



Perception and Comparison of Modern Management Theories

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ABSTRACT: Management has taken place in human actions since ancient times. Over time, scientists and researchers developed ways and approaches to get the best advantages of managing organizations and employees. Many theories appeared in this field to improve management techniques, such as classical, neoclassical, and modern theories. However, this paper aims to focus on and explore modern theories' features (Quantitative, System, and Contingency theories). As well as studying the development of the theories and comparing them.

The study is a literature review and has a descriptive nature, and the researcher relied on secondary data, using Google Scholar as the main database, to provide a deep insight into the perception of management modern theories.

The results of comparing the theories indicated that the quantitative theory depends on mathematical procedures to analyze and make decisions, which means it is a numerically based approach. This theory applies logical or reasoning practices. The system approach depends on dividing the system into sub-parts, and all parts are related to and follow a super system. The system theory is a goal-oriented approach, so all sub-parts move toward one goal. The contingency theory depends on making decisions according to the situation. As it considers the internal environment of the organization as well as the external environment so the organization's response is related to the changes in the environment.

The study concludes that none of the theories can be used alone. The theories have to be integrated to achieve the ultimate benefits for the organizations because using modern management theories separately could cause failure. Quantitative, System, and Contingency theories have some limitations if used separately, but together could achieve the organization's goals and objectives perfectly.

KEYWORDS: Contingency theory, Management, Modern theories, Quantitative theory, System theory.

INTRODUCTION

Management is an essential part of any organization. Management is a process the organization needs to achieve its goals through people effectively and efficiently (Godwin, Handsome, Ayomide, Enobong, & Johnson, 2017). Management is the heart of an organization if it fails all other departments will follow suit gradually. Therefore, various scholars paid attention to the significant role that management plays in an organization and tried to develop its concept.

Management practice goes back to the ancient phase. The origin of management existence is connected with the existence of the human race (Sridhar, 2017). The magnificence of pyramids is the best witness to prove that management is not a new phenomenon. The time of 2900 BC witnessed the birth of pyramids building in Egypt (Kitana, 2016) which took 20 years to finish (Sridhar, 2017). Without using effective management practices, we wouldn't see pyramids standing until today. However, pyramids in Egypt are not the only evidence of management existence in ancient times also the great wall in China joins this privilege. Even management's birth was as old as earth but management wore new apparel in the contemporary era to suit the requirements of modern life. Regardless of management's age, management didn't take the characteristics of formal discipline until the late 19th century (Sridhar, 2017). Management has been defined as a performance of effectiveness, which is referred to as "doing the right things" and efficiency which is referred to as "doing things right" (Hussain, Haque, & Baloch, 2019). There is a consensus that the practices of management have evolved over time (Hussain, Haque, & Baloch, 2019). As societies are changing, management had to change to meet the prospects of people and the constantly ever-changing demands. 21st century took management to different places in work (Ferdous, 2017). The changing of management concept is referred to many factors such as globalization, multiplicity, connectedness, and socially constructed realities plus other factors (Hussain, Haque, & Baloch, 2019). The economy has drawn the world into modernizations and technology, consequently, organizations have to follow up with adjustments and altered themselves to meet the different expectations of clients (Ferdous, 2017). However, based on their experience in the management field scholars could develop management theories. For example, according to Koontz (1988) management is classified into 6 schools of thought.



