

ENTERPRISE SYSTEMS AND CUSTOMER AGILITY EXPLORATORY STUDY IN VIETNAM

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Abstract

Contemporary companies in developing countries are raising their budget on Enterprise systems (ES). ES are expected to enhance Customer agility (CA) which refers to a firm's capability to sense and respond to customer changes effectively. However, research in the relationship between ES on CA is contradictory. Taking Vietnam as the context, our study investigates the role of ES on CA in ten interviewed companies. Using multi-case methodology, the study also aims to seek for deep observation of CA in Vietnam business. Consistent with past literature, CA in the interviewed companies is affected by organizational context (i.e. industry, business function). In Vietnam, the role of ES on CA is not seen at its full extent. Most companies use ES to store and process data for its daily operation. Only a few of them store multiple types of data in their ES and utilize the advanced functions of the ES for customer analysis. Moreover, even when companies highly appreciate the competence of ES for advanced customer behaviour analysis, top managers are not using ES as a main source of information for their customer related decision-making. Due to their lack of trust on the capability of the system, low self-efficacy in ES usage plus the Vietnam trading specifics, top managers prefer other sources of data, own experiences and own report styles to make decisions.

Keywords: Customer agility, Enterprise systems, IT strategy, Organizational agility, Multiple case study.

1 INTRODUCTION

Companies nowadays are operating in a dynamic business environment in which fast changes can happen in various areas (e.g. changes in customer behaviours, environment, politics, and technology) (Tallon & Pinsonneault 2011). A political incident can lead to fluctuation in oil price that severely affect many industries. The favour of customers in organic products may cause paradigm shift of whole agricultural industry in extensive scale. To respond to such dynamic environment, it is critical for companies to build a capability to deal with changes. This organizational capability to sense and respond to environmental changes is defined as organizational agility (OA) (Overby et al. 2006). Together with partnering agility and operational agility, customer agility (CA) is one of the three core dimensions of OA (Sambamurthy et al. 2003) and describes the capability of a company in sensing and responding to customer-based changes (Roberts & Grover 2012). Current literature suggests that CA is a required capability for companies to overcome nowadays changing environment (Seethamraju 2014; Roberts & Grover 2012).

Enterprise systems (ES) are defined as a software package that enables information integration and business processes integration within a company or between companies with their partners in the supply chain (Markus & Tanis 2000). ES can include Enterprise Resource Planning System (ERP) and other packages such as supply chain management (SCM), customer relationship management (CRM) and so on (Markus & Tanis 2000; Hendricks et al. 2006). ES are expected to bring in many benefits to organizations. For example, ERP allows process automation hence reduces the cycle order and cash-to-cash order time that will lead to better financial performance as well customer satisfaction (Hendricks et al. 2007). SCM systems support companies to collect and make plan on real-time data and hence improve their response to both supply and demand changes (Hendricks et al. 2007). CRM allows companies to better control and use customer data for customer-based opportunities (Hendricks et al. 2007). Due to the potential benefits, contemporary companies have invested heavily on ES (Pham et al. 2011; Zain et al. 2005). This phenomenon has called for research to investigate the influence of ES on performance of a company. In responding to this research call with focus on customers, the current research is designed to explore the impact of ES on CA of a company.

Literature has grown in this topic; however, findings on ES-CA relationship are not consistent (Seethamraju & Sundar 2013). There are research results which support positive relationship between ES and OA or CA; however, there is also research which reveals that ES can inhibit OA or CA due to its nature of a rigid information technology solution which is built under the purpose of controlling the business (Trinh et al. 2012). In addition, so far research in ES related topic has focused on developed countries while leaving a gap in ES research for developing markets despite the reality that companies in emerging markets like Vietnam are gaining their budget for ES implementation (Pham et al. 2011; Zain et al. 2005).

The remaining paper is divided into five sections including literature on ES-CA relationship, research methodology, findings, discussions and conclusion.

