Implementing Continual Service Improvement in Business Enterprises: A Proposal to improve business effectiveness of Nepal

By

NABIN LAMICHHANE

A dissertation submitted in partial fulfilment of the

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DECLARATION

I hereby declare that the present dissertation entitled **Implementing Continual Service Improvement in Business Enterprises: A Proposal to improve business effectiveness of Nepal** is based on my original research work. The relevant works on the subject have been duly acknowledged at the necessary places and for which, I am indebted to them. It has not already been accepted for any degree, and is also not being concurrently submitted for any other degree.

NABIN LAMICHHANE

ABSTRACT

Today organizations are striving to manage Information Technology (IT) from the view point of business in order to improve the services they deliver, reduce the cost, achieve greater business agility and Return on Investments (ROI). To fulfil their quest, to make the management efficient and stay competitive they are fast adopting standardized frameworks of best practice processes such as IT Infrastructure Library (ITIL), which is regarded as most suitable framework for IT Service Management.

Gap between the theory of IT service management, most importantly the practice of Continual service Improvement and the state of Nepalese business environment has motivated the author to perform a fundamental research in this topic area. The research issues were deduced into main research question and to achieve the objectives an appropriate methodology was followed.

The literature reviews done in the research period helped to identify the need of CSI in IT departments of business enterprises, and how common these activities are in Nepalese domain. This also helped in identifying the problems related to Nepalese peoples in accepting the new technology in business and ultimately the issues contributed in design of scientific questionnaire.

Closed questionnaire survey on a small group (n=25) of professional IT stakeholders currently working on different business enterprises appeared as a plus point for the research. Nature of the data and findings showed that it is good for adopting change not only for business but as a whole to introduce Nepal in international business environment. Political-legal, Economic, Socio-cultural, and Technological factor are some to the socials issues to be dealt with.

A descriptive analysis was made to find out the status of Technology adoption in Nepalese business enterprises and, how common are Business Intelligence activities, and is compared to the global business environment, highlighting some success stories which can be a good motivating factor for creating willingness to accept the change.

In conclusion, this descriptive research was found to be successful piece of work in Nepalese scenario. It aimed in introducing IT service management and most importantly the continual service improvement necessity to manage the IT services in business enterprises, scope of CSI, BI and where to start improvement initiatives from a business perspective, based on Nepal's IT and business context. The data collected from various IT stakeholders in Nepal and the articles, journals, relevant literatures and reports deliver the clear picture of Nepal's present status in IT. General questionnaire survey's findings are meaningful which helped in extracting the problems underlining and helped in coming up with the finding and solution based on the current scenario.

ACKNOWLEDGEMENT

I am privileged to get an opportunity to accomplish the dissertation entitled **Implementing Continual Service Improvement in Business Enterprises: A Proposal to improve business effectiveness of Nepal** under the supervision of Professor Rachel Fitzgerald, Faculty of Management, The University of Northampton. I gratefully acknowledge the suggestions I have received from her in research and detailed comments on the methodology, contents of the dissertation in draft, topic area and writing techniques.

I owe a deep debt of gratitude to Susan Bailey, the course leader of IT Service Management for providing me clear insight on the subject area and whose intellectual direction helped me a lot in selection of the topic and course of completion.

Several authors have influenced my dissertation. In particular, I am grateful to the authors of the subject, concepts, empirical evidences, and survey results that I have consulted and drawn from different literatures mainly cited in the bibliography incorporated at the completion of main text of the research. It is actually these authors who guided to initiate, proceed, and achieve the destination of the dissertation.

I am also grateful to a number of my friends and well wishers including Alpha Bah, Binita Bhattarai for their help and moral support in completing the dissertation. My deepest gratitude to all participants of the data collection phase and everyone who have contributed to my dissertation writing directly or indirectly.

Finally, but not least important, I express my deep debt of gratitude to my father Mr. Bishownath Lamichhane and mother Mrs. Saraswoti Lamichhane for their constant support and encouragement in my academic excellence.

Needless to say, I alone am responsible for any errors and deficiencies that may have remained in the dissertation.

Nabin Lamichhane
The University of Northampton
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ABBREVIATIONS

Abbreviations	Meaning
BI	Business Intelligence
CA	Constitutional Assembly
CAN	Computer Association of Nepal
CCTA	Central computer & Telecommunication Agency
CEDP	Centre for Electronic Data Processing
CISCO	Computer Information System Company
CSI	Continual Service Improvement
DSS	Decision Support Systems
ETC	Electronic Transaction Act
ERP	Enterprise Resource Planning
GON	Government of Nepal
GNI	Gross National Income
HLCIT	High Level Commission for Information Technology
IT	Information technology
ICT	Information & communication Technology
ITIL	Information Technology Infrastructure Library
ITSM	Information Technology Service Management
IDRC	International Development Research Centre
OLAP	Online Analytical Processing
ROI	Return On Investment
VOI	Value of Investment

MOST	Ministry of Science and Technology
NPC	National Planning Commission
NITC	Nepal Information Technology Centre
NSTC	National Science and technology Council
NCC	Nepal Computer Centre
QHID	Queensland Health Information Directorate
RoNAST	Royal Nepal Academy of Science & Technology
RFC	Request For Change
SME	Small & Medium Enterprises
TCO	Total Cost of Ownership
UNDP	United Nation Human Development Index

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1 INTRODUCTION

The main objective of this research is "Continual Service Improvement: Bringing it to life" .ITIL (Information Technology Infrastructure Library), one of the widely adopted framework today in business. We most of us has heard and read about it but still don't know from where to start its implementation process. The project is to focus on developing a Continual Service Improvement (CSI) Path for improving the IT services and will come up with a framework for the efficient and effective way to adopt information technology (IT) in business sector of developing countries. The objective of this research is to analyze the advantages of CSI in Business enterprises, and to critically analyze importance of its adoption, to investigate how common the BI activities are and how BI is currently applied in large Nepalese companies. The study examines the past IT policies and the efforts made towards IT service Improvements. Although Nepal is taken as the model for this project, the framework developed could be useful for other similar developing countries.

The Study identifies potentials of the CSI in the course business planning and realization processes of decisions. An internet based research, literature research and a questionnaire will be performed to get an overview of the practices being followed. Gaps will be identified and demands and necessity of service improvements will be clearly analyzed.

1.1 BACKGROUND

Cartlidge & Lillycrop (2007) opines that organizations today are struggling to manage information and IT resources and they take information as most important resource to be managed. Quality of IT services being provided determines the fundamental to information collection, analysis, distribution and production. IT services are crucial organizational assets and the key strategy for overall development and thus business and organizations should focus on investing their appropriate level of resources into IT services delivery, support and management and the IT systems that underpin them. The problem is many organizations overlook at the aspects of IT and address them superficially (Avgerou, 2009; Pohjola, 2003; UNCTAD, 2008).

Nepal and many developing countries need to adopt effective framework and strategies to manage the IT assets effectively. Talking about Nepal, it is still in struggling phase in field of Information and communication Technology (ICT). Many factors acting upon it like the low level of economic development, lack of infrastructure and the unstable government. No matter where the position of Nepal is in global IT map, the technical innovations and adoptions done in different sectors are considerable. The potential problems and challenges behind could be IT adoption cost, power outage, brain drain, insufficient infrastructures and lack of knowledge in Systematic IT framework adoption (Castells, 1999; Avgerou, 2009).

1.2 TERMS OF REFERENCE

1.2.1 RATIONALE

Nepal is a developing country in South-East Asia which is influenced by the rapid technological and economical change in two neighbouring countries – India and China. The Demand of IT is high despite of the political instability which has halted the development of socio-economic, cultural and physical infrastructure development. Technology is being adopted in every sectors and the number of peoples who are not influenced by the latest technologies can be counted in numbers. Interestingly in the past few years there has been some remarkable changes and development in the field of information Technology. Organizations in Nepal Lack effective marketing information system because of which managerial decisions are based on intuition and hunches depending on personal knowledge and experiences (HLCIT, n.d.).

Because of the increasing awareness and competition, customers' demand was growing high. Government of Nepal (GON) introduced policy for liberalization and privatization since 1980 and computerization began in business enterprises. Since then the importance of marketing information systems and decision support systems was felt.

Organizations were still using ad-hoc methods to make managerial decisions. The paper based records was the source of primary data for doing market analysis and decision making. Business Intelligence was limitedly used by Nepalese companies. Decisions were relying on

trained and motivated staffs but were later felt for computerization. Thus some of the global and private companies introduced IT in Business and for core decision making process although it has not made much headway (Manandhar, 2010).

The IT development in Nepal is haphazard. The government is never aware of the development, deployments, research and investment in information technology. Only some of the private and successful organization is making investment on the sector and they do knows about the latest trends and demands of IT in market but most of the organizations are still deprived of the basic facilities of Information technology. The research is to be made focusing on two different groups of peoples, one those who knows little about information technology but still are not aware about how the use of IT in business can change their life and the other group who have been using the latest technologies and systems in business, and who can afford for the decision support systems that can help them making valuable decisions, making their tasks easier as well as effective but who are not aware of Service improvements and valued service delivery (UNDP, 2010; Paudel *et al.*, 2010).

Other aspects to be considered for the adoption of new system and continual service improvement are cost, local expertise and access. The cost of IT adoption, especially software is very high. For the developing countries like Nepal where the economy is very poor and poverty rate is high, the government mayn't be able to invest and allocate sufficient funds on technology implementation, which doesn't imply that IT investment should be null. Government can make the rules and regulation flexible and can encourage the private sectors and international donors for the investment on those sectors. IT adoption needs experts but at the same time local experts can be trained instead of investing on the foreign experts, as a significant number of IT student's graduates from the local universities and colleges every year (Paudel *et al.*, 2010; Timsina, 2007).

It is seen that an effective framework is necessary which will minimize the problems being faced currently and which can help to establish the Nepalese market in the international platform.

1.2.2 RESEARCH QUESTION

As the proposed research will focus in IT Service Management and service improvement of business enterprises, the key research question is formulated as follows:

1) **What is the benefit of efficacious adoption of ITIL & continual service improvement process in Business Enterprises, especially in Nepal?**

To contribute to the above question, the study will focus on the following specific areas:

1) What is the current status of IT adoption in Nepal? Is government really conscious about the service improvement and adoption of IT in Business? Are the policies formulated suitable for new technology acceptance?
2) What are the available models or frameworks for IT used by other countries which proved to be successful? Can those frameworks fit into Nepal's present scenario?
3) What can be the potential barriers if we introduce new IT framework?
4) How can Nepal benefit from new framework, possibilities and potential it carries?

1.2.3 AIMS AND OBJECTIVE

The aim of the research is to develop a solution framework for effective adoption of Business Intelligence and to generate a solution path for continual service improvements of those intelligent systems .The objectives set to attain this research aim are given below:

1) To investigate on the past IT policies of Nepal and produce a critical analysis of its significance and impact.
2) To investigate critically about the effort made towards IT Service Improvements and IT frameworks used by some developing countries based on thorough review of published literature.
3) To analyze the impact due to CSI process taking in consideration the different barriers like cost, culture, skills, access, etc.
4) To investigate the advantages of CSI in Business Intelligence and critically analyze importance of its adoption in IT
5) To examine the best technology to fit the need of Nepalese society and the Nepalese business enterprises.
6) To find out how common BI activities are and how BI is currently applied in large Nepalese companies.
7) To examine the initiation and organization as well as the future prospects Concerning Service management and improvements.

8) To investigate the key areas of improvement, benefits gained and the future outlook for the field.

1.2.3.1 Scope and Definition

1.2.3.1.1 Scope

Service Management has become the voice of world today. The world is going into transition phase through adopting the different frameworks of service management in IT. Service management and continual service Improvement has become the key issues of every business to cope up with the present development trend and no one can think of Return on Investment (ROI) and Value on Investment (VOI) without fitting into the present scenarios. The research will look after the history of service management, the frameworks adopted in delivering services. The need of continual service improvement and the benefits of adopting new IT frameworks like ITIL, PRINCE2 etc in service improvement will be discussed in the research as well. The research will investigate the benefits of adopting new frameworks in Business decision making process, and will come up with a solution focusing on how to undergo changes on practices being made. The scope of this case study is to propose a plan and framework suitable for making continual service improvements in business sector of Nepal.

1.2.3.1.2 Definition

The project is totally research based and deals about alignment and realignment with needs. The parameters driving CSI are technology changes, resource availability, strategy market conditions etc. Change is the constant and service improvements provide a means of aligning against the changing parameters.

1.3 RESEARCH/RESOURCE PLAN

The research, resources identification and management are planned as below:

1.3.1 LITERATURE REVIEW

The Sources identified for the literature review are various journals available online, articles of newspaper, papers published in conferences, reports of different organisations from their

website. The books and journals available in the university library are also the main source of findings. The IT related websites and governmental efforts in change management, knowledge management, service improvements available online would also be used for the entire literature review.

1.3.2 DATA COLLECTION

Data collection is done focusing on the current trend and the scenario of IT adoption in Nepal and the efforts made on Service improvements. The area of research will be obviously government and non-government organizations. The data collection is supposed to be easy and convenient as the author is familiar with many people's working in different organizations both personally and professionally.

The data collection is done through closed questionnaires, which was planned to be carried out with the help of friends and colleagues of author who were working in Nepal. The transcript of the questionnaires will be used for analysis as primary data. Email conversations are carried out and will be the main mediums to communicate with stakeholders and experts.

1.3.3 ANALYSIS

Analysis is the main part of this project and the author has planned to perform data analysis through different tools and application like Spreadsheet, MS Excel and the different tools which may be identified later.

1.4 METHODOLOGY

1.4.1 OVERVIEW

The purpose of this research conducted was to ascertain how implementation of Continual Service Improvement process in Business sectors in Nepal plays a significant role in changing business values and needless to say to highlight the benefits and necessity of IT Service Management.

Research in this project involves use of various tools and techniques. The techniques and methods adopted are well interpreted in this section.

1.4.2 LEARNING

The literatures related to topic area are studied throughout the timeframe of the project. Extensive research was performed to find papers on information Technology, its implications and benefits on business sector, Business Intelligence, Continuous Service Improvement and its implementation.

Many published journals, articles, web information's related to Technology adoption, Nepal's ICT scenario, Government of Nepal (GON) IT policies and laws, and case studies of success and failure stories related to various countries were referred during this period. The author searched academic papers through different electronic databases like Emerald, eBook libraries, Science Direct, computer and applied sciences complete database and many more. In addition to this various blogs, websites, you tube videos, and research papers were referred and reviewed.

1.4.3 DATA COLLECTION

Along with the literature review, another important task to be performed is to collect information and data.

In order to clutch large amount information on a short time period, questionnaire is prepared with fixed number of closed questions. The questionnaire was distributed to the stakeholders of information technology and the individuals responsible in BI activities in Nepal. The questionnaire was distributed through e-mail. The questionnaire will help in collecting information on IT adoption in Business and deployment carried till date.

In October 2011, a survey of CSI, ITIL adoption and impacts on Business effectiveness was conducted. The questionnaire was comprised of 3 parts as shown in Table.

Part	Topic	Number of questions
A	Organisational demographics	6
B	Current initiatives and progress	7
C	IT Service Improvement in Business, CSI	8

	Motivation, Progress and Government Efforts	

Table 1: Survey Questionnaire Composition

The response collection time was one month (November). In total 25 responses were obtained.

1.4.4 ETHICAL CONSIDERATIONS

This research involved human respondents thus some issues related to ethics were addressed. This was necessary in order to ensure the privacy and safety of the participants. Among the list of significant ethical issues the focus was given to consent and confidentiality. The consent of the stakeholders was secured by providing all important details of the study with its main aims and objectives. Because of this the respondents understood their role and importance in research. Next important thing was that the respondents were not compelled for their participation in research. The very important aspect to be considered and done was the identity of the stakeholders, which was kept confidential and was not disclosed and included in the research. The data collected has not been altered in any circumstances and the sample data is attached with main document (see Appendix 7.3, Illustration 39, Illustration 40 & Illustration 41).

1.4.5 KEY CHALLENGES

Challenges are part of every project although it is not expected. A number of challenges can be encountered in the course of this project and it is crucial to reduce the impact of these challenges which can hamper in achieving the objectives of the project. The key challenges identified for this project are:

1) The first challenge can be the limitation in number of work published related to the topic, so it's a challenge to the author to find the right and related documents and research papers.

2) The physical distance between the researcher and the region focused on the project can somehow impact the core process but the positive aspect is that some people who are currently in Nepal have already agreed to help in collecting information, conducting interviews and questionnaires.

3) As the first language of Nepal is Nepali, some important documents and data may be available only in local language. The author may have to do the English translation of those documents which may take extra time and work.

4) Political condition of Nepal is very Unstable, which is very likely to change and that may affect data and information collection from government bodies but this is not going to affect the data from community and other private organizations.

5) The result collected from questionnaire is very likely to be misleading away from author's intensions. All the stakeholders selected may not have adequate knowledge regarding the topic and research objective. They were instructed thoroughly before performing the task.

1.5 FINDINGS/ANALYSIS

Qualitative and quantitative research is conducted thinking about the nature of the project. The research will totally depend upon the data gathered from the different sources. The data's those are related to numbers, infrastructures, costs, factual data etc was analyzed through quantitative research approach whereas those data collected from questionnaires was analyzed qualitatively. The validation and analysis was supported by the literature review done on subject area.

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1.6 EVALUATION

After the completion of findings and data analysis, the evaluation of the solution is to be done. How successful is the project? What is the outcome of the project and has it delivered actually what it was intended to do? These are the main questions at this stage. The outcome of the overall analysis has helped in finding the main problem behind technology adoption and service improvements and devising a solution for Service Improvements in Nepal and

thus a conclusion is derived. Once the evaluation is completed, further recommendations on literature would be stated and conclusion of the project would be written.

2 LITERATURE REVIEW

2.1 INTRODUCTION

Information Technology (IT) today is an essential tool for overall development of country. Avgerou (2009) believes that IT has become the powerful force in transforming the socio-economic and political condition throughout the world. Every people accept the fact that IT is a great tool for delivering services in different sectors and its contribution to the national economy. The wise use of IT and its adoption plays significant role in delivering benefits to the developing countries.

Cater-Steel & Tan (2005) argues that the circumstances confluence in past few years has motivated IT functions to become more user-friendly and service-oriented. These trends put pressure on organizations to operate on cost effective basis, in public and private sector as well as enabling them to depend on IT for cost effective solutions and mission-critical activities.

Batalden (1993) says Change in Technological sector is at rapid pace. Many witnesses are in front of us that remind us about the vast change in technology and the impacts are felt in our daily lives. It is becoming hard to predict the future and people are becoming better and wise day by day. Changes in technology, evolution of new IT standards, frameworks happen to change the people thoughts, beliefs, societies, countries and the whole world heading towards IT revolution. Well, technology has changed our lives and our lives have been influenced so much that there is no point of return by the advancement in business values, services.

The aim of this paper is to clarify the meaning of CSI in Business sector, the need of Service Improvements and the role of Business Intelligence, focusing on key issues that are the triggers of the proposal: CSI impacts on Business effectiveness and Continual service Improvement in IT sector. A clear picture of concepts like IT Service Management, IT Infrastructure Library (ITIL), IT frameworks, ITSM and CSI implementation case studies etc is done to add value on research.

2.2 CONTINUAL SERVICE IMPROVEMENT

Case (2009) depicts that Continual Service Improvement is a hot issue today, many organizations talk and think about it but in reality they don’t make an effective plan, allocate

resource, schedule and monitor it. It is just confined in discussion stage and embedding with organization culture is still lagging behind.

Continual Service Improvement (CSI) focuses quality of service maintenance, evaluation and improvement in regular basis taking care of maturity of overall ITSM service lifecycle and the processes underlying. CSI integrates the common principles, methods and practices from quality, and change management working in improving the services, processes and activities related to technology and service lifecycle (Arraj, 2010; Cartlidge & Lillycrop, 2007).

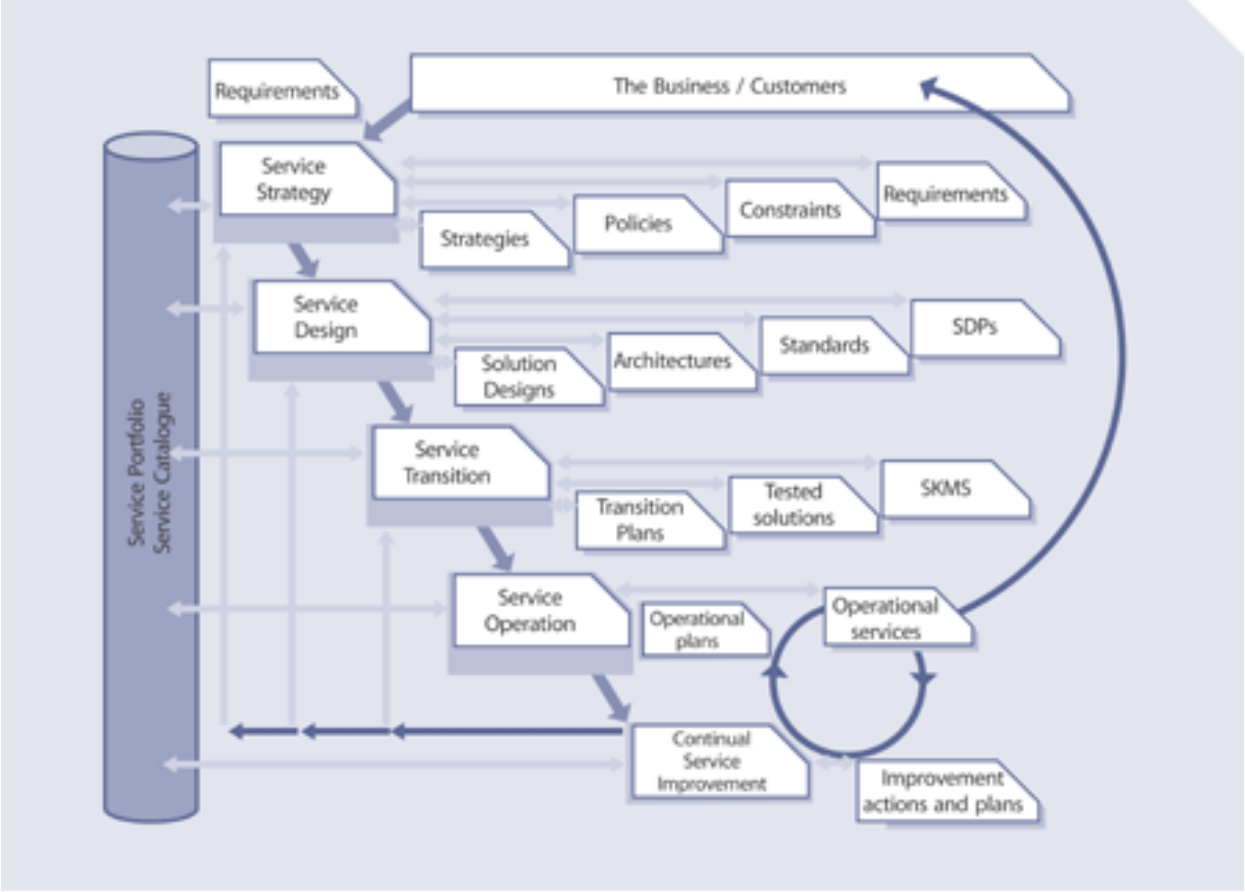

Illustration 1: Service Portfolio spine

According to Macdonald (2011) summarized from a ITSM journal Service Talk, CSI embraces every aspect of the ITIL service lifecycle and can be applied to provide a sustained improvement in IT performance and to deliver a positive uplift in the service management capability of the IT service provider. He argues that the most important aspect of understanding how to improve is to know what to measure and how such measures can be assessed, analysed and used as a basis for delivering improvements. As Illustration 2.1 illustrates, CSI focuses on improving ability of service organization for creating and

maintaining the value of customers through the changes and improvements in overall design, introduction and IT service operation. Case & Probst (2009) depicts that the practice of CSI ensures that IT is capable of enabling business operations continually and is coping up with the changing business environments.

CSI is taken as a wrapper for whole service lifecycle which focuses on the overall health of service management within an organization. Its main objective is to align and adjust IT services and going for improvements of IT services supporting business by identifying the changing business needs (foxit, 2011).

The main objectives of CSI are (foxit, 2011):

i. ITSM overall health is taken as discipline
ii. IT services portfolio are aligned continually to meet current and future needs.
iii. Highlights the maturity of IT processes supporting business.
iv. Reviewing of ITSM for improvements, through continuous evaluation and making recommendations across all lifecycle.

Arraj (2010) says *"Don't try to boil the ocean at one time"* which states that CSI implementation should be proactive in practice. Organizations should focus in how to continually improve the process after spending thousands of their money in developing and implementing service rather trying to make changes instantly. CSI cannot work in vacuum rather requires the constant support of other processes and expertise of Technical, Application and operational Management. Service Level Management and Availability and capacity Management plays great role in monitoring services (Case, 2009).

