



User adaptations to system implementation in a mining company in Laos - A case study of organisational change

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Executive Summary

The purpose of this case study was to assess post-project implementation acceptance by users of new IS/IT systems in a mining company in Laos. The report investigated how the new system changed organisational working cultures and what avoidance or acceptance factors appeared. Also, it looked at how the new implemented systems contributed to the changes in business process and working procedures within Lane Xang Mineral Limited Company (LXML), which is a Lao subsidiary of a mining company from Australia.

The change implementation was a strategic business integration of MMG, a Chinese-owned global mining company, headquartered in Melbourne that operated several mining subsidiaries in Australia, Africa, Latin America, and in Laos. In 2013, LXML went through a big change implementation in terms of IS/IT systems consisting of the upgraded computing facilities, I.T. services outsourcing, communication systems, and the introduction of the new Enterprise Resource Planning (ERP) system. Those changes inevitably brought about change in the company's business processes and working procedures. As a result, it shifted LXML's way of working from the conventional paper-based system to a more systematic and electronic approach. Following the change, the organisation as well as its staff were faced with cultural issues and mismatch business processes.

To gain an understanding of the factors that impacted on the IS/IT implementation within Lane Xang Mineral Limited, this paper applied two analytical frameworks to the study of user acceptance and organisational cultural differences. Data gathering was conducted by an online survey and semi-structure online interviews with staff at different levels from within the organisation. The findings were then divided into enablers and barriers to user's adaptation to the new systems implementation on individual and organisational level. The findings were also used to compare deductively with the analytical frameworks to verify their influencing categories.

This paper is organised in three main sections, the first section introduces the case background and description of the issues from the case study. The second section is a justification of the significance of issues identified, and of the selected conceptual frames that were applied in the study. The third section is the analysis section, which explains

data collection methodologies and the analytical details. Findings on the study will also be found within this section.

At the end of the paper, the study is concluded by giving recommendations as a guide to I.T. Managers at the MMG headquarters in Australia and the LXML office in Laos, on transnational I.T. implementation within MMG. The recommendations could be taken as a guide for any other organisation (not only limited to the mining industry) to explore in order to plan for an effective I.T. implementation within their firms in the future.

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I. Case Description

1. Organisation background

MinMetal Group (MMG) Limited was a global mining company headquartered in Melbourne, Australia. It operated Century, Golden Glove and Roseberry mines in Australia as well as Kinsevere mine in the Democratic Republic of Congo and Las Bambas mine in Peru. In Laos, MMG owned and operated Lane Xang Minerals Limited (LXML) or Sepon mine in partnership with the Lao government (MMG Limited, 2014a).

A big change on the company's I.T. systems in 2013, required LXML employees' adaptation into MMG's international standard working procedures. The rollout of a new enterprise resource planning system, called SAP, brought about changes on business processes that required a more systematic and procedural steps in every transaction. It shifted LXML's ways of working into a more electronic approach rather than paper-based that staffs perceived it as inflexible business processes, complexed procedures and became stressed during their use of the systems in an adaptation period. Accompanied with the changing business processes, there was also a change on the I.T. Helpdesk system that it was moved offshore. This created difficulties for staff users on their communication attempts to get an assistance from I.T. Helpdesk.

In order to gain an insight into the case, following is the organisational and the case backgrounds. After that, the section on issue descriptions will provide details of the problems mentioned above.

1.1. LXML Sepon Mine in Laos

Sepon was an open-pit copper and gold mining operation in Savannakhet Province in the central part of Laos. MMG owned 90% and the Lao Government owned 10%. The operation commenced production in 2003 (MMG Limited, 2014c).



Figure 1: The Sepon mine location in Vilabouly district, Savannakhet province. Adapted from LXML Sepon. (2014). We mine for progress.

Sepon Mine operated 24 hours a day, 7 days a week, 365 days of the year. It was located in Savannakhet province, while the administrative and head office was located in Vientiane. As by the end of July 2014, there were 2,456 fulltime employees, consisting of 7% expatriates and 93% Lao national staffs (LXML Sepon, 2014, p. 26).

LXML commenced its operation under “Oxiana Limited” as the parent company at that time and headquartered in Melbourne, Australia. In 2005, followed by a merger of Oxiana and Zinifex Limited’s, LXML was run under “OZ Mineral Limited”. There was no remarkable change in terms of business strategies and I.T. systems within LXML during that period. Until in June of 2009, the MinMetal Group (MMG) from China acquired OZ Mineral’s assets that resulted in LXML to be operated under MMG, headquarter still in Melbourne, Australia (MMG Limited, 2014b).

Since MMG took ownership of LXML and other mine operations in Australia, Africa and South America, it has improved its management structures including I.T. infrastructure systems throughout its subsidiary group. In LXML in Laos, the Sepon mine site and its Vientiane office were also lay within the integration strategy.

Unified and quality information systems are essential for the management of many operation sites under MMG... (LXML IT Project Manager, personal communication, August 15, 2015).

In 2013, MMG LXML implemented several I.T. infrastructure improvement projects including decommissioning of the Oxiana domain, the old domain system from the time of OZ Mineral. Besides that, they rolled out HP computers including new operating Win7 system in-place of Dell and Windows XP. The new SAP ERP system, and new I.T. and communication systems were also implemented. Those upgrades represented a top-down change strategy from MMG management, and the Group IT's strategic goal in contribution to the company's core value and operating profit. Other drivers were efforts to restructure the entire MMG in order to keep being competitive, to overhaul several legacy systems from several vendors, and the benefit of the faster access to corporate information from across the whole MMG, which enhanced information accuracy and the ability of timely decision making (LXML IT Regional Manager, personal communication, August 23, 2015).

LXML IT change implementation in collaboration with MMG Group IT therefore engaged in many areas, as in a brief summary in the below graphics:

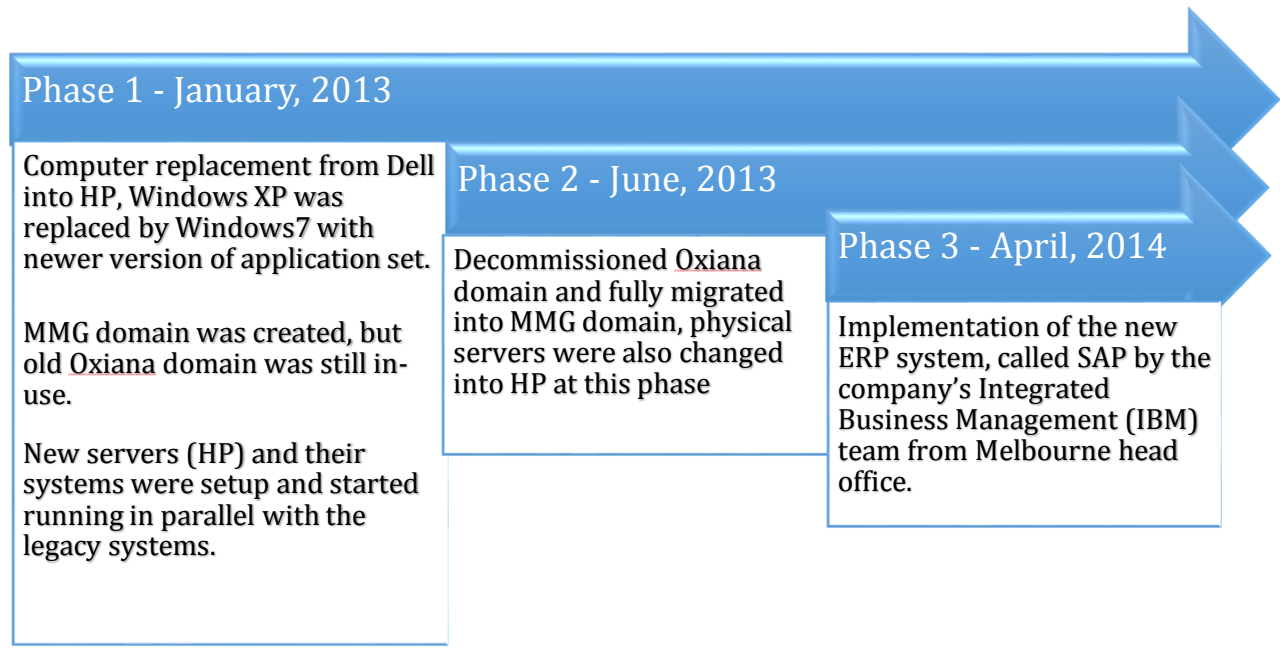


Figure 2: MMG LXML's phases of Information Technology changes.

2. Description of the change implementation and its affects

The changes will be described by dividing into two points of view. First, the I.T. infrastructure angle, followed by the business support service angle. Each point of view will be explained in detail in subheadings.

2.1. I.T. infrastructure angle

- **Basic computing systems:**

LXML used Dell as their workstations since the start of their operation in 2003. The system was running Windows XP in a form of a Standard Operating Environment (SOE) deployed from the server. The SOE included standard configurations and applications used within the organisation. It helped LXML IT department to reduce cost and time taken to deploy, configure, maintain, support and manage computers. In 2013, the new Standard Operating Environment (SOE), which was running Windows 7 and Microsoft office 2010, was rolled out in HP computers, instead of Window XP and MS office 2003 in Dell. An office printing system, from a scatter uncontrolled printing system, was also changed into a pull printing system called 'Follow me Print', in order to standardised and

better manage printing jobs within the whole LXML departmental offices as well as within the whole MMG sites.

- **Network infrastructure:**

LXML network connectivity between every peer was managed by Virtual Local Area Network (VLAN) systems that was configured in core network devices. The new network system was designed to handle with the growing number of network nodes. Network ports were required to be activated prior to any new computer equipment to get connected, this made the network size under control and well managed.

Wi-Fi connection was still provided as before, but in a more modern and secured manner. An authentication system has been engaged with the domain system, which means that each Wi-Fi device that requires to connect to the network has to provide user domain credentials as well as obtaining system certificates to be installed on the device to get connected to the system.

