

University of Wales Trinity Saint David – London Campus

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**LCDB7006: VISIONS FOR THE FUTURE: THEORETICAL
PERSPECTIVES ON MANAGEMENT**

Topic: The continuing effect of Information Technology and Information Processing to the Past, Present and the Future.

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ABSTRACT

Information Technology is considered as one of the most important factors behind the growth of organisations. The growth of information technology (IT) system and their usage in the organisation has been developed in the 1990s till recently. (Stebbins, Sena et al. 1995). This report will examine in details the growing importance of information technology in creating new forms of structure for organisations. Moreover, developments in IT have supported managers in adapting to existing and new design models. Which allow an organizations structure to change to its demands or requirements.

1. Introduction

Information Technology is significant in the survival and growth of an organisation. IT plays a key role in supporting, enhancing and maintaining an organisation. To achieve their maximum potential, corporations and firms must use IT and the advantages it provides. Many firms have been investing significantly into their IT and information processing system. However, the huge investment in IT does not guarantee higher and increased returns. According to Huber (1990), IT advances with greater organisational flexibility ; elimination of organisational level ; greater participation of employees and decentralisation. Managers can also use IT for better formalisation and standardisation (Huber,1990). Despite the acknowledged significance of IT, it is hard to specify the mechanisms connecting IT to organisational structure and their performance (Farhanghi et al., 2012)

The importance of information and information processing has been proved throughout the organisation's history. Information and information processing is existed to help organisation to be effective in decision making. For example, Cisco Company has been improved by changing the way how they make decisions. CEO Chamber intends to concentrate their strategies on customers rather than allowing their higher management to create decisions in isolation for customers ((Dibrell & Miller, 2002). To achieve this, an appropriate structure has to be created to generate a huge volume of information from external and internal sources. Moreover, Cisco also uses the advances in IT to reengineer the organisation and to make an efficient structure.

This report will concentrate on the continuing effects of IT on the process of evolving the organisational structure and culture. Firstly, it is essential for us to compare the historical trends to understand how the demand of organisations for information processing and advances in IT has affected a new organisational form. Secondly, the relationship between IT, organisational structure and culture at present are discussed. Thirdly, several recommendations are made on how the development of IT can affect organisational structure and culture in the future.

2. Literature Review

2.1 Information Technology

Information Technology is defined as the usage of computers, storage, networking as well as other physical devices, processes, and infrastructure to retrieve, process, maintain and interchange all types of electronic data (Rouse, 2019). IT including executive information systems ; groupware; voice messaging; online transaction systems; electronic mail and telecommunication advances, which are fundamentally changing the nature of the work-place (Stebbins, Sena et al. 1995).

2.2 Information Technology Management and Its Applications

Information Technology Management (ITM) is a process in which all IT resources are managed by an organisations priorities as well as needs, which contain tangible resources such as: networking, hardware, people and computers. In addition to intangible resources, including software and data (S.Liao, 2003). Generating value in the process of using technology is the core purpose of IT management. To do this, the combination of business strategies along with technology is extremely important. Moreover, IT management does not only contain many basic functions in management such as staff ; budget and control but also includes some unique functions of IT like the development of software, change management, the plan of network and the support of technology (Techopedia.com, 2019). ITM offers strong information processing abilities and the network provides standard and connection for digital integration (S.Liao,2003). According to [Olin et al., 1999](#), ITM has been widely used in the US auto industry to increase organisational flexibility.

The advantages of having IT department are beneficial for all organisations. There are several application of ITM which have been proved by different authors , are listed below in table 1.

Table 1: Information Technology Management and Its Application

Applications	Authors
1. Decision Support	Ramesh and Tiwana, 1999; Hicks et al., 2002
2. New product development	Ramesh and Tiwana, 1999; Huang and Mak, 2000
3. Knowledge integration	Fernandez-Breis and Martinez- Bejar, 2000
4. Workflow management	Dangelmaier et al., 1999
5. Product Management	Burkett, 2001
6. Information System Development	Arch-int and Batanov, 2003
7. Automatic System	Dawood et al., 2002