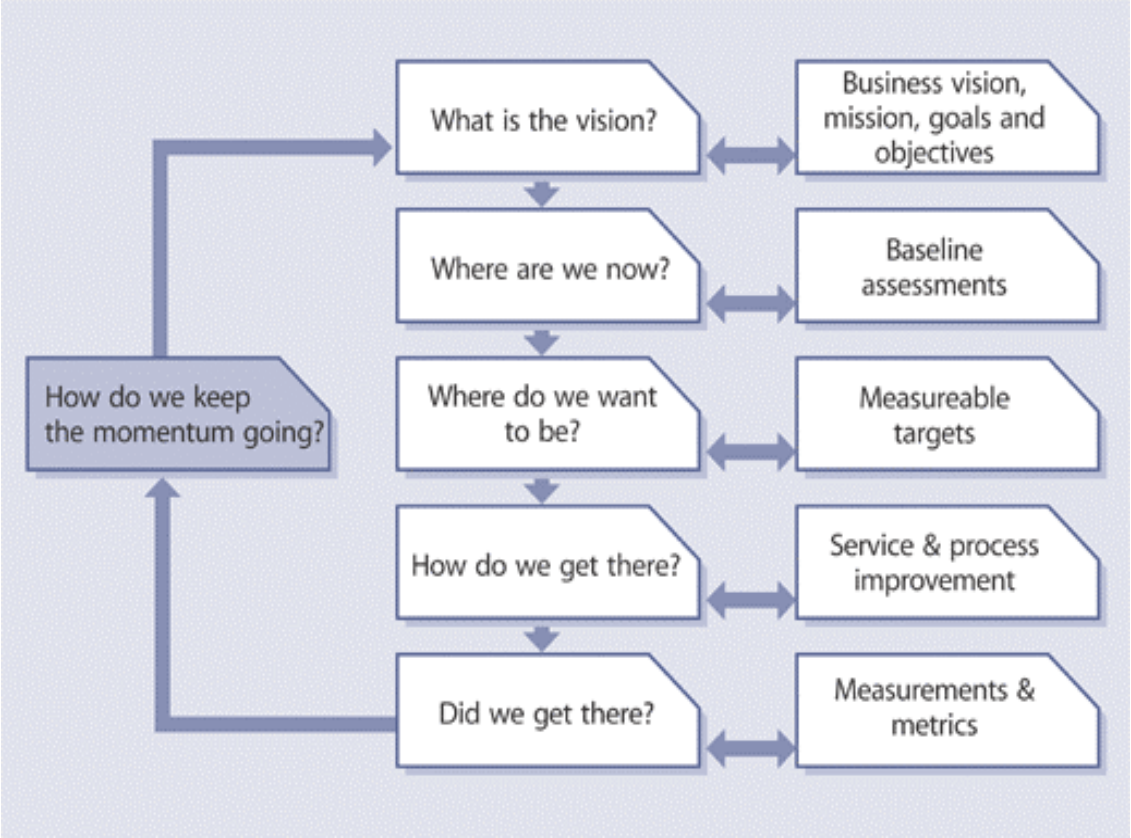

Illustration 2: The Continual Service Improvement Model

Cartlidge & Lillycrop(2007) depicts that CSI has made a highway already but for most organization it has not moved beyond the discussion stage. It is not taken into account from the beginning rather followed when something has failed and seriously impacted the business. After the issue gets solved the concept is kept aside until the notification of next incidents causing into major failure. CSI should be embedded to the organizational culture and has to become a routine activity (Arraj, 2010; Nickols, 2010).

According to Johns (2011) summarized from an ITSM journal Service Talk:

"*Remember the adage. 'If you don't measure it, you can't manage it'-and you certainly can't provide evidence-based feedback to the decision makers in the organisation unless you are tracking, monitoring and reporting*".

John's further illustrates that CSI is essential to manage strong correlation between business value and individual objectives. Thus, it is essential to pick the right services to be improved once we start implementing continual improvement on our IT services, ensuring the business value is delivered.

2.2.1 OBJECTIVES OF CSI

Johns, (2011) believes that the objectives of continual service improvement are to increase the efficiency, maximizing the effectiveness of the business process and the cost optimization .The entire service lifecycle of CSI is helpful to identify the improvement opportunities. CSI continually aligns and realigns IT services to changing business needs and always looks for ways to improve the process effectiveness, cost effectiveness and efficiency. (Ucisa, n.d.) ensures that the main objectives of CSI is to review, analyse and make recommendations on improvement opportunities in each lifecycle phase like service strategy, service design, service transition and service operation. It is also responsible for identifying ways to improve IT service quality and in improving the efficiency of ITSM processes. It ensures that customer satisfaction is met providing cost effective solution and quality end product (Ward and Peppard, 2006).

2.2.2 CSI LIFECYCLE STAGES

CSI is crucial in obtaining business value today and the areas it needs to address are; Overall health of IT service management as a discipline, Continual alignment of the portfolio of IT services with current and future business needs and maturity of enabling IT processes for each service in CSI lifecycle.

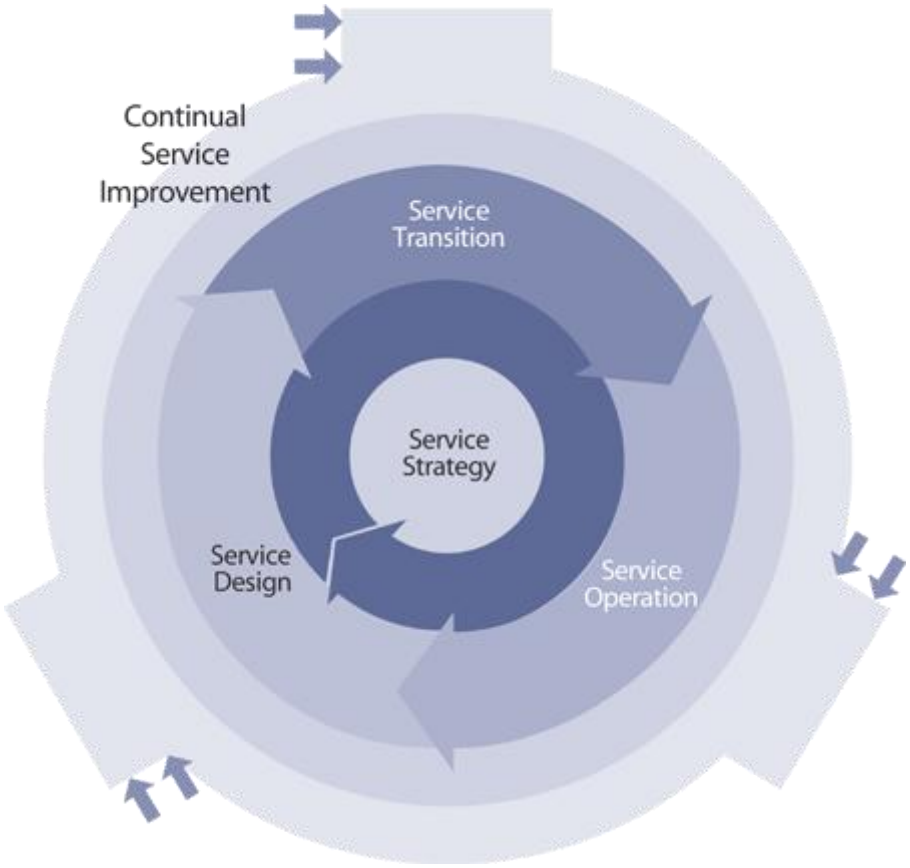

Illustration 3: CSI LIfecycle

2.2.2.1 Service Transition

It deals with testing, building and deployment of new changed services enabling plan, check and track progress against requirements. It provides guidance ensuring that the newly changed services are well managed, introduced, deployed, and transferred (Kuller, Grabowski, Petrsames and Vogt, 2010).

Service transition stage gets inputs from service design state and provides output to the service operation stage. Main goals and objectives of this phase are helping organizations to plan and manage service changes, setting up customer expectations, reducing gap in predicted and actual performance with minimizing errors and risks associated with changing services into production (Foxit, 2011).

2.2.2.2 Service Design

Service design stage deals in designing appropriate and innovative IT services focusing on architecture, processes, policy and documentation, meeting current business agreements.

Design phase starts with new set of changed business requirements and ends up with a solution development to meet business needs as documented. This solution is then passed to service transition in order to build, test and deploy the new or changed services, after implementation control is passed to Service operation. The main goals and objectives are designing service strategies, services , developing, maintaining and enhancing taking in consideration the time and cost constraints, risk mitigation, ensuring security, and with an overall aim to meet quality of IT services (Foxit, 2011; Kuller , Grabowski, Petrsames and Vogt, 2010).

2.2.2.3 Service Operation

It deals with management of day-to-day operation of IT services ensuring that the processes and activities are operated well in usual basis. Its key purpose is coordination and performance of IT services meeting the promises of Service level agreements (Foxit, 2011). Service Operation can be optimized into long term and long term improvement activities and are supported by number of processes like Access, Event, Incident, Problem and Request management; functions like service desk, technical management, IT operations management and application management (Kuller , Grabowski, Petrsames and Vogt, 2010).

2.2.2.4 Service Strategy

It provides the necessary advices and guidance to effectively design, develop and implement service management highlighting the capability of the organization and giving guidelines to use them. It tries to make clear about why a particular activity is performed before going for its implementation.

Core processes are defining the market, developing offering and strategic assets and finally preparing for execution (Foxit, 2011; Kuller , Grabowski, Petrsames and Vogt, 2010)). The processes are driven by certain forces like finance management, service portfolio and demand management.

The core principles of service strategy are:

1. Value creation
2. Service Assets

3. Service Provider types
4. Service structures
5. Service strategy fundamentals

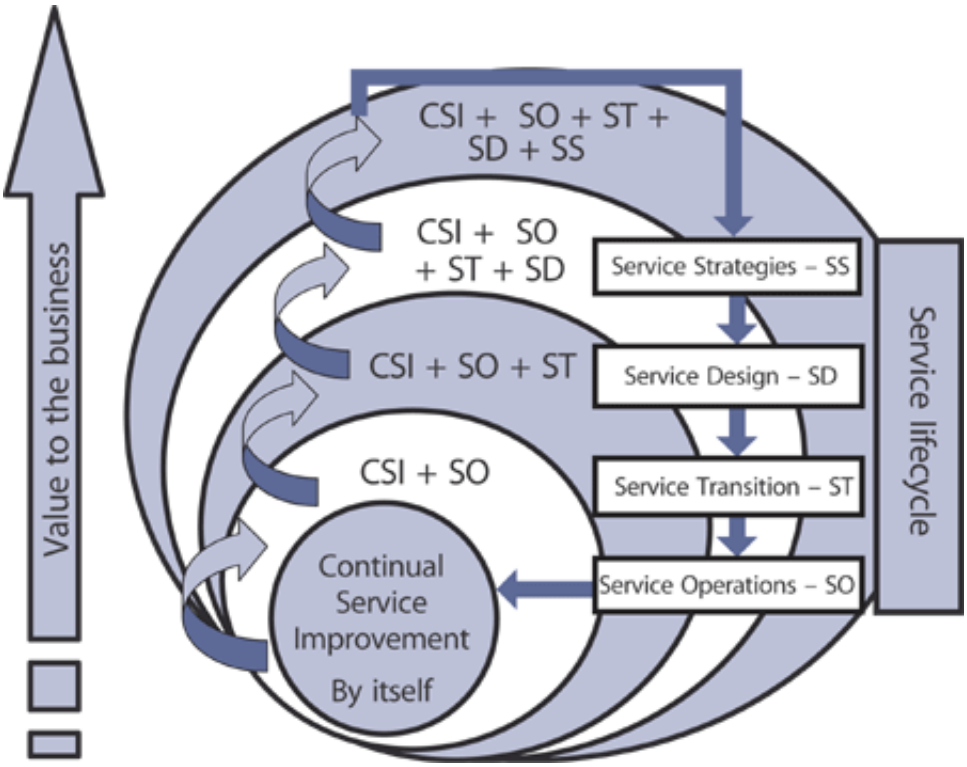

Illustration 4: Service Improvement levels (Bernard-Doppler) of CSI

Illustration 4 clearly shows the increased value to the business when the CSI influence expands to phases of service lifecycle. ITIL (2006) suggests making incremental improvements by start measuring, gathering, analysing and beginning the data reviews straight away.

2.2.3 CRITICAL SUCCESS FACTORS

Rapidbi (2000-2012) explains Critical Success factors(CSFs) as:
"Any aspects of a business that are identified as vital for successful targets to be reached and maintained. Critical success factors are normally identified in such areas as production processes, employee and organization skills, functions, techniques, and technologies."

Ward and Peppard (2006) says Critical Success factors as the activities that are essential for ensuring success of any business. Organizations should focus on these factors to be successful. There come risk factors associated with every project. The success of project is determined by certain factors surrounding it (ITLibrary , 2011).

2.2.3.1 Size of Organization

Hung, Tsai and Jiang (2009) argues that organizations with more infrastructure and resources are conscious about IT adoption and improvement efforts then the ones with lack of resources , experts, finance, experts and weak management. Large organizations are better in terms of ability, IT knowledge experts whereas small ones are facing problems in technology adoption. Thus the size of enterprise is positively related to implementation of CSI. So our first target can be larger organizations, motivating them to adopt intelligent systems in core decision making process, with the necessity of service improvements in a regular basis, in order to gain the organizational objectives.

2.2.3.2 IS capabilities of staffs

Hung, Tsai and Jiang (2009) believed that small enterprises lack professional IT knowledge and technical IT staffs. Because of this problem organizations delay in adopting innovations and has build up trends of waiting until they have sufficient expertise. It is likely that organizations will adopt information systems into their business if they have more knowledge about it.

Marrone & Kolbe (2011) argues that it is necessary to change the beliefs of senior executives that IT is the only competitive tool for business. The more IS capabilities of Staff, there is more willingness of business to go for IT adoption and service improvements.

2.2.3.3 Innovation of senior executives

Marrone & Kolbe (2011) believed that senior executives characteristics affects the IS adoption in organization. Driving organization towards innovation, changing organization roles and behaviour is totally in the hand of senior executives, as they have total power to handle the resources for example allocation and reallocation of resources, staffs

responsibilities etc. Senior executives are usually the owners and policymakers and their characteristics determine the organization style. Hung, Tsai and Jiang (2009) further illustrates that change of organization depends not only in size and factors related to market but also in preferences of senior executives.

2.2.3.4 Knowledge management capabilities

Marrone & Kolbe (2011) assures that organizations should be able to capture and transmit real time services and products related information in order to make rapid decisions and to improve responses from customer. For that knowledge management is necessary from different perspectives. Knowledge management abilities depend on technology adopted and culture of organization. Database management, analysis of data (data exploration, mining etc.) and business analysis for decision support and implementation are the KPIs for knowledge management.

2.2.4 ALIGNING IT ON BUISNESS

The impact of IT on business and industries is ever increasing, with trends like globalization, externalization and personalization with new challenges. There is a need for coupling of IT strategies and business than ever before. CIOs of companies are always thinking about reducing the costs associated and increasing the business value through IT whereas businesses depend on IT ensuring that they are flexible to respond increasing volatility (Kafkin & Taggart, 2001; Avgerou, 2001).

Avgerou (2001) depicts that the customer is most important ingredients of any business, customers has problem and the job of the business is solving customer problems, solving customers problems is the opportunity of business, but customers has choice always as there is competition. In order for business to succeed it has to be better in competition to track customers. Business should focus on customer problems rather than on competition. To come up with the right product, process, and services the business should look after what a customer want, watch and desires. Business should put together the solution to meet the customer desires; the business with best value for particular customer segment wins the value.

Kyem (2001) assures that due to increasing competition and changing customer desires, business decision makers are no longer satisfied with scheduled analytical reports, pre-configured KPIs or fixed dashboards. They believe and demand the ad hoc queries to be referred quickly and information to be accessible by right people when and where they need to use them.

Azvine Cui et al (2006) illustrates that the main reasons for this are the fluctuating business conditions and environments, changes in sales pattern, and customers being more wise and demanding. He reveals that the second reason is the advancement in technologies, particularly Internet and modern ICT technologies.

The term BI is no so well defined and varies from different people's viewpoint. Some says BI as reporting of data and visualization; some take it as management of business performance; some database vendors define BI as data extraction, transformation and integration. Vendors of Analytics focus on statistical analysis and mining of data.

Azvine Cui et al (2006) define BI as:
"*The way to capture business data, access, analyze, understand and turning of valuable assets of an enterprise i.e. raw data to actionable information with a view to improve business performance*. "

2.2.5 IT SERVICE MANAGEMENT

IT Service Management (ITSM) is the management of Technology (hardware, software communications), Organization (structure & skills) and Process (Procedures & documentation). Foster (2007) believes that ITSM helps in delivering quality IT Service enabling the achievement of business goals and objectives in cost effective and efficient manner.
ITSM is a process based practice designated to ordinate IT services to meet the enterprise needs, focusing customer benefits and quality product delivery. It involves in practicing best process models, resulting into paradigm shift in IT management and services. Iden (2009) assures that ITSM is becoming more and more popular in Community of Information

Technology emphasizing on management of IT services, customer needs, and quality service delivery and for handling many day-to-day activities of IT department.

IT Service Management inspection are based on analysis of KPIs like: *"Growth and value, Budget adherence, Risk impact and communication effectiveness*." It deals about people, processes, information and technology, with a set of specialized organization capabilities for providing value to customers in the form of IT services (Cardiff, 2011).

2.2.6 IT FRAMEWORKS

The ITSM frameworks are like the cookbooks used in kitchen necessary to coordinate the various IT related tasks within the organization. There are several frameworks existing like Control Objectives for Information and related technology (COBIT), Microsoft Operations Framework (MOF), Six Sigma, IBM SMSL, HP ITSM, ISO/ IEC 20000, ValIT. Choosing a right framework is always a problem. Sometimes more than one framework can also be adopted in order increase business efficiency. Case and Probst (2009) argues that CSI is the primary connection between ITIl and Six Sigma and thus these two frameworks can be integrated in order to meet business needs. With the growing demand and popularity of ITIL, the next section is focusing on providing the clear picture of ITIL and its organizational benefits for ITSM.

2.2.6.1 ITIL

ITIL, the IT infrastructure library is a best practice in IT service Management which is developed by OGC and most widely used framework for management of IT Services (W3Journal, 2007). This framework focus in delivery of high IT services outlining an extensive set of management procedures which are intended to assist business in achieving Return on Investment and quality in IT operations. The procedures outlined are independent of the supplier and focused in guiding across the breadth of IT infrastructure, development and operations (W3Journal, 2007; Reddy & Lietzell, 2009). It consists of series of documents which aid in implementing framework for IT Service Management and the framework defines the way to implement Service management within an organization (ITIL, 2006; Arraj, 2010; Kuller, Grabowski, Petrsames and Vogt, 2010).

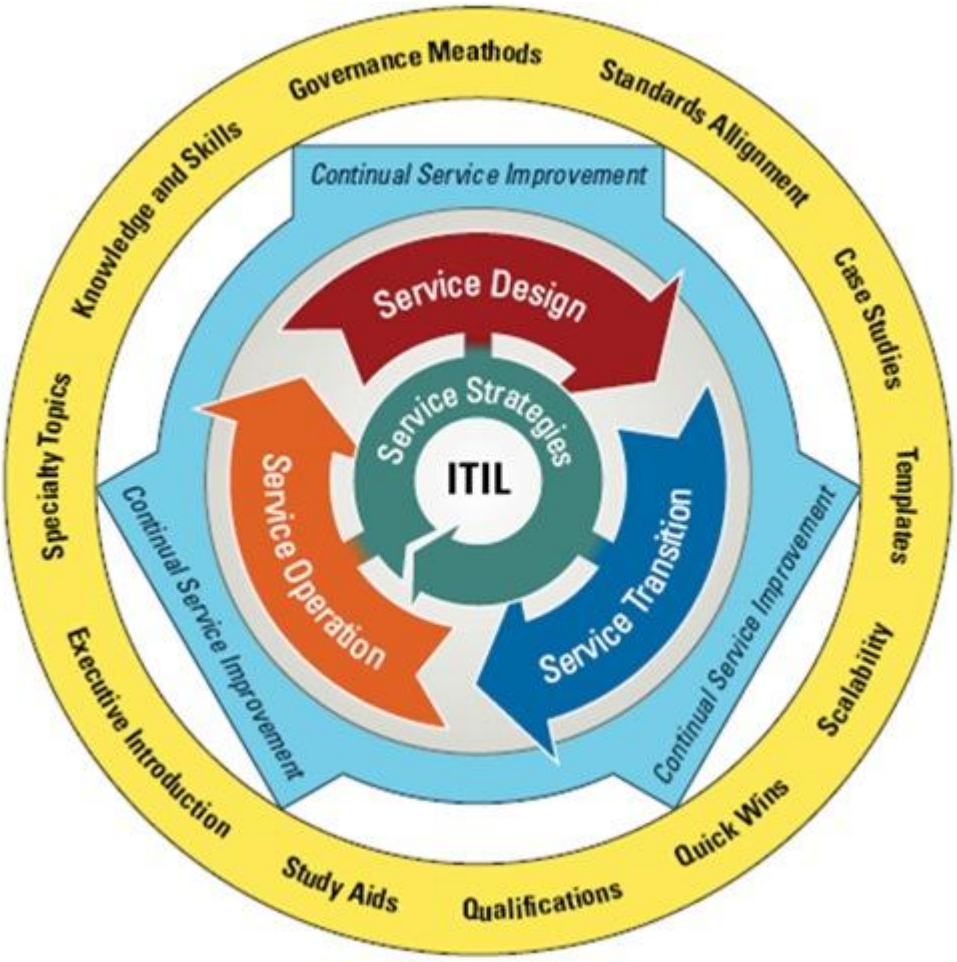

Illustration 5: ITIL and Service Lifecycle

ITIL is globally accepted frameworks of IT service management and is beating other frameworks in the ITSM race (SearchCIO, 2007- 2012). It seems more powerful and easily accepted all over the world. In Order to manage IT services effectively and stay competitive, many firms are fast adopting different intelligent frameworks into their business (Doherty, 2008). Generating new products and improving business operations is a crucial task which needs comprehensive and timely information. ITIL has become a good source of improving service management practice which is widely adopted by enterprises all around the world, and has become a universal standard.

2.2.7 CASE STUDIES ON ITIL IMPLEMENTATION SUCCESS STORIES

2.2.7.1 Queensland Health Success story

Queensland Health is a largest state agency in Queensland, Australia with a complex organizational structure having more than 50,000 employees, aimed at providing dependable

health care and better health to all communities in the state. QH was using health information system which was looked after by QH's Information Directorate (QHID) and was a largest IT operation in Queensland with staffs over 800 and 285 networked sites (Cater-Steel & Tan, 2005). QHID realized that it's decentralized IT operations and structure was not meeting the level of IT services the users were expecting and felt for a change in structure. Thus it reorganized and consolidated the IT operations going through range of reforms.

In terms of governance and IT service delivery capabilities QHID was moving to new service oriented organizational structure with new modes of operations ensuring the long term gain and mitigating the risk factors. QH developed organizational capabilities and infrastructures to successfully undertake IT service management more effectively with the use of ITIL framework (Cater-Steel & Tan, 2005).

2.2.7.2 CISCO Success story

Reddy and Lietzell (2009) summarizes that ITIL first was requested in 2003 as a framework for process improvement in CISCO, gained momentum in 2005 through training plans, and further process based organizational plans and roadmaps was established. They further illustrates that ITIL has become the robust framework for service improvement in CISCO today which has improved incident, problem, change management including other core organizational processes and is building momentum at Cisco.

2.2.7.3 Challenges and breakthroughs

Reddy and Lietzell (2009) opines that the change management issues through reorganization of IT function was not easily accepted by the senior level management and led to resistance. Buying in staffs was other problem because their role in restructured organization was not resolved. Later everything headed positively and the critical success factors for this project were highlighted. Support from senior management, project champion, vendors relationship with management, change in corporate culture, project governance, execution and realization of benefits came to be most important CSFs for the Queensland health project and CISCO project (Cater-Steel & Tan, 2005).

2.2.8 WHY SERVICE MANAGEMENT IS NECESSARY ?

ITSM helps business in achieving IT quality in terms of its availability, reliability, security, capacity, efficiency, and reduction of cost in IT service Delivery, meeting customer satisfaction. Organization wishing to initiate continual service improvements programme needs to be aware about the current quality of IT service being provided and the necessity of quality enhancement. This will help in determining how to carry on the Service management task best aligning to the changing business demands (Cardiff, 2011).

ITIL V3 says:

"A service is a means of delivering value to customers by facilitating outcomes customers want to achieve, but without the ownership of specific costs and risks."
And
"Service Management is a set of specialized organizational capabilities for providing value to customers in the form of services." (Cartlidge & Lillycrop, 2007)

The *business* and *technology drivers are* key to ITSM. Organizations should focus on enabling technology and services to deliver quality demanded by business, and in demonstrating Return-on-Investment (ROI) or Value on Investment (Cardiff, 2011). To cope up with the tremendous and rapid pace of IT development, enterprises are interested in technology shift. Thus ITSM helps in adopting complex technology, IT frameworks to support and enable business operations, guarantee quality service delivery, and service support, cost control, and understanding business operations.