- **Servers and Data Centre:**

There were unnecessary huge number of physical and logical servers within both Vientiane and Sepon Data centres. This was because some systems were not compatible with logical server environment that they had to be run in separate servers. For example, Pronto system (the old ERP system), domain controller (DC), and Exploration database systems that they could not be run in the logical server environment. It can be said that the systems were in the old version, hence they were incompatible with virtual technologies. As a result, there were many servers running underuse of their full capacity. This consumed a lot of resources as well as maintenance costs and management efforts.

The new server system was therefore adopted in order to address with the consolidation problems above, in which Virtual Machine technology was the core system being run in the new physical HP servers. With upgraded software systems that can be run on Virtual Server environment, it greatly helped improve server management capability on both logical and physical environment. Another benefit was the reduced maintenance cost, and resources consumed.

- **Communication system:**

In LXML, communication channels divided into two types; organisational information site and telecommunication systems.

Organisational information sites referred to the intranet site that kept all LXML staffs updated on current situations and what is going on in the company on both the mine site and the head office in Vientiane.

The new intranet system was changed into running and managed with Microsoft SharePoint, which made the content management became an ease of use. Staff users from all MMG sites in different continents could get the same piece of information published on the intranet. They were updated faster on the situations in each subsidiary as well as in headquarter in Melbourne. This enhanced MMG's ability in communicating with every employees in every operational subsidiary by avoiding any delay and miscommunication.

The telecommunication link within the LXML's two main sites was running by an IP Phone and video conferencing system. This helped reduce traveling costs and time required. The systems were also linked with Melbourne office through an internet connection and the Integrated Services Digital Network (ISDN) to ensure a fast and reliable communication between Lao and Australian offices as well as other sites. The old IP telephony system was allocated by the Voice over IP (VoIP) technology, the system run four digits extension number.

New IP telephony system engaged with a bundle of public telephone network (PSTN) systems leased from a telecommunication company in Laos. It made LXML's IP Phone system linked directly to the public telephony system. Which means that, after the change, every single LXML extension number could receive and made a call directly from and to public telephone networks, allowing a more convenient and faster business communications. Video call features (provided by the new IP phone models) were added to the new system, enabled users to make a video call within all LXML extension numbers that enabled staffs to hold unofficial video meetings as required.

- **Production systems:**

During the pre-implementation period, production systems were included with LXML IS/IT systems that they were also partly supported by LXML IT. The mentioned systems included production planning and control, and quality management systems. Similar with Inflight and Intuition systems that LXML IT was in a middle point between vendors and users, they were responsible for basic support and maintenance.

After the change implementation, these systems is now secluded and run independently from commercial systems in terms of both infrastructure and support services. In other words, LXML IT was no longer responsible for the systems. However, these systems are not affected by any change that happened in within the commercial sphere.

2.2. Business support service angle:

There were many isolated resource planning systems that had been utilised by LXML prior to the change implementation. There were a financial and supply chain management system called Pronto, which consisted of finance, accounting, warehouse, purchasing, payroll, and maintenance planning modules. In addition, there was a transportation management system that the company used to manage both its land and air travel resources, called 'Inflight'. Also, a training management system was used as a separate system by the Training department in order to plan and manage training programs and their training schedules, called 'Inx Intuition'. These systems were supported by different vendors, using LXML IT department to responsible for basic system management and supports for staff users.

The new ERP system implementation had brought SAP ERP into LXML to replace Pronto and Inflight, which mainly lies upon financial and a part of operation areas. The decision on adopting SAP was simply because it was already in used in headquarter due to the above mention business drivers that it intended to disseminate gradually throughout the whole MMG (LXML IT Regional Manager, personal communication, August 23, 2015). Another convincing reason was that SAP was the worldwide market leader in ERP software (Forbes, 2013).

The SAP modules that were implemented included:

- Financial module: financial accounting, management accounting, and Financial Supply Chain Management components.
- Operation modules: Sales and distribution, material management components.
- Human Resource Management (HRM) system was the new added module for LXML because HRM business processes prior to the change were mainly rely on a complex spread sheet systems and paper works, except for payrolls that was using Pronto. The new HRM solution included payroll, e-recruiting, personnel administration, personal development, and time management components. Another feature in the HRM solution that brought about the change in HRM business processes was the service delivery component. The component that enabled users in general to interact with a self-service portal through different channels.
- Environment, Health and Safety (EHS) was another main solution for MMG to manage risks and enhance safe working environment, which was the core value of the organisation. The solution included with several modules, such as incident management, environmental emission management, maintenance safety and permit, and risk management.

The changes implemented by LXML resulted in I.T. Department to be dealing with a fewer vendors, named 'HP', and 'SAP'. In terms of hardware matters, this change has integrated hardware support and server support vendors into the same vendor. This helped simplify management effort from LXML IT team comparing to the situation before the change, where "Dell" was a hardware support through a local I.T. company as its authorised distributor, and an Australian company, named "Empire", as a server support contractor. It created difficult situations most of the time when LXML IT needed to ensure that they dealt with the distributor in accordance to the requirement from the server support team or LXML IT support team for PC computers or servers. With HP as a single vendor for PC, server hardware and server support, LXML IT eased much of their efforts on communication management as well as its effort on PC computer support.

This is a brand centralisation, we now have HP as our single vendor for both computer hardware and server administration. We no longer deal with the local distributor of Dell, neither Empire. All are

coming down to HP now, in Australia ... (LXML IT Project Manager, personal communication, August 15, 2015).

3. Issues with organisational working cultures and business process:

Organisational working cultures and business process had not been changed only in business support departments in many aspects, but it was also changed in the way LXML IT team was working in providing support services to its users. Below description details effects that were resulted from the changes. There were effects on business support service areas and I.T. support service areas. Business support service consisted of several departments that were not involved directly in the mine production. They were Human Resource Management, Finance, Supply chain, and so on. Another area was the IT department, which although was the department who played a part in implementing the change throughout the organisation, they were also affected by the changes themselves.

- **Issues with business support departments**

Ways of working and business processes for the business support departments were changed to a more electronic approach rather than paper based. The rollout of SAP, brought about changes on business processes that required a more systematic and procedural steps in every transaction. Moreover, there was also a changing user interfaces that made it different for staffs in order to operate them. Those changes, in performance point of view, attributed to the reduced work efficiency from staff users due to familiarity issues as the users were not used to system interfaces, it took them longer to process their tasks. The organisation's approach to the change was the dual working system, which means that employees had to do double job, they still kept working on the conventional paper-based system as well as working on the new electronic systems at the same time.

... It is time consuming for the person who transacts with the system. Most of the time we have to take shortcuts, we process the job on papers first and input to the system later ... (User No. 1, A staff in HR Department)

Changing business processes also brought about a more complexed procedures and steps for users to follow. Some staffs were seen to be stressed during their use of the systems and during their adaptation period.

SAP is totally new and it is quite difficult to use such different interfaces with new business processes. Sometimes, it made our team members become stressed, but we have to live with the change and we had no choice except for improving ourselves and our attitude toward it ... (User No. 7, A staff in Shared Business Services Department)

Due to the complexities from new business processes and concern over job efficiencies, some staffs used workarounds to get their jobs done faster. Some senior staffs avoided using the systems because they perceived that it was difficult and time consuming. However, there was no other choices because some specific tasks can only be done on the system by their management roles.

Although users had completed training session from SAP and the Integrated Business Management (IBM) teams prior to the system went live, there were still usage problems in the real operational environment. Such as problems with user interfaces, missing data, and other technical issues. Hence, this increased the need of both business process and technical assistance from SAP, business integration team, and IT technical support. In order to respond to those challenges, the teams had made self-help user instruction leaflets for helping users to use basic technology devices and functions on the new systems, such as how to log-in to the computer using new domain user ID, how to log-in and use a new IP phone system, and etc. The instructions were also available in a soft version in the company's intranet site in order to ensure multi channels access from users. This encouraged users to find out information and try out by themselves first, then they could ask for an assistance from IT support if they could not have their problems resolved.

On the other hands, the change over from Dell into HP computers, did not cause much sense of difference for users. However, the operating system and a set of applications that came with the new SOE were new for some users in terms of familiarity and functionalities or interfaces, they had to adapt to the newly rolled out operating system and its new embedded software versions.

- **Issues with LXML IT department and the IT Helpdesk:**

Since the beginning of the first phase project implementation, LXML IT was also affected from the changes. HP IT Service Desk (HP IT SD) has taken over the responsibility of being systems' helpdesk, where users used to either called, emailed or approach in person to ask for assistances on I.T. issues from LXML IT team. With the change, IT Technical support in LXML was turned into level 2 support engineers and floor walkers that worked in collaboration with HP IT SD after the change. However, due to the fact that HP IT SD was providing services from offshore, communication problems between Lao users and HP IT SD engineers arose. This was because some of Lao staffs had difficulties with technology, and that became doubled to communicate in different language with HP IT SD operators. Therefore, LXML IT technical support had to act as level 2 support as well as level 1 and an ad-hoc helpdesk to assist HP IT SD communicate with Lao users and vice versa. It was also found that some users were not willing to follow the new service procedures from the I.T. Department to contact HP IT SD first. They used workarounds by asking LXML IT team for support, and they would report to HP IT SD later to log a case. Their reasons were the ease of communication and speed of getting services, they were not comfortable to contact HP IT SD in English and waited a while after that to have their problem resolved.

I often found that some people for some basic IT issues, they just walk in to LXML IT team to get their problem resolved first before they log a call with IT Service Desk ... (User No. 6, A process engineer in Production Department)

I just want to speak up my IT problems to someone who speaks the same language with me, because it is more comfortable way for me and we still have LXML IT team here. Although we can speak English, it is still difficult to communicate IT problems to people with many accents ... (User No. 1, A staff in HR Department)

In terms of organisational change resulted from the I.T. implementation, there were also changes happened on the departmental structures and management positions. Lines of direct report were flatten due to the changes.

Some supervision positions within IT department were no longer needed, such as the positions of Technical Leads, and supervisors. Moreover, the position of IT Manager was also localised from an expatriate into a Lao national.

In sum, the company's I.T. changes were facing with employees' adaptation efforts to use new systems due to the changing business processes, familiarity to the process and interfaces of new systems. Moreover, the changing service procedures of LXML IT team on the way they provided support service to users also caused issues because users were used to the conventional ways of getting I.T. support and the issue on communication with the offshore HP IT SD. The next section is the case analysis followed by the findings on how staff users adapted themselves into coping with issues and difficulties they were facing.

