Information Technology. An actual driving force for productivity and profitability of companies?

Philipp Joe Liepert

ID: 6117190047

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Researcher: Philipp Joe Liepert

ID: 6117190047

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(Associate Professor Dr. Om Huvanand)

Adviser

(Associate Professor Dr. Jomphong Mongkhonvanit)

Acting Dean, Graduate School of Business Adminstration

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Siam University, Bangkok, Thailand

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Abstract

Business companies produce goods and services with the intention of making profit. Information Technology (IT) in the corporate environment gives a complete description of technology that can be used to process and distribute critical data to improve the company's performance. Today, investment in IT is an essential success factor for companies as it can lead to enormously positive effects on the business activity, such as reducing operating costs, optimizing business processes or also improving collaboration of the employees. This study examined the impact of IT on business productivity and profitability today, but also the historical development and the Productivity Paradox of Solow. Companies that neglect or ignore investments in IT are subject to drastic competitive disadvantages and will not be able to persist in the long term. The study evaluates this statement on the basis of existing literature, which refers to the analysis of IT value in business life by using the Documentary Research Method (DRM). In addition, the study gives explicit recommendations for business operators who want to venture into IT investments, as well as prepared information for scientists, who would like to investigate this topic further.

Keywords: IT, productivity, profitability, Solow computer paradox

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Chapter 1: Introduction

Since the beginning of the use of Information Technology (IT) in businesses, their influence on productivity and profitability has been investigated. Various statements exist in this respect. Productivity has stagnated especially in the service sector despite the investments of businesses or service providers in IT since the 1970s. Derailing comments such as "Computers cannot improve business productivity, at least not all the time..." raise eyebrows (Economist, 1990). Such thoughts are quite frustrating as the incoming of IT followed by huge investments by businesses seemed to promise considerable improvements in productivity and returns.

However, more recent studies indicate that IT not only has a positive impact on companies' production levels but also leads to lower operating costs and higher or better profit margins (Mithas, 2012). The Toyota automotive company in particular has managed to increase its agility, efficiency, cost-effectiveness and productivity by massively introducing IT systems, as well as adapting its own processes and management strategies, making it more profitable (Mano, 2009).

After 1980, the invested capital of private investments in IT consisting of communication devices, software and hardware increased enormously. The inclusion of IT has made it possible to perform tasks more efficiently and effectively. This has resulted in companies working more productively with fewer resources, which in turn reduces costs and increases company profitability in addition to overall performance. One of the most valuable resources in running a business is using information based on available data. Organizations collect data from multiple sources that must be carefully reviewed, analyzed, and processed to make informed business decisions. Processed data must, therefore, be stored and sorted so that it can be easily retrieved for its intended purpose. Due to the variety, complexity and simply volume of data, this can only be done with the help of IT, as well as networked based information systems can ensure that critical information is always and everywhere available in real time. Examples such as that of the Mandarin Hotel Group show that companies can achieve concrete advantages through the so-called business information systems and thereby retain more customers and acquire new customers, which has a concrete influence on the profitability of the companies (Laudon and Traver, 2016).

In general, it can be said that a large number of tasks relevant to the company can be supported and optimized by hardware and software. Examples of this are: Keeping records, use of productivity software or processing of word, processing of payrolls, control of inventories, track systems, etc. (Manzoor, 2017). This also saves costs and achieves higher profitability for

the company in the long term. IT also plays an important role in internal company communication and collaboration, which can also have an impact on productivity and profitability (Renkema, 2000).

Nevertheless, a meaningful level of investment in IT for companies must be questioned and answered. However, the use of IT to increase productivity and profitability cannot stand alone. In addition to highly motivated employees, companies must implement their goals in line with their strategies and corporate goals and adapt internal processes to the use of IT (Marques, 2019).

1.1 Significance of Study

Majorly, this research will assist businesses managers to look deeply into their operations that have to do with the use of IT and carry out the necessary actions for them to realize better profits and increase their productivity. Such efforts will ensure better delivery of service to clients. It will also improve and revitalize its usage of managed human resources in the computer-based performance which will boost the performance of their employees and that of the organization as a result.

Secondly, this study's results are necessary for businesses that seek to assess and tap potential opportunities for growth as well as for the exploitation of potentials to ensure maximum usage of management systems tools, databases, and assets for purposes of managing the scarce resources wisely. Better management of scarce resources can be done through the implementation of controls of management that are effective that as a result lead to the minimization of costs to earn higher profits.

Thirdly, out of this study, businesses can learn the advantages of IT in terms of productivity and profitability and therefore they will need to embrace the change that comes with development. As a result, businesses can check out on the present systems that can be integrated with Information Technology for purposes of improving their productivity and profits. Also, businesses can find better means of evaluating and appraising their human capital using IT.

Lastly, this study will provide prepared information to scientists who may be interested in this research question. Hence, it will increase the bank of knowledge for future scholars who can use it as a reference or just for purposes of expanding their experience and knowledge on this issue. Hence, information obtained in this study will form a basis for the establishment of a relationship that exists between IT and the business's profitability and productivity.

1.2 Objectives of the Study Results to be Achieved

This study intends to investigate the impact that Information Technology has on the businesses' production levels and rates as well as their profit realization. Is the impact of Information Technology in business positive or negative? The resulting data from this study will act as a guide for business owners who would like to venture into IT investment. Also, those businesses that have already installed IT-enabled facilities will know whether it adds value or not. As a result, business managers or owners will need to take the necessary action.

1.2.1. In business, what is the level of IT usage?

1.2.2 Does any relationship exist between business productivity and profitability in IT investment in business?

1.2.3 Is there a difference in profitability and productivity between businesses that use IT in their operation and those that do not?

1.3 Scope of Study

This examination tackles the impact of Information Technology on the profitability and productivity of businesses explicitly. It is a detailed account of the use and impact of IT in business over the last about six decades in areas such as systems of managing information or data, operation in the organizations and its usage as well as the quality of service delivered to customers and advantages of investing in IT in business.