2.2.9 ENABLERS OF CONTINUAL SERVICE IMPROVEMENTS

DuMoulin(2008) illustrates that in order to provide service improvement the vision, direction, energy and resources, and to sustain and realize the benefits promised, few enablers and critical success factors are acting on. These enablers sometimes can even act as blockage

and constraints in meeting the objectives. Businesses in order to realize the benefits from improvement programs should understand and manage these enablers. The key enablers are: Leadership, Resources, Knowledge & skill, Integrated tools, Ability to Deploy, Ability to affect behavioural change and ITSM program momentum. Cater-Steel and Tan (2009) believes that service improvements require executive and senior level support and active participation. The main resources for this are managerial time, skilled peoples and sufficient funding. It is essential that the staffs have the skills of communication, information and enough knowledge about what the organization goal is. DuMoulin(2008) accepts that the overall process requires support from integrated ITSM tools for workflow and automation which the organization should make the funding. New policies, processes and tools should be deployed in order to change the organizational behaviour ensuring compliance to new practices over long term. Finally it is important to take measures in sustaining the momentum, priority and funding for the programs related to ITSM.

2.2.10 CONCLUDING REMARKS

A large number of different frameworks are available and it is obvious that organizations go into a confusion state in selecting an appropriate standard or frameworks for their business. The diversity is because every framework has their own focus areas and instead going for a single framework, business can benefit using creative integration of more than one framework. Case and Probst (2009) has highlighted the relationship of ITSM –particularly continual service Improvement (CSI) practice with the integration of ITIL and Six Sigma.

If IT Service Management is introduced successfully with ITIL, organization will get benefited from different aspects. Golden (2007) states that ITIL increases the customer satisfaction with professional approach to service delivery, improves the IT services through the use of proven best practices, improves ROI from IT and delivery of third party services with improved morale of delivery of services, improved systems and applications, competence, capability and productivity of IT staffs (ITIL, 2006; ITILTRAINING, 2012;W3Journal,2007).

As highlighted in Service Talk, Macdonald (2011) says:

"The need to develop an in house competency is becoming more important for organizations truly committed to CSI. ITIL process assessments should be performed and repeated on a periodic basis".

OGC (2007) clarify that ITIL helps in reducing cost of trainings, Increases TCO resulting into better utilization of assets making a clear differentiation from competitors with greater visibility to IT related costs and IT assets (OGC, 2007). Adoption of ITIL also results to a benchmark for measuring performance against services and IT projects. ITIL has great economic impact on all the areas mentioned above and the benefits can be measured through direct and indirect savings done due to its implementation (ITIL, 2006; ITILTRAINING, 2012).

Based on the Queensland Health and CISCO success stories discussed in (2.2.6.1 & 2.2.6.2) and the literature provided by different authors, what we can conclude is that ITIL can be the suitable framework which can fit in Nepalese enterprises as it has been adopted by such a big companies and the result obtained was positive.

2.3 ROLE OF IT IN DEVELOPMENT

Information technology is taken as one of the Key factors for the socioeconomic transition and development of the country (Avgerou, 2009; Pohjola, 2003; UNCTAD, 2008). The general public has access to information and knowledge only through dispersal of IT within the every sectors of the country leading to economic progress. Avgerou (2001) claims ICT to be an important part of chain economic development process. The wise implementation of IT in every possible sectors leads to the long term prosperity, economic transition, progress in human welfare, better education and health resulting into knowledge based society. Kyem(2010) declares the reason of poverty in developing countries is not only because of lack of public access to essential resources, also due to lack of knowledge regarding opportunities of making money, low information about market trends, and production and utilization services of state.

Country development relies on the simplification of use of IT made for general public. Different studies reveals the fact that no papers till now are against the need of IT in the overall development perspective of any country (Kafkin & Taggart, 2001; Avgerou, 2001).Kyem (2010) has done criticism on the way IT is being adopted. He argues that countries forget the basic assessment essential for effective development while changing their willingness to adopt IT to catch up the other developing nations. Rather countries should focus on Service management and deliveries, concentrating their efforts on creative policies and strategy, with the adoption of latest market trends, frameworks for overall and sustainable development as shown by studies (Kyem, 2010; Arraj, 2010; Case, 2009).

The vital problem in adopting IT in developing countries can be the setup cost for initial infrastructure setup, cost for the software, public awareness and most importantly the cost for transition to the new frameworks and trends without affecting the momentum going and without diminishing the quality of services being delivered(Case, 2009; Arraj, 2010). It is crucial to create willingness to adopt the new technologies, bringing into action the need for continual service improvements on the IT sectors and mainly the Business enterprises so as to lead the whole country towards transition and to make the overall development effort effective and transparent(Kyem, 2010; Case, 2009; PHAM, 1999).

2.4 IT ADOPTION IN NEPAL

Nepal is categorized under least developed countries in the world since 1971 with a rank of 138 out of 192 member countries as per the record of United Nation Human Development Index (UNDP, 2010). The GNI per capita income of Nepal according to the record of 2009 was US$ 320 and Economic vulnerability index is 33.6. Although Nepal meets the graduation criteria but still fails to meet the threshold required for GNI per capita income, which is the main reason for Nepal to be in list of least developed countries (UNDP, 2010).

2.4.1 GOVERNMENT UNITS RESPONSIBLE FOR IT SECTOR

National Science and Technology Council (NSTC) and the Royal Nepal Academy of Science and Technology (RoNAST) were the government bodies responsible formed at 1976 and 1982 respectively for handling functions related to Science and Technology. Later in 1996 A.D, Ministry of Science and Technology (MOST) was instituted which is responsible for coordinating all the functions related to information and technology for the process of national development. National Information Technology Centre (NITC), is formed in 2000 by MOST, is now responsible for developing & promoting IT sector in Nepal (MOST, 2010).

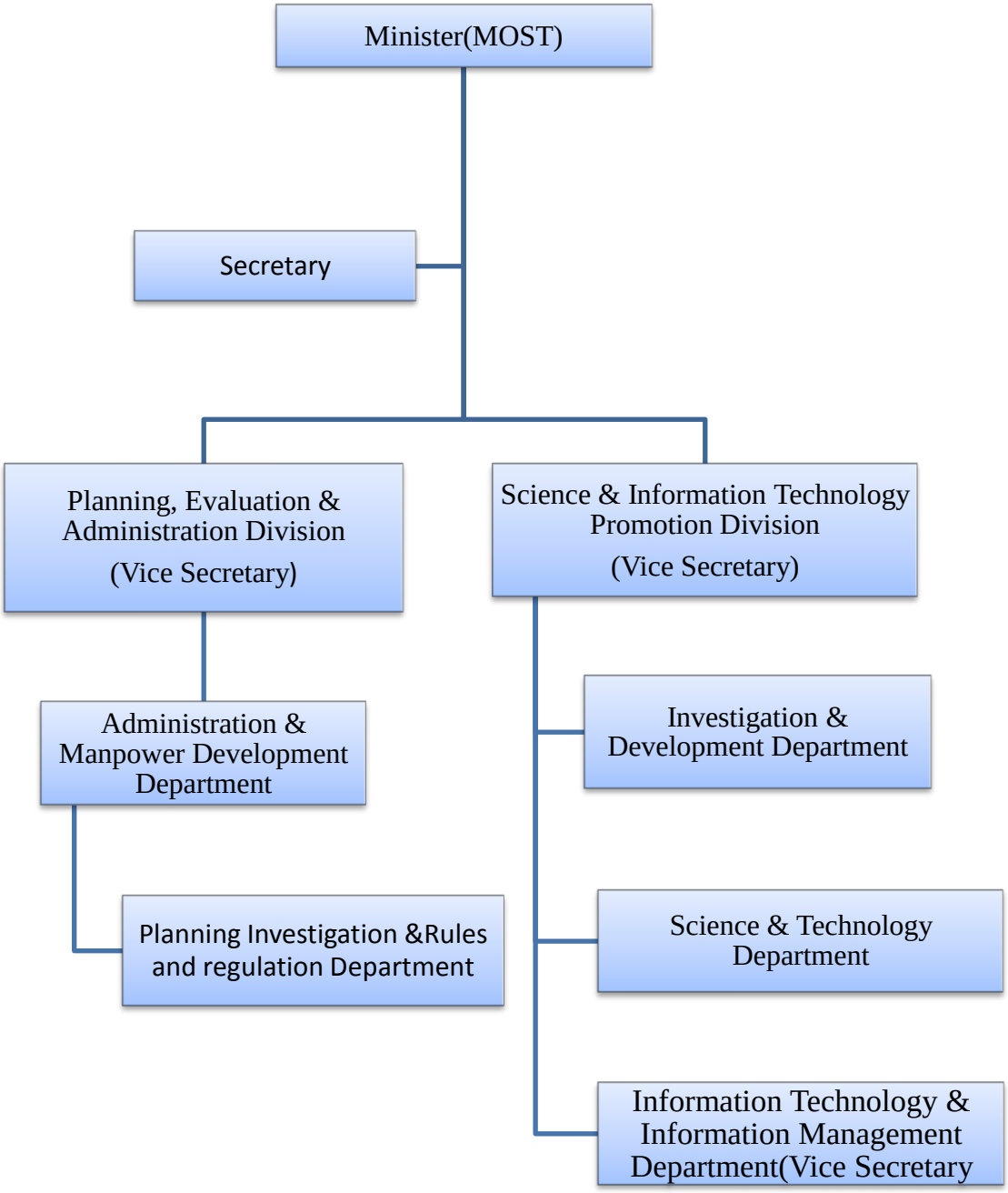

Illustration 6: Organizational chart (Most, 2010)

2.4.2 HISTORY OF IT ADOPTION IN NEPAL

The IT adoption history is not so good in Nepal and the facts and figures if collected can be the reason of surprise for everyone. Computers came to the general public use since 1970s. The only government body, Nepal computer centre (NCC), was the first who started using these electronic devices. The use of Census IBM 1401, a second generation computer was done in 1971 for the first time for census (Aakar, 2007). Only the simple electronic calculators were in use before this. Later the government felt for national data processing Centre which resulted in the establishment of Centre for Electronic Data Processing (CEDP) in year 1973, which was later named as National Computer Centre (NCC). NCC started first computer training program all over Nepal along with the main function of electronic data processing of Government of Nepal. The influence of IT started growing as a result of which Nepalese students started to go other countries like India, Thailand and USA (Grg, 2007).

In 1979, Mr. Munn Shakya was the one to build first microcomputer in Nepal with 1kb memory, writes core Magazine (1995). Slowly in early eighty, some of the private companies stared importing Apple, Sins and Vector computers. That was the right period from when the IT sector and the computer industry started gaining impulse in general public. Nepal got its first internet connection in 1994 with the help of Mercantile and Royal Nepal Academy of Science and Technology (RONAST).

Manandhar (1996) argues that Nepal is behind in IT industry and expansion due to the problems of power, connectivity, language related issues and costs related to hardware/software. These barriers still exist in the present scenario. The period 1990s can be taken as a progress period in the field of IT for Nepal. Few companies started writing software for local market, Computer Association of Nepal (CAN) started and use of computers started in different sectors like education, health and training institutions (Manandhar, 1996).

Since 2000, urban areas of Nepal started having access to Internet, computers and IT policy was devised because of which Nepal made a place in global IT map. This can be taken as a benchmark for IT development in Nepal. Ministry of Science and Technology was formed

and was responsible for overall ICT development in Nepal and formulated different policies and strategies for ICT to contribute in overall national development.

2.4.3 THE IT POLICY OF 2000

The Government of Nepal is responsible for formulating policies and strategies in the welfare of Nepalese. The first IT policy with a motto "*to place Nepal on the Global Map of Information technology within the next five years*" was made on the year 2000. They realized the overall development of a country is only possible if use of IT can be rapidly done in different sectors like education, health, agriculture, tourism, research and scientific innovations and so forth. The policy opines that use of IT in diverse fields can lead to socio-economic development, resulting into development of democratic norms and values, decentralization of resources and awareness thus raising the living standards and contribute significantly to reduction of poverty.

According to a member of National Planning Commission (NPC):

"*the principal objective of [ICT] development is to ensure peoples' universal access to information and to contribute to the national economy, to good governance and to make social services easily available to the general public*" (IDRC, 2001).

After the formulation of IT policy in Nepal by the government a hope came to the people that now it will contribute to the Nepal's development process. The policy came with a great effort. Different IT Vendors and stakeholders were forcing the government to formulate the policy despite of the government's less interest towards the development of IT sector (Burton, 2003). International Development Research Centre (IDRC) supported in developing the IT policy through PAN Asia research and development grants program (IDRC, 2001). A participatory approach was used for the first devising the policies through the involvement of stakeholders and professionals, and research were made on local level and a review was done by foreign specialists (IDRC, 1999).

Once the policy was made it needs continual review and updates which was lagging. Bhoop R. Pandey, Chairman, Nepal Telecommunication Authority says:

"*Policy is not constant, we need to revise and update it from time to time"* (IDRC, 1993).

The policy remained constant for ten years and thereafter with the pressure of different stakeholders revised in 2010 (Republica, 2010). The policy was supposed to help for different problems related to tax, revenue collection, import and export of IT products, services.

2.4.4 ELECTRONIC TRANSACTION ACT 2006

Around 2004, when the business and e-commerce was thriving the world, the government of Nepal realized the need of act and policies for creating the environment for internet related business, and thus promulgated electronic transaction act (ETA). The unstable government and changing political condition of country was being the hindrance for significant implementation of the policies. Hence again in 2006 with the restoration of democracy the parliament again passed the act and named as Electronic Transaction Act 2006(2063) and referred to as "cyber law" as it was the first act passed by the government of Nepal that was related to IT (Shakya, 2007;Pradhan, 2002). Before the enforcement of cyber law and other acts, Public Offence Act was perused to stop cyber crimes. ETA was responsible for controlling software piracy, unauthorized access of computers and information systems, illegal publication of materials, preventing computer fraud and so on. There was still some lacking points on the electronic transaction acts at it was not able to address the issues related to online transaction of finances, some internal laws, policies for intellectual property rights (Shakya, 2007).

2.4.5 INFORMATION TECHNOLOGY POLICY 2067 (2010)

Government of Nepal revised the IT policy act after 10 years in May 2010. The policy changed was welcomed by every sector as it says:

"…after the IT Policy 2000 was passed, there has been significant and rapid development in the IT Sector which the present IT policy and infrastructure is unable to address."

The previous IT act was not able to address the various issues related to networking, wireless technology, outsourcing etc. To address these issues the IT policy has been revised (Republica, 2010; GON, 2010). The policy was found helpful as it focused to develop Nepal

as outsourcing destination and opened the way towards the use of IT for governance, commerce, trade, telecommunication, security and data protection (GoN, 2010; Republica, 2010; Pradhan, 2002).

The IT policy 2067 was successful to contribute on nation's Gross domestic products and addressed the issues that were not included in previous IT policies and acts. The policy had a provision for IPRs and framework to ease online business by promoting e-payments systems and gateways (Republica, 2010). Although the policy was able to create new opportunities, visions in IT sector, most of the experts were in doubt that government will be able to review the policies and formulate the plans accordingly with the change of time continuously. The short comings of the new policy was that it was not able to guide the development of IT sector with the use of proper framework and the IT adoption was rather haphazard and the evolution was random. Implementing policies and laws was challenging too (Pradhan, 2002; Shakya, 2007).

2.4.6 INITIATIVE FROM POLITICAL LEADER

Political leaders and Constituent Assembly members were well aware about the need of IT in overall development of the country and shown their interest in development of IT sector with the adoption of new technologies. One of the young political leaders and CA member Gagan Thapa, of Nepalese congress Party raised the matter that Government should set ICT and its development as a prime goal in every sectors of the country like health, information, education. Ministry of science and technology should focus on the IT through political sanitization and public awareness regarding the matter of ICT. He requested all his fellow workers to go for IT awareness and for innovative works which can help in country's development and uplifting the socio-economic sector resulting into a knowledge based society (Eictnepal, 2010).

2.4.7 CONCLUDING REMARKS

From the research above it is found that Nepal has made tremendous development in IT sector. GON is conscious about the need of IT in overall development of the country. The motto of IT policy act 2000, to establish Nepal in global IT market seems really encouraging. The initiatives from the political leaders and the review of IT policy act 2010 shows continuous efforts and concerns towards IT adoption. Still what is lacking is strong

enforcement policies, continuous follow up of the policies amended, business motivation towards technology acceptance and necessary expert pools. But the progress made so far shows positive sign on institutionalizing the changes.

2.5 NEPAL'S PRESENT SCENARIO

Pradhan (2002) assures that Nepal is very much backward in the field of technology and innovations. The government is not aware of making good IT strategies and resolving the local cultural and social issues in technological adoption. Shakya (2007) add that there is still a long way to travel in order to stand parallel to the developed countries in the sector of information technology. Despite of these factors, rapid expansion in the use of IT is taking place in public and private sectors. The problem in Nepal is using IT without making necessary long term plans, and the haphazard development without necessary infrastructure, manpower and planning to support.

2.5.1 NEEDS TO ACQUIRE INFORMATION TECHNOLOGY, POSSIBILITIES AND POTENTIAL IT CARRIES

In today's scenario it is very hard to manage performance despite of challenges in business and hence it is felt necessary to integrate IT into business, to provide users with information, services, and capabilities. Business Intelligence (BI) is becoming most crucial aspect of every business today (Hannula & Pirttimaki, 2003).

Nepal (2006) believes that for developing countries like Nepal, it is urgent to adopt the latest IT trends to remain parallel in the market place, to keep their head high in this present era of IT revolution. IT plays an important role in overall socio-economic development of the country. GP (2011) assures that the main problem with developing countries is difficulty in going for a paradigm shift adopting the new technologies giving up their long term preferences and a flow going. The insecurities acting up due to fear of possible problems and risk factors associated with the technology adoption and the implications and hazards that may come on the way going for change are the main barriers. Gautam (2005) argues that it is very hard to give up but to achieve from the global technology marketplace it is very crucial

going for technology acceptance. The resisting factors like culture, people and infrastructures should be well addressed by the new IT strategy as they are very sensitive but important raw materials.

Development is linked to modernization and modernization is the result of accessibility to new technologies. It doesn't make sense in raising the question like what is the need of acquiring IT in development rather we need to focus on the roles IT can play in overall development process. The effects of IT are far reaching, dispersed to several fields like commerce, banking, health, education, and so forth. Today IT has become part of our day to day to activities, fulfilling our minor to major desires. Its use and purposes may take different shape depending on the sector it is being used for. Whatever, it has great influence in our lives.

Although IT adoption is not so simple but it carries many possibilities and potential in overall development of country.

2.5.2 NEPALESE BUSINESS ENVIRONMENT : THREATS AND OPPORTUNITIES

Gautam (2005) argues Nepal has dozens of government owned corporations and thousands of private enterprises. After the peace process in 1990, private business was placed on focus area by the government itself and the donors from national and international markets were invited for investment. The NepaliTimes (2007) article indicates that business environment in Nepal is pathetic. GP (2011) argues due to hyper insecurity, trade unionism and the political abnormalities the business sectors lost their faith to which over the past ten years it has been seriously affected. GP (2011) believes that Nepalese business sectors can again blossom if peace and political stability is established and can maintain its pace with international market. For that we need is peace process and adoption of latest technologies and new frameworks. Gautam (2005) further explains that improvements are necessary bringing change in the practices being made, changing the whole process and technologies and assures that there is light in other end of the tunnel for both domestic and international business investors.

2.5.3 TRENDS OF IT ADOPTION IN BUSINESS

Business Intelligence has not made much headway in Nepal. Organizations are afraid to change the culture being followed from a long time. Gautam (2005) assures only some of the government organizations and few private enterprises have shown interest in adoption of IT in business and have made effort in making separate department for handling ICT. Some companies use computer based tools to interpret data. Banking sectors are using MKIS for the marketing research and it is still in early stage of development. Although some organizations have shown interest towards market study but most of them are still turning blind eye towards it. Shakya (2002) argues that customer characteristics are very less researched. Marketing research firms are operating in private sectors but only few organizations have set up their own market research department.

2.5.4 POTENTIAL BARRIERS

The IT development in Nepal is unplanned and the IT adoption and development made so far is random. More than that Nepalese are deprived from their right to be well updated about information and technologies and the news related to them as there is not a good reading and learning activities. It is obvious that most of the people don't know about IT and its importance in life. IT frameworks, their importance and realization are far and beyond their access. Problem is that technology comes in package with some development projects focusing a certain area. Those projects concentrate on getting a desired outcome in certain time interval. Government or the donor agencies that does initiation of this package focus very less in building the technology capability for the benefited enterprises. They give less priority to technology sustain, building of infrastructures rather depending on external sources and sometime the package is beyond the capability of internal resources. So there can be lots of issues related in adoption of new IT frameworks which are fairly discussed below.

2.5.4.1 Social issues

Pradhan (2002) argues that the impact of IT adoption is in labour market. There is a fear ruling people's mind that if technology is adopted this will grab their jobs and they believe that the new adoption will not be easy as their skills doesn't meet the requirements. Technology can be a better alternative to personnel which increases unemployment. More

than that adoption of new frameworks requires trained personnel's which are very few in number. These are the social issues that can be problem in new technology acceptance.

2.5.4.2 Economic issues

Return on investment (ROI) and funds for initial investment are the main economic aspects for technology acquition. Nepal lacks sufficient funds to buy expensive technology and lacks external sources that can assist it. Existing technologies and the services are also assisted by donors. The main fear is peoples mind is that investing on technology can go waste and try not to take the risk of losing their capital (Pradhan, 2002).

2.5.4.3 Political issues

Currently Nepal is in a very difficult political situation. The Government is inconsistent and changes more than thrice a year. This condition has halted the developmental works and resulted in a very pity conditions. Gautam (2005) says that Businesses are not meeting their targets; they are failing to meet their return on investments. They are afraid to go for service improvements, foreign donors are afraid to invest in the country. Technology acquition has several political questions and government is responsible for any changes and acceptance. Because of this poor political condition technology acceptance is very difficult.

2.5.4.4 Cultural issues

Pradhan (2002) says the new technology being adopted should be accepted by the receiving society. ITIL (2006) depicts technology implementation is not easy task and does not end up with just installing the machines and explaining how to use them rather needs accompany transferring education, organization, administration, strategies etc. Nepalese culture is totally different and the practices differ from western culture, so it is hard to change their attitudes and beliefs towards IT.

2.5.5 CONCLUDING REMARKS

IT is being adopted in wide scale in Nepal. Beside IT related developments and software proprietary works being carried on; there is a need of service management and improvements of IT sector, towards which the government seems unconscious. The IT acts should be well updated and must address the latest trends and developments made in IT sector. The laws

should not stop the private and other vendors who want to adopt the new frameworks and technology for the first time rather encourage them with the facilities and support they can provide. This is the age of information and technology and everybody has right to have precise and well updated information's. In the name of making act and policies the government shouldn't deprive general public to be well updated. Government should well monitor and keep the resources, information up-to-date in order to lead the country towards development.

2.6 CSI FOR NEPALESE BUSINESS SECTOR EFFECTIVENESS

Many business enterprises are focusing on manufacturing rather than service sectors. Mulholland and Showalter (1992) believe that it is the need of service managers to realize that short-term "lean and mean" policies lack competitiveness and resulting into low quality and productivity. So to enhance the competitiveness, it is necessary to embed systems that ensure continual quality and productivity. CSI enables enterprises for process oriented way of thinking and strategies development with the involvement of all level of people in the organizational hierarchy.

Gautam (2005) assures that CSI concept is new in Nepal, and its awareness is limited within few enterprises. Development made in IT sector is considerable but the strategies are not well formulated and impacts are not sustainable. Service improvement activities are rarely carried on without taking in account the Infrastructures, stakeholders, potential risk factors and impacts on business (Pradhan, 2002). Key business drivers for CSI are quality of service and customer satisfaction which helps business to know about the customers and for precise communication and timely information.

2.6.1 SCOPE OF CONTINUAL SERVICE IMPROVEMENT

Case (2009) states that CSI Implementation process may vary and the correct way to implement it rely upon the organization's goal; it may be long term goals or short time dependent on the nature and policy of the organization. Generally the scope looks into three areas of ITSM.

- ITSM Processes
- IT Services
- The Service Lifecycle

Cartlidge & Lillycrop(2007) thinks it is very hard to decide from where to start, but one of the above three areas can be taken as a starting point. Case (2009) recommends to start with the improvement of the ITSM Processes as it will lead to the improvement of IT services automatically. For example, if we review the incident management data of an organization, we will find more than half (70 %) of the data will be change related, and to handle the changes the available IT services is not enough. Thus it is crucial to first go for IT service management process.

ITIL (2006) suggests the organizations to address the pain points first for getting value of Investment (VOI) as well as gaining the business and functional group support. Case (2009) opines some quick wins like low hanging fruits can be experienced during the implementing process.

