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THE EMERGENCE OF DYNAMIC CAPABILITIES FROM A SME-ENTERPRISE SYSTEM UPGRADE

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Abstract

Since the past decade, many studies have attempted to examine the Enterprise Systems (ES) implementations in multinational corporations (MNCs). However, there is a paucity of such research which focuses on ES implementation and upgrade for small and medium enterprises (SMEs). With respect to that, the upgrade of Sage ACCPAC system at Chio Lim Stone Forest (CLSF), the best performing Singapore-based SME accounting firm, provides us with a rich fertile ground to examine the mechanisms of achieving success in an ES system upgrade. Combining two theoretical lenses, the ES Experience Cycle and the Capability Development theory, a total of eight key actions that had developed into six key capabilities were identified from the one-year case study. Two theoretical contributions and four practical contributions were shared and documented in this paper.

Keywords: Enterprise Systems (ES), Small and Medium Enterprise (SME), Dynamic Capability, Case Study.

1. INTRODUCTION

The lack of study in system upgrading among SMEs has dampened our research interest to further explore implementation with such characteristics to a large extent. Furthermore, while many research focused on the implementation of enterprise systems, few have look into the ES experience gained through an ES system upgrade (Devadoss and Pan, 2007). With respect to that, the upgrade of the Sage ACCPAC DOS to Sage ACCPAC Windows at CLSF, a Singapore-based SME accounting firm, provides us with an excellent primary research ground to examine the mechanisms of achieving success in a ES system upgrade.

In recent years, numerous organizations have jumped onto the bandwagon of packaged enterprise system- a comprehensive system that links various software modules across departments, business functions and geographical boundaries for information to flow seamlessly (Davenport, 2000). Apart from promising business process efficiencies at low cost, vendors of such systems often portray them as panacea to complex information management in organizations. While many have implemented ES in a bid to achieve the benefits hailed by vendors (Siew and Soh, 2005), the process of executing the ES implementations are often not as straight-forward as vendors suggested (Wagner, et. al., 2005).

We confront this research interest by understanding the dynamic capabilities development framework that analyzes series of complex routines and processes (Nelson and Winter, 1993). By employing such a framework, it facilitates us to critically examine how existing organizational capabilities can be leveraged on effectively to propel the ES initiative forward from the use of Markus and Tanis's (2002) ES experience framework at each system upgrading phase from a longitudinal perspective. To further value-add this research, we will also explore how such capabilities have evolved through Montealegre's (2002) capability development theory within each phase of ES upgrade. As such, we have to explore the key actions taken at each implementation phase. In addition, we have also to identify how these actions have evolved from the firm's current capabilities leading to new ones which will actually put the firm in a good platform for future system implementations and upgrades.

In a nutshell, the key contribution of our work is to draw attention to the importance of managing dynamic capabilities to effect a positive enterprise experience cycle and provide lessons learnt for organizations seeking a successful ES upgrade experience.

2. LITERATURE REVIEW

2.1 Enterprise Systems Cycle

Various ES cycles are being proposed by researchers, for instance, since 1998, there have been two models comprising five stages of ES transition (Bancroft, et al., 1998; Ross and Vitale, 2000), while another one consisting of four stages (Markus and Tanis, 2000). In general, most ES projects share the same implementation process concept (Robey, et al., 2002) and the key distinction between these ES cycles is the different implementation procedures which are being sub-divided by IS researchers.

Among the various ES cycles, the model proposed by Markus and Tanis (2000) (Refer to Figure 1) is chosen. The rationale for the selection of this model is that this framework allows researchers to predict or explain an organization's actual ES achievements and successes in a systematic way. By employing this framework it allows crucial implications to be revealed at each stage of the implementation cycle so that we could identify potential problems and provide suggestions to mitigate or resolve issues before they are propagated to the next implementation stage. Also, there are clusters of deliverables (activities) for each implementation stage to be achieved before the project can be successfully propagated to the next phase. As such, this contributes to most favorable outcomes and leads to the successful completion of the project in SMEs context.

In view of the chronological and expansive nature of the framework, it provides a robust and systematic model for us to document the entire experience of the SAGE ACCPAC upgrade at CLSF.