1.4 Expected Outputs

This study attempted to establish the contribution or somewhat impact that IT has on productivity as well as the profitability of businesses. The objectives are as follows:

1.4.1 To know the level of IT usage in business over the years

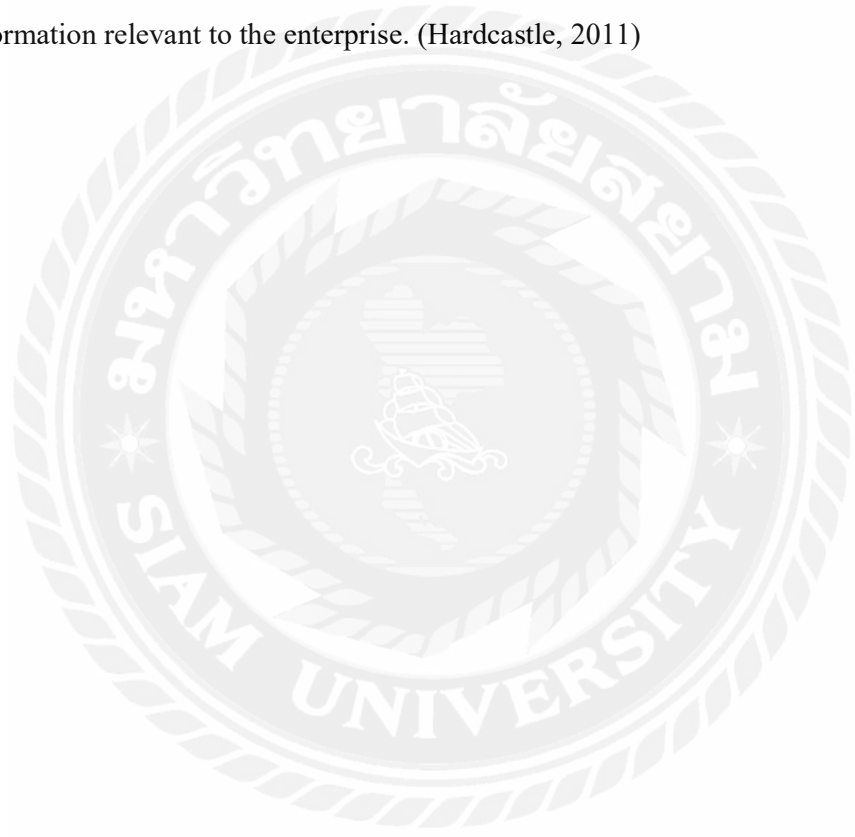
1.4.2 To determine how business productivity, as well as business profit realization, relate to IT.

1.4.3 To determine whether there exists a significant difference between business investing in It and those that have not regarding profits and productivity.

1.5 Operational Definition

When defining technical terms, it is often good to define them contextually or by the profession or discipline under which they have been used. For instance, depending on the situation, we can use the term square to describe an area or an object. For purposes of ensuring consistency in this study, hereunder are the definitions of technical terms;

- Productivity: Output to input ratio.
- Profitability: An indication of how good a business enterprise operated throughout a given year.
- Information Technology (IT): Commonly a synonym for computer systems, storage, networks and other physical hardware, but in a broader sense any technology used to create, store, process, secure and/or distribute information through electronic means. (Chandler and Munday, 2011)
- Business Information System (BIS): The entire infrastructure, organization, personnel, and components that collect, process, store, transmit, display, disseminate, and act on information relevant to the enterprise. (Hardcastle, 2011)



Chapter 2: Theories and Related Research

2.1 Information Technology

The world has been experiencing a revolution since the 20th century referred to as Information Technology (IT) (Wang, 2018). The revolution is thought among many people as the most excellent development after the industrial revolution era of the 18th century. Today, we cannot avoid the use of IT in our daily duties that are at home, at the workplace, in learning institutions, and banks. The world now feels like one global village with the emergence of satellite networks, phones, and the internet. These developments in a way, combat space and time thus leading to new methods of enormous information processing, storage, dissemination, and communication. The most recent innovation is a connectivity explosion (Jannat, 2018). People around the world can connect electronically regardless of their geographical location. Electronically enabled communication devices such as radio, optical fiber, satellite, and chip technology advancements ease communication. As a result, the service providers save not only time but also other resources such as money as computer-based operations are cheaper compared to hand-operated processes**.** Allen and Morton (2004) opine that in this 21st century, where there is an ever-changing and extremely competitive business atmosphere, IT is a crucial growth field for businesses to improve their cost-effectiveness, efficiency and ensure that they deliver high-quality services and products to their clients.

Additionally, according to Werthner and Kleine (2005), IT serves other purposes such as advertising the company's products, reaching out a deluge of customers and fishing out potential clients for the company's services and products. This medium achieved within a short period as opposed to doing it the analog way. Business companies today use IT knowledge to solve their business-related problem. IT also increases their effectiveness in the processes of making informed decisions and efficiency as well as improves their productivity. The result is that such business stands a better chance of competing well in the business industry. Businesses always seek and adopt only technologies that boost their efforts and labor in management and production. Despite it taking a too long a period to evolve, IT appears to be a crucial tool in business performance, and hence an engine for profits realization brings in a digital era in business.

The digital economy incorporates new essential aspects in addition to the old processes previously used for production. These include the human resources or skills also known as human capital, knowledge, Information Technology (IT), and organization at the workplace also known as organizational capital (Arvanitis and Loukis 2009). Businesses have made a step of investing in different levels (according to each business's investment priority) in the use of

these digital aspects of production. Therefore, their impact and contribution to businesses' operation are of a crucial significance. Researchers continue to carry out investigations on the effects of IT on business productivity and the output outcomes. Only a handful of empirical evidence that appears in the records is in support of a positive result of IT investment in most businesses. Hence, the inadequacy of empirical evidence creates what is known as the paradox of information technology in business productivity. A further discussion of the Paradox of Information Technology follows hereunder.

