



**INNOVATION IN THE UTILIZATION OF INFORMATION SYSTEM
AMONG 23 CORPORATION IN METRO MANILA**

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ABSTRACT

The efforts and uses of the Information System (IS) in different entrepreneurship companies is to provide complete, timely, and accurate transaction processes, and interaction. Information System also reduce information overload, redundant data process, provide support for manager's decision making and provide a competitive advantage among its competitors. Furthermore, majority of companies in Metro Manila improved productivity through innovation in Information System and applied new technology and developed new strategies that helped promote and facilitate their business, and streamlined their processes and enhanced decision making.

The proponent, as computer course professor of Business Management Department for eleven years, and teaching courses like Management Information System, IS Planning, and other IT courses will discuss and describe the innovation of IS on the interviewed companies; its development and application in the different activities of the business. The proponent would also discuss the different purposes in developing Information System, and in relation to their needs.

The data gathered (survey and interview results) from the respondent companies was used to discussed and described about what innovations in Information System practiced by 23 corporations in Metro Manila namely in the following sectors : 7 Banking and Finance Corporations, 6 Manufacturing Corporations, 2 Wholesale and Retail Companies, 2 Power Generations Companies, 1 Petroleum Company, 1 Cargo handling Company, 1 Real Estate Company, 1 Utility Company, 1 Investment Company, and 1 Supply Chain Company . The result shows that 17 out of 23 respondents (or 73.91 %) mentioned that they have innovation in IS that support business operations. While 12 out of 23 respondents (or 52.17 %) mentioned that they have innovation in IS that support managerial decision making. And 4 out of 23 respondents (or 17.39%) mentioned that they have innovation in IS that support strategic management.

Keywords: Information system, expert system, entrepreneurship, innovation



INTRODUCTION

Background of the Study

Information Systems (IS) are used in almost every imaginable profession. Entrepreneurs and small business owners use information systems to reach customers around the world. Sales representatives use information systems to advertise products, communicate with customers, and analyze sales trends. Managers use them to make multimillion-dollar decisions, such as whether to build a manufacturing plant or research a cancer drug. Financial planners use information systems to advise their clients to help them save for retirements or their children's education. From a small music store to huge multinational companies, businesses of all sizes could not survive without information systems to perform accounting and finance operations. Regardless of your college major or chosen career, information systems are indispensable tools to help you achieve your career goals. (Stair and Reynolds, 2009)

Rationale of the Study

The proponent's interest on the topic of Innovation in Information System began when the proponent embarked on teaching ENTEMIS (Management Information System for Entrepreneurs), SYSTAND (System Analysis and Design), IS Planning and BUSIMIS (Management Information System for Business Management Students) for undergraduate of the Business Management Department – De La Salle University Manila, and besides, the

undergraduate degree of proponent was Computer Science. The proponent also plans to teach courses like INNOTECH (Innovation in Technology) in the near future. Lastly, the proponent has the interest to know the Innovation adopted by different corporations in Metro Manila, Philippines. It is worth knowing because innovation in Information System constantly helped companies to improve the way they conduct business and make sure that it continues to meet their goals and objectives, and to cut costs and increase profits. Innovation in Information System has changed the way the company work in recent years.

Statement of the Problem

What are the innovations in information system practiced or initiated by the 23 corporations in Metro Manila, Philippines?

Objectives of the Study

- The general objective of the study is to enumerate and describe new development and application of the Information System (IS) among the 23 corporations in Metro Manila, Philippines.
- To determine the innovations of Information System (IS) adopted by 23 corporations in Metro Manila based on three levels of Management Pyramid (IS that supports daily business operations, IS that supports management decision making, and IS that supports strategic competitive management).



Significance of the Study

The result of the study will benefit the following:

- Faculty of Business Management Department and Computer Science – De La Salle University Manila

This will give the faculty teaching ENTEMIS, BUSIMIS, SYSTAND and INNOTECH an idea on what specific topic needs to include or discuss in class lecture, so the students would be able to apply its application in real business situation when they graduate.

- Different corporations in Metro Manila, Philippines

To give them feedback on how different corporations in Metro Manila practice innovations in Information System, this would be able to give them idea on how to further improve in the utilization of their Information System which can help them promote and facilitate their business, streamline their processes and enhance their decision making.

Scope and Limitation

The innovations and utilization of Information System focused on this study will be limited to 24 corporations in Metro Manila, Philippines.