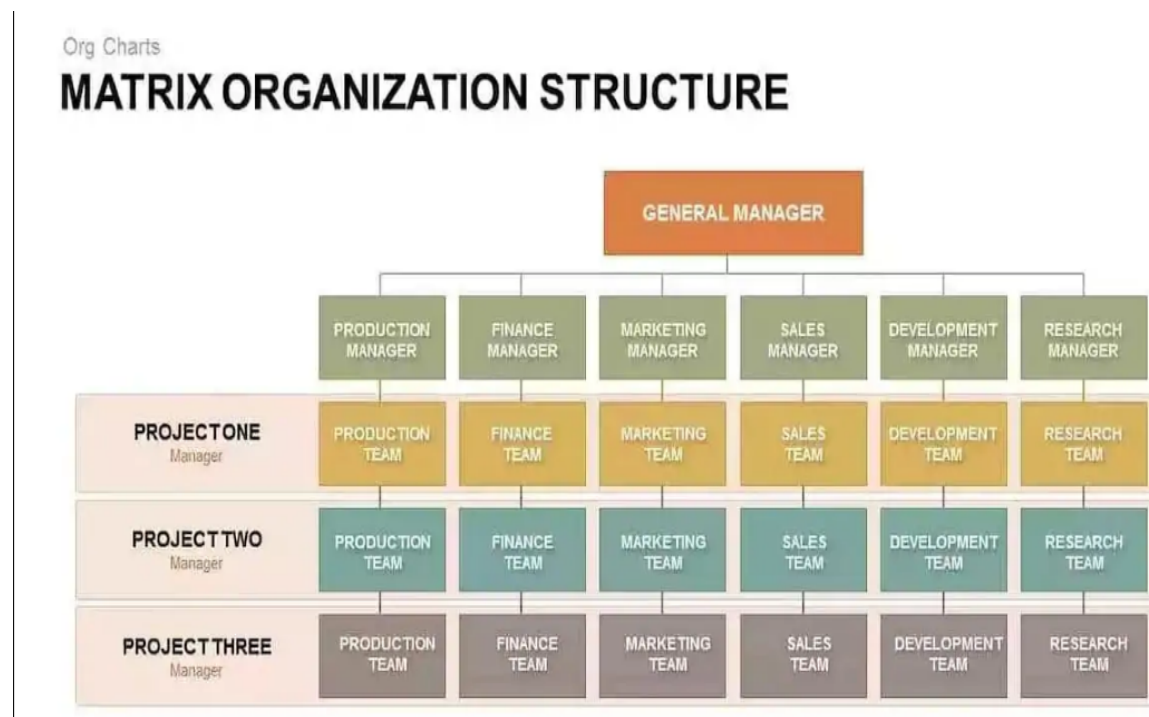
Source : S.Liao, 2013

2.3 The matrix structure

Most firms operating in multi-project environments need to share common resources and information to deliver quality and cost-effectively outputs. Because of this reason, matrix structure was developed in the early 1960s, and officially used in the aerospace industry in the US (Kuprenas, J.A , 2013). For instance, a team project or task created to improve another product which includes engineers, professional designers or those skills in marketing, finance, and production (Riley, 2018). These teams temporarily influence to the tasks they are working on . Each member in a team can report their decisions and working process to two managers or more , including their functional managers and the leader of a team (Riley, 2018). Moreover,

the matrix structure is considered as a hybrid organisation that manager makes an effort to balance the usage of human resources when people converse one project into another (Fidock, 2006). The figure below shows how matrix structure work in an organisation

Figure 1: The Matrix Structure



Source: (Goś, 2015)

According to Grey et.al (1990), matrix is the most frequently mentioned structure in the literature of organisation and it is widely used in modern firms because of its advantages. It is especially beneficial when solving an information processing problem. First, it creates lateral communication channels, which is not available in the traditional organisation structure (N.Horney & T.Shea, 2009). Matrix structure reduces the demand for **vertical communication** by creating a team that focused on specific a project only. Managers need to keep close contact and maintain control with other teams , who being a part of the project.

Second, matrix structure enable firms to handle increasingly information loads ,comparing to traditional structure. The increasing communication among departments in the firm allows information to penetrate into the organisation. Therefore, matrix structure will help the firm to

improve their decision making and response time ; as well as improve their flexibility to adapt to a dynamic situation (N.Horney & T.Shea, 2009).