2 LITERATURE REVIEW

Literature postulates that organizational agility is an evolvement from organizational adaptability and organizational flexibility (Nejatian & Zarei 2013; Trinh et al. 2012). Organizational adaptability emphasizes on the fit of organizational operations to the environment (Sherehiy et al. 2007). Organizational flexibility describes the ability that an organization can switch its structure, business processes and company resources to keep up with the changes (Sherehiy et al. 2007; Swafford et al. 2006). Hence, while adaptable organizations would respond to change passively, flexible organizations would be able to proactively respond to changes that have been predefined. On the contrary, organizational agility refers to the ability of organizations actively coping with changes (Trinh et al. 2012). Moreover, research on how to achieve OA suggests the two fundamental processes

of sensing changes and responding to changes (Roberts & Grover 2012; Trinh et al. 2012; Tallon & Pinsonneault 2011). To be agile, organizations need to continuously visualize, to sense, and to be proactive to the coming changes instead of taking actions only when changes have already happened. Furthermore, in order to achieve agility, there should be alignment between the sensing and responding capabilities (Roberts & Grover 2012; Trinh et al. 2012). By aligning the two capabilities, companies not only obtain sufficient information about emerging market need but also are able to make appropriate adjustments to their resources to capitalize on it (Roberts & Grover 2012).

Sambamurthy et al. (2003) propose a model in which OA is the synergy of customer agility, operational agility and partnering agility, which is well adopted by majority of latter studies. Looking at an organization from its supply chain perspective, its operation fall into three areas: between the company with its customers, within the company itself and between the company with its suppliers. Hence, effective and agile organizations need to build up its capacity at each of these areas. More importantly, a complex, synergized and interrelated relationship among customer agility, operational agility and partnering agility will leverage a company's competitiveness, which is critical for a company to deal with changes. In particular, customer agility describes companies' ability of interacting with customers for market information and flexibly responds to the market changes.

Research on the relationship between ES and CA usually addresses the question whether ES facilitate or inhibit CA. Firstly, ES are found to support CA (Seethamraju 2014; Roberts & Grover 2012; Sambamurthy et al. 2003). Besides providing data storing service, ES allow companies to exploit customer data by performing sophisticated analysis so that companies can anticipate the shift in customer trends and appropriately respond to the market (Sambamurthy et al. 2003). According to Sambamurthy et al. (2003), ES provide a virtual platform which encourages customers to share their feedback, experiences, and suggestions with the companies. By doing this, it allows interaction between companies and customers for more business opportunities. Consistently, it is found that ES allow firms to gather customers' data and build valuable customer knowledge and hence positively influence on the sensing capability of a company on market changes (Roberts & Grover 2012). A well-integrated ES enhances coordination within an organization to improve the information flow and synergize the efforts of internal units for better market response capability (Roberts & Grover 2012). In addition, the competences of ES including business process standardization, integration, visibility and control of processes and information are critical for companies to achieve high level of CA (Seethamraju 2014). Seethamraju (2014) suggests that these competences allow ES to assist companies in gathering market intelligence and hence enhance companies' capability in sensing and responding to market changes.

Despite the dominant of facilitating ES-OA relationship, research also reveals that ES can inhibit CA. First of all, similar to other technologies, ES inherit several weaknesses which can inhibit CA (e.g. the complexity of the system, high switching costs plus tight budget, limitation in system's modification capacity and so on) (Oosterhout et al. 2006; Rai & Tang 2010). Moreover, ES are built to help enforce control and efficiency instead of flexibility or agility (Newell et al. 2007; Tallon 2008). To be able to enhance OA, ES should be able to perform both controlling (via its standardization competence) and flexibility (when there is business process change request). However, the balance between these two tasks is not always seen at the optimal level that will restrict ES from enhancing OA (Tallon 2008). In addition, companies tend to implement ES as a solution for specific problems at specific time (DongBack & Paz 2008). Thus, the systems can become out of date, especially under highly turbulent business environment (DongBack & Paz 2008).

