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Technology advances have rendered traditional models of organisational structure and theories of management roles obsolete in the light of the changing nature of 21st-century corporations.

Doctor of Business Administration Programme

Visions for the Future

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1. INTRODUCTION

The revolution of technology, especially the internet has become one of the best invention. Many discussion has been made stating the interaction between technology and organisational structure and culture. Organisational structures and cultures change over time due to several reasons, including the influence of technology. According to the study related to the technology and structure conducted by Woodward (1980), the author emphasized the importance of combining technology and right structure and culture that lead to the organisational success. Therefore, in association with the development of technology and the change in structure and culture of organisation, this paper is designed in the field of topic “Technology advances have rendered traditional models of organisational structure and theories of management roles obsolete in the light of the changing nature of 21st-century corporations”.

In particular, this paper provides the concept of organisational structure and culture and different types of both old and new designs of structure will be examined to provide the understanding of characteristics of each structure type, focusing on Mintzberg’s organisational structure and Organic and mechanistic models. Then, the relation and influences of technology and organisational structure and culture is discussed. Additionally, this paper uses Google case study to assess how the firm create its unique organisational structure and culture. Lastly, the future structure of organisation will be presented along with some challenges for organisations when participating in the future type of structure.

2. LITERATURE REVIEW

2.1. Overview of organisational structure

Organizational structure has long been one of the most essential elements in the management field because it is attributed to the basic goal of any businesses and truly reflects on the fact whether a company succeeds or fails in a particular marketplace. There are a number of different researchers define the term of organisational structure given the fact that this concept varies across the industries that each company has its own structure to operate and attain goals. According to Monavarian et al. (2007), organisational structure is a set of processes that allocating the tasks in order to direct and manage them. Organisational structure relates to other aspects of organisation, such as size, strategy, technology and culture (Handy, 1993). This term has been expressed similarly by Miller (1989) and Mintzberg (1989). The organisation can base on the nature of the business, the value or the size to decide and choose appropriate structure for management purpose.

There are four main elements that build up the structure of a company. They are centralisation, formalisation, hierarchical levels and departmentalisation. First, centralisation refers to the authority at a top level of management in organisation while in decentralisation, decision making are processed at a lower level (i.e employees). Most employees are attracted by the form of decentralisation as the process of decision making is faster and employees can participate in that process. Next, formalisation structure operates based on the rules and regulations so that the organisation can direct and control its employees through those rules. The advantage of formalisation is that it provides a clear guideline for employees, therefore offer behaviour consistency among workforce (Pierce and Delbecq, 1977). Another element of an organisation structure is the hierarchy level. In this element, tall structures are described as a structure with several layers whereas flat structures have less layers. The organisation with flat structure offer a higher level of staffs' satisfaction comparing with tall structure. Lastly, departmentalisation refers to the structure that categorises organisation based on either functional and divisional.

The concept of organisational structure has been examined from earliest period until now and there are different types of structure that an organisation can adopt. According to Oliveira and Takahashi (2012), in the very early stage, structure of an organisation can be depended on its product or its function. Later, as organisations continuously demand for

more specialised in rapid changing environment, the number of organisations use more complex structures arise.

Functional structure

This is one of the most common and simple form of organisational structure. In this structure, organisation would base on job functions to determine the structure. In other words, functional structure means the organisation places their employees into different department by their functional specialisation. Employees who perform same function will work in the same departments and contribute the job requirements of the organisation. Nahavandi and Malekzadeh (1999) emphasized that this type of structure is suitable for small and medium-sized businesses to control their operation in a constant environment. When an organisation grows, the requirements of extra functional department will arise. Thus, a functional structure can fulfil that needs. This is one of the key advantages that introduced by this structure. As employees are grouped into common function, it enables employees develop their skill and gain in-depth knowledge in their specialization, but not other specialization of other departments. Further, the weakness of this structure, is related to individuals working in the same functions. Employees are encouraged to focus only on their tasks in their own department, leading to the less innovation as well as poor communication within organisations (Baron and Greenberg, 1990). Also, it results in the poor horizontal coordination among departments (Robert, 1979). In addition, organisation may face hierarchy overload. Top management would discover the difficulties and overload in integrating different functional activities, making the decision making process slowly.

Divisional structure

Employees are grouped by products/services based, sometimes depending on the market and geographical locations. Organisation which apply divisional structures typically require decentralised management to report to top management and decision making process is down to the divisional level.

