

Management Review: An International Journal, 14(1), pp. 1-100 (June 30, 2019).

ISSN: 1975-8480
Volume 14 · Number 1 · Summer 2019

Management Review:

An International Journal

KINFORMS

Management Review: An International Journal, 14(1), pp. 1-100 (June 30, 2019).

Abstracted in ProQuest
Abstracted in Google Scholar



Management Review: An International Journal
June 30, 2019
ISSN: 1975-8480

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The Constrained and the Unconstrained Strategist: A View of the Firm

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Received Apr. 25, 2019, Revised Jul. 19, 2019, Accepted Jul. 28, 2019

ABSTRACT

With many views of the firm (e.g., resource-based, knowledge-based, strategy-based, and entrepreneurial), there been little discussion, if not at all, regarding the strategists and their view of the firm. Strategic leaders' view of the firm ultimately directs strategies and business models with either flexibility or rigidity. This research extensively described constrained and unconstrained strategists and their view of the firm under the auspices of market uncertainty. These two contrasting views of the strategist, regardless of their perceived merits or demerits, can have advantageous or devastating effects on strategy and market positioning in the long and short run. Effective strategic leadership requires a commitment from the organizational ranks (e.g., upper echelon) to resources, human and social capital, and psychological risks. The goal was to build a theory for academics and provide insight for the practicing strategist.

Keywords: *Constrained and unconstrained strategy, strategic flexibility, strategic leadership, management*

INTRODUCTION

Management and strategy theorists have often explained the actions of the firm without considering the strategist's vision and his or her impact on a firm's strategic type, flexibility, approach, and market decision or trajectory. Relatedly, it was once said that a strategy "walks on two feet, one deliberate, the other emergent" (Mintzberg & Waters, p. 271). To date, management and strategy theories need a categorization of strategists to illuminate the differences between a constrained strategist and an unconstrained strategist and their vision and ideological impact and response to enterprise flexibility and or direction of the business firm (Grote, 2019). Because strategy can be thought of as deliberate or emerging, this notion implies there are differences between strategists. With this dichotomy between a constrained and an unconstrained strategist, the current study attempts to develop a theory that provides insights into those who create, control, direct, and lead strategic initiatives in the firm.

To date, there have been proponents of the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984), knowledge-based theory of the firm (Grant, 1996; Sveiby, 2001), entrepreneurship of resource-based theory (Alvarez & Busenitz, 2001), and strategy theory of the firm (Phelan & Lewin, 2000). However, strategic management theory does not acknowledge the implicit views of strategic choices and types that are manifest by strategists' views (Shoemaker et al., 2018). It is theorized in the current paper that, indeed, it is the strategist's view and his or her perceptions, visions, assumptions, and values that underlie his or her view of the firm, which impacts the strategy of a firm. Dichotomization of the strategist's decision making, interpretation, vision, and view as affecting the firm's implicit or explicit trajectory has been implied

and never elaborated in the strategic approach and decision making of the firm in the long-standing management and strategic literatures (Miller, Kets De Vries, & Toulouse, 1982; Miller & Toulouse, 1986; Mintzberg, 1973; Peterson, Smith, Martorana, & Owens, 2003; Shoemaker et al., 2018; Grote, 2019).

Minzberg and Waters (1985) and McCarthy (2003) referenced actions derived from management as being entrepreneurial. Giberson et al. (2009) referred to them as charismatic leaders. If we fast forward, now firms call for continuous increase in performance, thus requiring all levels of the firm to be innovative and entrepreneurial. This current paper addresses how to dichotomize strategists based on their explicit or implicit vision as it relates to a view of the firm, which is centered on its strategic risk tolerance. Strategists might be entrepreneurial, but if their risk tolerance is low, they will have a constrained view of the firm direction and constrained actions derived from this view of the firm. How do organizations make critical market evaluations that align with strategic decisions has been questioned by a few theorists (Mintzberg & Waters, 1985; Grote, 2019). Can these views assist in understanding the nature of strategic flexibility or risk-averse behaviors? Therefore, it is this study's objective to define, frame, and place into context a nascent theory called the constrained and unconstrained strategists' view of the firm.

The current research uses strategic leadership, upper echelon theory, and enterprise flexibility as the theoretical bases for developing a conception of a strategist's view and its implications on a firm's strategic approach. Mintzberg and Waters (1985) saliently provided seven types of strategies that are used as reference: planned, entrepreneurial, ideological, umbrella, process, unconnected, and imposed. While Mintzberg and Waters described the types of strategies, they did not dichotomize the views that distinguish the view of the strategist. For example, if a firm's

leadership is approaching a strategy type—be it planned, imposed, ideological, or entrepreneurial—do the strategists already have a preconceived view? Does their constrained or unconstrained view inform the choice of strategy type, direction, resource allocation, and/or market trajectory? The constrained and unconstrained view of the firm theory informs and builds on the strategy types developed by the conceptualization of enterprise flexibility both by Mintzberg and Waters (1985), Volberda (1999), and Sharma and Jain (2010).

The connection between strategic leadership and enterprise flexibility was alluded to by McCarthy (2003) who presupposed that power, personality, crises, and life cycle changes inevitably produce strategy formulation. To add, strategic theorists have not examined organizational leadership ideology related to strategic decision-making (Mintzberg and Waters, 1985). As long as there are differences between leaders' ideals and philosophies, direction, power structure, use of resources, and strategy type, in many firms, there arises a conflict of visions (Sowell, 2007). This conflict in ideologies has implicit and explicit impact on future strategic approaches, strategic choices, and view of the firm. A constrained and unconstrained—approach to strategy formulation and differences in views have real disparities in implications for the firm. The dearth of literature linking strategic leadership and enterprise flexibility from the strategists' view of the firm elicits more attention both theoretically and practically.

This literature review offers insights on strategic leadership, constrained and unconstrained views, a theoretical framework, discussion and propositions, and conclusion. This literature review describes and operationalizes constrained and unconstrained strategists and their view of the firm. It also reveals a careful examination and explication for further theoretical development.

LITERATURE REVIEWS

The purpose of this study is to propose that strategists possess a basic view of the firm that is dichotomized as either constrained or unconstrained, which influences the firm's strategic decisions and direction. The objective of this paper is to envelop the importance of a CEO's vision and view of the firm as a driver of strategic conceptualization that leads to tactical marketplace action (Mintzberg, 1978; Semuel, 2017) or, as McCarthy (2003) described—strategy as activities that entail doing things creatively and competitively. With that, this paper attempts to link strategic leadership with constrained and unconstrained views of the firm in the contexts of uncertainty and competitive business environments (Barbuto, 2016).

A second motivating factor of this study is derived from Sharma and Jain's (2010) contention that there is a gap in strategic flexibility literature concerning the role of strategic leadership as the primary driver of firm-level performance and strategic trajectory. The reason for such a gap relates to the issue of leadership (i.e., style, thinking, and vision), which remains one of the least recognized areas in the managerial and flexibility literature (Volberda, 1999; Malewska & Sajdak, 2014; Andersen, 2019). If leadership is a major driving force on the capacity on strategic flexibility, then the culture (i.e., barriers and resistance to flexibility) can hinder or cultivate capacity of flexibility (Trice & Beyer, 1993), if it has the support by upper echelon and subordinates (Giberson et al., 2009; Schein, 2004). The third motivating factor of this paper is to understand to what degree market signals influence strategists' decision to either optimize or maximize the firm's resources and, based on the interpretations of market signals, how they conceptualize either a constrained or unconstrained view of the firm.

The top management team operates as the intellect of the firm with their primary role to craft tactics with needed foresight to adopt changes to new business environments (Eggers & Kaplan, 2009; Shin, 2013). The strategist's reasoning develops through education, experiences, knowledge acquisition, functional role, age, and leadership abilities. Top managers make strategic trade-offs based on education, role, and experience, even more so in uncertain business environments, with the use of intellectual abilities (Buyl, Boone, & Matthyssens, 2011). These intellectual abilities and personal qualities are important when thinking strategically (Finkelstein, 1992) and making strategic decisions (Miller & Droge, 1986) in general. Consider, top management members who value change are most often those who initiate change when dissatisfied with the status quo. Henceforth, upper echelon perspectives on change have significant impact on whether or not deductive or inductive initiation of change in strategy is executed within a firm (Mintzberg & Waters, 1985). Change, change performance, and dealing with uncertainty is not viewed the same across management. Finkelstein (1993) proclaimed that CEOs' cognitive abilities and personality act as powerful vehicles to transform the firm and increase performance outcomes during uncertain times (Waldman, Javidan, & Varella, 2004).

The Strategic Leadership View of the Firm

Strategic leadership is defined as "the ability to combine visionary operational management and the ability to connect ideas in company operations while taking into account their limitations" (Kamila & Sajdak, 2014, p. 145). Grzesik (2011) explained strategic leadership as the ability to cope with situations that are difficult to predict, unmanageable, and often without clear paths to improve during turbulent times and competitive environments. Strategic

leadership focuses on the organization-wide mobilization of resources. At the individual level, strategic leaders mobilize resources by awakening, envisioning, innovation, and re-architecting processes, people, and parameters (Semuel, 2017).

Strategic leaders are creators and maintainers of culture and climate (Tichy & Sherman, 1993). This implies that cognition, personality, and identification of market opportunity is enveloped in strategists' reference point of the firm's marketplace position relative to competitors. Strategic leaders are well informed, share foresight, and think strategically about processes of reformulation and recombination of the firm's resources. Strategic leaders reframe situations directly or indirectly related to foreseen or unforeseen changes, because landscape changes serendipitously morph into emerging realities. Change in the competitive landscape invokes a level of uncertainty in strategic leadership commitment to preexisting business plans, which often are unaligned with preplanned courses of action based on preexisting reference points. One of the most salient traits of strategic leaders is their capability to provide a vision and convert their vision to action, realized or manifested in market tactics (Trott & Paul, 2008; Semuel, 2017). What is intended or unintended should be driven by a consist behavior exhibited by strategic leadership (Mintzberg, 1987; Andersen, 2019). Perhaps a strategist's flexibility or rigidity mirrors the ideology and sentiments of the firm's strategic leadership (Andersen, 2019). Hypothetically, if an unforeseen opportunity emerges, what action seems likely to take shape based on the strategist's view of the firm? These propositions are not an attempt to deemphasize the merits or demerits of a strategy planning process, because many (Barbuto, 2016; Mintzberg, 1994) have understood the planning process as an indispensable method that educates, explains, and directs external resources needed to pursue market-based action—ad hoc or otherwise. Strategic

planning derives from a strategic reference point (Fiegenbaum, Hart, & Schendel, 1996) that affects organizational view/vision of strategy relative to risk aversion, risk seeking, or risk tolerance behaviors; these risk factors are conceptualizations that affect future strategy types and directions of the enterprise. McCarthy (2003) pointed out that some managers have more or less risk tolerance than others, and the same rule applies to managers who are risk averse.

Strategic leadership serves as a critical component of the strategy development process, namely as the primary driver of human capital and the cognitive molder of future-oriented action of the firm. Changes in market dynamics directly and or indirectly impact a firm's strategic flexibility and strategic choices (Volberda, 1999). Strategic leaders' strict adherence or lack thereof to their firm's mission and use of resources is the corollary to the inevitable conflict of missions, visions, and the positive consequences of strategic flexibility, malleability, and adaptability between members of the upper echelon.

Strategic leadership has the unique role of shaping the input and implementation of the firm's values and strategic flexibility. The strategic leadership's reference point and nature of risk tolerance or flexibility influences their view of the firm, causing them to either push the envelope (i.e., Steve Jobs' return to Apple) or refocus on core competencies, decreasing innovation and concerns on application (i.e., Lou Gerstner at IBM; Montgomery, 2008). Table 1 displays the links between strategic leadership attributes/characteristics and a firm's strategy.