The data gathering was assisted by proponent's students in Entrepreneurship Management Information System class last

school year (3rd term SY 2008-2009), and it was limited to 100 top corporations based on their gross revenue in Metro Manila, Philippines which was stated in Business World Magazines (Volume 22) published early 2009. Business World Top 1000 Corporations in the Philippines is published annually by Business World Publishing Corporation, with editorial offices at 95 Balet Drive Extension, New Manila, Quezon City, Metro Manila, Philippines.

At first, the limitation of the study was limited to top 100 corporations based on their gross revenue which was stated in Business World magazines, but unfortunately, not all the 100 corporations responded. Some of them are not willing to be surveyed nor interviewed. Out of 100, only 23 corporations responded. In addition, only these 23 companies were accessible and located in Metro Manila. And these are composed of 7 Banking and Finance Corporations, 6 Manufacturing Corporations, 2 Wholesale and Retail Companies, 2 Power Generations Companies, 1 Petroleum Company, 1 Cargo handling Company, 1 Real Estate Company, 1 Utility Company, 1 Investment Company, and 1 Supply Chain Company .

The respondent also had a hard time to assess the data gathered from the companies. The data gathered was presented in narrative explanation format, this give the proponent a hard time in coding the data. Another limitation of the study was that there are some innovations in Information Systems and other important details and information were not mentioned or discussed clearly by



the interviewee respondent of the corporation.

REVIEW OF RELATED LITERATURE

Wikipedia 1 (2009) states that “In a general sense, the term Information System (IS) refers to a system of people, data records and activities that process the data and information in an organization, and it includes the organization's manual and automated processes. In a narrow sense, the term information system (or computer-based information system) refers to the specific application software that is used to store data records in a computer system and automates some of the information-processing activities of the organization. Computer-based information systems are in the field of information technology. The discipline of business process modeling describes the business processes supported by information systems. There are various types of information systems, for example: transaction processing systems, decision support systems, knowledge management systems, database management systems, and office information systems. Critical to most information systems are information technologies, which are typically designed to enable humans to perform tasks for which the human brain is not well suited, such as: handling large amounts of information, performing complex calculations, and controlling many simultaneous processes. Information technologies are a very important and malleable resource available to executives. Many companies have created

a position of Chief Information Officer (CIO) that sits on the executive board with the Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Operating Officer (COO) and Chief Technical Officer (CTO). The CTO may also serve as CIO, and vice versa. The Chief Information Security Officer (CISO), who focuses on information security within an organization, normally reports to the CIO.

In computer security, an information system is described by the following components

- Repositories, which hold data permanently or temporarily, such as buffers, RAM, hard disks, cache, etc. Often data stored in repositories is managed through a database management system.
- Interfaces, which support the interaction between humans and computers, such as keyboards, speakers, scanners, printers, etc.
- Channels, which connect repositories, such as routers, cables, wireless links, etc.

Information systems careers

Information Systems has a number of different areas of work:

- Information systems strategy
- Information systems management
- Information systems development
- Information systems security

There are a wide variety of career paths in the information systems discipline. "Workers with specialized technical knowledge and strong communications



skills will have the best prospects. People with management skills and an understanding of business practices and principles will have excellent opportunities, as companies are increasingly looking to technology to drive their revenue."

Types of information systems

As new information technologies are developed, new categories emerge that can be used to classify information systems. Some examples are:

- Transaction processing systems
- Management information systems
- Decision support systems
- Expert systems
- Office Automation
- Business intelligence

Information systems development

Information technology departments in larger organizations tend to strongly influence information technology development, use, and application in the organizations, which may be a business or corporation. A computer based information system, following a definition of Langefors, is:

- a technologically implemented medium for recording, storing, and disseminating linguistic expressions,
- as well as for drawing conclusions from such expressions which can be formulated as a generalized information systems design mathematical program.

Information systems development methodology

Information systems development methodology or ISDM is a tool kit of ideas, approaches, techniques and tools which system analysts use to help them translate organizational needs into appropriate Information Systems.

An ISDM is a "...recommended collection of philosophies, phases, procedures, rules, techniques, tools, documentation, management, and training for developers of Information Systems". (Avison and Fitzgerald, 1988)

Information systems research

Information systems research is generally concerned with the study of the effects of information systems on the behavior of individuals, groups, and organizations. Notable publication outlets for information systems research are the journals Management Information Systems Quarterly, Information Systems Research, Journal of the Association for Information Systems, and Communications of the Association for Information Systems.

