

Reveal ERP implementation: a story of success in one Thai SOE¹⁾

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Abstract

The present story of a large State-Owned Enterprise (SOE) in Thailand, Energy hereafter, depicts a gripping longitudinal case study following ERP implementation in the SOE from inception to fruition. Challenging issues addressed in research literature are identified and comprehensively analyzed from multiple data sources over an eight year time period.

Results of the study show that despite inherent impediments such as strong organizational traditions and bureaucracy along with a lifetime employment setting, two key factors, exemplary internal marketing communications and a unique social structure and organizational culture of this SOE, lead to the overall success of the project. Barriers to success such as high vendor team member turnover and frequent change of deputy governors were managed by hiring trusted, credible mediators to see the project through to fruition. The Lewin Three Stage Change Model was used to evaluate the attitudes of accounting users but found that their expectations remained unchanged. While user attitude had a positive relationship to intention to use ERP in all three phases of implementation, user expectations related positively to the intention to use only during the transition phase of implementation. Also, with mandated ERP implementation, the effect on ERP implementation from user expectations is negligible as compared to staff devotion culture of an organization.

In a mandatory setting, users reverted back to their traditional working process almost instantly. Four years after full project implementation with ERP as an integral part of routine operations, this SOE appears to have achieved post implementation success in terms of operational efficiency improvement, seamless workflow integration, costs saving, as well as user self-sufficiency with a sense of active autonomy to seek out solution alternatives for new requirements. Project teams and process owners also had a strong sense of commitment to share insight, experience and knowledge with the next generations of users.

Keywords: mandated ERP implementation, longitudinal case study, social and organizational structure, internal marketing communications

1. How does the story unfold?

Once upon a time when ERP almost lost its hype in this part of the world...

The Thai government decided to convert old disparate systems such as Budgeting, Procurement, Assets, and

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General Ledgers into a centralized system called the Government Fiscal Management Information Systems (GFMIS) with SAP/R3 core technology in 2005 (“About GFMIS,” n.d.) Since then, many government units and large State-Owned Enterprises (SOEs) followed suit with sizable budget allocation dedicated to ERP implementation and in this case, at Energy, a large SOE in Thailand.

The saga began around the turn of the century when the pledge for an ERP Master Plan started in 2002...

“Do we really need to go to this colossal ERP project? Hadn’t we just gone through two big IT solutions a few years back, one for the mining operations, the other for accounting and finance? Everything is working smoothly. Weren’t those ERP? ... Why should we change from the one that works to the unknown?” These were just a few questions in the minds of over twenty-two thousand employees at this particular SOE.

The dream team...

“Every division chose their best people to join. Surprising to many, our most knowledgeable staff volunteered to join as well. These talented individuals were very proud to be the select few to have given their input to the system for maximum impact on the future of the organization.”

And then there was a pairing task ... Energy staff and implementer consultants. One of the first and perhaps the strongest pairs was the change management team. They worked in unison to dedicatedly handle public relations for the ERP project. Before, during, and long after the ERP project implementation, Energy employees were inundated with big news, small news, instructions, reminders, games, executive remarks, and so on. *“ERP will benefit Energy!”* Employee expectations soared at the initial requirement stage of implementation. Positive attitudes were boosted constantly... it was considered a golden period of the ERP project.

Then reality kicked in...

“We are in electricity generating business. We are different... We only have two major clients, the metropolitan and the provincial energy authorities. How come there are so many people on the project? Why do we need this kind of complication?” These doubtful sentiments spread all throughout the organization after experiencing one deferment to another in the ERP project “Go-live D-Day.”

Delays after delays, the Energy top management decided to hire their own expert consultants to sit in on meetings to help resolve any outstanding issues. Over a period of twelve months (April 2008 – May 2009), the independent consultants sat in on various Steering Committee, Project Management Office, Team Lead, and other miscellaneous meetings, totaling 76 in all. As one expert recalled, *“We smoothed out dispute issues between Energy and the implementer consortium, for example, changes in add-on software programs, number of SAP user licenses, sign off on project progress before moving on to the next phase of the project, and fine exemption from the inevitable project delays and extensions.”*

First year-end closing with the ERP...