Table 1: *Strategic Leadership Attributes linkage to Firm's Vision*

<u>Strategic leadership attributes</u>	<u>Firm's vision</u>
Thinking strategically to create combinations and recombinations of resources or units toward a future vision.	Unconstrained
Connecting current visions with a historical perspective.	Constrained
Transforming a future-oriented vision combined with the firm's historical vision.	Unconstrained
Consolidating strategic activities to realign with the firm's preexisting vision.	Constrained

Constrained View of Strategy

The constrained view of strategy heavily emphasizes and strictly adheres to the planning process as the mechanism to defend competitive advantages. This view is in line with the classical theory of management (March & Simon, 1958; Minzberg, 1985; Parsons, 1960; Weber, 1958). Constrained strategists, despite market signals in the face of known competitive pressures, remain constant in the face of serendipitous occurrences. A constrained ideology shapes strategic direction and operates under a set of assumptions: well-defined tactics, intent farsightedness, limited acknowledgment of market forces, and risk averse in strategic tactics and positioning. To a large degree, the constrained

strategists seeks to find the fit within a given environment and environment by relying predominately on properly design subsystems (Deplazes et al., 2009). The fit is devised by a sound system and routinized processes distinguished by a demarcation of strategies, known or unknown. Under a constrained view, the foci are narrowly goal-oriented as they correspondingly relate to limited strategic choices.

For example, Kodak leadership pursued a narrow focus on film, while all along receiving market signals that the industry was moving in a different direction (Larish, 2012). It appears that Kodak's leadership had a constrained view of strategy. Kodak's constrained strategy was evidenced by their sluggish transition from film to digital in comparison to their competitors and industry changes. Very little of the constrained strategy's intricacies are altered, especially if the firm enjoys a competitive position in an existing market. Constrained strategists view structure as preceding strategy in every way possible, which creates internally cultivated strategic myopia and a moderate waste of resources because of misapplied absorptive capacity. The constrained strategists' aversion to becoming a first-mover remains high – but only if, however, these risk tactics come from within the firm's strict and narrow purview.

Constrained strategic leaders acknowledge that differentiation and change come at a cost (Porter, 1985). If differentiation is needed for growth, the idea generation starts with historical data justification first. Constrained strategists are bound by historical indicators and trends, as well as tradition, to a larger degree than unconstrained strategists. For example, before constrained strategists contemplate how to capture technological value, they analyze first its historical adaptiveness related to organizational and structural adsorption rates. The constrained strategist perceives employee behavior as fixed and unmalleable. A

technological value that proves to work with respect to the level of complexity, risk potential, and governance peculiarities more than likely will be examined for further analysis based on tolerance of risks. A constrained strategist asks *how* before implementing innovation.

The constrained strategist seeks to eliminate innovative behavior and flexibility as much as possible—inventiveness and serendipity are valued alternatively by the constrained strategist. The constrained view of innovative behavior understands first the costs of idea failures, because best practices and policies previously determined (i.e., in times of certainty and uncertainty) guide the strategic trajectory. Policies and actions are established by data—data precede action and data drive actions. Strategic action, adaptive or otherwise, need not proceed data, even when market signals are strong and apparent. Constrained strategists operate within the framework of logical incrementalism and optimizing resources to capture value through precise planning—to a much lesser extent capturing value via the entrepreneurial spirit. This value capturing and optimizing purview of constrained strategists comes from an inherent aversion to maximizing resources. Because of the long-term consequences of maximization, precedents are heavily considered before commitments regarding resource allocations are made.

THEORETICAL FRAMEWORK

Constrained View of the Firm: Optimization in the Face of Uncertainty

Despite unforeseen circumstances and competitive signals to operate under a change of business model, the constrained strategist interprets market signals as the need to optimize

preexisting resources, industry position, supplier relationship, or even strategic business units. While value proposition and profit are as much a consideration with any strategists (or strategic team), the constrained view of strategy focuses on vertical value creation—vertical value only created from within and not from an outside-in perspective. For this reason, these strategists are constrained as to the use and limits of resources when existing industries and markets are uncertain. Coordination of resources, human or otherwise, is transmuted more so either by way of a directional strategy—stability or retrenchment and/or parent growth strategy in terms of attaining profit.

For example, de Sola Pool (1977) reminded us that during the years 1877-1878, William Orton, president of Western Union, turned down the opportunity to purchase the Bell venture telephone (AT&T/Bell Systems) patent and stayed within the purview of his aging markets and changing industry, because he saw no real use in the “electrical toy” (p. 16). The least recognized constrained optimization is the detrimental realization of suboptimization, resulting from an internal myopic view of technology and resources in the face of uncertainty where ultimately the once-useful technology is no longer unconstraining the firm’s operations but has, over time, constrained them.

Henry Havemeyer, nicknamed Sugar King, once ruled the sugar industry but was faced with competition from an arch competitor in the coffee industry, John Archbuckle, owner of Archbuckle coffee. Archbuckle’s coffee company was one of the leading coffee manufacturers in the United States before the Civil War and one of the first companies to introduce roasting and packaging as a differentiator between coffee producers at that time (Cobb, 2017). At that time, the Sugar King was set on the diversification of products for his sugar manufacturing and refining firm and made several attempts to compete in the coffee

industry with Archbuckle by the creation and application of flexible production methods. When the results were poor or indifferent to his view of the firm and the magnitude of flexibility, the Sugar King reiled to his firm's core capability (i.e. sugar production) and remained constrained in attitude and action.

Unconstrained View of Strategy

The strategist with an unconstrained view tends to place extreme emphasis on wide-ranging and far-reaching external reference points as immediate targets. This view is akin to the postmodern ideal of management with an emphasis on a less rationale approach to competitive forces and market position strategies (Covin & Wales, 2012; Haberstroh, 1968; Miles et al., 1978). This strategist embraces the tumult of strategic flexibility—strategic thinking and entrepreneurial spirit stay on the forefront of strategic actions. The basic axiom of an unconstrained view of the firm deems strategic flexibility a dynamic process—strategic efforts remain malleable to the point that products and service models change and readapt to market demands on an ad hoc basis. The firm's mission, of course, plays a major role and serves as the firm's anchor; however, interpretation of the mission underscores the entrepreneurial spirit. Supporting the entrepreneurial spirit is expected when change is occurring and uncertainty is present; thus, processes are modified to respond to competitor's actions in the market and industry. Strategic thinking, in this case, is fluid throughout the firm because it increases absorptive capacity, which serves to expeditiously direct and/or redirect efficiency by tapping into slack resources.

Creative destruction, a term coined by Schumpeter (1942), explains the ethos of the unconstrained view in many ways. Schumpeter proposed that the entrepreneurial spirit “comes from

the new consumers, goods, the new methods of production or transportation, the new markets, the new forms of industrial organization” (p. 82). The unconstrained strategist embraces flexibility and embeds it into the firm’s long-term strategy. Unconstrained strategists view slack resources as a necessary condition to gain efficiency for tactical execution with the least amount of risk-averse behavior. From the top down, the ideology speaks to the spirit of creative destruction—arguably, a view that allows the firm to adjust and or readjust performance levels that adapt to any type of change trajectory and adaptivity (i.e., prospectors, analyzers, defenders, and reactors). Based on the Miles and Snow taxonomy, the unconstrained strategist executes adaptive tactics either as prospecting and/or analyzing. While under the Chaffee three-model strategy, the unconstrained strategist typifies the adaptive strategy in that the nature of the adaptive strategy maximizes opportunities and risks due to changes of landscape. The unconstrained strategists’ view of vision, mission, effective leadership, and fiscal responsibility is not more or less fuzzy than the constrained strategist; rather, an unconstrained ideology pursues tactics, profit goals, and performance outcomes differently. It is an ideology that permeates one’s interpretation of a business model, strategy direction, and optics in driving human capital.

Unconstrained View of the Firm: Maximization in the Face of Uncertainty

In the face of uncertainty, the unconstrained strategist supports growth as a process only in the sense of maximizing resources, market positions, human capital, or otherwise. Directional and parent strategies are the standard as strategists gain synergy and create value. This strategist tends to maximize

product and service offerings and innovative processes as they become realized. This strategist cultivates an internal climate that fosters the maximization of shareholder and stakeholder value and profitability. An unconstrained strategist emphasizes the importance of horizontal value creation— value created from within the firm, using dynamic capabilities, human capital, an inside-out perspective vision of the firm.

The Dichotomy Between the Constrained and Unconstrained Views of the Firm

Strategic leaders possess either a constrained or unconstrained view of strategy based on several factors, including industry, experience, position, resources, intuition, and size of the firm. The flexibility of a strategy is gauged and measured by the strategist view, because the constrained strategist asks how, and an unconstrained strategist asks when. Regardless of a strategy's flexibility or rigidity, the strategist view is the main determinate of whether to increase or decrease enterprise flexibility and internally creating value-added capabilities to sustain flexibility. Watson (1963), founder of International Machines Cooperation (IBM), displayed his strategic view and tolerance of flexibility embedded in his basic beliefs. Through his basic beliefs, it is clear that Watson saw flexibility as an unavoidable risk. But at some point in the firm's life cycle, depending on the market position, Watson knew a culture of beliefs and customs would necessitate a view to be incorporated in the longevity of his firm (constrained or unconstrained view) that was favorable in terms of the ability and capability to survive in the face of competitive forces. Watson's basic beliefs informed his unconstrained view of the firm: respect for the individual, best customer service, and the pursuit of happiness. Depending on the level of strategic flexibility initiated,

the rate and absorption of resources significantly impact the mobilization of firm-level resources coupled with the firm's value-added activities.

In 2003, then IBM CEO, Sam Palmisano, held an unconstrained view of the firm's core values and strategically designed a 72-hour top-down meeting to openly discuss and reimagine IBM's core values. Roberts and Stockport (2009) pointed to the fact that Palmisano's IBM ValuesJam session was strategic flexibility at its best. Relatedly, Roberts and Stockport (2009) suggested that strategic flexibility and strategic choices available to the firm are related and determine the firm's ability to exploit these choices. Choice of strategy means a potential reorientation of an existing strategy, which implies that new ideas require new learning (Palmisano, 2004; Grzesik, 2011). For example, Amazon's strategic leadership exemplify the continuous movement of the S-curve by reimagining the future needs of customers. They force the S-curve to cross the chasm even in the discontinuity phase of their S-curve, which disallow incumbent firms to pose any threat. This might be described as strategic entrepreneurial leadership.

Strategic leaders primarily concern themselves with human capital, combination and recombination of resources, connecting visions with a reality, and the transformation of visions during tumult and uncertainty. Since there are predictable and unpredictable strategic triggers that enable a firm's flexibility, the constrained view sees strategic enablers as only options to exercise if there is a transition between strategic phases or substantive market changes; even then, the enabling levers are not activated due to reaction from competitors. A constrained strategist seems likely to defend rather than prospect the frontier of a business landscape for changes or to create changes. Initiating strategic flexibility in an ad hoc climate is the natural unconstrained methodology during a planning process. The unconstrained

strategist cultivates a climate and spirit of innovative support so that the firm stays ahead of current external trends and changes identified as threats or opportunities.

Table 2: *Distinctions between Constrained and Unconstrained Strategists*

Constrained strategist	Unconstrained strategist
Pedantic	Innovative
Reactive	Responsive
Rigid	Flexible
Low tolerance for risks	Challenge risks (high tolerance)
Historically bound	Making/shaping history
Systems-oriented	Process-oriented
Closed-system-oriented, rational decision-making style	Open system-oriented decision-making style
Value-free perspective	Value-laden perspective

DISCUSSION AND PROPOSITIONS

Figure 1 depicts two divergent views of strategy—constrained and unconstrained. Both views acknowledge that strategy initiates at the upper echelon level before driven by mid-level subordinates—the *modus operandi* of many firms. Typically, strategic views or attitudes encompass more than just one designated individual (the strategists) and often are supported through all levels of the firm (i.e., top management teams); therefore, both views (constrained and unconstrained) consider

any strategy and business model development as a multi-actor function that accumulates multiple visions utilized to create activities to optimize and/or maximize performance, resources, and market position and to sustainably compete (Yukl, 1989; Finkelstein, Hambrick, & Cannella, 2009; Kriger & Zhovobryukh, 2013).

Additionally, Figure 1 shows the strategic leadership concept as highly significant and associative with the strategist's (constrained and or unconstrained) view of the firm. The figure explicitly shows that all ideas and future projections start with the strategist's view of the firm, and the flexibility and/or trajectory of decisions extends to the firm from the outpouring of the strategist view. To a degree, both types of strategists think strategically, plan combinations and recombinations, connect visions with reality, and transform visions to combine with the firm's mission.