Since information systems are an applied field, industry practitioners expect information systems research to generate findings that are immediately applicable in practice. However, that is not always the case. Often information systems researchers explore behavioral issues in much more depth than practitioners would expect them to do. This may render information systems



research results difficult to understand, and has led to criticism.

Wikipedia 2 (2009) discussed the following: “The term innovation means a new way of doing something. It may refer to incremental, radical, and revolutionary changes in thinking, products, processes, or organizations. A distinction is typically made between invention, an idea made manifest, and innovation, ideas applied successfully. In many fields, something new must be substantially different to be innovative, not an insignificant change, e.g., in the arts, economics, business and government policy. In economics the change must increase value, customer value, or producer value. The goal of innovation is positive change, to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. Innovation is an important topic in the study of economics, business, technology, sociology, and engineering. Colloquially, the word "innovation" is often synonymous with the output of the process. However, economists tend to focus on the process itself, from the origination of an idea to its transformation into something useful, to its implementation; and on the system within which the process of innovation unfolds. Since innovation is also considered a major driver of the economy, especially when it leads to increasing productivity, the factors that lead to innovation are also considered to be critical to policy makers.”

According to Rainer and Turban (2009), “Information systems have numerous impacts on organizations and on society as a

whole. Information systems are important to you for a variety of reasons. First, information systems and information technologies are integral to your life. Second, the IS field offers many career opportunities. Finally, all functional areas in an organization utilize information systems.”

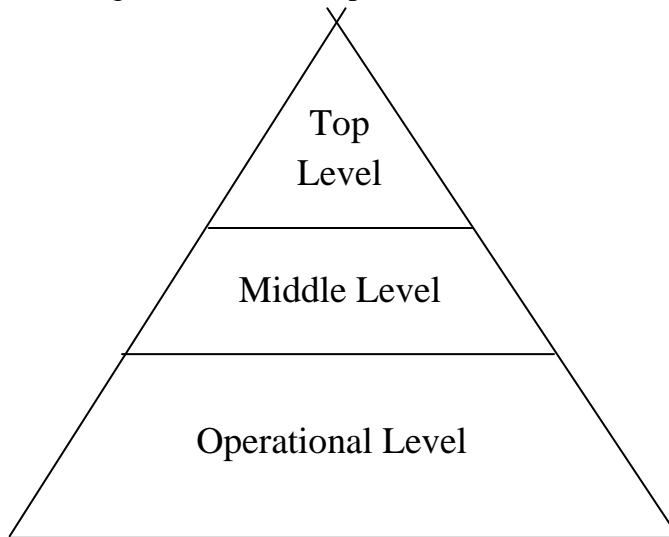
In the book of “Introduction to Information Systems: Enabling and Transforming Business”, Rainer and Turban (2009) mentioned, “Modern organizations must compete in a challenging environment. Companies must react rapidly to problems and opportunities arising from extremely dynamic conditions, one of the major pressures confronting modern organizations is Technological Innovation and Obsolescence. New and improved technologies rapidly create or support substitutes for products, alternative service options, and superb quality. As a result, today’s state-of-the-art products may be obsolete tomorrow. For example, how fast are thin-screen televisions and computer monitors replacing bulky TVs and monitors of just a short time ago? How fast are you replacing your old, standard cell phones with the new smart phones? These changes require businesses to keep up with the consumer demands. And on the other hand, one of the strategies that organizations continually develop to encounter Porter’s five Competitive Forces is the Innovation Strategy. This means introducing new products and services, adding new features to existing products and services, or developing new ways to produce them. A classic example is the introduction of



automated teller machine (ATMs) by Citibank. The convenience and cost-cutting features of this innovation gave Citibank a huge advantage over its competitors. Like many innovative products, the ATM changes the nature of competition in the banking industry. Today an ATM is a competitive necessity for any bank.”