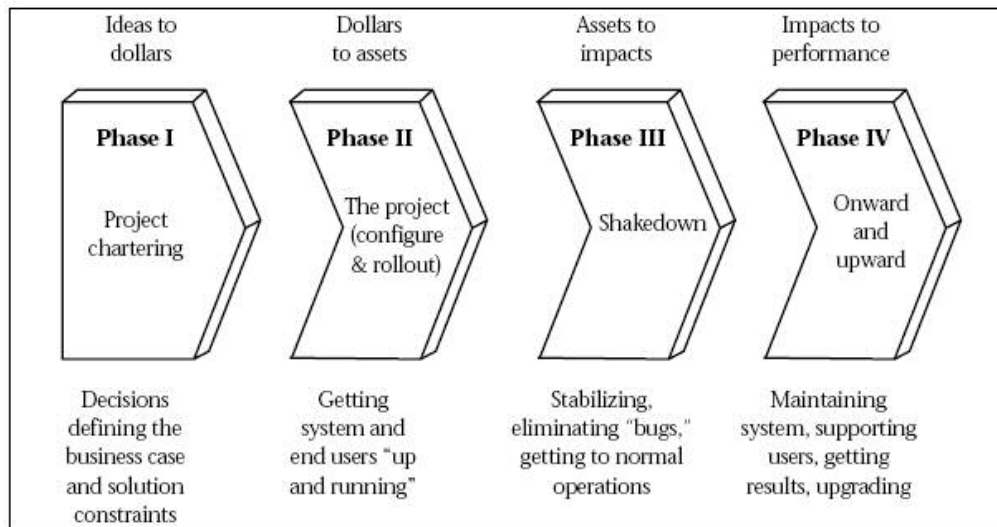


Figure 1: Enterprise system experience cycle (Markus and Tanis, 2000, p. 189)

Markus and Tanis (2000) have identified the following four phases in an ES life cycle. At Phase I of the cycle, the key activities include arriving at a strong business case, selecting of the ES package and setting the budget of the entire project. This phase lays the foundation for the ES initiative as it allows an organization to explore their options and also the genuine rationale and expectations for such a project. Moving on to Phase II, the focus will be on the main implementation of the ES project which includes configuration and testing of the system. In addition, the training sessions for the new system also occur at this phase. As the ES initiative transits to Phase III, the organization will be focusing on the adaptation with activities such as bug fixing and fine-tuning of the new system. If normal operations can resume without business-critical glitches within the scheduled time frame, it can be inferred that the ES initiative will have been relatively successful at that point in time. The final phase is a trajectory project from the commencement of normal operation till the new system is upgraded or replace with another system. All in all, the key activities at Phase IV include measuring both the tangible and intangible benefits to the business process and also identify potential features which can be included in the next project.

2.2 Dynamic Capabilities

The resource-based view (RBV) of the firm has an influential theoretical contribution in changing both academic literature and managerial practices regarding about strategy (Pan, et al., 2007) as it examines firms' capabilities attributes and strategies for exploiting firm-specific assets (Montealegre, 2002). However, due to its limitations, (i) lack of focus on the mechanisms in determining the contributions of resources on competitive advantage and (ii) lack of empirical grounding (Mosakowski and McKelvey, 1997; Williamson, 1999), it was urged that it is the dynamic capabilities deployed by the managers to "integrate, build and reconfigure internal and external competencies to address rapidly changing environments" giving rise to sustained competitive advantage (Teece et al, 1997). For that reason, many researchers have redirected their research interests and attention to critically explore the dynamic capability approach.

This approach aims to explain the deployment, development and protection of resources and capabilities in volatile business environments (Teece, at al., 1997; Pan et al., 2007). With such an

approach, it allows us to explore the key resources and capabilities involved in the SMEs system upgrade. Thus, it can provide guidance and prepare SMEs to stay competitive in a dynamic marketplace. After all, organizations' competitive advantages lie in the development of the "dynamic capabilities" from the organizational and managerial routines (Pan, et al., 2007).

In view of our research interest, we adopted Montealegre's (2002) capability development process model (Figure 2) in this paper. This model adopts a consistent research approach with the ES cycle which allows researchers to examine the phenomenon from the chronological phase-wise approach. In specific, such approach allows researchers to capture how specific capabilities are developed or reinforced within each phase of ES upgrade at CLSF. More importantly, it not only allows practitioners to examine the evolving process in accumulative and expensive way, it also provides a process framework to explore how capabilities can be developed and managed by drawing upon the firm's limited resources (Montealegre, 2002). The following section will further discuss this model (Figure 2).

