational performance is a main antecedent of financial performance, and organizations often have more control over this in contrast with the financial performance which is often influenced by external factors including the macroeconomic conditions. Firms are now required to achieve a high level of performance across various dimensions of competitive performance (such as organization focus on quality and flexibility and control for innovation) and, the argument is made that only those who can achieve high performance across multiple dimensions will prosper [27]. As such, it is important for firms to know what cultural elements/characteristics are most closely associated with performance excellence in different dimensions. The performance measures focus on quality and flexibility and control for innovation, based on their recognition over the past two decades as major components of competitive performance [28, 29].

Studies have shown that there is a significant relationship between technology, human resource flexibility, leadership, and culture. Indeed, technology, human resource flexibility, leadership, and culture are regarded as good predicting variables for the variance in a firm’s performance.

**Relationship Culture, Leadership and Organizational Effectiveness**

Organizational culture and transformational leadership have been theoretically and empirically linked to organizational effectiveness. During the 1990s a number of comparative studies on the culture-performance link showed that certain culture orientations are conducive to performance [36]. As far as transformational leadership is concerned, Bass [8] has suggested that transformational qualities lead to performance beyond expectations in organizational settings; research has empirically demonstrated that there is a relation between transformational attributes and organizational measures of effectiveness [13].

Bass and Avolio [37] have argued that leadership and culture are so well interconnected that it is possible to describe an organizational culture characterized by transformational qualities. The literature on transformational leadership makes an attempt to approach leadership as a social process by putting emphasis on how leaders stimulate their followers to transcend their own self-interests for the sake of their team and the larger organization. Transformational leaders are typically described as those who inspire their followers to adopt goals and values that are consistent with the leader’s vision. According to Bass [8], transformational leaders do work within the culture as it exists but are primarily concerned with changing organizational culture.

Bass [8] proposes that transformational leadership promotes a working environment characterized by the achievement of high goals, self-actualization, and personal development. With regard to the joint effect of organizational culture and transformational leadership on organizational performance, Ogbonna and Harris [38] found that supportive and participative leadership (including employee potential and performance) were indirectly
and positively linked to performance via the innovative and the competitive cultures, whereas instrumental (task oriented) leadership had an indirect negative effect on performance.

Based on these conceptual and empirical studies and findings, the hypotheses forwarded are as follows:

H1a: There is a significant positive relationship between technology and performance.
H1b: There is a significant positive relationship between human resource flexibility and performance.
H1c: There is a significant positive relationship between leadership and performance.
H1d: There is a significant positive relationship between culture and performance.

Methods

This study takes the approach of hypothetico-deductive method of research, it involves the seven steps, namely: observation, preliminary information gathering, theory formulation, hypothesizing, further scientific data collection, data analysis and deduction. According to Burrell and Morgan [39], quantitative approach is basing research upon systematic protocol and technique, which focuses upon the process of testing hypotheses in accordance with the canons of scientific rigour. In this approach, it applies the statistical techniques for the analysis of data, which are gathered primarily from structured questionnaires and cross-sectional surveys. In the study of relationship of independent variables and the HPWS, a survey might be the most appropriate method, by requesting the HR managers to fill out a questionnaire.

The population of this study is HR managers in the manufacturing firms in Malaysia. The research population covered companies listed on Federation of Manufacturers in Malaysia directory. The questionnaires were addressed to the company’s Human Resource manager designated to be appropriate to provide the answer. This approach is consistent with several previous studies concerning survey respondents [40].

Data was collected via survey questionnaires from the HR management of the firm. In this survey, we collected three categories of information: Direct use of these variables in company’s practices, organization contextual variable (firm’s size), and company performance.

The survey questionnaire was initially put on pilot study and the reliability analysis of each variable was assessed for statistical significance. Then the final questionnaires were sent out to the firms as listed in FMM directory. A total of 165 responses were received, giving a response rate of 7.7 percent. With reference to previous studies on firm’s performance reviewed by Becker and Huselid [41], the response rates obtained ranging from 6 percent to 28 percent is acceptable.

Direct effects of each independent variable, i.e. technology, human resource flexibility, leadership and culture on dependent variable i.e. firm performance are evaluated using structural equation modeling applying the Partial Least Square method.