Third, IT is developing extremely fast and becoming more complex, the functional structure will not be able to provide enough flexibility and innovation for the organisation to adapt the change, comparing with matrix structure.

2.4 Reengineering

This theory is considered as the term operated for fundamental change in the organisation processes. This concept was found by American Consultants, Mike Hammer and James Champy, who created the most well-known work about reengineering in the early 1990s (J.Kunicova, 2015). Reengineering is defined as “ the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary modern measures of performance, such as cost, quality, service, and speed.” (Hammer et.al, 1993).

Moreover, reengineering creates the demand for alteration on fundamental elements including customers, competition and change (J.Kunicova,2015). The organization via this approach has to concentrate on the key process with standard value and laceration relative side of the process with at least added value. The processes for radical change was created significantly on technologies through information as well as communication, which supports on a scale coming in organizations. The objective of reengineering is not re-structure the organisation, it is to re-modelling the business processes to increase organisation performance. (J.Kunicova, 2015)

Mechling (1994) stated that reengineering is an approach and objective of change and it has technological impact. One of the key points from reengineering is that information technology has an essential role to play. He strongly believed that reengineering is a rapid change based on information technology. It is argued that IT is the key of business reengineering , which is considered as “radical change” (M.Vakola,1999). The processes for radical change was created significantly on technologies through information as well as communication, which supports on a scale coming in organisations. IT can make the reengineering process happen faster, by eliminating delay and better access to resources and information.

There is a close relationship between reengineering process and IT (M.Vakola,1999). Reengineering process should be considered in terms of the capabilities that IT can provide. In contrast, IT Management should focus on how it support the reengineering process. According to Dibrell & Miller (2002), the fundamental concept is to rearrange tasks with the support of information technology by the automotive processes. Dibrell & Miller (2002) hinted that it is necessary for **organisations** to look through the most effective way to record outcome and then concentrate on bigger objectives through holding technology, looking for the demand of perspective, moving outdated assumptions and think about that single person was likely to tackle the entire process (Dibrell & Miller, 2002).

3. Theoretical foundation and hypotheses

The development of information technology can change organisational forms. According to Farhanghi et al., (2012) ,IT has affected on organisation structure by increasing the vertical relationship of information. Which results in better information centralization at the peak of hierarchy. Farhanghi et al.,(2012) emphasised that IT might have huge impacts on organisation structure by having fewer employees , a narrower span of control and reducing organisational level. In addition, it is found that the effect of IT would not only be in the border of a single department but also across whole organisation.(Farhanghi et al.,(2012)

IT by the process of vertical information permits organisational structure to be more bureaucratic around routine tasks (Whisler,1970). It makes a firm or an organization be more reactive in an environment. Furthermore, Farhanghi et al., (2012) portrayed how IT was employed to maintain flexibility in uncertain environments. In that environment, they indicated that the structure along with the traditional environment fails to make flexibility for firms having high centralisation and formalisation. Therefore, managers implement IT to get more information access and enhance flexibility.

There are several reasons why the impacts of IT are more efficient than a centralisation structure. Firstly, the information system helps coordination less costly in creating information processing. Farhanghi et al., (2012) indicated that the development in IT has allowed managers to modify the traditional structure and make new models to be suitable in an unstable environment for organisational design. Secondly, the aim of investing in IT is to enhance a