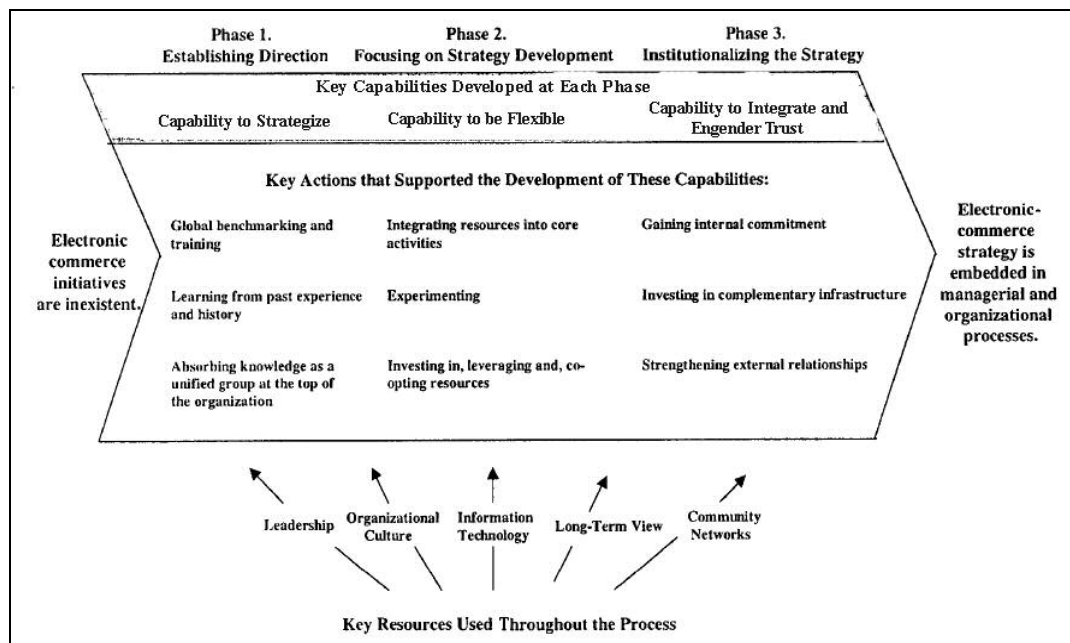


Figure 2: The Model of Capability Development (Montealegre, 2002)

As seen in Figure 2, the model consists of three distinctive phases which encompasses the flow of resources (leadership, organizational culture and community network etc.) to the execution of the key actions (global benchmarking and gaining internal commitment etc.) which eventually evolve into the key capability evolve at each phase in the model. At this juncture, it is important to note that the antecedent for the model is the key organizational resources it possessed which determined its current position and also its inherited path from past experiences (Montealegre, 2002). The Model of Capability Development provide a strong framework to study how the existing resources supported the key actions executed and in turn result in the generation of new capabilities and/or reinforce existing capability. As such, the key thrust of this research is to identify the key specific capabilities and their evolution in the context of the ACCPAC upgrade with respect to the Enterprise System Experience Cycle. All in all, the use of enterprise systems cycle allows us to systematically explore and identify dynamic capability's key actions that could possibly be further extended and cultivated within each of the four implementation phases.

3. METHODOLOGY

An interpretivist case study was adopted to examine the research interest paper. The adoption of the interpretive research method allows the researcher to explore how existing capabilities at each implementation phase can be leveraged on effectively to propel successful ES upgrading at CLSF.

The scarcity of research in this phenomenon has made it even more appropriate to adopt qualitative research methods. The rationale is that quantitative research requires the use of standardized measures (Eriksson, et al., 2000), that are difficult to construct without sufficient prior knowledge and information of the phenomenon that is under investigation; conversely, qualitative research provides an opportunity for IS researcher to better understand the relation of human thoughts and actions in the social and organizational context and the meanings that are embedded in social life which could explain the behavior of people (Gibbons, 1987) with an “insider’s view” (Yin, 1994) on the case organization. Thus, this method allows researchers to conceptualize the research interest of this article. Most importantly, this approach has emerged with an important stand in IS research (Walsham, 1995, 2005) and known as the most frequently used methodology in the IS research (Klein and Myers, 1999). In addition, case studies move away from quantitative rigor towards practicality (Murphy and Simon, 2002). With that the investigations arrived at from such a qualitative methodology is more relevant to a practitioner with respect to this research.