FRAMEWORK

Figure 1: Schematic Diagram of the Conceptual Framework



In organizations, all managers have five main functions: planning, organizing, staffing, directing, and controlling. A management pyramid shows that top-level managers focus primarily on strategic functions, especially long-range planning; middle-level managers focus on the tactical, especially the organizing and staffing required to implement plans, and low-level managers are concerned mainly with operational functions, controlling schedules,

Conceptual Framework

The conceptual framework of the study is based on (or adopted from) H.L. Capron and Johnson (2004) which states the following:

The classic view of management pyramid, and it shows that there are three levels (please see figure 1):

costs, and quality as well as directing personnel. As a summary, there are three categories of Information System:

- (1) Information System that supports daily business operation - Operational Level
- (2) Information System that supports management decision making – Middle Level

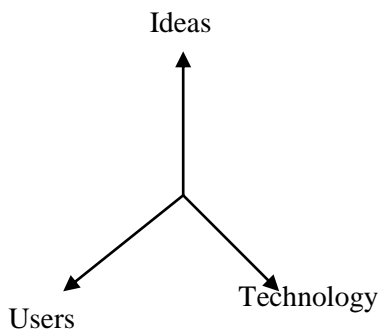


(3) Information System that supports strategic competitive management – Top Level

On the other hand, the word “Innovation” has been a buzz word in the business

David R. Maidment’s (1997) states the following: “Innovation in information system development occurs for one of three reasons: (1) the users require new capabilities; (2) advances in basic technologies make more effective tools available; (3) a new set of ideas or knowledge base is created. Effective

Figure 2: Diagram illustrated by Maidment



industry. It is an application of an idea either original or adapted by the companies which spells out a new or novel way of doing things and would invariably change the activity and the behavior of the organization.

information technology innovation relies on having all three of these factors in place at the time the innovation is created. Innovation is driven by users; ideas and technology (see Figure 2)”.

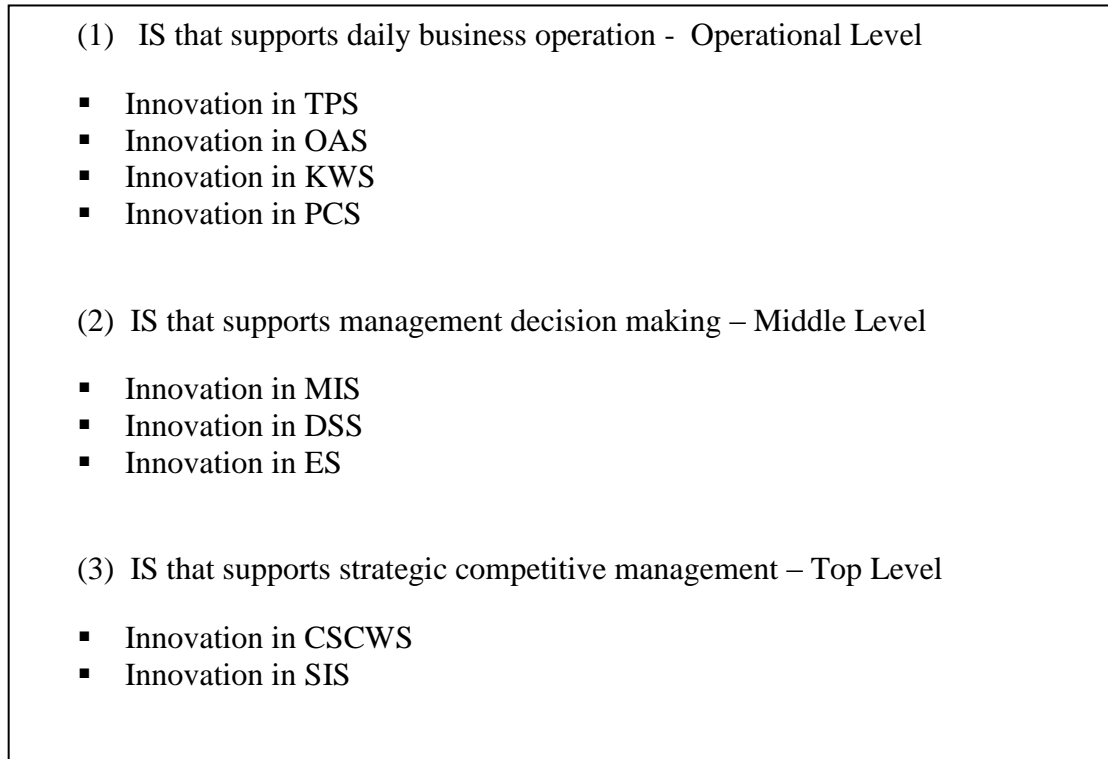
Also according to Stair and Reynold (2009), Innovation in Information System also refers to automate manual processes and has transformed the nature of work and the shape of organizations themselves.