The first school belongs to the management process school, the second one belongs to the empirical school, the third one is referred to as the human behavioral school, the fourth school is related to the social system school, the fifth one is the decision theory school and the last one is the mathematical school (Hussain, Haque, & Baloch, 2019). In 1976, according to Evans, management was classified into 11 categories (Kitana, 2016). Other theorists in this field are Hitt, Michael, Middle Mist, Dennis, and Mathis, Robert (1979) divided management into 3 main categories: first is classical theory, second is neoclassical, and third is modern theories (Hussain, Haque, & Baloch, 2019). However, the last 3 groups of management theories which derived from earlier perspectives are still applied widely (Kitana, 2016). The origin of classical management theories appeared during the late 1800s till the 1920s (Ochoa, & Mujtaba, 2009). These theories influenced the theories of management and its application greatly (Ferdous, 2017). Furthermore, classical theories are considered the base that contributed to the development of modern theories. Classical management theories consist of 3 theories: scientific management, administrative management, and bureaucratic management. The classical theories concerned with the production system overall also considered the efficiency of the process and the functional approach (Malik, & Baek, 2019). After that in the 1930s, neoclassical management theories which are related to human behavior appeared (Ochoa, & Mujtaba, 2009). These theories' concept was basically constructed on issues related to human. Neoclassical theories came to solve the problems that classical theories left behind. Modern management theories came into existence in the 1940s. Modern theories emphasize solving the complexities of organizations and meeting individual needs by using the best solutions. Many types of research include the 3 types of management theories, explaining that the modern theories have attained the most utility (Malik, & Baek, 2019), even though they were based on classical theories' advantages (Nadrifar, Bandani, & Shahryari, 2016). Modern management theories include 3 theories which are quantitative/management science theory, system theory, and contingency/situational theory. Some scholars argued that 'History matters'. Thus, it is vital to develop a better understanding of how phenomena and theories have evolved from ancient to the present. Paying much attention to nowadays emerging trends in management helps in understanding management stages as following up its appearance from the 19th century till recent years also give us a holistic view (Hussain, Haque, & Baloch, 2019). Therefore, this study is based on modern management theories as it intends to answer the following questions: What are the basic features of the quantitative approach, system approach, and contingency approach? and What is the sequence of Modern Management theories' emergence across time?

Based on these questions, the objectives of the study were determined as follows: firstly, exploring the construct of the mentioned modern management theories (quantitative theory, system theory, and contingency theory) while considering the chronology of their appearance. Secondly, comparing the concepts of quantitative, system, and contingency approaches.

MODERN MANAGEMENT THEORY

The modern theory is a more comprehensive theory when we compare it with the previous theories. Experiences the managers gained with time and the knowledge the scholars attained from conducting studies enabled them to develop theories over time, the time of 1900's witnessed a lot of such theories (Ochoa, & Mujtaba, 2009). So, it's time to ask what is the theory? the theory consists of essential concepts and ideas that explain how the science and knowledge in a specific field are organized, theory also could represent a proposition or assumption that was established by individuals or groups to indicate how a specific problem in management could be solved (Augustine, & Agu, 2013). Some scholars identified theory by demonstrating it as constructs and variables which are built in a system that connects them by propositions and based on these combined data scholars could come up with establishing hypotheses (Bacharach, 1989, Ferdous, 2016). This idea was constructed on (Koontz et al, 1980:13 cited in Augustine, & Agu, 2013) study which demonstrated the theory as a systematic collection of interrelated concepts and the role of the theory is to organize them in a particular framework that could support significant knowledge. The theory is a way to document the best techniques and practices of management (Ochoa, & Mujtaba, 2009). Therefore, the confirmed theory can be promoted to become a principle (Ile, 1991:1 cited in Augustine, & Agu, 2013). Investigating management theories is due as they form our perspectives and attitudes toward organizations, affect managerial decisions, be a source for dealing with different situations, and solving problems. These theories were an attempt to improve an organization's operations and its financial outcome (Ochoa, & Mujtaba, 2009). Ferdous (2017) indicated that the theory's objective is not just to handle issues related to an organization's techniques and finance but to handle employees' issues like sociology, and psychology as well. However, new theories of management came into existence as a consequence of dysfunctionality in the system. As the essence of the organization lies in its strategic objectives and goals, modern theories of management demonstrated there are big differences in identifying organization objectives which are