Over a period of 12 months from September 2005 to August 2006, a total of six interviews are conducted in each quarter of the year so as to keep up with progress of the system upgrading phase. Together, the visits yielded a total of nine informants were interviewed, which includes one top management, one middle management, two IT consultants and five departments’ staff. The face-to-face interview time varied from one to two and a half hours per session with the informants’ tenure ranging from two to 11 years. While interview questions were prepared prior to the interview sessions, the choice of questions is made on the spot after ascertaining the background of the informants.

To ensure the academic rigor and consistency of information, the primary data of the case study is collected primarily through different sets of pre-structured interview questions generated from various literature reviews. This applies to the implementation phases to elicit upgrade experiences from stakeholders across all hierarchical levels. To ensure quality and reliability of research, we further interpret informants’ actions and statements to bring out the underlying intention of the informant and triangulate the information with other resources for validation. The other resources used include two direct observations, 27 email, along with about 30 MB softcopy documentation and archive records.

4. CASE STUDY

For the past decade, CLSF has been operating its business based on the DOS version of Sage ACCPAC system until recently when its Windows features are capable of managing the needs of new business opportunities and growth. To continue support its fastest-growing business in Singapore and help attract more young and dynamic employees, the general manager initiated the decision for system upgrading.

4.1 Chartering Phase

After several internal meetings with the senior-management, the general manager has projected a 30% reduction in administrative workload after the ACCPAC upgrade. As such, the upgrade will put the company in a good stage to meet future challenges as the upgrade streamlines and eliminates repetitive tasks from the workflow within Sage ACCPAC DOS.

“We don’t believe in using international market research feedbacks from SAP or Gartner Consulting Group as those guidelines and findings are unrealistic to SMEs like us. We are more concern about the practicality and deliverables of the system in specific to our

organization needs and performance. To persuade our partners to purchase such expensive system, I have done a very practical and down-to-earth proposal (internal audit review) as to how much this system could possibly benefit us, which all have to tie down with the facts and figures of bank creditability and future cash flow...”

Once the key benefits were identified, the proposal for the upgrade was strongly supported by the senior management:

“It is good that our management is willing to abreast new technology and new changes and new management concepts. They are very open to that...” claimed the general manager

With respect to the internal upgrade in CLSF, a group of experienced Sage ACCPAC consultants from CLSF was deployed to implement the upgrade on an organizational scale with the key aim of improving work efficacy for the employees across the various companies in CLSF.

News of the approval spread like a wild fire in the company and most employees was thrilled with the IT strategic decision:

“We always wanted a change but to play safe we adopted a wait-and-see approach...” asserted by the IT team leader

Certainly, such positive support from employees is also partly attributable to the good preparation work of the Head of Department, explained the general manager:

“I remembered clearly that she did a lot buy-ins and front-end exercise. She talked to her key people and let them understand the rationale for the upgrade. I think this is very important. She tried to influence in a way that was beneficial to the department which translated well to the company... Thanks to our good company culture we were strongly supported by most employees....”

Overall, it is our company culture to elicit feedback from various stakeholders on their receptiveness to upgrade initiatives because knowledge is an asset of our company explained the general manager. All in all, it is important to obtain the collaboration from the management and IT consultants to “sell” the benefits of system upgrading to the stakeholders, explained the general manager.

4.2 Project Phase

Prior to the Proof of Concept (POC) session, the IT consultants have conducted feasibility studies via interviews and observing the workflow of the end-users as they go about their operational duties. It is important for the IT consultants to understand that every department has its own unique workflows and styles. Thus, they have to invest considerable amount of time to streamline the workflow for the respective stakeholders. A user highlighted:

“Interviews have been conducted. Wish lists have been given to us so that IT team could collect what we need, and then they will try to incorporate the feedback as much as possible...”

Gathering the users’ requirements is a challenge as majority of the Sage ACCPAC users are not technically-inclined. As such, considerable amount of efforts was spent to elicit consistent users’ requirements so as to administer seamless information integration across departments.

