INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY (ITIL): AN APPROACH TO OPTIMIZE BEST PRACTICES IN IT SERVICE DELIVERY

LEE CHIH HUI

UNIVERSITI SAINS MALAYSIA

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ABSTRACT

The objective of this study is to examine the influence of five independent variables of top management, technology push, communication, training, and situated learning towards the optimization of IT service delivery with the moderating effect of employee engagement. This is a research done with quantitative design findings on the optimization of ITIL in IT service delivery in one of the multinational IT organization that has adopted ITIL best practices as their IT service management standard across the global team. There are total 200 sets of questionnaire have been distributed via web survey, email and survey paper distribution. All the respondents targeted are from the three regions of United States, Europe and Asia Pacific countries in the researched IT organization. There are only 125 questionnaires or 61% have been returned with completed answers and used for statistical analysis. Thus, the analysis indicated that top management, technology push, communication, training, and situated learning have significant positive impact on optimization of IT service delivery. In addition, the analysis result shows that all independent variables except technology push when integrated with employee engagement did not have significant influence on optimization of IT service delivery. Therefore, it is concluded that employee engagement has moderating effect on relationship between optimization of IT service delivery and top management, communication, training, and situated learning. In order to remain completive in the market, these factors are essential for any IT organizations while implementing ITIL best practices in IT service delivery.

ABSTRAK

Objektif kajian ini adalah untuk mengkaji pengaruh lima pembolehubah daripada pengurusan atasan, teknologi, komunikasi, latihan, dan perkerjaan pembelajaran ke arah pengoptimuman penyampaian perkhidmatan IT dengan kesan yang sederhana penglibatan pekerja. Ini adalah satu kajian yang dibuat dengan penemuan reka bentuk kuantitatif terhadap pengoptimuman ITIL dalam penyampaian perkhidmatan IT dalam satu organisasi IT multinasional yang telah mengamalkan ITIL sebagai standard pengurusan perkhidmatan IT mereka merentasi dunia. Terdapat jumlah 200 set soal selidik telah diedarkan melalui kajian web, e-mel dan pengedaran kertas kaji selidik. Semua responden yang disasarkan adalah daripada tiga wilayah Amerika Syarikat, Eropah dan negara-negara Asia Pasifik dalam organisasi penyelidikan IT. Terdapat hanya 125 soal selidik atau 61% telah dijawab and dikembalikan dengan maklumat yang lengkap untuk digunakan dalam analisis statistik. Dengan itu, analisis telah menunjukkan bahawa pengurusan atasan, teknologi, komunikasi, latihan, dan perkerjaan pembelajaran mempunyai kesan positif yang signifikan bagi mengoptimumkan penyampaian perkhidmatan IT. Selain itu, hasil analisis menunjukkan bahawa semua pembolehubah kecuali teknologi apabila disepadukan dengan penglibatan pekerja tidak mempunyai pengaruh penting bagi mengoptimumkan penyampaian perkhidmatan IT. Oleh itu, ia membuat kesimpulan bahawa penglibatan pekerja telah sederhana kesan ke atas hubungan antara pengoptimuman penyampaian perkhidmatan IT dan pengurusan atasan , komunikasi, latihan, dan perkerjaan pembelajaran. Dalam usaha untuk kekal mengakhiri di pasaran, faktor-faktor ini adalah penting untuk mana-mana organisasi IT semasa melaksanakan amalan ITIL terbaik dalam penyampaian perkhidmatan IT.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, Information technology (IT) is a powerful tool used globally across the entire spectrum of business operations. IT is an enabling technology, where IT develops core capabilities and procedure of the advance technologies like computer and telecommunications tools make business available in the global markets (Andreua & Ciborrab, 1996). IT is recognized as essential to achieve and sustain business success. IT Service Management is utilized to improve the efficiency and effectiveness of IT operations, and aligned operation processes to business strategy, in order to meet business objectives. Most of the businesses used IT for their day to day operation. Therefore it is important for IT service provider to maintain optimal availability and performance so that business continuity is sustained.

Information technology (IT) Organizations are in fierce competition of climbing up to the top of world personal computer (PC) market share. The information technology organizations keep moving forward by adding competitive advantages in order to sustain in the market. Information technology is becoming one of the important tools in majority of the organization‟s business activities. So, organizations need to be innovative and keep updated to the latest technology for catching up business opportunity and enhance information technology efficiency and effectiveness.

