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USING AN IT STRATEGY TO IMPROVE COMPANY INTERACTION WITH THEIR SUPPLY CHAIN - A CASE STUDY OF A FIRE TRUCK BODYBUILDING BUSINESS IN THAILAND

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Abstract

This research is a case study of the impact of the introduction of information technology on the internal operations of a fire truck manufacturing company in Thailand and on its supply chain. Using Action Research, this study focuses on a fire truck manufacturing company, where supply chain efficiency was not improving and where costs of, and relationships with, both upstream suppliers and downstream clients in the supply chain were increasing. This research involved the interaction of the researcher and the company through three phases of change with the researcher being based in the company throughout the research process. This research is framed as 'strategy as practice' reporting the process of strategy development, implementation and review within a cyclic process of change, renewal, review and further implementation. Outcomes indicate that there were positive changes within the organisation and staff members are able to work more efficiently and effectively. This research provides evidence that ICT can assist in changing and improving business in conjunction with training, whereas policies can address support for business improvements. This research demonstrates that IT implementation highlights the importance of the usage of IT as it affects the company's supply chain, and deepens our understanding of the impact of IT to the organisation.

Keywords: *Strategy and IT, Supply Chain Management, Strategy as Practice, Network Effect Theory, Information sharing, IT adoption/acceptance.*

1 INTRODUCTION

This paper reports a study of the impact of the introduction of information technology on the internal operations of a fire truck manufacturing company and its supply chain relationships. The research focuses on a specific case study of a Fire Truck business in Thailand, where supply chain efficiency was not improving and where costs of, and relationships with, both upstream suppliers and downstream customers in the supply chain were increasing. The CEO decided that the introduction of IT hardware and software would be an enabler to address the effectiveness, cost and relationship issues for the company in its supply chain. The research involves the interaction of the researchers and the company through three phases of change with one of the researchers being based in the company throughout the research process. This research utilised strategy as practice as this approach is concerned with the study of strategy related to what people do and practice is concerned with 'the doing of strategy: who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy' (Jarzabkowski & Spee 2009, p. 69).

1.1 The research problem and the Company's proposed solution

This research was designed to resolve the problem of a lack of improvement in supply chain relationships at the CCC Company that has been in the Fire Truck business for 40 years. The CCC Company not only builds fire fighting vehicles, but also assembles rescue and recovery vehicles, firefighting boats, road sweepers, and sewage suction and cleaner vehicles. CCC also acts as an executive distributor and representative for many countries such as the American and European manufacturers in the Fire Rescue industry. However, the main products of CCC are Fire Fighting Trucks.

CCC has to ensure the quality of their products in order to gain reputation from its customers. In order to meet changing requirements from customers, CCC invested in technology by updating and modernising its engineering used in the production process to assure its production capability. However, the complexity of work inside the company, the apparent inability to coordinate work efficiently amongst staff members, and miscommunication amongst staff members resulted in delays in work processes and therefore both delays in ordering supplies and delays in delivery of fire trucks to customers.

Other business problems in CCC were identified as the complexity in the work process, familiarity with the traditional work processes used for many years, and a lack of information sharing between staff. Inefficiencies were also identified as some necessary information from suppliers or clients were ignored or not gathered appropriately; the filing system was antiquated; staff members in the same department could not continue the work when another staff was on temporary leave or sick leave or away from the company. This situation led to a huge loss to the business each year.

The CEO believed that if the complexity issue could be resolved, it would certainly lead to business improvement with appropriate cooperation between suppliers and customers being achieved. The CEO decided that to increase the level of business improvement, a new style of management, new capital resources and buildings and an appropriate strategy had to be implemented. He then started investigating obstacles that were obstructing the business flow. Their conclusion was that organisational culture and traditional work processes obstruct business growth. The business owner and managers found that technology has not yet been fully implemented in the organisation, and many staff members undertake duplicate work (Melville et al. 2004). This has led to a time consuming production process, inefficient working relations internally and with suppliers upstream in the supply chain and downstream with customers.