The third view into the relationship between ES and CA is neutral (Oosterhout et al. 2006; Overby et al. 2006). Researchers' viewing from this approach postulate that it is a lot more complicated than just to say that ES facilitate or inhibit CA. They claim that ES management is the key factor that decides how ES will support CA instead of the system or the technology itself (Oosterhout et al. 2006; Overby et al. 2006). Without appropriate information management strategy, the systems will inhibit instead of facilitating OA. Management interventions (e.g. the support of higher management, the acceptance of users, the budget availability, and the capability of IT team and so on) are management issues that

should be taken into account to build a facilitating ES-CA relationship. Moreover, industry characteristics can also affect the relationship between ES and CA. For example, in some industries that rely heavily on information technology, ES are considered as the primary enabler of agility. However, in some industries, the relationship is not obviously and necessarily seen (Trinh et al. 2012).

The review shows that the findings on ES-CA relationship are inconclusive. It is due to different approaches in defining ES as (1) a IS artefact or (2) working system which respectively lead to (a) inhibiting view and (b) enabling view (Trinh et al. 2012). In this research, we look into ES from a holistic view with different enabling factors instead of an information system artefact. Moreover, current literature still has a focus on the implementation stage rather than the post-implementation issues (Zhu et al. 2010). As such, how ES affect CA has been less researched. This research will overcome this gap by investigating ES performance during the post-implementation. In addition, reality has shown that developing countries like Vietnam currently have a need for qualified information that is targeted, real time and reliable as well as for communication technologies under the emerging economic expansion (Zain et al 2005; Walsham & Sahay 2006). To fulfil this need, companies in the developing countries are now having an increasing interest in ES investment (Moohebat et al. 2010; Shah et al. 2011). Despite this, research in ES related topics tends to overlook developing countries while the attention has been drawn more on developed countries (Pham et al. 2011; Zain et al. 2005). In reality, there are differences (e.g. the maturity of IT usage, society and culture) between developing and developed countries which can significantly influence ES performance (Tarafdar & Roy 2003). To address this research need, our study takes Vietnam as the context.

Hence, the study aims to address the identified research gap by investigating the role of ES in CA in Vietnam perspective. As a result, the study has two objectives:

1. How is CA interpreted in Vietnam context?
2. What are the roles of ES in achieving CA in Vietnam?

3 RESEARCH METHODOLOGY

The study employs interpretive multiple case studies design. Case study method allows collecting rich data from real world contexts for expanding or building theory (Yin 2013). In comparison with single case study, multiple cases study method recruits various case companies, thus, allows replications for a more robust theory built (Eisenhardt et al. 2007). Moreover, consistent to the research questions, multiple cases study methodology is also said to be critical for IS studies which have a stress on organizational issues rather than technical issues as it allows researchers to take into account the complexities of organizational factors (Benbasat et al. 1987). In addition, multiple cases study methodology is a good choice for various IS/ES research topics, especially for new ones that require more knowledge to be generated from practitioners (Benbasat et al. 1987). In comparison with developed countries, our initial observation in Vietnam has shown that the construct OA is not yet a well-developed topic. Thus, multiple cases study methodology will enable the study to gather as rich data as possible to build deep understanding on concepts before any ES-OA relationship finding is expected.

As the study focuses on the impact of the ES on CA which should be more obvious towards the post-implementation stage, participating companies need to have implemented at least one ES for at least one year. The research group has formed a list of 229 companies which have implemented at least one kind of ES (i.e. ERP, CRM and SCM) in Vietnam. Among them, ten companies were selected thanks to their willingness to participate in the study. Data was collected through semi-structured interviews with one or two key respondents from each company. The interviews lasted ninety minutes on average and were recorded under permission of the respondents. The respondents are the senior IT managers or other senior managers who critically involve in the ES environment of their companies. These positions are chosen due to their involvement and insights in both IT and business sides as well as

their decision making power at the strategic level. Thus, the respondents are expected to be able to meaningfully evaluate the role of ES on CA in their companies. A brief summary of companies' characteristics and respondents' position will be introduced in Table 1 below.