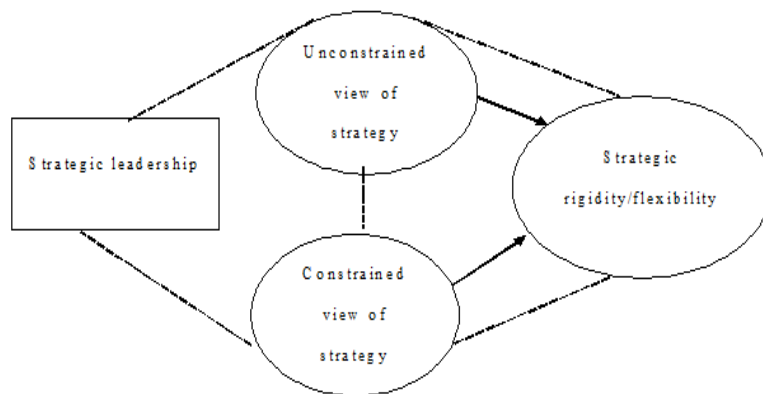


Figure 1. Theoretical framework of the constrained and unconstrained view of strategy.

This acknowledgment of a strategic leadership view of a firm provides insightful additions to theory and practical strategy

development, mainly to determine the effects on strategy and strategy planning. Not to mention, this paper closes the gap between the mainline characteristics of effective strategic leadership and strategic action. The dimensions, characteristics, and model of strategic leadership explain their importance in shaping a firm's strategic trajectory, and the likelihood that strategists engage in a sort of action in time of uncertainty—either constrained or unconstrained.

P¹: Strategic leaders' constrained view of the firm positively impacts the performance of the firm.

P²: Strategic leaders' unconstrained view of the firm positively impacts the performance of the firm.

P⁵: Strategists' with a constrained view lower the risk tolerance of the firm.

P⁶: Strategists' with an unconstrained view increase the risks tolerance of the firm.

CONCLUSION

Strategic leaders' view of the firm plays a vital role when they envisage the direction of strategic planning. Strategist views impact the direction of strategy and can create contention because operationalists vie for competing interests, which creates a conflict of visions (Sowell, 1987). Also, this impact influences strategist views in such categories as the industry life cycle (temporal), firm life cycle (market position), and absorptive capacity (ACAP) (firm-level acquisition of critical knowledge). Even the notion of matching strategists to a strategic function leaves out the fundamental void that strategists possess an ideology that directly

influences strategy itself and, if unnoticed, brings about either positive or negative operational results despite a perfect match.

Thus, strategic leadership involves making changes related to the direction of the firm, directly and indirectly, based on a long- or short-term vision, either individually or with members of the top management team, whose role entails developing critical paths and formulating steps that implement vision into a strategy based on a constrained or unconstrained view of the firm. The notion that organizational flexibility does not require employee motivation is unfounded and nonsensical if looking through the perspective of leadership and adapting to a change in circumstances. There is no conceivable way to achieve flexibility with employees who are unsatisfied and demotivated to pursue their goals. Organizational flexibility is dynamic and pervasive in the sense that it requires people, processes, and managerial support to cultivate employees' capabilities to quickly and responsively adjust and readjust to market demands, internal challenges, and innovative opportunities (Bran & Udrea, 2016). There are numerous types of organizational flexibility (technical, strategic, etc.); but whatever the type favored by the nature and multiplicity of diversity in various markets and then employed, there is a cause and a consequence of organizational flexibility. The unintended causes of flexibility are due to reactions from deviating from a status quo.

The consequence is resistance to change and, ultimately, a reverberation to and from the initial change state—flexibility. When there is a change of state, from one form to the next and back to the original form, flexibility has occurred. With that, the strategist's view either accounts for changes in strategy without changes in value or the strategist accounts for the changes in the values and becomes flexible but eventually reverts to an original state (i.e., a recoiling effect). Flexibility increases the complexity and quantity of ideas, which creates new experiences, innovative

behaviors and creativity, and intelligences, which might add burdens on the recoiling process (Ouedraogo & Koffi, 2018).

On net balance, the practical and theoretical need for a dichotomy between strategists' view of the firm is to place greater emphasis on the human side of strategy making and directing that might explain the antecedent of strategic outcomes. Therefore, these propositions need to be tested empirically to account for the inclination that, in fact, the constrained and unconstrained strategies are two categorizations that can explain how strategists' views of the firm might explain the outcomes of a firm's strategic trajectory in the marketplace.

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Intermodal Container Movement In Malaysia: Challenges And Strategies To Enhance Its Usage

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Received Apr. 25, 2019, Revised May 6, 2019, Accepted Jun. 28, 2019

ABSTRACT

The purpose of this paper is to investigate the factors that could influence the increase usage of intermodal for container transport in Malaysia. This study uses in-depth interviews with experts in

container transport for data collection. The interviews were conducted with the road haulage operators, rail operator, inland terminal operators, port operators and freight forwarding operators. The most common challenges that could influence the increase usage of intermodal in Malaysia were efficiency, management issues and cost factor. Some improvements on these factors could make the rail-road intermodal container transport as attractive as the conventional road haulage services. Malaysia needs to emphasise more on promoting the high reliability, low cost and environment factors for a successful intermodal service. This study is limited to the container movement from ports to the important industrial areas in Malaysia and vice versa. The factors that influence the usage of intermodal can contribute to a better understanding on the best way to increase the current usage of the service. to develop possible strategies for improving the intermodal hinterland container transport system logistics in Malaysia. The study benefited the actors involve to improve rail-road intermodal container transport services.

Keywords: Intermodal, Challenges, Strategies Road, Rail

INTRODUCTION

The players involved in the container movement can be divided into two categories. The categories are terminal operators which consists of ports and inland terminal and the transport carriers which includes the road haulage and rail operators. For container movement, the intermediaries or known as the freight forwarding is also the customer of the industry. (Nasir S et al 2019) Since the freight forwarders act on behalf of the manufacturers, hence the freight forwarders and manufacturers are the key players that are creating demand for the container transport operators to fulfil. The

responsibilities of each service provider are vital in ensuring the hinterland container movement are conducted in a high satisfaction for the customer. Table 1 indicates the players involve in the intermodal transport chain. (Nasir S, 2014)

Table 1. Players in Intermodal Transport Chain

Players	Main activities
Port	To handle the container movement to the transport service providers either road or rail
Road haulage	On road delivery movement from the terminal. The movement can be a direct movement from port or from any inland terminal/inland ports/dryports.
Rail	Moving the containers to the hinterland from ports
Inland terminal	To handle the transferring activities from the inland terminal to the rail and road haulage
Freight Forwarding agent	The intermediaries that act on behalf of the manufacturers that connects with the road haulage and rail

Figure 1 gives an illustration of the container movement for import and export. The figure shows the two alternative container movement to the hinterland from ports and vice versa (Lee and Kambiz, 2013). The alternative 1 which is direct road haulage movement is more dominants for the hinterland container movement in Malaysia. However, as for the alternative 2, the intermodal movements provide another choice for the customers to move their containers.

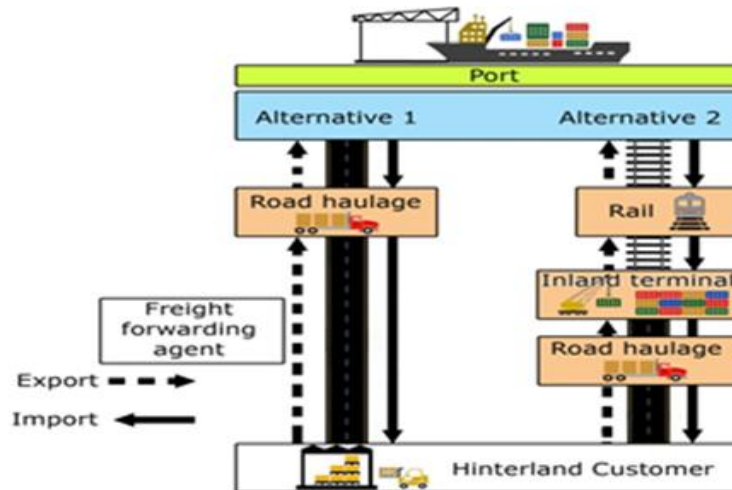


Figure 1. Transport Chains in Hinterland Container Transport Movement (Nasir 2014)

Road haulage is the main hinterland container transport from Malaysian ports. Road-rail intermodal has been seen as less important than direct road haulage. Malaysia rail network is well connected to ports but the percentage of container carried by rail is less than 2%. (Chen et al 2016). In Malaysia, there are several intermodal corridors were established. In the beginning of the intermodal development, it has been seen as one of the best alternative to reduce the transport cost for containers movement. However, for the last 10 years, only two important intermodal corridors are still in operations. The corridors are i) Port Klang-Ipoh corridor and ii) Penang Port-Padang Besar corridor. (Nasir 2014). Other intermodal corridors that also have inland terminals did not manage to sustain the demand for the usage of intermodal

movement. Some of the inland terminal became a hub of operations for a few road haulage players. With the significance growth in future trade, efficient freight transport systems need to be developed with efficient intermodal points such as port, airports and inland ports. (Nasir S et al, 2018) The purpose of this paper is to investigate the factors that could influence the increase usage of intermodal for container transport in Malaysia

METHODOLOGY

The qualitative method has been chosen to collect the data for the study. This study used the open-ended interview questions in order to obtain the information from the respondents. The method was used because it provides the respondents to give their ideas and opinions openly. It also gives the respondents the right to convey their views by using their own words (Webber and Byrd, 2010). This method also allowed the interviewer to understand and obtain in-depth information from the respondents. The face to face or personal interview enables the interviewer to gather detail thoughts of the respondents. By performing the unstructured interview approach, the researchers were able to discuss in depth with the respondents regarding the research topic. According to Boyce & Neale (2006), by conducting the in-depth interviews, the researchers would be able to obtain the detail information on the thoughts and views on the issues required. It also assists the researchers to study the behaviour of the respondents during the interview session. Qualitative methods enable researchers to evaluate the effects of ideas, belief and attitudes of the selected respondents. It would also help the researchers to obtain in-depth and very critical information by appraising the respondents' status. One of the advantages by conducting the face to face interviews, it would provide the

respondents with a more comfortable situation for them to give the answer freely. The one to one situation could assist the researchers to encourage the respondents to give a willing and sincere information. With this approached, the researchers can add more relevant questions in order to ensure the information gathered are more quality and useful. (Skulmoski et al., 2007; Cuhls et al., 2009). Expert panel in-depth interview was used to collect data for this study. This method was used because in-depth interview allows the respondents to provide opinions views in their own words (Webber and Byrd, 2010). The interviewer is able to obtain greater depth of people thoughts and understanding through face-to-face or person to person discussion. With an unstructured interview approach, it helps the researchers to push the respondents to discuss much detail on the research topic. Expert panel was used for collecting expert opinion to be used to assess the possibilities of future development. Four main requirements need to be fulfilled in choosing the expert panel:

- a) knowledge and experience with the research issues
- b) capacity and willingness to contribute and participate
- c) sufficient time to participate
- d) effective communication skills (Adler & Ziglo, 2002)

The interview sessions were performed at the respondents' premises. The respondents chosen for the study were mainly involved with the main operations of the container movement. The respondents were experienced, skilled and high qualified people of the respective industry. The list of the respondents for the study are presented in Table 2.

Table 2 Respondents for Face to Face Interview

No	Respondents	Sector/Industry
1	3PL A <ul style="list-style-type: none"> • Deputy Managing Director • General Manager 	Road
2	3PL B <ul style="list-style-type: none"> • Senior Manager Land Transport Division 	Road
3	Inland Terminal/Dryport <ul style="list-style-type: none"> • Acting General Manager • Manager Business Development 	Inland terminal
4	Railway Operator <ul style="list-style-type: none"> • Senior Manager Business Development Freight Business Unit 	Rail
5	Port A <ul style="list-style-type: none"> • General Manager on Audit 	Port
6	Port B <ul style="list-style-type: none"> • Head of Marketing 	Port
7	Freight Forwarders <ul style="list-style-type: none"> • Managing Director 	Freight Forwarding agents
8	Ministry A <ul style="list-style-type: none"> • Assistant Director 	Government Agency
9	Ministry B <ul style="list-style-type: none"> • Land Transport Authority 	Government Agency
10	4 Manufacturers	2 Electronics 2 Textiles

In conducting the interview, the respondents were given some guidance on the questions that they need to answer. Four

important points of discussion were i) the container and intermodal operations, ii) the main infrastructure needed for container and intermodal operations, iii) the rules and regulations governing the container intermodal operations; iv) their views on the future of container and intermodal services The duration for each interview was between one to two hours.