The business owner and managers also realised that this new expansion of buildings and facilities must have appropriate systems employed to facilitate work flow efficiency. CCC needed a strategy that describes the design or architecture of improved value creation, delivery, and capture mechanisms to provide appropriate direction to the business. The importance of such a business strategy is in defining the direction that the business delivers value to customers, entices customers to

pay for value, and converts those payments from customers to profit (Brandenburger 2010; Teece 2010).

The researchers were known to the Company CEO and the opportunity arose to participate in the development of solutions to the problem. This research then initially investigated the nature of the company and its supply chain, and the work processes used at CCC to service that supply chain. Following this initial investigation and discussions with the CEO and managers, the business owner, managers, and the researcher agreed similarly that the introduction of IT was needed. The introduction of IT (both hardware and software improvement, and access to the Internet; and an associated Company User Policy) had to then be implemented rapidly and prior to the new building construction was completed so that CCC could introduce their staff members to both new buildings and new work processes in a new business environment. This research is a study of the processes involved in implementing that strategic decision in CCC and the outcomes that emerged. The research question addressed was: *How does the introduction of an IT-based work systems impact on supply chain management both internally and externally in a Fire Truck Bodybuilding business in Thailand?*

2 LITERATURE REVIEW

This research is not simply a study of strategy as a product (Porter 1979, 1985, 1991, 2007). Rather, it is about a process of change created by strategy, studied and localized within one company. The research looks at the processes of strategy development and implementation across a period of time. The research approach ‘strategy as practice’ offers a more dynamic, practical approach to strategy and changes that result from the strategy process. Traditional research on strategic IT and Strategic Information Systems has focused on various influences such as technology, economics, power of suppliers, the IT function, competitive advantage, integration across organisational and intra-organisational boundaries, strategic context, product-driven transformation and the value of IT/IS (Buhl et al. 2012; Gable 2010; Merali 2010; Nolan 2012; Ward 2012). This research is also built on a resource-based view of organisations and on IT as a resource. Few, if any, of these previous studies and many others available have looked at strategy and IT as practice.

Strategy as practice is an approach that is concerned with a study of strategy related to what people do (Jarzabkowski et al. 2007; Whittington 2006). The focus is on practice and understanding the human agency in the construction and enactment of strategy (Jarzabkowski 2004; Jarzabkowski et al. 2007; Tsoukas & Knudsen 2002; Whittington 2003). Strategy as practice is concerned with “the doing of strategy: who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy” (Jarzabkowski and Spee 2009: 69). Strategy as practice can help improve practice by providing explanations about what happens when strategy is put into action, i.e. what activities take place and what are the outcomes of those activities. Jarzabkowski et al (2008: 283) state that “strategy as practice examines the actual doing of strategy: the material artifacts to hand, the language that is used, the physical positioning in strategy episodes, the laughter, anger, excitement, anticipation, boredom, repetition and political maneuvering that are bought together in strategy work.”

The argument for what people do and understanding the context in which they work as doers of strategy is grounded in the need to understand the wider social context in which the strategy is happening and being constructed. These ‘micro-phenomena’ (Jarzabkowski et al. 2007; Seidl 2007; Whittington 2006; Wilson & Jarzabkowski 2004) provide a basis to see strategy as social practice (Jarzabkowski 2004) and offer the researcher the ability to try and identify and then describe the explicit links between the macro and micro levels of strategy being undertaken in organisations. Strategy as practice opens understanding of how ‘localised interactions’ are shaped by, and shape, the wider context of the organisational setting (Carter et al. 2008; Chia 2004). By definition then, strategy as practice incorporates those activities that draw upon particular strategic practices, i.e. it is consequential for the outcomes, directions, survival of organisations across the complexities of organisational layers and through the interactions of multiple actors involved in the process (Jarzabkowski et al. 2007; Johnson et al. 2003).

A key element in researching ‘strategy as practice’ is to identify and describe the activities or practices happening in the strategy process. These practices are not static nor immutable (Jarzabkowski et al. 2007), but are diverse and variable, often combined, altered (Orlikowski 1996; Seidl 2007) or iterated (Corbitt 1997, 2000). The variations in all possible practices available in strategy as practice vary from workshops to discursive practices, conversational practices, procedures, planning, meetings, and other mechanisms like PowerPoint (Kaplan 2011), documents, charts, spreadsheets or notes (Jarzabkowski et al. 2012). Jarzabkowski et al (2007) and Jarzabkowski and Spee (2009) call such activities praxis and argue that human activities are mediated by artifacts such as meetings or plans or sometimes technologies that become implicated in a set of practices. A strategic plan or set of strategies are practices that enable strategy to develop outcomes (Kaplan 2011). Whittington (2007: 1579) argues that without these practices ‘strategy work could hardly happen’.