2.2 The Paradox of Information Technology in productivity over the past 60 Years

The productivity paradox further referred to as the computer's paradox of Solow is a single measurement of analysis of business that is assuming that the more the investments made in IT, the more the productivity of companies continue to stagnate instead of going up. Dreyfuss, Gadson, Riding, and Wang (1987) sadly comment that the computer era can is all over, but when it comes to the productivity and profitability of businesses, it only exists as a statistic. The scholars arrived at such a conclusion due to supporting evidence back in the 1970s to the 1990s, and it is authentic. Back in the analog era, business investments that invested in productivity gained about 3 to 4 % profit. With the public IT investment in the digital age, only a 1% increase in profit emerged in businesses between the 1970s and 1990s. 1% is a profit so insignificant that it may go unnoticed. Some of the proposed theories in a bid to explain the IT productivity paradox exist (Dreyfuss, Gadson, Riding, and Wang 1987). Among them was the speculation of the inadequacy of the productivity measurements about IT investments as well as the slowdown period before the investment results became noticeable at that time. However, these explanations remained as just theories without supportive evidence until recently when supporting evidence that indicates that significant investments of businesses in IT lead to considerable improvements in productivity and significant percentages of returns increase.

The contributions of IT in business or instead its contribution can be measured by evaluating business productivity (Dreyfuss, Gadson, Riding, and Wang 1987). Success testimonials about IT impact on business productivity exist. However, successful stories are never complete without a tale of failures and challenges. It is expressly challenging to evaluate the value of IT in business due to lack of accurate evidence as aforementioned. A similar problem exists in academics where the contribution of IT proves challenging to measure hence leading to a negative perception towards this kind of investment. There were great disappointments between the years 1980 and 1990 when numerous articles chronicled IT with an extensive negative relationship with the productivity of businesses in the global economy

(Brynjolfsson, 1993). A majority of the econometric evaluations registered a below average productivity of IT capital in many services and production companies. It is until recently that researchers have begun to observe a positive correlation between economic measures of performance, e.g., productivity and profitability and IT investment (Kimani, 2015). Perhaps this will significantly assist in solving the named paradox thus encouraging other businesses to invest in IT in their operations.

2.3 Unfolding the IT productivity paradox

The paradox did not start in 1987 following Solow's declaration of having noticed it, and it is coming to an end following Hitt and Brynjolfsson's statement in 1991 (Macdonald, Anderson, and Kimbel, 2000). Instead, this was a time when debates about IT investment value were heated up. The discussion assumed a gradual development process. A review of the paradox development stages follows here below:

Stage I: The initial imagination about IT's presence in the business industry was that it would take up the place of human labor. A prominent interest existed emerged between employees' productivity and investment in IT (Macdonald, Anderson, and Kimbel, 2000). The affair resulted in a nearly unconscious hypothesis that production was the most suitable indicator of the result of companies' investments in IT. Several studies although with little research to ascertain the speculations predicted the huge lay-off of clerical employees and a considerable gulf initiated between detractors and the IT advocates.

For example, sellers at International Business Machines (IBM) took an initiative to inquire from their clients the kind of improvements they expected to see in the company's products. Additionally, employees received training in preparation for the projected productivity benefits. The old IBM members admit that these figures were only speculative and not facts. Not even the computer builders had an idea of the productivity contribution that they will bring. Also, no one cared to fund researchers to conduct investigations and measure the advantages of investments made in IT by companies.

Stage II: The value of IT in production seemed to be little than expected in the 1970s. Nevertheless, the expenses associated with computers continued to rise. Businesses found themselves on a treadmill as their market competitors offered computer enabled services to clients thus decreasing the competitive advantage of those that did not afford to invest in IT. Businesses had no choice than to invest in IT just to fit in the game regardless of whether they gained a profit on these investments or not.

Stage III: Thinking about investment in IT for purposes of improving productivity and thus enhancing the profitability of businesses back in the 1980s seemed like a big mistake

(Mogotlhwane, Khosrowshahi, and Underwood, 2006). IT was to serve a more significant purpose - that is, the strategic purpose. The use of the strategic advantage of IT investment saw Macdonald and Monteiro Airlines in America, Citibank and the Hospital supplies of America become models during their era. The above-mentioned giant investors gave the other investors a new perception of IT. The media entities of that time did an immeasurable job of regularly reminding the public about the benefits the vehicles assembly could have reaped had it embraced the advancements done by the computer industries. Rolls Royce would have been sold out for 2.50 USD and in turn, two million miles obtained into the gallon. Alternatively, had the rest of the economy emulated the computer industry, the cost of Cadillac would have been around 4 USD and a whole year's grocery items bought using labor worth ten minutes only.

Stage IV: At this stage, IT found its way into a place where its productive value could in no means be direct. In control and surveillance systems, that is the Management Information system (MIS). Also, there was a rising demand from the public highly motivated by the media houses of business leading to the examination of full potential accounts for the IT productivity paradox. However, all the reports were not in any way persuasive, but rather a collection of utterly confusing accounts. The IT industries, the business media, and the government authorities unlike the economists, used the already successful IT investor companies to encourage the rest of the business entities to invest in IT as well.

Stage V: The Investment in IT by businesses since the 1980s focused mostly on telecommunications. It is unrealistic to expect an increase in productivity and profitability brought about by IT. However, scholars suggest four reasons for this paradox. First, there is an inaccurate measurement of the IT investors' outputs and inputs. Secondly, the need for users to learn and adjust to operational changes brings about a lot of delays. As a result, delays occur in the receipt of pay-offs thus rendering the cost analysis and benefits analysis difficult. Thirdly, IT is privately advantageous to businesses. It, however, adds no value to the totality of the firm's output. Lastly, IT is not managed correctly in most business firms. Chances of misallocation of information are likely to occur in cases where the explicit measures of the information or data's value are lacking. Hence, information is made vulnerable.