The recorded interviews were then transcribed and interpreted into English by one research team member. Data is translated back and forth to make sure that the meaning is not distorted by the language barrier. The transcripts later were reviewed by two other team members (i.e. one participated in the interviews and one did not). The collected data is coded and analysed according to the two following themes: (1) how respondents understand and evaluate customer agility in their companies and (2) how respondents see the influence of the implemented ES on customer agility. The research team uses Nvivo 10 to build a node tree for data coding and data analysis process. The detailed protocol were designed by researchers and divided into two main themes: CA and ES-CA relationship. While manually reading through the transcript, researchers will link the relevant passages of texts from the transcripts into appropriate predefined nodes. Texts which are not relevant to the predefined nodes were grouped separately for further analysis. The coding leads us to a number of constructs which represent the questions we asked during the interviews.

Industry (Name)	Company details	ES characteristics	Respondents
Beverage producer (V-Beverage)	4000 employees in Vietnam (VN)	Go-live in 2010; ERP	Vice President (HR, IT, Finance)
Construction (G-Construction)	Belong to one of the biggest construction groups in VN	Go-live in 2010; ERP	IT director
Sales entity of the Electrics supplier (G-Sales)	110,000 employees globally	Go-live in 2004; ERP, CRM	Customer Service & Quality Director
Beverage producer (G-Beverage)	The joint-venture of the two large worldwide beverage producers	Go-live in 2006, ERP and other planning systems	IT manager
Life insurance (G-Life)	500 employees in VN, the third biggest life insurance company in VN	Go-live in 2011; CRM, ERP	IT Director
Pharmaceuticals (V- Pharm)	Top 500 biggest companies in VN	Go-live in 2013; ERP	IT Manager
Packaging (G-Packaging)	13,800 employee globally, leading packaging company worldwide	Go-live in 2003; ERP, CRM	IT Manager
Electronics Retail (V-Retailer)	Top 3 in VN electronics retail market	Go-live in 2008; ERP, CRM, HRM	IT Director
Children and Women Care Products (V-Care)	2000 employees in VN	Go-live in 2009; ERP	IT&ERP Manager
Insurance (V-General)	1710 employees in VN, top 3 in VN insurance market	Go-live in 2004; ERP	IT Director

V: Vietnamese owned companies; G: Global owned companies

Table 1. Description on interviewed companies

4 FINDINGS

4.1 Customer agility

The data analysis reveals that companies in consumer oriented industries (i.e. FMCG, Healthcare Products, Retail and Life Insurance) which face dynamic consumer behaviour changes report the significant role of customer agility. Meanwhile, in other industries the impact of customer agility is not critical (see table 2). The V-Retail admits that their business would not survive in changing environment in Vietnam if they are not agile enough: *“You will see most of players in industry close their business very soon in Vietnam. We are one of the very few survivals. In Vietnam, no company can beat us in pricing and promotion strategy”* (IT Director). Moreover, the G-Care shares that the company is synthesizing all resources (e.g. *“company culture, top management support, information*

integration”) to achieve high level of customer agility. The company is confident that “our company is extremely agile. If there should be changes in customer need, or product attributes, we can manage these changes very quickly.” In addition, the G-Life pays high attention to customer agility. The company has a “customer strategy regional strategy unit which will be responsible for investigating in these trends. They investigate all countries in the region to see the popular trends.”

Customer segmentation	Consumer oriented					B2B				
Industry segmentation	Manufacturing			Service		Manufacturing			Service	
Company	V-Beverage	G-Beverage	G-Care	V-Retail	G-Life	V-Pharm	G-Packaging	G-Construction	V-General	G-Sales
Presence of customer agility	x	x	x	x	x					x

Table 2. Presence of customer agility

Customer agility is also highly critical for companies which operate in FMCG industry (i.e. V-Beverage and G-Beverage). The V-Beverage, for example, aims to update consumer trends constantly and weekly. The company has a team of 1,000 salespersons to visit each of the 300,000 outlets weekly. The visits will enhance the relationship with outlet owners as well as get salespersons updated about the activities of competitors, the reactions of consumers and so on. The company calls it as the “irreplaceable activity. The sales activities are very important. When I (salesperson) come to visit you (outlet owner) at an outlet, I know about your family. I can ask you how much you sold last week, why the inventory for one particular product is still very high or if other competitors are offering promotions. The interactions will also help salespersons in selling new launched products. A product has its life cycle. It is the relationship between us and the outlet that will decide whether our products are always known by the consumers. As a result, every company has to maintain this relationship by ensuring that our staffs are serving the outlets.” Recently, to improve this practice, the company applies GPS technology to control salespersons’ activities and make sure that they indeed come to the outlets. In the future, the company is planning to increase the salespersons’ awareness to engage intrinsically them on such sales activities.