In addition, organization is looking to achieve maximum cost savings by innovative solutions. Many organizations are looking for options to enhance productivity and simplify day to day operations functions by synchronizing operational processes. At the same time, reliable delivery and support of IT services is critical to ensure the service quality meet the expectation. However, after implementation, the result is not always significant and successful as projected. It has become more challenging in managing the complex information technology services as it needs to be scalable and flexible to improve the agility of the organization (Kumbakara, 2008).

While everyone is looking for business excellence improvement, the third version of the Information Technology Infrastructure Library (ITIL) is released in 2007. ITIL provides best practices guidance on Information Technology Service Management with framework supporting digital library infrastructure management. Especially most of the business operations in organization are supported and having high demand on IT services (Wan, 2009). Organizations implement ITIL aim to improve information technology service delivery. ITIL enables significant number of benefits to the organization by reducing costs, improve customer satisfaction and productivity. Thus, ITIL provides a framework for the firm to define the IT organizational structure and IT operational management procedures. This helps the firm to better organize the IT operation and infrastructure in a standard way (Zeng, 2008). In addition, it enables organization to enhance the quality of services delivered to both internal and external customer. ITIL also serve as the best practice in defining metrics and measuring outcomes in an effective way (Cervone, 2008). Furthermore, it helps organization to better understand the business

service offerings and enables IT service support establish service information management base and more dynamically meeting customer satisfaction (Wan, 2009).

1.2 Background of the Study

In the early 1980s, the British government is not satisfied with information technology service quality and assigned Central Computer and Telecommunications Agency (CCTA) to come out with the solution. The ITIL concept started to form and provide the framework for information technology service management. The name was called Government Information Technology Infrastructure Management (GITIM). Then in 1990s, the concept spread fast in Europe and large companies start to implement ITIL.

In 2007, the version three (V3) of ITIL was published. ITIL has become an international standard (ISO/IEC 20000) for providing best practice for information technology service management (ITSM) that was drawn from the public and private sectors worldwide (Cervone, 2008). ITIL is a set of approaches and become as a model for information technology Service delivery. Thus, ITIL provides outlines on a standard set of management operation procedures that is used to support operation and business in order to accomplish the value and quality for IT organization (Zeng, 2008). However, ITIL is not a tool or software that can be applied by a simple template or spreadsheet for small scale company; it is more suitable for big scale companies with appropriate customized software. Companies need to understand and follow best practices guidelines and create processes that are suitable for the company, and then they can implement it phase by phase in a planned period of time in order to implement it successfully.

In addition, companies send employees to attend training and examination in order to learn ITIL concepts and obtain ITIL professional certification. So that, the employees is trained to understand the ITIL best practices and knowledge on the ITIL framework and applying in daily operation. This helps the employees to deliver and perform better in the information technology service environment. According to Jakobs (2010), ITIL Version 3 certification course structure flow is from ITIL v3 Foundation, and obtained at least 17 units in Managing across the life cycle in order to proceed for ITIL Expert Certification. The highest level of ITIL professional certification is ITIL Advanced Qualification.

ITIL in General

As a collection of best practices, Information Technology Infrastructure Library (ITIL) is used by the world‟s leading business in managing IT service delivery (Fitsilis, 2006). There are five (5) books to build up ITIL V3 or they are called the ITIL Cores. The books are Service Strategy (SS), Service Design (SD), Service Transition (ST), Service Operation (SO) and Continual Service Improvement (CSI). A model of these is shown in Figure 1.1 (ITIL, 2011).

Figure 1.1. ITIL Service Lifecycle

In addition, ITIL is organized based on two key process areas that are service support and service delivery. There are six processes in service support to ensure customer able to access the services to support the business and there are five processes in service delivery focusing on service provider provide adequate support to the business.

ITIL framework provides a clear view on the planning to implementation of ITIL in a firm. For an IT service management, the main key areas of service support and service delivery are affects the business perspective and ICT infrastructure. In addition, application management is managing, improving and supporting business applications. Thus, security management is managing the confidentiality, integrity and availability of application, at the same time, ensuring the data is secured. So, there is a strong need of support from management from both business and technology to contribute is critical to the optimization and successful of ITIL implementation. Following is the ITIL framework in Figure 1.2.