This structure is believed to be appropriate for large businesses with multiple products or services, operating in uncertainty environment, which request the fast reaction to their customers and competition. There are a number of benefits that divisional structure organisations offer. Firstly, the organisation will be more flexible comparing with functional structure organisations. Each department has their own specialisation in a specific product/service lines, or market; making the organisation response to customers' needs quicker, resulting in customer satisfaction (Robert, 1979). Secondly, divisional structure organisations encourage employees compete with other divisions while still

adding value to organisational performance. Further, according to Baron and Greenberg (1990), there is a high coordination across functions as each product can fulfil the needs of customers. On the other hand, it is said that there is poor coordination among product lines since each product line is in a separate division (Mintzberg, 1992, 2009). Baron and Greenberg (1990) supported this idea when stating that in some cases, actions of an operating division may cause effect on other divisions' outcomes. Further, one of the common downsides, is losing economies of scales (Robert, 1979). Unlike functional structures that placing employees to work and share same facilities in the same functional department, in divisional structures, employees are assigned to different product divisions. This eliminates the in-depth competence and makes the organisation duplicates its facilities for each product division.

Matrix structure

In a study by Greiner and Schein (1981), they stated that matrix structure does not follow the typical hierarchical structures. An open and flexible structure is introduced rather than the old structure where specialised departments are offered and there is only one single boss that direct subordinates. Matrix structure is a structure focuses on both functional and project specialists at the same time. This structure requires employees to report to both product and functional managers, for the purpose of delivering high level of integration within the organisation, making firms more flexible in achieving goals for both company-wide and their product lines. Matrix structure has gained attention by different companies in various sectors in 20th century such as banking, oil and gas, electronics, aerospace and so on (Sy and Cote, 2004). The structure is believed to fit best for organisations in diverse market with several products, especially high technology companies (George and Jones, 1999). Rather than just focusing on a specific function like functional structure companies, employees in matrix structure are allowed to work in additional groups for interchange their knowledge and advanced skills between project or product. Thus, it provides employees opportunities to improve their skills as well as get better career growth on their interest (Gordon, 1996). It also results in better communication among groups of an organisation. Besides, Bannerman (2010), from his point of view, argued that matrix structure indicates some disadvantages. Dual reporting relationship cause the risk of confusion among employees. The risk of conflict in management occur due to a large number of managers in matrix structure. Sometimes, personnel issues arise among employees since dual reporting make unclear and overlap in authority and responsibility, leading to the high level of stress and staff turnover (Nicholas

and Steyn, 2012). It is also suggested that there is an equal power between functional managers and projects managers within matrix organisational structure in order to avoid employees' actions to impress managers who have bigger influence for their personal purposes (Greiner and Schein, 1981).

2.2. Organisational structures then and now

2.2.1. Traditional organisational structures – Mintzberg's organisational structure

The ideas of organisational structure were contributed by different scholars. Regarding to the old organisational structures, this paper will first describe structures within organisation using Henry Mintzberg's framework. Mintzberg suggested that organisations would adopt five structural configurations as table below

Structural Configuration	Prime Coordinating Mechanism	Key Part of Organization	Type of Decentralization
Simple structure	Direct supervision	Strategic apex	Vertical and horizontal centralization
Machine bureaucracy	Standardization of work processes	Technostructure	Limited horizontal decentralization
Professional bureaucracy	Standardization of skills	Operating core	Vertical and horizontal decentralization
Divisionalized form	Standardization of outputs	Middle line	Limited vertical decentralization
Adhocracy	Mutual adjustment	Support staff	Selective decentralization

Table 1: Mintzberg's Five Structural Configurations (Mintzberg, 1979)

Firstly, simple structure is mostly suitable with small and medium sized companies. According to Jackson and Harris (2003), organisations with simple structure would have centralized authority, in which top managers would give direction for their workers to perform work tasks. Although this structure is believed to be easily and clearly to maintain, when the size of the company is increase, it is not recommended to adopt this structure as it would slow down the process of decision making among managers. Secondly, machine bureaucracy is described as a structure with high degree of formalization. However, it has a narrow span of control and the decisions are centralized as Mahadevan (2000) stated that only technical division of the organisation has the right to perform the work tasks themselves. Thirdly, Mintzberg (1992) described professional bureaucracy as an operating core which has both horizontal and vertical decentralization. Organisations focus on skills so that services provided to customers are high quality. Professional bureaucracy is believed to fit in medium to large size companies. Next, in divisionalized form, decision making is decentralized. Divisions in an organisation are independent so the coordination

between divisions is limited. Large organisations tend to use this form. Lastly, adhocracy employs selective decentralization and it enhances support staffs. Those staffs play important role in helping the organisation to adapt in rapid changing environment (Teece, 2010). Adhocracy structure are likely to be adopted by e- businesses due to the fact that it supports e- businesses to operate the way they want. In addition, according to Jackson and Harris (2003), support staffs are essential for small and medium size businesses that are driven by technology as staffs would support those organisations in uncertainty environments.