Operational Framework

Adopted from the Conceptual Framework of Capron and Johnson (2004), the Innovations in Information System will serve as the variables of this study in terms of:



Figure 3: Variables of the study



Operational Definition of Terms

- Competitive Advantage – an advantage over competitors in some measure such as cost, quality, or speed; leads to control of a market and to larger-than-average profits.
- CSCWS – Collaborative Work System – group decision support system
- DSS – Decision Support System – Provide access to data and analysis tools
- ERP – Enterprise Resource Planning – a set of integrated programs capable of managing a company’s vital business operations for an entire multisite, global organization.
- Expert System – Mimic human expert in a particular area and make a decision; IS that attempt to duplicate the work of human experts by applying reasoning



- capabilities, knowledge, and expertise within a specific domain
- Information System – A set of interrelated components that collect, manipulate, store, and disseminate data and information and provide a feedback mechanism to meet an objective.
- Innovation - It is an application of an idea either original or adapted by the companies which spells out a new or novel way of doing things and would invariably change the activity and the behavior of the organization.
- KWS – Knowledge Work System – Information System that is designed for Knowledge Workers
- MIS – Management Information System – Produce reports summarized from transaction data, usually in one functional area.
- OAS – Office Automation System – Support daily work activities of individuals and groups; IS that typically support the clerical staff, lower and middle managers, and knowledge workers.
- PCS – Process Control System – type of Information System used for Manufacturing
- SIS – Strategic Information System – type of Information System used for Strategic Planning; IS that help an organization gain a competitive advantage by supporting its strategic

goals and/or increasing performance and productivity.

- TPS – Transaction Processing System – Process transaction data from business events; IS that supports the monitoring, collection, storage, processing, and dissemination of data from the organization's basic business transaction.

RESEARCH METHODOLOGY

Research Design

The research design used was descriptive. The data gathered (survey and interview results) from the respondent companies will be used to discuss and describe about what innovations in Information System practiced by 23 corporations in Metro Manila namely in the following sectors : 7 Banking and Finance Corporations, 6 Manufacturing Corporations, 2 Wholesale and Retail Companies, 2 Power Generations Companies, 1 Petroleum Company, 1 Cargo handling Company, 1 Real Estate Company, 1 Utility Company, 1 Investment Company, and 1 Supply Chain Company .

Sampling Plan

The secondary data collected during 3rd term School Year 2008-2009 from the corporation interviewed by ENTEMIS students as the basis of data for this research study.



Method of Data Analysis

Primary data was tabulated in a data set, and the data was analyzed using the frequency and percentage distribution. Since the data gathered presented in narrative paragraph form, content analysis will be used by the proponent in coding the data. And the data was presented also in frequency distribution table format and context narrative discussion.

RESEARCH FINDINGS

The purpose of using the conceptual framework stated in the previous section is to determine the innovations of Information System practiced / initiated by different corporations in Metro Manila. This would also describe the social context and corporate culture of the companies studied – the values and beliefs that determine what is admissible and possible within the culture of their corporations involved.

(1) IS that supports daily business operation - Operational Level

Table 1: Frequency and percentage distribution results with regards to IS that supports daily business operations

	Frequency (n = 24)	%
TPS	15	65.22 %
OAS	6	26.09 %
KWS	1	4.35 %
PCS	1	4.35 %

In table 1, it shows that 15 out of 23 respondents (or 15 %) mentioned that they have innovations in TPS, while 6 respondents (or 26.09 %) mentioned that they have innovations in OAS, and 1 respondent (or 4.35 %) mentioned that they have innovation in KWS and PCS.

For the Banking and Finance Corporation respondents, one of them mentioned that in TPS, the company has developed open source software which refers to any program whose source code is made available for use or modification as users or other developers see fit. This way, any programmer can update or re-design any program in the system any moment they want. In OAS, the company’s electronic transfer software and systems allow for electronic, voice, and transmission of office information. Electronic mail uses computer based storage and a common set of network communication standards to forward electronic messages from one employee to another. Most of these systems like electronic folders or notebooks. Voice mail offers essentially the same applications, but for telephones, not computers. After applying these innovations, they admitted that it was become very convenient for their customers and easily facilitation and manipulation to their IT workers. It also reduces operational costs, increase productivity and quality of customer service. And their best practice was constant change and update of business model to keep up with the company objectives and vision.