not supposed to be based on profit only but on creating value for people and society (Agoston, 2009). The significance of modern management theory lies in handling such complexities of firms and individuals (Kitana, 2016). However, modern management theories deal with the variations inside the organization's environment (Ferdous, 2017). An organization includes a workforce with differentiated points of view, potentials, and needs due to that it's important for an organization to apply strategies and policies that understand these differences and set up custom-made principles (Kitana, 2016), and here comes the role of modern theories. Due to Mary Parker Follet's contribution to the field of management, she was referred to as the "Mother of Modern Management" as she attributed management theory to the art of achieving goals through people (Caramela, 2018 cited in Hussain, Haque, & Baloch, 2019). The digitalization era was the era that witnessed a dramatic transformation in organizations due to the usage of computers. However, in this era organizations started to use quantitative methods (Hussain, Haque, & Baloch, 2019), by using computers to help management make the right decisions. In the 1940s, especially after the Second World War, these methods started to be widely spread in society. This was the start of the modern era and the quantitative approach became part of modern management theories. The quantitative theory depends on using mathematical tools to solve problems. After this theory, the literature indicated that the 1960s brought out two new perspectives related to management theory (Robbins, Bergman, Stagg, and Coulter, 2003). In the beginning, the system approach emerged which focuses on the significance of interdependent parts of internal activities within the organization as considering the organization and its surroundings. Then, the contingency theory appeared which showed a more flexible approach as it concerns the situational factors (Parker, & Ritson, 2005). However, the two perspectives of the system approach and contingency approach have emerged as parts of management theories due to the need of integrating the previous theories of management by reducing the conflict between classical and neoclassical theories (Robbins, Bergman, Stagg, and Coulter, 2003). The fast-growing economy in a world full of competitiveness plus the crisis that happened in the western enterprises are reasons that caused the emergence of system theory and contingency theory. These theories are distinguished from the classical ones. Management that adopts system and contingency approaches depends on using techniques that integrate and combine beliefs, values, and norms which oppose the traditional theories that depend on the commands from superiors (Ochoa, & Mujtaba, 2009). Managers perceived that the different circumstances require different ways to deal with them. This concept contributed to improving management practices that are related to organizational design and leadership. Modern management theories impacted contemporary society abundantly (Ferdous, 2017). However, the significant influence of the new management theories on managers made them see the organization from a broad perspective and allowed them to recognize how the interrelated departments of the organization and their connection with the external environment could lead the organization to a better result (Ochoa, & Mujtaba, 2009).

Quantitative Management Approach

Quantitative management theory is referred to as management science theory (Hryhorenko, 2017). The theory of management science shouldn't be confused with scientific management as the two don't mean the same thing (Hussain et al., 2019). Management science belongs to modern theories while scientific management belongs to classical theories. However, management science had evolved from scientific management (Sridhar, 2017). Quantitative theory emanated not just from management science but from operation research as well. This approach depends on solving problems using mathematics and statistics as it uses computer simulations and optimization models (Yasin, 2013). The idea of the management science approach obtained its popularity because of the growing use of computers which became an important part of industries (Sapkauskiene & Leitoniene 2010). As a way of improving decision-making, the quantitative approach strives to create and develop information models through computer simulation (Dahlgaard-Park et al., 2018). To be able to deal with the complexities of organizations, managers needed to have a more calculative approach that provides them with information and enables them to make rational and efficient decisions (Luthans & Stewart, 1977). Nevertheless, the appearance of new technology in the industries caused complexity in communication systems and transportation systems which required new methods to deal with and solve management problems therefore mathematical methods were used for this purpose (Sapkauskiene & Leitoniene 2010). Even though the quantitative theory was developed during Second World War but it started to appear after War II when organizations started to consider new quantitative methods such as linear programming and operations research to develop decision-making that is related to resource allocation (Dahlgaard-Park et al., 2018). The appearance of management science was during the 1940s. Ford Motor Company was one of the companies that used this approach during the fifties and sixties of the last century. At that time, the British excelled in the domain of technology and tactics, and that was because of mathematicians' and physicists' assistance but despite of this the first users of computers were Americans (Sapkauskiene & Leitoniene 2010). They used computers the time they engaged in the war. However, many fields like engineering,



statistics, and mathematics have contributed crucially to developing quantitative theory (Hryhorenko, 2017). George R. Terry, Andrew Szilagyi, and Johan MacDonald are examples of quantitative theory developers (Dahlgaard-Park et al., 2018). Also, Edward Deming played a noticeable and essential role in introducing management science and its philosophy (Khorasani & Almasifard, 2017). The theory of quantitative management includes 3 main areas, the first one is management science, the second one is related to operations management and the third one is about management information systems. Management science depends on mathematical models to solve problems and help managers to make the right decisions. While operations management is related to management science applications (Dahlgaard-Park et al., 2018). Operational Research is the heart of this approach as it is used to deal with complex incidents and the context of the organization (Sridhar, 2017). Whereas management information system deals basically with software that is used in analyzing company data, solving nonpreferable issues, and helping in performing the organization's goals (Pindur et al. 1995). In addition to the aforementioned areas, there are 2 other areas connected to science management which are inventory management and quality control. Statistical tools are used to control quality which is considered as an important factor and a key to success. The credit for quality control emergence goes to Edward Deming as he is taken as the father of quality management (Khorasani & Almasifard, 2017). However, in general, the science of mathematics has been spread widely as a tool used for analysis as it is used as well to express the interaction of relationships and concepts. Mathematics is considered the essence of the system that shapes the quantitative tools and techniques which are used to help managers in optimizing the process of making decisions (Rana, Ali, & Saha, 2016). Adopters of the mathematical school of thought believed that management is a logical process therefore management can use quantitative methods for analysis at all stages of the management (Hryhorenko, 2017). As this theory depends on providing quantitative techniques for making decisions (Luthans & Stewart, 1977). Quantitative techniques are applied by using the computer's software as they work by computing the data and processing them in a way that analyses the information and gives the best option to make an appropriate decision (Sridhar, 2017). Linear programming, sequence, and simulation are examples of quantitating tools that are used in management to deal with problems and solve them (Hryhorenko, 2017). Furthermore, inventory control policies, critical path methods, quality control, break-even analysis, sampling, and forecasting, all are techniques created by this theory (Dahlgaard-Park, Reyes, & Chen, 2018). As a result of this theory, management added a new perspective to the factor of time as it enables managers to predict future trends by studying the past and present using computer-processed data and mathematical tools (Sapkauskienė, & Leitonienė, 2010).