II. Introduction to Analysis

1. Justification of the significance of the issue

Currently, there are many transnational companies who expand and invest their businesses in developing countries that take with them best practices and procedures of global systems into the subsidiaries in developing countries (Walsham & Sahay, 2006, p. 11). In doing so, they hope to run their subsidiaries in those countries the same way they do in their headquarters to ensure unified business processes and transaction systems. By contrast, Walsham and Sahay (2006) point out that it seems that they overlook local contexts for their purposes of standardisation on comparability and efficiency matters as their baseline on relationship between firms' employees and IT implementation. Silva and Figueroa B. (2002) mention in their research that the relationship among the employees' adoption and organisational technology implementation in developing countries is discussed under the contexts of cultural difference and information knowledge. It is further suggested that benefits of the IS evaluation is intangible, in which required the qualitative approach rather than the quantification of costs and times (Stockdale & Standing, 2006, p. 1091). This is because there are many influential factors behind the IS implementations, organisational and external factors that are drivers to the implementation. Also, a cross cultural working issues between the two countries or organisations are complexed that required an insight and broader perspectives to explore and appreciate them as determinants of effectiveness in technology

implementations (Walsham & Sahay, 2006). Besides that, Motwani, Akbulut, and Argyropoulou (2008) point out that national culture is another issue to take into consideration rather than regard it as a fixed entity, for it can influence users' acceptance and successful technology implementation.

Hence, it does not mean that implemented information technologies give benefit to business organisations automatically. Walsham and Sahay (2006) state that Information Technologies issues in developing countries are mostly addressing with the challenges of access and the knowledge of users to make the most of the technologies. Venkatesh, Morris, Davis, and Davis (2003) suggest in their research that Information Technologies has to be adopted by employees in the firms implementing the system in order to improve productivity of organisations. They assert that apart from technology trend and social influence, supporting infrastructure in the newly implemented IT system is making employees feel comfortable to uptake the technology. However, participants in the research of Venkatesh et al. (2003) were employees in organisations that may or may not located in developing countries. Therefore, their comments will be taken only as a guide on relationship between firms' employees and I.T. implementation.

In their research, Silva and Figueroa B. (2002) argue the development strategies proposed by the World Bank and international agencies, with the need to consider the host countries (developing countries) in terms of beliefs, values and language differences. They also add that information knowledge is also the key challenge that developing nations are facing in their attempts to integrate Information Technology systems into firms and organisations. Consequences of technology transfer would be the requirement on technological skill and knowledge within recipient firms in order to operate and mastered the technology (Archibugi & Pietrobelli, 2003). Davis, Bagozzi, and Warshaw (1989) mention that employees' perceptions toward the new system adoption are also playing a significant role, it is more likely for the firms' employees to adopt new technology when they understand the usefulness of the technology as well as the way to use it (the ease of use). This is perceived to be the same notion with supporting infrastructure to help users gain an insight of technology usage to get the most out of it. There are several psychological oriented theories and models that have been used to study user adoption of the new technology (Fisher & Howell, 2004, p. 245). For instance,

the Technology Acceptance Model (TAM), Social Cognitive Theory (SCT), and the Theory of Planned Behaviour (TPB).

Despite this, it is impossible to say that the understanding of employees' perception in organisations toward I.T. implementation within firms, and cultural difference issue are the decisive variable in evaluating IS/IT implementations. Mitra, Sambamurthy, and Westerman (2011) claim that it has to take into account the business value improvement that affected by I.T. performance. They argue that an IS/IT projects that were completed within the timeframe and allocated budget cannot be labelled as a successful project if it cannot add value to business and be adopted by users. Metrics are therefore required to overall measure I.T. performance in order to motivate employees in changing behaviours and increase performance. The framework that provides a tool of metrics to identify the scope covering the areas of I.T., Business Process and Unit with performance areas of operations, projects, and innovation has been proposed in their research (Mitra et al., 2011).

A parallel argument is made in a research paper of Stockdale and Standing (2006) affirms that the IS evaluation tends to overlook the social and political constructs in the organisational environment. It is further suggested that benefits of the IS evaluation is intangible, in which required the qualitative approach rather than the quantification of costs and times. Hence, the Content, Context, and Process perspective is selected in the research because the concepts can take many aspects of an issue into consideration, and it helps preparing others specific evaluation models (Stockdale & Standing, 2006, p. 1091).

In this paper, according to the case and problems description above, a closer look will be taken into the case by data gathering and analysis using the lens from analytical frameworks. The paper will explore how the new systems changed LXML working cultures and business processes. Moreover, it will look at the reasons that cause user's workarounds and avoidance reactions in adapting into the new implemented systems based on the theory of technology acceptance and usage, and the model for understanding cultural constraints on technology transfer.

2. Analytical framework used in the analysis

I.T. changes in the company in this case did not change only information systems that the company used to manage its assets and operations, it also involved organisational change in terms of reporting structures and employees' job contents. Although, the changes in LXML, from change management point of view, is referred to as a radical change as it is the change decision from top management with an attempt to consolidate business operation and centralise IS/IT systems by flattening organisational charts (Benjamin & Levinson, 1993), it is undeniable that there should have been some degree of mismatched organisational cultures and business process between companies in the developing countries and in the industrialised one (Motwani et al., 2008). However, the implemented systems would contribute to organisational goals, provided that its employees fully embrace the new systems (Eckhardt, Laumer, & Weitzel, 2009). Hence, the analytical approach to this case study was focus on organisational and individual levels in order to see how the change implementation shaped ways of working in the organisation and how it affected the process of employees' acceptance.

On the individual level, the model of Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) was applied, because it is the most cited model designed for the analysis of individual acceptance of technology in the organisational context, which is fit for this case, in terms of organisational context.

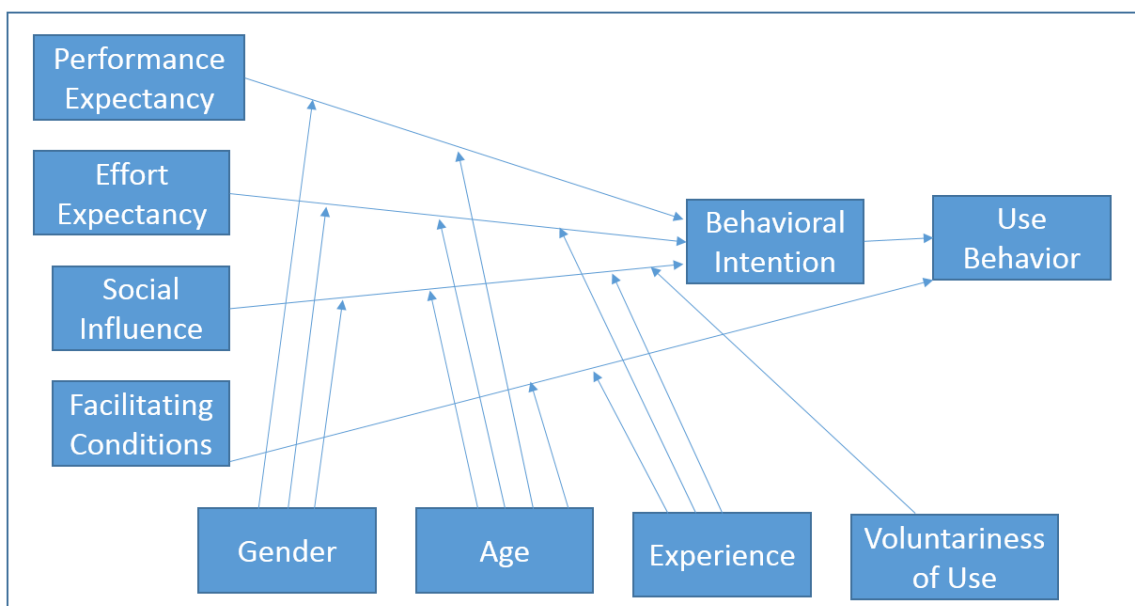


Figure 3: The model of Unified Theory of Acceptance and Use of Technology (UTAUT) by (Venkatesh et al., 2003)

The model indicates determinant factors of technology acceptance and usage of individuals. Within the model, there are four factors that directly determine user's tendencies to the acceptance and usage of technology, known as performance expectancy, effort expectancy, social influence, and facilitating conditions. Besides that, there are four key moderators of gender, age, experience, and voluntariness that appear to impact on each of the four determinant factors (Venkatesh et al., 2003).

For the organisational level, the analysis was based on the model for understanding cultural constraints on technology transfer across nation by Kedia and Bhagat (1988) due to the reason that the I.T. implementation in LXML was the top-down technology transfer from Australia to its subsidiary company in Laos, which was the I.T. implementation from industrialised to developing countries. The model covers a variety of factors that impact the effectiveness of technology transfer. Such as, types of technology transfer, differences in organisational working cultures, national cultures, and absorptive capacity of the recipient firm.