2.6.1.1 ITSM Processes- Where Do we start?

Organizations are not aware of from where to start the implementation of CSI in business. They can approach through change management, Incident Management and problem management by going into mature documenting process. Case (2009) argues change management as a control process and helps in attaining a maturity level for organizations protecting the production environment with the efficiency and effectiveness the process requires. Request for Change (RFC) can be a quick win if one doesn't exist, or change advisory board highlighting the possible changes, procedures to implement changes, creating risk models and so forth. Incident management deals with data gathering or logging process and should be well handled with incident assignment and escalation procedures according to priority.

Management should not be confused about incident and problem management as problem management deals with identifying a root cause of problem and solving the problem with a permanent solution.

Case (2009) and Nickols (2010) agrees that the impacts of change and incident management to business are directly realized by customers thus should be well handled. Documentation of Operation Level Agreements (OLAs) can be other quick win if well collaborated with service level agreements (SLAs).

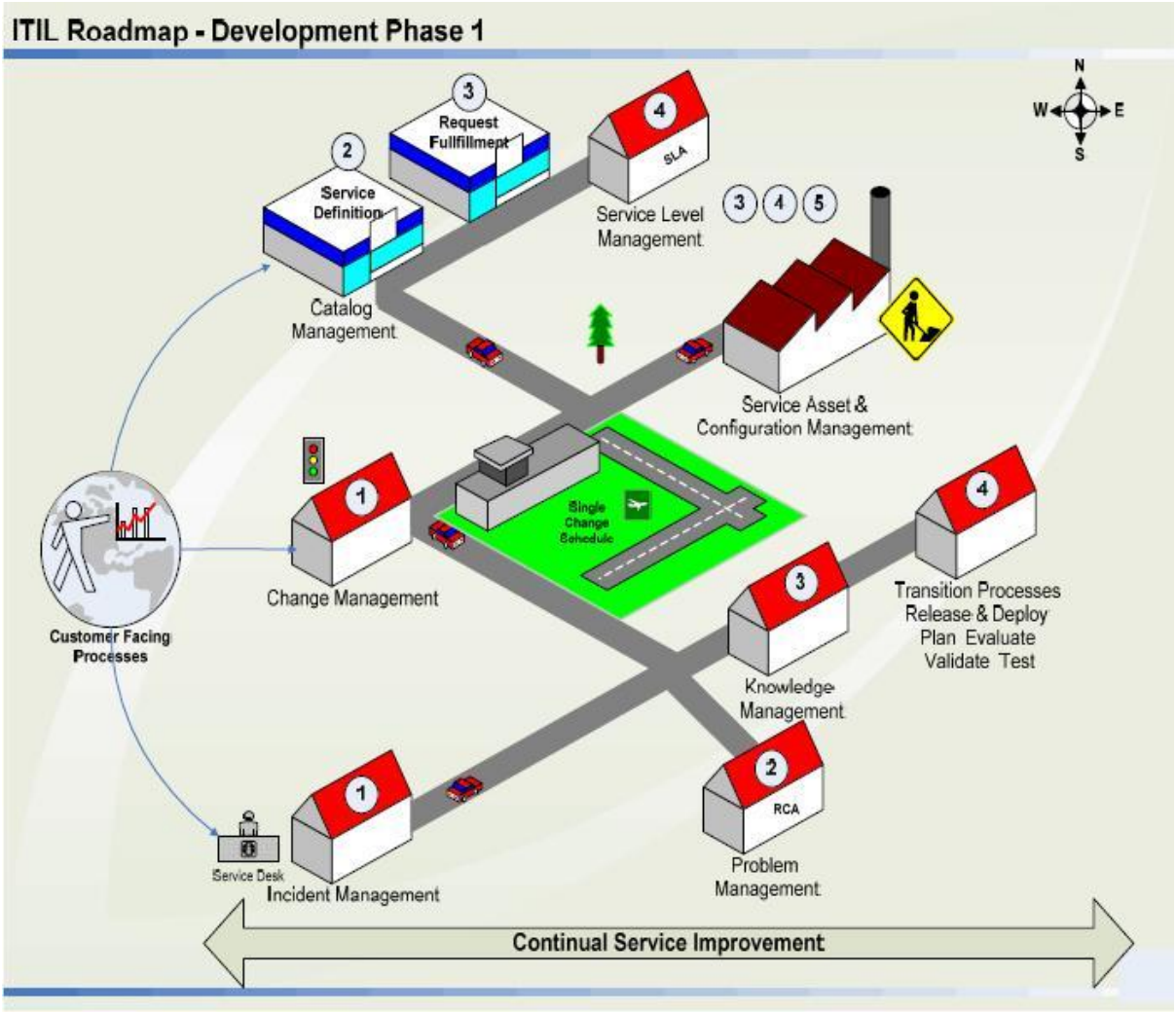

Illustration 7: ITIL Roadmap Development Phase (ITIL, 2006)

2.6.1.2 IT Services- Where do we start?

Case (2009) states that it is crucial to choose right IT services once the ITSM process is implemented in our business, to ensure the business value is delivered. But the problem is to

identify the right services but can be simply done through identifying the services falling out to meet the satisfaction levels or which are continuously giving a threat. In case of absence of service level data a discussion is to be carried on with the business highlighting the services that are deemed mission critical. Impact assessment is to be conducted either to give continuity to the service or discard the service.

Case (2009) and Nickols (2010) recommends improvement initiation should be done taking one or two IT services because dealing with one IT service, we have to look after different technical, operational, and application groups. Improvement activities involves improvement from component level as well as end to end service monitoring guaranteeing the return value to the business otherwise it is worthless which may result due to incorrect measurements and reporting.

2.6.1.3 Service lifecycle-where do we start ?

Starting the improvement initiatives of processes organization will find our many turning points for making improvements in the service lifecycle itself. Thus it is crucial that organization keeps tracks of the communication and feedbacks between different service lifecycle phases. Organizations should look for improvement opportunities associated with the business requirements Case (2009) and Nickols (2010).

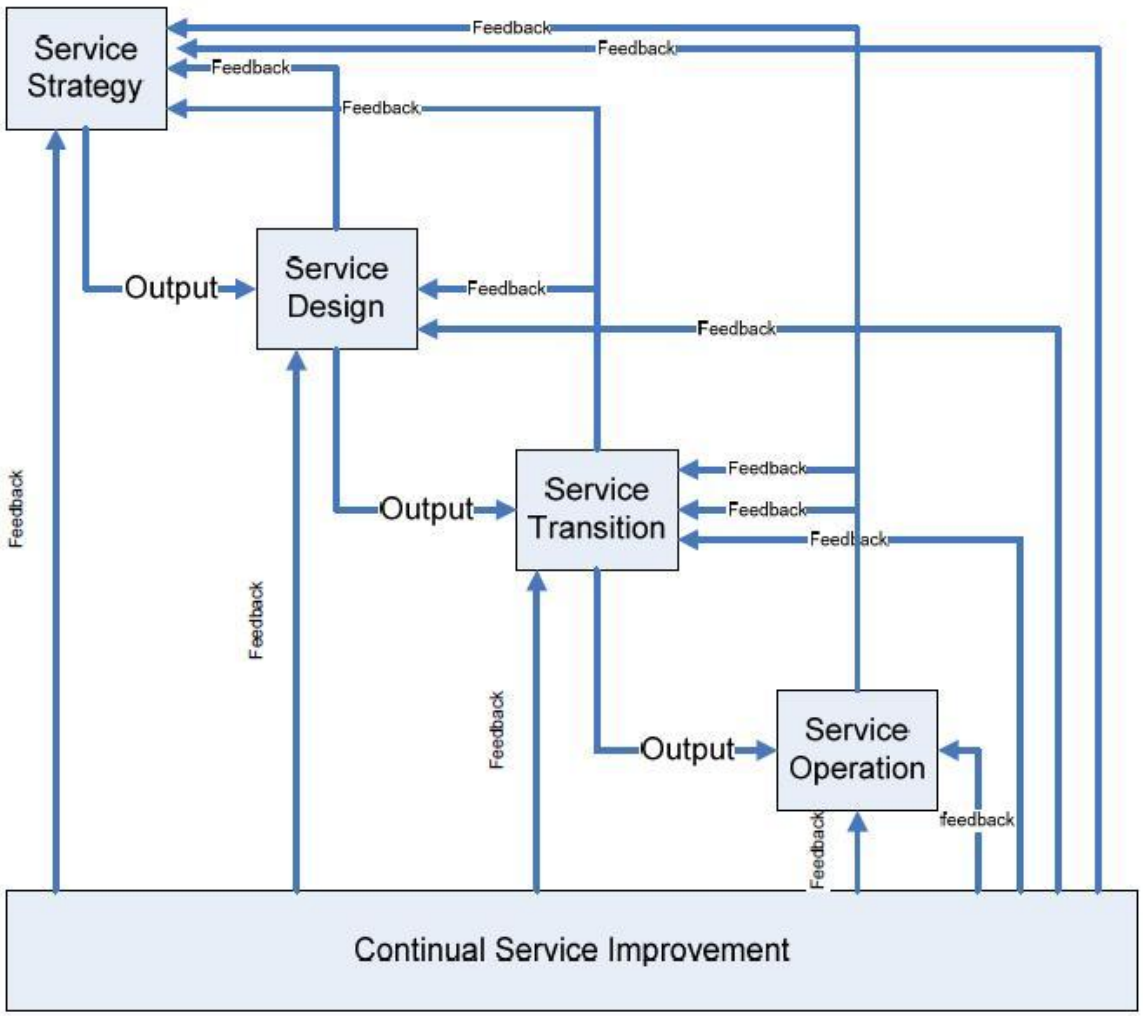

Illustration 8: Ongoing feedback loop in CSI Service Levels

Illustration 5 shows an ongoing feedback loop based on outputs provided from one phase being used as input in next phase.

2.6.2 WHERE WE ARE?

This section is aiming to give a complete picture on the current situation analysis of Nepalese Business enterprises and the IT industry with the view of the 4Ps.

2.6.2.1 Baseline Assessment-Introduction

Knowing the current situation is only part of the processes and given the scope of this paper the baseline assessment will therefore, focus specifically on the 4 Ps (itSMF-NL, 2006). To establish the baseline around individual component in the CSI model – Understanding the

difference between and the relationship among these elements as well as how they are balanced is an important first step in carrying out this task.

2.6.2.2 The Methodology

To meet the objectives of this paper, some research on the 4P's was conducted using two approaches. The research was conducted during a 3 weeks period. First, a detailed data was collected using analysis of the policy documents of Nepalese government through websites and reading different information and journals available. Incidentally, the author of this paper happened to worked in the IT sector of Nepal for one and half year, and his contribution is invaluable to providing information to this evaluation.

2.6.2.3 People

1. People being the most important resource, it's important to establish the degree of senior management buy in entire current data collection processing.
2. Do we have the right people with relevant qualification and competencies?
3. People around DSS?
4. What is the Structure of underpinning the people, process and technology?
5. What about cultural issues and motivations?

2.6.2.4 Process

1. How is the data being collected right now is it process based?
2. What are the policies and the procedures are they written and documented and accessible and usable?
3. Are the processes scalable and repeatable as well as flexible?
4. Is people train, aware and able to use the processes?

2.6.2.5 Products

1. We try to establish the technology is it, what kind of technology is currently being used?

2. Is it user-friendly, compatible and integrated with other products?
3. How about cost performance, and support is it usually available?
4. How about portability and flexibility and scalability?
5. How about utility and warranty?

2.6.2.6 Partners

1. Who are the most influential and interested stakeholders?
2. Are we getting an optimal value from their service for money?
3. Are we getting the right services from them?
4. Are we in a win/win situation with them?
5. How about service level and other legal agreement with our partners?

2.6.3 WHERE DO WE WANT TO BE?

We are looking at creating good values for our customers in the form of products, services and process taking in consideration needs, wants and desires and a value proposition with subjective and objective benefits.

It is clear from our previous baseline assignments that we want to make a healthy IT environment where IT is governed well, the ICT sector is well updated with the latest trends, frameworks to meet the business needs. Our vision is to make a healthy technology adoption environment, allowing business to reduce service time and downtime with well handled incidents and problems, with greater visibility of services and core functionalities.

we desire for a business environment where the IT services are managed properly, things are well updated about the latest trends and frameworks, where our delivery meet the quality and requirement of stakeholders, where the decision making sector is effective and efficient, and making BI activities comprehensive in scope, functional and feasible for timely exchange of quality and relevant data.

The key outputs of this system are service Level Agreements (SLAs) and the Operational level agreements (OLA) and the key product expected at the end of the day is a framework

for Nepal highlighting the benefits of efficacious adoption of ITIL & Continual service improvement process in Business making baseline the following statement:

"Implementing Continual Service Improvement in Business Enterprises: A proposal to improve business effectiveness of Nepal"

And with an aim to highlight the:

"*Benefits of adopting ITIL framework and going for Continual Service Improvement process in IT sector of Business, especially in Nepal "*

2.6.4 CRITICAL SUCCESS FACTORS

Our critical success factors can be highlighted as:

i. Senior management accepting the proposal for service management and go for CSI, and for sure they have willingness and commitment to change for the better and to embrace ICT in value chain of business service delivery.
ii. Availability of staff; Most of the IT firms has well set of IT staffs as they are aware of IT and its impact on business for gaining customers motive, fulfilling their wants, getting return on investment and for long term success.
iii. Change in corporate culture
iv. Realization of benefits
v. Decision based on data and information.

2.6.4.1 Measurable target

The Government rules and policies and the paradigm shifts the business is going for are the benchmarks for the measurement of the targets.

- Business willingness to go for IT service management can be measured by the availability of policies for the implementation.
- Allocation of resources like Human, Financial and Technological.

2.6.5 HOW DO WE GET THERE?

In above sections we got a clear picture of the current situation of Nepal's ICT sector, achievements made so far and are a basis for us for the way forward. This section will focus on the proposed solution by injecting some ideas to steer the urgency for going for change.
CSI is hard beginning and most of the organizations are confused from where to begin the improvements works. Batalden (1993) suggests that CSI can start reviewing the management information ensuring that the services being provided are meeting the agreed service levels. Also the ITSM processes should be reviewed through information and trends ensuring they are achieving the desired results. Johns (2011) believes maturity assessments can be conducted in order to highlight the process activities and areas of improvement or concern. Reviewing of data, internal and external services should be done presenting senior management with the recommendations for improvement. Problems are to be prioritised and it is necessary to ensure that the services are well resourced and getting necessary support.

2.6.5.1 Quick wins

"*Without short-terms wins, too many employees give up or actively join the resistance - Most people won't go the long march unless they see compelling evidence within six to eighteen months that the journey is producing expected result* "(Kotter and Schlesinger, 2009). It is crucial to have some short term wins in order to make the change successful.

Restructure the MOST units into portfolios at least into the following; ICT as a portfolio, Data Management and Statistics Information as a Portfolios and Office Management operation as a portfolio. The ICT portfolio will be accountable and responsible for ensuring that ICT as an enabling tool for MOST. Staff and other resources competencies will be reporting to the ICT Manager. Data and Statistics portfolio will be responsible and accountable for soften part of monitoring requirements, survey management, data analysis and reporting outline, the section will be headed by a Data and Statistic Manager. The last portfolio which the Strategic level of the MOST is the office management who will be responsible for the setting the stage, the vision, goals and identifying the requirements to meet the objectives of the Unit. This portfolio shall be accountable for the overall function of

the M&E Unit and shall be headed by a System Analyst reporting to the Director of Planning within MOST.

Changes can be institutionalized not only by consolidating change in organization, rather it needs regular follow up, monitoring and understanding of the real gain and benefits. Change management is tough and changing the behavioural aspect of people is even harder because people are used to with the old working practices and there is always a danger of reverting to traditional aspect. So to go for service improvements it is necessary for handling the change effectively. Organizations should buy in people with ITIL experience or with service focused experience; training programme and plans for employees focused on ITIL or service management; ensuring the changing requirements are matched meeting the service levels agreements and goals, with steering of information around and updating on regular basis.
Regular meetings on performance analysis with clear actions and agendas are crucial, addressing the customers' feedbacks and satisfaction from the service. IT related solutions should be well updated and integrated to fit into existing processes

2.6.6 HOW DO WE KEEP THE MOMENTUM GOING?

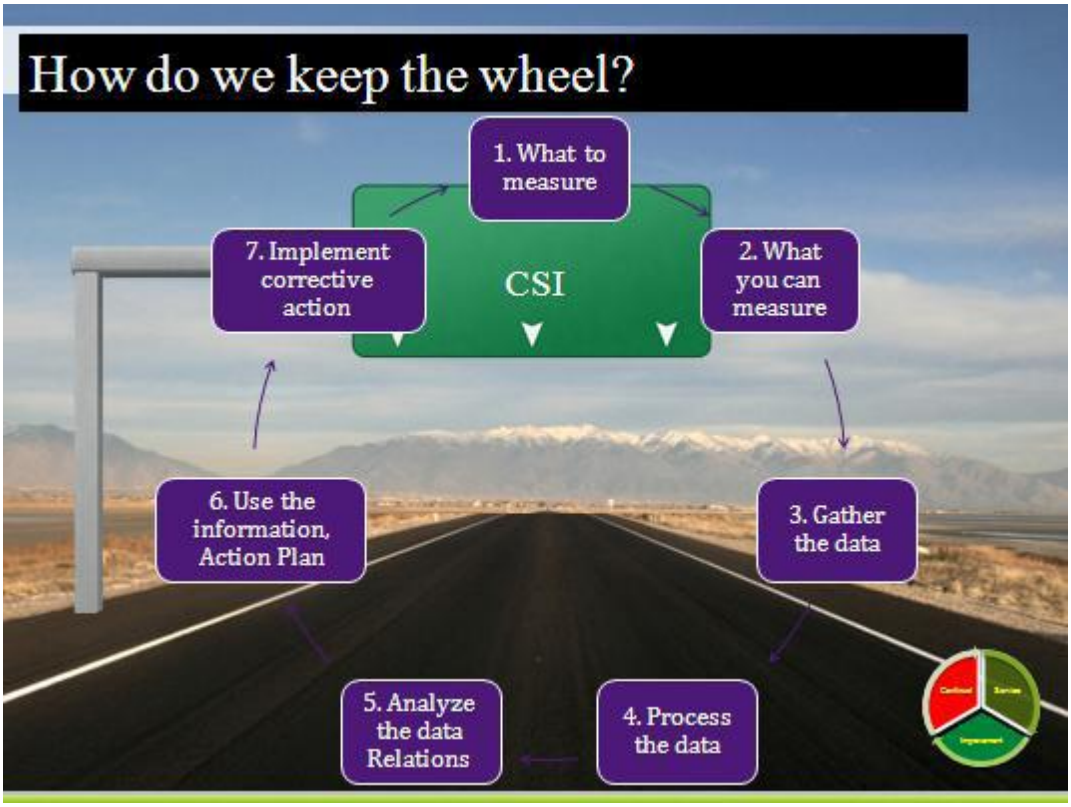

Illustration 9: CSI 7 Steps Model

This case study focus on evaluation of the IT adoptions and improvements in Business sector, with the responsibility to help track progress and demonstrate the impact of CSI implementation on Business decision making process critically analyzing the improvement and development aspect. This paper will also discusses the potential process and procedures that could be streamline and strengthened in adopting one of the ITIL life cycles- Continual Service Improvement (CSI) model designed to manage the improvement of IT service management processes and IT service making use of the 7-steps improvement processes (Bon,2007).

2.6.6.1.1 Define what to measure

This stage is pre-determined in initial stages and includes what to be measured focusing on precise areas or items to be measured.

2.6.6.1.2 Define the areas that you can measure

Being confined to the organization policies and strategic plans, It is indicated what areas to be measured outlining the objectives linked to key performance Indicators (KPI), this step sets the definition of what to measure by the organizations (OGC, 2009).

2.6.6.1.3 Collecting the data

This step focuses in gathering and collecting raw facts, figures and quantitative data being confined to objectives and goals of service operation. Main focus is given in collecting data from organizations that are adopting CSI and collecting feedbacks (OGC, 2009).

2.6.6.1.4 Processing the data

Processing of data gathered in previous stage is done here with the critical success factors (CSF) and KPIs. The framework proposed, i.e. ITIL in our case plays a significant role in processing of data with the use of computer based resources facilitating data capture (OGC, 2009).

2.6.6.1.5 Analyzing the data

Following the data processing, the information and data managers will work together and analyze the data within the framework of organization policies and requirements. It is understandable that the statistics will lead and play a pivotal role in interpreting and translating the reports from the data.

2.6.6.1.6 Making it usable and presenting the data

The analyzed data is now ready for presenting to the senior management and its wider stakeholders with the performance of business organizations and shortcoming are presented to managerial level to come up with the solutions and steps for improvement.

2.6.6.1.7 Implementing change

This is the crucial step as we identify the need for change and the areas that are going to be influenced by CSI, based on our research and findings of previous stages. CSI provides us with solutions and options to problems of service operations. The data, facts and figures compiled and generated are important over time for making business decisions and finding on what company needs the most (OGC, 2009).

OGC (2009) depicts the above discussed 7 steps process is core to CSI and helps the management team to recognize the processes that needs to be monitored and enhanced for continual improvements.

3 DATA COLLECTION

The literature review was not sufficient to know about current IT scenario of Nepal, Thus questionnaires were made to evoke perceptions from the present stakeholders of IT sector. The survey was done forwarding the devised questionnaires to a selected group of 30 peoples, ensuring that as many stakeholders as possible were selected representing from different sectors.

3.1 QUESTIONNAIRE DESIGN

Questionnaire were the source for the primary data, thus a great effort had been made to come up with the final set of questions covering the research areas, aims and objectives and making as simple as possible targeting the stakeholders.

The first draft had been prepared to put the questions together (See Appendix 7.1). The author shared the questionnaires with his supervisor and few colleagues. Finally some feedbacks were collected regarding the necessity to make the questionnaires understandable, non ambiguous and as simple as possible. Once all the questions have been revised, the second draft was prepared. The draft was revised to make sure flow of questions is proper and cover letter to address the potential participants has also been prepared and integrated to the final draft (See Appendix 7.2).

3.2 QUESTIONNAIRE PARTICIPANT SELECTION

Participant selection was carried out by the author, and the target was set to involve only the people on interest who best suit the purpose of questionnaire. The participants were the stakeholders of IT sector of Nepal, playing vital role in government offices, IT service providers, IT sales and support and organizations that use IT to deliver services, nongovernmental organizations and Universities. Besides that some IT professionals and IT students were also invited. While identifying the respondents of questionnaire the following considerations were made:

i. The respondent holds the leading position in the organization or in the related department.
ii. The respondent is aware of the purpose of the questionnaire and its content.
iii. The respondent represents the population within the organization who is aware of the IT adoption trend and scenario in Nepal.

3.3 DISTRIBUTION AND COLLECTION OF QUESTIONNAIRE

At first the contact has been setup with the identified participants to aware them about the research purpose. It was followed by the distribution of questionnaire. Questionnaire was prepared in Google spreadsheet and distribution was done via e-mail. The questionnaire was distributed to 30 potential participants out of with 25 responded to the questionnaire.

4 QUESTIONNAIRE FINDING AND ANALYSIS

The section discusses the finding from questionnaire survey and analyse the findings.

4.1.1 ORGANIZATION DEMOGRAPHICS

The main purpose of this section was to illustrate the characteristic of sample taken into account. Since the section was optional, the figures displayed may not completely represent

the sample size. The IT stakeholders of the country are represented in the sample taken. However some organisations seem to be very high in proportion compare to others. The Small and Medium scale Enterprises (SMEs) and not for profit NGO/INGO are the most active stakeholders in the IT sector in the country compare to others.

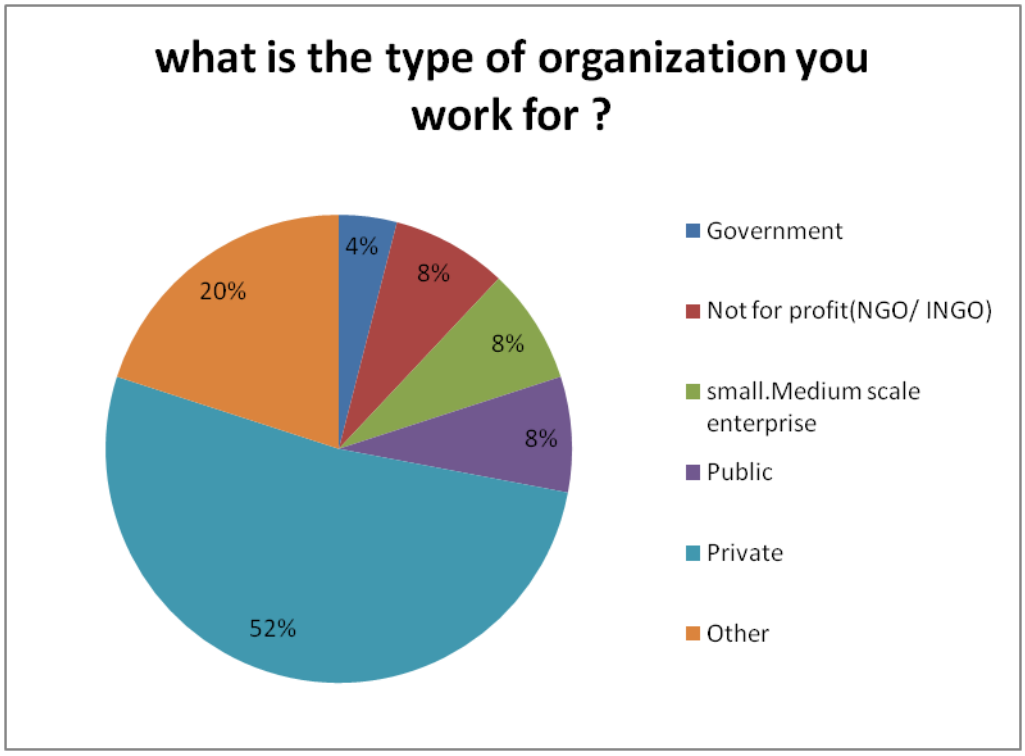

Illustration 10: Survey Outcome (Distribution of Participants)

Organization size	No. Of Respondents	Percentage
Small/Medium scale enterprise	**2**	8%
Not for profit (NGO/INGO)	**2**	8%
Government	**1**	4%
Private	**13**	52%
Public	**2**	8%
Other	**5**	20%

Table 1: Distribution of Participants

The questionnaire survey in its first section tries to understand nature and role of representing stakeholder and in broad sense the organization. The result shows that NGO/INGOs, SMEs and public all holds 8 % of the total sample population each. The private office holds 52 % of the total population which is the highest one. Government holds 4 % which is the lowest one and other which include universities, partnership organizations holds 20 %.