Another banking and finance corporation mentioned that in their TPS, trends are web-based applications, client servers and remote access. In PCS, they are using case tools. In MIS, Data warehousing are source of reports. In this way, statistics can be shown from a larger number of years unlike before they just base it from the previous year. After they adapted these innovations, their business operation's efficiency increased and become less prone to errors.

Another banking corporation mentioned that they used of Siebel software is currently being used by the company. Siebel is a customer oriented relationship management application. The main feature of Siebel is that it specializes in customer service and call center applications. It has a coaching feature which helps call centers to attend service calls from clients and support call from staff and clients. Siebel was used by the company since it did not have sufficient staff to support all IT initiatives. A lot of their employees also have left for better pay abroad and as such a lot of jobs were not finished and left at the pipe lines. This results to projects that are not managed and monitored well. This has left the company to outsource different projects abroad as well.

Other Banking corporation respondent mentioned that their innovation was Internet Technologies – IPVPN, and uses new software available in the market. While another bank corporation respondent, according to their Information Securities Officer, the officer mentioned that the

company has invested in acquiring the services of different software Solutions Company in order to improve and forward their Information Systems. For one, they employ the services of Oracle for their database system. Aside from this, the company also has in-house software developers to create programs customized to the needs of the bank.

For Power Generation Industry Company respondent, according to Mr. Gilbert the head of Information Technology Department, recent innovations done by the company was to outsource some of its activities to software companies. Instead of having its own system developers, they employ the services of software companies to create and develop software that would meet the specific needs of the company. This reduces the administrative cost of the company, especially with regard to the salaries of personnel in its IT department.

Utility company respondent mentioned that in their KWS, they developed new tools for graphical interfaces, and extraction of data, and this has more repository, customer segmentation and automation. It could make CAD, map guide that has a graphical representation of the franchises. It also includes the data warehouse wherein there are data marts which is a smaller version of the data warehouse.

Power Generation Industry respondent mentioned that they have TPS Time & Billing of Human Resource Department; they considered this as their



new innovation. And it greatly improved the company in terms of its' over-all functionality. By having this, the company was able to reduce additional operational overhead expenses for handling system issues due to performance problems. Also, they have managed to avoid additional and unnecessary hardware acquisition costs. Quality assurance was also one of their best practices after adapting this innovation, they have been able to produce and supply the required energy to their clients, mostly Meralco, Shell and Siemens.

One manufacturing company respondent mentioned that in their TPS, they used Lotus Notes, a client server application or a software that is called an integrated desktop client option for accessing business e-mail, calendars and applications. This helped them to have a better and fast communication between customers and the management. Other manufacturing companies like Philip Morris Philippines, in TPS, their latest technology used is TPS@NTM (Network Transaction Manager). The advantage of this help eliminates paper-based transaction when it comes to transacting with clients from different parts of the Philippines. Another major advantage is that it helps the company to sort, merge, and update useful information that makes their plans for future project much easier.

Wholesale and Retail industry respondent mentioned that in their TPS, the company considers the following as their innovations: barcode system, POS checkout scanning, computer aided ordering, and

electronic data exchange. In OAS, the company considers the purchasing of the latest versions or editions of MS Office as its innovation since it stated that not all firms are able to allot budget for the purchase of these latest developments. These improve the company's customer satisfaction, improved operational efficiency, improved dissemination of information and improve customer base. Another wholesale retail respondent mentioned that their latest innovation was the night run process - a process that summarizes all the transaction and data within the day in all Makro branches in just one night through WAN (Wide Area Network). The night run process summarizes everything that is happening in the business, It is done at night where a specific individual (only one) stays in the office to administer the process until it is finished. He ensures that no errors will occur during the process as well as securing the date. If a problem occurs, he reports it immediately and thus resulting to immediate solution.