Meanwhile, in other companies which mainly do B2B business, especially in manufacturing industry (e.g. the G-Packing, G-Constructions or the V-Pharm), customer agility is not highly required. For example, the G-Packing reports that customer requirement changes are not often seen in packing industry and hence, customer agility is not critical for the survival of the organization. The interviewee says that “I have joined the company for ten years. I have not seen changes in printing technologies. If there are improvements, the later versions can have more functions in fault controlling or there can be improvement in speed.” The only change in customer requirement which leads to change in technology observed was a “new kind of standing package for clothing softener which happened some years ago.” In this company, the current minor role of customer agility can also be seen at the missing of the marketing team. Moreover, the V-Pham also does not pay much attention to customer agility. When being asked about the prospect of implementing CA supporting systems like CRM, the company shares that “CRM suits retailers more than it does to us. As you know, we are manufacturer, in our distribution; our smallest customers are pharmacy, not the end user”. Our findings strengthen the current research argument that the differences among industries context can significantly differentiate customer strategies of one company from another (Steel et al. 2013).

Moreover, our observations show that the specific organizational structure and business functions of each organization (e.g. whether it is performing purchasing, production or marketing function) critically affects customer agility strategy. For example, organizational context of the G-Construction entity is quite special. The company is operating as a construction unit. Its function is to construct buildings and bridges according to the orders of the parenting Group. This company has no drive for a more effective customer strategy as there is another company in this Group which is responsible for

sales and marketing activities. In contrast, the G-Sales entity is a sales representative or a commercial entity of an international Electronics Group in Vietnam. The company performs sales, marketing and customer services. Thus, the company reports high need for customer agility: “*customer’s satisfaction is our first mission*”. Customer demand analysis is professionally done in this company to help companies become more agile to customers. Our findings are consistent with recent study of Seethamraju (2014) revealing that customer agility is not required by all businesses. Seethamraju (2014) observed that in business which are more transactional and stable (e.g. production process performed by the G-Construction entity), customer agility is not as necessary as in businesses which engage more with customers (e.g. sales, marketing and customer services processes performed by the G-Sales entity).

4.2 The role of enterprise systems on customer agility in Vietnam

Companies also invest in innovation systems (i.e. ES) for achieving customer agility. All six companies which report the need for customer agility are implementing some kinds of information systems (e.g. ERP, CRM, Call Centre, and Partnering Relationship Management System) to achieve customer agility. In this section, we will report how companies in Vietnam are using ES to support CA. Recent literature in ES-CA has shown that companies can achieve customer agility via ES because such systems can support companies in collecting customer data, analysing the data for effectively sense the demand changes and respond to the changes (Sambamurthy et al. 2003; Seethamraju 2014). In Vietnam, the usage of ES for CA among companies can be seen at different levels.

4.2.1 ES-data storage

	G-Care	V-Retailer	G-Packaging	V-Pharm	G-Life	G-Beverage	G-Sales	G-Construction	V-Beverage	V-General
Financial data only	x			x				x	x	x
Other data		x	x		x	x	x			