Illustration 11: Survey Outcome (Nature of participants' organization)

Nature of organization	**No. Of Respondents**	**Percentage**
IT solution provider	**6**	24%
IT Sales & Support	**3**	12%
Organization using IT to deliver services	**4**	16%
Internet service provider (ISP)	**2**	8%
Other	**10**	40%

Table 2: Survey Result (Nature of Participants Organization)

The organization of type IT solution provider holds 24% of total population. These type of organisations fall into Small and Medium scale Enterprises and big corporate houses. The organisations using IT to deliver other services also place itself in second position with 16%. Organisations like IT sales and support, Internet service provider were 12 % and 8% respectively. The other unlisted nature of organisations like federation, education, IT policy and strategy, Microsoft Market development partners, research institute, start-up business and the United Nations collectively takes the share of 40%.

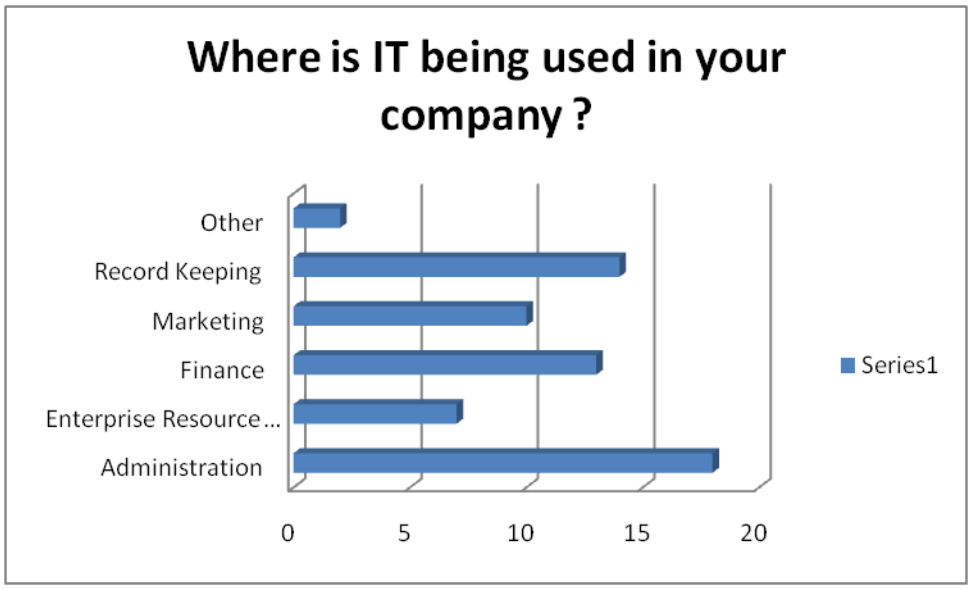

Illustration 12: Survey Outcome (Purpose IT used for)

Purpose	No of Respondents	Percentage
Administration	**18**	86%
Enterprise Resource Planning (ERP)	**7**	33%
Finance	**13**	62%
Marketing	**10**	48%
Record Keeping	**14**	67%
Other	**2**	10%

Table 3: Survey Result (Purpose IT Used for)

Note: People may select more than one checkbox, so percentages may add up to more than 100%.

This question was asked to find where IT is being used it the participants company and the responses are mixed since use of IT can be in more than one sector in some of the organizations. The result of this question represents the pattern of IT adoption and the focus area of given by most of the enterprises. Hence the percentage may add up more than 100 %. 86 % of the participants said IT is used in administrative section, 33 % in Enterprise resource planning, and 62 % in Finance, 48 % in marketing, 67 % in record keeping and 10 % in other miscellaneous areas.

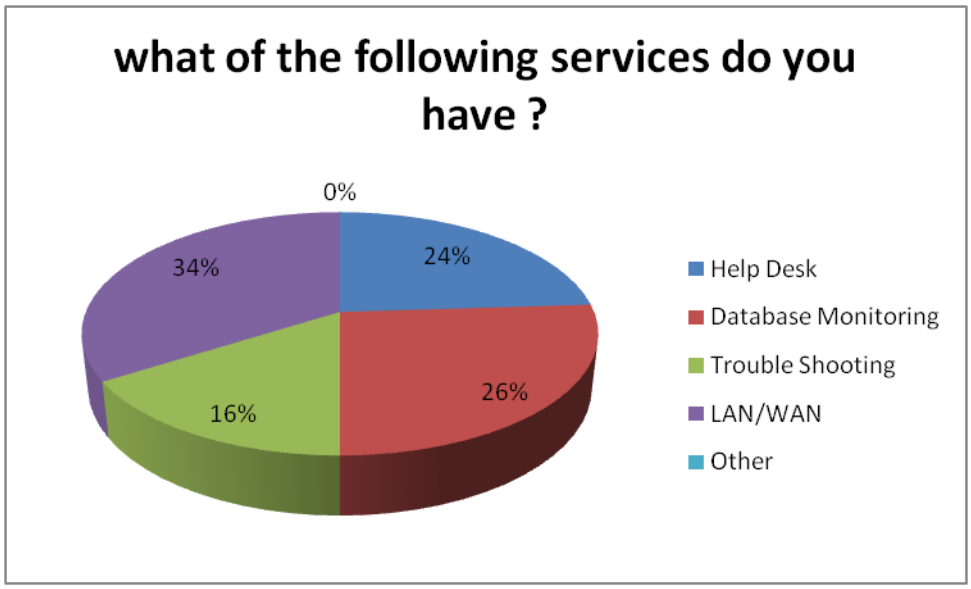

Illustration 13: Survey Outcome (Services Available)

Services	No of Respondents	Percentage
Help Desk	**12**	52%
Database Monitoring	**13**	57%
Trouble Shooting	**8**	35%
LAN/WAN	**17**	74%
Other	**0**	0%

Table 4: Survey Result (Services Available)
Note: People may select more than one checkbox, so percentages may add up to more than 100%.

The purpose of the question was to find out which of the services most of the organization have. Here the priority is given even for minor services in order to find basic trends in organizations. Almost 24 % of the organizations were having help desk. 26 % were focusing on database monitoring. LAN/WAN and Troubleshooting were respectively 34 % and 16 %. The figures obtained from this survey are very much important for our research because continual service Improvements starts from the establishment of Quality on help desk and the decision support systems relies on the database monitoring.

4.1.2 CURRENT IT PRACTICE, INITIATIVES AND PROGRESS

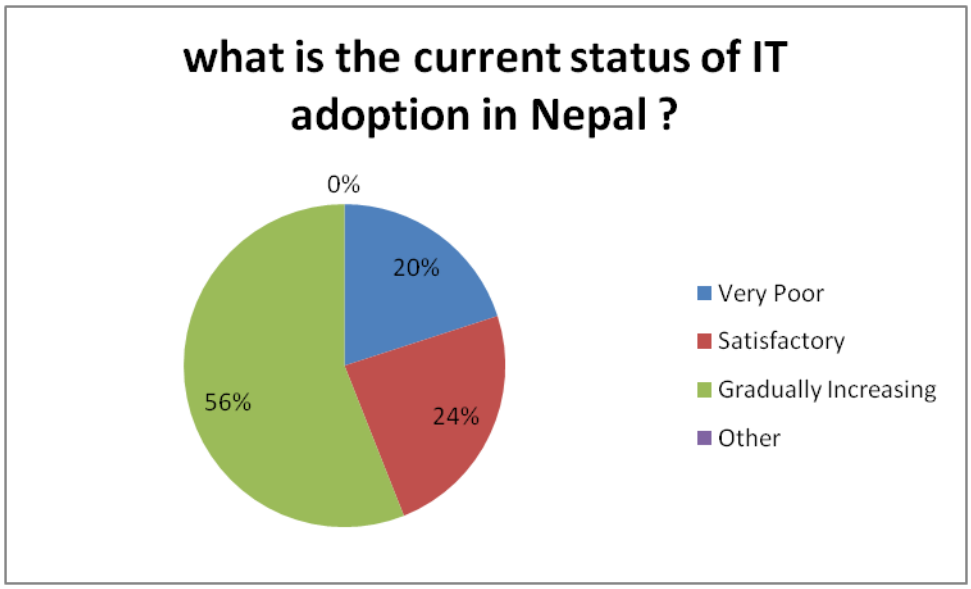

Illustration 14: Survey Outcome (Current status of IT adoption)

IT Adoption Status	**No of Respondents**	**Percentage**
Very poor	**5**	20%
Satisfactory	**6**	24%
Gradually Increasing	**14**	56%
Other	**0**	0%

Table 5: IT Adoption status

The questions in this section were aimed in finding the status of current IT practice in Nepal. In response to the question asked about the IT adoption status, the response was mixed type. 24 % of the respondents said the Technology adoption is satisfactory, 56 % of them said it is gradually increasing and 20 % said it is very poor. The variation in data obtain signifies that the status of IT adoption is poorer than that need to be to meet the criteria for development.

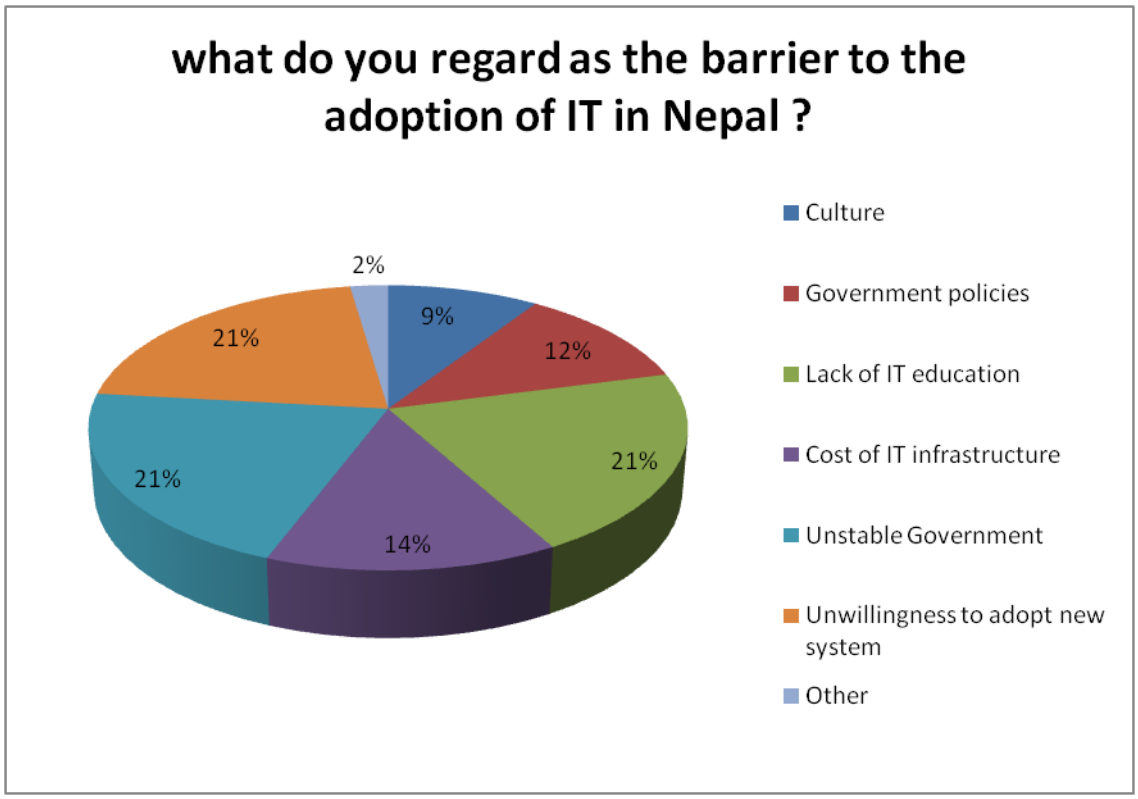

Illustration 15: Survey Outcome (barrier of IT adoption)

Barrier of IT adoption	No. Of Respondents	Percentage
Culture	**4**	16%
Government Policies	**3**	12%
Lack of IT education	**9**	36%
Cost of IT infrastructure	**6**	24%
Unstable Government	**9**	36%
Unwillingness to adopt new system	**9**	36%
Other	**6**	24%

Table 6: Survey Result (Barrier of IT Adoption)

Note: People may select more than one checkbox, so percentages may add up to more than 100%.

In a question which was attempted to understand the barriers of IT adoption in Nepal, respondents were allowed to mention multiple factors. In response to this question 21% participants said it's due to Lack of IT education, 21% due to unstable government and 21 % Unwillingness to adopt new system. 9 % cited to culture, 14 % supported to cost related factors of IT infrastructure and licence software , 12 % to government policies and 2 % participants said it is due to other factors which includes barriers like language, poor level of IT, political instability etc.

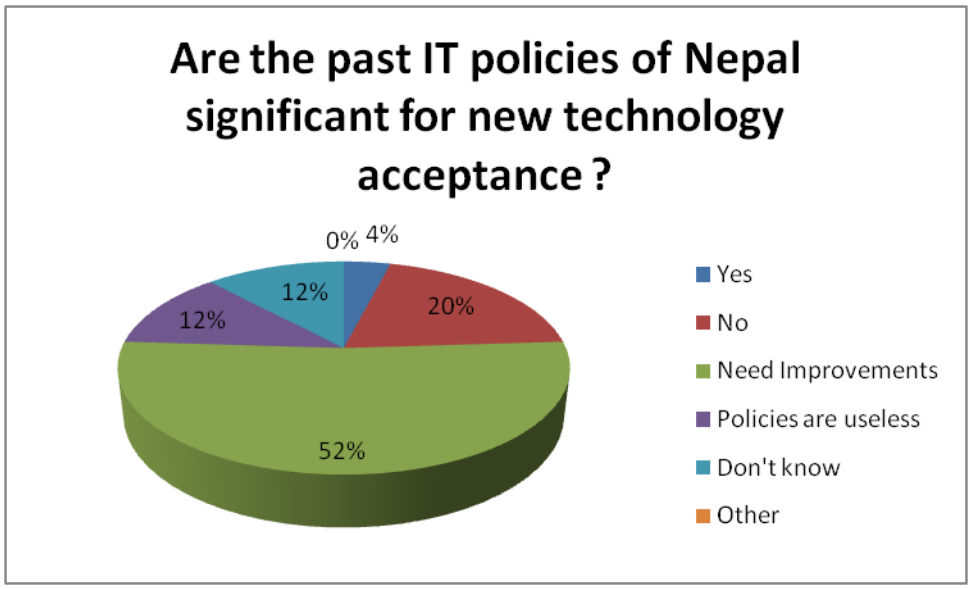

Illustration 16: Survey Outcome (Past policies of Nepal)

Are past policies significant	No. Of Respondents	Percentage
Yes	1	4%
No	5	20%
Need Improvements	13	52%
Policies are useless	3	12%
Don't know	3	12%
Other	0	0%

Table 7: Survey Result (Past policies of Nepal)

This question aim was to know respondents view towards past policies of Government of Nepal (GON), in which most of them i.e. 52 % supported for need improvements, 20% of them said the policies are not suitable for new technology acceptance, 12% supported for policies are useless and 4 % thought that policies are ok.

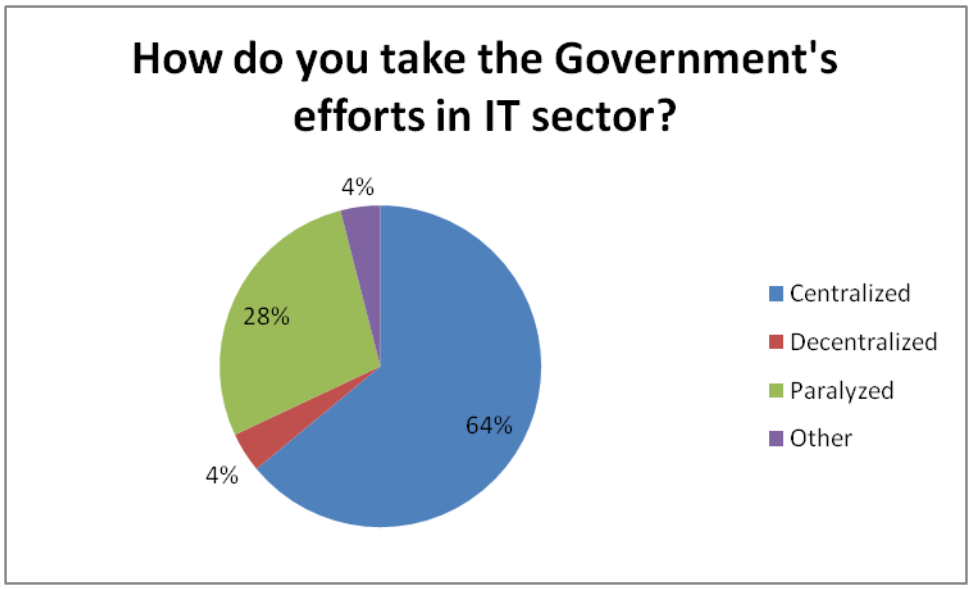

Illustration 17: Survey Outcome (Government's efforts)

Government Effort	No. Of Respondents	Percentage
Centralized	**16**	64%
Decentralized	**1**	4%
Paralyzed	**7**	28%
Other	**1**	4%

Table 8: Survey Result (Government's efforts)

In a question which was attempted to understand the government efforts in IT development, 64% participants said it is Centralized, 4% said it is decentralized and 28 % said the government effort is paralyzed.

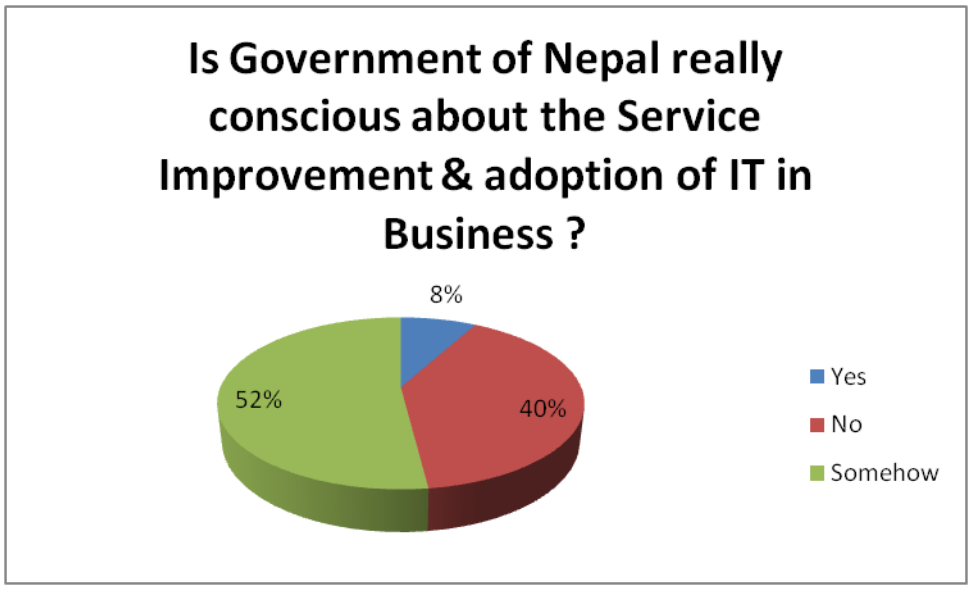

Illustration 18: Survey Outcome (Consciousness of GON)

Consciousness of GON	No. of Respondents	Percentage
Yes	**2**	8%
No	**10**	40%
Somehow	**13**	52%

Table 9: Survey Result (Consciousness of GON)

Towards adoption of IT in business and service management, most of the participants (52 %) believe that GON is somehow conscious, 8 % said GON is conscious. 40 % were claiming government is not conscious.

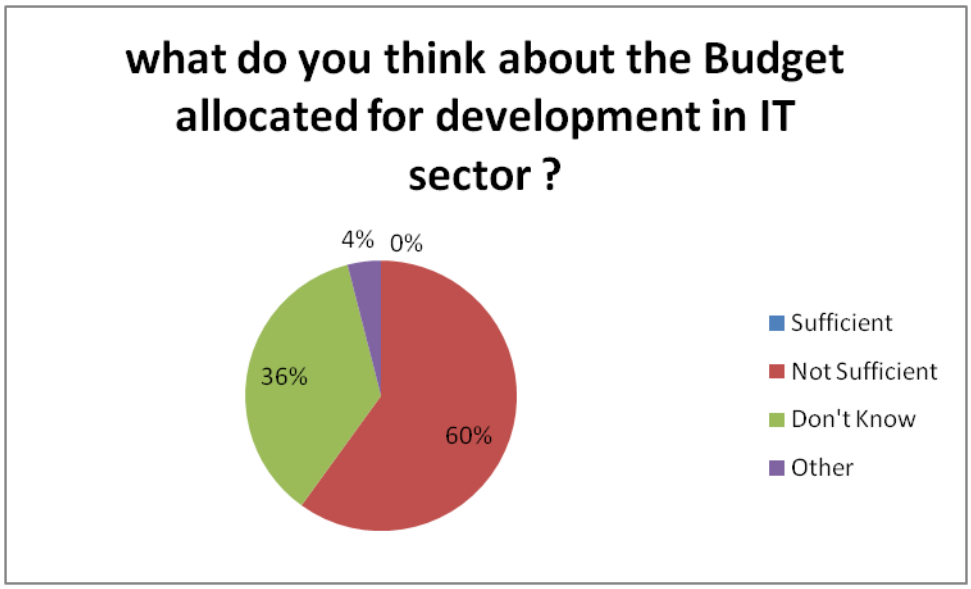

Illustration 19: Survey Outcome (Budget)

Budget Allocated	No. Of Respondents	Percentage
Sufficient	**0**	0%
Not sufficient	**15**	60%
Don't know	**9**	36%
Other	**1**	4%

Table 10: Survey Result (Budget Allocated)

Towards the budget allocated to development of IT sector, most of the participants (60 %) believe that it is not sufficient, 36 % said they don't know about the fact. 0 % were saying it was sufficient.

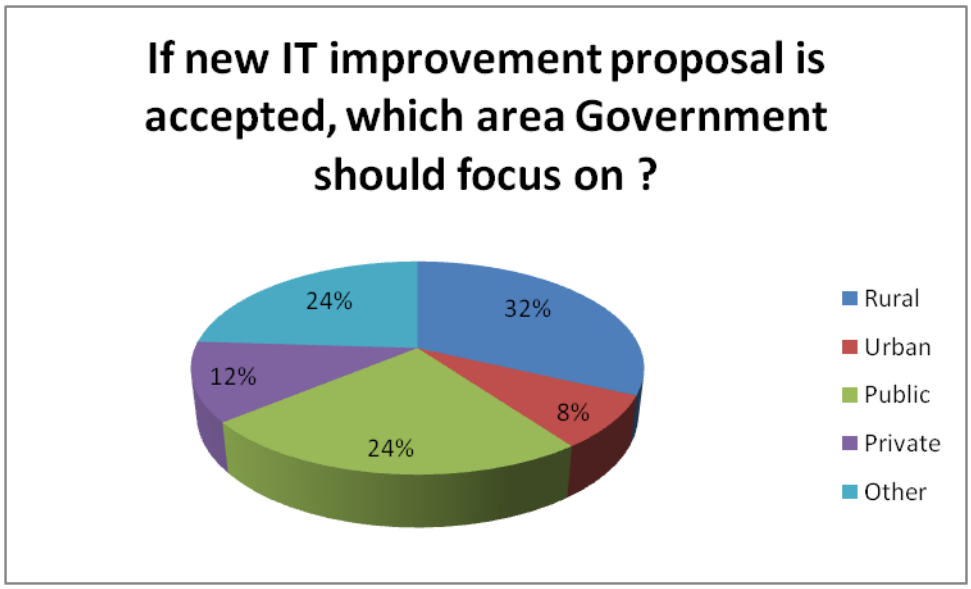

Illustration 20: Survey Outcome (Focus Area)

Focus Area	No. Of Respondents	Percentage
Rural	**8**	32%
Urban	**2**	8%
Public	**6**	24%
Private	**3**	12%
Other	**6**	24%

Table 11: Survey Result (Focus Area)

Towards the question asked to know about the focus area GON should make, most of the participants (24 %) supported to public sector, 8 % on Urban, 32 % on Rural, 12 % on private and 24 % on other sectors.