After eliciting the genuine needs of the users through feasibility studies and interviews, the other challenge for IT consultants is to share common understanding. As the general manager said:

“If they have the heart to understand many things can be resolved.... If you forcefully implement an IT system, it will not work and will fail. This is because you don’t have the support from your team... therefore I expect my team to serve the users with patience and made sure that users understand our intention.”

The pre-implementation training sessions commenced after the completion of POC session. The IT project team leader provides a detailed workflow for the users training sessions:

“From an earlier system study, we have already walked through a certain workflow with the key users... We tailored the training down to the individual different group of users and bring them through the workflow with them. Apart from that we also provide hands-on training where they get to visualize and experience the working environment of Sage ACCPAC Windows.”

All training sessions were provided by the certified Sage ACCPAC trainers. Apart from the experienced trainers and comprehensive print-screen notes, the training materials are focused and specific to the business functions operated by the end-users.

Prior to the upgrade, the estimated work schedule will be sent out to the respective departments to inform them of the disruptions to work at their workstations. By doing so, the respective departments could estimate and rearrange certain schedules and workflows to accommodate the Sage ACCPAC upgrade. During the installation of Sage ACCPAC Windows, both Sage ACCPAC DOS and Windows run in a parallel manner so as day-to-day operations would not be interrupted.

4.3 Shakedown

Nothing is perfect even with lots of preparation work done before the system upgrade; CLSF still encounter some minor problems:

“Although we have conducted the system studies, there are some scenarios that have not surfaced at the time during the feasibility studies after ‘going-live’. As such, we got to fine-tune some of the forms and reports.”

Responding to consultant admission and attitude, users were convinced and satisfied with the suggestions, advices and actions taken by consultants. After the rolling out of the upgraded system, users were still able to seek assistance from the trainers either via phone or in person. The general manager elaborated that:

“This is augurs well for the mental preparation of the department. It is all about change management process”

Based on both formal and informal surveys after the ‘go-live’, there are more positive feedbacks than negative ones. The general manager highlighted:

“They will just ask “How can this be done?”... “Can we solve these problems?” Not that they are trying to find fault or anything, they just give feedbacks like if some things can be done faster, or can be shorten, they will raise it up. They will not just do it as instructed”

4.4 Onward and Upward

After the implementation, another user feedback survey and interview were conducted by consultants. Based on the feedback, most users are able to cope with the new systems. While some employees lament on the change, there were no violent objectives from the users. The IT project team leader said:

“Users will naturally compare DOS and Windows capability, but such behavior is understandable... they just need some time to adjust...”

To assist users to overcome their hurdles in coping with the new systems, IT consultants made the effort to tailor-design a training program which can be understood by even the most inexperienced users. They underscored the importance of gaining the acceptance and making the users feel confident. The training session was based in a classroom which has a capacity of eight. Keeping such a small class is to ensure all users get the special attention and support from the trainer. After the training, another survey was done to elicit users' feedback. In general, the feedback was positive and the IT project team leader shares her sense of achievement:

“The fulfillment comes in helping the people; to see that certain things that they wanted can be done...apart from cutting down costs, they don't have to spend time re-keying in the data...”

Aside from collecting feedback, the IT consultants have also successfully documented the lessons learned from this system upgrading so as it could be used for future reference.

5. ANALYSIS

To ascertain the key capabilities embedded within each phase of the Sage ACCPAC upgrade, we have mapped the ES Experience Cycle (Markus, 2000) to the Capability development theory (Montealegre, 2002). To examine how does the execution of key actions results in the creation of new key capabilities in system upgrading, we examined the model vertically with each of the ES phase. At this juncture, it is important to realize that the antecedent for the key capabilities to develop at each phase is new. They were formed due to its inherent past capabilities or developed only during the Sage ACCPAC upgrade process.

5.1 Key Actions in Chartering Stage: Establishing Direction

For CLSF to realize its aim for upgrading the systems, many efforts were done to strategize its course of direction. In specific, two key actions (1) introducing internal strategy review, and (2) promoting internal idea selling were identified as important influence in the process of capability development.