However, whilst research has indicated that strategy can be iterative (Corbitt 1997, 2000) and/or evolutionary (Paroutis & Pettigrew 2007), there is also a view that it is also episodic (Hendry & Seidl 2003; Hodgkinson et al. 2006) and sometimes ritualistic (Bourque & Johnson 2008). It is important to enable researchers to realise the possibilities of this view of strategy as it relates to changes that are all of and together evolutionary, iterative and dynamic.

In this study of three cycles of change within an organisation, the practices of the participants and strategists are important elements to understand, so it is crucial that the strategy is not seen as products but rather as practices as a means of grounding the research. In more recent research, Spee and Jarzabkowski (2011) argue from empirical studies that there is a recursive process of recontextualisation and decontextualisation in the strategy process. They argue that during strategy planning the actors involved actualise the plan in the current situation of their own context (recontextualisation), but over time plans take on meanings through aggregation or change that inscribes meanings which are not part of what individuals themselves might have prescribed as meaning (decontextualisation). Ultimately, Spee and Jarzabkowski (2011) argue that throughout strategisation there are periods or episodes of talk and planning, recontextualising and decontextualising, leading to increased acceptance of the authority of the strategic plan.

The conceptual framework of this research goes beyond just ‘strategy as practice’ and uses the various lens of other theories to inform the research (Figure 1). Network Effect theory (Chwelos et al. 2001; Katz & Shapiro 1986) argues that actions/decisions of a firm both depend on, and affect, the collective actions of other firms in their relational network, in this case the CCC supply chain. What enables that supply chain to be better managed is to understand the network effects and improve information sharing at the level of the organization (Lin 2007) and at the level of the supply chain (Yao et al. 2008).



Figure 1. The research theory context

Knowledge/information sharing (Ford & Staples 2010; Ling et al. 2009; Nonaka 1994) is also important here as research has shown that it can be used to create competitive advantage for the organisation (Bryant 2005; Grant 1996; Porter 1993). Van den Hooff and Huysman (2009) have found that organisational culture has an effect on organisational knowledge sharing, where the more interaction of employees in an organisation, the higher the trust can be expected amongst staff members themselves towards senior managers. The improvement of information sharing through IT can result in the problem of information overload as the sheer volume of information inundates

decision makers. Good management in information systems can organise the knowledge in the organisation in line with the need within the organisation (Chow et al. 2007). Information sharing improves coordination between supply chain processes to enable the material flow and reduces inventory costs. Information sharing leads to high levels of supply chain integration by enabling organisations to make dependable delivery and introduce products to the market quickly. Positive performance was found to be effective from transaction processing technology, led to operational performance, and impacted favourably on strategic performance in the long run (Jin 2006).

IT adoption/acceptance has been theorised and evaluated in many pieces of research over the past 20 years (Lee, Younghwa et al. 2003). Essentially the TAM and UTUAT models of IT acceptance/adoption (Davis 1989; Venkatesh et al. 2003) form the basis of that research demonstrating the key impact of certain concepts on acceptance/adoption: perceived ease of use, and perceived usefulness. Later studies have stressed the impact of innovation (Agarwal & Prasad 1998), use context – mandatory or voluntary (Brown et al. 2002; Venkatesh et al. 2003), technology type (Lee, Y. et al. 2003) and user characteristics (Morris & Venkatesh 2000), social influence (Venkatesh et al. 2003), and complexity (Venkatesh et al. 2003).

However, whilst theories like TAM and UTUAT offer some explanation of the reasons why individuals accept or do not accept a technology, this aspect of acceptance is only part of the focus of this research. It is as much about the impact of the use of IT on supply chain relationships. This study relates to a company centrally located in a complex supply chain. The strategy employed in the company then relates to the effects of the decision made about using IT to the upstream suppliers and downstream clients across the network of the supply chain. The argument put by the CEO is that the decision was made to improve supply chain management.