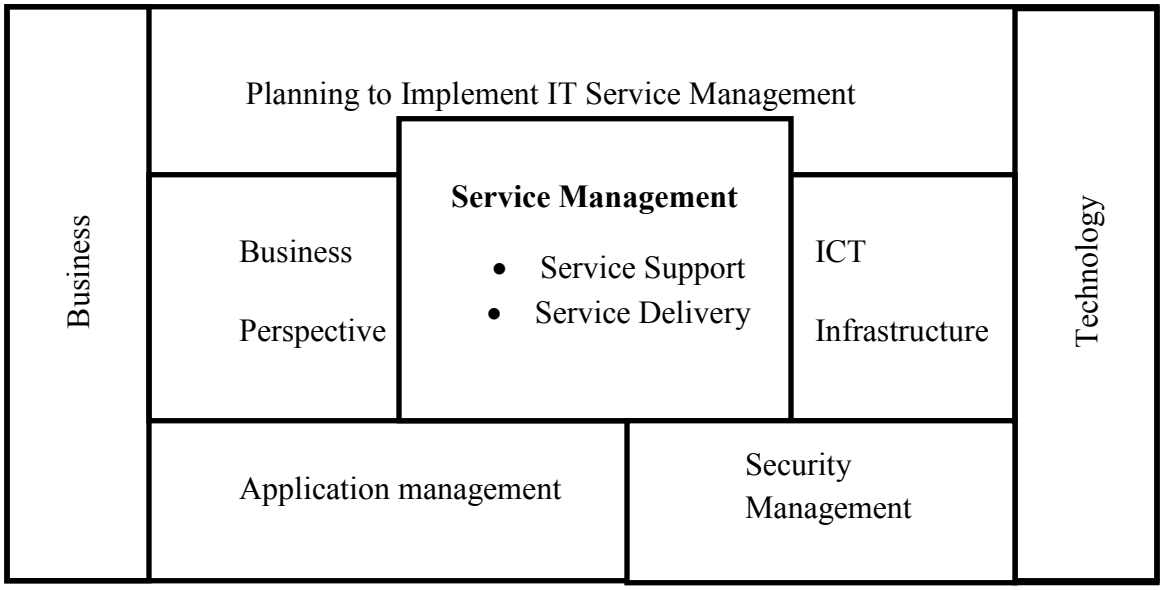

Figure 1.2. ITIL Framework

Source: Adopted from Alfaraj & Qin (2011) p. 326

According to Kumbakara (2008) and Nazımoglum & Ozsen (2010), many organizations implement ITIL best practices for the following reasons:

- Alignment of information technology and business
- Increase information technology predictability and efficiency
- Increase revenue and bring new application to market faster
- Reduce support costs by solving business problems
- Improve customer service quality
- Use information technology to track and audit for compliance
- Introduction of Service Level Agreement (SLA) for measuring operation performance

1.3 Problem Statement

In current IT competitive market, it is an undeniable fact that business needs continuous IT service improvement to satisfy the rising expectation from the customer (Wan, 2009). There are increasing concerns on reduced budgets and growing demands from customer towards IT organizations. This force IT organization to find ways to reduce cost, optimize resource productivity in order to meet the demand.

In addition, many IT organization facing the concern on the complications of available standards, frameworks, and best practices that enable to support the organization strategic goals and meet their operational needs (Alfaraj & Qin, 2011). So,

the management would like to meet these goals by simplifying and standardizing operational processes and streamline IT management.

Furthermore, one of the major problems that always facing by IT organizations is the confusion and uncertainty of return towards implementation that involve cost and changes to the organizational management, structure, and operational processes (Alfaraj & Qin, 2011). In addition, ITIL provides a framework in structured approach to the processes involved in IT service delivery and it is recognized that there is no one size fits all solution in the design and implementation of IT services delivery (Kumbakara, 2008).

The next common problem of ITIL implementation faced by most IT forms due to the cost implications of an ITIL implementation is huge, because it involves the cost of time and investment into the infrastructure, application and software solution that is used to provide the service. In addition, cost incurred when firm providing training to the staffs for the required software tools and the relevant ITIL processes. Generally, the ITIL Foundation course takes three days long. The course is mainly delivery the ITIL terminology and key concepts together with the ITIL framework. Then, the exam will be provided on the final day of the training. The cost of ITIL Foundation course is depends on the location of the training provided. The ITIL Foundation e-learning pack in Europe is priced at £599.00 (Group, 2012). According to ITSM Experts Sdn. Bhd. (2012), for the ITIL Foundation course provided in Malaysia, the average market price is RM3000 for each participant. So the cost for a company to provide ITIL Foundation training to 500 IT employees will involve about RM 1.5 million in Malaysia. Furthermore, if the

management would like to develop talents to ITIL expert level, each of the intermediate level training courses is average cost about RM6000.

