

Information Technology Spillover and Organizational Performance

Dhruba Lal Pandey, Nischal Risal

Abstract: *IT is considered as a prominent cause for an organization's success. IT assists in collecting, processing and disseminating data and information that helps in decision-making and ultimately in increasing performance. Presenting and justifying the effectiveness of technology in generating performance is a critical task. In the 21st century competitiveness is considered as the outcome of effective use of information technology. As in other countries, Information Technology is substantially used by the organizations in Nepal but assessment of effectiveness of IT and its impact on organizational performance is very few. Thus, this study is conducted to determine the level of use of information technology and its relationship with organizational performance. To achieve the objectives of the study, a descriptive and correlational design was used. Primary data was collected through a questionnaire administered electronically. The population for this study comprised of employees working on different business sectors and 120 employees were selected as sample. Mean and percentage were used to assess level of use of IT in the different sectors of business in Nepal. Correlation matrix was developed using Pearson correlation for the assessment of relationship between IT and organizational performance. The study findings revealed that there was a positive relationship between the IT use and organizational performance. Similarly the use of IT helps to achieve the target, make more accountable to the authorities and improve service quality. Government of Nepal promulgated and implemented IT policy. IT policy prioritized to the use of IT in the rural and urban areas and small to large organizations as well. But the use of IT is not as expected and business sector is also reluctant to use it because of its cost. Government of Nepal formed committees to make effective use of IT but use of IT and its effectiveness seems low. Thus, this study helps revive the IT policy to the government and develop programs for the effective use of IT in business sector.*

Keywords: *Information Technology, Organizational Performance, Nepal, Computer, Business Sector*

I. INTRODUCTION

Today, companies are facing rapidly changing environmental factors, demonstrated by large and high competitors. Under these conditions, conventional management strategies based on methods of strategic preparation are deemed inadequate to efficiently manage the organization in a complex environment (pandey&Risal, 2019). So IT that promotes the knowledge processing, including Collecting, sorting, disseminating and storing information is beneficial in the emerging environment. Such information technology includes a wide range of technologies such as telephones, computers, word processing applications, web browsers, servers, full-text documents, databases and mainframes.

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DhrubaLal Pandey, Ph.D. Associate Professor Central Department of Management, Tribhuvan University, Nepal

NischalRisal, Ph.D. Scholar Lecturer Nepal Commerce Campus, Tribhuvan University, Nepal

The aim of an organization's information technology is to provide information to management, and stakeholders for more accurate business planning, forecasting, decision making, and control(Shakya 2017; Acharya, 2016 &Baral, 2018). The use of powerful computer tools and network information system helped organizations grow Flexible, eliminating layers of redundant management roles, separating work from position and also limiting job flows(Ghimire, 2014&Kafle 2017). In an enterprise, the effect of IT goes beyond the small-service department and is part of the overall business chain. IT proved as an important communication and collaboration tools that support the core Organizational functions such as inventory control, procurement, and process management, management of human resource and data processing. It also strengthens the relationship between vendors and customers through the timely electronic delivery of services(Afonsoet al, 2006). According to Diem (2007), successful use of IT will result in new knowledge discoveries and promote creative thinking to generate new ideas and concepts that will lead to concrete, and innovative business ideas. The use of IT can therefore transform businesses leading to improved operating results and efficiency, encourage competitiveness of the company and its employees, boost the brand image and the environment Visibility, allow companies to connect and exchange information efficiently, increase employee engagement, market positioning and company repositioning to gain an advantage over current and future competitors (Hagen, 2010). In Gretton's report (2002), the review of firm-level data from the Australian Business Longitudinal Survey found positive Performance with the use of IT in both the production and service industries. Related research also conducted by Brynjolfsson&Hitt (2003) analyzed data at the U.S. firm level, results clearly showed that IT contributes positively to employee productivity and organizational efficiency. With these many benefits of integrating IT in organizations, IT has several positive and negative impacts in developed countries such as Nepal. Nepal has high level of trade deficit due to low quality production and high cost. IT may help to increase the quality and reduce cost of production. Thus, the study aims to assess the impact of IT on organizational performance.