The first implementation success indicator after crossing over to a new system in October 2009 was whether the year-end closing of accounts and the preparation of financial statements would be done without turmoil. Prior to ERP, it took Energy around two weeks to get this done. However, with the ERP, Energy was able to cut lead time by half and complete the work in one week. Not only was there less time spent, there were only two days without extensive staff overtime. The Assistant to the Energy Governor remarks, *“Accounting staff are very efficient these days... Even with constant changes in the accounting standards, our staff learned to write ABAP for new, specific changes required to amend to the regular modules of ERP.”*

Compared with other SOEs, Energy’s success can be attributed to the apparent unity of the employees to support ERP operations. It worked so well that every employee agreed that *“It was an expensive system and we have to get the most out of it.”* This positive outcome was perhaps the result of constant and open

communication of ERP activities from its very inception in the beginning to the present.

It was only yesterday when...

Six years after successful Energy ERP implementation, project directors, key users, process owners, public relations, and other end-users shared the same positive sentiments that, *“The ERP is working fine. No difficult incidents have been reported.”* This unified outlook originated from the same group of people who were once skeptical about the project but devoted a few years of their careers to be an integral part of the change management team. *“We are so proud of having a chance to be part of the project team. Although it was tough at the time, we all became good friends once all was said and done.”* Energy’s experience is often used as a successful reference or benchmark for operational change on a grand scale. In an interview in 2015, our good consultant-friend who was also a local business process owner at that time, mentions to his prospective clients that, *“we were the toughest but most devoted customers they had ever worked with.”* The overall process was presented a major learning curve for the entire organization. The Energy project director and other members noted that, *“The most valuable things coming out from the ERP project is how to share our experiences and knowledge. At the end of the day, although we were a very tough client, we joined an elite circle of professional implementers, consultants, package software vendors and their partner networks to contribute to future colossal ERP implementation projects in Thailand.”*

Although no new ERP version updates (e.g. SAP HANA) are on the horizon at ENERGY, various organizational units have in one way or another, developed additional functions to the originally implemented system. Many add-ons were done internally by business process owners that were a part of the original implementation team – it appears the hard-work has paid off!

2. What some of the ERP literature has to say?

2.1 ERP implementation measures of success and failure

For an ERP to be successful, it should seamlessly integrate and connect business functions together as well as link the usually disparate front-to-back office workflows along their value chain together to help improve business operations and provide a better way for communication and decision-making (Gupta, 2000). The objective measures of success and failure of IT projects are project completion within time and budget. More subjective measures include matching system and planned objective, positive attitudes, and matched users’ expectations (Al-Mashari et al., 2003). Also, an intention to use the system is widely used as the measure of successful implementation, especially during the early phases of project implementation. This is because intention to use was found to strongly correlate to actual usage behaviors (King and He, 2006). Behavioral intention is a construct measuring individual intention to perform a particular behavior (Davis, Bagozzi, and Warshaw, 1989).

There are many studies examining the behavioral intention of using an ERP system by analyzing cross-sectional data and measuring retrospective assessments of users’ intention after ERP implementation. There are very few studies however, on a longitudinal timeline that follows and captures the changes in behavioral intention of system users throughout the different stages of implementation (Motwani et al., 2002; Motwani, Subramanian and Gopalakrishna, 2005). Thus, a longitudinal study is needed to understand the interplays between determinant and success constructs throughout different stages of ERP implementation.

In ERP implementation, identifying success factors is as important as managing risk factors. Success factors emphasize factors which ensure the project’s attainment of budget, schedule and functionality targets. Risk

factors, on the other hand, focused on strategic and organizational success factors. The most important risk factor categories in ERP implementation are “selection and adaptation” and “change management” (Hoermann et al., 2011). Based on typical information system risks, Huang et al. (2004) classified risk into categories such as organization fit, project management and control, and user involvement and training. They also identified the top ten risk ERP factors as lack of senior manager commitment to the project, ineffective communication with users, insufficient training of end-users, failure to gain user support, lack of effective project management methodology, attempting to build bridges to legacy applications, conflicts between user departments, composition of project team members, failure to redesign business processes, and unclear/misunderstanding changing requirements.

In terms of the relationship between risk factors and ERP life cycle, Aloini, Dulmin and Mininno (2007) analyzed ERP literature and summarized important risk factors in different life cycle phases. They stated that ineffective project management techniques, inadequate change management, and inadequate training and instruction are the highest risk factors in the implementation/deployment phase. Top management and user involvement were not rated as high of a risk factor as inadequate ERP selection. These risk factors seem to play a role only at the early phases of ERP implementation. However, risk factors become less of a focal point once the ERP has been stabilized and enters the post implementation stage.