In addition, there is also cost incurred for software licenses and maintenance fees. For instance, BMC is a famous software company providing available tools for service management globally (BMC, 2012). According to BMC-BSM (2012), the IT service provider, one of the commonly use software for IT service management is "BMC Remedy ITSM", the price of the software license that suite for 40 IT support staffs is average of USD 70,000 for one year. In addition, it is approximately USD one million per year for the maintenance support fees.

Furthermore, the ITIL implementation requires the costs of hardware and resources on management setup. To further add to the costs, sometimes integration process and implementation take longer than expected. In many cases, it takes more than one year to get the ball rolling for an efficient ITIL implementation. So, ITIL is a huge investment in term of time, resource and money spent for the organization, and management in order to aims for the optimization of ITIL in information technology service delivery.

In addition, IT organization also have the concern and facing the problem to continue providing a pre-determined IT services that is achieving a minimum target of service level by meeting business needs and close the gaps caused by interruption (Wan, 2009). During the ITIL implementation in organization, information technology service management will apply best practices, and they may face the barriers to optimize ITIL,

like reduce service outages, rework, delayed solutions, security issues and dissatisfied customer experience. All these problems could lead to waste of resources and potential loss for the organization.

Without proper business risk and impact analysis, a failure in IT project deployment could incur loss of millions as it involves service outages and interruption to the business impacts. If this involved external customer, the service provider will need to pay for loss as agreed in the Service Level Agreement (SLA). For example, incident handling success rate is targeted at 95 percent in Service Level Agreement, if the average of incident success rate is less than 95 percent, the service provider will need to pay for the amount of loss upon agreed (Wan, 2009). Furthermore, if the organization do not have strategic recovery plan for unexpected natural disaster, it may lead to sudden loss due to emergencies service outages caused by flood, fire or earthquake.

In addition, employee involvement and engagement would affect the performance on optimizing ITIL in the daily operation, ensure it delivers business benefit successfully, and sustain the business value (Medlin & Jr, 2009). So, many organization looking for solution to enhance IT efficiency and cost savings, at the same time achieving improvement on service quality delivery, IT security, and customer satisfaction. Best practices recommended by IT consultant are Information Technology Infrastructure Library (ITIL), capability maturity model integration (CMMI), ISO/IEC 22007 and Control Objectives for Information and related Technology (CoBIT).

However, for an organization to successfully optimize ITIL best practices and adoption of ITIL processes, it is leading the organization to achieve significant service target improvement and customer satisfaction (Wan, 2009). The successful of applying ITIL does not depend on individual contribution, but everyone from top management to the operation levels need to work together, align and collaborate from planning to implement and evaluation. In addition, communication drives individual commitment and understanding within the work groups; and will enable creative and innovative solutions to optimize the ITIL objectives (Carmen, Luz, & Salustiano, 2006).

In conclusion, the motivation of this study is to help the organization identify factors to improve information technology service delivery by applying ITIL best practices to reduce repetitive work, improve data protection, and ultimately optimizing IT resources and control on-going costs. At the same time, information technology managers can understand and improve the factors that impact ITIL optimization, and hence meet customer expectation.

1.4 Research Objectives

The aim of this research is to identify the factors that affect optimization of ITIL. In this study, the organization is named Organization „A", as the organization seeks to maintain privacy and confidentiality.

The research aims to investigate the impact of top management, innovation, and learning and development towards optimization of ITIL; and to study the role of employee engagement in the relationship between top management, innovation, learning and development, and ITIL optimization. Hence, the research objectives are:

1. To examine the relationship between top management vision and the optimization of ITIL.
2. To examine the relationship between innovation and the optimization of ITIL.
3. To examine the relationship between learning and development and the optimization of ITIL.
4. To examine whether employee engagement moderates the relationship between top management vision, innovation, learning and development, and the optimization of ITIL.

1.5 Research Questions

The research questions are as follows:

1. What is the relationship between top management vision and the optimization of ITIL?
2. What is the relationship between innovation and the optimization of ITIL?
3. What is the relationship between learning and development and the optimization of ITIL?