2.4 Information Technology in Business Today

Information Technology is the employment of telecommunication devices and computers for purposes of storing, retrieving, transmitting, processing and manipulating data otherwise called information usually in the business realm or in any other operations.

According to Manzoor (2017), information technology relates to technology that integrates high-speed lines of communication that carries sound, video, and data with computing. IT examples include televisions, mobile phones, private computers, and devices that are handheld, e.g., the personal digital assistant (PDA). IT consists of two parts, that is, communication and computer technology.

Often, people use information technology as an equivalent of computer networks and computers in general. However, it incorporates other information dissemination technologies such as phones and televisions. Various industries that deal with Information Technology include computer software, hardware, electronics, internet, semiconductors, telecommunications devices, e-commerce, computer assistance, and healthcare (Rainer et al. 2013). In a nutshell, Information technology (IT) comprises all the software and hardware needed by firms to realize their business goals (Limsarun, 2015). Over the last 60 years, business companies have shown a rising interest in investment in IT. A question of concern therefore is: Does an investment in IT improve the productivity of a business entity and increase the profitability? If yes, is this impact brought about by improved sales, or does it come about as a result of an overall reduction in the operating expenses? Data sources suggest that IT not only positively impacts the production levels of businesses but also leads them to the realization of higher or better margins of profits (Mithas, 2012). The claim is evident in various business companies around the world that have successfully employed IT in their operations over the years — for example, the banking industry as well as the Japanese Toyota manufacturing industry.

According to the Business Review of a 1958 article in Harvard, information technology consists of three primary parts. That is processing computational data; business's software and decision support. Most probably, this article invented the term as this period marked the emergence of Information Technology in the business world. Over the last six decades, several companies formed the so-called Information Technology agencies to operate their business-related computer technologies. These agencies' work became the de facto definition of IT which continues to evolve gradually. In the current era, IT has various responsibilities in business in fields such as information security, support of computer tech, deployment in business software, and administration of database and business computer network. When reminiscing the years 1990s during the dot-com era, IT gained association with computing aspects that were beyond those owned by the IT agencies. Therefore, a broader definition of IT includes fields such as computer systems architecture, software development, and project management. Between the year 1980 and 2010, there was a rise in capital invested from 32%

to 52% of private investment into IT comprising communication devices, software, and hardware.

There exists an endless debate revolving around the value of IT investment in the business. Of concern is why such a percentage increase in IT investment was witnessed and continues to exist in business up to date? Are there benefits as far as productivity and profitability are concerned? Also, those businesses that have not invested in IT do they still have a competitive advantage in the business world? The incorporation of information technology has enabled tasks to be completed more efficiently and effectively. As a result, has led to companies being more productive using fewer resources which in turns increases the profitability of the company in addition to the overall performance.

To gain an in-depth understanding of the results of information technology in business, we first need to understand the implications of each of the three necessary parts concerning the business environment today. One of the most expensive resources in running a business is the utilization of data. The organization collects data from various sources which need to be properly scrutinized and analyzed to facilitate an informed decision making. This data, therefore, need to be sorted appropriately and stored in a manner that is easily retrievable for the specific intended purpose. Business organizations need the aid of IT and IT systems to successfully sort the huge junks of data with ease and quickly. The IT systems include a system that processes the transactions - DSS, Information management system- MIS, and one that supports the system's decisions - TPS. The functions of each of the IT systems in Business are discussed further as follows.

2.5 Use of company-relevant information by Information Technology

Many business organizations are primarily concerned with acquiring and retaining customers by manufacturing quality services or goods (Laudon & Laudon, 2016). Business managers also encounter considerable hindrances of converting mountains of information into information that is actionable. Data on sales, customer records, inventories, investments and other features of any business must be managed carefully and with much accuracy. IT systems can also be valuable sources of insight for a business to grow through containing costs geared towards obtaining a competitive advantage. Companies ought to adopt a formal IT strategy for their companies to leverage information as a company's asset. Some of the IT systems in business as afore-mentioned include:

- Transaction Processing System (TPS),

- Management Information System (MIS), and
- Decision Support System (DSS).

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Transaction Processing System (TPS): TPS requires its users to interact with the system one on one to instruct the system to assemble, store, recover and make any necessary changes to data. Small-scale businesses transactions on a daily basis that come about as a result of purchase requests and paychecks by use of these systems that is responsible for processing transactions, TPS. Whenever the operator of the system registers the transaction statistics from a given end, the system stores it instantly and in turn generates output as required. For instance, a small-scale business proprietor may instruct a banking system to debit his or her savings account for $500 and credit the business is checking account for $500 due to a consistent update that is done in the system. Therefore, a user can quickly locate the current TPS records, an account statement, at any time.

Management Information System (MIS): Small business proprietors rely on the industry's specific information of the management system to obtain up to date data as well as the previous data concerning the system's operation like purchases and inventories. The MIS systematically creates a pre-scheduled report that can be used by the company's management team for strategic activities as well as planning (Laudon, 2015). For instance, an MIS statement can be presented in the form of a pie chart that shows the percentage growth of sales of a particular product over time. Additionally, small business proprietors can use MIS to carry out analysis. That is, an entrepreneur can employ the system in a bid to determine the possible effect doubling monthly sales will have on the shipping schedules.

Decision Support System (DSS): The DSS lets small-scale administrators together with their partners to apply predetermined, or ad lib records in support of outlining operations and finding answers to any arising predicament. Such kind of a system is a secret weapon for coming up with solutions to particular queries essentially by evaluating every decision possible negative or positive effect before its implementation. Solutions of this sort may be in the form of summary reports of data for example like a product's returns as per the quarterly sales summary. Entrepreneurs and managers can conduct analysis using an interface, a dashboard. To choose visual illustration regarding a critical display symbol which can mark the steps toward arriving at a particular intent? An excellent example of this is a dashboard manufacturing company that can advertise graphics to show how many products can be produced in a specific channel.