In general, there are some certain weaknesses exist among traditional structures and these limitations might be the reason why organisations shift to other structures.

- Inflexibility: the inflexibility of organisation is mainly due to hierarchical structures. The hierarchical organisations best fit with standardised practices, but it prevents organisations from transforming and changing in a rapidly growing environment. Also, hierarchical structures result in slow response to new opportunities.
- Time-consuming in decision making process: it is mentioned above that hierarchical organisations allow top-down decision making. The authority is strongly concentrate on top management. Thus, the decision making process is often slow.

2.2.2. Modern organisational structures

Traditional hierarchical structures would have impact on the productivity because of their characteristics, and organisations continuously demand for more specialised in rapid changing environment, so the number of organisations use more complex structures arise.

Boundaryless structure

According to Ashkenas et al. (1995), boundaryless organisation is the flexible and unstructured type of a company in which there is no barriers within the company and also no external barriers between it and its customers and suppliers. Boundaryless organisation exists in different forms, including modular organisation and strategic alliances. In the form of modular, a firm will outsource all the unnecessary functions to external suppliers while only keep the essential functions internally. Strategic alliances form contributes to another characteristic of boundaryless design. Organisations create partnerships through collaborating with others for the benefits of both parties. An example of the partnership is Starbucks and PepsiCo in 2015 to introduce new Starbucks ready-to-drink products in supermarket. While Starbucks has a strong brand name in coffee drinks field, PepsiCo has

strong experience, marketing and distribution channel all over supermarkets. Hence, it is beneficial for both companies in building this partnership.

On the other hand, boundaryless organisation is claimed to be able to eliminate internal barriers among employees and departments (Rosenbloom, 2003). Thanks to the structure that allow teams to have self-management, employees are active and flexible in interchange their roles for the common organisational goals. There is no existence of “not my job” issue (Dess et al., 1995).

Virtual organisation

The network/ virtual organisation is a quite new concept as it has been defined from the start of 1990s. It is defined by Chaudhari (2010) that a virtual organisation is a collection of different parties that share resources to reach certain goals of profitability and growth. Due to the rapidly developing of technology, virtual organisation does not require its members to be in the same region, they work through the electronic media and telecommunication. Therefore, this type of organisation avoids some difficulties, for example time and location. Since the main characteristic of virtual organisation is removing time and location barriers thanks to technology, an organisation with virtual structure can operate among various locations and will benefit from the larger of skills of members. There are certain benefits that make organisations want to adopt virtual structure. In virtual organisation, it is argued that the total number of customers will increase (Chaudhari, 2010). Organisation can take the opportunity on reaching more customers indirectly. Moreover, the organisation can also offer a wider range of services for its customers. In addition, organisations can participate in more than one virtual organisations with the benefit of cost reduction. They do not have to invest in physical assets and physical locations to operate their businesses like traditional organisation.

Apart from advantages that new type of organisation brings, virtual organisations can be emphasized as a complex type of organisations. Firstly, trust is one of the most challenging elements that organisations should consider when participating in virtual organisations. As virtual organisations comprise interaction of different parties, it is necessary to establish and maintain the level of trust. However, it is difficult to build trust among members of virtual organisation. The differences in policies, legal and business requirements as each party operates in different countries often lead to the problems of trust. Also, some members have some fears of their information will be used and accessed by other members. Another challenge of virtual organisations is security management. In this case, security means the protection that avoiding threat and risk. In order to prepare for

a security management system, threats need to be determined. Threats can come in several forms, such as data loss or the use of data unlawfully. Sometimes, it is impossible to find out that secret information has been accessed as hackers can get information without altering the system (Jaroslaw, 2005). Also, threat of security can come from the trust among members of virtual organisations. Therefore, each virtual organisation member should have responsibility in protect their own security as well as the whole organisation resources security. According to Nami (2008), in terms of organisational, security managers are required to always monitor and supervise members' activities to identify threats among members and take suitable actions to eliminate those threats. In addition, it is considered that a virtual organisation is not suitable for all projects and not everyone can act well in a virtual environment. Thus, it is a challenge for members of virtual organisations to gain ability to work individually and independently as there will be no direct control. It is also crucial for members to be able to communicate with others clearly as there will be no face-to-face communication in virtual organisations.