RESULT AND DISCUSSION

Challenges Faced By Intermodal System

Three important problems faced by the customer in using the intermodal transport services: operational efficiency, management and cost.

Operational Efficiency Issues

- **Total transit time and reliability**

The data obtained from the expert interview indicated that the two important service quality factors for the container transport service to remain competitive (Mohd Nordin et al., 2018). The first factor was the Total transit time (TTT). This factor played a great role for the customers to be ensured that their containers would arrive at their destination on the stipulated time. The second factor was the reliability. The reliability factor would provide the intermodal service with more trusted service which could enhance the demand for such service. In order to achieve a shorter TTT and also a more reliable service, every player in the intermodal chain must performed their role more effectively. The entire intermodal operation chain will be disrupted if all players fail to meet the requirements. To ensure the efficient and effective intermodal operations, every players in the intermodal chain must know and

understand their responsibilities, roles and requirements that they need to perform. (Nasir, 2014).

Road haulage and rail operation inefficiency issues have become one of the main challenges for intermodal services in Malaysia. Since the liberalisation of road haulage industry in 1999 (Tengku Jamaluddin, 2003), road haulage efficiency has become more critical. One of the main challenges in the industry was the numbers of new operators entered the road haulage business. This has created the governing and monitoring issues. As a result, to the liberalisation, the road haulage industry should be self-regulatory market driven industry. However this was not achieved. The self-regulatory concept fail to control, protect and maintain the operational standard of the industry. As a result of these failures, new problems emerged within the industry. The most significance problem was the unhealthy competition between the operators. When this happened, the operators has started to reduce their focus on safety aspects and the environmental issues has not become their priority. In 2010, the Malaysia Logistics and Supply Chain Council had conducted a Logistics Road Map Study and found that only 70% of the trailers were fully utilised during the road haulage normal operations (MITI, 2005).

- **Inland Terminal/Dryport Operations**

Excellent intermodal operation required a high efficiency of rail service and inland terminal operations (Kato, 2016). The rail operator managed to provide the required service by customer, however there were a few quality issues from the service. The customers indicated that the rail operator had many delays in rail operations hence the reliability of the rail service was highly disrupted. The planning, scheduling and infrastructure of the rail operations has contributed to the problems. To make the operations worst, the inefficiency of inland terminal has also

influenced the performance of rail service since it was part of the intermodal chain.

One of the biggest issues for the inland terminal operator was to have efficient equipment for container handling at intermodal points. This has created many difficulties for the inland terminal operator to achieve its required performance (Jeevan et al., 2015). There were times when a few of its material handling equipment required major service maintenance which had caused the inland terminal operator to lose its efficiency. Another critical factor that influenced the inland terminal efficiency was the lack of required space in the terminal. According to the General Manager of the inland terminal, Ipoh Cargo terminal (ICT) did not have any more land for future expansion. The land area was saturated. The expansion activities can only be done if the inland terminal is to be relocated elsewhere. However, the relocation plan would not be beneficial for the current pre and post haulage operations since it would increase the cost.

Management Issues

Having the professional staff in road haulage operations has become critical. Many road haulage operators have foreseen the importance to upgrade the professionalism of their staffs especially the drivers. The operators were concerned on three main aspects i) the overall performance of the drivers, ii) the behaviour of the drivers during driving and during dealing directly with customers and iii) the drivers' thoughts in receiving the new ideas in operations. In order to tackle the above issues, a new and upgraded training module for drivers is deeply required. These modules would be able to train the drivers to act and behave correctly during the operationalization of the road haulage. The other difficult task for any operators was the need to deal with the high turnovers of drivers in the industry. Since there were many

operators in the industry, it was easy for the drivers to find a new driving job. As for the inland terminal operator, it faced a different problem in managing its business. Marketing its services were the challenge for the inland terminal operator. The inland terminal operator relies to the freight forwarders to bring the customers to terminal. The freight forwarders would be able to take advantage on the rate given by the terminal operator. For an example, when the inland terminal provide a promotional rate to the customers, they would not be able to enjoy that benefits. This is because the freight forwarding who act on behalf of the customers would use the promotional rate to increase their own profit margin. This is the risk the inland terminal operator need to take whenever it provides promotional rates. Another critical management challenges in intermodal operations was the coordination between the players in the intermodal chain. The coordination between inland terminal operator, road haulage operator and rail operator were highly required for the intermodal system to work efficiently. The operators in the intermodal chain need to coordinate willingly and the ability to support each operator's activities are required. However, with the separation of government act for road and rail operations, and with the intermodal act not available in Malaysia, it makes the integration between these players more difficult.

Cost Issues

Additional handling is one of the main challenges for intermodal operations since it has been considered as an additional cost to the customer. This extra cost could be reduced if the customers could directly load container to the rail network. This can only be done if the customer has its own railway siding at its premise. However, most intermodal operations in Malaysia need to be performed at the inland terminal or dryport. With this concept of operation, it would provide the customers with higher cost and

longer total transit time as compared with the road haulage operation. The road haulage could deliver the container directly from port to the final destination without going through inland terminal. Even though intermodal seemed to add more cost, with higher capacity, the lower total cost for moving container can be achieved. The cost reduction can be obtained when the rail move container for the long distance haulage with higher capacity and the road would perform the pre and post haulage delivery.

Since the rate for road haulage has been considered the same for the past years, the overcapacity of operators has made them to struggle to survive in the market. To reduce the losses in the road haulage industry, many operators has move towards providing a total logistics services which include freight forwarding and warehousing. This can help the operators to gain more revenue for their business.

Factors Influencing the Usage of Road Rail Intermodal

For a company to remain competitive and to sustain in the market, the cost competitiveness factor need to be considered. Changes in inland transport cost could influence the total logistics cost for the customers. Choosing the right mode of transport for inland movement has become critical for the customers. If the service providers could provide a special preference service to customers, it would add value to the service given (Upadhyaya et al., 2013; Paek and Lee, 2018). In this study, with special preference given by the service provider, they are able to monitor and control the container transport cost and to ensure the cost will not rise significantly.

Another important quality factor that customers need to consider in choosing transport service is high reliability. Customers would rely on the on-time delivery of their containers.

If the operators fails, the customers' production will be interrupted. (Roso et al., 2009). For customers that who are implementing the Just-in-time (JIT) concept, an efficient transport service is required. JIT needs the critical inventory for the production to arrive on time at the production site. Some manufacturers would impose high penalty to the transport operators who fails to deliver on time. The data gathered from the interview has indicated that a few road haulage operators include some additional service such as extra storage at the yard of the road haulage operators' premise. So, the role of road haulage operator is more than just delivering and picking up containers.

The respondents also concern on the safety and security aspects when choosing the transport service. High safety during the delivery would reduce the risk of the goods to be damaged before arriving at the destination. Well trained drivers would increase the safety and security standards for the transport service. As a result, the issue of product damaged would not arise. Security is another critical factor that need to be considered in choosing any transport service. One of the respondents describe the hijacking attempt during the delivery of its container to the customer premise. The hijacking failed because the road haulage operator had installed GPS tracking on its prime mover.

Amongst all the factors highlighted in the study, environmental issues seemed not so important for the customers when choosing the transport service. The customers were aware on air pollution and emission from trucks but from the customers perspective the road haulage operators need to be responsible on the environmental impact cause by their trucks (Innis & La Laonde, 1994). Even though the customers followed all environmental regulations for their production, they did not observe to the same principles when making transport mode choice. The study has shown that the intermodal provides lower environmental impact

service. But, since the awareness level has been low, the changes intermodal could do to reduce the environmental problem is very minimal.

Strategies to Support Intermodal Movement In Malaysia

● Institutional changes: Regulatory form and organisation

In general, the transport industry in Malaysia is being governed as and individual modes. This has made the industry as one of the industries that is highly regulated in Malaysia. But it is not uncommon for for the transport industry to be highly regulated. The main difference is the intermodal issues have always been looked as an ad hoc problems thus positioning the intermodal movement as unattractive transport system for the freight users. Despite all the problems highlithed, intermodal movement required specific measures to assist and support the movement. Newly developed regulation and organisation are needed to enhance the usage of intermodal in Malaysia.

Intense and radical changes on government approaches should be taken all together give a gigantic lift to the Intermodal services in Malaysia. Regulation and organiation changes has been implementd in several developed countries that are supporting intermodal movement.. The support and interventions from the authorities are critical for improving the intermodal development. As the regulating body, the administration role would need to cover an immense part in supporting intermodal; and with the persistent help from the administration, it would be a great opportunity to attract users to continuously support the intermodal services

It is crucial to set up a special authority to concentrate on intermodal direction, approach, policy and planning in Malaysia. The policy planning, implementing and monitoring and

enforcement should be conducted by a permanent organisational structure and not on ad hoc basis. The authority need to consist of people who are competent in the intermodal movement and issues. This is essential to have this authority so that it would be able to communicate with organisations that involve directly with intermodal movement. Many individual modes issues are raised for the authority to handle and it would help to understand the point of view from the competitors and intermodal operators for the development in promoting intermodal. The establishment of Intermodal Transport Department (ITD) could bolster the intermodal transport from institutional viewpoint points. ITD can play the role of regulating the intermodal movement, promoting the efficient use of infrastructure, facilitating coordination between service providers and addressing environmental issues associated with the use of individual transport modes.

ITD have to integrate all the current policies and also assisting on developing a focus policy to ensure intermodal issues are governed by a special permanent authority instead of being handled on ad hoc basis. This new authority would support and assists in developing a better alternative mode of choice in the future. ITD would also be responsible with the development of that intermodal which will focus on planning and enforcement for intermodal to be able to be developed. Thus the integration in developing intermodal policy could be achieved. ITD would need to integrate rules, operation, coordination and service standard of an intermodal service.

- **Intermodal policy**

Planning, introducing and implementing new intermodal policy have to be the authority key role. To achieve a successful intermodal movement, the authority need to reduce all the challenges and it is a requirement for the authority to have a

strong guide and policy intermodal. As been mentioned earlier, that Malaysia transport industry is highly regulated which made every single mode are governed by the rules and regulation for the specific mode. However, it is strongly believed that with the development of more intergrate and coordinate policy, promoting and supporting intermodal would increases the chances for intermodal to be an alternative transport system in Malaysia.

It is important to managing the entire chain in an integrated aspect. This would require an Intermodal transport policy. Better corporation and coordination among the intermodal players would provide great integration results. It has been a practice in Malaysia to have policies that enable to support the development of each transport mode. However, lack of coordination and managing the facilities affected has become a main hinderances for intermodal to be an alternative system. To enhance the success of an intermodal system, relevant effective policies on intermodal need to be chosen in the selected corridor. The focus for the policy is to be successful should be in the form of regulation, financial and monetary support. Therefore, the policy development should focus on two aspects: 1) rules and regulation policy and 2) incentive policies for promoting intermodal. The proposed policy measures are listed in Table 3.

Table 3. Proposed Policy Measures

Rules and regulation policies	Incentives policies
<ul style="list-style-type: none">• Increases toll charges for Heavy Goods Vehicles in the corridor• Privileges to the intermodal movement during specific time• Standardisation of policy with other agencies for the development of intermodal infrastructure• Increased of weight limit for container that move by using intermodal• Priorities in term of services for intermodal movement, can work with other authority and operator to have a different opening window for intermodal movement• To ban other heavy vehicles to enter in selected corridor in certain days for examples on Sundays or public holidays and only intermodal movement and be operating in this corridor	<ul style="list-style-type: none">• Incentives for promoting and using intermodal services• Tax incentives for performing feeder service from inland terminal to customer premises• Initial set up grant to set up intermodal infrastructure especially for inland terminal and transshipment facilities.• Tax exemption for road haulage just use for feeder services• Increasing toll for HGV at this corridor which might shift to the overall modal shift

CONCLUSION

Intermodal movement in Malaysia could achieve a greater success if these three hindrances could be solved. These factors are: 1) operational efficiency issues 2) management issues and 3) the cost factor. New strategies need to be developed to ensure that these critical issues could be dealt with effectively. In this study also shown that intermodal services need to focus on these factors in order to attract more customers to use intermodal services. The factors are: 1) high reliability of services, 2) low cost, 3) safety and security. Even though, from the interview, majority of respondents felt that low environmental impacts factor is not important, positive approach can be implemented to promote intermodal usage by using this environmental issue.