Table 3. Data stored in ES

Our observation reveals that half of interviewed companies use ES to store only financial data, particularly sales data, while the other half input also other non-financial data into ES (table 3). The G-Care, for example, uses their ES to store only “*basic information of purchasing, sales, costs. There is not yet much information recorded. We hope that we can collect all kind of information from different sources for our analysis.*” The V-General also shares that their ERP does not collect other data different than sales: “*We have information about changes in price, society or people behaviours. ES cannot capture these kinds of information.*” Moreover, our observation shows that it is not because the company has no capability to collect and input various data into their system. The main reason is that companies are uncertain about the quality of the data collected. The V-Beverage shares that even financial data is difficult to collect accurately in Vietnam. The Vice President says that “*There are also errors in sales data. We cannot capture these data.*” The Vice President feels uncertain that “*when we start talking about transparency, everyone has his/her own worries. For example, distributors worry because not all of them declare tax. Moreover, they do not want to be controlled. For example, the commission for distributors when selling to outlets (higher) and to wholesales are different (lower). Thus, distributors will declare that they sell to outlets even they are selling to wholesales.*”

Besides sales data, the companies are concerned about the quality of market research data delivered by market research companies in Vietnam. The V-Beverage shares that “*for example, in Singapore and America, market research and data are very sufficient and transparent. Market research tells you how much you can get if you invest in a product*”. In Vietnam, research is only done in six biggest cities while sixty percentage of population is from the countryside. As a result, research cannot tell the exact volume you can get out of you investment.” Thus, the company does not feel secure to record these

data into their system for advanced activities. Consistently, in case of the V-Retailer, one reason why the company has not input market research data into the ERP is because the company is not satisfied with the data provided by the existing research companies. The IT director shares: *“there are things we can buy from the market research companies and there are things we cannot. As a result, we can only input few data into the system. Thus, we cannot do proper analysis. In case we have sufficient data from the market, I will do it.”*

Meanwhile, in other companies, data from different business angles are input into ES. The V-Retailer integrates the Call centre, the CRM, the sales and distribution module of ERP to jointly collect and store customers’ related data (personal data, orders, actual sales, customers’ feedback and complaints). The G-Life insurance integrates the CRM, Core insurance system and the Call centre to store and constantly update customer data. The G-Beverage uses the ERP to store all data that can influence customer demand such as sales, consuming seasons, and customer reactions from marketing events and so on. Due to the specifics of the insurance industry in which detailed customer data is required, the insurance company like G-Life and G-General collect many different kinds of customer data. In the G-Sales, the company enters to the ERP market analysis data that they collect from various different sources (e.g. competitor’s data, market share, product positioning data and so on). The company also uses the CRM to collect customer data (e.g. customer negotiations prior actual sales).

4.2.2 ES-customer data analysis

Regarding the data and ES usage, many interviewed companies use the data for operational activities. However, there are only few companies which really utilize the data and system functions to achieve customer agility as following:

	G-Care	V-Retailer	G-Packaging	V-Pharm	G-Life	G-Beverage	G-Sales	G-Construction	V-Beverage	V-General
For operation only	x		x	x				x	x	x
For advanced analysis		x			x	x	x			
For decision making		x					x			

Table 4. Usage of ES

For example, the G-Life involves the CRM as the main platform for the interaction among marketing, sales and customer services teams. The marketing team collects and enters customer data into the system. The sales team uses the data to raise sales opportunities. The customer services use the data to contact and update customer data constantly. The marketing team then uses the data for designing marketing events. All teams share that the quality of internal database, which is built by the company itself, is considerably higher than data bought from external parties: *“Before, the quality of the bought database was not under our controlled. With this system, we control the quality of our data.”* The qualified database, as a result, helps the company to achieve *“improvement in customer services.”* The company shares that *“sales and marketing team feel that the system well supports them in approaching customers. Thus, they can focus on their expertise more. They are no more confused with a database that they are not familiar with. It supports them in planning for developing product, for designing a campaign to who, to where and so on.”*

Moreover, there are few companies (i.e. G-Beverage, G-Life, G-Sales; V-Care and V-Retailer) have used or plan to implement Business Intelligence system - an important add-on application to be used along with ES to achieve customer agility. The G-Beverage, for example, uses an advanced planning system Hyperion Planning Management (HPM) for customer trends analysis. The company collects all customer related data from different systems and departments and inputs into this system for customer analysis. The system is reported to provide the forecasting in which the *“accuracy is more than 82%”*.