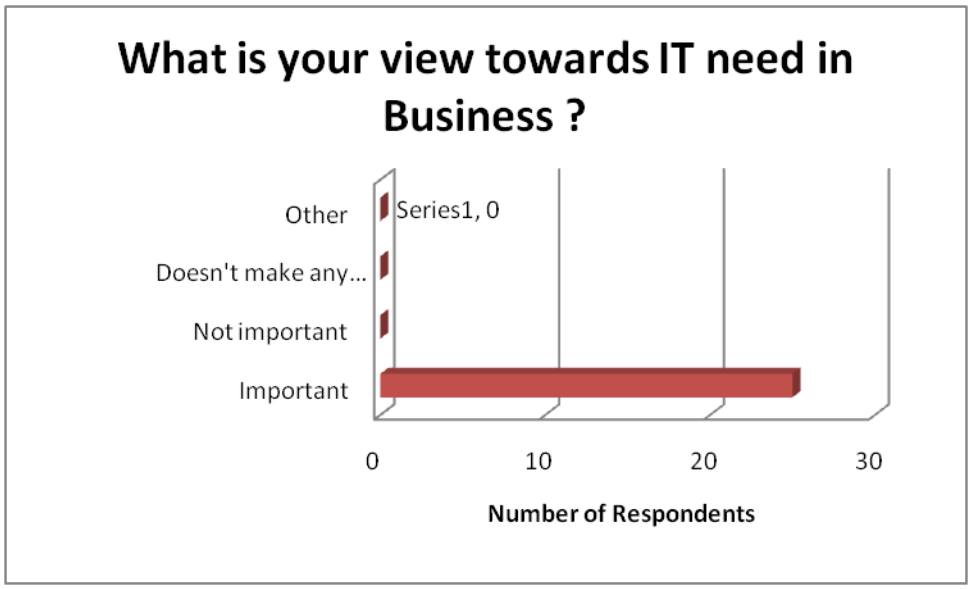

Illustration 21: Survey Outcome (IT need in Business)

IT Need in Business	No. Of Respondents	Percentage
Important	**25**	100%
Not Important	**0**	0%
Does not make any difference	**0**	0%
Other	**0**	0%

Table 12: Survey Result (IT need in business)

The question was asked to know the participants view towards the need of IT in business in which 100 % participants accepted it as important need.

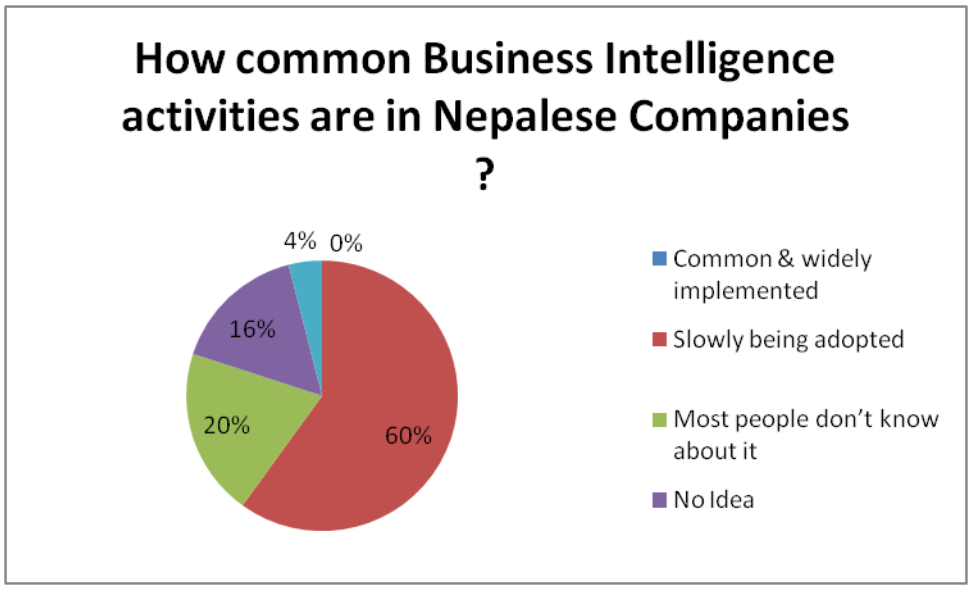

Illustration 22: Survey Outcome (BI activities)

BI Activities	No. Of Respondents	Percentage
Common & widely implemented	**0**	0%
Slowly being adopted	**15**	60%
Most people don't know about it	**5**	20%
No idea	**4**	16%
Other	**1**	4%

Table 13: Survey Result (BI activities)

This question was aimed in identifying the BI activities in Nepalese companies towards with most of the participants (60 %) responded saying it is slowly being adopted. 20 % said they most of the people don't know about it and 4 % said it is being adopted.

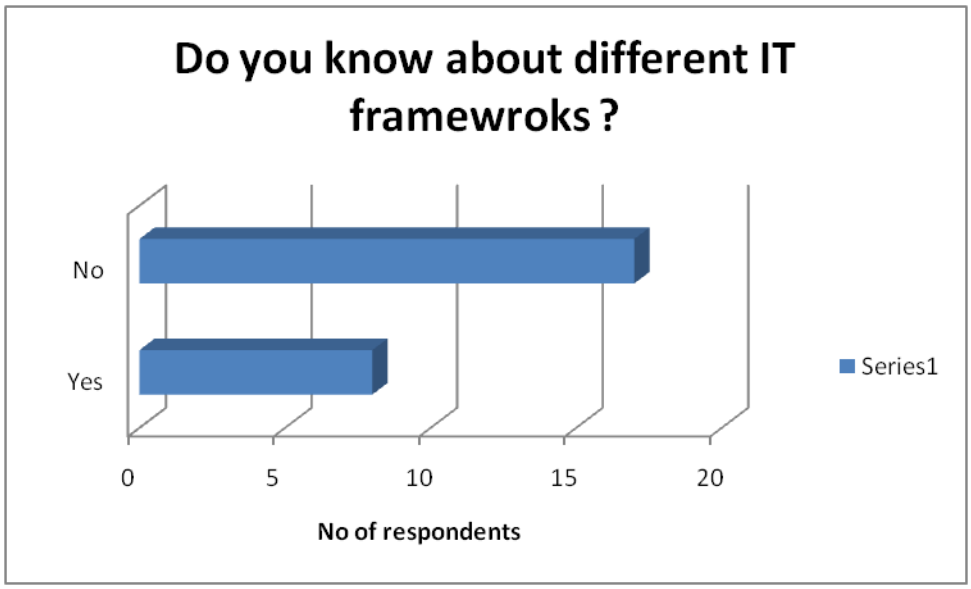

Illustration 23: Survey Outcome (IT Frameworks)

IT Frameworks	No. Of Respondents	Percentage
Yes	**8**	32%
No	**17**	68%

Table 14: Survey Result (Awareness of Frameworks)

This question was aimed in finding how many participants knows about different IT frameworks in which 32 % of them said yes and remaining percentage(68 %) said No.

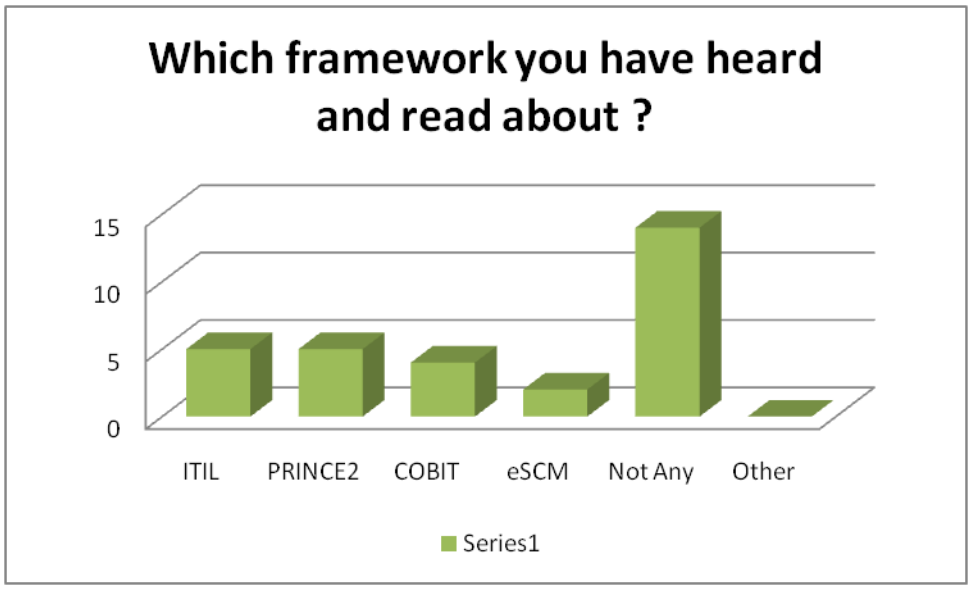

Illustration 24: Survey Outcome (Framework heard about)

IT Frameworks	No. Of Respondents	Percentage
ITIL	5	23%
PRINCE2	5	23%
COBIT	4	18%
eSCM	2	9%
Not Any	14	64%
Other	0	0%

Table 15: Survey Result (Framework Heard About)

Note: People may select more than one checkbox, so percentages may add up to more than 100%.

This question was asked to find out the popular framework among the participants in which most of the participants i.e. 64 % said they haven't heard about any frameworks, 23% of them said they know about ITIL, 23 % about PRINCE2, and for CobiT and eSCM 18 % and 9 % respectively.

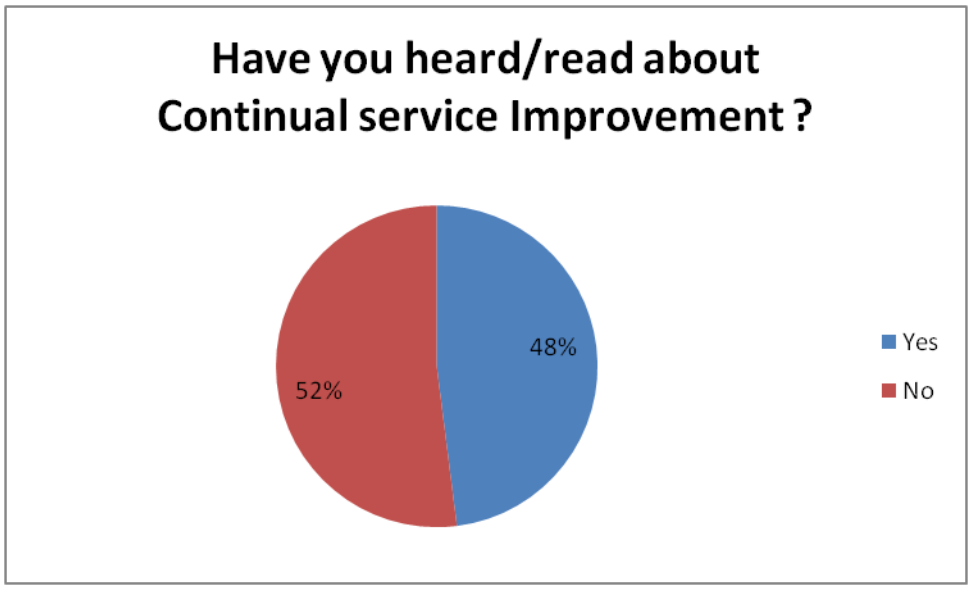

Illustration 25: Survey Outcome (CSI)

CSI Awareness	No. Of Respondents	Percentage
Yes	**12**	48%
No	**13**	52%

Table 16: Survey Result (CSI Awareness)

In the question asked to evaluate the objective -"how many participants know about Continual Service Improvement ", 48 % of the participants said they know about it and 52 % said they don't know about CSI.

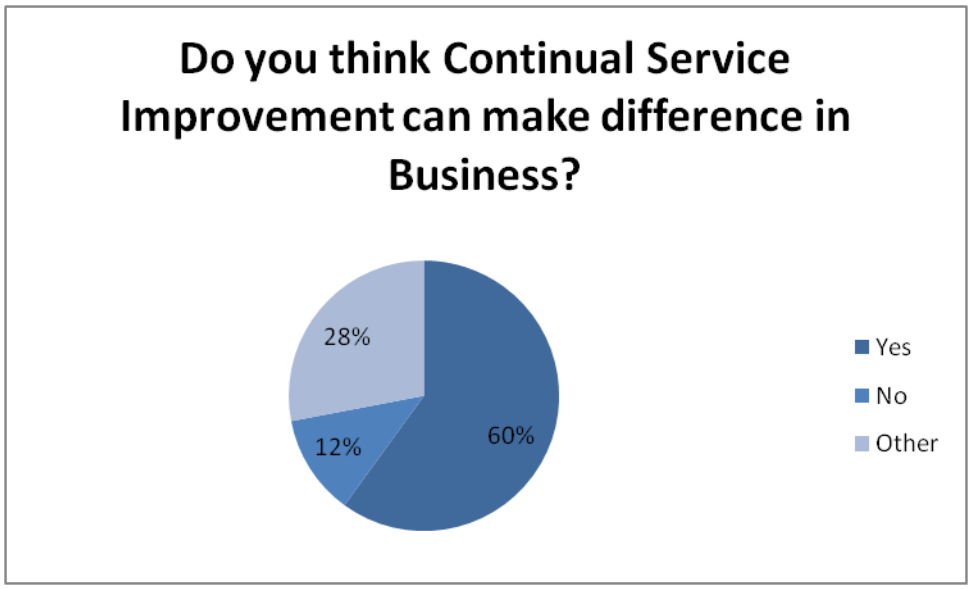

Illustration 26: Survey Outcome (View about CSI)

Does CSI make difference	No. Of Respondents	Percentage
Yes	**15**	60%
No	**3**	12%
Other	**7**	28%

Table 17: Survey Result (View about CSI)

This question was asked to know about the participants view towards CSI in business, 60 % agreed saying it can make difference to business, 12 % said No and 28 % said they don't know about it.

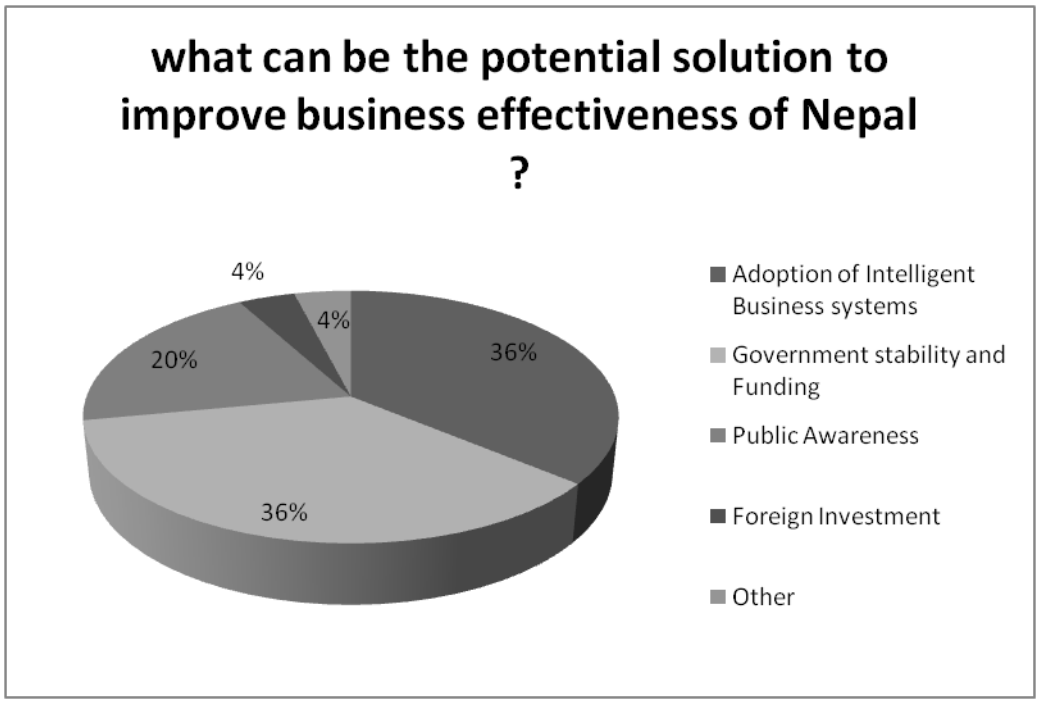

Illustration 27: Survey Outcome (Potential Solution to business effectiveness)

Potential Solution to improve business effectiveness	No. Of Respondents	Percentage
Adoption of Intelligent Business systems	**9**	36%
Government stability and Funding	**9**	36%
Public Awareness	**5**	20%
Foreign Investment	**1**	4%
Other	**1**	4%

Table 18: Survey Result (Potential Solution to business effectiveness)

In this question which was attempted to understand the participants view towards potential solution to improve business effectiveness, 36 % agreed on Government stability and Funding, 36% on adoption of intelligent business systems, 20% agreed on Public awareness, 4 % on foreign investment and 4 % stated the other factors.

4.1.3 CONTINUAL SERVICE IMPROVEMENT, MOTIVATION & GOVERNMENT EFFORTS

The result of this section shows the progress made in one decade towards attaining the defined objectives. The respondents provided their view in scale of one to five where five

representing most progress and development where as one representing least progress in IT sector.

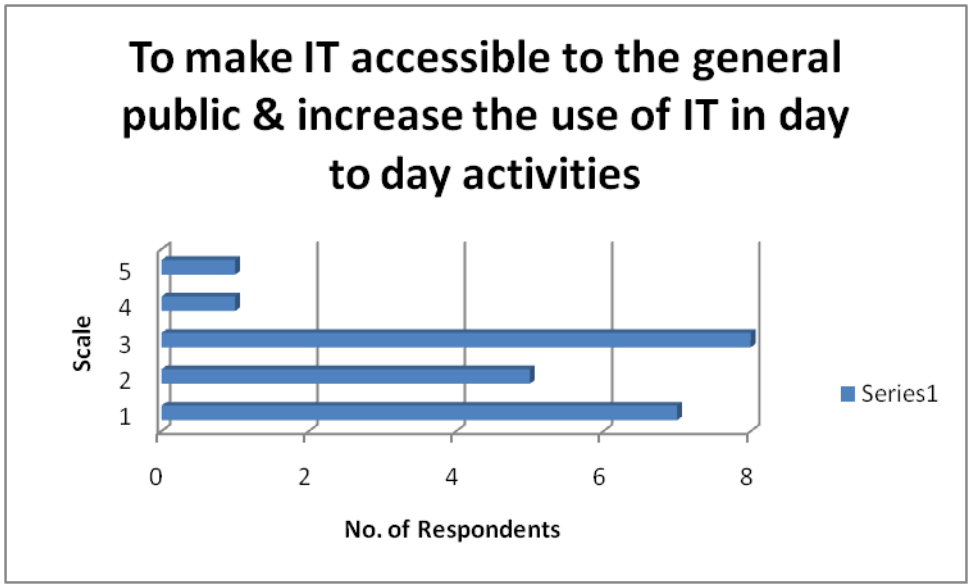

Illustration 28: Survey Outcome (To make IT accessible to general public)

Scale of 1 to 5	**No. Of Respondents**	**Percentage**
1 (Least)	**7**	**28%**
2	**5**	**20%**
3	**8**	**32%**
4	**1**	**4%**
5 (Most)	**1**	**4%**

Table 19: Survey Result (To make IT accessible to general public)

In the question asked to evaluate the objective -"To make IT accessible to the general public and increase the use of IT in day to day activities", 20% believes there has been less development where as 32% thinks that there has been average development. There were 28 % who thought that there has been least development towards attaining this objective. 8 % respondents said that the development is above average.

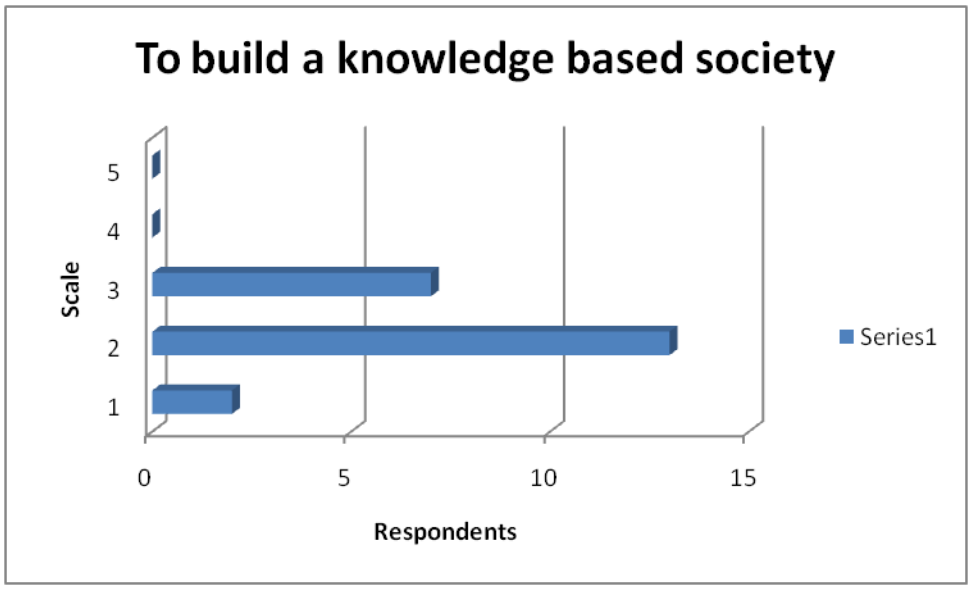

Illustration 29: Survey Outcome (to build knowledge based society)

Scale of 1 to 5	**No. Of Respondents**	Percentage
1(Least)	**2**	8%
2	**13**	52%
3	**7**	28%
4	**0**	0%
5 (Most)	**0**	0%

Table 20: Survey Result (To build a knowledge based society)

Towards acquire the second objective i.e. "To build a knowledge-based society", most people believe the development is below average. 52% respondents think that there has been less progress where as 8% of the total think there has been least progress made towards attaining this objective. Some 28% respondent said the progress was average. There were some no respondents claiming that there has been good amount of progress.

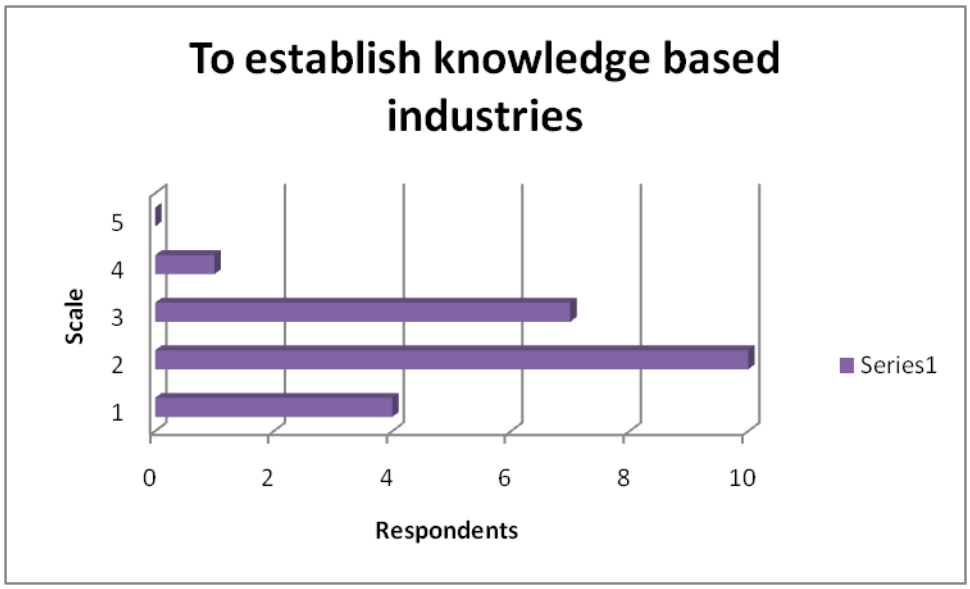

Illustration 30: Survey Outcome (To establish knowledge base industries)

Scale of 1 to five	No. Of Respondents	Percentage
1(Least)	**4**	16%
2	**10**	40%
3	**7**	28%
4	**1**	4%
5 (Most)	**0**	0%

Table 21: Survey Result (to establish knowledge based industries)

Towards acquire the third objective i.e. "To establish knowledge-based industry", most people believe the development is below average. 40% respondents think that there has been less progress where as 16% of the total think there has been least progress made towards attaining this objective. Some 28% respondent said the progress was average. There were some 4% respondents claiming that there has been good amount of progress.