II. LITERATURE REVIEW

A. Information Technology (IT)

Technology refers to a collection of methods , procedures, tools and techniques, machinery , equipment and skills that can be provided to humans through its goods and services (Rezaiyan& Taghizadeh, 2007). There are different meanings which define the IT.



According to Mashayekhi (2007) IT is a combination of the ability to guide organizational processes and the techniques and methods of using machine to solve problems. Tambe&Hitt (2013) described IT as a mechanism that lead to achieve innovative ways of operating and transmitting information to achieve economic benefits. Ismaili(2006) also focused IT as the main activity in the recent era to solve the labor or personnel shortages that present in both private and government organizations. Several forces allow the production of IT that may include microprocessor technology computers, communicative network development and rapid internet development to name a few (Montazer&Fathian, 2004). Information technology refers to something related to computing technology, according to Daft (1997), IT includes the following: In introducing and handling systems, hardware , software, networking, the internet and the individuals that have the expertise. It can therefore be defined as a system that emphasizes the use of software , hardware, database management, telecommunications and information-processing technologies that will be used through communication to store , process and deliver the information (Hacker & Saxton, 2007). Similarly, IT has been usually utilized by managers and IT specialists to manage their business operations directly controlling its activities, the human resources and other related activities. IT has been very essential and beneficial for managers to assign their required resources in collaboration with the various departments of the company to achieve progress and completion of different initiatives, managing the general activities as the key responsibility of managers. Information technology acts as a fundamental key to innovation and creativity according to Hobday (2000). Peansupap and Walker (2005). IT use is increasingly extended to companies because they claimed that IT promotes efficient communication, enhances efficiency, strengthens integration, and provides quality goods and services to a greater extent (Bjork, 1999).

B. Organizational Performance

Several scholars and researchers analyzed the impacts and/or effect of IT use on the efficiency of an entity, whether goods or services, and established the positive relationship with the main variables (Beckey, Elliot, &Procket, 1996; McNutt, & Boland, 1999). Accordingly , the findings have confirmed the partnership by providing suggestions that IT has indeed played a significant role in enhancing the quality and quantity of relevant knowledge for managers and business decision-making, as well as a basis for product and service improvements (Mano, 2009). By optimizing the use of their resources to invest in IT, many businesses have set aside their budget and resources in line with their goals and have been shown to perform better in their workplaces through this research than those who have made less investment in IT (McAfee &Brynjolfsson, 2008). In other words, achieving higher performance i.e. service quality, bearing responsibility and achieving target requires a substantial and good IT infrastructure with good IT utilization management practices (Mwania&Muganda, 2012).

C. IT and Organizational Performance

The study's main objective is to assess whether or not information technology has any effect in its overall

performance, and to investigate the relationship between the usage of information technology and organizational efficiency. The importance of IT to organizations and its relationship to organizational success has been examined by numerous writers and researchers.IT deployment can be remembered on the borderline of its creation in the 1960s and 70s where the technology was used by a large number of organizations or companies , especially in regularly changing jobs such as clerical and administrative tasks like accounting and bookkeeping work (Bird &Lehrman, 1993). In addition, IT has also been used as a support tool to resolve problems in the company's internal and external environments that are required to accomplish the organizational mission and goals. Others; Dr.Revenio C. Jalagat, Jr., Nasra Amur Said Al-Habsi- Assessing the Impacts of IT Use on Organizational Performance Components (Blili& Raymond, 1993). But even the degree of use was used is still subject to enhancement and use of applications of IT is still in basic tasks and primary activities that its use is not representative in resolving strategic problems and is fully lacking, such as applications related to improving the role of the company against rivals, expanding into new markets, and providing managers with better information for effective decision making with the aim of target achievement, increasing responsibility and service quality. In other words, it is more applied to simple operations and it is considered that the maximum capacity on the IT is lacking in utilization. According to Bird &Lehrman (1993), the use of technology today, particularly the IT, not only provides a data processing tool, but has become a strategic tool that can change the structure of industries and, as such, the rapid technological transition in IT or ICT has made the business environment strategic that many businesses have established and reassessed their own IT application to be consistent (Galliers, 1994). According to the data given by the OECD (2003), the advent and rapid growth of IT can be seen as its strongest proof in developed countries and supported by numerous studies it reported that the combination of accounting and econometric methods is being used with the IT application which has been demonstrated as samples of businesses and companies. For example, in Gretton 's research (2002), analyzing firm-level data from the Australian Market Longitudinal Survey, the use of IT and growth in both the manufacturing and service industries found positive and important ties. Related research also carried out by Brynjolfsson&Hitt (2003) analyzed U.S. company-level data, results clearly revealed that IT relates positively to employees and organizational productivity. On the other hand, Pilat&Wolfl, (2004) investigated the role of ICT-producers and main ICT-consumer sectors in deciding overall productivity Dr.Revenio C. Jalagat, Jr., Nasra Amur Said Al-Habsi-Evaluating the impacts of IT use on Organizational Performance Growth in OECD (Organization for Economic Co-operation and Development) countries; The effect of ICT producers was found to be the most important in Finland, Ireland and Korea, while ICT-consumer sectors in some countries , notably the US and Australia, had impressive growth in the latter half of the 1990s.