Supply chain management (SCM) is an essential tool that manufacturing companies use to achieve competitive advantage. The supply chain includes suppliers, manufacturers, distributors, retailers, and customers. Customers are the main focus of the chain since the primary existence of any supply chain is to satisfy customer needs, in the process generating profit for itself (Chopra & Meindl 2001, 2003). A supply chain links organisations directly with one or more flows of products, services, finances and information. The supply chain can be viewed as a set of interrelated processes rather than a series of discrete, non-aligned activities (Chwif et al. 2002; Douligeris & Tilipakis 2006). A typical supply network consists of inter-firm relationships that may connect multiple industries. As a result, supply network decisions often require consideration of a large number of factors from multiple dimensions and perspectives (Pathak et al. 2007). Supply chain management includes the activity of linking companies' internal processes with the respective ones at suppliers' and customers' organizations, i.e. Integration, providing a way to create unique and successful movement of supply along the chain (Frohlich & Westbrook 2001; Lorentz & Hilmola 2008).

This theoretical context is used to examine the three stages of decisions made in CCC. Their intent was to introduce IT to improve both intra-organisational effectiveness and management of the supply chain, improving the effectiveness of the company's relations with suppliers and customers. The majority of research in measuring organisational performance in supply chains - which includes perceived management processes, standards, knowledge domains, and IT - could be studied thorough a review of the literature in business and supply chain management (Tracey et al. 2005). It can also reveal that business relationships are extremely intricate constructs that are developed through systems or networks (Walsham & Sahay 2006). It is in fact groups of individual managers, employees in the organisation or departments that interact with one another (Sridharan et al. 2005; Stevens 1989).

3 RESEARCH METHODOLOGY

Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Creswell 1997; Denzin 1994). The context of this research is embedded in the interplay of company managers, the company owner, company employees, supply chain partners and the researcher on a daily basis. These interactions created a complex environment so the researcher needed to interact regularly with all participants. In this way,

the researcher becomes much more experienced with the context of their research and is able to justify their understandings based on the detail of their observations, discussions and interviews.

The research requires an understanding of what was happening and what happens when a change is introduced. This research therefore uses Action Research because action research is used to learn and understand how the implementation of an artefact or technology or process, impacts on improved business quality (Baskerville & Wood-Harper 1996; Kock and Lau 2001). The impact of IT on improved business quality depends in part on industry characteristics and trading partners in an organisational population or field (Melville et al. 2004). This then is qualitative research using a single case study (Stake 1978, 1995, 2005; Yin 2008), typical of the use of the Action Research Methodology.

Action research is an iterative process involving researchers and practitioners acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning (Avison et al. 1999). Action research explains the links amongst the key question of how the research generating knowledge is both valid and crucial to the wellbeing of individuals, communities, and for the promotion of larger-scale democratic social change (Alcorn et al. 2011; Brydon-Miller et al. 2003). Action research combines theory and practice, which includes both researchers and practitioners, through change and reflection in an immediate problematic situation within a mutually acceptable ethical framework (Rosemann & Vessey 2008). Shotter and Tsoukas (2011) state that action research is succinct, and the process of action research is a study into ways of life that cannot be conducted in the same, value-free way as in the natural sciences (Avison et al. 1999; Brydon-Miller et al. 2003; Shotter & Tsoukas 2011). In action research, a potential problem that researchers and practitioners can work together on to share a mutually acceptable ethical framework, can be resolved.

Susman and Evered (1978) detail five phases, cyclical process: 1) diagnosing 2) action planning 3) action taking 4) evaluating and 5) specifying learning. These five phases explain clear areas of importance in the ideal Action Research that is to create new or changed systems development methodologies. Studying new or changed methodologies implicitly involves the introduction of such changes and is necessarily interventionist (Susman & Evered 1978). A survey of the Action Research literature finds widespread agreement by Action Research authorities on four common characteristics: 1) an action and change orientation 2) a problem focus 3) an organic process involving systematic and sometimes iterative stages and 4) collaboration among participants (Baskerville & Wood-Harper 1996; Peters & Robinson 1984).