4. How does employee engagement moderate the relationship between top management vision, innovation, learning and development, and the optimization of ITIL?

1.6 Significance of the Study

The outcome of this study will highlight the factors that give the most impact towards ITIL optimization in information technology service management. Furthermore, it helps align information technology services needs during ITIL implementation, so that organizations can get ready and well prepared before implementing ITIL. These actually contribute to long-term cost reduction and lead to a better-organized and sustainable information technology service management.

In addition, the significance of this study is providing valuable information to Organization „A" on understanding the factors that affect the ITIL optimization in information technology service delivery. The study will help the organization in continuous process improvement on ITIL implementation. Furthermore, it identifies the challenging factors and the organization can focus and target on the improvement areas.

1.7 Definition of Key Terms

Below are the key terms used in this research:

Optimize best practice

Optimize best practice is fully adopt ITIL best practices in organization. Best practice is proven activities or process that has been successfully used by multiple organizations and ITIL is one of the Best Practice. According to itSMF® International (2012), a not-for-

profit organization, that promoting of IT Service Management, defined best practices as "the best identified approach to a situation based upon observation from effective organizations in similar business circumstances." (Rance & Hanna, 2007).

Information Technology Infrastructure Library (ITIL)

ITIL is a set of Best Practice guidance for Information Technology Service Management. ITIL is developed by the United Kingdom Office of Government Commerce (OGC) that is designed on the purpose to provide specific best practices for IT services provision (Wickboldt et al., 2011). Thus, ITIL is the most widely accepted IT service management standard in the world (Alfaraj & Qin, 2011; Fitsilis, 2006; Kumbakara, 2008). In addition, ITIL is consists of a series of publications giving guidance on the provision of information technology service quality, processes and facilities. ITIL framework in the second version consists of two most commonly referred sections that are service support and service delivery (Rance & Hanna, 2007)..

Information Technology Service Management (ITSM)

The term of Information Technology Service Management is referring to the implementation and management of information technology services quality that meets the needs of the Business. The Information Technology Service Management is perform and managing by information technology services providers through a group of people, process and information technology (Rance & Hanna, 2007)..

According to Fitsilis (2006), Information Technology Service Management is an organizational approach with two facets:

(a) The utility of service as it is perceived by the end user; and

(b) The value that return to the organization

IT Infrastructure

Information technology infrastructure are referring to all of the hardware, software and networks facilities that are required to develop, support, testing, and monitoring information technology services. However, information technology infrastructure is not included people, processes and documentation (Rance & Hanna, 2007)..

Top management

Top management is referring to the strategic level like CEO, vice presidents, directors and managers of the organization. It is one of the critical factors for major organizational change and information technology implementation (Azis & Osada, 2010; Franc¸oise, Bourgault, & Pellerin, 2009; Singh & Khamba, 2010). Top management is essential in provide appropriate direction at a right time in order to achieve successful. According to Kumbakara (2008), it is important for management to align IT strategy to the business strategy.

Innovation

The nature of innovation is substantial and not always clear defined, and there have been different approaches to this concept that focus on several types of innovation exist in the market. It could be consist of developing new services, new products, new technologies, and new process. (Carmen, et al., 2006; Li, Zhou, & Si, 2010; Noor & Pitt, 2009). According to Islam, Doshi, Mahtab, and Ahmad (2009), innovation is critical to company, as without innovation, the company will lose to its competitor that perform innovation faster and better.

Learning and development

According to Garofano and Salas (2005), learning and development can be distinguished although they are similar terms, where „learning" as the gain of knowledge, understanding or skill, on the other hand, „development" as the act, process, or result of process of natural growth or evolution by successive changes. In addition, learning is enabling each employees developing capabilities to contribute to company business (Andreua & Ciborrab, 1996).

Employee engagement

Engaged employee is aware of organization business vision and works with colleagues to improve performance for the benefit of the organization (Devi, 2009). In addition, Medlin

and Jr (2009) further stated that an engaged employee as a worker who is completely involved and always enthusiastic about his or her work.