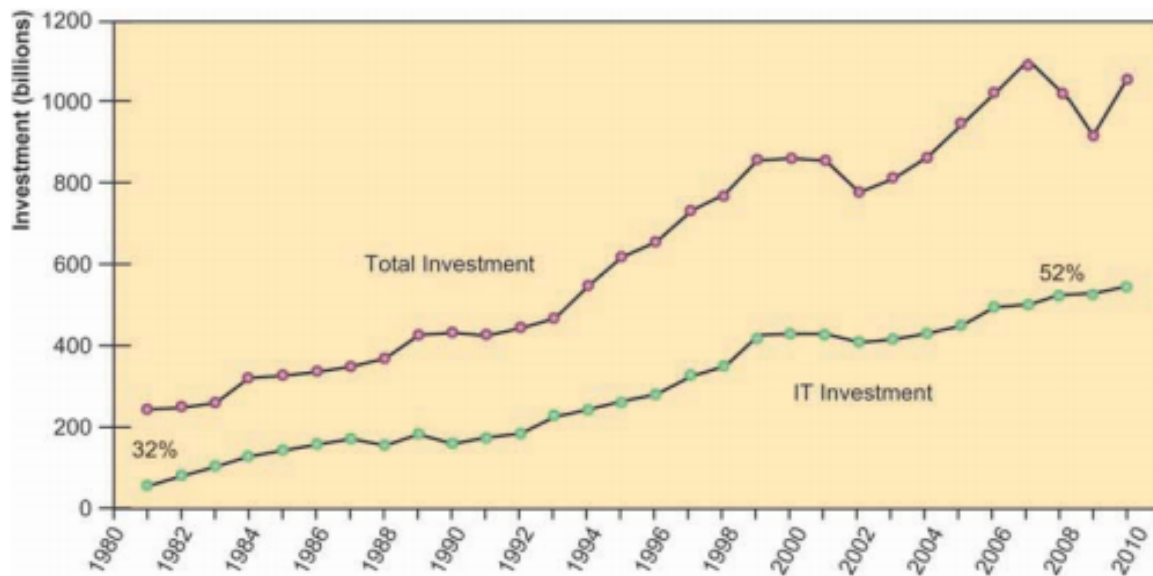
firm's competitive advantage and performance. Farhanghi et al., (2012) claimed that the capability of IT encouraged directly to the process of improving organisation like coordination, investment, absorption, and monitoring.

4. Analysis of the continuing impact of information technology to organisational structure

4.1 The demand of the organisation for information processing in the past

In 2012, USA businesses had spent above \$540 billion on the investment of IS hardware, software and the equipment of telecommunications (Greer, 2016). Additionally, they had spent another \$650 billion on the firm as well as management services and consulting which related to redesign business operations to make use of new technologies. The below figure indicates the investment in IT containing hardware, software, and devices of telecommunications increased of 20% from 32% to 52% of all capital between 1980 and 2011 (Greer, 2016). There was a large number of wireless cell phone accounts opened in 2012 rather than installed telephone landlines. Some effective tools of business had appeared as smartphones, e-mail, texting and online conferencing (Greer, 2016).

Figure 2: IT Capital Investment in US from 1980 to 2010



Information technology capital investment, defined as hardware, software, and communications equipment, grew from 32 percent to 52 percent of all invested capital between 1980 and 2011.

Source: Based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts*, 2012.

Source : Greer, 2016

Social networking platforms such as Facebook, attracted 162 million users a month in 2012 and over 900 million users globally (Greer, 2016). The search engine Google received over 100 million visitors per month in the US. Therefore, businesses have been using some tools of social networking to connect customers, managers, leaders and staffs globally. Almost every companies have been using social network platform such as Facebook, Twitter and Tumblr to advertise their services or products and to provide better customer service. Despite a downturn in the economy, the advertisement of E-Commerce and the Internet still continue to grow (Greer, 2016). In 2011, the advertisement revenue of Google was over \$36 billion and there was a growth of more than 10% in Internet advertising each year (Greer, 2016).

In the 1960s, computers are used mainly for control and accounting in organisation (Stebbins, Sena et al. 1995). From 1990, the network has been introduced to design department and managerial systems. Information processing and IT network play a vital role for managers and leaders in managing staffs across different departments. Galbraith (1973) introduced the term

‘information processing school’, which highlighted that a core function of organisation focusing on processing information (Dibrell & Miller, 2002). In addition, , the aim of information processing school is to help managers make more suitable and effective decisions on uncertain tasks. Task uncertainty is the connection of the diversified output and input resources, as well as the stage of goal difficulty. Thus, it is necessary to give suitable information to managers who will make the decision.

There are two important elements of tasks including variety and analysability (Dibrell & Miller, 2002). Task variety is the level of unforeseen events in the process, while analysability is to divide the task into smaller steps in order to reduce uncertainty. These two terms of tasks concern to organisation structure when classifying the complicated task. In case of having lower variety and higher analysability, it seems like a routine task which includes a standard, predictable, well-knowledge process. Moreover, a task might not be taken into routine unless the task runs constantly over time. In contrast, if a task happens with low in analysability and high in variety, the task is reflected non-routine task which does not maintain constant over time (Dibrell & Miller, 2002).