4 STRATEGY DEVELOPMENT AT CCC COMPANY

The research was conducted over three Action Research cycles (Figure 2) in a year.

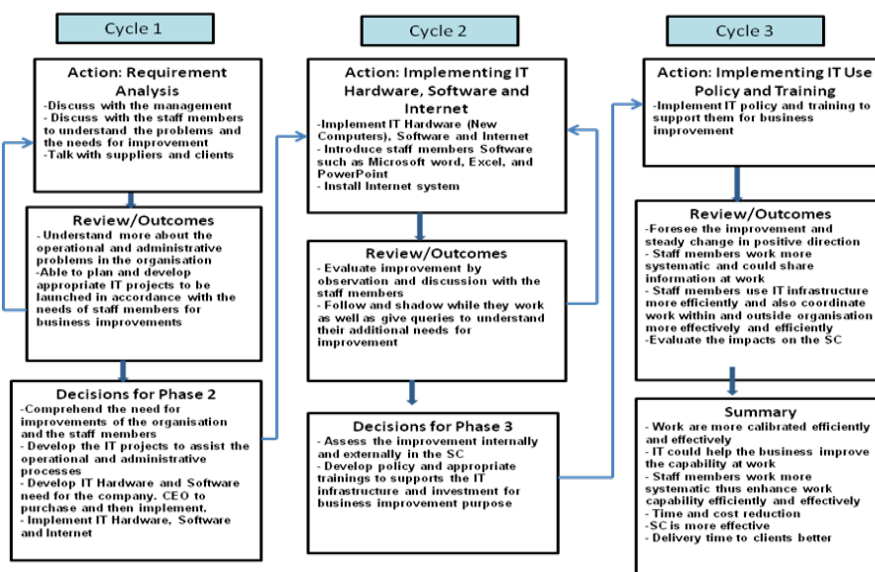


Figure 2. Research Cycles

4.1 Data Collection

The techniques for gathering the data included observation, in-depth, semi-structured, face-to-face interviews, and document analysis. In-depth, semi-structured interviews offer researchers the flexibility to inquire into organizational and other contextual issues (Silverman 2004). An in-depth interview is considered as a common data collection instrument in qualitative research and in an exploratory study, where a researcher seeks to obtain a deep understanding of the topic and intends to develop theories rather than testing them (Creswell 2008). Semi-structured interviews allow the interviewees to be free to introduce into discussion issues that they considered relevant with the topic discussion (Yin 1994). The themes of the interviews from 2009 to 2010 in Thailand, included the knowledge domain of each participant, standards used in Fire Truck industry, and the effects of the introduction of IT. The interviews were digitally recorded and to ensure the accuracy and comprehension of the interviews, the data recorded from interviews was transcribed into Thai, revised with the provisional list of themes coming from the adapted framework and research questions, translated into English and checked with an expert panel of people who can read both languages.

4.2 Data Analysis

Silverman (2004) suggests that the themes, patterns, understandings, and insights that emerge from fieldwork and subsequent analysis are the fruit of qualitative inquiry. This research used a process of coding information and seeking out themes in the data related to the phases in Action Research analysis reported above. Data was coded into meaningful categories that involved identifying and describing themes, patterns and concepts and then organizing them into meaningful categories to be able to understand and explain these themes, patterns or concepts (Creswell 2008; Silverman 2006). The intent used a process of coding information and seeking out themes in the data was to discover in each phase: What was done and why? What were the outcomes? And what needed to be changed or done in the next cycle and why? This was done iteratively and in collaboration with the senior managers and the staff in the company. In this research, the CEO was impressed with the changes that had happened as a result of the IT projects. The CEO commented that *'I am quite satisfied with the result of changes. I am confident the effects would lead to achievement of my expectations and would return value for my investment in improvement and extended IT in my company'* (The CEO on 2 March 2010, 3.15 pm, at the CCC Company). The CEO perceived that to gain and maintain access to the organisation, good social skills and a willingness to perform in the organisation was to open one's heart and mind.

4.3 Outcomes of cycle one

In this section a detailed description of what happened in Cycle 1 is given as an exemplar of the process used in the Action Research and a summary of the other two cycles given only. In the first cycle, interviews and discussion started with the business owner, and then with managers as well as staff members to understand the business environment as well as information about the business.