2.2 Factors influencing the ERP implementation process

The single most indisputable factor that influences the success of system implementation documented by information systems theorists and organizational theorists in the past forty years is “top management support” (Churchman and Schainblatt, 1965). With its preempted integration, the ERP implementation process can be quite complex and involves different organizational units and different levels of management. Without management support, especially at the top, the implementation of ERP project would face unexpected problems and consequences (Holland and Light, 2001; Nah, Zuckweiler and Lau, 2003).

Besides top management support, other factors determining ERP project success are user involvement (Amoako-Gyampah, 2007), effective change management (Aladwani, 2001), vendor support (Al-Mashari, Ghani and Al-Rashid, 2006), turnover of vendors and project team members (Kumar, Maheshwari and Kumar, 2003), and organizational culture fit (Dezdar and Ainin, 2012; Soh, Kien and Tay-Yap, 2000). Although recent research found different aspects of project management and change management processes to be the corner stones of investigation, more attention has been on post-implementation issues (Zhu et al., 2010).

2.3 Role of user attitudes and expectations in ERP implementation

Users are very important to the ERP implementation process, especially, for those who are business process owners because they provide the core functional requirements for configuration blueprints. In a voluntary usage environment, the technology acceptance model (TAM) is often used to assess user’s intention behavior to use the system. Adapted from theory of reasoned action, TAM theorizes that an individual intention is determined by a person’s attitude and subjective norm. Perceived usefulness and perceived ease of use are two determinants of user’s attitude towards system use. Prior studies have validated the robustness of TAM’s constructs (Al-Mashari, Al-Mudimigh and Zairi, 2003; Amoako-Gyampah and Salam, 2004; Amoako-Gyampah, 2007). Many studies confirm that TAM is a useful model to explain individual behavioral intention to use a system (Fishbein and Ajzen, 1975; Jackson, Chow and Leitch, 1997). Nevertheless, another stream of research uses the Expectancy Theory to explain user’s behaviors in a socio-technical system. When confronting complex tasks,

people rely on their innate instincts and social expectations (Vroom, 1964). The up and down fluctuation of user attitudes and expectations can reveal how well the ERP will be utilized at the end.

2.4 ERP Implementation in public organizations

Government and public organizations, especially in developing countries, tend to lag behind in the implementation of ERP (Shah et al., 2011). However, similar to publicly owned companies, efficiency and effectiveness are typically the motivation behind the investment of government and state-owned enterprises in investing large sums of money on ERP systems. Nevertheless, ERP usage in government related organizations is different from private organizations because the adoption process is usually mandated. Large public organizations have silo structures where decision making is intentionally built in and shared across the enterprise. Decision making, using a committee, makes the sign-off at each stage of implementation more difficult. Unlike private organizations, factors affecting success or failure differ slightly, for example, shared beliefs in benefits of technology, training, and communication (Amoako-Gyampah and Salam, 2004), cooperation of middle management as trusted intermediaries (Sommer, 2011), and symbolic adoption (Ritbumroong, Tanlamai and Santivejkul, 2013), and most importantly; organizational change management (Aladwani, 2001).

2.5 Research gap/inquiry

1. In half-public, half-private organizations like state-owned enterprises, what specific characteristics or factors influence successful ERP implementation?
2. What are the different type(s) of organizational culture and how do they affect the success of ERP implementation?
3. In what condition, would a business process owner not be considered the ERP project director? Will the implementation still be successful if a non-business process owner becomes an ERP project director?
4. In a mandated implementation setting, do changes in user attitude and expectations, perceived management support, and perceived ERP risk throughout the different stages of ERP implementation affect the intention to use ERP?
5. In a mandated implementation setting, how important are internal marketing communications to the implementation of an ERP project?
6. What type of client-consultant relationships can lead to successful ERP implementation?

3. How does Energy-ERP come about?

Energy has over forty thousand employees and is one of the largest state-owned enterprises under the Ministry of Energy. In 1998, privatization of Energy was put into motion with years upon years of political debates. However, the dispute stopped in 2008 when Energy's employee association joined forces with the yellow-shirt political protests, resulting in the closure of the national airport and subsequent red-shirt retaliation with road blocks and political unrest. Nonetheless, the privatization initiative has induced continual needs for Energy to modernize its operations.