2.3. Organic versus Mechanistic models of organisational structure

Burns and Stalker (1961) introduced organic and mechanistic model for enterprises to manage their work. Organic approach is a system that allow organisations to act rapidly in a fast changing environments (Burns and Stalker, 1961). There is a decentralised decision making process in which individuals are encouraged to involve in making business decisions. In addition, individuals at different levels of organisation are flexible in practice and create innovation. Also, employees and top managers can interact, communicate and exchange information when needed. It is said that organic structure is mostly flat and is adopted by organisations in fast- paced environmental change as organisations are flexibility to change quickly. An example of organisation that adopt organic model is consultant organisation. As clients of consultant companies often come to them with different issues that change everyday. Therefore, consultant companies would benefit from adopting organic model to response quickly and meet the clients' needs.

It is suggested that mechanistic structures share the same characteristics with bureaucracy systems (Burns and Stalker, 1961). Unlike organic model, mechanistic structure has high degree of formality. The decision making of this structure is centralized. In other words, there are few people in mechanistic organisations can involve in decision making process. Additionally, the integration of mechanistic structure is different from organic structure. While organic organisation allows interaction between managers and

staffs as needed, the integration of mechanistic organisation is formally via meetings of managers. As a result, this structure enhances reporting relationships. In general, large companies operating in stable environment are likely to use mechanistic structure.

2.4. Organisational culture

The concept of organisational culture has been introduced and defined long time ago. There are different definitions of culture in an organisation. Owens (1987) described organisational culture as a tool to reflect the values and beliefs that create the behavioural norms. Schein (1990) shared similar thought and contributed to Owen ideas that organisational culture is solutions for organisations to solve problems. In addition, Schein (1992) pointed out that leaders of organisations play an crucial roles in determining and shaping the culture. Also, culture is said to be a tool to help individuals in companies to understand which actions they should do and which actions they should not do. Organisational culture is the combination of “knowledge, values, beliefs, attitudes to which people are exposed” (Handy, 2003).

Recently, as there are increasing number of online businesses, several studies have been conducted to identify the impact of online companies. Differents assumptions were introduced on whether online businesses have significant influences on the organisational structure. Zheng et al. (2010) found that traditions and values affect directly on the employees thinkings and responsibilities as a whole. Also, employees’ knowledge, skills and abilities are determined by the culture of firms. According to Chatterjee et al. (2002), organisational structure and organisational culture has a strong relationship, in which they support for each other for the purpose of achieving objectives of the company as a whole.

2.5. The relationship between advanced technology and organisation

2.5.1. Why do organisations change under the developing of technology?

There are different demands that require organisation to change. Change in organisation can take many forms, involving structure, culture, strategy or policies changes. Depending on the scope of changes, creating plans for changing may take years and have affect on both employees and the whole organisation. This paper will focus on how technology influence organisation’s structure and culture.

The fast development of technology drive organisation to change. According to Crowston and Malone (1994), there is a relationship between organisational structure and advanced technology. There are three aspects underlying in this relationship, namely, technological necessity, organisational necessity and interactive necessity. Firstly,

technical necessity was studied by Woodward (1980) that structure of an organisation is shaped by the technology it practices. In other words, technology results in the changes of structure and formation. Secondly, in contrast with technological necessity, in organisational aspects, top management can consider changing some elements including technology change for a specific purpose of the organisation. Lastly, the interactive necessity refers to the relation of technologies and managers within organisations. This term is quite complex as it deals with what technology allow along with what management of organisations want to achieve (Woodward, 1980). Similarly, Crowston and Malone (1994) expressed their view that supported Woodward's view by stating that current development technology and demands of an organisation lead to the need for organisational change. One of the example about the important of technology and structure of company was in the study by Laudon and Laudon (2012). The writers claimed that information technology (IT) is the key component that reflects the structure or shape of an organisation. They proposed an example of small firms with typically single and weak IT system while large companies usually design their own set of IT infrastructure.

2.5.2. Influences of technology on organisational structure and culture

Many researchers have proved the significant impact of technology on organisational structure, culture and management. This paper will discuss three elements that are affected by technological including span of control, employees and new type of workplace.