Cycle 1 Requirements Analysis

Action

- Interviewed key informants (a business owner, managers, and staff members, representatives of companies in the supply chain)
- Observed staff members at work
- Developed a list of requirements for CCC to meet the CEOs decision to implement an IT-based solution. Decisions were then made based on the review/outcomes below:

Review/outcomes

- The identification of major problems in the company in relation to (1) its supply chain relationships and (2) the complexity in the work processes internally.
- These problems were: difficulty in retrieving information; senior staff members were occupied with other duties; information sharing; database management within the organisation; double work allocation; work transferring process.
- Discussion with the CEO and then decision made about understanding of needs of the organisation to improve information sharing processes within the organisation, improve the efficiency of the supply chain, and improve communication system with the suppliers and customers to eliminate wrong order problems. The problems upstream in the supply chain were investigated and the researcher found that the suppliers there expected the company to improve communication systems and processes, whilst downstream clients of finished products expected to receive products on time. More importantly, the downstream clients expected to receive manuals of products together with product information at the time they enquired. The company had to have this information about products available for them accurately.

Table 1. Outcome of cycle one

4.4 Outcome of cycle two

In the second cycle, the researchers and the IT manager implemented the decisions about the phase 1 IT projects in the organisation. The actions and outcomes could be demonstrated as followed:

Decisions for cycle 2

- Assist the IT manager to develop IT projects to implement in the organization aiming to improve the business sharing information process. The projects were 1) needs assessment for IT tools and equipments – to know what are the actual need to help them facilitate work improvements 2) Network Development in Main Office (WAN, LAN, and Wireless System) – to help staff members to be able to coordinate work and share information 3) Internet system via WAN, LAN, and Wireless System – to improve communication process and information sharing and 4) Database Management System – to facilitate staff members to acquire information upon their need accurately
- Attempted to rectify the problems and to solve them appropriately. The problem was solved by having meetings to find appropriate specification of computers and mainframe that were needed for the company, then software to install in computers to facilitate their work and internet system to facilitate the communication process and information searching process. Eliminate their fears of the changes of the new work process by providing staff members information to understand to use of IT, asking IT staff members to spend time with other staff members after work to train them to get acquainted with computers and show them to use Software such as Microsoft word, Excel, and PowerPoint.

Cycle 2 Implementation of IT projects

Action

- Implementation of IT projects that were developed in the cycle 1
- Observed while the staff members were at work

Review/outcomes

- staff members started using computers at their working station rather than waiting for other staff members who were competent with computers to operate the computer for their works
- staff members stayed late at the office in the first month after work
- the computer skills improved and staff members felt comfortable to operate computers and understand the importance of using computers
- suppliers received orders timely and accurately
- customers satisfied with communication system and process as they could received information timely and accurately

Decision for cycle 3

- Assess the need for trainings and organise trainings for staff members
- Assist to develop appropriate IT policy for implementation

Table 2. Outcome of cycle two

4.5 Outcome of cycle three

After several meetings and discussions during the business expansion period between the year 2008 and 2010, in this third cycle, the researcher and the IT manager implemented the training and policy. The actions and outcomes were demonstrated as followed:

<p><u>Cycle 3 Implementation of IT user Policy and Additional Training</u> <u>Action</u></p> <ul style="list-style-type: none"> - Implement trainings for staff members - Implement IT policy to assist their process 	<p><u>Review/outcomes</u></p> <ul style="list-style-type: none"> - the communication problem and some of the work processes - Staff members are eligible to use computers and new computer applications more efficiently - Suppliers satisfied with the orders from the company as they could manage and minimise the cost of wrong orders - Customers could follow the progress of their orders timely and accurately
<p><u>Summary</u></p> <ul style="list-style-type: none"> - Staff members were willing to join training sessions. They felt that the training provided them with better knowledge and they could use and apply it to their work environment and make work better - Staff members increasingly knew how to share information and help the organisation to save costs - The information sharing process was also achieved and performed more efficiently - Senior staff members had more time to spend on other crucial tasks - Staff members could access information and learn information on their own - Staff agreed that their work became more efficient - The supply chain relationships with suppliers and customers improved - Staff members could work in the organisation more efficiently and effectively - The performance of the organisation improved overall 	

Table 3. Outcome of cycle three

5 DISCUSSION AND CONCLUSION

The major contribution of this study is that it has led to a better understanding of complexity in the organisation, how a business can be improved in the Fire Truck industry through enhancing information technology systems, and how the introduction of IT projects can be effective for work in a company, and how that internal improvement can have beneficial effects both upstream and downstream in the supply chain. Problems that were incurred in the business operations such as a miscommunication, inadequate retrieval and sharing of information were resolved and rectified, thus information was better shared and staff members were able to work in the organisation more efficiently.