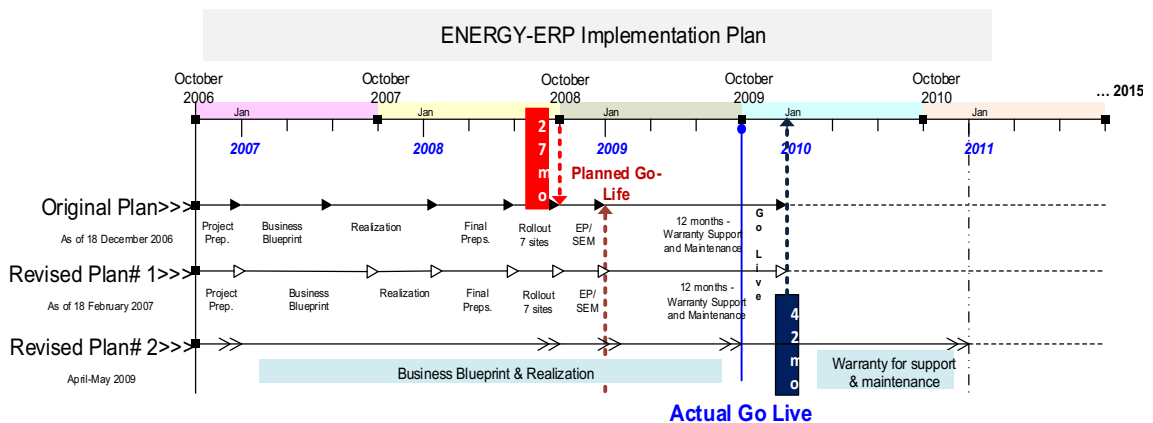
In the midst of privatization negotiations, Energy initiated an ERP master plan in 2003 and the Energy-ERP project in 2006. This information system solution was introduced to replace silos of legacy systems either

developed in-house or acquired package solutions using disparate equipment and software tools. For many years, efforts were made to implement three large systems with more integrated functions called Walker (financial accounting), MIMS (plant maintenance and material management), and IFS (human resource management and project management system). However, these systems were not integrated with one another. The implementation process of these three systems lasted several years with constant program customizations in order to fit with constantly changing user requirements.

The Energy-ERP master plan was designed to solve data redundancy problems stemming from islands of information systems and to achieve data integrity in the organization. The study took about four months beginning the last quarter of 2003 until the first month of 2004 and was commissioned to a consulting group from one of the government related universities. The university consultation team performed detailed requirement analyses, developed new system specifications, vendor selection criteria, project management and detailed proposal requests for Energy to send to prospective solution providers.

After an extensive software and vendor selection process, SAP R/3 was selected. The solution provider signed a 27-month contract (October 2006 – December 2008) which was 9 months shorter than the recommended 36-months of implementation timeframe specified in the Energy ERP Master Plan. The planned project cost was around THB1.2 billion with 11% internal rate of return (ROI) over a five year period. In the end, Energy-ERP was considered grossly over-budget because the project incurred a colossal amount monetary and non-monetary expenditures. The total project cost outlay failed to include salaries and wages for over one hundred full-time equivalent employees assigned to the project. SAP training time of over one hundred employees and unpaid overtime for all project members also contributed to setting the initial budget over its limit. Overall, the actual project completion took a total of 42 months, exceeding the initial schedule by 1.3 years (Figure 1).

Figure 1. Energy-ERP project implementation plans and revisions



Source: Tanlamai, Ritbumroong and Soongswang (2012)

Regardless of long delays and unexpected hidden costs, Energy-ERP was recognized by other SOEs as being successful in its ERP implantation. It was effectively utilized to perform its first year-end closing on-time. In Thailand, October marks the beginning of the Thai government fiscal year. From within an organizational standpoint, new operations have been without noticeable incidents. Energy employees have been informed about the ERP project on a routine basis. The well planned internal marketing communication of ERP activities

resulted in a shared cultural belief that ERP is positive and helpful for Energy. ERP projects in comparable SOEs, however, faced setbacks such as license disputes of the provincial electric authority or massive delays of almost ten years recurring ERP project bid failures at Thailand Post.

4. Does the end justify the means?

4.1 What does ERP promise?

The ERP project, once successfully implemented, can contribute to the mission-related outcomes of the firm. Cost saving, operation benefits from process integration, better decision making, user and customer satisfaction are also expected. Failures often mean budget overruns, schedule slippages, unmet expectation and unrealized benefits (King, 2005; Yourdon, 1999; Kim, Lee and Gosain, 2005; Yu, 2005).