The operating system of the support comprises predefined summaries that aid business proprietors and administrators recognize long-term courses in support of no routine decision making and strategic planning. The users of the system only need to click on the icons among those appearing on the support system tube/screen and register report measures to see different predefined reports and graphs, which cut across the company and the operative department of data, such as purchases, scheduling and accounting costs. The support system briefly addresses the business stakeholders on a matter, like the trends in the market and customer choices. Additionally, the support system provides the necessary tools for analysis that the concerned persons can use to foretell the outcomes, predict outcomes, and evaluate performance and estimate data, based on the previously stored data.

IT is the driving force behind innovation. Innovation, in turn, is the key to the success of any business. Innovation is to business what steam is in the industrial revolution. There is hardly any single business entity that has not profited from the use of information technology. Even the simplest ones that can be thought of as requiring manual energy such as the agricultural sector use computers in their operations. For better documentation, plans in the areas of finance, procurement and research, farmers use computers (Limsarun, 2015). An essential factor that has a positive impact on business success is the innovative power of IT. Therefore, it is very important to make meaningful decisions in the procurement of intelligent IT and the recruitment of IT personnel within the company. Wrong decisions can have negative consequences for the company.

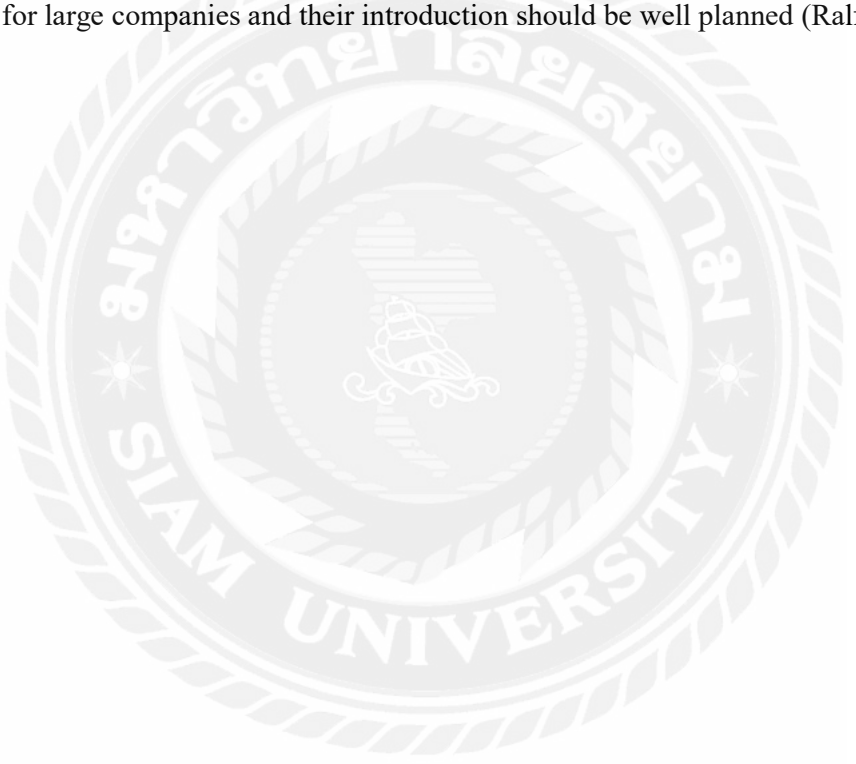
2.6 Increase in productivity through ERP systems

In the age of digitization, manufacturing companies that want to assert themselves against their competitors on the market must be efficient and flexible. Enterprise-Resource-Planning (ERP) systems are used to efficiently and centrally control all important business areas of a company as well as all associated processes of the value chain. Essentially, ERP describes business processes of planning and controlling resources such as capital, personnel, operating resources and materials in a timely manner and in line with the corporate purpose. A core function of ERP in manufacturing companies is material requirements planning, which must ensure that all materials required for the manufacture of products and components are available in the right place, at the right time and in the right quantity (Ebel, 2016). The aim is to achieve high quality, high productivity and supply security as well as low capital commitment. According to Gronau (2012), 91% of the companies surveyed were able to

increase their productivity after implementing an ERP system from SAP SE. Typical functional areas of ERP software are:

- Materials management (procurement, warehousing, disposition)
- Production or production planning and control
- Demand determination
- Finance and Accounting
- Controlling

The rollout of ERP systems is usually associated with high costs. Especially if the strategy for the implementation or system integration of an ERP system is not mature, its implementation can entail unplanned costs. The use of ERP software is therefore more appropriate for large companies and their introduction should be well planned (Ralf, 2019).



Chapter 3: Research Methodology

The present study corresponds to the Documentary Research Methode (DRM). The descriptive method of research therefore proved to be the most appropriate method. The study evaluates topic-relevant sources (primarily scientific) with regard to the primary question and draws appropriate conclusions from them.

Chapter 4: Facts and Findings

4.1 Business Productivity and Profitability Today

Companies around the world are continuously increasing their investments in IT (Urbach, 2016). The way such companies manage these investments can have a huge impact on the production of services and products and on whether they ultimately realize a profit or make a loss. The following section collects evidence of the positive impact of IT investments on business productivity and profitability.

Business information systems help to collect and evaluate information about customers. This can support companies in particular in customer acquisition and retention. It can also strengthen the relationship between service providers and their customers. (Laudon and Traver, 2016). This means that customers can expect better services from companies that have invested in IT and perform customer preferences analysis than from companies that do not. An example of this is the Mandarin Hotel Group. The company stores and evaluates the preferences of its customers. These include favourite TV programmes, room temperatures and check-in times. When the same customers check into one of the hotels again, the systems are automatically adapted to their preferences. Companies that can respond better to the wishes of their customers are preferred. They can achieve larger market shares and are therefore more profitable.