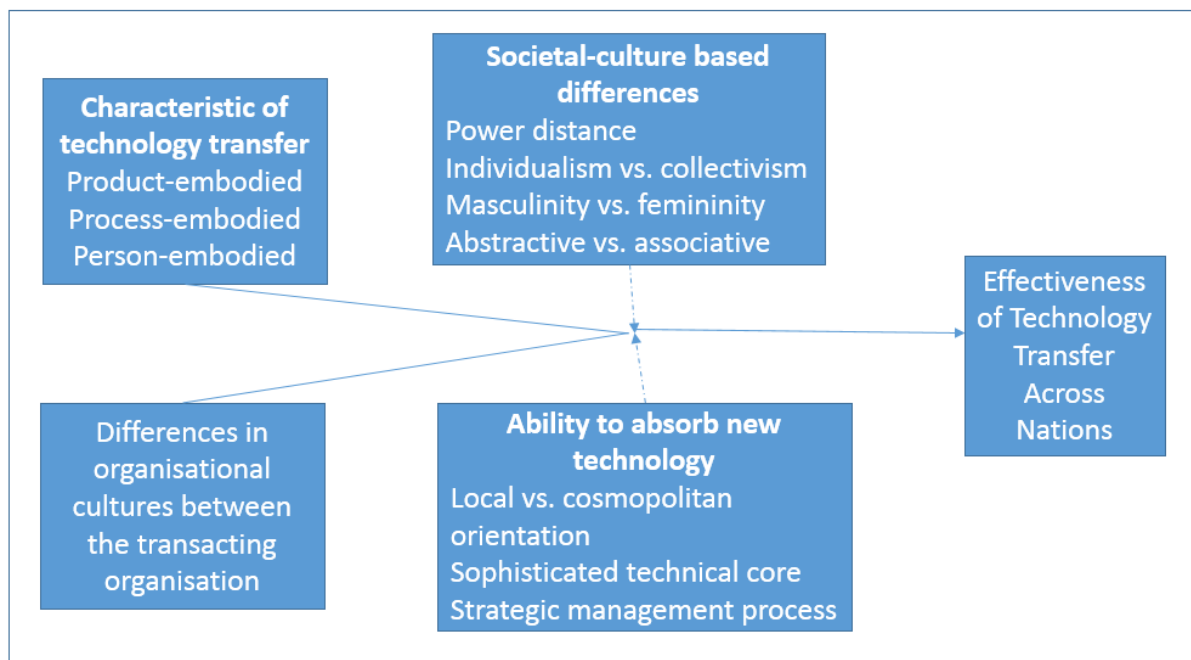


Figure 3: The model for understanding cultural constraints on technology transfer across nationby (Kedia & Bhagat, 1988)

Organisational technology transfer across nation is classified by types of technology that attributes to cultural implications, whether the transferred technology were process, product, or person embodied. In this case, it was process-embodied that

required attentions to various cultural and strategic factors such as, language, physical location, level of economic development, shared history, and technical competence of the workforce in the recipient firm (Saad, Cicmil, & Greenwood, 2002). According to Kedia and Bhagat (1988), technology transfer to developing countries affected by cultural compatibility of the country of the recipient firms. Hence, there are links to the two moderators of national cultures (societal culture-based differences) and the ability to absorb new knowledge (absorptive capacity) that impact the effectiveness of the technology transfer.

In sum, I.T. implementation within transnational firms could be affected at the individual level by employee's acceptance, which includes various factors as described in the UTAUT model. Another factor that impacts the implementation is the compatibility of organisational cultures and business process between the parent and the subsidiary companies, which depends on types of transferred technology, cultural differences, and two moderators of national cultures and the ability to absorb new knowledge from the recipient firm as depicted in the model in figure 3. This paper therefore applied these two models into developing tools for data gathering and analysis to explore whether all of the factors in the models were valid in the case of I.T. implementation in LXML.

III. Analysis

1. Outline of methodology

Methodologies used in data gathering for this research project started with phenomenon observation at the case and its settings, a literature review was then conducted in order to identify potential conceptual frames for data gathering and analysis. Once conceptual frames have been defined, an online survey and semi-structure interview questions were created using the lens of each category from the defined frameworks. Online survey was set to explore general trend on users' acceptance of the new technology infrastructure from technical point of view, and to explore users' tendencies toward accepting new implemented systems. It was launched prior to the conducting of semi-structure interviews, because there were a large number of employees in LXML. Hence, online survey was deemed to be the tool that could penetrate to as many employees as possible to gain their general perceptions on LXML's implemented IS/IT systems.

Results obtained from the online survey were used to shape interview questionnaire in collaboration with the conceptual models to uncover challenges, benefits and significance of the new technology implementation as perceived by participants. Due to the fact that two conceptual frames were applied in the study, factors and categories under each model were plenty and could not only rely on survey results to analyse deductively with such broad conceptual frames. Semi-structure interviews were therefore conducted in order to persuade the invited participants to unravel their thoughts on the questions that were partly designed from survey results and the analytical frameworks. By doing so, huge amounts of good information was obtained from the participants during the course of 30 minutes interview sessions.

Data collected from interviews was analysed deductively with the defined frameworks in order to explore reasons behind participants' responses, and to investigate the related environment (Thomas, 2006; Thorne, 2000). Content analysis techniques was used to describe characteristics of information groups from the online survey. Interview summaries were reviewed to gain an understanding and overview of the data. Thematic analysis was applied in order to sort and classify common themes in accordance with the analytical frameworks. Key themes and categories were coded in a spreadsheet file to gain an overview and understanding of their relationship. Data collection was not limited to only interviews and surveys, but also observations, personal communications, and some document browsing were conducted under permission to gain data from various sources.

Research participants were staff users of the organisation's IT systems in LXML. Nine key personals in the organisation from staffs in management positions to staffs at operational levels were approached with an outline of the proposed research. Participant selection was scoped down to staffs at operational and management levels due to the purpose of gaining a variety of information. Staffs at operational level could provide fresh information at individual level, their perceptions on the changing organisational strategies that affected them from down to top view. Meanwhile, staffs at management level could provide fresh information on the organisational strategies toward the changes and information at individual level from the executive points of view. The varied information from participants of different levels provided a broader range of data that could be used for analysis from several analytical lens.

2. Data collection

2.1. Online survey

The online survey was created using 'Qualtrics,' a survey software provided by Victoria University. The survey consisted of nineteen questions evenly distributed into four main parts, they were parts on participants' general information, current IT infrastructures, LXML IT services, staffs' skill and training as shown in table 1.

Parts of online survey questions
1. Participants' general information
2. Current IT infrastructures
3. LXML IT services
4. Staffs skill and training

Table 1: Parts of question of the online survey

Consultations and discussions with some key persons in management positions in the company, such as the IT manager, IT superintendent, and the deputy director, were done on the best way to assist the researcher to access and gain participations from staffs within the company.

The online survey was then launched by an invitation email sending the link to the online survey to a Lao staff mailing list, attached by the online survey information sheet. As per the requirement from the Human Ethics Committee (HEC). Online survey participants were allowed to opt whether they would like to receive a survey report or not. Participants' email addresses were collected at the end of the survey for those who would like to receive the report, this was done by providing a link to another online Google form for participants to input their email addresses. The participants' information provided could not be used to identify their input on the survey because these were two different systems, which were not linked to each other.

2.2. Interview questions and process

All one-on-one interviews were conducted by video call sessions on Skype one week following the online survey closure. The process started by sending invitation emails to the targeted participants, a brief explanation on the research project and the interview were attached. As per Human Ethics Committee Guideline (HEC), before the commencement of interviews, the signed consent forms were collected from participants

as soft copies. During interview sessions, open ended questions were asked from the identified areas depicted in table 2, and the narrative was recorded using an audio recorder.

The interviewees were asked to give responses to eight open-ended questions, which were divided into five main areas. They were question sets on interviewees' general perspective on the new implemented IT systems, facilitating conditions, organisational working cultures, social influence, and future perspectives.

Five areas of interview questions
1. A general question to explore users experience and perspectives about the newly implemented systems.
2. Questions on facilitating condition at both organisational and individual levels that helps participants adapting to new ways of working and using new systems.
3. Questions about issues on the adaptation to using new business process/procedures as well as I.T. systems. Also, participants' and organisational reactions. This was aimed to gain information on organisational working cultures.
4. Questions about factors that influence participants' perception toward their acceptance of new systems, and to explore their ability to absorb new knowledge.
5. Questions on future perspectives to explore participants' views on solutions to their perceived issues and users' constructive feedback for future I.T. implementations.

Table 2: Groups of question of the semi-structure interview

During the interviews, discussions were allowed to flow freely with a minimum interruption from the interviewer. However, the use of “floating prompts,” verbal and non-verbal expressions, as suggested by McCracken (1988), was applied during the course of interview to encourage more explanations from the interviewees on any matter that the interviewer required more information and clarification. However, caution was taken for the use of floating prompts during interview sessions, because according to Myers and Newman (2007), they might have revealed the researcher's or might have influenced interviewee's bias toward the story being discussed.

2.3. Data collection time frame and analysis process

The online survey was conducted during July and Augusts prior to the semi-structure interviews, which were conducted later on between September and October, in the year 2015.

Data from the online survey was aggregated after the survey closure, to help design interview questions. Online interviews were later conducted, and data obtained from the interviews were transcribed followed by an analysis to find major themes. The themes from obtained information were explored and validated, first from each individual interview, and then across all interviews. Key themes and categories gained from interview data analysis were gathered and coded in a spreadsheet file to look for the overview and understand their relationship. The emerging themes were taken to compare deductively with the conceptual frames proposed above. Findings were discussed in the section below classified as enablers and barriers to the adaptation of LXML employees, at both individual and organisational levels, to implemented systems, in terms of business process compatibilities and organisational working cultures affected by the I.T. implementation.

3. Findings

3.1. Online survey

The online survey revealed positive feedbacks on quality of the newly implemented systems in terms of service infrastructure, responses showed that users were aware of the company's IS/IT policy. However, there were mixed feedbacks on the services provided by LXML IT and the HP IT Service Desk. Most questions on the online survey were designed as Likert scales, it was responded by approximately 55 respondents, in which male respondents covered 65.63%. Within that, the number of 44 respondents were staffs from Vientiane capital, while there were only 2 respondents had a point of hire in the local area of the mine site (Vilabouly district). The respondents age ranged between 23 and 59, dominant age groups were between 29 and 37. Of these information groups, about 63.33% have been working with LXML for more than 4 years.

From the survey results, respondents' feedback on the current infrastructure was considered to be in a positive side. It can be seen from the responses on office network connectivity, the use of online contents, and their perception on the company's content filtering policy. Respondents chose the answers that showed they were aware of some limitations on the current infrastructure, but that was due to the IS/IT policy that they were required to comply with. Below figures display questions and their responses percentage on the online survey.