Increased operational efficiency and effectiveness are also goals of implementing business software solutions like ERP. The system enables seamless integration from the sharing of common data and practice across business functions (Marnewick and Labuschagne, 2005), eliminating the problems of data inconsistencies and redundancies in the organization.

4.2 Was an overrun budget and delayed schedule really that bad? Did it matter that much?

With a budget of over a billion Baht, the project had drawn keen attention from every vendor, solution provider, and system integrator to reap financial benefits. The project was scrutinized by various groups of stakeholders because Energy is one of the largest SOEs that remits very large sums of revenue to government annual budgets. Six years after the project went live, The Energy-ERP project director commented that, *“Though the cash outlay was governed by contract, the total cost of ownership for Energy ERP is much greater. The stated budget did not include over 3 years of 100+ team member salaries and zillions hours of overtime.”*

During the implementation timeline, there were about one hundred full-time equivalent employees working as team leaders, key users, and technical support personnel on the Energy side and approximately 40-60 consultants from the consortium side. The project director explained further about the large number of project members, *“As advised by our consultants, we followed “best practice” project implementation strategies by recruiting and assigning people in the capacity of project’s key users to pair up with consultants from the solution provider’s consortium.”* The organizational structure of the implementation team was comprised of top-tier management with roles as project sponsor, steering committee members to oversee the big picture, dual project directors—Energy and implementer and paired managers for different sites/ power plants. Also, the total cost did not include the refurbishment of a separate building that was used to house the Program Management Office where long hours of work were carried out by the integration, data migration, change management, and other project member teams from both sides.

“We were committed to make the project work. We felt like we had personally invested our own money into the project. The project was very expensive. It used our country’s budget. We were obligated to all tax-payers and to our organization.” These words have echoed on and on even after six years. This shared-belief appears to be a salient factor influencing ERP success at Energy.

During the crux of project implementation, attribution of blame for project delay was done by both parties. Some implementer consultants felt that more hours could have been contributed by Energy’s employees so that the implementation could have been kept on schedule. Energy team members, on the other hand, felt that the

high turnover rates of consultant teams and the inclusion of young consultants with little ERP implementation experience were significant factors that contributed to project delays.

One of the most important criteria for vendor selection was the ability of vendor/solution provider to keep the project implementation schedule intact. However, delays began even during the business blueprint stage when some module team members and their respective functional units refused to sign off on the blueprint. Accounting teams (FI/CO module) were divided into sub-module teams such as Accounts Receivable, Accounts Payable, General Ledger, Treasury, and so on. They were major opponents of the FI/CO blue print specifications. Thus, two major revisions were made and implementation schedules reflected the new project “D-Day” to go live as October 2009.

In retrospect, the delay, especially during blue-print phase had contributed to the successful implementation at Energy. Many project members agreed on this assessment afterwards. During business blueprint phase, there were disagreements among team leaders, key users, and consultants regarding workflow processes and business regulations as well as unclear boundaries of work responsibilities. Each side had their own expectations which were opposite to one another. Energy key users in some modules complained about the lack of experience of some consultants in their module. They were convinced that consultants did not fully understand the nature of the business, thus, did not draw up a correct blueprint. Consultants, on the other hand, viewed that Energy had decentralized operations and that a not even a single group of key users could provide a comprehensive understanding of the overall organization and its needs. Also, practices among departments were different, even in the case of same processes such as calculating overtime. Power plants would calculate overtime charges differently from their accounting unit counterparts.

4.3 Lessons learned: short-term versus long-term success of an ERP project

Even with significant cost overruns and delayed schedules, the ERP project has been successful in the long run. The present SOE case shows that a successful project may not necessarily mean that delayed completion or finalization is a “bad” outcome. For key stakeholders such as users, the delay at the requirement identification or blueprint phase was an opportunity to weed out unnecessary or ineffective ideas and personnel. The delay here was in hindsight, seen by key-users and BPOs (business process owners) as beneficial to subsequent phases, such as Testing, Go Live and Operations. These users, once on board, can become faithful proponents for the years to come. This SOE’s culture is unique and the bonds that were created during the, at times, turbulent phases of the project between management and employees have developed into an invaluable asset rich in human capital. Being partially regulated by governmental budgeting guidelines, SOE employees are indoctrinated that ERP is a fairly expensive undertaking, making it everyone’s duty to maximize the investment. Unlike conventional beliefs in project management, cost overrun turned out to be a highly effective motivator for user implementation efforts and system use willingness.