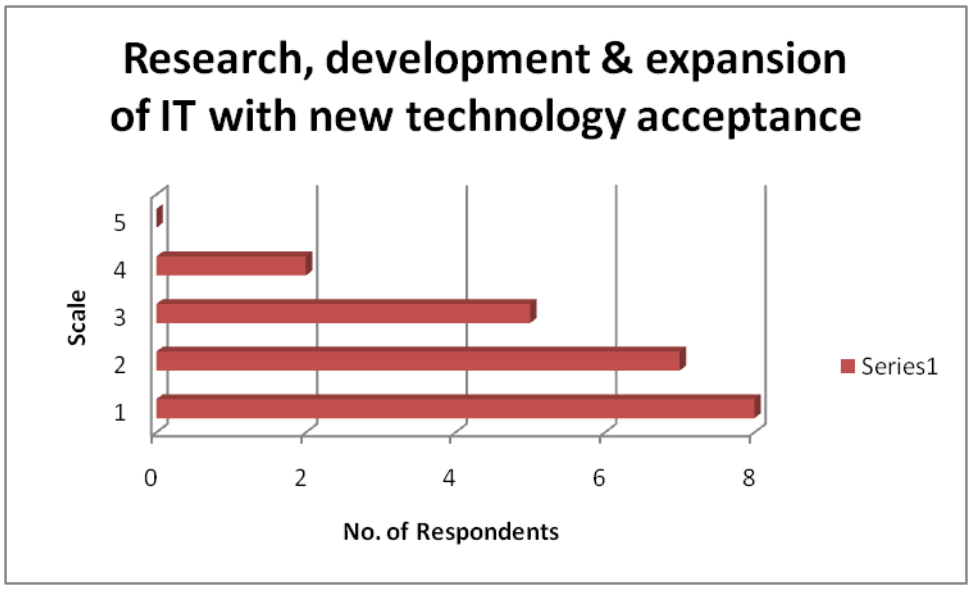

Illustration 31: Survey Outcome (Research, development & technology acceptance in IT sector)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**8**	32%
2	**7**	28%
3	**5**	20%
4	**2**	8%
5 (Most)	**0**	0%

Table 22: Survey Result (Research, development & technology acceptance in IT sector)

The result shows that 28% of respondent believes that only some progress has been made towards attaining the objective- "Research, development and expansion of IT with high participation of the private sector". 32% thinks least progress was made, 20 % agreed on average development and 8 % agreed on satisfactory amount of progress.

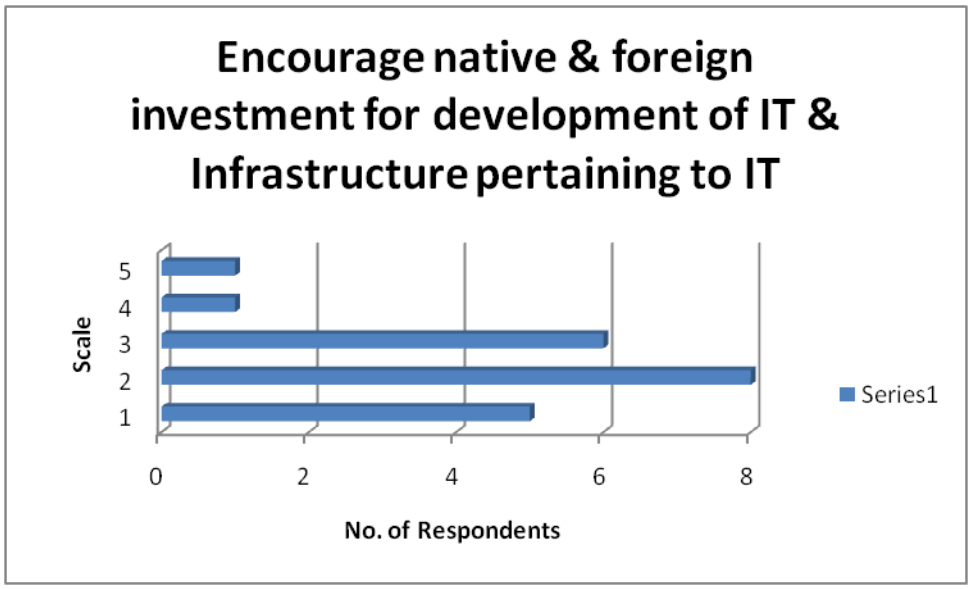

Illustration 32: Survey Outcome (Encourage native & foreign Investment in IT)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**5**	20%
2	**8**	32%
3	**6**	24%
4	**1**	4%
5 (Most)	**1**	4%

Table 23: Survey Result (Encourage native & foreign investment in IT)

Survey conducted to find the view towards native & foreign Investment in IT made in a decade, 8 Percentage believes there has been significant development towards attaining the Objective. But more than 75% respondents rated in 1 and 2 which means below the average.

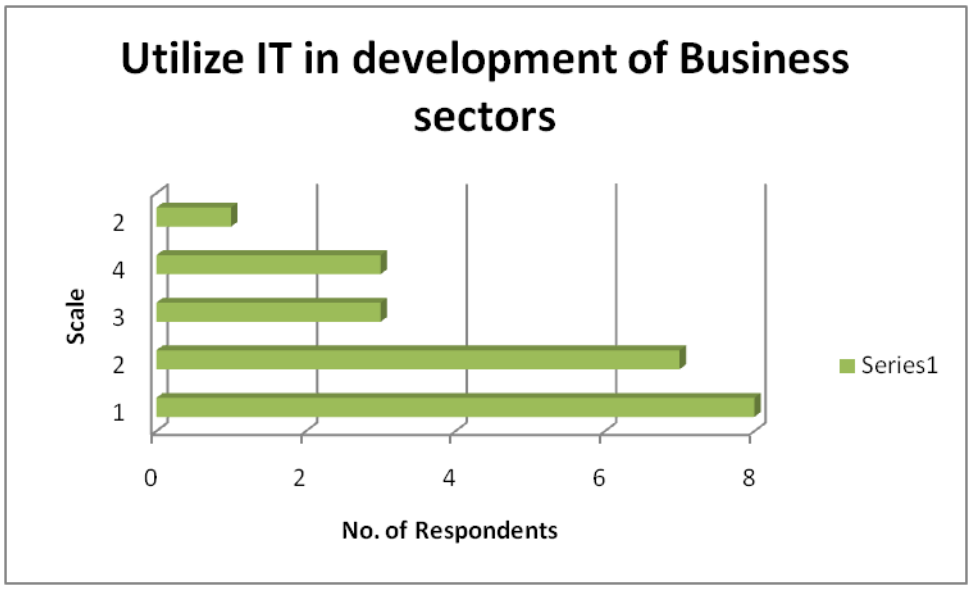

Illustration 33: Survey Outcome (Utilize IT in development of business sectors)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**8**	32%
2	**7**	28%
3	**3**	12%
4	**3**	12%
5 (Most)	**1**	4%

Table 24: Survey Result (Utilize IT in development of business sectors)

28 Percentage believes there has been significant development towards attaining the Objective - "Utilize IT in development of business sectors". But more than 60% respondents rated in 1 and 2 which means below the average utilization.

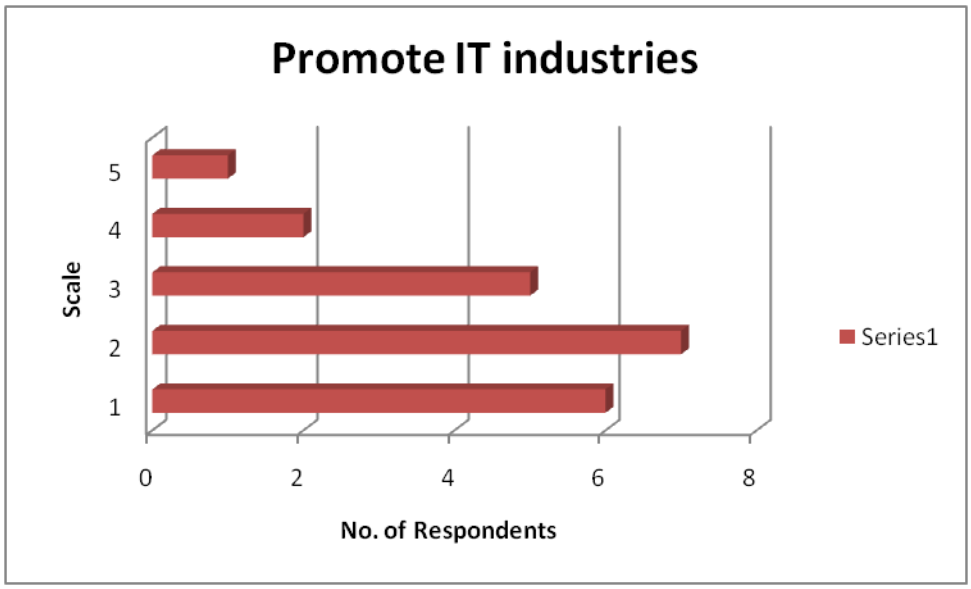

Illustration 34: Survey Outcome (Promote IT Industries)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**6**	24%
2	**7**	28%
3	**5**	20%
4	**2**	8%
5(Most)	**1**	4%

Table 25: Survey Result (Promote IT industries)

In the question to determine progress made in promoting IT industries in the country, 52% claims there has been some effort of development but it still under average.32% believes the effort made was more than average.

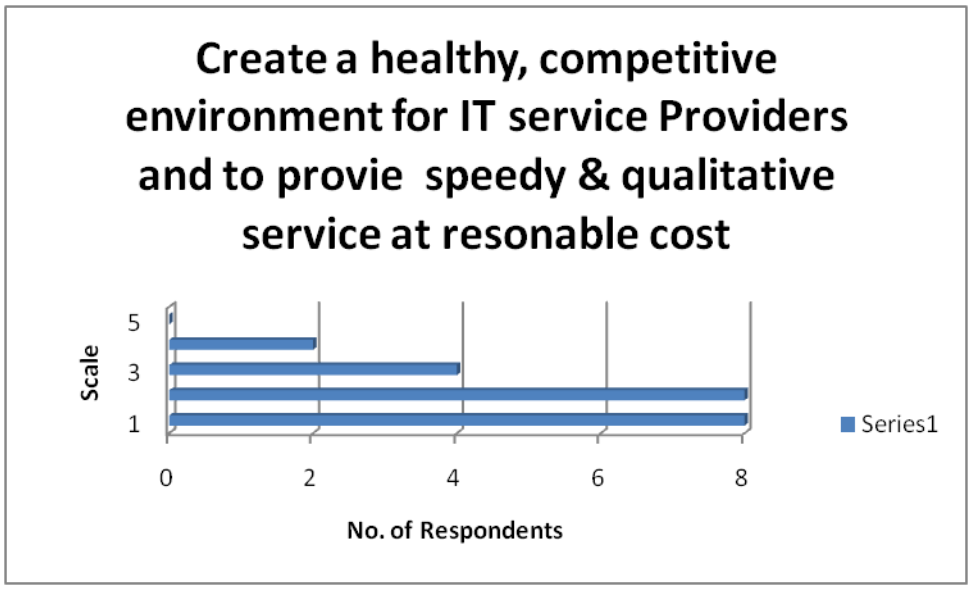

Illustration 35: Survey Outcome (To create healthy and competitive environment for IT service Providers)

Scale of 1 to 5	**No. Of Respondents**	Percentage
1(Least)	**8**	32%
2	**8**	32%
3	**4**	16%
4	**2**	8%
5 (Most)	**0**	0%

Table 26: Survey Result (To create healthy and competitive environment for IT)

The IT policy somehow seems to fail to some extend when it comes to creating a healthy, competitive environment for IT service providers and providing them speedy and qualitative service at a reasonable cost. Only 8% respondents voted for above average progress. Rest 60% respondent vote was below average which suggests the environment is not healthy.

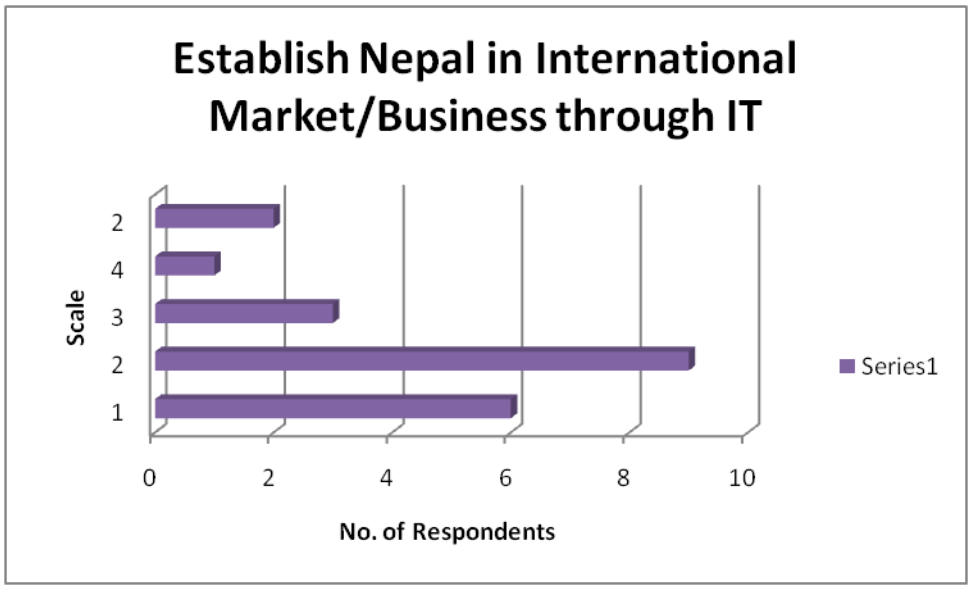

Illustration 36: Survey Outcome (Establish Nepal in International business through IT)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**6**	24%
2	**9**	36%
3	**3**	12%
4	**1**	4%
5(Most)	**2**	8%

Table 27: Survey Result (Establish Nepal in International Market/Business through IT)

The result shows that the IT policy failed to establish Nepal in the international market in IT. Except 4% who believe that there has been some high progress, remaining respondents believe the other way round. 24% respondent said there has been least development. Next 36% claims of some progress being made but these are below the average. Only 12% believe that the progress was average.

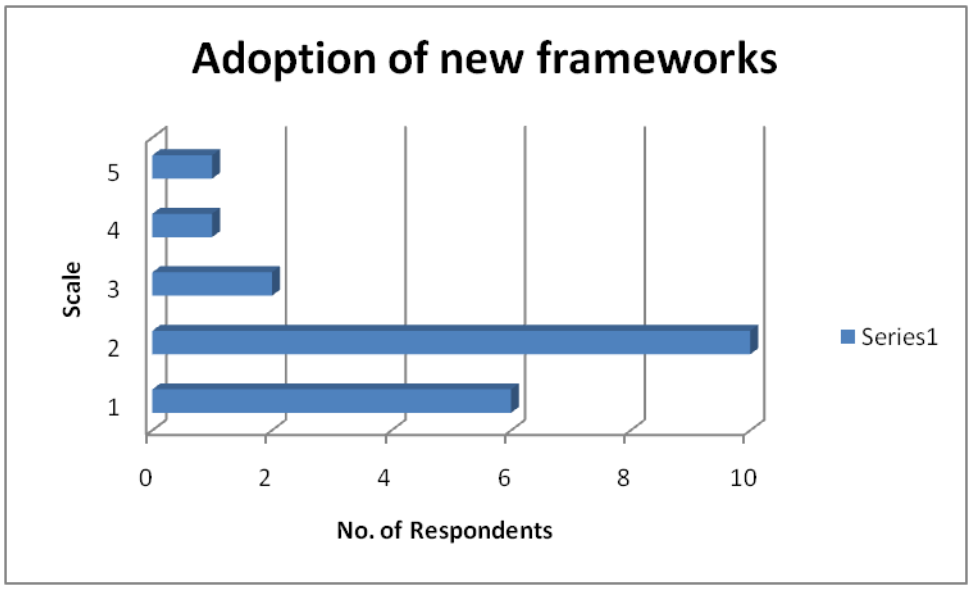

Illustration 37: Survey Outcome (Adoption of new frameworks)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**6**	24%
2	**10**	40%
3	**2**	8%
4	**1**	4%
5 (Most)	**1**	4%

Table 28: Survey Result (Adoption of new frameworks)

The questions asked to know the progress made on adoption of new frameworks in IT sector the result is not so satisfactory. 8 % of them believe the adoption is significant and above the average and remaining 72 % agreed on the adoption is below the average level.

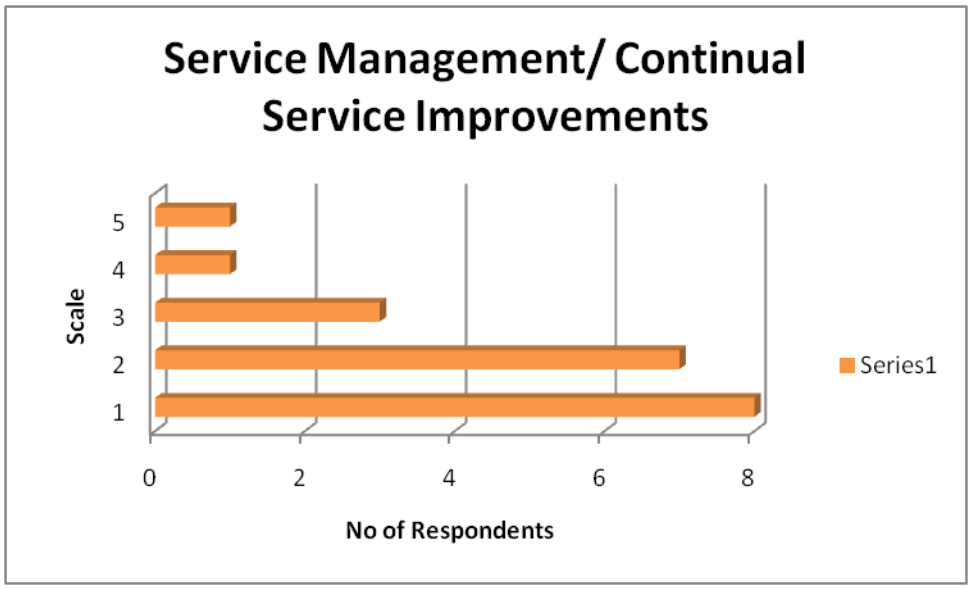

Illustration 38: Survey Outcome (Service management & CSI)

Scale of 1 to 5	No. Of Respondents	Percentage
1(Least)	**8**	32%
2	**7**	28%
3	**3**	12%
4	**1**	4%
5 (Most)	**1**	4%

Table 29: Survey Result (Service Management & CSI)

The result shows that the progress made in service improvements is not satisfactory in the one decade period. Except 8% who believe that there has been some high progress, remaining respondents believe the other way round. 32% respondent said there has been least development. Next 28% claims of some progress being made but these are below the average. Only 12% believe that the progress was average.

5 OVERALL DATA ANALYSIS

Data collected through the primary sources were interpreted in chapter four (see 4.1.1, 4.1.2, & 4.1.3). It was aimed to know about the organization demographics, present IT scenario, initiatives & progress, government consciousness about the service improvement and adoption of IT in business, potential barriers and challenges in adoption of IT in general, significance of formulated policies for new technology acceptance, available models and IT frameworks and the progress made by government in a period of one decade. Research on existing IT trend in Nepal has been presented in chapter two (see 2.4 & 2.5).

This section will describe the gaps and issues in the current cycle of information processing with the sector relating to the areas discussed in above section. First, it will look at the strategic position and alignment and then it will highlight potential gaps. The section will conclude by looking at the recommendation for the way forward.

5.1 DATA ANALYSIS

The Government bodies and ministries responsible for development in IT sector in Nepal are structured in such a way that at the pinnacle is the Ministry of Science & Technology (MOST) who is responsible for the leadership of the IT sector, especially for policy direction. The Secretary acts as the Chief Executive and adviser to the Minister and provides oversight for the overall administration and implementation of sector programmes and activities. The Ministry is assisted by two Vice Secretaries, one of whom is responsible for Planning, Evaluation & Administration, and the other for co-ordination of policy implementation at Science & Information Technology Promotion Division (see 2.4.1). From the data and information gathered during the questionnaire and analysis, it's evident that MOST is adopting a systematic but traditional approach in data collection and processing (see 2.4 & 2.5).

Chapter 2.2.6 shows the case studies on ITIL adoption in Queensland health and CISCO. In this chapter the best practice elements from case study areas are analysed for applicability in context of Nepal. Possible challenges and breakthroughs are discussed in Chapter 2.2.6.3 so as to be familiar with barriers while adopting ITIL Nepal. Combined evaluation of best practice elements and findings will help in devising the framework for IT adoption in Nepal which is discussed in Chapter 2.2.5.

The unstable political condition is regarded as one of the major problem in IT sector. The research shows that 36 % of the stakeholders regard the unstable Government as main barrier to IT adoption in Nepal (See 4.1.2, Table 6) and other half around 36 % blames it for lack of IT education. The findings of the questionnaire survey pointed towards various reasons like social, economic, political and cultural behind this practice in Nepal (see 2.5.4). The survey tried to gather viewpoint from the stakeholders and suggested measures that should be taken by the Ministry of Science and Technology (MOST) and Government of Nepal (GON) in order to overcome those problems related to IT service Management and Service improvements (see 2.2.7, 2.6). Some of the important critical success factors like a) IS capabilities & staffs, b) Innovation of senior executives, c) Knowledge management capabilities are discussed as a measures to be taken by authority(see 2.2.2, 2.2.2.1). Also from the data analysis it is found that the government rules and regulations needs change in which 52 % of the stakeholders have supported and the budged allocated is not so sufficient which are becoming the primary hurdles for the technology adoption (see Table 6, Table 7 and Table 10). Though the IT policy of 2000(see 2.4.3) was talking about placing Nepal on the Global Map of Information technology within the next five years, the implementation seems quiet and not been successful. The primary data findings pointed the main problem as political instability, insufficient funds and the solution would be stability of GON and funding (see 4.1.2- Table 18). The research and case studies also support the findings (see 2.2.2, 2.5.4). **It would be thus safe to assume that, the potential solutions for Implementing CSI in business enterprises are stability of government, sufficient funding, innovation of senior executives, awareness to increase IS capabilities & staffs.**

Cost of IT infrastructure, lack of IT education and insufficient skilled manpower for the change were few barriers identified for IT adoption (see 4.1.1- Table 4, Illustration -15). Baral and Bhurtyal (2010) presented political instability, power outage, brain drain, limited English speaking peoples, small expert pool as major snags in IT adoption. Burton (2003) claims these barriers are prevalent in many developing countries and are main reason behind the slow implementation. Survey indicated very low progress in the implementation of IT policy of 2000 in one decade. Due to these barriers, the intended objectives were hardly met. Cost factors and lack of manpower are hurdles for every socio-economic, cultural and development activities not only for IT sector. Besides these factors IT alignment on business (see 2.2.3), IT service management (see 2.2.4) reduces Total cost of ownership in business

and thus increases the quality of service. **Thus it is necessary that the new policies should be able to address the issues to lead Nepal in global IT map and barriers seen in IT adoption should be well addressed by the policies and strategies government will make.**

Survey findings showed that IT Service improvements should focus on increasing efficiency; maximizing the effectiveness and optimising the cost of underlying IT services and the service management processes (see 2.2.4). CSI is responsible for aligning and realigning the IT services to the changing business needs continually by recognizing the improvements necessary and implementing them supporting business processes (see 2.2). It is necessary to look for a way to improve process cost effectiveness and efficiency in order to make IT affordable, sustainable and easy to adopt implementation. **It can therefore be safe to assume that for developing countries like Nepal the solution is, they can look upon for less expensive, sustainable and more accessible IT platform. Thus it necessary to make people aware of benefits of service improvements and Serious measures must be taken to make ITIL easily adoptable by business, providing necessary trainings and support from third party organizations**

IT service management has been the global phenomena in recent years. Some of the companies in Nepal are showing the sign of improvements but the work done are short termed and discontinuous. During the ten years time from when the IT policies came to Nepal, there have been many deployments and changes. Companies are adopting latest hardware and software, changing their organizational structure building compulsorily a service desk, to make it the first point of contact for customers, IT service providers and third party organizations (see 4.1.1- Illustration 13, 4.1.1- Table 5). But from the survey and the literature, it came to light that the actual statistics are not available. Questionnaire findings suggest that IT has been the well known terminology in Nepali business sector. Most of the organizations have in one way or the other adopted IT or is benefited from its usage in business (see 4.1.1Illustration -14, Table- 3, Table-2). This could probably range from record keeping, marketing, finance, Enterprise resource planning, Administration (4.1.1 see Table 3). The finding proves that IT has empowered scalability, robustness and innovation in business with quality service delivery and end to end communication. On the contrary, due to the lack of framework and action plan for the implementation of technology, there is lack of strong statistical data in literature- lack of adoption statistics, lack of mechanism to monitor

and find out readiness of the people in IT and uneven distribution and adoption. The survey suggests that the development till now is centralized and paralyzed and should be evenly distributed targeting all the sectors of the country (see Illustration- 17 and Illustration- 20). A huge investment is done on IT departments already, and for buying in the necessary staffs, only the thing lagging is the need of improvements and initiation work. **Thus, there is requirement for proper plans and frameworks in order to implement the service improvements plan by making full utilization of existing investments and infrastructures.**

5.1.1 SUMMARY OF KEY OUTCOMES

From the overall analysis of the research and data collection, the following were assumed to be the key outcomes considering continual service improvement:

1) In order to encourage the IT adoption, the government should establish an authority with formulation of laws and policies.
2) Implementing service management and continual service improvement should be considered as the effective solution for increasing income and delivering quality services.
3) Based on the framework, action plan for adoption of new frameworks should be designed.
4) The political stability and public awareness found to be important catalyst for the wide and effective adoption of IT.
5) Framework for implementing service management should also consider making full utilization of existing investments and infrastructures.
6) Building up of expert pool to provide support to technology adoption and change management has become the necessity.
7) Various awareness and consultation programme on Service improvements necessity in business enterprises and suitable frameworks can be conducted.