The various characteristic of the task and the diversification of both kinds have huge impacts on the structure of an organisation and the organisation environment. Ducan (1972) found that an inflexible environment is described as having little change in environment, while a flexible environment is described as having different numbers of external factors affected and change. Therefore, it is necessary for an organisation to have more decentralised structure for better information processing throughout the firm. Developing technology helps a firm to get more information, thus a task seems non-routine is a routine task at present (Perrow, 1967; cited by Dibrell & Miller, 2002). IT lets the non-routine tasks be examined more efficiently and can eliminate some variety as well as uncertainty in the process.

- *Lateral relations and structure*

Organisations had not only the capability to create a fast workflow but also the capability to compete with other firms on a global. Organisation task would become non-routine in the increasing demands for information. There is a popular structure aiding organizations in case of growing the capability of information processing is the matrix structure. This structure permitted firms to access information in the vertical and lateral way and shared information through traditional functions. The basic functions of matrix organisation include setting goal,

rules or policy as well as a hierarchical structure. The stage of uncertainty task will show how these processes are created. If it has low uncertainty, these processes can be carried out with the limitation of information processing (Dibrell & Miller, 2002).

To figure out the most appropriate form of this structure, it depends mostly on the level of task uncertainty. It is necessary for lateral relations to influence the specific mechanism like liaison roles, constant teams, managers or even matrix design. The matrix system seemed like the most efficient and effective structure to decrease the overload of information (Dibrell & Miller, 2002).

For instance, IT has converted a high-variety task to low-variety by using information system to analyse, divide different type of variety of the task and gather suitable data and resources for each tasks, which is easier for decision-making process. For example, UPS is one of the world's largest package-delivery company. UPS was established in 1907 by Jim Casey and Claude Ryan (T.Ling & C.K.M.Lee, 2009). In 1929, UPS began to provide global delivery service through airline. UPS delivers about 15.6 million packages and documents per day in US and around the world. Their mission is to successfully deliver million packages and documents to lots of different locations in fast and reliable speed. Their mission is extremely risky and have high uncertainty. In order to do that, UPS introduced online package tracking system, which customers can download and print their own shipping label at home by using UPS software or website. Information from the customer label will be transferred to UPS central network, and then they will send it to nearest distribution channels for quick and accurate delivery (T.Ling & C.K.M.Lee, 2009).

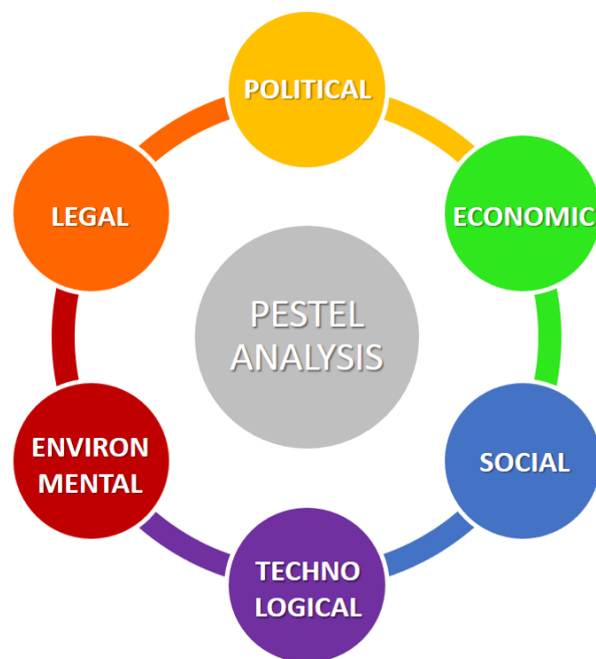
In addition, UPS also need to create and develop their own special software to manage and give information to their shipping drivers. It needs to be aware of different unforeseen events such as weather; location; contact and time. Therefore, UPS developed their unique Delivery Information Acquisition Device (DIAD) (T.Ling & C.K.M.Lee, 2009). The driver can have information about the delivery and on-screen signature confirmation from customers. All the tracking and information will be sent back to UPS central network for proof of delivery service and any customer requires later on. In order to transform from a traditional shipping company to a technology-driven, UPS invested over \$12billion in infrastructure and technology from 1991 to 2001 to constantly adopting latest technologies and innovation (T.Ling & C.K.M.Lee, 2009).