Span of control

According to Monge and Fulk (1999), communication and information technology can impact on the span of control within an organisation. Information technology takes communication across departments at workplace into a higher level. Using computer-based allow company to remove the middle management. In other words, firms increase the use of information technology lead to fewer layers of control; thus broaden the span of managers control and flatten the structure of organisation. Before information technology, organisation requires face to face communication among staffs and between staffs and managers. Nowadays, almost organisations use information technology to help employees connect with others at different places in different times, even outside working hours. Managers can actively check and deal with numerous problems arising through e-mail whenever they have time at any places. Thus, information technology eliminates the barriers in communication. As location is no longer a problem in an organisation with the utilize of information technology, employees are monitored by different software and

methods such as e-mail, video. This makes organisations widen their span of control, since employees and managers are not required to be in the same locations.

Next, information technology provide organisation a new environment for learning and teaching. Company can operate training courses for its employees to improve the performance ability through computers. Employees will be offered training through company's websites, simulation, online courses. Organisations can reduce the use of paper by placing training materials online, which offers employees a flexibility environment to learn at their own favour time. Moreover, employees can seek help from the internet or through communicating with other colleagues, instead of asking managers all the time. By training, it is possible for employees to have sufficient abilities and skills to perform their jobs, leading to the high authority and decentralised decision making process (Rominger, 1996). The way employees participate in making decision has removed the existence of middle management, thereby make the hierarchical level flatten. Also, due to information technology, the decision making process is becoming more quickly; thus, organisations nowadays are in need of recruiting managers who have knowledge of recent technology and how to use it in an efficiency way (Klein and Dologite, 2000).

The implementation of information technology can be a benefit for organisations in transformation of structure and widen span of control, companies still need to consider the potential downsize of this progress.

Employees

There is a relationship between technology and workforce of the organisation. Using technology will result in the form of employees' empowerment. Drucker (1988) mentioned about this empowerment as "employees in the new information-based company will know what they have to do without a flock of vice-presidents feeding them information and orders". Under human IT resources, employees are received training on the technology, helping them have appropriate skills and knowledge to understand their duties and meet the expectations of organisation. Thus, employees are given more authority in performing their jobs, leading to the high level of satisfaction within workplace. On the other hand, due to the increasing number of new machines, the organisation may reduce the human workforce. High technological machines help improve the productivity, lower the production cost and save time. The reduction of number of employees also results in less payment for wages and other expenses.

New type of workplace

As technology grows, there is an idea of new virtual workplace for employees. Since employees have the right to access to all information that needed for them to perform work, it is believed that employees can work independently. Jenner (1994) argued that the new type of workplace will allow employees to do their job anytime, anywhere and there is no need a physical office for them. This idea will automatically change the usual actions happen everyday at workplace. However, it is obvious that not all job fit with this new type. Further, there will be a change in the concept of communication due to information technology. It can be seen that communication is one of the key aspect within organisation. All activities including planning, organizing, implementing or monitoring need to be communicated among members of organisation. In this revolution, information systems will change the traditional way of communication. Computers allow employees to connect, share information as well as ideas faster than before. The new communication technology has decreased the need of face to face interaction and eliminated the slow communication (Alsene, 1994). In addition, it is easier for managers to monitor the performance of subordinates. Also, it is suggested that technology changes the communication between business and other businesses (Huseman and Miles, 1988). Companies will have ability to access to public information of other firms as well as share and transfer information.

3. A case study of Google's organisational structure and culture

Google LLC is an American company which was founded in 1998 by Larry Page and Sergey Brin. The company specializes in providing services and products related to internet such as search engine, advertising, software, hardware and web-based services. It is said that organisational structure and culture plays an essential part in leading to the technology business success. In terms of Google, the culture of the company is to focus on innovation in order to develop services for customers and promote competitiveness to compete with its strong rivals, such as Microsoft, Amazon, Apple. Therefore, along with the culture, Google built an unique organisational structure that can contribute to the creativity and innovation.

3.1. Characteristics of Google's organisational structure

Back in 2015, Larry Page and Sergey Brin made an announcement that they would restructure the business. In this way, Alphabet Inc. was created, as known as Google's parent company. The restructuring was judged as a huge change for the company, it somehow changed the way Google designs its organisational structure. However, it is reasonable for Google to develop its structure due to the fact that the company operates in various regional markets of a rapid changing technological environment.