The Japanese Toyota automotive company is an example of thriving business by investing in IT. The company's secret of success lies in the fact that it has a number of business information systems and processes that support excellence, agility and efficiency at the same time. The company can respond to changes and serve clients in the markets while at the same time closely working with retailers and suppliers. Toyota management team spotted and grabbed the opportunity of using ERP systems observe efficiency, quality of products and cost-effectiveness to boost performance. It, however, took Toyota company an extra effort to revise their business processes with intent to establish the build-to-order model of production to avoid production wastages that arise from best guesses as IT investment alone could not see the business improve on productivity and hence profitability. At the accomplishment of this, they used Oracle ERP and e-commerce software to coordinate information flow internally in orders, productions, and invoices of retails and supplies within the company.

As a result, Toyota manufactured cars to meet the customers' demands only, thereby cutting down on the inventory costs since the company needed not to pay for storage fee for vehicles that clients did not need or those that were never going to be sold out any time soon.

Additionally, the system facilitates customer satisfaction since customers can buy the exact car models that they desire. However, how is this made possible? The explanation is that the system provides helpful information for the company to monitor the ever-changing trends and project future demands and learn new accurate skills of production.

Out of the system, Toyota gains profitability by creating a more effective and efficient process of production. The company realizes agility and adapts to the demands of their customers and trends in dealers and suppliers' networks through an electronic integration of the primary vehicle car ordering processes with management strategies in business. (Mano, 2009) says that even though numerous studies suggest that IT contributes vitally to the improvement of information quantity and quality, it is likely innovation and adoption are usually not a sure thing.

An observation made indicates that different companies vary when it comes to their maximization of objectives and that companies that invest heavily on IT realize higher productivity and hence higher profits as opposed to their competitors with small IT investment or not at all (McAfee and Brynjolfsson, 2008). Additionally, Mwania and Muganda (2012) advice that for companies to achieve better productivity or performance, they must have appropriate IT facilities and a supportive practice of IT management.

IT ensures sustainability and survival of a business in the market (Mithas, Tafti, Bardhan, & Goh, 2012). Citibank happens to be an example of companies that have thrived as a result of their investments in IT. The firm was the first ever to introduce the use of ATMs in direct banking. Hence, they gained a competitive benefit over their rivals in the market. As a result, the other banks had no choice than to follow Citibank's roots by providing their customers with ATM banking services.

IT provides executives with an opportunity to make better decisions that increase business productivity and profitability. Improved decision making is made possible by the ability of IT to give managers a piece of real-time information about customers' preferences and demands in the market. Verizon Corporation, for instance, uses a digital dashboard that is web-based to present real-time data to the managers about complaints from customers, the performance of networks for each region and lines outage or communication lines that have been destroyed by environmental hazards. The production of new products in the market and improved service delivery owes it to business investment in IT and Information systems. These

two are an enabling tool for companies to manufacture new products to meet the ever-changing customer expectations in the market.

Additionally, improved service delivery and creation of a business model is enabled by IT and IS. Business models contain the description of a company produces, shipments and advertises products or services to potential buyers to create profit for the company. For example, The Apple Company modifies the old business of distributing music through recorded tapes and cassettes to an online based distribution. Amazon as well provides many products online that include books and music which can be streamed online using computers or Android devices.

The use of Information Technology enhances productivity and hence profitability by enabling excellence in a company's operation. Wal-Mart tops the list as the most efficient store in retail. It has achieved above USD 28 per square foot thanks to its retail link system that connects suppliers to all the 5,289 Wal-Mart stores in the world. Products are shipped for replacement in the shelves as soon as a customer purchases them. IT enables the suppliers to monitor the purchase details hence a continuous flow of products is maintained. Thus, Information systems and technology together with excellent practices in business helps to attain a world-class efficiency in operation.

Business entities use IT to improve their operations. Web-based IT enables companies to learn new ways of how they run their businesses dramatically make a profit. Company managers who have an interest in increasing their market share or those who are aggressive in pursuing higher efficiency and a reduction of costs are viewed to be on the right track towards success hence limiting problems that arise during service delivery to customers. It is, however, good to take risks in business as coiling back most of the time never pays much. Tools of production management include software solutions, spreadsheets, customer developed or business-specific applications. For example, online shopping comes as an option that links consumers to suppliers while operating at their comfort zones. Such kind of technology is known as electronic purchasing (E-purchasing) (Piltti, 2014). E-purchasing allows business owners to get competitive products pricing as exposes their products to a broad market and no longer restrained to local merchants. Electronic purchasing extends and makes automatic the process of purchasing and merchandising of services and products right from the placing of orders up to paying the suppliers. This term in a lay man's language includes the supplier websites, systems of ordering from the back office, and marketplaces. In the digital business

era, business predictability, efficiency, security and transparency in chain management of supplies is a guarantee for businesses that use IT (specifically e-purchasing).

E-purchasing provides business owners with up to date information about their clients' desires and demands. Whenever a client's stock runs out, the suppliers can ship the products to them due to an established agreement enabled by IT. Clients can as well track the offers that are supplied to them during the solicitation period. Businesses on the supplying end can predict what is to come to review the progress of the orders placed usually in actual time. The condition of the products can also be checked in exact time. Piltti (2014) explains that data on products delivery, acceptance and payment reports can be updated in the system automatically without the clients having to call the suppliers to report. As a result, tasks are performed faster and also the paper-based operations are avoided.

Business companies employ various hardware and software to perform tasks with much ease as opposed to the analog era. Here are examples of functions performed using IT: Keeping records, e.g., IT Tracking software, processing of word, e.g., MS word, processing of payrolls, e.g., QuickBooks, Control of inventories, e.g., track systems, systems for ticket reservation (this requires specific software and a mainframe digital workstation (Manzoor, 2017). As a result, the business office setup gets relief of junks of paperwork. Additionally, no time wastage occurs whenever files or records require retrieval. Time-saving happens because all the employees have to do key in the file names in the computers and the data immediately pop up. IT advantage is not only on saving time on performing tasks but also on the number of employees that a business company will need. As a result, IT helps businesses to cut down on operation costs.