The interviewee emphasizes that by providing highly accurate forecast, the HPM can become a powerful tool in the future for planning activities as well as market strategy.

The G-Sales entity also uses an ES to do demand forecasting. The system helps the company to ensure that the forecasted demand for the local market is appropriate or accurate: *"We use DMS which is integrated with SAP, to extract the data from historical sales stored in SAP (i.e. ERP system). It provides us a chart in which there are two curves. The demand should be somewhere in the two curves. If it is not, there is something wrong with the forecast. We always want the demand is somewhere between the two curves. By looking at the charts, we know whether we are doing right or wrongly."* For long term forecasting, the interviewee shares that the ERP system can help them create company's product strategy based on the information it records (e.g. which product group is growing, which product group is going down, which product to be promoted and which product to be penetrated into the market).

4.2.3 ES-decision making process

However, it is revealed by interviewed company that, in Vietnam, even when customer trend analysis is available, most companies are resistant to rely on the system for decision making (table 4). Our analysis tells that the G-Sales is the only company who currently use the analysis offered from their DMS for customer related decision making process. The V-Retailer confirms that they will highly utilize their ES for decision making. The company shares that they have done the advanced analysis using the ES's functions once and it worked well: *"Last year, we were very successful in analysing the past year's data. Based on the analysis, we stocked the products. At the end, we are the only one who can supply some product models while there was a shortage of products in the market. At that time, we had no competitor. We could sell at any price. We sold all the stocks."* Thus, the IT Director wants to win the market again using the database and advanced analysis function in ERP.

However, as we mentioned, decision making process in other companies does not involve the role of ES. In the case of the G-Beverage, where ES have been proven highly effective in forecasting, it is still a long way for these forecasting results to be used for decision-making process. The interviewee says that managers have been successfully using their *"own information, expertise and tools for market forecast"*. Thus, it is hard to ask them now just to trust the system and start using its forecasting function. Similarly, the Vice President of the V-Beverage also says that senior managers have not used the reports offered from the ERP. They prefer their own reports. The Vice President confirms that *"the system can support us in capturing data, [...], it does not provide the actual effectiveness as most of the analysis and information for decision making are not coming from the system."* The Vice President shares that: *"top managers almost do not log in to the system to read reports. They have their own reporting template."* According to the Vice President, most managers are not confident about their ES skills and *"it is obvious that the company still has to continuously do retraining so to turn the system into the management competence of managers."* Thus, our findings reveal that one main restriction to the usage of ES for customer decision making is at the top people. It is the lack of self-efficacy (in the case of the V-Beverage) and the lack of trust in technology (in the case of the G-Beverage) that restrict top managers from using ES for decision making process.

Moreover, our findings also reveal that companies in Vietnam that different data sources should be used to make market decision in Vietnam. The V-General shares *"there should be the inclusion of information from external sources. ES cannot capture this information."* Moreover, the G-Life, the V-Pharm, the G-Construction also agrees that more external data which cannot be provided by ES should be collected for customer analysis. The V-Pharm shares that demand forecasting in their company is *"more complicated than in other industries"*. In Vietnam, hospitals are the main market segment of pharmaceutical companies like V-Pharm. As a result, sales are highly dependent on the results of the V-Pharm's bidding outcomes at hospitals in the beginning of each year. The forecasting task should be done by a strategy team who is responsible for these biddings and they have their *"own data"* (e.g. their experience or special connection with hospital people) to do forecasting. The G-Construction also shares that *"ERP does not provide the effectiveness as most of the analysis and information for*

decision making are not coming from the system". The Group has an effective internal communication channel for decision making process. Our findings reveal a number of data sources which can critically affect market demand in Vietnam. In the G-Life, to make decision, the company relies on "market research provided from external consulting companies"; "internal communication among companies in the Global Group" (like in case of the G-Construction). More importantly, according to the G-Life, decision-making is highly dependent on data obtained from special relationships between the company and the Government in some industries: "as Government regulations are critical for long term strategy, we should also have very special relationship with, for example, with the Finance Ministry. We have special people and special relationship to obtain these data."