Investment in IT also help UPS to compete with other competitors in same industry. Comparing to other competitors , UPS provide customers to have access and control to their package information through network , as well as flexibility in delivery time and location. Customers will find their service is more valued and comfortable than others. UPS also try to advertise and link their service with every possible online channels to reach out to customers. According to T.Ling & M.Lee, 2009, UPS delivery system was linked to around 60000 websites so that customers can use their service straight away without accessing into their own website.

4.2 The demands of the organisation for information processing at present in a global context

4.2.1 Analysing the external environment: Ethical, Social, Political Issues.

Figure 3: PESTEL Analysis



Source : (Waiz, 2019)

- *The economic impacts*

In economic view, IT acts as an input into the economic supply to change the traditional form of capital and improve labour force quality (Bahrini, Qaffas 2019). IT helps firms to reduce labour cost by substituting employees and improve firms productivity. IT adds value to the firm level as well as the sectoral level, which leads to economic growth at the country level (Aghaei & Rezagholizadeh 2017). In addition, IT can reduce capital investment , which is relatively expensive for organisation.

In addition, IT means firms can streamline themselves, due to decreased transactions cost when buying on the market. According to Transactions Cost theory, firms focus on economising transaction and production cost. (Laudon & Laudon, 2014; p.119). For example, working and keeping contact with suppliers; insurance; getting information for the products ; buying materials, etc are expensive. Therefore, information processing and technology can help firms to find, compare and connect with different external suppliers , rather than producing their own materials or products and hiring more employees. It works the best with automobile industry . For example, **Chrysler Corporation** achieves their competitive advantage by getting 70% of its material by working with external suppliers (Laudon&Laudon, 2014) . It works the same with Dell Inc. and Cisco Systems in computer software and hardware industry.

The numbers of works be stable or decline as transactions cost decrease, and firms can raise their revenue. IT increases revenues for companies while dismissing no longer needed middle managers as well as working staff.

- *The ethical impacts*

Ethics is defined as the branch of philosophy which deals with the dynamics of decision making, in terms of what is right or wrong (G.Fuoka & M.Mantzorou, 2011). IT create new questions about ethics for individuals and society as they change the culture. Therefore, IT can endanger the existing distributions in power; price and obligations (Laudon &Laudon , 2014; p.155,156). Technology service and devices including telephone; radio; e-mail; search engines can be applied to enhance social value and culture. In contrast, it can also be used to commit crimes and endanger social value (Laudon &Laudon , 2014; p.155,156).

The growth of IT will bring not only lots of benefits, but also harms for society and organisation. Internet recently is being widely used in organisation and society , while raising

concerns to personal and firms privacy and the use of customer information. Laudon (2014) summarised different trends in Information Technology Management that raising ethical issues in the below table next page.

Table 2 : Ethical Issues in Information Technology Management

TREND	IMPACT
Computing power doubles every 18 months	More organizations depend on computer systems for critical operations.
Data storage costs rapidly decline	Organizations can easily maintain detailed databases on individuals.
Data analysis advances	Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior.
Networking advances	Copying data from one location to another and accessing personal data from remote locations are much easier.
Mobile device growth Impact	Individual cell phones may be tracked without user consent or knowledge.

Source : Laudon & Laudon, 2014; p. 157

For example, Facebook introduced their new feature in 2007, which collected data of its users, focus especially on their preference and shopping habits. (M.Hauman, 2015). However, their users reacted extremely bad for this feature and forced Facebook to change. Facebook and other social media websites generate profit by gathering and selling users' information to third-party advertisers (M. Hauman 2015). Not every users are comfortable with this issues. Even though users can set their own privacy on Facebook recently, the issue is still happening. There is still lots of social harassments and abuse on Facebook, which Facebook cannot control completely. Secondly, CEO Rajat Gupta of McKinsey & Company was found guilty in 2012 for leaking insider information. (Laudon& Laudon, 2-14 ;p.154)

- *Discussion about ethical, social and political issues*

Ethics is a dilemma that managers face and is debated, especially in social and political discussions. For example, in 2012, Barclays Bank Plc admitted to manipulating compliance for the interest rates in the LIBOR benchmark to receive advantages from its trading positions (The Guardian, 2016). About 6 managers was sentence and Barclays was fined for \$160 million. Individuals are set to behave and act according to social institutions which are supported by laws. When IT brings changes into the environment , politics and laws might not be supported those changes and actions yet. Therefore, it is important for organisation to pay attention to

ethical and political issues, which occurs by adapting the development of Information Technology and innovation.