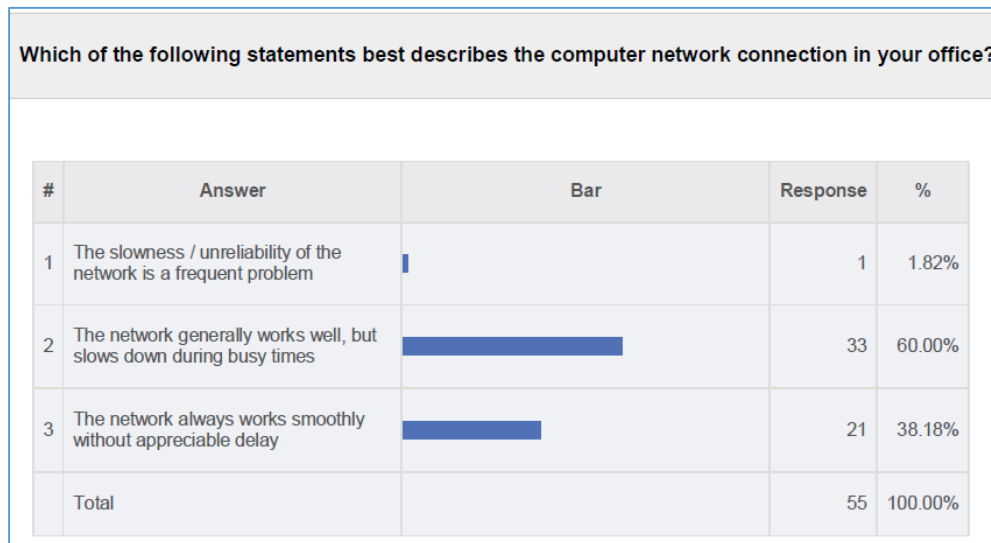


Figure 4: Survey question on network connectivity

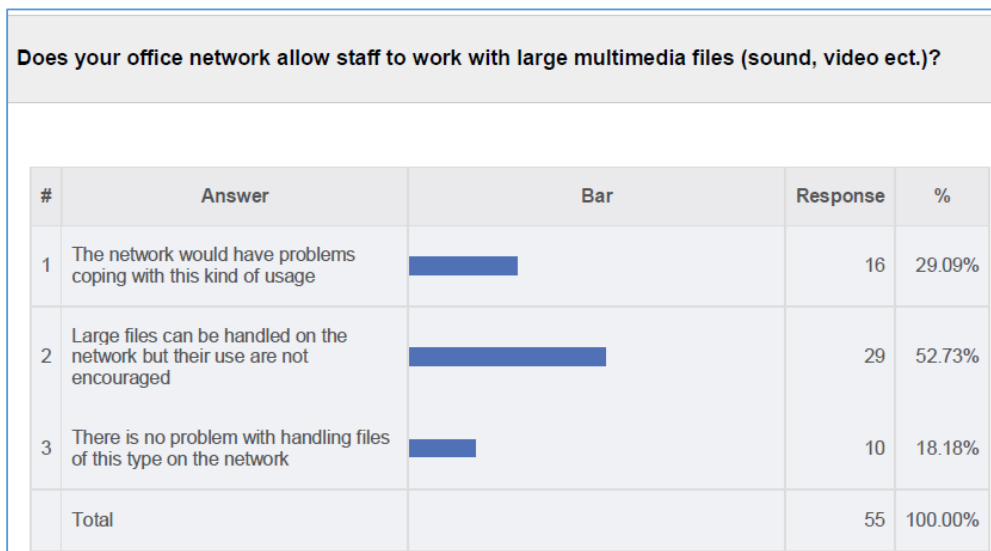


Figure 5: Survey question on using large multimedia files on the network

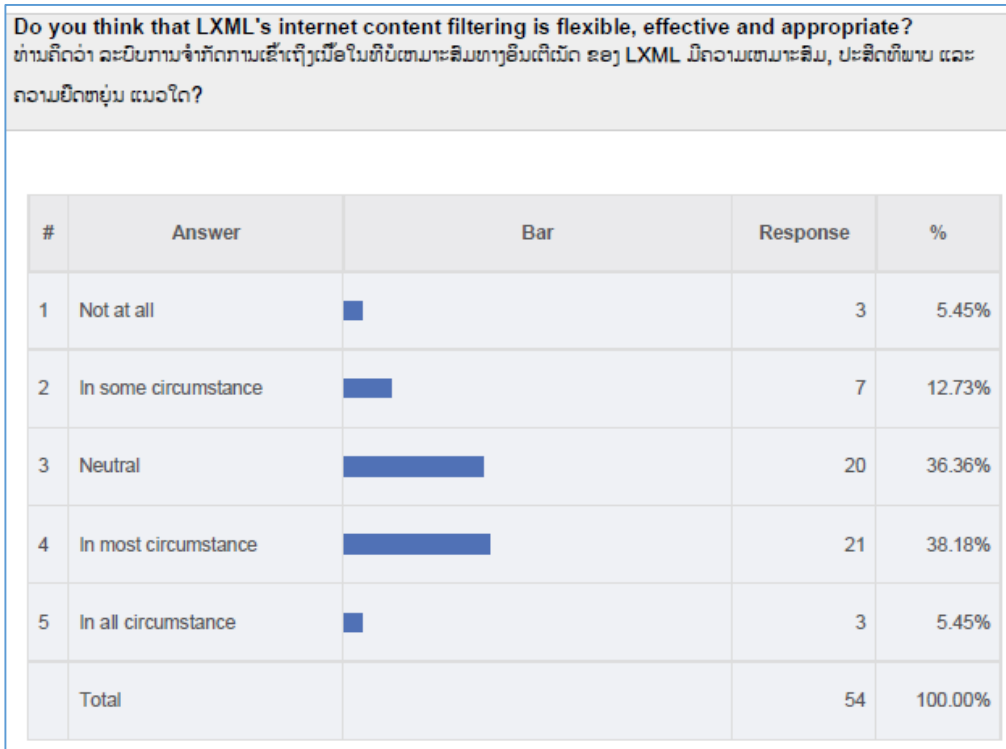


Figure 6: Survey question on network content filtering policy

By contrast, the questions about the I.T. teams' approaches to provide an assistance to users and about new procedure on logging IT cases with the HP IT Service Desk. The results showed that LXML IT team's approaches to assist users was in the acceptable level or neutral. However, it is difficult for respondents to log a case with the IT Service Desk by email or telephone. The responses were as shown in below figures.

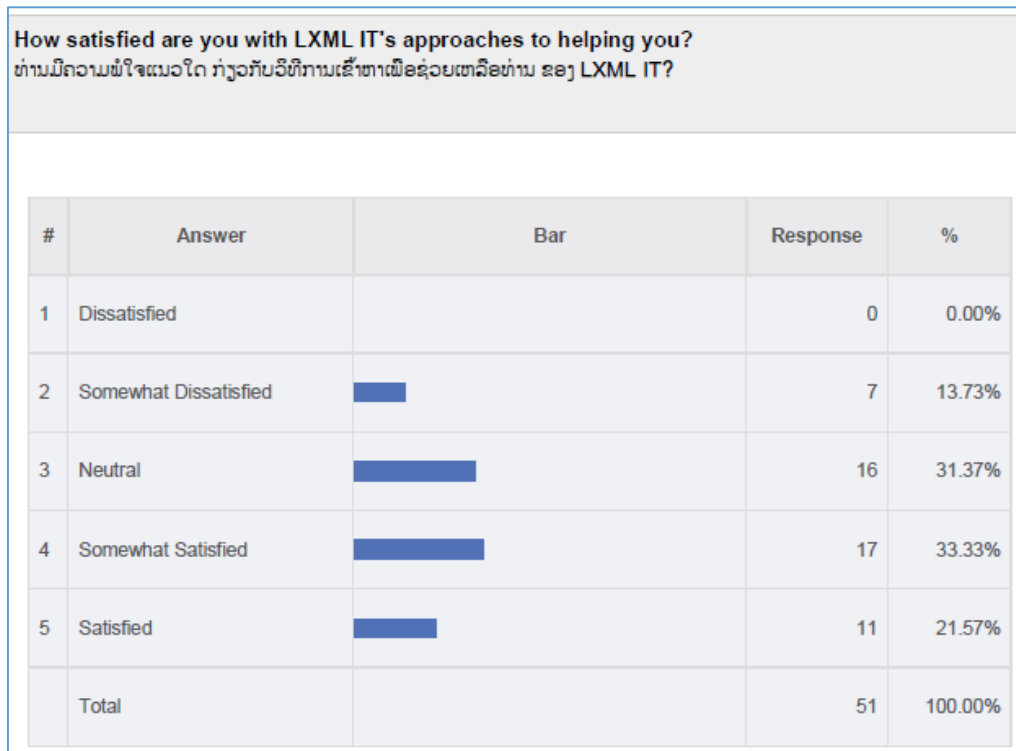


Figure 7: Survey question on LXML IT team approach to deliver service



Figure 8: Survey question on difficulty to get I.T. support from HP IT SD

Regard with users' skills and training under the new systems usage, it was more than half of the responses that revealed the feeling of uneasiness from users in order to use the new systems.

However, it was seen that there were almost the same proportion of in-house and on the job training sessions that were provided to staff users. There were also indications that users became more confident in using new systems, after trainings.