5. Who should be in charge?

5.1 Accounting versus IT: CFO versus CIO

With a newly renovated three story building set aside as the program management office, Energy was on its way to seek out a competent and capable Energy-ERP project director. The search ended with the Director of Information Technology Department. This individual was involved with the Energy-ERP Master plan from

the very beginning and had experience in supporting the implementation of all other legacy systems. He possessed a strong technical background and was chosen by top management because he appeared to be most knowledgeable at the time.

However, shortly after missing numerous target deadlines, finger pointing issues related to project management problems had surfaced. Questions regarding the seniority and rank of the Energy project manager and delay implementation began to raise concerns. In a bureaucratic organization such as Energy, rank of the Energy project manager is important. In cases where seniority of rank is not sufficient, it could lead to lack of authority to finalize and/or resolve any outstanding issues. In weekly project meetings where different BPOs, team leaders, and consultants in charge met to discuss project progress and to settle any disagreed upon issues, very few decision and resolutions were made. Although decisions were made and issues resolved in a meeting setting, the reality differed greatly in that after everyone went back to their own units, none of the decisions and resolutions were applied, essentially, everyone went back to business as usual. *“Looking back, I also think that the project management might have gone smoother if the head of the most relevant BPO, the accounting function for example, was in charge,”* says the project director six years later. However, the Accounting BPO had no comment on the assessment. Staff members from the ERP system support function offered their viewpoints and shared, *“Having the project director who is not a BPO was quite good. This is because he will be neutral to all parties involved. Every BPO will be treated equal.”* According to one university professor who was hired by Energy’s top management as the mediator between the consultant group and Energy project team recalls, *“... leading project is not the problem of this director. The problem is that some BPOs rank higher than him so whatever directives coming out from the project team needed to obtain the signature from the lieutenant governor in charge. More meetings back and forth are needed before any signoff can be made and delays are inevitable.”*

Contrasting previous literature and a majority of practical recommendations, the IT director of Energy was put in charge of the ERP implementation project instead of the Chief Financial Officer, Chief Information Officer, or other core business owners. The most appropriate ERP implementation leader remains an unresolved debate (“Who should lead Enterprise Resource Planning implementation?” 23 November 2010). Nevertheless, it is apparent that the key to success at Energy is that no one involved in the process treated Energy-ERP as an IT project. It was introduced and marketed organizational wide as a strategic platform that would help revamp departmentalized operations into more a unified version. The Energy-ERP director recognized his less than desired rank of project head. He did away with his IT support role, stepped up, and worked extra-hard to ensure all ideas were represented and out on the table. At the end, the blueprint sign-off was in fact, delayed but it created an opportunity for the organization to grow by allowing for an organizational cultural adjustment by all parties.

5.2 Project team dynamic: key users versus consultants

Recognizing Energy-ERP to be important and expensive, *“Every division has chosen their best people to join the team. It is also surprising that our most knowledgeable staff has volunteered to be assigned to the project team. They are very proud to be the few who can offer input to the system that can greatly impact Energy.”* Despite the optimism, the project went through a long stagnant period because some BPOs and team leaders, especially those in accounting units, refused to sign off on the blueprint according to the requirement specifications of the original agreement. Energy personnel felt that the consultants tried to pressure them into approving a blueprint that did not appropriately represent the true business of Energy and that the theoretical integration of modules could materialize into real problems at later stages. From staff interviews, they expressed, *“We would rather take the time to make sure we had proper blueprints of our accounting module*

and sub-modules before moving on to the testing stage. ...We felt some consultants are too young and somewhat inexperienced. We are skeptical about the best practice solutions they designed for us because they look like the one we are having – we want to have something better than what we have right now. We could have used the old systems if the new ones just copy what we are doing.”

At the project planning stage, decision for the project team selection was even more challenging than selecting a project director. Over one hundred full-time and part-time employees were required to leave their posts to take on key user and other project support roles for a few years. One of the division chiefs expressed his concern about the career advancement of his key users who joined the project, *“Senior people who were assigned to work on the Energy-ERP project were bypassed when a position for advancement in their own department or division opened up. Don’t forget that we still have a bureaucratic culture. Middle and top level management started their career here, 20-30 years ago after they graduated from college, Seniority is still an important criteria to move up the ladder. If they stay at the unit, it would be their queue to be promoted a higher level position. Now that they have sacrificed themselves by transferring to the Energy-ERP project, they have to stay until the implementation is completed. They automatically lose the opportunity to be promoted during this period. No one thought about this before and top management has not had any policy or direction regarding this matter in place. ... Although I don’t think my people would be de-motivated and would offer less than 100% effort in representing our unit on the project, they do feel to be left out by the organization. And there is not much I can do for them.”* As it turns out, this concern came true. Nevertheless, most project members said they would not trade their lost career advancement with the experience gain from implementation. The trade-offs were worthy.