4.2 The use of productivity software in Business

A broader definition of information technology is that IT refers to skills applied in business for storage, transmission, manipulation, and retrieval of data (Laudon and Traver, 2016). Examples of these data include graphics, movies, reports, for instance, intrusion, malfunction of equipment, among others, speeches, and text messages. Generally, Information Technology is in line with the software and hardware that business manager’s use in the operation and management of the various processes of the business. For purposes of sharing information, most businesses require to create a network for their computers. Productivity software is application software used to produce information relevant to the business.

Examples of areas in business that use productivity software include:

- Communications internally by the use of e-mail, fax, among other techniques of communication such as Voice over Internet Protocol (VoIP), Video Chat.
- Storage of data about the company's products, for example, the use of a sophisticated database for stock control.
- A word processor (WP) offers an excellent opportunity for its users to write letters, process information and note down other documents.
- The calculation of complex business-related statistics profits and expenditures becomes easy when done using the spreadsheets in the excel package.
- Image editing Software is an excellent platform for business companies to design and create literature to advertise and promote their products.
- IT facilitates the creation of websites for purposes of promoting and informing the organization.
- The use of IT enables one to create a presentation using the presentation software.

4.3 Using IT to save time

The applications of IT are inevitable in the contemporary business setting. Also, their great benefit lies in how they can be used to reduce operating costs. For instance, one way in which operation costs can be cut down is by saving the time taken to complete tasks. Such a task includes retrieving data from a website or a database. A quick search is done by merely registering the keyword in the search bar, for example, the customer's name or that of a product.

Additionally, time-saving is possible through duplicating information quickly, and the results pop up within a few seconds. An excellent example of this is the act of sending a similar e-mail to all the relevant recipients within the organization by just preparing a list of the target recipients for every given communication. Should there be a need to alter the message in future, it is done merely by editing the message using the advanced desktop computers.

In a nutshell, IT not only facilitates communication globally but also the retrieval of data from global websites and databases no matter their geographical location differences.

4.4 Observations

Looking closely at the contribution of Information Technology in business, some observations present themselves with a positive impact. Those technologies, especially those based on the Internet, lead a company into to a dramatic improvement in the businesses running

processes. Business owners who intend to achieve a reduction in operation cost or raise efficiency, or increase their shares in the market, or prevent problems that arise in the delivery of service to customers are the right candidates for such investments. Tools of production management include solutions that are off the shelf or specific to the business, spreadsheets, or applications that are custom-developed. Examples of such useful technologies include:

- The companies that embrace and install the smart, distributed inventory systems end up gaining some advantages as opposed to those that do not have these systems in place (Avgerou and Walsham, 2017). Some of the advantages include a reduction in levels of inventory, improvement in a company's productivity, increased time of response of customers and thereby an increase in profits. Order and online systems of management integrate inventory data with the purchasing, electronic business systems and accounting of the organization to easily track the status of transportation of their inventories within the organization. Organizations can as well monitor and know the low and high seasons thus allowing them to make necessary supply purchasing adjustments and realize better management of their operational capital.
- As pointed out by Piltti (2014) online shopping also known as Electronic purchasing is a platform that can connect suppliers with the consumers of their goods as well as acquiring of raw materials by manufacturing industries. Additionally, electronic purchasing gives its users a competitive advantage on products pricing as businesses are not in any way limited to local customers. In general, a reduction of the transaction processing cost falls into place when Electronic purchasing as well as reduced paperwork.