Analysis was carried out by Hempell (2004) based on a comparable panel of Dutch and German companies, especially in the service sector, to confirm these findings, and the results showed that the use of ICT or IT applied to capital deepening and innovation showed that there is a positive impact between IT and organizational performance. Porter (2001) noted that the efficiency of IT not only assesses the strategic and tactical resources of the organization for the business, but also promotes competition when properly employed in the organization, as it may bring benefits. This outweighs the risks and underscores the durability of its long-term operating performance. This promotes excellent communication or conversion of data or knowledge into concrete results and is the exchange of useful information for decision taking within departments as well as from top to bottom where information is disseminated. Because of this, it would create a strong link between the company and its staff, clientele and stakeholders, potentially removing the barriers to successful knowledge exchange and obtaining information in real time (Scott, 2001). Beckey, Elliot, & Procket, (1996) & McNutt, & Boland, (1999) confirmed that IT has now played a major role in improving both the quality and quantity of relevant knowledge for managers and business decision-making as well as the basis for product and service developments. Many businesses set aside their budgets and resources in line with their priorities and objectives by optimizing the use of their resources for investing in IT, and by this research they have been found to perform better in their workplaces than those who invest less in IT (McAfee & Brynjolfsson 2008). Better performance needs a substantial and strong IT infrastructure with effective IT use management practices (Mwania & Muganda, 2012). However, though IT is being implemented in several organisations, it has not been thoroughly understood to determine its appropriateness and performance impacts. On that basis, the study aims to examine the relationship between the use of information technology and organizational performance.

D. Conceptual Framework

The conceptual paradigm refers at organizational success as the dependent variables with mobile and portable devices, internet software and data management systems being the independent variables where achieving goals, accountability and quality of service are the dependent variables, i.e. operational output. The conceptual framework for this research article is presented below in figure.