Intermodal movement in Malaysia shows great potential for its development. It is critical for Malaysia to make changes in the institutional aspects in order to ensure that intermodal services remain sustainable and competitive. However, the logistics of the intermodal movement needs to be clear so that the continuous intermodal services could be developed. Reforming the institutional aspects would ensure the intermodal logistics could be in place and help to promote intermodal especially at the selected corridor.

ACKNOWLEDGEMENT

This work is supported by the Malaysia Institute of Transports (MITRANS), Faculty of Business and Management located at the Universiti Teknologi MARA (UiTM). Special thanks to those who have one way, or another contributed to the success of completing this paper.

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Critical Success Factors (CSF) on e-Commerce Adoption in Bangladesh SMEs

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Received May 3, 2019, Revised May 29, 2019, Accepted Jun. 28, 2019

ABSTRACT

This study aims to empirically analyse the critical success factors affecting e-Commerce adoption by SMEs in Bangladesh. It identifies the benefits of e-Commerce adoption realized by these SMEs and investigates the relationships among those factors. In developing countries, previous studies were consulted to formulate the adoption in their parent countries, but the observations regarding e-Commerce remain on upstream. They focused on

major issues rather than minor ones. This study examines the four main critical success factors (technological, organizational, environmental and strategical) in Bangladesh. 500 Respondents of 210 SMEs were given questionnaires. The Results were analyzed using the SPSS version 25. The analysis result will be helpful for future researchers and policy makers to promote the B2C e-Commerce adoption as predictors of SMEs.

Keywords: Critical Success Factor, e-Commerce Adoption, Bangladesh SMEs

INTRODUCTION

In last two decades, internet played a pivotal role in the better development of business. Business organizations transferred their data to the internet for handling information quickly, which paved way for e-Commerce adoption in business processes. e-Commerce is a type of commercial transaction conducted electronically over the internet. e-Commerce has brought several benefits that include cost reduction, participation of unique customers, effect on demand and supply, improvement in the product quality, and the creation of modern roots for the distribution of products (Nguyen, 2011).

Mohammed et al. (2013) claimed that the role of e-Commerce adoption in SMEs (small and medium sized enterprises) is vital in economic condition of developing and under-developed countries. Similar is the case discussed by a study conducted on Bangladesh. The research point out that e-Commerce, which is defined as “doing business electronically” is one of the most important factors in promoting the development of SMEs in Bangladesh (Al Noor et al., 2011).

Bangladesh is a developing country comprised of 165 million people in South Asia. It is a country of opportunity for business, but there are many problems in e-Commerce adoption. And, there has not been much research to investigate. B2C (Business-to-Consumers) e-Commerce is potential in Bangladesh. This is due to slow processing of internet services, non-availability of quick transition system and payment delay. Implementation of innovation technology and its practices are very important from the view of academicians and practitioners. Only minor cases are observed in detail in previous studies on SMEs (Grandon & Pearson, 2003).

The fact remains the same as undeniable role of SMEs in the development of Bangladesh. Also, e-Commerce is succeeded in the development of new opportunities at a limited rate. The SMEs role in the adoption process of e-Commerce still limited. If owners and consumers pay attention to the adoption of e-Commerce, that challenge will be tackled with a positive response. As stated by Huy & Filiatrault (2006), there are many factors affecting the participation of SMEs in the e-Commerce sector in Bangladesh, hence in order to solve this problem, it is necessary for SMEs to formulate a strategy that not only defines the key long-term goals but also determines the essential activities and the important resources to achieve these goals (Combe, 2012).

Therefore, the objective of this study is to explore the critical successful factors influencing adoption and implementation of B2C e-Commerce by Small and Medium-sized Enterprises in Bangladesh. And, this study is to search about the formulation of an e-Commerce adoption guidelines so that Bangladeshi entrepreneurs trying to move towards the e-Commerce sector with recommendations to initiate e-Commerce.

LITERATURE REIVEW

e-Commerce

There are many definitions about e-Commerce. Chaffey (2009) defines “e-Commerce was the exchange of information across electronic networks, at any stage in the supply chain, whether within an organization, between businesses, between businesses and consumers, or between the public and private sector, whether paid or unpaid”. Similarly, according to Fellenstein & Wood (2000), “e-Commerce is the use of online facilities for doing business. The Internet, intranets, extranets, private networks, and any other networking facility that enables buyers to communicate with sellers are components of online facilities. Doing business can be defined as a set of buying and selling activities of goods and services that make up a business transaction.” Although there are different definitions about these concepts, e-Commerce can be simply understood as any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact (Zorayda, 2003).

According to Tassabehji (2003), there are several assumptions about the source of e-Commerce; one of them is that the internet is a medium of information sharing. Zorayda (2003) explains that the Internet is the connection of many global networks using a common set of protocols. Importantly, with more than 1.6 billion Internet users and the surprisingly enormous amount of available information, the Internet is the most suitable environment for the extension of e-Commerce globally (Fellenstein & Wood, 2000). Above all, one of the most notable point is that e-Commerce and e-Business are dissimilar concepts, and they cannot be used interchangeable (Fellenstein & Wood, 2000; Tassabehji, 2003).

e-Commerce in SME

In SMEs sector, e-Commerce is a blessing, although there are some barriers to overcome. The internal barriers are poor internal communications infrastructure within SME firms along with lack of ICT awareness and knowledge as well as inadequacy of ICT-capable and literate managers and workers, insufficient financial resources, and the perceived lack of relevance or value-added of ICTs to their business. e-Commerce adoption (effectiveness improvement, customer satisfaction and productivity improvement) depends on the following factors which are technological, organizational, environmental and strategical factors.

Derived Factors of Technological Concept

One important aspect of e-Commerce is the technological concept by providing an organization of an ease of doing businesses.

Information and Communication Technology (ICT)

Through the emergence of technology, many businesses today can be wider through the adoption of e-Commerce. A more expansive and extensive form of technological advancement through Information and Communication Technology (ICT) helps many SMEs to conduct businesses through the integration of different form of communication lines that will connect the business to customers at their fingertips and will be exposed to business information regarding products and services (Iacovou et al., 1995).

Customer Service

e-Commerce adoption in many SMEs helps to provide quality services at a convenient and responsive manner based on

technological capacity and nature for this imperative resource to address business means in all aspects (Iddris, 2012).

Business Processing

e-Commerce adoption helps many SMEs in a widespread of businesses from all sizes and aids in conducting every business processing from various departmental duties that ease employees for causing too much burden on work and allows to deliver services on a timely basis. It also shapes opportunities for SMEs for growth and development in a sustainable approach (OECD, 2004).

Derived Factors of Environmental Concept

Apart from technological and organizational aspects, environmental facets have great impacts on the factors affecting e-Commerce adoption by SMEs in Bangladesh. In terms of this context, there are factors that affect business existence towards external parties that are often uncontrollable by the organization that includes the following:

Government Intervention

The government plays a vital role to every business aspect of an organization by maintaining legitimate and legal business operations that would protect clients and customers from any deregulation and fraud brought by negative impacts of e-Commerce adoption. Many SMEs have been operating not only in Bangladesh but around the globe through e-Commerce to expand market competitiveness, and government help support businesses and customers to provide policies and lawful terms concerning e-Commerce adoption (Li et al., 2010).

Business Partner Affiliation

The growth of business is highly thriving through business partnership. Affiliation is where two companies or more build a tie to control and benefit from each other. This external parties help companies to grow and expand market especially when it comes to adoption of e-Commerce to replace old ways of doing businesses. e-Commerce adoption among SMEs helps business secure interest among each other to become stronger in financial, technological and managerial aspects (Zhu & Kraemer, 2005).

Value Chain

e-Commerce adoption is an important value to be added facilitating businesses in company's products and services through profound impacts. It helps provides an easier and convenient way of dealing with customers' needs thus entailing satisfaction and exceeding expectation. e-Commerce adoption provides value from external parties from various stakeholders such as customers, other organizations, outsourcing and other related factors which influence organization to different market pressure (Wang & Hou, 2012).

Derived Factors of Strategical Factors

Strategic factors are client need, client value orientation, and sensitivity to competitive/customer atmosphere and experience through e-skills development mechanisms. Increasing the impact of technology through advances in e-Commerce will result in a variety of perceptions, from the extremely positive entrepreneurial viewpoint to vary of stance found in different companies (Covin & Slevin, 1991).

Experience

The owner's lack of awareness of technology and perceived advantages could be a major issue to a takeoff of electronic business. The dearth of information on the way to use the technology and the low percent acquirement square measure alternative conducive factors for not adopting electronic business (Knol & Stroeken, 2001).

Need

Account from the study by Bean Town Consulting cluster in 2000 (Reynolds, 2000) indicates that trust is a vital component in establishing complete electronic market. In Asian countries, the factors that have effects on adoption were found to be relative advantage, compatibility, structure readiness, manager's characteristic and security (Shah Alam et al, 2011). The behavioral barriers of e-Commerce square measure attitudes of individuals among a company.

Value

The adoption of e-Commerce depends on the cultural and social atmosphere values. Claimed by Poorangi et al, 2013, the prevailing culture of an organization affects the resistance of employees that negatively affect the e-Commerce adoption in Asian countries. Likewise, the amount of education, the supply of IT skills, the amount of penetration of private computers and phone among the society influence the expansion of e-Commerce. The bulk of the content of the globe wide net is made within English, making a barrier for several potential users in developing countries, particularly those in Asian states whose first or second language isn't English (Molla et al, 2006).

e-Commerce Adoption

Several related factors on e-Commerce adoption are as follows considered as like typical factors on e-Commerce adoption.

Effectiveness Improvement

Online shopping in consumer's viewpoint, web shopping allows them to search and compare various products or service alternatives from different online stores located in different geographical locations throughout Bangladesh. The interactive nature of the Internet offers opportunities for not only consumers but also for the stakeholders or business owners to use the web shopping facilities effectively by improving the availability of product information, enabling direct multi attributes comparison, and reducing prospective buyers or sellers information search costs (Alba et. al, 1997).

Customer Satisfaction

Customer satisfaction is outlined as the consequences of a customer's experiences which is helpful throughout his/her shopping for method with a company, portrayed as emotional reactions. Customer satisfaction has long been shown by promoting practitioners to be extraordinarily vital for a company to be ready to keep in business as within lower cost of the finish merchandise and services are meant to satisfy customers' wants or demands by convenient way (Nguyen, 2014).

Productivity improvement

Productivity improvement is usually identified by two concepts: productivity level and productivity growth. The productivity level is related to the standard of living in a country, while productivity growth is the major determinant of the rate of increase in living

standards over time. In fact, the two performance measures have been strongly related over the past four decades (Harris, 1999).

Previous Studies

There is a growing amount of theories and studies on technological innovation and technology adoption. The most common theories are the Technology Acceptance Model (TAM) (Davis et al. 1989), Theory of Planned Behavior (TPB) (Ajzen, 1985;1991), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), Diffusion of Innovation (DOI) (Rogers, 1995) and the Technology-Organization-Environment (TOE) framework (Tornatzky and Fleischer, 1990). From all of these, we can select a research framework for SMEs sector in e-Commerce of Bangladesh perspective.

Moreover, to identify the focus and influencing critical successful factors of the adoption of e-Commerce in SMEs, we have performed a literature review that covers articles published from 2004 to now. Literature reviews represent a well-established method for accumulating existing knowledge within a domain of interest. An initial search of the articles was performed in Google Scholar and ProQuest using the keywords: SMEs, information systems, innovation adoption, TOE framework. The keywords for the search were used in different combinations. After identifying the relevant literature, only articles directly addressing IS adoption in SMEs were selected. The selection process was based on the author, year of publishing, type of study (qualitative or quantitative), type of IS being adopted, methodology, data, context of the study, focus and influencing factors. We have used a review approach with explicit procedures and conditions that minimize bias. From all of them, few analyzed articles are illustrated in a summary table as following Table 1.