1.8 Organizing of Remaining Chapters

The research has been organized in five chapters. The first that is current chapter is discussing on the introduction, including problem statement, research objective and research questions. The chapter 2 is focusing on the literature review on the factors relating to this research. Following by chapter 3 is covering the methodology used in the research that is including the research design, instrumentation, questionnaire design, and measurement of the research, data collection, and data analysis. Then, chapter 4 is discussing the result of the study based on statistical analysis. Lastly, the final chapter 5 is the discussion and conclusion of the findings and result, that including implication of study, limitation of study and future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The literature review presents the understanding of the previous researches on attributes towards optimizing ITIL best practices in the global information technology organization. The study is focused on three main areas of top management, innovation, learning and development in leading the optimization of ITIL in information technology service delivery. Furthermore, the relationship of employee engagement as moderating effect on optimization of ITIL is presented. Then, it is followed by theoretical framework development and the hypothesis formation.

2.2 Background on ITIL

The Information Technology Infrastructure Library (ITIL) is a comprehensive source of best practice in information technology service delivery. The third version of ITIL framework becomes the best practices used in information technology digital library infrastructure management and managing end-to-end information technology services. Managing information technology service management processes based on best practices able to reduce service delivery costs and increase efficiency and effectiveness, thus could be essential for offering competitive pricing in market. (Kumbakara, 2008)

In addition, ITIL broaden its scope on services and functions in an information technology and align it with the value added to larger organization. ITIL also focus on project management business value and not only for technology enhancement. Many information technology organizations are optimizing ITIL concepts as a systematic approach to improve and manage information technology services (Cervone, 2008).

2.3 Top Management

Top management play important role in ITIL implementation, with their involvement of activity across all levels of the organization. Management actions provide strategic objectives to all the employees and its enable IT to contribute and formation core capability of a firm. In addition, top management is essential in provide appropriate direction at a right time in order to achieve successful. According to Kumbakara (2008), it is important for management to align IT strategy to the business strategy, however, the alignment of IT strategy with business strategy remains as the top issue of IT governance.

"For managers the challenge is to identify, develop, protect and deploy resources and capabilities in a way that provides the firm with a sustainable competitive advantage and, thereby, a superior return on capital."(Amit & Schoemaker, 1993)

Furthermore, top management support is one of the critical factors for major organizational change and information technology implementation (Azis & Osada, 2010; Franc¸oise, Bourgault, & Pellerin, 2009; Singh & Khamba, 2010). In addition, top

management role is consists of tracing out a framework of actions that leading the firm moving toward to a future that is desired (Carmen, et al., 2006). In fact, top management having the most important task of aligning the internal strengths and weaknesses and also the opportunities and threats in the external environment (Goll, Johnson, & Rasheed, 2008).

According to Andreua and Ciborrab (1996), continuously tracking the interrelationships among core capabilities, competitive environment, company business mission and organizational management is the way to face the challenges that arise as the firm transforming in the open market.

2.3.1 Business Vision

According to Kale, Banwait and Laroiya (2010), "Top management support and a clear business vision have critical influence on the implementation of process and outcome." Based on the study of Ifinedo (2008) , business vision is the general expression towards purpose of the organization, that reflecting the expectations and values of the major stakeholders in the organization.

A firm‟s business vision leading to identifying core capabilities and the core capabilities can enable new missions that trigger new capabilities of the firm transformations and expansion (Andreua & Ciborrab, 1996). In addition, a strong vision is an essential to show clear direction to all the parties regards of the change happen and

things affected by the change (Prajogo & Sohal, 2004). This shows that business vision is important in ITIL implementation.

2.4 Innovation

"Innovation is a multi-faceted effort." (Lin & Chen, 2007). The nature of innovation is substantial and not always clear defined, and there have been different approaches to this concept that focus on several types of innovation exist in the market. It could be consist of developing new services, new products, new technologies, and new process. (Carmen, et al., 2006; Li, Zhou, & Si, 2010; Noor & Pitt, 2009).

"Innovation is management discipline: It focuses on the organization‟s mission, searches for unique opportunities, determines whether they fit the organization‟s strategic direction, defines the measures for success, and continually reassesses opportunities." (Lin & Chen, 2007). According to Islam, Doshi, Mahtab, and Ahmad (2009), innovation is critical to company, as without innovation, the company will lose to its competitor that perform innovation faster and better.

2.4.1 Technology push as a "driver"

According to Eardley, Shah, and Radman (2008) , the term "driver" is used to illustrate the phenomenon of "technology push", where using technology in ways new to the organization to achieve innovation. The "technology push" referred as the development of the IT infrastructure in the organization. For example, there are various

IT infrastructure elements like software, hardware, operation system, servers, data center, software licenses, and network devices.