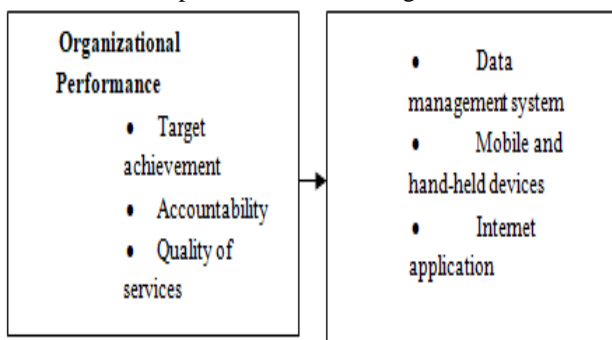


Figure-I: Relationship between use of IT and Organizational Performance

III. METHODOLOGY

The study’s main objective is to know the position of use of IT in different business sectors of Nepal and examine the relationship between IT and organizational performance. Thus, this study adopted descriptive and correlational design. Descriptive design is used to assess the position of IT use in Nepalese organizations and correlational design was used to examine the relationship between IT and organizational performance. The research population is all of the workers who work in the financial, manufacturing and health sector. This research considered as a sample to 120 employees and responses were collected from employees of health, banking and industrial sectors of Nepal. 120 samples were taken based on a European Academic Research study published by Jalagat (2017) entitled "Evaluating the Impacts of IT Use on Organizational Efficiency". The study used primary data that was collected through a standardized questionnaire. Questionnaires were electronically administered. The questionnaire had two sections, the first section captured the respondents’ demographic information, and the second section incorporated the questions related to technology usage and its effects. Social sciences statistical package (SPSS) 20 was used to analyse the data. Frequency distributions, and percentage were used to assess the position of IT usage and Pearson correlation was used to examine the relationship between dependent and independent variables.

IV. RESULTS

It deals with the analysis of data and the results found from the analysis of data.

Profile of Respondents

Table-1: Distribution of Respondents by Age

Level	N	Percentage
20-26	55	45.8
26-30	35	29.2
31-35	19	15.8
36 and above	11	9.2
Total	120	100.0

Table 1 indicates the respondents’ age. This indicates that the majority of respondents, i.e. 45.8 per cent, fell below the 20-26 age group followed by 29.2 per cent of the 26-30 age group. It shows that the results of the analysis is drawn from the opinions of young employees.

Table-2: Distribution of Respondents by Education

Level	N	Percentage
2	0	0
Bachelor	43	35.8
Master or above	77	64.2
Total	120	100

Referring to Table 2, 64.2 per cent of respondents possess a master's degree or higher level of degree. Similarly, bachelor's degree is 35.8 per cent.



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No respondents have less than a bachelor's level of education. Thus, the opinion of per cent, said their company enforced flexible training work hours. In addition, several companies give workshops and seminars on information technology. 20.83 per cent of workers decided that their company would provide financial assistance, including distance education class fees.

Table- 3: Distribution of Respondents sector wise

Level	N	Percentage
Bank	51	42.5
Manufacturing	37	30.83
University	18	15
Health	14	11.7
Total	120	100

Table 3 indicates respondents ' varied occupations. The majority of respondents are registered in the banking sector, i.e. 42.5 percent, followed by 30.83 percent from manufacturing. Hence, results from this study will be more fitting to banking and manufacturing sectors.

Table- 4: Extent on the use of IT systems/devices in the organizations.

Level	N	Percentage
Mobile phone	15	12.5
Desktop Computer	55	45.83
Laptop	30	25
IPad or Tablet	20	16.67
Total	120	100

Table 4 demonstrates the applications of different IT tools within an enterprise. 45.83 per cent of respondents use their desktop computer for office activities. Likewise, laptop users are 25 percent and IPad or tablet users are 16.67 percent. Therefore, it demonstrates that the desktop is commonly used tool for organizational activities but laptop is also substantially used tool.

Table-5: Support from management in the use of IT

Particulars	N	Percent
Financial assistance, including class fees for distance education	25	20.83
Hosting of lectures, seminars, etc.	30	25
Endowment of paid leaves for training/education.	20	16.67
Provision of information regarding training/education (introduction of external training institutions, etc.)	15	12.5
Arrangement of working hours (use of flexi-time system etc.)	30	25
Total	120	100

Table 5 illustrates the organizations ' versatility in delivering IT training. The majority of respondents, i.e. 25

education. Thus, the opinion of per cent, said their company enforced flexible training work hours. In addition, several companies give workshops and seminars on information technology. 20.83 per cent of workers decided that their company would provide financial assistance, including distance education class fees.

Table- 6: Support of IT in the achievement target performance

Particulars	N	Percent
Work speed has not increased at all.	4	3.3
Work speed has not increased.	2	1.7
Difficult to say.	5	4.2
Work speed has increased.	94	78.3
Work speed has increased greatly.	15	12.5
Total	120	100

While asking how did you feel about the company's implementation of IT in terms improvement in work speed, 78.3 per cent accepted that use of IT increases the work speed. Thus, It can be concluded that IT supports to increase work speed/ operational efficiency if it is properly adopted and IT infrastructure is sufficiently developed.