For Cargo Handling Company respondent Inc., according to their Information System Department of the company, there have been innovations over the years. For one, the equipments or gadgets used for the operations have reduced in size. Hence, contributing to a more portable and convenient usage. For example, in port operations management, bookers input the container codes on a cellular phone-like device. Before, it used to be large, requiring the booker to use it with two hands. Now, they use a smaller input device



which can be efficiently used with one hand. In the case of the company, they look both inward and outward in terms of information software development, they purchased the best software available in the market. Aside from this, they also develop their own software that would suit the specific needs of their company. The company is proud of the continuous efforts that they have made to be premiere cargo handling corporation in the country. As a leader, they make sure to allocate enough budget for the improvement of there is. They use the best of best software available in the market and then they also have their own in-house program developer to customize programs for the needs of the company. Their budget per year for IS development is at Php 200 million.

For the real estate section respondent mentioned that their software innovation that the company uses is the AutoDesk or the Autocad Software. This is generally used by architects in building or modeling their designs for a building. Aside from the plate or drawings that they make, they use AutoDesk to verify their measurements of a floor plan or get a more exact measurement of a floor plan, Aside from this, they use Autocad to generate 3D presentations of what the floor plan would look like for presentation purposes or for showing clients and engineers. The advantage of this innovation is that it is more efficient in servicing inquiries of clients about certain real estate projects and land developments. Staff can easily accommodate them to which area they are interested and quickly service and set appointments for interested clients. Information about the property and their

rates are easily answered by the agents. Other advantage is that their data is properly organized; this is especially needed by the company since it has many projects in real estate development. Data can also be easily accessed and reviewed by staff upon special request of clients and managers.

(2) IS that supports management decision making – Middle Level

Table 2: Frequency and percentage distribution results with regards to IS that supports management decision making

	Frequency (n = 24)	%
MIS	11	47.83 %
DSS	2	8.70 %
ES	2	8.70 %

In table 2, it shows that 11 respondents out of 23 (or 47.83 %) mentioned that they have innovations in MIS, while 2 out of 23 respondents (or 8.70 %) mentioned that they have innovations in DSS and ES.

One investment company mentioned that in their TPS and MIS, the company identified its innovation as follows : electronic payments of both customers to the company and company to partner organizations, barcode technology that improved the operation in dealing with its internal and external customers, and biometrics system which improved the attendance system of the company. The best practice for the company is connected to servicing its customers at its highest



capability. Hence, the company its best practices as being accessible by all its users without any downtime. It also impress its management as best as it could, the company identified its best practice also as being able to efficiently report to both its mid-level managers and its top management. In OAS, the company was not able to identify any innovation since it is only incorporates Microsoft Offices in its OAS. For this, the company mentioned that their best practice is connected to easing the task of its employees. Hence, the company identified its best practice as being able to eliminate as much manual tasks as possible.

One Manufacturing company mentioned that their company upgraded their units and applications to desktop and servers. And another company mentioned that their current trend in terms of MIS is the ability to generate reports in multiple platforms so that the manager can choose which summary report will best suit his needs. In DSS, their newest technology is WebFOCUS Business Intelligence. The “Mother” company in USA is where all current systems are based from, so nothing new is from the Philippines meaning they are only being updated when the International Groups sees the lack of performance in the Philippines. Both companies agreed that this innovation helped them reach quality assurance in production, and quality management in producing useful and relevant reports for manager and company use. On the other hand, their digital database has all information that can be easily shared to

other people within the organization as well as with other companies internationally.

For the Supply Chain company respondent, in terms of innovation, they consider the evolvement from using a basic software similar to excel. However, because this is a big corporation, there are a lot of advancement needed to increase the company’s efficiency. So, as the requirement increases, a more organized management system was required. The company’s system was custom-made to suit the company’s requirement of the company, hence, the uniqueness is guaranteed.

One power generation company respondent mentioned that their current trend in terms of MIS is the ability to generate reports in multiple platforms so that the manager can choose which summary report will best suit his needs. They proved that MIS greatly helps their managers especially when making business decisions.

For Wholesale and Retail Company respondent, they mentioned that in their MIS, they consider the following as their innovations : continuous replenishment system, warehouse management system, and category management system. This company emphasized that its MIS is indeed one of the best systems in the country. Hence, it indeed provided a lot of advantages for the company. The interviewee simply said that the systems itself are the advantages for the system. The company takes so much pride in its MIS since it is able to perform at par on the expectations the company has when it



purchased such systems. The few stated advantages are as follows : improved decision making on the part of managers, better supervision by different departments, elimination of certain costs which entails redundancy in work, improved communication among different department heads, better presentation of documented reports, and faster time in dealing with internal and external situations.