In addition, the implementation of ITIL technology needs to be aligned with overall strategy or business vision of the organization in order to achieve optimal and efficiency in IT service delivery. Normally the purchase of the IT infrastructure will need to tie closely to the company roadmap of the year. For example, cloud computing is a hot topic of IT industry today, and many IT industries is looking forward to embrace cloud computing in ITSM and benefit the web solution. Purchasing IT infrastructure like upgrade to a web server, increase network capacity are needed for the implementation. Development of technology likes focused on clusters and the upgrading of manufacturing are improving service industry capabilities (Wan, 2009).

Furthermore, technology is important to ensure IT service continuity. This is because the technologies help to provide a stable IT environment to support and minimize interruptions in business activities and ensure availability of service. There are four elements of Information Technology Service Management (ITSM) that is organization, personnel, technologies, and processes, and technologies act as important foundation for the IT development (Forte, 2007).

2.4.2 Communication as a "enabler "

"Communication and relationship processes allow a company, its members, and its stakeholders to become mutually meaningful and influential. Most important

communication channels and instruments offer information to be used in a pull manner and are based on contents generated by employees." (Mazzei, 2010). Communication is major contributor and serves as enabler in optimizing ITIL in information technology service management.

According to Andreua and Ciborrab (1996), a good communication base is important in facilitating the creation of efficient work practices. For instances, electronic mail infrastructures is utilize in delivery and sharing management message effectively. In addition, communication is includes the implementation of mechanisms in improving organization internal communication related to business issues and the results of project improvement or initiatives (Aken, Farris, Glover, & Letens, 2010).

Furthermore, for IT support purpose, the type of alerts notifications and communications is important to define incident management parameters in information technology service management (Kumbakara, 2008). Thus, in any type or channel of communication, confidentiality of information and security should be prioritized by monitoring the communication in flow and out flow according to the functions assigned to internal and external relations (Forte, 2007).

2.5 Learning and development

The learning and development are always used for employee development and it is important as a starter in ITIL implementation. According to Garofano and Salas (2005),

learning and development can be distinguished although they are similar terms, where „learning" as the gain of knowledge, understanding or skill, on the other hand, „development" as the act, process, or result of process of natural growth or evolution by successive changes. In addition, learning is enabling each employees developing capabilities to contribute to company business (Andreua & Ciborrab, 1996).

Learning and development activity is important and increasing employee effectiveness and career progression. Employees who are more conscientious always possess the qualities needed for learning, and achieving goal by participated in learning and development activities (Maurer, Lippstreu, & Judge, 2008).

2.5.1 Situated learning

Situated learning is an important factor to help employees understand ITIL concepts and optimizing it in the organization. Situated learning is described as on-the-job learning and it occurs through the interaction of people and communication method that having team members share lessons learned together with all other relevant stakeholders (Aken, et al., 2010; J.Sense & J.Badham, 2008). "Situated learning provides a clear perspective on how learning occurs in social conditions and interactions and how the workplace has a strong educational influence on newcomers." (Karalis, 2010).

According to Sense and Badham (2008), situated learning is an effective learning practice and helps employees make significant contribution in project. In addition,

situated learning such as work-related knowledge, organizational learning is the prerequisites for organizational success (Teperi & Leppänen, 2010). In fact, share work practices and facilitate communication within groups and among peers is actually help each other to grow and work effectively. Thus, situated learning is rich in interplay among resources, work practices, organizational routines and capabilities. According to Andreua and Ciborrab (1996), the routine learning loop between resources and work practices occurs and increasing the knowledge base of the organization.

2.5.2 Training

"ITIL provides a set of best practices, drawn from public and private sectors internationally and is supported by accreditation and training tools and programs." ITIL foundation training provided to the staff is attributed the success of service management (Kumbakara, 2008). Moreover, training can increase employee productivity and improve success rate (Jeffrey, Hide, & Legg, 2010).

In information technology development, more sophisticated technology may require specific training for its proper use (Johnson & Chuang, 2010). In addition, the level of competence of employee is influenced by significant of training program for improving their skill and knowledge (Azis & Osada, 2010). Furthermore, training plays as a key role in organization changes and help employees towards accepting the changes or new implementation (Shiue, Chang, Yang, & Chen, 2010).