5 DISCUSSIONS

Our findings are consistent with literature that dynamism of trading environment in the industry and organizational specifics differentiate the role of customer agility from one company to another (Tolone 2000; Seethamraju 2014). The findings reveal that consumer-oriented companies perceive greater changing business environment than other companies do, thus have higher need for customer agility. Moreover, our findings also support the findings of Seethamraju (2014) that business functions highly affect CA role in each company. Organizations or departments which perform activities that highly engage to customer-related decision making process (such as sales, marketing, distributions) tend to report higher need for CA in comparison with ones that focus on more transactional processes (such as production).

In Vietnam, the usage of ES to enhance customer agility is found potential; however, not fully applicable due to the nature of business environment in Vietnam. All companies use ES to store financial sales data for daily operation. Meanwhile, in few other companies, besides sales figures, other customer related data (e.g. customer complaints, customer feedbacks, negotiation with customers, factors that can affect customers' behaviours) are collected for advanced customer analysis. Companies in Vietnam show their concerns upon the quality of the data available in the market. This issue restricts them from using the available data for advanced analysis. Thus, there is a clear trend that, instead of relying on external data, these companies want to enrich their in-house build their own database first. Once companies own a rich database system, they will soon have a great need for ES analytic functions. The concerns of companies in Vietnam are consistent with the findings of Davenport (2001) that data quality plays the top role in the success of decision support systems like ES. According to Davenport (2001), companies need to spend considerable resources on cleaning and integrating data from legacy systems and external sources to make data acceptable for further analysis and reporting.

Companies which use ES advanced analytic functions highly appreciate that ES are offering meaningful reports. However, our finding unfolds a missing link between producing reports and actually using the reports for customer decision making. The findings reveal two reasons. Firstly, it is the reluctance of senior management as they do not trust the potential innovations when it comes to decision making process and they are not confident in using the advanced systems. Our findings are consistent with current literature on the critical role of user acceptance (especially perceived-usefulness and perceived ease of use) on success of ES (Venkatesh & Bala 2008). Moreover, our findings strengthen the current literature that the acceptance of managerial users particularly, is key determinant for the usage and success of ES (Hou 2012). Secondly, our findings suggest that to make decision in Vietnam, companies may prefer other sources of data which are not publicly available in the market or that the ES cannot capture (e.g. data from policy makers). In reality, information unavailability is currently an issue in Vietnam. A study of Nguyen et al. (2013) shows a clear need of companies on the transparency and availability of information in Vietnam so to improve their strategies and business performance.

6 CONCLUSIONS

The purpose of this study is to observe importance of CA as well as the role of ES on CA. Academically, responses to the current call for more research on the role of innovation systems research in developing countries (Lundvall et al. 2009), our study adds in a Vietnamese perspective. Indeed, the findings confirm CA literature that the importance of CA varies from one organization to another and is affected by the characteristics of the organization's industry and business function. Moreover, the relationship between ES and CA is affected not by technical issue but by the usage behaviour of top management. Top management's low trust on the capability of ES as well as top management limited competency in ES usage may restrict the companies on taking full advantage of ES advanced function. These problems lead to less usage of ES in CA.

The study also adds critical contributions to practice. For ES vendors, ES consultancy agency or ES implementing companies, the findings suggest that practitioners need to have a clear picture of each potential client context (i.e. industry, structure, business function) to understand of the concrete need of each client and offer appropriate ES consultancy. The research also provides recommendation to the management of ES that: in order to use ES effectively, organizations need to focus on changes management, especially to change perception and improve the competency of top management people to help them be more confident in using ES. Moreover, in Vietnam, to leverage the usage of ES to the next step, it is the mission of the practitioners to raise the awareness of companies on the ES customer analysis functions. This will help companies, especially to those that are facing fast customer changes, be more confident in using advanced information systems like ES to achieve customer agility. In addition, our findings also reveal the lack of reliable market research data in Vietnam to improve the data input for ES. This is a challenge but also an opportunity for market research companies.

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