Table 1. The List of the Previous Studies

Author and Year	Research Approach	Application Area	Data collection	Sample size and country
Alam & Noor, (2009)	Qualitative & Quantitative	ICT Adoption	Cross Sectional Survey (owner/manager)	180 SMEs, Malaysia
Grandon & Pearson (2004)	Quantitative	Adoption Factors	Internet Survey (top managers)	100 Surveys, USA
Macharia (2009)	Quantitative	e-Commerce Adoption	Internet Surveys (Owners/managers)	46 SMEs, Kenya
Poorangi et.al., (2013)	Qualitative & Quantitative	e-Commerce Adoption	Survey Questionnaire	1,200 SMEs, Malaysia
Raymond & Bergeron (2008)	Qualitative & Quantitative	e-Business	Contingency Theory Perspective	107 SMEs, Canada

All the review of the literature on technological innovation confirms that the majority of empirical studies refer to the “Diffusion of Innovation” or the DOI theory of Rogers as well as to the TOE framework. DOI is recognized by many researchers as being able to identify “perceived” critical characteristics of technological innovations (such as relative advantage, compatibility, complexity, observability and trialability) which have the direct influence on ICT usage, customer service as well as overall business processing of the organization that may influence the attitude of potential adaptors or rejecters of e-Commerce.

It was however argued that Rogers model should also be blended with other contexts or factors for a more holistic adoption approach. In line with this argument, we found that the TOE

framework includes the environment context (not included in the DOI theory), thus becoming better able to explain intra-firm innovation adoption and therefore more complete, which is suitable for developing countries like Bangladesh. The TOE framework has a solid theoretical basis and the potential for application in the e-Commerce adoption (Oliveira & Martins, 2011) which is effective for Bangladesh perspectives in terms of doing research into Electronic commerce for the SMEs sectors.

It is developed by Tornatzky & Fleischer (1990) while it specifies 3 types of factors that influence the adoption and organizational usage of technological innovation; it is seemed to be fruitful as this research is on the e-Commerce adoption into SMEs sector of Bangladesh market. The technological context includes both internal and external technologies that might be useful in improving organizational productivity. The organizational context, defined in terms of firm size and scope, complexity of the managerial structure, quality, characteristics and availability of firm's technology and financial resources as well as environmental (or institutional) context refers to the firm's industry and dealings with business partners, competitors and government (Tornatzky & Fleischer, 1990). And for the convenience of our research study, we have added another type, Strategial factors. It has overall effects into Bangladesh SMEs to the e-Commerce adoption by its context of experience, need and value.

RESEARCH METHODOLOGY

Research Model

Technology Organizational Environment model (Tornatzsy & Fleischer's, 1990) is used in this study. This model gives us insight in e-Commerce adoption by different type of corporations and

organizations along with its impact on different type of critical successful factors including technological, organizational, environmental and strategical factors. The TOE model is useful in the prediction of wide range of innovations and contexts.

1) Technological factors narrated with three sub variables: information and communication technology, customer service and business processing. These will be both internal and external technologies.

2) Organizational factors are related with three sub variables: culture, security and privacy, trust which gives the several descriptive measures of firm size and scope, formalization and centralization with the complexity of its managerial structure as well as the amount security and trust with slack resources availability of SMEs companies.

3) Environmental factors constructed with variables of government intervention, business partner affiliation and value chain which related to industry, competitors, access to resources supplied by others and dealings with SMEs firm.

4) Strategical factors consisted with experience, need and value which gives theories of adoption of electronic commerce as well as the strategies that companies choose to develops a competitive advantage, the models on economic interactions, the barriers on the part of companies to be included in the electronic marketplace. The research model is displayed in the below:

Hypothesis Development

H1: There is a positive relationship between technological factors (information and communication technology, customer services, business processing) and e-Commerce adoption.

H2: There is a positive relationship between organizational factors

(culture, security & privacy, trust) and e-Commerce adoption.

H3: There is a positive relationship between environmental factors (government intervention, business partner affiliation, value chain) and e-Commerce adoption

H4: There is a positive relationship between strategical factors (experience, need, value) and e-Commerce adoption

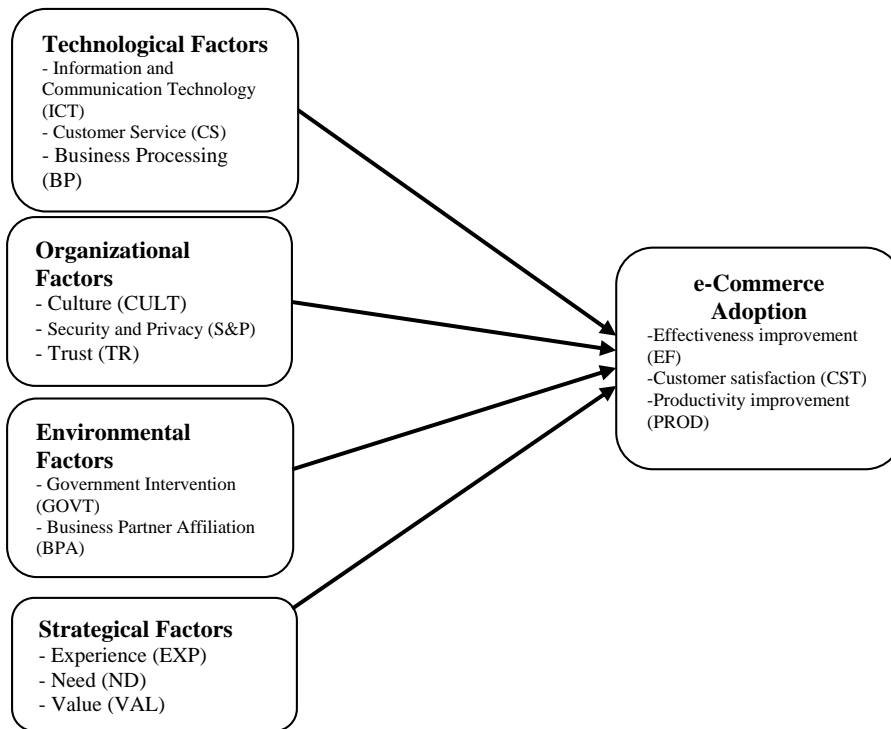


Figure 1. Research Model

Methods of Data Collection

The framework of this study based on TOE model illustrates the relationships between e-Commerce adoption by corporations and the freelance and interactive impact of technological, organizational, environmental and strategical critical successful factors which relating to owner/manager/employee profile. During the present analysis, responses were sought-after on every analysis question by formulating relevant queries with the analysis meant to assemble information from an outsized range of respondents in several business sectors that are set in elect regions over a large geographic area which are SMEs registered in Dhaka, Chittagong, Mymensing, Gazipur and Narayangonj regions of Bangladesh. Every respondent received a questionnaire and was distributed via email and Facebook for easy communication.

More than seven hundred SMEs have been elected from producing & construction, media & ICT, health services, sales and selling, transport, education, cordial reception, finance & insurance, agriculture & food process sectors. The sectors were elected to support the expected high utilization of innovative technologies, as earlier established through pilot study. Amongst them 500 respondents correctly responded to the questionnaires. Correlation analysis with proper regression model utilized to measure the impact of e-Commerce adoption on different factors.

Data Analysis and Discussion

Male and female participants are 78%, 22% respectively. Majority of the respondents 49.4% age between 31 to 40 years. 37% of the respondents are junior staff and simple workers, 19% are supervisor/foreman/section officer, 22% are branch managers, 18.3% are chief executive/managing director, and 3.2% are freelancers

participating in the study. Industry distribution among respondents; 16.2% belong to manufacturing, 13.4% to construction, 15% to finance, 20% to service, 12.2% to communication, 22.8% to technology, and 0.6% to other organizations.

Table 2. Description of Respondent Profile

Demographic Variables	Category	Frequency (N=500)	Percentage (%)
Gender	Male	390	78
	Female	110	22
Age	21-30 Y	6	1.2
	31-40 Y	247	49.4
	41-50 Y	173	34.6
	51+ Y	74	14.8
Occupation	JS/Simple Worker	185	37
	Supervisor/Foreman /Section officer	95	19
	Branch Manager	111	22
	Chief Executive/Managing Director	93	18.3
	Freelance	16	3.2
	Industry	Manufacturing	81
	Construction	67	13.4
	Finance	75	15
	Service	99	19.8
	Communication	61	12.2
	Technology	114	22.8
	Other	3	.6

Table 3. Descriptive Statistics

Items	Techno	Organi	Strat	e-Com	Envn
N	500	500	500	500	500
Range	3.89	2.19	3.00	2.53	2.67
Min	1.00	1.31	1.00	1.08	1.00
Max	4.89	3.50	4.00	3.61	3.67
Sum	1211.53	1237.58	1241.86	1255.11	1289.61
Mean	2.4231	2.4752	2.4837	2.5102	2.5792
SD	.58843	.55933	.60199	.44464	.52455
Skewness	-.263	-.473	-.373	-.468	-.600
Kurtosis	1.357	-.667	-.325	-.275	-.167

In the present table, the mean of technological factors is 2.42 with skewness of -.263 and kurtosis value 1.35. The mean value of organizational factors is 2.47, which is higher than the previous factor with skewness value of -.473. Strategical factor has higher mean than the previous ones with 2.48. The e-Commerce adoption factors have mean of 2.51 with skewness value of -.468. The highest mean is of environmental factors 2.57 with skewness value of -.600 which is highest with lowest value of kurtosis -.167.

Reliability and Validity Analysis

In Table 4, Validity of the instrument is tested through Cronbach alpha and KMO test. Cronbach alpha calculated the internal consistency and reliability of the scale. This shows that all the items have high internal consistency.

Table 4. Exploratory Factor Analysis

Items	Component
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	1	2	3	4	5	6	7	CA
ICT1	.941							.943
ICT2	.941							
ICT3	.881							
CS1		.867						.907
CS2		.827						
CS3		.823						
BP1			.785					.778
BP2			.649					
BP3			.550					
BP4			.936					
CULT1				.883				.776
CULT2				.879				
CULT3				.849				
SP2					.656			.914
SP3					.639			
SP4					.626			
TR1						.559		.881
TR2						.920		
GOVT1							.848	.821
GOVT2							.821	
GOVT3							.764	
BPA1								.773
BPA2								
BPA3								
Eigen	7.38	5.14	2.35	2.25	1.94	1.58	1.54	
Variance	16.84	11.64	5.44	5.24	4.52	3.68	3.58	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 4. Exploratory Factor Analysis (continued)

Items	Component							
	9	10	11	12	13	14	15	CA
VC1	.914							.910
VC2	.883							
EXP1		.867						.745
EXP2		.655						
EXP3		.774						
ND1			.704					.765
ND2			.661					
ND3			.914					
VAL2				.909				.817
VAL3				.853				
VAL4				.812				
EF1					.812			.808
EF3					.786			
CST1						.740		.790
CST2						.714		
CST3						.797		
RPROD1							.659	.831
RPROD2							.878	
RPROD4							.860	
Eigen	1.19	2.92	1.47	2.74	1.41	1.25	2.06	
Variance	2.77	6.11	3.98	3.87	3.25	2.50	4.12	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The KMO, known as Kaiser-Meyer-Olkin, is a measure of sampling adequacy. It shows the variance proportion in the variables caused by underlying factors. High value of KMO is close to 1.0, which shows the usefulness of factor analysis in data. If the value of KMO is less than 0.7, the results will be of no use (Field, 2009). The KMO value of the test is .806. This value is acceptable to high standard. This study used the method of exploratory factor analysis, which is considered more appropriate for the verification of reliability and validity of the variables. In total, we can factor analysis 50 items were run with variable maximization rotation

under principal component method, in which 7 items were deleted for poor loading and the rest 43 items were obtained with high loading value of over 0.50. Technological factors were composed of 10 items and Information and Communication technology items were obtained with high loading the range of .948 to .881. It explained the 16.84% of variance with Eigen value of 7.38. Customer services were obtained with high loading from .867 to .823. This explained the variance of 11.64% with Eigen value of 5.14. Business Partner items with loading from .936 to .550 explain variance of 5.44 with Eigen value of 2.25. In Organizational, Culture loading .879 to .849, Security and Privacy .656 to .626. In e-Commerce adoption Effective Improvement loading from .812 to .786 which explains the variance of 3.25 with Eigen Value of 1.41, Customer satisfaction with loading from .797 to .710 which explains variance of 2.50 with Eigen value of .125.