Table- 7: Position of organizational performance

Dependent Variables	Mean	N
Accountability	3.2755	120
Quality of Service	4.0413	120
Performance & Targets Achievement	3.989	120
Composite mean	3.7686	

The summated mean value of organizational performance is 3,7686 that is inclined to agreeableness. It can be argued that IT users can increase the efficiency of the services and it helped achieve the goals. Fast delivery of services and reduction of any malpractice can be achieved by the use of IT. It also helped in improving the quality of services. Likewise, uses of IT also helped to improve the organizational performance through timely and accurately delivery of service.



Table-8: Position of IT use

Independent variable	Mean	N
Data management system	4.105	120
Mobile and handheld devices	4.025	120
Internet application	3.78	120
Composite mean	3.97	

The summated mean score of independent variables is 3.97. It appears at agree band. It can be argued that the use of upgraded IT devices with different internet applications has effectively assisted in data collection. This thereby facilitates rapid decision-making and enhances joint efforts with partners, which eventually increases the performance of the organisation.

Table- 9: Association between use of IT and organizational performance

	Performance and Target Achievement	Accountability	Quality of services	
Data management system	Pearson Correlation .718*	0	0.773	.455*
	Sig. (2-tailed)	120	0.029	0
	N	120	120	120
Mobile and handheld devices	Pearson Correlation .564*	0	0.631	.530*
	Sig. (2-tailed)	120	0.036	0
	N	120	120	120
Internet application	Pearson Correlation 0.031	.701*	0.682*	
	Sig. (2-tailed)	0.036	0	0.046
	N	120	120	120

Correlation is significant at the 0.05 level (2-tailed).

Table 9 shows the association between dependent and independent variables. It shows significant relationship between all dependent and independent variables. The p-value of all independent variables in comparison to dependent variables is lower than 0.05 at 5 per cent level of significance. It can be interpreted that it helped in data management, mobile and portable devices, and the internet application to improve efficiency and achieve goal, and to increase transparency and timely reporting of assigned tasks.

Likewise, these independent variables lead to enhancing the efficiency of the customer services.

Table-10: Relationship between overall organizational performance and information technology

Information Technology	Organizational Performance
Data management system	Pearson Correlation .718**
	Sig. (2-tailed) 0
	N 120
Mobile and handheld devices	Pearson Correlation 0.706
	Sig. (2-tailed) 0
	N 120
Internet application	Pearson Correlation 0.678
	Sig. (2-tailed) 0
	N 120

Correlation is significant at the 0.05 level (2-tailed).

With respect to table 10, p-value of all independent variables in relation to organizational output is less than 0.05 at a point of significance at 0.05. It can be inferred that a significant relationship exists between the overall performance of the company and independent variables such as data processing, desktop and portable devices and internet access. The explanation for this important relationship may be the effective use of mobile and handheld devices as well as the internet application to collect and organize data efficiently which helps to make fast and accurate decisions and ultimately increase an organization's overall performance.

V. DISCUSSION

The findings revealed that most of the employees used to use desktop computers and laptops for organizational works. This result is close to the Jalagat(2017) report, which found that the majority of the colleges use IT tools including a laptop for their college activities. Similarly, every organizations across the world use IT for processing and operating functions. A significant positive relationship is extracted from the correlation matrix between individual independent and individual dependent variables at 5 percent level of significance where p-value<α.



Likewise, the link between overall organizational performance and independent variables often shows the significant relationship between use of IT and performance of organizations. This result is consistent with findings of numerous studies that support the positive relationship between use of IT and success in organizations. Gretton (2002) established positive and important links between IT use and growth in both the manufacturing and service industries. According to Zuboff (1988), successful use of IT will build and sustain organizations' consistent competitive advantage over their competitors. The overall organizational efficiency was improved by transparency and prompt reporting of results, appropriate uses of data processing for planning and decision making, optimal use of IT tools and internet access. The outcome is similar because the people's basic thinking process may be the same with respect to the IT effect. It is so because the use of IT in all the organizations across the world is for the same purpose.