Banking and Finance Company respondent mentioned that their innovation is by having data streaming via Internet. Some advantages that company perceived after adapting this innovation are : It helps manager how much risk is involved in certain transaction and portfolio, and information are gathered by the system from other system (Trust and Treasury Systems) and international data feeds.

(3) IS that supports strategic competitive management – Top Level

Table 3: Frequency and percentage distribution results with regards to IS that supports strategic competitive management

	Frequency (n = 24)	%
CSCWS	2	8.70 %
SIS	2	8.70 %

2 out of 23 respondents (or 8.70 %) mentioned that they have innovations in CSCWS, and 2 out of 23 respondents (or 8.70%) mentioned that they have innovations in SIS.

One of the Utility companies mentioned that their latest technology to be implemented is migrating out of the mainframe, and using open systems. They also follow the standards that is defined by there IS. There was a major milestone in 1995 that was called a transformation project by creating a central depository system that will turn everything that can be computerized. One of their perceived strengths after having this innovation is by having controlled and centralized information.

Two other manufacturing companies mentioned that by using SAP, which is a system that provides capabilities for planning, execution, quality, maintenance, and environment, healthy and safety. They mentioned that this helped them not only in the company’s performance but also improve employer and employee relationships.

And one of the petroleum companies mentioned that their innovation is practiced through application of a centralized common processes and transaction that will implement one global system for whole business. Maximum productivity and resource utilization were achieved by using a centralized process. It evolved through a lot of users inputs that were considered for each version process. It evolved through a lot of user inputs that were considered for each version upgrade. Feedbacks from users are very important, plus business assigns key-users to evaluate the system and provide feedback for use of software developer. Among their best practices are centralized



processes, remove non-value adding activities, plan orders and deliveries in advance. By having this innovation, it entail many benefits such as paperless transaction, organized and systematized processes, monitoring and distribution of resources.

Many companies mentioned that there is no innovation yet for the technology that they are currently using. Their company system is standardized and some of their competitors are also using the same technology as them. And other companies are still currently developing innovations in their information system to become significant.

CONCLUSION / OBSERVATION

The proponent embarked on this study in order to list down the innovations in IS based on the surveyed and interviewed from 23 corporations, and to disseminate them in the academic and business community.

Table 4 : Frequency and percentage distribution with regards to three categories of IS

	Frequency (n = 24)	%
Innovation in IS that support business operations	17	73.91 %
Innovation in IS that support managerial decision making	12	52.17 %
Innovation in IS that support strategic	4	17.39 %

management		
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17 out of 23 respondents (or 73.91 %) mentioned that they have innovation in IS that support business operations. While 12 out of 23 respondents (or 52.17 %) mentioned that they have innovation in IS that support managerial decision making. And 4 out of 23 respondents (or 17.39%) mentioned that they have innovation in IS that support strategic management. Please also see table 5 for frequency distribution based on industry or type of business.

Table 5 : Frequency distribution of having innovation in IS based on industry

RESPONDENT S	IS that supports business operations	IS that support decision making	IS that support strategic management
Banking and Finance (7)	6	5	1
Manufacturing (6)	3	3	2
Wholesale and Retails (2)	2	1	0
Power Generations (2)	2	1	0
Petroleum (1)	0	0	0
Cargo Handling (1)	1	0	0
Real Estate (1)	0	1	0
Utility (1)	1	0	1
Investment (1)	1	1	0
Supply chain (1)	1	0	0

Based on proponent’s observation, in this changing times, new technology and consumer wants must challenge these corporation to find innovative ways in



dealing with their business or face the consequences of becoming irrelevant. The proponent would like to quote the statement of Stair and Reynolds (2009) that : “Organizations use information systems to support their goals. Because information systems typically are designed to improve productivity, organizations should devise methods for measuring the system’s impact on productivity. The use of information systems to add value to the organization is strongly influenced by organizational structure, culture and change. Because information systems are so important, businesses need to be sure that improvements or completely new systems and innovation in information system help lower costs, increase profits, improve service, or achieve a competitive advantage.”

In the 21st century, companies are becoming competitive, dynamic, innovative and productive. Thru this, all the companies need to have new innovations in Information System among the different corporations to prepare the people in organizations to meet challenges of a knowledge-based economy and to respond to the dynamics of the work environment with technological skills and a high level of thinking skills, and to achieve their vision.

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