Google is believed to have matrix structure (Eric and Jonathan, 2014). The company structure seems to be functional with high degree of flatness. First of all, the organisational structure is designed to group resources of the company based on Google's function. The company has different groups that are responsible for different task such as Finance, Marketing, etc. Each group has an assigned executive that lead them to achieve the common objectives of the company. This grouping has significant influence on the processes of the organisation, ranging from raising communications among top manager and employees to creating strategic management that would support Google in solving issues at different levels. Next, Google grows its products based on product-based characteristic. The company aims to enhance the access of customers to online information so innovative products and services is a must. This characteristic was developed to address the creativity and innovation of the company as stated above. Each group will be responsible for a specific product, for example Artificial Intelligence, Cloud service. Again, an executive is in charged for each of those groups. Thanks to this approach, Google can fulfill the needs of customers both in current and future market. Additionally, this characteristic contribute to the mission and vision of Google which is "to organise the world's information and make it universally accessible and useful" (Google, 2020). Besides, Google has a relatively flat structure. Google allows its employees to communicate directly with top management. Also, employees and groups of different divisions in the company can share information for each other. By this way, Google encourages employees to be active in contributing to develop innovative and create novel products that can compete with its competitors. Furthermore, the high degree of flatness increase the level of satisfaction and motivation among employees, resulting in the long term success of the company.

3.1.1. Mintzberg organisational structure at Google

According to Mintzberg (1992), there is no organisations that only fit in one type of organisational structure but organisations often inherit from various type of structure which

there is a structure that dominate over others. Thus, it is clearly that Google struture would not fall into one category.

Regarding Mintzberg theory of organisational structure, Google structure back in previous years varies multiple types in which adhocracy seems to be the most dominant. Adhocracy structural configuration is decentralisation that enrich the roles of support staffs. Google introduced the framework named 70/20/10 at its workplace (Claire, 2015). This system enables staffs to use 70% of their time at work to do their responsible core work tasks, 20% of the time to work on projects that directly related to their projects, and staffs can spend the remaining 10% on working in any projects in any area which they find interested in. As a result, some innovative products were invented such as Google maps, Google Earth, etc. In addition, there is high degree of decentralised authority in Google. The organisation has various subsidiaries which are controlled by a cross functional direction, not by a single upper management. Thus, subsidiaries of Google have connection internally and are allowed to be freedom and flexible in the business environment. This is a significant difference between Google and other big organisations as those big firms are likely to be linear direction.

Due to the size of the company and the rapid changing environment it operates, Google is required to put a lot of effort into managing its organisational structure. In 2013, with the effort to completely shift from old structure to new structure, it is recorded that Google employed several new staffs including new managers, new directors and new vice presidents. This action led to the result of Google being more like a professional bureaucracy and divsionalised form rather than adhocracy structural confirguration. Large size organisations often have different departments for related procedures. The decentralisation would enable departments perform work tasks with high autonomy so that the organisation central part can focus on the organisation's main objectives. Google with diversified products also create different division in various fields like Google Fiber, Google Robotics, Google Cars, etc.

3.1.2. Organic versus Mechanistic structure at Google

From the single purpose of being the best internet search engine worldwide, Google now has grew up rapidly with a bigger size that employs over 100,000 staffs (Seth, 2019). The company offers a huge range of services and products which can be mentioned a few as self driving vehicales, Google Maps, Google Transalte, Youtube. As the company size and diversification increase fast, it is obvious that only flat organisational structure would

not support its development. As stated above, in 2015 the company announced a significant structural change called Alphabet. In details, each Google interest will be an individual company with one assigned CEO. Then each company is responsible for its own objectives following CEO direction while the parent company – Alphabet will have responsibility for the overall mission of the organisation. It can be seen that Google has shifted its organisation from mechanistic structure to a more organic structure that giving permission for employees and their divisions to focus on goals of their own faster and independently.

Regarding the organisational structure change, Larry Page announced to the public that as there were different works that were not related within the company, this change would support the company to operate things independently. Also, he emphasized that the company would be able to have more scale of management. Larry believed in the “strong leaders and independence” would make Alphabet greater and more success in the technology industry.