The role of supply chains from a network perspective is to link different organisations that operate businesses or related businesses together as well as processes within an organisation. In this study the use of IT enabled those linkages to improve e.g. communication process, sharing information, and using IT to develop a standard of documents amongst staff members and the transmission and use of these up and down the supply chain. They also enabled the relationships between CCC and the suppliers upstream to get better with improved communication and this enabled the suppliers to get products and parts to the factory more efficiently and in better time. The research showed that IT adoption strategy can bring about improved efficiency and effectiveness of business operations to become more productive, thus targeting cost reduction, gaining better inventory management, developing appropriate time management, improving supply chain relationships and delivery from upstream suppliers and to downstream clients and enrich the competitiveness of the company. The research also showed that information sharing and an IT adoption strategy can have significant impact on business operations; enable the company to achieve better performance, to gain higher productivity, and to achieve cost reductions. The IT used at CCC provided a boost to supply chain management by automating transferring information in real-time and provided efficient means of data storage. Theoretically, the research has shown that by understanding the process of strategy creation and re-creation through using the strategy as practice concept enables in depth understanding of how strategy itself can be an effective tool in resolving decisions iteratively continuously rather than from one year to another. The research showed that IT adoption as part of strategy in practice is affected by those expected factors already part of the literature. However, this research has shown how context in the company and the importance and relationships in the supply chain make those 'factors' more

relevant to the users. Theoretically, the interrelationships of information sharing, strategy as practice, supply change management and its network structures and processes, and ultimately improved business performance and the adoption of IT are indeed interdependent. The introduction of IT use strategy in the company enhanced communication and work processes in the company efficiently.

Strategy was used in the CCC Company to create improved competitiveness in their industry. Using a 'strategy-as-practice' framework the research showed that the integration of praxis, practices and practitioners enabled the researcher and the CEO to understand how strategy becomes embedded in practice and practice becomes the strategy. The research showed that an IT adoption strategy can bring about improved efficiency and effectiveness of business operations to become more productive, thus targeting cost reduction, gaining better inventory management, developing appropriate time management, improving supply chain relationships and delivery from upstream suppliers and to downstream clients and enrich the competitiveness of the company, an effect that has applications to many businesses (Ashurst et al. 2012; Barratt 2004).

This research showed that strategy can be:

1. Iterative and evolutionary: there was no changed document or strategy product. The strategy was repeated continuously and changed incrementally; there was also improvement of communication process was taken place in each iteration;
2. Episodic: the research showed that there were continual breaks in the strategy process such as from cycle 1 to cycle 2, then to cycle 3. These breaks were to deal with other issues. For example, from cycle 1 to cycle 2, the researcher suggested to the CEO to purchase hardware, software and an Internet system to implement in the company. This caused a delay and other business matters were focused on. From cycle 2 to cycle 3, the IT projects were implemented and then the researcher investigated and observed improvements within the cycle. Each period of observation coincided with an 'episode' in the strategy process in the company; and
3. Ritualistic: the CEO initiated the rituals of IT changes. He trusted that IT could help facilitate the work process and enable staff members to work more efficiently. He talked with and encouraged staff and added to the company culture. This was presented to the staff as a means to make the company more secure business-wise. The CEO saw it as something 'we did everyday' and used it himself to assure the staff.

This research shows that a new IT infrastructure, implementation of relevant and strategic IT projects, training, and business policy led to business improvement through its positive impact internally and this had a significant impact on the company's relationships with its supply chain suppliers and clients. This research also deepens our understanding of the impact of IT use for business operations and should encourage business managers or business owners to implement IT as an enabler to improve their business operations.

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