4.2.2 The network structure

The network structure can be considered as the structure counting for more objectives and flexible structure in the organisation. It is including the flexibility and control by market mechanisms, new structures and resources by strategic alliances as well as outsourcing.(Dibrell & Miller, 2002). In order to operate this structure efficiently in organisation, it takes the process of high volumes in information technology and access to information by their employees and partners in their strategic alliance (Dibrell & Miller, 2002). Therefore, it is extremely important to focus on the availability of information to all departments of the organisation by continually develop their IT network.

4.2.3 Other impacts

It is indicated organisations facing with unpredictable events have to concentrate on IT, comparing with organisations followed to the predictable environments (Dibrell & Miller, 2002). Information technology helps an organisation become more reactive as well as proactive in the environment. In unstable environments, it is proved that the linkage of the traditional environment has troubles to produce flexibility for firms which are significantly centralised along with formalised. To lessen this tension between structure and environment, information technology is utilised to maintain and give more organizational flexibility, while letting them process greater environmental information.

Moreover, firms still made use of core information systems to help them to manage and combine the organisation design and infrastructure. It was given two reasons why the application of IT becomes more effective than a centralised and formalised structure. Firstly, it supported co-ordination by making information processing less costly. Secondly, this improved the process of information so firms can control projects and tasks efficiently. (Argyre, 1999; p.162)

4.3 The demands of the organisation for information processing in the future

4.3.1 The challenges of the organisation

There are several challenges for organisation in the future if they want to keep compete in the market, including reducing inventory costs, speed, higher quality of products and customer services, increasing profits and so on. It is not easy to overcome these challenges without developing an appropriate systems. In addition, IT also develop at extremely fast speed for lots of firms to keep up with new trends and innovations.

It can be achieved by having Enterprise Applications in the organisation. Most companies are currently using this software (Laudon & Laudon ; 2014). However, Enterprise Applications are extremely costly for switching to a new system. Enterprise Applications are a software that provide business tools and solutions to design their business processes to improve productivity and efficiency (Experian Ltd, 2019). It includes billing systems; customer relationship management systems and supply chain management systems.

Several firms acquired huge problems and losses when first implementing these applications because they are unaware of how much change these would bring to the firms. For instance, Overstock is one of the biggest online retailer companies locating in Utah. Their revenues reached \$1.8 billions in 2011 for their high quality products and services (Solix Technologies, 2011). However, Overstock's order tracking system crashed for whole week when the company replaced their own system with Oracle enterprise system in 2007. Overstock did not prepare for this huge change and did not link all their customers' data to the new system. Therefore, they faced a huge loss of 75% with \$14.5 million in just a week. (Solix Technologies, 2011).

- *Cloud Computing*

The ability to combine a huge number of computers on a network system creates several challenges for IT professionals and firms. It is also difficult for any external suppliers who will keep those computers and data. Hiring professional especially in cloud vendor network is extremely hard, comparing to just hiring an IT staff (R.Heibutzli, 2019)

4.3.2 Solutions:

- *Social Customer Relationship Management¹ and Business Intelligence²*

Laudon & Laudon (2014; p.389) recommended these software to improve productivity by technology. For example, Dell uses CRM to give them customers' opinions and feedbacks about their new products on their website. Lots of companies contacts with customers by social network such as Facebook; Twitter instead of phone call. It helps organisations not only save the costs but also deliver quicker response for their customers. Customers are recently expected to get their responds through these channels. CRM software also take information automatically about customers' demands , issues and specifications.