5.3 Note on leader and team-member issues: there is no single best way when it comes to people issues

BPO, especially in finance and accounting functions, is still perceived as the most suitable individual to head the ERP implementation project. In SOEs, the bureaucratic environment might not require the BPO to head the project but it requires the highest possible ranking management to take the post.

For IT implementation to be successful, aligning expectation between consultants and clients is important. The alignment has to be agreed upon from the beginning stage of implementation (Fullerton and West, 1996). Nevertheless, as in the case of Energy-ERP, when the figure pointing from both sides ended, relationships between consultant and client became collegially positive and long lasting. The bitter-sweet professional relationships turned fruitful later as evidenced in the present SOE case. It was also found in other parts of the world to be an IT value co-creation between implementers and their clients (Sarker et al, 2012).

6. Is communication the key to manage change?

6.1 To be informed is to change

With respect to ERP implementation, some might think that Energy was over zealous with internal public relations. However, it has always been a challenge to communicate to over twenty thousand employees. Thus, similar to a previous study (Finney, 2011), effective internal marketing communications for organizational stakeholders was an important success factor to mitigate change anxiety. Also, since Energy has one of the strongest labor unions in the country, it was able to receive and gather the necessary implementation information, keeping as many people informed as possible. The main channel of communication was the

intranet. Realizing the sensitivity of the situation, a careful selection of the change management co-head team was made in the early stages of the preparation phase.

The ASAP methodology was used for implementation. This methodology has six phases: Project Preparation, Blueprint, Realization, Final Preparation, Go Live Support, and Operate (Ahitub et al., 2002). The change management team continually launched news and ERP related activities were communicated via intranet as well as numerous roadshow programs by the team and top executives. *"We do our best to involve everyone in the ERP activities. We have programs, games, lotteries, Q&A, quizzes for a price, etc."* the change team mentioned. It appeared that everyone in the organization knew about the upcoming Energy-ERP initiative. Stakeholder expectations soared. Messages in early campaigns acknowledged the monumental investments as well as great pay-offs. *"It is Energy's most expensive IT investment. But we utilized world class software that will greatly benefit the organization in the long run."* The effectiveness of the change management team in its internal marketing efforts for Energy-ERP was evidenced in surveys and in-depth interviews conducted by the researchers (Tanlamai, Ritbumroong and Soongswang, 2012).

Interview data during the planned Blueprint and Realization phases showed that stakeholders such as key-users, managers, IT support staff, and consultants had high system expectations. Morale was boosted prior and during preparation phase of the project for all functional units and management to support ERP met its required goals. It was observed though that this proactive promotion of the ERP project through aggressive communications carried out by the change team appeared to have backfired during the first half of implementation but nevertheless, it worked wonders after system cutover and routine operations.

6.2 Changes in user attitudes and expectations at different stages of implementation and use

Quantitative evidence of the changes in accounting user attitudes and expectations of ERP implementation was reported in Tanlamai, Ritbumroong and Soongswang (2012). Results from three surveys show 'attitude' to be the main determinant influencing behavioral intention to use among Energy's accounting users. User attitudes are significantly related to the behavioral intention in all stages of the implementation life cycle. Behavioral intention to use during pre-implementation was driven only by user attitude. Intention was influenced by both user attitude and user expectation at the time before the system went live. As for post-implementation, only user attitude was the main antecedent of behavioral intention.

Similar to other research using the infamous TAM model, the results from all three surveys are robust. Nevertheless, user expectations had a minor role in mandated ERP implementation in the present SOE. This is due to a strong devotion culture uniquely exhibited in this organization. Once the ERP project was on its way, accounting users seemed to turn their expectations towards a self-fulfilling quest and devoted their efforts to ensure that all requirements of the accounting module were met. They worked hard to overcome various challenges and hired additional consultants to provide ERP technical advice. During the long and arduous negotiation process between Energy and software vendors regarding the number of licenses the organization was required to purchase, the accounting department experienced some glitches such as queuing to use the ERP by staff. Nevertheless, due to the fact that accounting personnel, being perhaps the most cost conscientious group at Energy, they were able to work around the inconvenience by devising a collaborative unison working approach to meet every accounting cycle deadline. It is worth noting that although the accounting department had caused delay to the original implementation plan by refusing to sign off on the project blueprint, this group actually turned out to be the greatest proponent of Energy-ERP in the end and is continuously learning and making the most out of Energy-ERP to this very day.