Correlation Analysis

Table 5. Correlation Statistics

Variables	Tech.	Org.	Env.	Strat.	e-Com
Technological	1	.086	.789**	.812**	.638**
Organizational	.086	1	.085	.051	.032
Environmental	.789**	.085	1	.711**	.664**
Strategical	.812**	.051	.711**	1	.525**
e-Commerce	.638**	.032	.664**	.525**	1

** . Correlation is significant at the 0.01 level (2-tailed).

In the table above, the dependent variable is 'e-Commerce adoption' and independent variables are technological, organizational, environmental and strategical factors. There is a

statistically significant relationship between the factor of technological and e-Commerce adoption ($r=.638$), $p<0.01$. This showed profound impact of technological factors on e-Commerce adoption. There is statistically insignificant relationship with organizational factors ($r=0.32$), which showed no impact of organizational factors on e-Commerce adoption in Bangladesh. There is a statistically significant relationship between the factors of environment and e-Commerce adoption ($r=.664$), $p<0.01$. The environmental factors also have profound impacts on e-Commerce adoption in Bangladesh. A weak statistically significant relationship is observed between the factors of Strategical and e-Commerce adoption ($r=.525$). The results of correlation analysis showed that all the independent variables have profound impacts on e-Commerce adoption except organizational factors.

Regression Analysis

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1 ^b	.692 ^a	.479	.474	.26801	2.116

a. Predictors: (Constant), Strategical Factors, Environmental Factors, Technological Factors, Organizational Factors

b. Dependent Variable: e-Commerce adoption

Model summary indicates the cause and effect model to understand and assure the relationship between variables. In this study, regression analysis will be used for hypothesis testing as significant or insignificant. To check how much variance is explained in the dependent variable (e-Commerce) by the model, R Square value was used. Model fitness is determined through R

square. It also explains the variance by independent variable. The value of multiple correlation coefficient $R=.692$ indicates a good level of prediction. The coefficient of determination R square $.474$ indicates that 47.4% of the variance in e-Commerce is explained by technological, environmental, organizational, and strategical factors. These critical successful factors significantly predict the independent variables, $F(4, 495) = 113.7, p = 0.000$. It shows that regression model is a good fit.

Table 7. ANOVA Test with e-Commerce adoption

Model ^a	Sum of Squares	df	Mean Square	F	Sig.
Regression	32.641	4	8.160	113.607	.000 ^b
Residual	35.555	495	.072		
Total	68.195	499			

a. Dependent Variable: e-Commerce adoption

b. Predictors: (Constant), Strategical Factors, Environmental Factors, Technological Factors, Organizational Factors

The ANOVA table showed the value of F which is statistically significant. The results showed that model fit and is significant which further shows the impact of e-Commerce adoption on independent factors, $F=113.7, p<0.05$.

Beta value is the value of dependent variable in the Table 8. It depicts the change in dependent variable. In this study, e-Commerce is dependent factor and technological, organizational, environmental and strategical factors are independent variables. The standard coefficient between technological factors and e-Commerce adoption is $Beta=.305, p<0.05$, between environmental factors and e-Commerce adoption, the standard coefficient is $Beta=.407, p<0.05$, between organizational and e-Commerce

adoption the standard coefficient is $\text{Beta} = -.024$, $p > 0.05$.

Table 8. Regression Coefficients with e-Commerce adoption

Model ^a	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.496	.152		9.84	.000
Technological	.305	.056	.353	5.43	.000
Organizational	-.024	.025	-.032	-.978	.329
Environmental	.407	.050	.440	8.17	.000
Strategical	.250	.051	-.073	1.28	.000

a. Dependent Variable: e-Commerce adoption

The standard coefficient between strategical factors and e-Commerce adoption is $\text{Beta} = .250$, $p < 0.05$. The results showed that organizational factors and e-Commerce adoption has no association with each other either positive or negative.

Hypothesis Test

These are the hypothesis to test through regression analysis. Hypothesis H1, H3 and H4 were accepted, while Hypothesis H2 is insignificant, because no positive relationship is observed among culture, security and privacy, and trust with e-Commerce.

DISCUSSION AND CONCLUSION

This study conducted in critical successful factors on e-Commerce adoption in Bangladesh SMEs. TOE model is used to investigate the different critical successful factors which producing effect on e-Commerce adoption. The factors selected in the study to

investigate their impact were technological factors, organizational factors, environmental factors, strategical factors. Each factor was sub-divided into different acronyms.

Organizational factors played a poor role in the adoption process, which is why organizational setup in Bangladesh is observable to a maximum standard to improve the e-Commerce adoption process. Among organizational factors, the culture is important to a maximum level. Improved culture within the country for SMEs can play a better role. Also, security and privacy is important for industries. If there are no rules and regulations from the government side for the industries to cater their privacy and security, there will be no survival for SMEs in Bangladesh. The adoption of e-Commerce has been a barrier in the past. With improved security and privacy, culture and the level of trust can manage the adoption process easy. Productivity improvement is directly related to culture and trust. In case of any issue or barrier between them, the overall e-Commerce productivity feature will be in decline, similar the case observed in the above Table [6].

The role of government intervention is partial. Environmental factors such as government intervention, business partner affiliation, value chain are important for the development of any organization. These factors include the role of Government, and it is obvious that Bangladesh government won't contribute to the development of e-Commerce adoption process. Lack of government support is the biggest problem nowadays, the reason behind the case is lack of interest in the future technological development of the country. The other barriers include the risk to adopt e-Commerce process because it has ample of transformations and need quick implementation of speedy and secure internet services. Also, the need to provide computers for the local marketers and to offer them quality internet connectivity services is the biggest issue in under-developed areas of Bangladesh.

Business partner affiliation and customer satisfaction are strongly correlated to each other. In case of customer satisfaction, the role of business partner affiliation is improved. Similar is the case with improved value chain on customer satisfaction. In both cases, customer satisfaction is important for the growth of SMEs in Bangladesh. Experience has impact over e-Commerce adoption; the more an employee is experienced in the field, the more he is satisfied and provides customer satisfaction. In demand and supply phenomenon, need and value are two assets, which are weakly related to e-Commerce factors. The improvement of need and value could maintain the e-Commerce adoption process. There is a strong impact on information and communication technology and customer satisfaction, Similar the case with effective improvement. Business services and productivity are poorly correlated, shows that business services have no solid impact on productivity improvement. Business processing and customer satisfaction are strongly correlated, shows that business processing demands customer satisfaction, also the effective improvement factor has greater role in business processing and customer services. This relationship shows that culture has positive impact on customer satisfaction, while culture has no impact on productivity. The security and privacy have strong impact on customer satisfaction, but weak impact on productivity, which shows that the role of security and privacy is limited in case of productivity.

In technological factors the role of information and communication technology (ICT) is limited among e-Commerce adoption. It has no impact on customer satisfaction and productivity. Business processing has no impact on productivity, but it has profound impact on customer satisfaction. If customer is satisfied according to business demands, the business processing will be higher. In environmental factors, business partner

affiliation is attached to customer satisfaction, but it has no profound impact on productivity. Customer satisfaction in e-Commerce adoption is the prominent factor which is attached to another factor. The case of productivity is limited, as the least affected factor is productivity.

This research has been conducted in Bangladesh as predictors of SMEs and their adoption of e-Commerce. The research developed a tool to further investigate the case of different critical successful factors of technological, organizational, environmental and strategical resources and the adoption of e-Commerce by SMEs in Bangladesh. Further research can be carried out under the same manual by inspecting the sub-factors of technological factors and strategical factors. Also, the role of government, in the adoption of e-Commerce for SMEs can be inspected to revolutionize the economic process of Bangladesh.

In every research, there are some limitations. This research offers some limitations also based on the area of research. The results concluded in the study are taken from the study conducted in Bangladesh. The industries consulted were small and medium sized enterprises. The sample of this research is 500 which include industries from all over Bangladesh. The limitations applied on e-Commerce module were to computers, technological tools and gadgets, internet and smart phones.

A reformation is needed in the telecommunication sector of Bangladesh. There is an urgent need to reform the financial and delivery infrastructure of the country for smooth e-Commerce operation and adoption. Also, there is an urgent need to publish a white paper for Medium and Small size business enterprises on yearly basis including the detailed information and data about SMEs' changing policies and plans and what is the situation of SMEs. The role of SMEs should be highly encouraged for progressive operations.

At government level, rules must be established to enable e-Commerce in Bangladesh as per Japanese SMEs pattern of rules. Highly trained officials must be hired from different countries to teach parties about the progressive business of e-Commerce. The role of SMEs can be increased with the transformation of relevant research in universities about scientific and technological aspects. To ensure of Mobile and Smart phones, Computers, Internet and software applications is necessary. The deregulation of telecommunication sector is a plus point for e-Commerce adoption. The Electronic payment system should be insured by the Government of Bangladesh. IT curriculum is the top requirement in schools, colleges. For that purpose, the board of education must ensure and devise a flexible and post-modern policy for e-Commerce facilitation.

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Emerging Challenges and Roles for Quantity Surveyors in the Construction Industry

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Received May 6, 2019, Revised May 23, 2019, Accepted Jun. 28, 2019

ABSTRACT

The current ever-changing environment of the construction industry demands Quantity Surveyors to update their knowledge and skills to cope with the changes. In order to provide insights for Quantity Surveyors to be able to manage a construction project productively and increase their ability in accordance with the current demand of the construction industry, this research conduct a questionnaire survey and interviews. As a result, the most critical challenges for Quantity Surveyors are a) Adopting new technologies such as BIM for their current practice, and b) Increasing their knowledge regarding sustainable attributes for a construction project. This research also disclosed that the expected emerging roles for Quantity Surveyors are a) Sustainable Advisory ability, and b) BIM ability for cost management. The research findings are expected to advise the current Quantity Surveyor and Quantity Surveying companies to prepare future competencies in accordance with the global trend.

Keywords: Competency, Quantity Surveyor, BIM, Quantity Surveying, Emerging Role.

INTRODUCTION

The construction industry has been regarded as one of the important national economic growth indexes. Customers' requirements in the construction industry have become more complex and demands for innovative technologies, customised designs and materials, environmental sustainability solutions, and productivity improvement have been increased significantly. As a response to these challenges and to meet the ever-increasing

complexity of construction projects, industry professionals have to be equipped with appropriate competencies and must be committed to continuous developing and deploying new skills. As Quantity Surveyor (QS) has provided financial services and economic consultations for construction projects, this profession has contributed to the planning and controlling a construction project over the years.

However, as the construction industry confronts more sophisticated customers' requirements that cannot be easily accommodated by the traditional competencies, QS has been demanded to update their skills and competencies by taking new roles and responsibilities such as risk management as well as adopting advanced ICT including Building Information Modelling (BIM) for more accurate and automated cost estimation and planning from the outset of a construction project (Kim and Park, 2018). Quantity Surveying is recently described as a mix of various professions such as contractual law, construction economics, and information management, and construction. Given the fact that all the current required skills and knowledge for QS are complex and challenge to obtain as an individual professional, continuous improvement and learning have become more essential for the success of QS in the construction industry. Indeed, Thayaparan et al. (2011) emphasise on long life commitment to learning as one of the most important characteristics of a successful QS. Said et al. (2010) reveals that the competencies of Qs are far behind the prospect needs of the future industry. Wao and Flood (2016) asserted that identifying the Qs' competencies for the future construction industry is essential, and Perera and Pearson (2011) pointed out that the current education system does not fulfil the needs of the construction industry and there is a discrepancy between quantity surveying graduates' skills and requirements of the industry. Shafiei and Said (2010) discuss that Qs'

competencies are difficult to pin down due to their complex role and the involvement of their knowledge and skills in various disciplines. Ismail et al. (2016) asserted that new technologies such as BIM are only applied in large-scale projects and the majority of the QSs have lack of adoption of these advanced technologies.

It is critical for QSs to recognise the future business directions and improve their ability to respond rapidly to abrupt changes in order to guarantee their careers in the competitive modern construction industry (Wao, 2016; Drogemuller et al., 2017; Phaho and Pouris, 2008). Furthermore, the absence of the competency-level benchmarking led to a dissatisfaction with the competencies of the graduate QSs within the industry (Xia et al., 2016).

CHALLENGES IN IMPROVING QUANTITY SURVEYOR'S COMPETENCY

The current areas of expertise of QSs are extended to various sectors such as taxation, insurance, valuation, finance, and manufacturing over time (Olanrewaju, 2016). Risk management, quality management and financial project appraisal are also required as new emerging competencies for QS (Yogeshwaran and Perera, 2018). Furthermore, as the construction industry strives to adopt advanced digital technologies such as BIM to improve productivity and maximise profits (Kim et al., 2016; Gunderson and Gloeckner, 2011), BIM and emerging technologies for cost estimating and planning as well as effective risk management and value engineering has been increasingly demanded (Prince et al., 2018; Kim and Park, 2018).