Business Intelligence software vendor helps managers get meaningful information from the large amount of input data from organisation system. For example, Data Visualisation ; Dashboards; Reporting; Data Warehousing are included in business intelligence software (Technology Advice, 2019). Therefore, managers can make decisions quicker and more efficiently by quarterly and yearly report. Big Data is one of the most popular forms of Business Intelligence. It is estimated that Big Data market reached \$21 billion in 2018 (Technology Advice, 2019).

1: CRM software includes any applications that help business build relationships and contact with customers. It is operated through different channels such as calls , e-mails, website. Firms use this software to gather customer information for product development and loyalty programs.

2: A set of tools to analyse and transform raw data to meaningful information for decision-making. (Technology Advice, 2019)

For example, Walmart deal with 1 million transactions per hour. It is estimated that Business-to-Business and Business-to-Customer online market will be around \$450 billion per day in 2010 (Technology Advice, 2019). BI software can help firms to gain competitive advantage by forecasting market trends and customer behaviours and therefore become market leaders in the industry.

- *Enterprise Resource Systems*

Enterprise System is a cross-functional information system which helps in planning resources for organisation. Firms utilise this method to combine all business processes in production such as manufacturing; finance; marketing and human resources in a software system. (S.KrukeJa, 2019). ERP software is run by a common centralised database. The software supports different business processes throughout the organisation and provide the data to all level in departments for internal activities. The implementation of enterprise supports the business to become more adaptable and productive by combing the processes more carefully and co-ordinating them in a system and concentrate on effective management . Four core enterprise applications include enterprise systems, Supply Chain Management System, Customer Relationship Management System and Knowledge Management System. Each application represents a set of functions and the process in business to improve the organisations' performance (Laudon & Laudon, 2014; p.388,389).

- *Supply Chain Management System (SCM)*

Companies use SCM systems to support and maintain the relationship between companies and their suppliers. They support suppliers and firms distribute information concerning orders, productions, level of inventory, products deliver along with devices. Therefore, firms can produce and transform goods and services in the most effective way. The additional objective is to record the exact number of products orders and materials with production time and cost. Moreover, these systems grow a firm's profitability by reducing the moving cost and product-making, and by supporting managers to have better decisions about the way to organise and arrange resources, production as well as distribution channels. SCM systems belong to one kind of inter-organisational system due to their automation to the information flow via organisational areas. (Laudon & Laudon, 2014; p.381).

- *Customer Relationship Management Systems (CRM)*

CRM software is a tool to help businesses keep contact with their customers, manage sales and marketing process to provide better customer service. CRM also includes tools for partner relationship and employee relationship, when a firm does not sell directly to buyers, but through distributors and retailers (Technology Advice, 2019). It gives both companies as well as its sale partners with the capability to get information about buyers, promotions, price, the configuration of orders and availability. Moreover, it supplies the company with tools to measure the performances of partners, so it can ensure their partners are doing their tasks seriously. Additionally, CRM can also enhance employees' performance by creating aims, rewards and staff training. These major software vendors contain Oracle, SAP, Microsoft Dynamics CRM as well as Salesforce.com. (Laudon & Laudon, 2014; p.382)

- *Knowledge Management System*

Some companies work better rather than others due to their better knowledge about the way to produce and transform products and services. Knowledge Management System is the process of identifying, gathering , analysing and sharing all valuable information which organisation creates in daily business. These information are extremely complex and hard to use in the long term for strategy if they are not in a system. This software takes total relative knowledge along with experience in the company and creates it available every time it is required to enhance the processes of business and the decision in management. Furthermore, KMS also enable external sources for organisation to use and get recommendations from. (Laudon & Laudon, 2014; p.382).

5. Conclusion

This paper indicates and highlight the importance of applying information technology and information processing into the organisation, which has affected the structure of an organisation constantly from the past till recently and the future. It shows how information technology has supported firms to adopt demands to improve information processing, how IT allows managers to redesign a more flexible organisation. IT supports organisations to achieve centralisation and control by vertical integration become more efficient . Moreover, the matrix form has become one of the most appropriate structures during the development process. Presently, IT help firms to run re-engineering processes, which are hard to do appropriately. Moreover, IT allows non-routine tasks to be analysed more efficiently and may decrease the variety as well as uncertainty from these tasks. Different challenges that organisation might face in the future are mentioned with possible solutions. Therefore, it is recommended that any businesses should focus on how to improve their IT network structure as well as their information processing system.

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