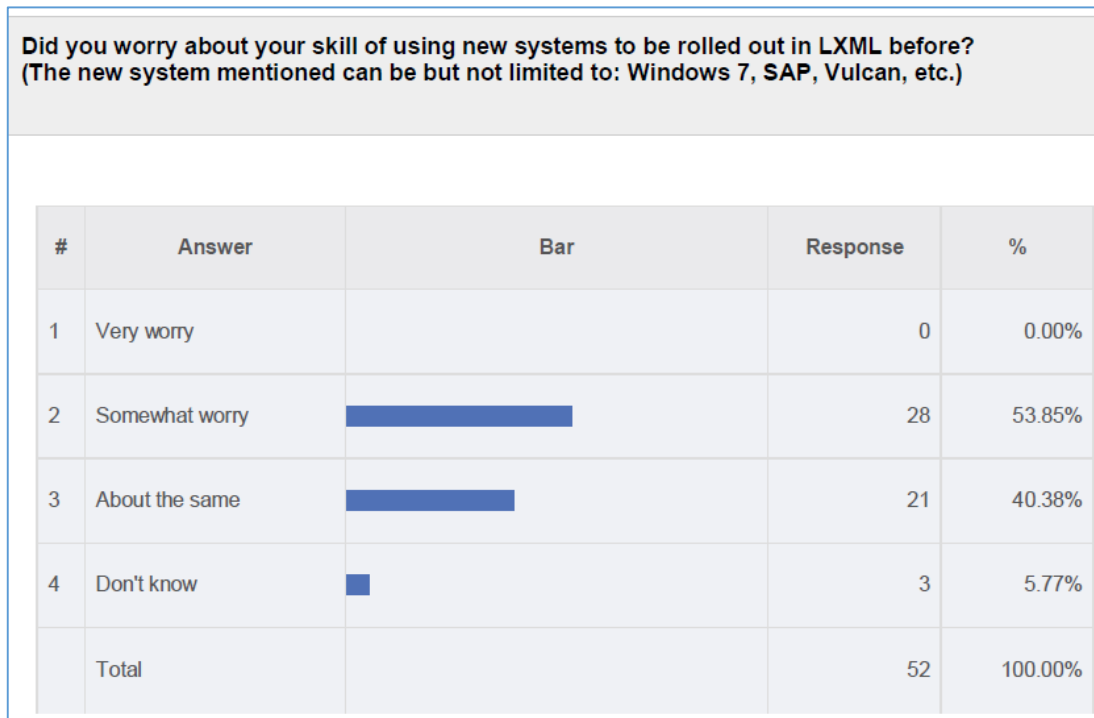


Figure 9: Survey question on user skills on the new systems



Figure 10: Survey question on how trainings help creating confidence for users

The above findings from online survey, especially on difficulties and uneasiness issues blended with the UTAUT conceptual model as well as the model for understanding cultural constraints on technology transfer across nation were taken into forming semi-structure interview questions.

3.2. Semi-structured interviews

Followings are findings from semi-structure interviews classified as enablers and barriers to the adaptation of LXML employees at both individual and organisational levels to the implemented systems. The description starts with the enablers and barriers at the individual level then continue to the organisational level.

Individual Level

In table 3 is the summary of the enablers and barriers to employees' adaptation to the implemented systems obtained from findings at the individual level based on the application of the UTAUT model (Venkatesh et al., 2003). The enablers showed the relations among employees that they worked together and helped each other in adapting into new working procedures and new systems.

They had positive thinking toward accepting the change that it would bring benefits to themselves as well as the company. Also, LXML IT team was found to be the main assistant for employees in terms of their use of the systems. However, that could be seen as a barrier as well due to the perception of employees on getting help from LXML IT team as a comfortable thing to do rather than following new I.T. Helpdesk service procedures in getting first contact with HP IT SD. Other barriers were the findings that new working procedures were time consuming for employees compare with the old ones. As a result, there were avoidance behaviours from some employees not to work on or follow new working procedures/process. For some staffs, they would attempt to use the system when they were chased up for necessary inputs to proceed the task for their team. This had worsen the issues of job efficiency as it took more time pending for input from working group members.

Enablers	Barriers
<ul style="list-style-type: none"> • Colleagues helped each other to adapt to using/understanding the systems. • LXML IT team helped in giving guidance and advice. • Employees' perception that they believed that the change would bring about benefits to the company and to themselves. 	<ul style="list-style-type: none"> • Not following new I.T. Helpdesk service procedures, some employees were still keeping LXML IT as their first point of contact as it was more comfortable for them. • New working/business procedures were time consuming for employees compare with the old ones. • Avoidance behaviours in following new working procedures/process.

Table 3: Summary of enablers and barriers to employees' adaptation to the implemented systems

At this level, the proposed conceptual frame (the UTAUT model) was deductively compared with. The finding showed that not all categories within the UTAUT model (Venkatesh et al., 2003) appeared in the case of LXML.

There was no finding on the evidence support for the influence of performance expectancy, neither nor effort expectancy in the model. The four moderators of age, gender, experience, and voluntariness of use neither had their role in the findings. It was presumably due to these were new systems for every

staffs that no one experienced it before, the age group of employees in the company was not varied, and it was top-down change that voluntariness was not required to adopt the systems. Hence, two factors and the four moderators in the model were discarded as there was no support evidence on their influences in the case. However, for social influence and facilitating condition, the findings were different.

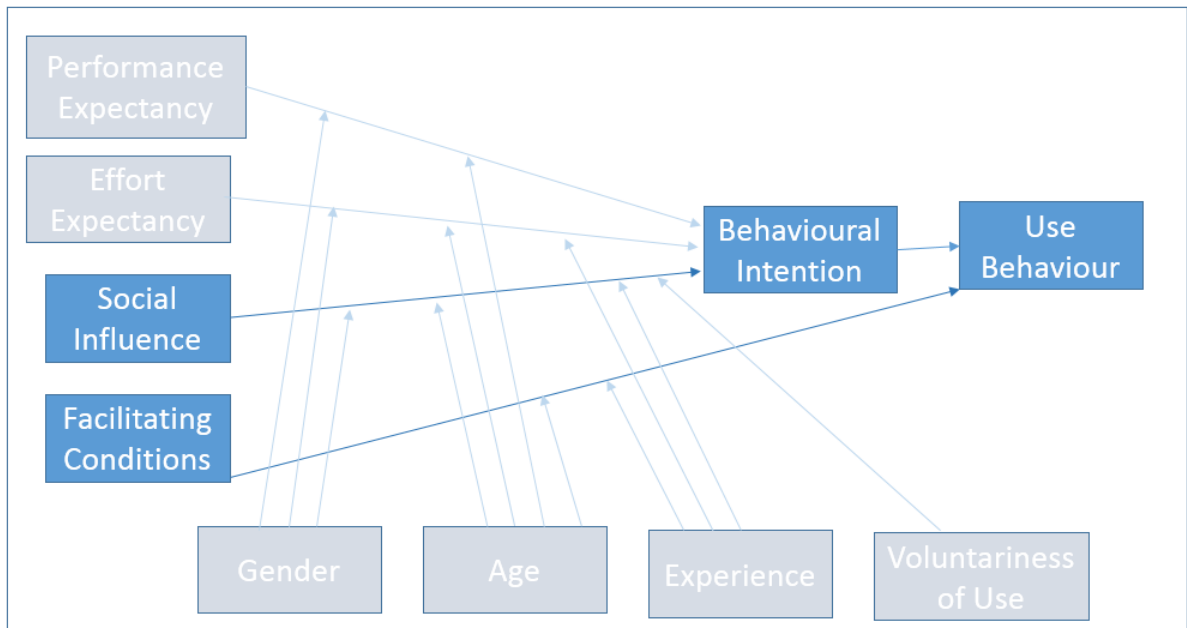


Figure 11: the reviewed model of Unified Theory of Acceptance and Use of Technology (UTAUT).

For social influence, it was found that colleagues in the workplace, LXML IT, and management are the influential persons for individual staff users to be willing to learn and adapt to the new systems. Most staff users mentioned that they ask their colleagues in order to find out how to use a particular function on the systems or to exchange their understandings on the new systems and processes, especially on SAP. In consultation with colleagues, they get the answer for their issues quicker and it sometimes helped them not require to contact the IT Service Desk for an assistance.

One of Process Engineers in the copper production area mentioned about the usefulness of getting to colleagues to ask or get help on some minor issues on the system as a good way to help him adapt to using new systems.

I always ask my colleagues who has experiences that they used to overcome the issues that I have, or it's the persons that are working

in the area that I have an issue with. For example, if I cannot look up any spare part on the system or I don't know where to find it, I just ask from my colleague who works in the warehouse to help me look it up. This is because they are working with records on warehouses so they should be the one who can help, teach, and advise me on how to look up stuffs, check stock on the system quicker... (User No. 6, A process engineer in Production Department).

For facilitating condition, the results on helpdesk support as the facilitating conditions revealed that it took several employees quite a long time after getting contact with HP IT SD about their I.T. issues/requests, before they could get it resolved. This is not the positive feedback when comparing with the situation that applied before the changes.

It takes such a long time and it wastes the time in order to look forward for the support. We never be able to estimate the time that needed to get requests fulfilled or problems resolved ... For me personally, that is unacceptable but I cannot do anything about it... (User No. 9, A staff in Organisational Development Department)

However, despite a dismal finding on HP IT Service Desk, LXML IT who has been transformed to be level 2 support, was still a main source of quick and basic supports for staff users. This could have been because of the ease of formality and communication in trying to get help for users, as some users still approach LXML IT directly in person and Lao language is a mean of communication. For LXML IT, they provided supports in any way they could to assist users who struggled to get support from HP IT Service Desk.

If I want to get an IT support, I will contact LXML IT staffs to get help, and after that they will sort out on logging a case with IT Service Desk by themselves. They normally raise a case on behalf of users and have it closed straightaway... (User No. 4, A staff in HR Department)

Clear guidelines and instructions are another facilitating conditions for users on trying to use new systems. Users can rely on the guides to see how to

use any particular function, or to learn about any particular process on the new systems.

If we have problems with SAP, we always use the online guidelines that we can follow the instruction... (User No. 3, A staff in Organisational Development Department)

... Guidelines and instructions are given, such as to make a video conference bridge with Melbourne office that we now have to arrange and set it up by ourselves... (User No. 2, A staff in Government Relation Department)

Organisational Level

LXML faced issues on some of the mismatched business process and procedures that changed due to the implementation of the new ERP system, called SAP, which was inevitable. It was because the differences in ways of working within LXML from headquarter in Australia, which is considered as an industrialised country from western cultures. Findings at the organisational level comprised of several issues that could hinder the effectiveness of organisational technology implementation/transfer such as, inflexible/mismatched business process. Some compatibility issues are also found between the new business processes on the systems and the existing business processes of some departments in the company. Interviewees claimed that it was inflexible for LXML context.

Problems that we are facing now is the unmatched organisational operating procedures and the business processes on the system. For example, to do a cash advance and expense claim, with the old system we can submit for the claim more than once a month as our department of Government Relation has to frequently organise meetings, events, business trips that need to get per diems paid almost every week. Now in the new system, we are allowed to do such transactions only once a month or if there is one outstanding cash advance payment on the system, we cannot request for any new cash advance until the outstanding one is cleared, which is not flexible for us... (User No. 2, A staff in Government Relation Department)

Employees were not willing to follow new working processes but chose workarounds instead, they also complained about increased complexity of working procedures and process, which would be the result of inadequate training provision or strategic management process. Another barrier was language issue that more than 90% of employees were Lao nationals that they could not communicate well in English, especially in the time that they interacted with new systems and the time that they had to contact with HP IT SD.