Findings

Direct Effect of Technology on Firm Performance

The results showed that technology has direct positive effect on firm performance ($\beta = 0.186$, $p < 0.01$). The result is consistent with previous research findings, Greenan and Guellec [42] studied on the use of specific technologies and to firms performance, and the use of advanced technologies and the skill of the labor force are positively linked to organizational variables. According to Zahra and Covin [43], the study shown that technology policy choices vary widely across firms with different business strategies, and that business strategy affects the strength of the relationship between firm performance and particular technology policies. Therefore, this finding does validate the hypothesis 1a.

![Figure 1: Direct effect of technology on firm performance](image-url)
Direct Effect of Human Resource Flexibility on Firm Performance

The results showed that human resource flexibility has a direct positive effect on firm performance ($\beta = 0.363, p < 0.01$). The result is consistent with previous research findings, According to Ketkar and Sett [44], found existence of significant direct effects highlights the important role that HR flexibility play as a structural mechanism in achieving superior firm performance. Therefore, the results verify HR Flexibility has direct influence on performance, and this study validates hypothesis 1b.

![Figure 2: Direct effect of HR flexibility on firm performance](image)

Direct Effect of Leadership on Performance

The results showed that leadership has a direct positive effect on performance ($\beta = 0.201, p < 0.01$). The result is consistent with previous research findings, for example Thomas [14] studied on the impact of chief executive officers on corporate performance, and provided evidence that individual leaders do make a difference on organizational performance. Therefore, the results verify leadership has direct influence on performance, and this study validates hypothesis 1c.

![Figure 3: Direct effect of leadership on firm performance](image)

Direct Effect of Culture on Firm Performance

The results showed that culture has no direct positive effect on performance ($\beta = 0.109, p < 0.01$). The result is not consistent with previous research findings, such as Lee and Yu [45] made an investigation on the relationships between corporate culture and organizational performance, and culture was found to impact a variety of organizational processes and performance. While more research remains to be done in this area, this study has demonstrated the power of culture in influencing organizational performance. Therefore, this study did not validate the hypothesis 1d.

![Figure 4: Direct effect of leadership on firm performance](image)

Conclusion

The overall findings indicate a significant positive relationship between technology, human resource flexibility, leadership on performance, providing support and extension to the resource-based view (RBV). This study has specifically managed to contribute to the literature of strategically managing technology, human resource flexibility, leadership and culture towards the attainment of organizational performance by exhibiting a model of statistically significant relationships between the specified variables. The theoretical implication of this study is that it supports and extends the RBV of superior advantage by illustrating the need for systematic management of resources and capabilities towards attaining competitive advantage. However, the implications of these findings do not mean that the culture is not important factor and/or elements impact for attaining competitive advantage and/or enhancing firm performance. It specifically reflects the perceived priorities of the Malaysian manufacturers for the importance and ranking of these particular variables (technology, human resource flexibility, leadership, and culture) collectively towards achieving competitive advantage and improving firm performance. From the practical aspect, the findings from this research have contributed to the management of organizations in terms of providing valuable input and awareness on the factors or variables to consider as far as attaining competitive advantage and
improving firm performance are concerned. The research illustrates, with empirical evidence, that it is vital for organizations to have sound technology, human resource flexibility, leadership, and corporate culture to support both their internal systems and resources towards achieving competitive advantage and enhancing the firm's performance. In other words, to attain competitive advantage firms need to improve their technology and production capabilities, and also enhance human resource flexibility in terms of the skills for manufacturing process and standard operating procedures (SOP). In addition, to enhance the firm's performance, organizations need to further improve their levels of input resources, especially physical and human resources, furthermore to adopt Performance-related compensation scheme in their operation, and also integrate all stakeholders, including their suppliers and distributors. This study shows the necessity of strong leadership, as well as establishing a systematic management policy to organize firms' technology and human resource flexibility that can be change-over into competitive advantage and enhanced performance. Technology (production technology and

References


technology intensity of the industry) and human resource flexibility (functional, behavior flexibilities and skill malleability) that are well managed by the leadership and culture (organization focus and flexibility and control) provide the management of organizations with vital tools to attain competitive advantage (cost-based, product-based and service-based) and eventually enhance firms' performance (sales-based and / or firm's-based).

This cross-sectional study is confined to Malaysian manufacturers listed in the FMM Directory 2015 [46]. Hence, manufacturers that are non-members of the FMM are excluded in the sampling frame. The generalizability of the study's findings has to be made with caution. Adopting a longitudinal study can be considered, provided sufficient time and financial support, to address on the issues of dynamic resource-based strategy [47]. In addition, in order to gather information and result that can be more specific to a particular industrial sector, other future studies should consider applying single sector industrial listing instead.


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