Yogeshwaran and Perera (2018) define competency as a collection of skills that an individual must possess to perform a specific job satisfactory (Olawumi and Ayegun, 2016). Australian Institute of Quantity Surveyors (2012) emphasises on cost and

contract management, project financial control, construction technology, and conflict avoidance. Royal Institute of Chartered Surveyors (2015) identifies dispute resolution, procurement and tendering, business planning, sustainability consultancy, accounting principles, ethics and professional practice, and client care as the core competencies of an expert QSs. Cunningham (2014) and Shafie et al. (2014) asserted that adopting and utilising soft skills is essential for QSs to improve their competencies in terms of communication, critical thinking and decision-making ability.

Furthermore, Cunningham (2013) asserted that QS needs to be able to adapt rapidly with advanced technologies including BIM to secure their future careers. Although there have been efforts to identify the QS's competencies, research has been focused on the current role of QS rather than the future role of QS. In order to embrace new business opportunities and render quality outcomes as a QS profession, it is important to forecast future challenges and evolving roles for QS and prepare to cope with the necessary changes. Thus, this research will investigate the future challenges and roles for QS in the construction industry to provide knowledge to prepare the required competencies for the near future in the construction industry.

METHODOLOGY

This research consists of a web-based questionnaire survey with follow-up semi-structured interviews to identify the future challenges and roles for QSs to cope with the changelogs in the construction industry by preparing and improving their knowledge and skills. A total number of 50 construction and Quantity Surveying professionals, who were identified through professional construction bodies including Royal Institution of Chartered Surveyors, Australian Institute of Quantity Surveyors, Project

Management Institute, and Pacific Association of Quantity Surveyors, were invited for the questionnaire survey.

The questions were categorised into three main questions: a) Participants' demographic profile; b) Future challenges for QSs, and c) Required competencies. The questions were comprised of multiple choices based on 5-point Likert Scale. The semi-structured interviews were conducted after the completion of the questionnaire survey to achieve comprehensive insights and knowledge from the subject experts.

RESULTS

Profile of Respondents

30 responses have been received (60% response rate), and the average experience of the respondents was 7 years. 30% of respondents (9 respondents) has more than 10 years of experience in the Quantity Surveying.

Table 1. Profile of Respondents (n= 30)

Role	Number of Respondents	Percentage (%)
Owner/Executive	2	7
Senior Manager	12	40
Middle Manager	12	40
Entry Level	4	13
Total	30	100

As shown in Table 1, the main target of questionnaire survey was the senior or middle level managers in order to obtain their insights based on two distinct viewpoints as a QS as well as a manager who manages other QSs.

Future Challenges for Quantity Surveyor

TAs shown in Table 2, the most important challenge in the QS field is the constant technological changes and updates. Multiple selections were allowed for the respondents to express their opinions as much and diverse as possible. Majority of the respondents indicated that 'Emerging ICT' such as BIM is the greatest challenge for Qs.

Table 2. Top 5 Future Challenges for Quantity Surveyors

Challenge	Frequency (# of Respondents)	Rank
Changes in technology	24	1
Lack of Sustainability Knowledge	19	2
Globalisation	12	3
Demand for Diversified Services	4	4
Competitive Job Market	3	5

Through the interviews, two senior QS mentioned that BIM has been introduced to the construction industry, but no one is sure what are the new roles and responsibilities for a QS in order to embrace BIM. In addition, all entry level Qs concerned about the expectation from their line managers and employers as they ask them to introduce BIM in their practice. In relation to the BIM skills, the entry-level Qs indicated that the current undergraduate courses need to be improved and introduce new technologies including BIM. This finding reveals that Qs are highly required to embrace new technologies, and the current construction management program is not coping with these demands effectively.

The second challenge was 'Sustainable Attribute' in the Quantity Surveying' practice. As a project sponsor or an owner wants to minimise energy consumption and maximise the use of sustainable materials, it has become more complicated to develop an accurate cost estimate and plan. An owner indicated that a building becomes draw more attention when it achieves high rate in sustainability assessment schemes such as Green Star and LEED, and subsequently, an owner can generate revenue faster than before as a building can be rented out faster with premium.

In relation to the sustainable attributes, a senior QS pointed out that project costs for sustainable attributes must be planned from the outset of a project since a project client brief and a conceptual design phase is critical to determine a design intent. Most of the interviewees agreed with the statement, and they indicated that there is a disconnection between QSs and a design team due to a contractual issue, and consequently, a QS get involved when a design is about to be finalised, and this practice renders negative impacts on project costs later as many sustainable attributes cannot be accommodated due to budget issues or unforeseen additional costs for procuring sustainable attributes. Furthermore, respondents also addressed the difficulties to select the right contractors so-called 'Green Contractors' who implement green practices. It is because they are used to use the lowest price or best value contact selection process rather than use sustainable procurement processes. One respondent mentioned that a standardised process or guideline for a green or sustainable procurement will improve QS's competency in procuring a sustainable building.

Globalisation, Demand for Diversified Services, and Competitive Job Market were identified as other challenges, and demand for various services and more competitive job market are caused by the Globalisation of QS roles and working boundaries.

As a global resource pool for QS can be utilised via advanced ICT, the globalisation results in various projects requested from various countries. Subsequently, various services are requested based on the geographical location and this requires cultural awareness of QS to work in different project environments. A senior QS, who has experience in the Malaysian construction industry, mentioned that younger generations will face new challenges to work with others from the different cultural background. He provided an example of cost estimation for a construction site as the most of Malaysian construction workers must pray at a certain time for religious reason and this must be accommodated by setting up a prayer room, which has an implication for project costs.

Emerging Roles for Quantity Surveyor

Respondents were asked to provide expected roles for QS that are increasingly being demanded in the construction industry. Multiple selections were allowed for the respondents to express their opinions as much and diverse as possible. As shown in Table 3, there are two most important roles identified, one is Sustainable Advisory ability, and another is BIM ability for effective cost management. All respondents commonly emphasised the importance of proper knowledge in sustainability and BIM not to be left behind the current incessant changes in the construction industry. This finding echo with the previous finding 'Globalisation' as sustainability and BIM is the most important trend that the construction industry focuses on.

Although the emergence of new technologies such as BIM is identified as the greatest challenges, it is expected as one of the important roles for Qs to obtain and practice in the future. All respondents pointed out that the virtuous circle between the University and the industry must be established in order to cope

with the current challenges. Senior Qs agreed that Quantity Surveying firms should invest in adopting new technologies to secure the competitiveness in the global construction market.

Table 3. Top 5 Expected Roles of Quantity Surveyors

Responsibility	Frequency (# of Respondents)	Rank
Sustainable Advisory	19	1
BIM Ability for Cost Management Project & Construction Management	19	1
Dispute Resolution	9	3
Tax Depreciation Services	4	4
	1	5

They also commented that a collaboration between the two parties should be complementary, and so University provides means for the industry to improve their practices and the industry provide a research idea for University to tackle on. Respondents also mentioned the Continuous Professional Development (CPD) activities. As aforementioned, the commitment to continuous knowledge improvement via life-long learning is inevitable. In alignment with this, Senior Qs criticised the CPD events as it fails to provide an opportunity for senior and junior Qs to learn new knowledge and skills. It is mainly because the most of events are mainly designed for simple CPD unit acquisition with contents not reflecting the most recent issues in the construction industry as well as a networking opportunity.

Expected Future Competencies for Quantity Surveyor

Respondents were asked to indicate their opinions regarding the current competency level of Qs. They identified “cost

management” as the top area of the QSs’ expertise, followed by “estimation and financial control”. On the other hand, “sustainability analysis” and “computer literacy” were recognised as the least skills of QSs. These results confirm that QSs have enough knowledge for their traditional services, while their competencies are not advanced enough to address the future industry demands. The findings are consistent with the previous studies outcomes which stated the quantity surveying profession faces significant challenges to comply with the requirement of green building. Moreover, “BIM management” and “suitability analysis” were cited as the top-ranked competencies for QSs to survive in the competitive future construction industry (Table 4). Interview results also indicate the same factors for the required competencies. All the interviewees agreed that quantity surveyors are expected to attain additional knowledge regarding the green building as well as innovative technical methods to sustain their future business in the construction industry. Once more, the results indicate that QSs are expected to expand their traditional core competencies to the new trend of innovative methods and implement sustainable and green approaches.

CONCLUSION

The construction industry focuses on green solutions and advanced technologies such as BIM to enhance sustainability and productivity in their practices. Quantity Surveyors are essential project participants for a construction project, and the current ever-changing environment of the construction industry demands Quantity Surveyors to update their knowledge and skills to cope with the changes. Yet, research indicated that Quantity Surveyors have remained behind in the adoption of sustainable aspects and advanced ICT technologies for their practice. In order to provide

insights for Quantity Surveyors to be able to manage a construction project productively and increase their ability in accordance with the current demand of the construction industry, this research conduct a questionnaire survey and interviews.

As a result, the most critical challenges for Quantity Surveyors are a) Adopting new technologies such as BIM for their current practice, and b) Increasing their knowledge regarding sustainable attributes for a construction project. This research also disclosed that the expected emerging roles for Quantity Surveyors are a) Sustainable Advisory ability, and b) BIM ability for cost management. As sustainability and BIM adoption are the most important global trend in the construction industry, Quantity Surveyors are not free from this trend and need to prepare the future roles. Thus, Quantity Surveyors need to improve their knowledge in sustainable aspects and BIM utilisation for moving forward in the era of industry transformation via advanced digital technologies. The research findings are expected to advise the current Quantity Surveyor and Quantity Surveying companies to prepare future competencies in accordance with the global trend.

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Management Review: An International Journal (MRIJ)

Objectives

Business management is a primary area of market competitiveness and sustainability in all types of industries. Managerial insights in the global and/or local business are major drivers of organizational innovation, business dynamics and business value chain. Managerial review will be an integral player in the 21st knowledge industry and economy.

Nevertheless, how to foster managerial review and insights have not been appropriately explored in terms of global or local business perspectives. In fulfilling of this urgent and timely theme, business management need more sustainable profitability, better operational excellence, higher goods and services quality, more proper market promotion, stronger leaderships, and more accurate financial planning in order that business organizations are more competitive.

This journal's main objective is to establish an outlet for executives, managers, educators, and researchers interested in a variety of topics in business management and insights in terms of global or local perspectives. Thus, papers will focus on the global or local implications of managerial review and insights in business settings.

Subject Coverage

Examples of topics appropriate to the theme of management review include:

- Case studies of business management
- Business decisions and insights

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- Business science research
- Business service research and policy
- Engineering management
- Entrepreneurial study and venture business
- Ethical issues in business and social responsibility
- Financing and investment
- Green, energy, environment, social business management
- Information management
- Leadership and organizations
- Market life management
- Management theory and philosophy development
- New business creation and strategy management
- Operational excellence with customer intimacy
- Pedagogy to foster business management
- Planning for profit and non-profit business
- Quality issues in business
- Resource allocation in local and global business
- Sustainability and profitability
- System and cybernetics management
- Technology and innovation management
- Tutorials in management
- Other related topics

Notes for Prospective Authors

Submitted papers must original manuscripts that have neither been previously published, nor currently reviewing for publication elsewhere. Full author guideline, academic research ethics and copyright agreement policies are available upon requests. All submitted manuscripts are refereed through a double blinded peer review process. KINFORMS, a subdivision of INFORMS, USA, has published the Journal twice a year, June 30 and December 31, respectively.

Management Review: An International Journal

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Management Review: An International Journal (MRIJ) publishes intellectual findings to academics and practitioners in profit and non-profit organizations as well as local and global institutions on all aspects of managerial issues. MRIJ promotes the findings of sharing knowledge, exchanging experience and creating new ideas between academics and practitioners. MRIJ encourages all manuscripts of multi-disciplinary and cross-functional approaches with theoretical and empirical, technical and non-technical, and cases studies related to managerial issues in certain individual organizations, societies, countries. The journal is a double-blind referred journal.

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Management Review: An International Journal (2019.1.1-2020.12.31)

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June 30, 2019

ISSN: 1975-8480

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