After six years, the Energy-ERP project is running steady in its routine operations. A focus group interview

was conducted with the former project director, Energy's change management team leader, business process owners and key-users from accounting units, programmers and analysts who supported Energy-ERP technical aspects. These focus group participants reported that users of the ERP were satisfied with the system. To face real-time changes in the ERP environment, additional features and custom reports have been amended to the system throughout the years. A few of these amendments were programmed by Energy's own users. All focus group participants seemed to have positive attitudes and have been actively involved with Energy-ERP. They have become organizational assets as bona-fide internal resources who have taken on the role of gatekeepers of ERP knowledge for other government agencies.

6.3 Notes on the communication mechanism for changes in mandated ERP implementation

Study after study has found the change in attitudes and behaviors of ERP users to follow Lewin's Change Management Model which is comprised of three stages: Unfreeze, Change, and Refreeze. The Energy-ERP project was no exception. Similar to other TAM-based studies reviewed in Grabski, Leech and Schmidt (2011), the present study also found user attitudes to contribute to intention to use in all three phases of implementation. User expectation, on the other hand, affects the intention to use ERP only in the change or transition stage at the hype of implementation.

The importance of user expectation during the transition phase can be explained by the Punctuated Equilibrium Theory (Gersick, 1991) when users of the newly implemented ERP adjust their behavior intention through the slightly decline in users' expectation between Unfreeze stage and Refreeze stage. The analysis model shows both user attitudes and user expectations to significantly determine behavior intention in Refreeze stage of project implementation. After the recognition and adjustment period, the role of expectation on behavior intention to use went away and users were in the equilibrium stage once again.

7. Conclusion

Many ERP implementation researches were conducted as case studies (Berchet and Habchi, 2005; Mandal and Gunasekaran, 2003; Sarker and Lee, 2003; Scapens and Jazayeri, 2003) because they provide in-depth examinations across different stages of implementation and identify the many different types of stakeholders. The case study method also allows researchers to gain first-hand information in a real natural setting (Benbasat, Goldstein and Mead, 1987). The present case study tells a story of an ERP implementation in a large state-owned enterprise in Thailand. Renowned theories are included from time to time to provide theoretical insights to the storyline and issues examined. They include TAM, Expectancy Theory, Change Model and implementation life-cycle. Stories and anecdotal evidences were collected from different groups of stakeholders. Primary data sources include survey results collected from end-users at the design stage, before the deployment stage and a little over one year after the new system change over. In-depth interviews and focus groups were conducted with key users, business process owners, project director, and different groups of consultants and project team members.

From a theoretical standpoint, the present SOE case demonstrates success based on existing literature, albeit some challenges were apparent, namely in communication as the catalyst in change management, organizational culture as the salient determinants of an organization's attitudes, thought processes and actions, or various tradeoffs regarding project management issues and consultant-user relationships. Communications can be instrumental for changes throughout different phases ERP implementation (Finney, 2011). Nevertheless,

more empirical evidence is needed to verify our current findings that in a mandated implementation environment, excessive project selling at the project preparation phase may have negative effects during the blueprint and realization phases but often times yields positive results during the operation and routinization stages. Further studies into the way complex social structures might form specific shared beliefs which affect the direction of ERP implementation are needed, for example, labor unions, bureaucratic models, hierarchical controls, and lifetime employment.

For practitioners, it is important to note that user expectations play a pivotal role in determining an intention to use an ERP system. Mostly, a great deal of effort has been paid to encourage user participation and involvement to enhance the success of the implementation. Our findings suggest that expectations should be well managed. 'Over expectation' could lead to disappointments which in turn, might lower user expectations and intentions when they are required to use the system. Nonetheless, a strong devotion culture shared by all organization members, like the one in this case study, seemed to overtake almost all ERP implementation barriers found in the literature. This is not to say that all SOEs are able to create such an instrumental culture; however, it is neither to say that this type of culture cannot be imitated. Lifetime employment and beyond life time benefits as in the case of Thai government organizations are similar to traditional Japanese organizational culture (Jakonis, 2009; Lincoln and Doerr, 2012; Zhang and Li, 2013). It is likely that when employees glue together towards the same organizational goal, ERP implementation success should be inexorable.

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