In a phone call to log a case, as I have mentioned before, we have to use English and answer too many questions before getting to the point. It is annoying for me sometimes to spell my name as you know our Lao name is quite long and that takes time to make it clear for them... (User No. 4, A staff in HR Department)

However, there were also several enablers that helped LXML to go through their technology implementation. They were management that influenced staffs' attitude toward using the new systems. Some staffs mentioned about how they could play a role model for their subordinates in order to try to influence them to strictly follow new working processes. Another staff also reported how their bosses suggested them about accepting the change and keep on with it. Those stories reflected the attempt from management level to try to influence their teams, and it was their team members who took their boss's advices regard with accepting the change at the same time.

I can set a good example for my team and for other staffs in the office by keep following a new procedure... (User No. 7, A staff in Shared Business Services Department)

My boss said that change is the norm, you should not let anything surprise you, and that does not apply to only in I.T... (User No. 5, A staff in HR Department)

Most employees were found to be positive and eager to learn and improve themselves to get adapted to new business process and using new systems. It is found that every interviewee had an opened attitude toward the changes, they also showed their appreciation to current situations.

SAP is totally new and it is quite difficult to use, such as different interfaces, business processes. Sometimes, it made our team

members become stressful, but we have to live with the change and we have no choice except for improving ourselves and our attitude toward it... (User No. 7, A staff in Shared Business Services Department)

It is good for the company because it is a standardised platform across MMG sites. This enable us to go and work at any other sites (DR Congo, Australia, Peru) under MMG without any problem as business processes and system flows are the same ... Another benefit is that we have a bigger network for IT support, we have LXML IT and now we also have the IT Service Desk to provide us assistance... (User No. 3, A staff in Organisational Development Department)

Apart from that, the company created staff escalation-support model within each department to let employees help each other on any process/technology related issues before getting to I.T. teams.

Now we have got a trouble shooting system, we call it the escalation model. We report any SAP problem we have to our supervisor or the assigned representatives in our department to have a look and solve it. If the reps cannot solve the problem, it will be escalated up to the next level on the hierarchical chart to work it out before it is sent for IT Service Desk for help if it could not be resolved. I am also one of the SAP support reps in my department... (User No. 4, A staff in HR Department)

Below table (table 4) is the summary of the of enablers and barriers to organisational adaptation to the implemented systems.

Enablers	Barriers
<ul style="list-style-type: none"> • Management influenced staffs’ attitude toward using the new systems. • Openness to issues by creating staff escalation-support model within each department. • Instructions on how to use particular functions on the systems were created to help employees. • Employees were eager to learn and improve themselves to get adapted to new business process and using new systems. 	<ul style="list-style-type: none"> • Inflexible/mismatched business process. • Increased complexity of working procedures and process. • Workarounds of new business process. • Insufficient organisational communication on the change. • Inadequate training provision. • Language barrier

Table 4: Summary of enablers and barriers to employees’ adaptation to organisational adaptation to the implemented systems the implemented systems.

Findings at this level reassured that each category in the model for understanding cultural constraints on technology transfer across nation by Kedia and Bhagat (1988) had its role in the case of LXML. It was obvious that the types of technology transfer as mentioned in the model was process-embodied because the new ERP system implemented was undoubtedly bound to new business processes. Differences in organisational working culture were explicit on the differences of language and ways of working. Below graphics displays determinant factors in each category within the model that have their roles in the case. The fading determinants in the graphics represent their absence from having a role within the case.

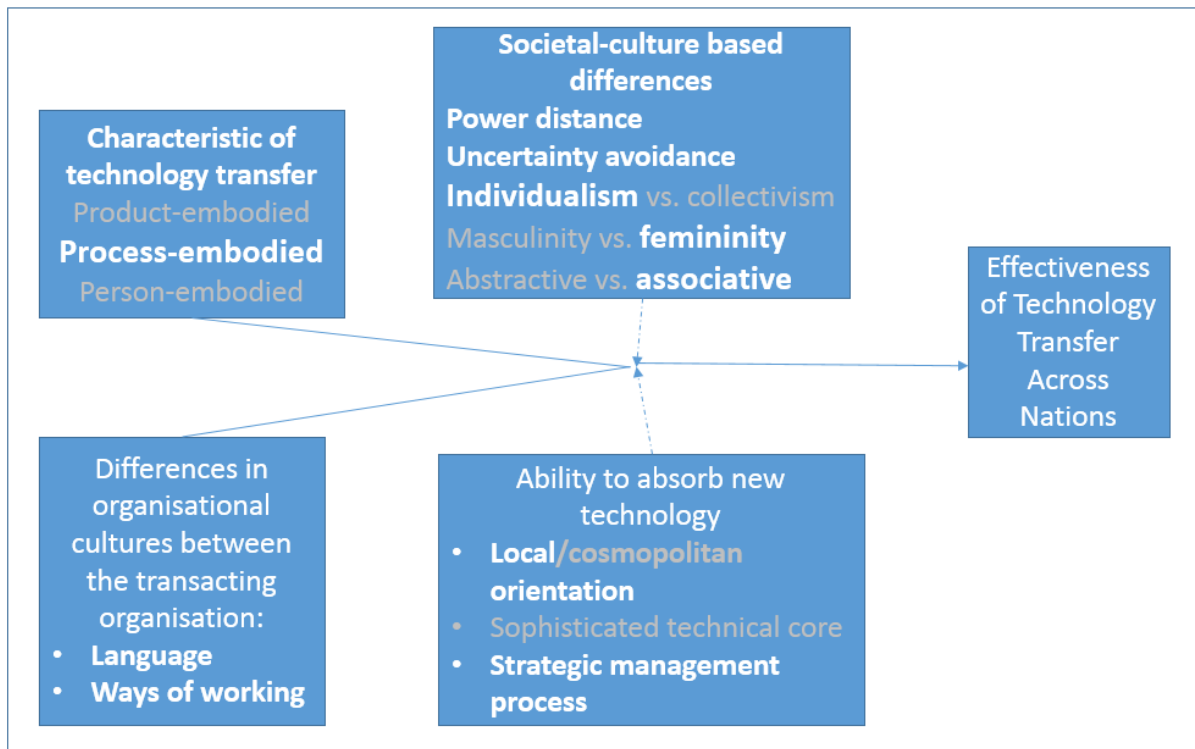


Figure 12: the reviewed model for understanding cultural constraints on technology transfer across nation.

The roles that types of technology transfer and differences in organisational cultures played in the case, resulted in the influences of two moderators in the case. They are organisational absorptive capacity and societal culture based, that was based on Hofstede (1980)'s cultural dimensions.

The role of cultural dimension, especially uncertainty avoidance revealed from most of interviewees that they used workarounds to keep on with their daily tasks, they did not fully embrace the new process/procedures because they were not used to it and found it as complexed. For power distance, it could be seen also that most interviewees referred to what they were told by bosses, and the interviewees whose roles were in management position also shared that they tried to influence their subordinates or to become a role model in the way of embracing new business process technology systems.

Societal settings in Laos as well as in LXML in most cases were considered to be the femininity and individualism societies, where people look out for themselves and eager to improve themselves, although they value modesty and tenderness. Therefore, these characteristics were reflected in the enabler factors above when the new systems and business process were implemented to them.

However, they tended to have an associative thinking, in which they preferred physical and face-to-face communication. Hence, they found that changing into something abstract such as working electronically (new working process) and getting technological helps by email or telephone made it difficult for them, as can be seen on the barrier section in table 4.

Another challenge is the communication issue, we used to communicate to LXML IT face-to-face or by email or telephone in Lao language. Now, we have to communicate and explain the IT problems that are already difficult in Lao to the Service Desk operator in English language, which is a more difficult and time consuming way... (User No. 2, A staff in Government Relation Department)

Absorptive capacity, according to the model for understanding cultural constraints on technology transfer across nation (Kedia & Bhagat, 1988), comprised of three categories of local versus cosmopolitan orientation, sophisticated technical core, and strategic management process as shown in figure 3. However, there were just two categories found in the finding, they were organisational orientation, and strategic management process. LXML deemed to be a local oriented organisation because socio political matters still influential, and its employees were still not used to the managed and systematic working routines. While the cosmopolitan orientation is opposite, and it helps to ensures a smooth and ease of technology diffusion within organisational level (Rodgers & Shoemakers, as cited in Kedia & Bhagat, 1988, p. 568).

Sometimes there are differences in working cultures (processes and approaches) in different regions of the world. It is difficult now to be aligned with the same standard and adapt to situations in different countries. Anyway, I understand that they are working to improve the situation and fix problems that occur... (User No. 1, A staff in HR Department).

The strategic management process was found in the findings that the organisation created the staff escalation model to address issues on business process that would help employees to be more comfortable to get help from their colleagues face-to-face. However, there seemed to be problems with the

company's top strategic decision to outsource all I.T. services from HP, especially the helpdesk service. Although it was a very strategic decision to enable the whole MMG to focus on its core mining business that enabled them to be scalable on I.T. maintenance and management costs, it resulted in the difficulties on communication and language difference for Lao employees. This might resulted in the underuse of organisational supporting units, which is I.T. helpdesk in this case. It could therefore relates to the findings that the new systems were more time consuming to use than the legacy ones, because employees were reluctant to use HP IT SD service. Hence, it ultimately prolonged their issues from getting resolved.

4. Conclusions and Recommendations

4.1. Conclusion

The study was conducted using an online survey with 55 respondents and 9 semi-structure interviews.

The online survey was set to see users' perceptions and acceptance tendencies toward the implemented change. Findings on the survey showed that there was a positive result in terms of technology infrastructure acceptance within the organisation, but the result on the changing service procedures of HP IT SD was different. It showed that users felt an increased difficulties in terms of communication to log a case with the I.T. Service Desk by email or telephone and time required to get their I.T. issues resolved. Respondents were also worried about using new systems. However, the result showed that respondents became more confident in using new systems, after in-house and on the job training sessions.

Those results were then used with the design of semi-structure interview questions based on two conceptual frameworks, because the study looked into the case at two levels, individual and organisational levels. The model of Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) was applied at the individual level. For the organisational level, the model for understanding cultural constraints on technology transfer across nation by Kedia and Bhagat (1988) was applied.