4.5 Established Framework

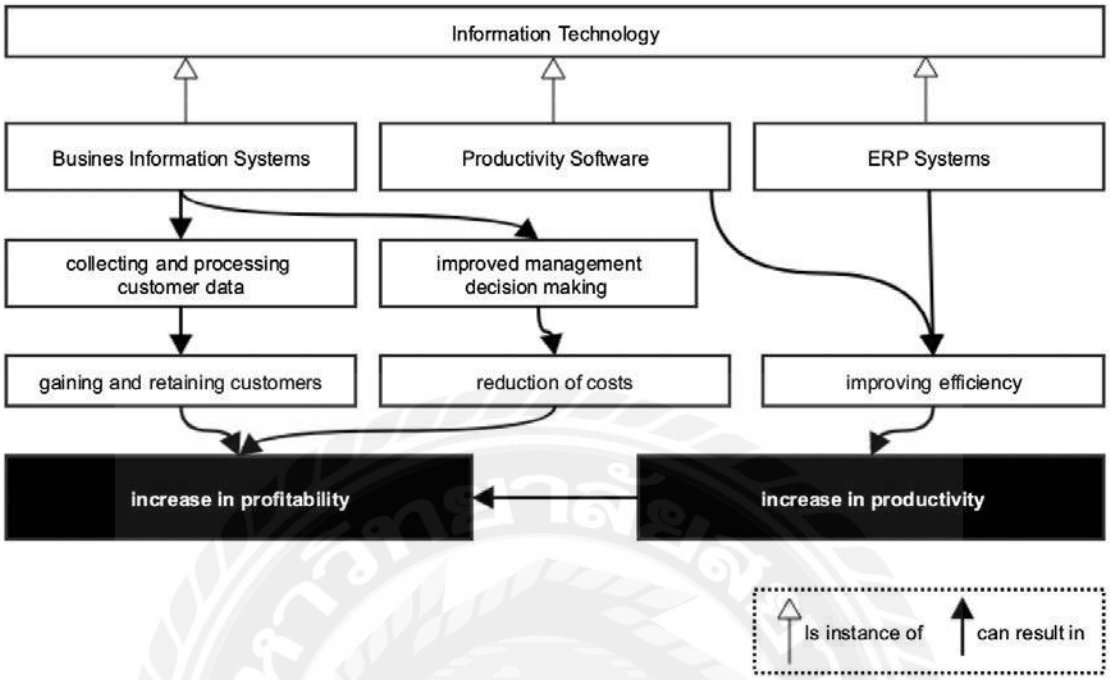


Figure 1: A framework established based on the findings in chapter 4

Chapter 5: Recommendations and Conclusion

5.1 Recommendations

In the contemporary business setting, where there are intense competitiveness and continuous demand for more relevant, reliable, and timely data to back-up the processes of decision making and attain the necessary and operational goals, constant IT assumes an essential role as an administration goal and in guaranteeing enhanced effectiveness of businesses (Marques, 2019). The productivity of business closely relates to the ability of an organization to execute its strategies in totality in a successful manner. Aside from having highly engaged employees, organizations need to execute their goals in line with their strategies and business objectives. A discussion of more recommendations for businesses is hereunder.

First, the automated storage, processing and provision of company-relevant data by IT today represents an essential success factor for companies. Companies should invest in Business Information Systems (e.g. Management Information System), because they support management decisions as well as lead to a multitude of internal company improvements. In particular, the resulting efficiency optimizations can lead to an increase in productivity. Analysis of business performance can be done using IS as well. The current technology provides its users with advanced business analysis and reporting capability that lead to an in-depth understanding of the businesses' performance and trends in the market. Access of analytical reports and performance metrics by managers and executives is made easy for purposes of redesigning or setting strategies. The reduction of operating costs and a better understanding and evaluation of risks can be a concrete benefit. An extensive and better understanding of the customer and his preferences results into corresponding competitive advantages. This can be achieved through the processing and evaluation of customer data and forms the basis for the acquisition and retention of customers. Investments in appropriate analysis tools can thus increase the market share and thus the profitability of the company. The productivity software, for instance, equips the organizations with the needful tools to deal with challenges that come with the daily execution of strategies and prosperity in the current economy. Automating processes facilitates timely communications of strategies, Increase the time spent on priority strategies, and in the end, the rates of project completion become greater.

Secondly, entrepreneurs should consider the IT-supported online distribution of their products, as well as the distribution of digital products. This can also help reduce costs, win new customers (e.g. supporting through personalized online marketing) and improve the company's profitability.

Thirdly, they ought to develop a frank and open atmosphere in the workplace using IT. Such kind of atmosphere is achievable by a central location of information about performance appraisal within a formalized online framework whereby managers can communicate organizational strategies and develop measurable targets for employees that aim at supporting the company's overall objectives. Additionally, greater visibility is realized thus allowing employees to have a clear picture thus understand how their goals can best fit into the objectives of the business. As a result, the organization attains committed and energized employees which in turn raise the productivity and profitability rates of the business.

Fourthly, business companies ought to virtually connect teams within the company, via collaboration software. The administration can create portals for employees and team sites to facilitate the productive working of employees across the organization regardless of their team and location. As a result, elimination of communication silos that hinder communication will occur since employees can now use technology to communicate with fellow employees undertaking similar tasks and locate experts to provide solutions to any challenge encountered in various company projects.

Fifthly, business managers ought to motivate their employees through the use of technology. Managers can track the progress of employees throughout the year using information collected in the online evaluation to compare employee skills with those needed for advancement or recognition, rewarding and promotion opportunities. There may also need to redirect employees to different departments within the organization if their skills can be productively helpfully elsewhere. May there be impediments to improved performance, the necessary reviews should take place to ascertain the cause and thereby eliminate this by proper allocation of resources or offer training. An online platform presented by IT facilitates easy tracking of progress at each phase of the completion of goals and provide appropriate coaching or reinforcement hence keeping deadlines performance on the check. As a result, companies can achieve increased productivity since the workforce has got individuals who are continually acquiring new skills and subjected to new challenges that boost their performance. Motivated, satisfied and alert employees will automatically put their best foot forward when it comes to performing tasks within the organization. Managers should reward their employees by use of either money or non-monetary incentives to achieve higher productivity and realize an increase in profits.

5.1 Conclusion

The present study examines the impact of Information Technology in business today. The main focus is on the productivity and the profitability of IT in business entities that invest in IT. Whether IT improves productivity and boosts profitability is a motion for debate. Further information explains that the installation and proper management of information technology systems in companies can aid in achieving the value of investment in IT by businesses.

Today in business, IT offers an excellent opportunity for timely communications; storage of huge junks of information, calculation of complex statistics that could otherwise be impossible if done manually and it facilitates online advertisement of products. It goes without saying that in all the mentioned uses of IT in business, time spent in completing tasks reduces significantly, have IT saves time. Observations made can convince companies to invest in IT to gain a competitive benefit in the business realm.

The use of IT in any business organization facilitates a speedy operation and completion of tasks. Nevertheless, these tasks are done with higher levels of accuracy. Additionally, the use of IT in business enhances profitability due to its cost-effectiveness. Businesses should emulate their role models in the business market such as Citibank and the Japanese vehicle building industry. Such successful stories can help to change the view of investors towards IT investment in their businesses. It is right to say that an investment in IT can bring about a positive impact in businesses today if well managed. Poor business alignment with IT, on the other hand, leads to an adverse effect on businesses.

In concrete terms, companies are recommended to collect and analyze relevant company data through Information Systems as well as the use of productivity and collaboration software as this can lead to increased efficiency, improvement of production-relevant factors, risk minimization and a general reduction of costs. IT-supported tools for analysis of customer preferences can help to retain customers and win new ones. In addition, IT can also optimize internal company processes and help to train employees, which in turn saves costs.

Many of the factors mentioned can lead to an increase in profitability. In particular, the increase in efficiency achieved through IT can lead to an increase in productivity, that in turn can increase the profitability of the company as well. Investments in IT do not always necessarily lead to an increase in productivity and profitability, but nowadays ignoring IT completely in companies will lead to competitive disadvantages.

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