Unsuccessful multi-million-dollar IT investment could be financially disastrous to most SMEs; as such, such investments should be initiated internally based on the practicability, needs and growth of any organization. It is advisable for SMEs to embark on expensive IT investments only after having conducted internal strategy review. Reason being, most external sales consultants may not be able to provide an unbiased review of the client's actual needs. Partly, this could due to their limited access to the company internal information leading to higher tendency of providing irrelevant and unpractical consultation.

Unlike other organizations, CLSF begins their system upgrading by selling the idea of upgrading to stakeholders in a subliminal way before the official announcement of the upgrade. Such preliminary actions allow senior management to set a favorable stage (Garvin and Roberto, 2005) to convince the various stakeholders those frustrations they encountered with the current Sage ACCPAC DOS can actually be eliminated eventually. After the initial persuasion, tasks will become simpler for managers to further convince stakeholders with more specific facts and issues (Garvin and Roberto, 2005) that can be positively resolved with Sage ACCPAC Windows application.

In summary, such action of selling the entire system upgrading idea allows the management to focus on the key issues at hands. As such, management attention, which is often a scarce resource (Ashfor, et al., 2001) can be efficiently allocated. Reflecting upon the two key actions identified at this chartering stage, CLSF has effectively used those key actions to generate its *capability of setting a favorable stage to*

successfully obtain stakeholders' "consensus buy-in". As such, CLSF has **established a clear direction** for the upgrade by allaying all possible concerns of the stakeholders.

5.2 Key Actions in Project Stage: Focusing on Strategy Direction

Given that CLSF is focused on their strategy direction, it allows the project leader to focus on the strategy and implementation of necessary initiatives at the second stage of the project implementation. In realizing the initiative, two key actions, (1) engaging scenario-based affirmations and (2) providing pre-implementation training, have been undertaken to smoothen the system upgrading process.

Risk is a problem that has not yet happened but could result in future losses or threaten the successful outcome of any project (Wieggers, 1998). To manage such risk, apart from carrying out the POC and in addition to the feasibility studies at this stage (Hong and Kim, 2002), scenario-based affirmations executed by the manager can be instrumental to the overall success of the Sage ACCPAC upgrade. Such key action taken by the IT manager is to approach the proposed workflow from multiple-stakeholders perspective of the firm's vision. For instance, the IT manager will arrive at various system scenarios and relay them to the various stakeholders. She and consultant will ascertain if the stakeholders are able to resolve the issues in the test-case scenarios and if needed, the team will have to discuss and affirm the best practices for any outstanding issue.

Indirectly, this action has nurtured the firm's *capability to manage the inherent risks in the upgrade process*. With such capability, it has proven to effectively lower the risk of misfit during the proof of concept phase (Hong and Kim, 2002) as the stakeholders are in an optimum position to respond to possible negative system scenarios which may disrupt their workflow after go-live steps in.

In addition, data shown that the key action of pre-implementation trainings is a critical success factor for SMEs in educating users (Sun, et al., 2005) because user understanding and buy-in is essential (Umble, et al., 2003). Such pre-implementation training, coupled with comprehensive customized learning materials (e.g. screen shots of forms), has not only eased end-users learning curve but also prevented end-users from being overwhelmed by learning the usage of the extensive Sage ACCPAC modules. All in all, *the capability to ease the stakeholder learning process with the customized learning materials* allows the firm **to focus on optimizing its strategy direction** to bring CLSF to the next level.

5.3 Key Actions in Shakedown Stage: Institutionalizing Strategy

During the phase of "shakedown", two key actions are identified (1) offering receptive feedbacks service, (2) providing responsive support, have attributed to strategy institutionalization which enables CLSF to leverage on the knowledge contributed by stakeholders throughout the entire upgrade process.

Receptiveness towards users' feedback is a key capability developed by stakeholders throughout the implementation process. Such positive attitude has further convinced users in line with the professionalism of IT consultants. For that reason, suggestions provided by consultants are perceived as constructive feedback and respected by users. Data has supported Eisenhardt and Martin (2000) finding, small mistakes play an important role in the evolution of dynamic capability. As elaborated, losses or mistakes help to reinforce and facilitate effective learning in the long run as organizations would eventually develop the *capability to leverage on the mistakes to strengthen the system upgrading process*.