VI. CONCLUSION AND FUTURE SCOPE

The use of IT in Nepal is substantial but improvement in human resource skills and technology is essential. The infrastructure of IT in Nepal is still in infancy stage. So, the improvement in IT infrastructure is essential to make its use more substantial and improve in the transparency, accountability and support in the achievement of goal and service quality. The results of analysis shows that use of IT substantially helps in the achievement of target and improve in accountability and service quality. Use of IT improves in the level of transparency and fixes the responsibility of every employees with full information. So, the accountability of the employees increases. Usage of IT helps to collect, analyse and provide information. Such information helps to take rational decision. Rational and appropriate decision leads to the improvement in service quality. Thus, this study confirms to the theory of decision making. The research focused specifically on the effect of information technology in various organisations, and it is important to replicate the analysis for any particular organization to determine whether there are any other variables that influence the organizational output by the use of information technology. It can be also suggested that further research can be conducted on issues related to the use of information technology in organizations and improvement in performance, such as management efficiency, business regulations, government policy, etc. In addition, the study's scope is also limited to 120 samples that reflect the total population of employees employed in different sectors minimally. The sample is fairly limited, it is possible to undertake a similar study to assess the results in broader respondents so as to confirm the results of the study.

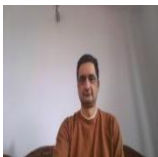
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and so on. Mr. Risal has performed editorial jobs in PRAVAHA Journal, NCC Journal and Journal of Business and Social Sciences (JBSS). Mr. Risal has been awarded with best employees of the year and appreciative lecturer of the years. Mr. Risal has published the text books and reference book nationally and internationally. His contribution in the literature is dispersed throughout the world. Mr. Risal has visited China, India and South Korea for the academic trainings, seminar, conferences and other achievements of life. He can be reached at nischalrisal@gmail.com

AUTHORS PROFILE



Dr. Dhruba Lal Pandey is Associate Professor of Central Department of Management, Tribhuvan University, Nepal. Simultaneously he is the instructor in the M.Phil. program in Management. His area of specialization is human skill development and human resource management in overall. He is the

standing committee member of the General Management Subject Committee of Tribhuvan University. Dr. Pandey is the member of cooperative curriculum development committee of Ministry of Land Reform, Poverty Alliviation and Cooperative. Dr. Pandey is the chairperson of Bamti Kaptu Hydro-power Ltd. and Main Door Investment Company Pvt. Ltd. Dr. Pandey completed his consulting work in financial literacy assigned by Nepal Rastra Bank, Central Bank of Nepal and was the member of the research team formed to undertake research on employment generation within the country assigned by the Priminister Employment Program, Ministry of Labour and Employment , Nepal. He has published the dozen of books in the field of business research, case analysis and business management and accounting. Dr. Pandey has published 6 articles in scopus indexed journals ranging from Q2-Q4 and in total he has published three dozens of articles in national and international journals. Dr. Pandey has completed various research works and submitted 2 reports to University Grants Commission, Nepal; Central Department of Management, Tribhuvan University and Research Division , Tribhuvan university, Nepal. Mr. Pandey was participated in the training organized by Harvard Publishing and Indian Institute of Management in Mumbai entitled Case Method Teaching on 2016 and Training organized by Handong Global University, Pohang, South Korea entitled Global Leadership on 2016 and participated in various national and international seminars as paper presenter and participant. He can be reached at p.dhruba@yahoo.com



Nischal Risal has completed Master of Philosophy in Management degree from Kathmandu University School of Management (KUSOM), Nepal and Master in Business Studies (MBS) degree from Shanker Dev Campus, Tribhuvan University, Nepal. Mr. Risal has attended Doctoral Summer School (DSS) from Indian Institute of Management Ahmedabad (IIMA), India. Mr. Risal is the PhD scholar in Faculty of Management, Tribhuvan University, Nepal. Mr. Risal has more than 5 years' administrative experiences as well as more than 12 years teaching experiences in national, international organizations and the academic institutions. Mr. Risal is working as a full time Lecturer in Nepal Commerce Campus, Tribhuvan University, Nepal. Mr. Risal has successfully published more than two dozens of research work in national/international journals and conference proceedings including Scopus, ABDC