Findings from the study were classified into enablers and barriers to the effective transnational technology implementation. At the individual level it was found that social influence and facilitating condition within LXML played important roles in being enablers for employees' acceptance of new systems. However, avoidance behaviours were also found as a barrier on employees' acceptance.

At the organisational level under the model for understanding cultural constraints on technology transfer across nation, it was found that cultural dimensions, differences in language and ways of working (organisational cultures, regulatory requirements) brought about mismatched business process. All of them played a various role as both enablers and barriers to the adaptation to systems implementation across nation in LXML.

4.2. Recommendations

The following recommendations were made as a guide for I.T. Managers in MMG headquarter in Australia and in LXML office in Laos on the transnational I.T. implementation within MMG. This report has only investigated users' adaptation on system implementation in LXML in Laos, it is the post-project implementation assessment to assess users' acceptance and affected issues from the organisational changes on business process and working procedure.

According to the findings at individual and organisational levels, issues were found based on the areas of social influence, facilitating conditions, and several cultural subjects as in the reviewed model for understanding cultural constraints on technology transfer across nation. Hence, this report recommends further works on:

- Making a clear communication from the organisation on the changing working procedures or business processes to employees to gain understanding of the whole implemented systems in order for them to appreciate the differences and realise on what will be needed to address problems. This will enhance not only organisational abilities to improve the mismatched/inflexible business process, but also the ability from individual employees toward the same purpose.
- Enhance organisational absorptive capacity by turning from being a local oriented into being a cosmopolitan oriented company. This could be done by increase trainings for employees by using in-house and external trainings. It would enlarge employees' perceptions on the systematic and procedural working cultures.

Hence, it will ease the issues on technology transfer from industrialised countries to developing countries.

- Further consider the differences in organisational ways of working and business process in the context of recipient countries (organisational cultures, regulatory requirements) in order to prepare for creating a more flexible business process and procedure. Allowing technology systems to be a more dynamic value driving tool for both MMG and LXML.
- Define a strategic solution to address language barrier issues to allow employees in LXML to fully engage with organisational supporting units, such as I.T. Service Desk to accelerate the work flow that might have been held back by language barrier.
- Consider applying the model for understanding cultural constraints on technology transfer across nation as an assessment framework prior to any technological project implementation across nation in the future. This would help the organisation to understand the context of their subsidiaries, which are different from western context prior to the implementation of the project.

Recommendations given above are not only limited for MMG and LXML's considerations. It could be taken as a guide for any other organisations, not limited in only mining industry, to explore and compare to their case in order to plan for an effective I.T. implementation within their firms, from industrialised to developing countries in the future.

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V. Appendices

Appendix 1: Information sheet for interview

Interview Questions (Semi-Structure interviews)

User adaptations to system implementation in a mining company in Laos - A case study of organisational change

General Questions:

1. Describe how the IT system changes in the last few years impacted on your role.

Facilitating conditions:

2. Think of an instance when you needed the assistance of the LXML IT team and describe the support you got.
3. Based on your experience, please compare the current LXML IT service to the situation that applied before system implementations. What effect did this have on you and your work?

Organisation working culture:

4. In your work situation what are the benefits and problems of using the newly implemented IT systems?
5. Did you report any problems to your managers/supervisors, and if so, what was the response?

Social Influence

6. From your experience with the new technology in LXML what or who helped you most to adapt to the changes in your work situation?

Future:

7. Thinking back on the technology roll-out what should have been done differently?
8. What still needs to be done to improve the services LXML IT provides you?

Appendix 2: Information sheet for interview

Participant Information Sheet

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management,
Victoria University of Wellington

As part of the completion of my Master of Information Management (MIM), this study investigates post-project implementation acceptance by users of a new IT/IS system in Lane Xang Mineral Limited (LXML). The case study will explore how the new system changes employees' working cultures and what adjustment factors appear. The data gathering methodologies will involve a qualitative research approach including semi-structured video conferencing interviews. Victoria University requires, and has granted, approval from the School's Human Ethics Committee.

IT system users in different departments and IT staffs of the Lane Xang Mineral Limited are invited to participate in the semi-structured interview in order to explore employees' perception of their working environment after the new information system implementation. Participation is voluntary, and participants or the organisation will not be identified personally in any written report produced as a result of this research. Signed permission to record the interview will be obtained, and participants will be sent a transcript of the interview for checking and correcting. Answers to the questions in the interview will be kept confidential as audio recording files with the length of approximately 20 minutes. Participants may decline to answer any question during the interview or to withdraw from the research process at any stage without consequences. Should any participant wish to withdraw from the project, they may do so until up to 10 working days after the interview, and the data collected from that participant will remain confidential and will not be used for any other purpose. All data collected from participants will be destroyed within 2 years after the completion of the project.

All research material collected will be kept confidential, and will be viewed only by myself and my supervisor Dr Jocelyn Cranefield, MIM Programme Director. The case study research will be submitted for marking to the School of Information Management, and subsequently deposited in the University Library. The study may be subsequently published in academic conferences or journals.

If you have any questions or would like to receive further information about the project, please contact me at singthaliy@myvuw.ac.nz or telephone +64 22 1588912, or you may contact my supervisor Jocelyn Cranefield, MIM Program Director at Jocelyn.Cranefield@vuw.ac.nz or telephone +64 463-6887.

Aliyakone Singthilath

Appendix 3: Information sheet for online survey

Information Sheet for Survey Participants

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management,
Victoria University of Wellington

As part of the completion of my Master of Information Management (MIM), this study investigates post-project implementation acceptance by users of a new IT/IS system in Lane Xang Mineral Limited (LXML). The case study will explore how the new system changes employees' working cultures and what adjustment factors appear. The tendency of users' adoption on the implemented system will be explored by the result obtained from this online survey. This research has been approved by the School of Information Management Human Ethics Committee under delegated authority from the Victoria University, and approval number.

This information sheet is an invitation to IT system users in different departments and IT staffs of the Lane Xang Mineral Limited to participate in the online survey. Participation is voluntary, and participants will not be identified personally in any written report produced as a result of this research. Participation in the online survey implies consent of participants. Answers to the questions in the survey will be kept confidential and anonymous. Participants may decline to answer any question without consequences. Data collected from participants will be destroyed within 2 years after the completion of the project.

All research material collected will be kept confidential, and will be viewed only by myself and my supervisor Dr Jocelyn Cranefield, MIM Programme Director. The case study research will be submitted for marking to the School of Information Management, and subsequently deposited in the University Library. The study may be subsequently published in academic conferences or journals.

For any ethical concerns about this research, please contact me at singthaliy@myvuw.ac.nz or telephone +64 22 1588912, or you may contact my supervisor Jocelyn Cranefield, MIM Program Director at Jocelyn.Cranefield@vuw.ac.nz or telephone +64 463-6887.

Aliyakone Singthilath

Appendix 4: Signed participant consent form



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PO Box 600, Wellington 6140, New Zealand
Phone +64 4 463 5100 Fax +64 4 463 5446 Email sim@vuw.ac.nz Website www.vuw.ac.nz/sim/

Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Allyakone Singthilath, School of Information Management, Victoria University of Wellington

I have been given and have understood an explanation of this research project. I have had an opportunity to be asked questions and have them answered to my satisfaction.

I understand that my participation in this research project is voluntary. I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing singthaliy@myvuw.ac.nz up to 10 working days after the interview.

I understand that any information I provide will be kept confidential to the researcher and their supervisor, the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me or the organisation that I work for.

I understand that the data I provide will not be used for any other purpose or released to others.

I understand that the recording and transcripts of the interviews will be erased within 2 years after the conclusion of the project. Furthermore, I will have an opportunity to check the transcripts of the interview.

Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
 I agree to this interview being audio recorded.

Signed:

A handwritten signature in black ink, appearing to read 'Aliya Chamthasan'.

Name of participant: *Aliya Chamthasan*

Date: *06/09/2015*



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TE HURA TĀU, WAIKAWHĀKI KŌHĀRO
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Phone +64 4 463 5100 Fax +64 4 463 5448 Email sim@vuw.ac.nz Website www.victoria.ac.nz/sim

Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

I have been given and have understood an explanation of this research project. I have had an opportunity to be asked questions and have them answered to my satisfaction.

I understand that my participation in this research project is voluntary. I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing singthaily@myvuw.ac.nz up to 10 working days after the interview.

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:

Name of participant

Chanthone Nardakath

Date:

28. Aug. 2015



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Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

I have been given and have understood an explanation of this research project. I have had an opportunity to be asked questions and have them answered to my satisfaction.

I understand that my participation in this research project is voluntary. I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing singthaliy@myvuw.ac.nz up to 10 working days after the interview.

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
 I agree to this interview being audio recorded.

Signed:

Name of participant Osa SITHONGCHANH

Date: 08 SEP 2015



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Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Ailiyakone Singhilath, School of Information Management, Victoria University of Wellington

I have been given and have understood an explanation of this research project. I have had an opportunity to be asked questions and have them answered to my satisfaction.

I understand that my participation in this research project is voluntary. I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing singhiali@vuw.ac.nz up to 10 working days after the interview.

I understand that any information I provide will be kept confidential to the researcher and their supervisor, the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me or the organisation that I work for.

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audo recorded.

Signed:

Name of participant *Aouthoumphone Vongkay*

Date: *06/09/2015*

Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:



Name of participant

Date: 13/09/2015



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Phone +64-4-463 5103 Fax +64-4-463 6446 Email sim@vuw.ac.nz Website www.vuw.ac.nz/sim

Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:

Name of participant *SONETHAVY KEOMKHOANSY*

Date: *31 / 8 / 2015*



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Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:

Name of participant:

Thasaykien Thammavong

Date:

08/09/2015



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Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

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- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:


29 Aug 15

Souknilath Ouchaleun

Name of participant

Date:



Participant Consent Form

Research Project Title: User adaptations to system implementation in a mining company in Laos - A case study of organisational change

Researcher: Aliyakone Singthilath, School of Information Management, Victoria University of Wellington

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Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:

Name of participant: Siphone Phomouath

Date: 07/08/2015