In addition, the act of providing additional assistance even after the implementation has not only provided confidence to users but has also effectively motivated users to continue learning the skills required. For instance, end-users have the immediate access via phone or "hand-on" assistance. Such support which is known as the symbolic action of "goodwill" can enable CLSF to develop the *capability to allocate additional resources to meet "shakedown" needs after implementation*. In other words, adoption of symbolic action has not only augmented the commitment of the end-users to the new system

(Levesque and Michael, 2005) but also able to develop a critical capability, that is, an enabling strength which empowers the organization to **institutionalize strategy** to receiving ES value after the implementation (Ross and Vitale, 2000).

5.4 Key Actions in Onward and Upward Phase: Institutionalizing Strategy for Future Initiatives

The capability developed in the shakedown phase will further require key actions supports, such as, (1) collecting feedback from stakeholders, and (2) gathering and documenting knowledge and lessons learned to institutionalize strategy for future initiatives.

At this phase, a comprehensive study was conducted by the consultant to gather feedback from stakeholders. Such action has permitted consultants to assess the goal of this system upgrading and find out if the upgrading system has fitted in with the strategic vision of organizational transformation (Nicolaou, 2004).

In addition to the assessment, it is also important for IT consultants to identify and leverage benefits from the company culture. For example, knowing that CLSF culture appreciate and value knowledge gained, consultants were able to collect and gather quality information and knowledge incurred throughout the implementation with positive support from stakeholders for future references. All in all, these two identified key actions have reinforced the company's **capability to assess the success of the implementation from a holistic perspective**. Equipped with such a capability, the firm will be in a better position to manage and **institutionalize strategy for future IT initiatives**.

In summary, we argue that it is important for SMEs to know and understand the importance and influence of key actions on capability development throughout the system implementation processes. The following table has summarized the eight key actions and six key capabilities learned, identified and discussed based on CLSF case study separating across the four ES implementation phases.

Phases of ES Experience Cycle	Key Actions of Capabilities	Key Capabilities Developed/Reinforced
Chartering	<ul style="list-style-type: none"> ▪ Introducing critical internal strategy review ▪ Promoting internal idea selling 	<ul style="list-style-type: none"> ▪ Capability of setting a favorable stage to successfully obtain stakeholders' "consensus buy-in"
Project	<ul style="list-style-type: none"> ▪ Engaging scenario-based affirmation ▪ Providing pre-implementation training 	<ul style="list-style-type: none"> ▪ Capability to manage inherent risks in the upgrade process ▪ Capability to ease the learning process of various stakeholders by customizing the learning materials
Shakedown	<ul style="list-style-type: none"> ▪ Offering prompt feedback ▪ Providing responsive support 	<ul style="list-style-type: none"> ▪ Capability to leverage on the mistakes to strengthen the system upgrading process ▪ Capability to allocate additional resources to meet the needs after implementation
Onward and Upward	<ul style="list-style-type: none"> ▪ Collecting post-implementation feedback ▪ Gathering and documenting knowledge and lessons learned 	<ul style="list-style-type: none"> ▪ Capability to access the success of the implementation from a holistic perspective

Table 1: An organizational perspective of CLSF's capability development

6. CONCLUSION

We use the CLSF case study to illuminate the impact and roles of key actions on the capability development throughout the SME system upgrading. In the process, we have discovered eight key actions

and six key capabilities from the two chosen theories: ES Experience Cycle (Markus and Tanis, 2000) and the Capability Development Model (Montealegre, 2002). From the theoretical point of view, we have made two useful contributions. Firstly, we offer an approach to study the capability development and its relevant management issues concerning the development of an effective system upgrade from an SME perspective. Secondly, the use of Montealegre's (2002) capability development model has enabled us to uncover how fundamental resources can be leveraged through the application of specific actions across the different phases of ES experience cycle.

From a managerial contribution point of view, there are four important lessons learned from the Singapore best performing SME system upgrade. Lessons identified and learned from this study allow practitioners to (1) use this study as a referential guide for SME system upgrading plan, (2) practice prudent and realistic resource planning and allocation to win over stakeholders support and cooperation, (3) leverage company capabilities and strengths from key actions that are generally originated from their own company culture, and (4) generate and reinforce company capabilities based on organization uniqueness or strengths.

Future research can explore the impact and influences of external environment in influencing SMEs system upgrading based on the tangible and intangible values and improvements that managers can deliver to ensure the success of IT system upgrading.

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