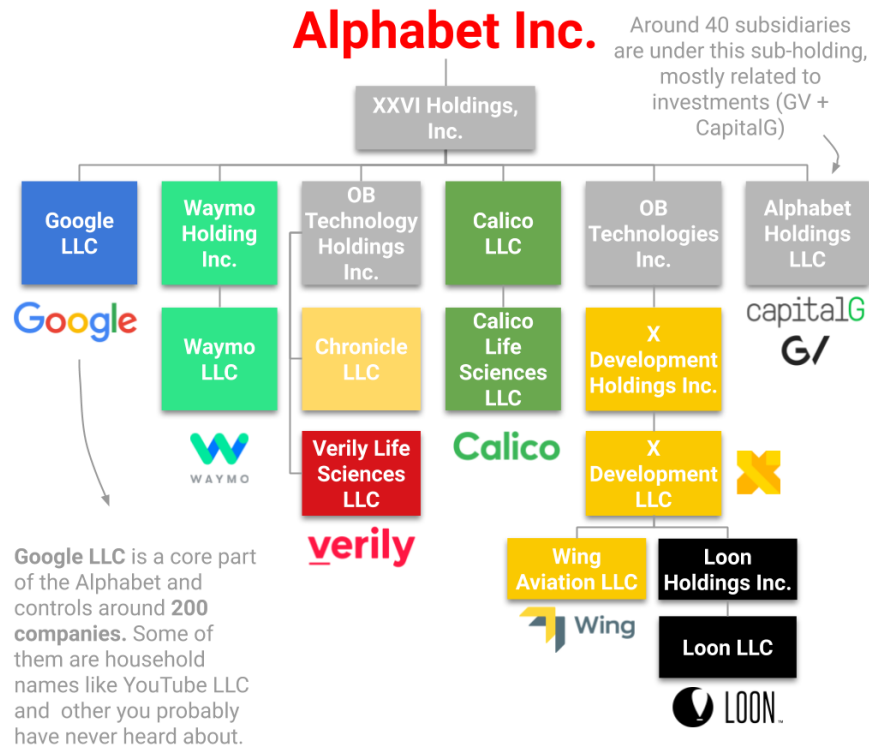


Table 2: Alphabet organisational structure (Kamil, 2018)

The chart above shows the Alphabet structure. Although Alphabet has around 400 subsidiaris, this structure only presents top- level subsidiaries of Alphabet Inc. One of the top smaller companies under Alphabet is Google with around 200 subsidiaries. The chart below indicates some of Google subsidiaries:

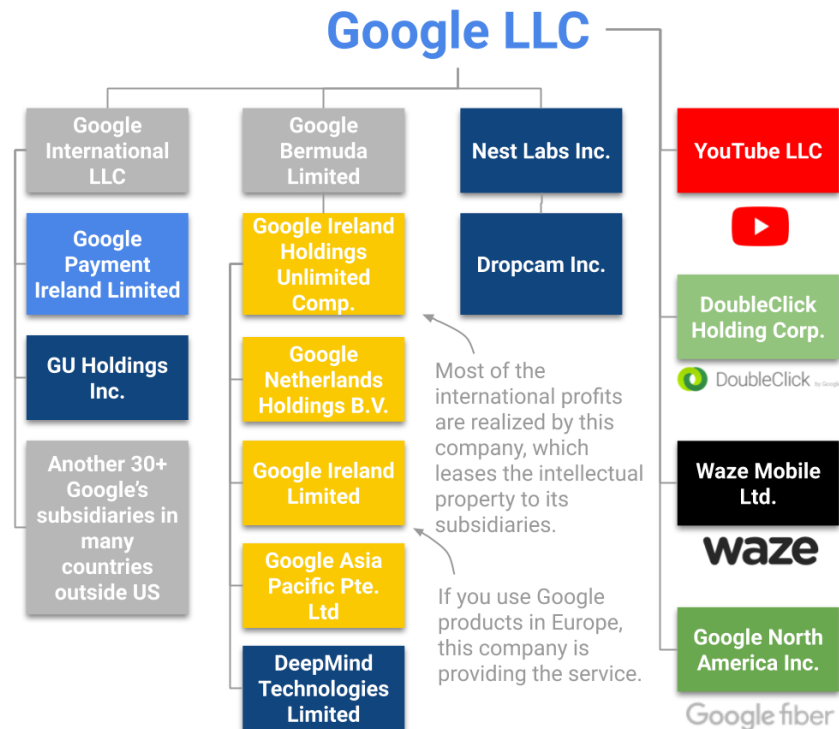


Table 3: Google organisational structure (Kamil, 2018)

As organisations grow, they often make change in order to adapt with challenging environment nowadays. However, a structure that is suitable for an organisation in a period of time does not always fit in that organisation when it develops. Therefore, it is necessary for a company to always review current company's operations including environment, technology, size and strategy to decide whether the organisational structure should be changed. The oragnisational move of Google has been improving significantly since 2015 until now. The records presented that Alphavet revenue increased every year with the revenue of the year 2019 was \$161.857 billion, showing that the new structure of Google is working well (Clement, 2020).