The following are the critical success factors for the CSI hovered around the entire MOST including the wider stakeholders.

1. The current management structure of the Ministry of Science & Technology considering the fact that the management is decentralised into cluster offices (see 2.4.1).

2. Senior management willingness, commitment and initiatives from the political leaders to change for the better and to embrace ICT in value chain of business service delivery (see 2.4.3, 2.4.6).

3. The culture of policy decision making should be based on data and information

4. ITIL has evolved as the most widely accepted approach to IT infrastructure management and regarded as best practices to enable the delivery of IT services that are reliable, consistent, and of the highest quality.

5. Availability of technical and skilled staff.

6. Regular monitoring and service improvements activities.

About the role of IT policy in adoption of different IT frameworks, the answers obtained from the IT stakeholders were different but almost everyone agrees that the past policies needs reviews and can't fit in the present business scenario. IT policies are confined within paper files and have not been effective enough to carry out the objectives and strategies. For achieving the development goals and contributing to the economy it is crucial to go for change with technology acceptance, in order to fit in the global IT market. The finding also suggests that government have never shown concern to promote business and no any efforts made in reviewing of the policies to fit the present scenario. Although policies review was done it was not timely and without any new changes in activity and processes. NGOs, INGOs and some private organizations have shown some concern to promote their IT practices but government has never shown concern to improve certain policies and regulations. The concerned authorities should start building a solid foundation for the further ICT

developments to base upon. The policy should be made for systematic IT adoption. It should promote paradigms and standards that would enable fair competition in the market and provide the users with enough choices to choose from. Questionnaire participants believes that until the IT policy functions properly, it cannot make serious impact on IT adoption.

5.1.2 BARRIERS FOR NEW IT ADOPTION FRAMEWORK

The result shows that the building up of new framework in existing scenario is not very likely to attain its objectives. The same barriers like lack of rules and regulations, political instability will still appear as challenges for new framework. The review of existing policies and their upgrade are cited as prerequisites for introduction of such framework. Until there is thorough study on framework, potential barriers can't be identified. The questionnaire findings on challenges and barriers of IT adoption in Nepal shows that deep rooted political problem and lack of enforcing law for technology adoption and Service improvements are major huddles. Besides that, lack of awareness about availability and usage of different IT frameworks being used by different developed countries like UK, Australia etc, and absence of motivation to go for change were challenge in Technologies adoption. Other reasons cited by individuals were lack of skills, lack of mechanism of transfer of existing knowledge and skills, insufficient trainings, lack of migration and deployment experts, lack of motivation among business organisations to push them towards technology acceptance.

Concluding the findings IT adoption should be regarded as cross-sector issue and every sector should formulate their policies to make it IT-friendly. Government should focus on infrastructure development like building information super highway, power and connectivity.

For IT adoption to increase and market to boom, increase in internet penetration and increase of population in cyber space are necessities. IT policies can't do anything if the proper enforcement is not done with action plan and implementation programme. So it should be brought for industry wise adoption.

6 CONCLUSION AND RECOMMENDATIONS

The main aim of the research was to formulate the IT adoption mechanism for Nepal with the view to lead the government and specially the business sectors towards IT service management and continual service Improvements. The objectives set for the research were to investigate on the past IT policies of Nepal and produce a critical analysis of the significance and impacts; to investigate critically about the effort made towards IT service improvements and IT frameworks used by developing countries through review of published literature; to analyze the impact due to CSI process taking in consideration the different barriers like cost, culture, skills, access etc; and to investigate the advantages of CSI in Business Intelligence and critically analyze the importance of its adoption in IT. From the study of available literature various service improvements techniques and success stories were analysed and taken into consideration. The current barriers for IT service improvements, IT adoption in Nepal and potential barrier for the new approach have been identified. The research accomplished had made effort to address all the barriers and potential solutions so as to make the practice easier for business enterprises in Nepal.

Overview on Research Process followed

The desktop research on importance of IT in development, IT Service management, Continual Service Improvements, Different IT frameworks, ITIL success stories and present IT scenario of Nepal has been the initial steps in research. Questionnaire survey for data collection were conducted with IT stakeholders in Nepal. It has helped in elicitation of real IT scenario of Nepal, challenges and barriers in IT adoption, finding the fruitfulness of existing IT relative initiatives taken in Nepal and the views of stakeholders on IT service improvements. Analysis of the research domain has been presented combining the desktop research with the statistical evidences. The key outcome of the analysis was the driving set of specification for the development of framework.

Challenges Faced during Research

The challenges faced during the projects should not be disregarded. Lack of sufficient and relevant literatures on IT adoption and service improvements efforts made in Nepal caused a bit problem to this research. Thus the data obtained from websites, news papers, videos and blogs were made the main sources. Another challenge in the research has been the slow response from the IT stakeholders which caused the delay in data analysis and critical analysis of the research.

Consideration of Wider Area

This research thesis was focussed on providing solution to help Nepal cope with challenges it has been facing in IT adoption. But from literatures, it was clear that the IT adoption barriers and challenges were shared by many countries. The key adoption obstructions common to all

these developing countries included factors like cost of IT infrastructure, political instability, and power and connectivity. These facts have been supported by different case studies discussed in this research.

The framework proposed for Nepal can thus be generalized for adoption by any other developing countries by incorporating their specific issues. It is therefore safe to assume that the framework developed in the research not only addresses the main objective of this research thesis which is to deliver a solution path for Continual Service Improvement of business sectors in Nepal but goes above and beyond by incorporating the need of any developing country which strives to adopt an efficient IT framework through changes in traditional practices.

Future Works

It is essential to discuss on the limitation of the project. The limiting factors were time and the project goal. If there was enough time, the detailed implementation of the proposal would have been conducted by the IT stakeholders who have participated on the survey. Based on their experience the proposal could have been revised to fit on the overall business enterprises, making it more pragmatic and acceptable and other areas for future research would have been identified.

The research was to device a solution path for effective and efficient Change management of IT services with the adoption of suitable IT frameworks for fitting the enterprises. Although enough research has been made on the IT Service Management prospects but still there is need of further research in how to formulate robust IT policies to cope up with the change, the guidelines of its adoption and the proper action plans to incorporate the changes. From the research it was found no any innovations has been made in IT Service Managements so far in

Nepal, and I think this is the first proposal ever made to go for overall change in IT departments of business enterprises, to improve decision making process. Thus the implementation is crucial in order to bring the global change. If any organization accept the proposal and adopt the framework, then there will come further ideas how to actually fit this in Nepalese IT scenario, reviewing the experiences and ideas got from the change made. So it seems incomplete and hypothetical. These untouched areas are identified as area for further research. The study has suggested for revision of all other government policies to make them IT friendly.

Therefore, further research can extend the study on adopting IT in other sectors of Government of Nepal (GON) like education, health, agriculture and can highlight the benefits of implementing the Service Improvements.

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7 APPENDIX

7.1 QUESTIONNAIRE FIRST DRAFT

1. *D o you know about IT?*
   - Yes
   - No

2. *What is your view about IT need in Business?*
   - Important
   - Not Important
   - Does not make any difference

3. *What is the current status of IT adoption in Nepal?*
- Very Poor
- Not at all
- Gradually Increasing

4. *Have you noticed any significant change in IT in business?*
- Yes
- No

5. *Is government really conscious about the derive improvement and adoption of IT in Business?*
- Yes
- No

6. *Are the policies formulated suitable for new technology acceptance?*
- Yes
- No

7. *Are you satisfied with progress made in IT sector and past IT policies of Nepal?*
- Yes
- No

8. *Is any effort made towards Business Intelligence & IT frameworks adoption?*
- Yes
- No

9. *Do you know about different IT frameworks? Can these frameworks fit into Nepal's Present scenario?*
- Yes
- No

10. *What can be the potential barrier if we introduce new IT frameworks?*
- Cost
- Political Instability
- Lack of Manpower
- Culture

11. *Do you think Nepal can benefit from new IT frameworks?*
- Yes
- No

12. Do you know about the advantages of CSI in Business Intelligence and importance of its adoption in IT?

- Yes
- No

13. What are the key areas of improvement in BI activities?

- Change in Management
- Staff attitude and values

14. What are the benefits of CSI to business and future outlook for the field?

- Return on Investments
- Quality service delivery

7.2 FINAL QUESTIONNAIRE

Date: 11/05/2011

Dear _____

As a part of my M.Sc. dissertation, which is intended to suggest a framework for continual Service Improvement of IT sector in Business, which is proposal and solution to improve Business effectiveness of Nepal, I need to devise a questionnaire. This questionnaire has been prepared to collect information about the present scenario of IT sector in Nepal, identifying implications and barriers for current technologies being adopted, to find the trend of IT adoption in Business, and most importantly to find about Service Improvement efforts made so far.

Your answers and comments are intended to help me to develop a more effective IT adoption framework for Nepal and to come up with a solution with improvements to be made in current practice. The questionnaire is divided into three sections to evaluate different aspects of IT sector and it will take only couple of minutes to complete.

I would appreciate honest comments or feedback you might have in this regard. Your response will be kept confidential and will not be used for publication, and your identification information will not be shared or used for any unsolicited electronic or mail communications. Your time to fill this questionnaire will be your generous contribution to my research.

With Regards,
Nabin Lamichhane

M.Sc. IT Service Management
The University of Northampton

Organizational Demographics *(Optional)*

1. Name :_____

2. What is the type of organization you work on?

   ( ) Small/Medium Scale Enterprise ( ) Not for profit (NGO/INGO)

   ( ) Private ( ) Government ( ) Public

   Other:_____

3. What is the nature of your organization:

   ( ) IT solution Provider ( ) IT sales and support

   ( ) Organization using IT to deliver other services ( ) Internet Service Provider (ISP)

   ( ) Government office Other:_____

4. Where is IT being used in your company?

   ( ) Enterprise resource planning (ERP) ( ) Finance

   ( ) Marketing ( ) Record Keeping

   Other:_____

5. Who is responsible for Management of ICT (Information and Communication Technology) department?

   ( ) Admin Head ( ) General Manager

   ( ) IT Manager ( ) Service Clerk

   Other:_____

6. What of the following services do you have?

   ( ) Help Desk ( ) Database Monitoring

   ( ) Trouble shooting ( ) LAN/WAN

   Other:_____

Current IT Practice, Initiatives and Progress

The questions in this section are related to the current IT practice in Nepal. Please give the answers to the best of your knowledge.

1. *What is the current status of IT adoption in Nepal?*

   ( ) Very poor ( ) Satisfactory

   ( ) Gradually Increasing Other:_____

2. *What do you regard as the barrier to the adoption of IT in Nepal?*

   ( ) Culture ( ) Cost of License Software

   ( ) Lack of IT education ( ) Cost of IT infrastructure

   ( ) Unstable Government ( ) Unwillingness to adopt new system

   Other:_____

3. *Are the past IT policies of Nepal significant for new technology acceptance?*

   ( ) Yes ( ) NO

   ( ) Need Improvements ( ) Policies are useless

   ( ) Don't know

   Other:_____

4. *How do you take the Government's efforts to IT sector?*

   ( ) Centralized ( ) Decentralized

   ( ) Paralyzed

   Other:_____

5. *Is Government of Nepal really conscious about the Service Improvement & adoption of IT in Business?*

   ( ) Yes ( ) NO

   ( ) Somehow

6. *What do you think about the Budget allocated for development in IT sector?*

   ( ) Sufficient ( ) Not Sufficient

   ( ) Don't know

   Other:_____

7. *If new IT improvement proposal is accepted, which area Government should focus on?*

   ( ) Rural ( ) Urban

   ( ) Public ( ) Private

   Other:_____

Continual service Improvement, Motivation, and Government efforts

The questions in this section are focused in issues related to IT service improvement in Business and efforts made so far. Please answer to the best of your knowledge!

1. *What is your view towards IT need in Business?*

   ( ) Important ( ) Not important

   ( ) Doesn't make any difference

   Other:_____

2. *How common Business Intelligence activities are in Nepalese companies?*

   ( ) Common & widely implemented ( ) slowly being adopted

   ( ) Most people don't know about it ( ) No idea

   Other:_____

3. *Do you know about different IT frameworks?*

   ( ) Yes ( ) No

4. *Which framework you have heard and read about?*

   ( ) ITIL ( ) PRINCE2

   ( ) COBIT ( ) eSCM ( ) Not Any

   Other:_____

5. *Have you heard/read about Continual Service Improvement?*

   ( ) Yes ( ) No

   Other:_____

6. *Do you think Continual Service Improvement can make difference in Business?*

   ( ) Yes ( ) No

   Other:_____

7. *What can be the potential solution to improve business effectiveness of Nepal?*

( ) Adoption of Intelligent Business Systems ( ) Government stability and Funding

( ) Public Awareness ( ) Foreign Investment

Other: _____

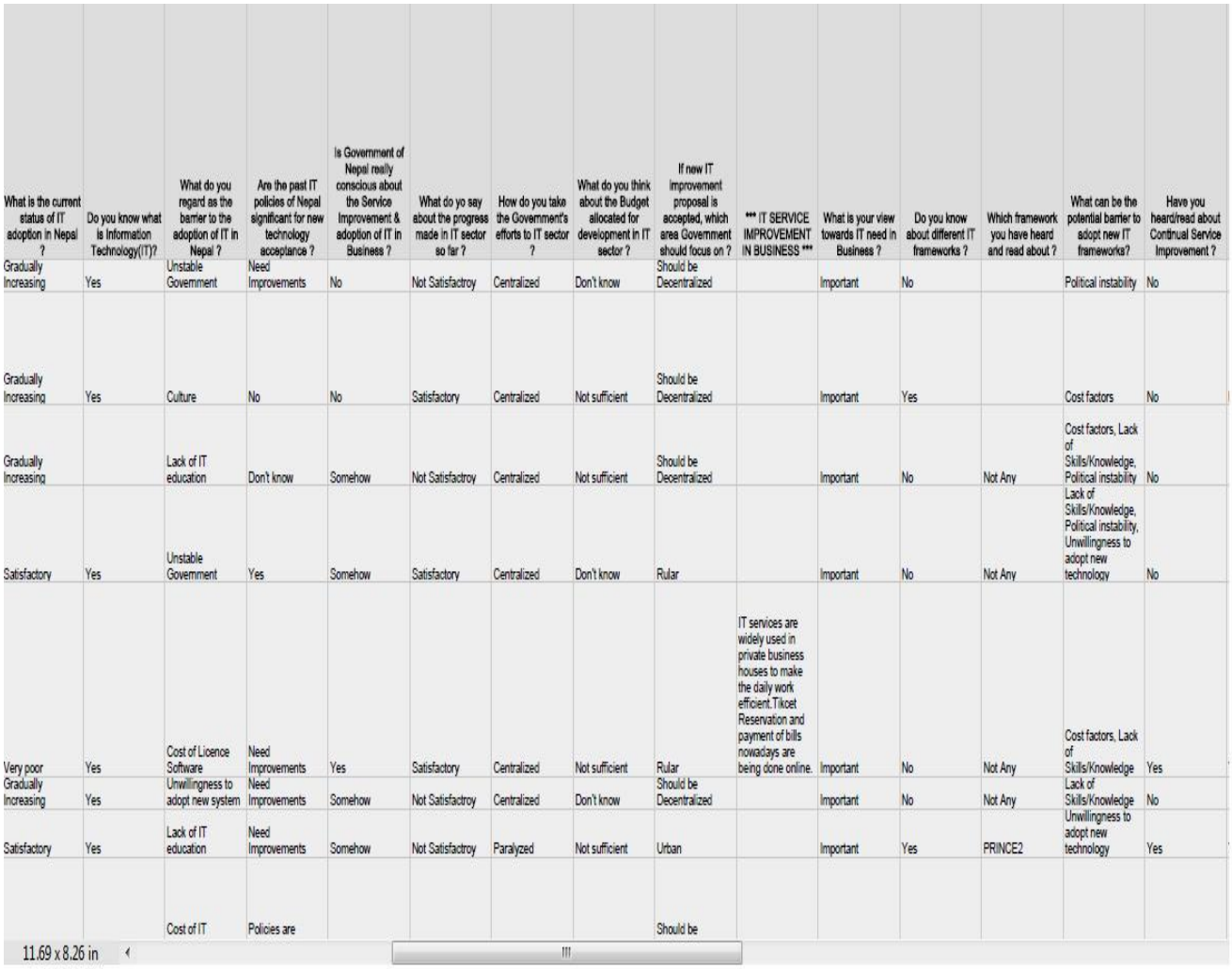
8. *How much progress has been done in one decade towards attaining the following objectives? In scale of 1(least) to 5(most) Please rate. Tick appropriate b*

		1	2	3	4	5
a.	To make IT accessible to the general public & increase the use of IT in day to day activities					
b.	To build a knowledge-based society					
c.	To establish knowledge-based industries					
d.	Research, development and expansion of IT with new Technology acceptance					
e.	Encourage native and foreign investment for the development of IT and infrastructure pertaining to IT					
f.	Utilize IT in development of Business sectors					
g.	Promote IT industries					
h.	Create a healthy, competitive environment for IT service providers and provide them speedy and qualitative service at a reasonable cost					
i.	Establish Nepal in the international market/Business through IT					
j.	Adoption of New frameworks					
k.	Service Management/ Continual Service Improvements					

7.3 SNAPSHOTS OF DATA COLLECTED

Timestamp	*** Personal Profile ****	Name:	What is the type of organisation you work for ?	What is the nature of your organisation ?	Where is IT being used in your company ?	Who is responsible for management of ICT (Information & Communication Technology) Department ?	What of the following services do you have ?	*** CURRENT IT PRACTICE ***	What is the current status of IT adoption in Nepal ?	Do you know what is Information Technology(IT)?	What do you regard as the barrier to the adoption of IT in Nepal ?	Are the past IT policies of Nepal significant for new technology acceptance ?	Is Government of Nepal really conscious about the Service Improvement & adoption of IT in Business ?	What do yo say about the progre made in IT secto so far ?
12/8/2011 16:34:27		Binita Bhattarai	Government	hospital service	Administration	IT Manager	Help Desk, LAN/WAN		Gradually Increasing	Yes	Unstable Government	Need Improvements	No	Not Satisfactroy
12/9/2011 1:42:09		Sujan Tamrakar	Private	Organization using IT to deliver services	Administration, Enterprise Resource Planning (ERP), Finance, Marketing, Record Keeping, Product generation		Help Desk, Database Monitoring, Trouble Shooting, LAN/WAN		Gradually Increasing	Yes	Culture	No	No	Satisfactory
12/9/2011 16:51:55		Sharada wagle	Private		Administration, Enterprise Resource Planning (ERP), Record Keeping	Admin Head			Gradually Increasing		Lack of IT education	Don't know	Somehow	Not Satisfactroy
12/10/2011 21:23:10		chrinjibi paudyal	Public		Administration, Finance	IT Manager	Help Desk, Database Monitoring, Trouble Shooting		Satisfactory	Yes	Unstable Government	Yes	Somehow	Satisfactory
12/13/2011 4:04:08		Ghanshyam Subedi	Private	IT solution provider		General Manager	Help Desk, Trouble Shooting	IT practice in Nepla are not up to the standard what one would like to see in an Organization.Lack of resources and power shortage are the main responible for poor IT practices in Nepal.	Very poor	Yes	Cost of Licence Software	Need Improvements	Yes	Satisfactory
12/13/2011 4:06:09	Arihant Technologies	Indira Sapkota	Private	IT solution provider		Admin Head	Help Desk, LAN/WAN		Gradually Increasing	Yes	Unwillingness to adopt new system	Need Improvements	Somehow	Not Satisfactroy
12/13/2011 4:17:32	Arihant Technologies	Binod Khatri	Private	IT solution provider	Administration, Finance, Marketing	IT Manager	Database Monitoring		Satisfactory	Yes	Lack of IT education	Need Improvements	Somehow	Not Satisfactroy
12/26/2011 17:44:		Tej Prasad		Organization using IT to deliver	Administration, Enterprise Resource Planning (ERP), Finance, Marketing, Record						Cost of IT	Policies are		

Illustration 39: Questionnaire data snapshot 1



What is the current status of IT adoption in Nepal ?	Do you know what is Information Technology(IT)?	What do you regard as the barrier to the adoption of IT in Nepal ?	Are the past IT policies of Nepal significant for new technology acceptance ?	Is Government of Nepal really conscious about the Service Improvement & adoption of IT in Business ?	What do yo say about the progress made in IT sector so far ?	How do you take the Government's efforts to IT sector ?	What do you think about the Budget allocated for development in IT sector ?	If new IT improvement proposal is accepted, which area Government should focus on ?	*** IT SERVICE IMPROVEMENT IN BUSINESS ***	What is your view towards IT need in Business ?	Do you know about different IT frameworks ?	Which framework you have heard and read about ?	What can be the potential barrier to adopt new IT frameworks?	Have you heard/read about Continual Service Improvement ?
Gradually Increasing	Yes	Unstable Government	Need Improvements	No	Not Satisfactroy	Centralized	Don't know	Should be Deoentralized		Important	No		Political instability	No
Gradually Increasing	Yes	Culture	No	No	Satisfactory	Centralized	Not sufficient	Should be Deoentralized		Important	Yes		Cost factors	No
Gradually Increasing		Lack of IT education	Don't know	Somehow	Not Satisfactroy	Centralized	Not sufficient	Should be Deoentralized		Important	No	Not Any	Cost factors, Lack of Skills/Knowledge, Political instability	No
Satisfactory	Yes	Unstable Government	Yes	Somehow	Satisfactory	Centralized	Don't know	Rular		Important	No	Not Any	Lack of Skills/Knowledge, Political instability, Unwillingness to adopt new technology	No
Very poor	Yes	Cost of Licence Software	Need Improvements	Yes	Satisfactory	Centralized	Not sufficient	Rular	IT services are widely used in private business houses to make the daily work efficient.Tikcet Reservation and payment of bills nowadays are being done online.	Important	No	Not Any	Cost factors, Lack of Skills/Knowledge	Yes
Gradually Increasing	Yes	Unwillingness to adopt new system	Need Improvements	Somehow	Not Satisfactroy	Centralized	Don't know	Should be Deoentralized		Important	No	Not Any	Lack of Skills/Knowledge	No
Satisfactory	Yes	Lack of IT education	Need Improvements	Somehow	Not Satisfactroy	Paralyzed	Not sufficient	Urban		Important	Yes	PRINCE2	Unwillingness to adopt new technology	Yes
		Cost of IT	Policies are					Should be						

11.69 x 8.26 in

Illustration 40: Questionnaire data snapshot 2

IT o the lic & use of day e	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [To make IT accessible to the general public & increase the use of IT in day to day activities]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [To build a knowledge base society]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [To establish knowledge based industries]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Research, development & explanation of IT with new technology acceptance]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Encourage native & foreign Investment for development of IT & infrastructure pertaining to IT]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Legalize & Promote e-commerce]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Utilize IT in development of Business sectors]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Promote IT industries]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Create a healthy, competitive environment for IT service Providers and provide them speedy & qualitative service at a reasonable cost]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Establish Nepal in International Market/Business through IT]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Adoption of new frameworks]	How much progress has been done in one decade towards attaining the following objectives? Inscale of 1(least) to 5 (most), please rate : [Service Management /Continual Service Improvements]	Thank you for your valuable time. Your input is highly appreciated !!!	What can be the potential solution to improve business effectiveness of Nepal ?	How common Business Intelligence activities are in Nepalese Companies ?
	Least 1	2	2	2			Least 1	2	2	3				Government stability	
	3	2	Least 1	Least 1	2	Least 1	2	3	2	2	3	2		Foreign Investment	Most people don't know about it
	3	2	2	2	2		Least 1	2	Least 1			2		Government stability and Funding	No idea
														Public Awareness	Slowly being adopted
	2	Least 1	2	Least 1	Least 1	2	Least 1	Least 1	Least 1	2	Least 1	Least 1		Government stability and Funding	Slowly being adopted
	5 Most	3	3	3	3	4	4	4	4	4	4			Public Awareness	Most people don't know about it
														Adoption of Intelligent Business systems	Slowly being adopted
	2	Least 1	Least 1	2	Least 1	Least 1	Least 1	Least 1	Least 1	Least 1	Least 1	Least 1		Adoption of Intelligent Business systems	Slowly being adopted
														Adoption of	

Illustration 41: Questionnaire data snapshot 3