3.2. Google organisational culture

As other companies, Google has been through different period of time with different characteristics of culture. After 2013, Google changed its culture and it still works until now. The culture of Google is one of the key factor that enhances the leader position in the industry of information technology. An organisational culture of a firm represents the customs, traditions and behaviours which impact directly on the individuals behaviours at workplace. The main purpose of Google is to create a culture that supports innovation and creativity. Thus, the company focuses on employees performance by having various strategies to improve the high level of employees satisfaction, leading to the effective performance. The culture of Google is reflected by different characeristics consisting of

- Open culture: in order to encourage employees to participate and work effectively for innovation, Google maintain the openness in communication among employees. All employees in the company have the right to share information with others at workplace. Therefore, employees get the opportunities to improve their knowledge and ability in performing their work tasks. In relation, the organisational structure of Google mentioned above support this culture characteristic through providing flexible work environment and encouraging employees to interact and communicate.
- Innovative concentration: in order to encourage and motivate staffs to focus on creativity and innovation, Google has created an unique business environment. The company hires lots of talented and ambitious employees for the purpose of producing innovative products. Therefore, in order to keep those employees continue working in Google, the company has introduced benefit scheme for its employees. Being employees of Google means that they are received several benefits such as free meals, free health and dental, on- site physicians and even death benefit. So Google has become one of the best places to work with low level of dissatisfaction and staff turnover.
- Learning organisation: not only hiring smart people, Google also help its employees to improve the skills and knowledge while working in the company. Google has created experimental opportunities for employees to learn through allowing them to participate in new projects and experiments. Thus, employees would gain experiences after each project and often raise new ideas in the process of developing new innovative products.

Unlike the old Google structure where individuals' activities are valued, the new Google structure encourage the collaboration among employees. In other words, teamwork is more important than individual success. Thanks to new implemented culture, employees of Google is recorded the change in personalities. Employees are now more creativity comparing with employees in 2013 and before (Good.co team, 2019).

4. PREDICTION OF FUTURE ORGANISATIONAL STRUCTURE

Organisations in the future are believed to be different from current environment due to the fact that technology evolves rapidly which would change the nature of workplace and workforce. In order to maintain the operation and competitiveness, organisations should understand the influence of evolving technology on future workplace.

- The nature of work: as technology helps to minimise the number of workers needed to perform manual tasks, organisations will hire more employees for innovation and creativity than employees for manual tasks. Further, organisations will likely to support people with ability to learn new knowledge and skills.
- The new workforce: the amount of smart machines at workplace will become higher due to the advances in Artificial Intelligence and robotics. It is analysed that by early of 2023, around 30% of jobs in the United Kingdom could be stealed by robots (PwC, 2017). High risk of automation appears in storage and transportation sector, followed by retail and manufacturing industry. Additionally, in the next 15 years, 38% of jobs in the United States would be replaced by automation which threatening up to 100,000 workers (PwC, 2017). Therefore, the challenges for organisation is mostly about the way organisations manage to help human interact and work alongside machines.
- The office location: New platform, namely virtual platform, also will be created to allow people communicate easily from multiple locations. Thus, the work tasks will be completed more effective as there is no distance and limit for people to connect even if they are not in the same loccation or same time zone. However, it is important for organisations to carefully consider on how they can boost the culture and connect team members virtually to ensure the effectiveness of work.

5. CONCLUSION

In conclusion, the concept and structures suggested by some old scholars are less effective in today environment. The old concept of traditional structures and methods show disadvantages over the advantages. Hence, it is importance for organisations to select appropriate structure to form their business in order to achieve perform effectiveness.

There are several opinions of researcher about the relationship of technology and transformation of organisation. Under this paper, it is proved that technology has some significant impact that request a change in the structure and characteristics of an organisation. Regarding the case study of Google, the organisation has been through a significant change in structure and culture.

In the near future, there is a hope that organisations will participate more on the new model of organisation, in which members work in a virtual environment that differ from traditional structure recently. However, this new model of future is complex; thus, requiring organisations to fully prepare to deal with unexpected challenges. Also, the appearance of robotics would threaten knowledge workers. Therefore, the way of management would be changed and managers should response to those change in order to adapt a new form of management.

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