Systems Approach

This theory took its popularity in the 20th century precisely during the 60s and 70s period and became a global ideology of management (Hryhorenko, 2017). System approach pioneers who had the most credit in its existence are George Homans, Herbert Simon, Philip Selznick, Chester Barnard (Sridhar, 2017), and Von Bertalanffy. Barnard was the first theorist to re-emphasize the modern management concept which combined individuals and organizations as he provided a thorough perceptive of management (Malik & Baek, 2019). Barnard introduced the idea of a system approach into the literature and described the system as activities or forces organized consciously between 2 persons or more (Lemak, 2004, Ochoa & Mujtaba 2009). The biologist Ludwig Von Bertalanffy also has a remarkable contribution to forming the system theory as he developed the general outlines of the theory and used the "system theory" term first in his article that was published in 1951 (Dahlgaard-Park et al., 2018). Additionally, he realized organizations need to interact with their surroundings and external environment (Edewor, 2017). The system approach is connected significantly to the process of management which enables managers to understand the internal and external factors of the organization's environment as a whole and analyze them to be able to perform successful activities in management (Baykan & Uzunboylu, 2018). Grasping the internal and external behavior of the organization is the core of system theory. The internal side is meant to know why and how individuals perform their tasks inside the organization while the external side is concerned with transactions the organization conducts with other organizations (Higgins, 1991). This way allows managers to get a better understanding of workplace events and activities because it gives them the opportunity to perceive the different parts of the organization and how they are correlated with each other (Yasin, 2013). Every system consists of subsystems (Baykan & Uzunboylu, 2018). These subsystems can be clearly understood only in the context of their relations to other subsystems (Dahlgaard-Park et al., 2018). A system is considered as a collection of parts combined to perform an overall goal (Yasin, 2013). The system approach demonstrates the significance of business relationship webs (Kitana, 2016) as it makes use of them (Nhema, 2015). The essence of the system is that it helps us to recognize the links and connections between incidents and change them in the most effective ways (Baykan & Uzunboylu, 2018). System theory had an essential role in understanding organizations and management science (Yasin,



2013). The system has been defined as a set of elements or parts which work as one unit to achieve ultimate goal (Hryhorenko, 2017). If one part is changed in the system, the formation and the nature of system will change accordingly. The system consists of inputs such as raw materials and resources, people and money, next step is the processes which include planning, controlling and organizing then comes the outputs which could be a service or products and at last comes the outcomes which could be related to improving productivity or quality (Yasin, 2013).. In other words, the system theory relies on taking the resources from the environment and process them to return them back to the environment and that is what comprises the system components (Dahlgaard-Park et al. , 2018). System theory has 2 types of systems. First one is open system and second one is closed system (Hussain et al. , 2019). Open system is referred to any system interacts with its surroundings while the opposite is called closed system (Baykan & Uzunboylu, 2018). social systems, human systems and biological systems are examples of open systems while physical systems and mechanical systems considered as closed systems (Sridhar, 2017). Nevertheless, traditional organizational theorists considered organization as a closed system but this consideration has changed in modern theorists and treated organization as an open system (Hussain et al., 2019). Von Bertalanffy indicated that organizations need to communicate and interact with outer environments (Edewor, 2017). Therefore, he classified the organizations as open systems due to the changes the organizations have to do consistently according to what is happening in the external environment (Walonick, 1993). This was one of the basic principles that Von Bertalanffy set in modern management theories (McMahon & Patton, 2017). So, it can be clear that the origin of the modern management concept came from the idea that says organization strategies should be adjusted in consistency with market dynamics and should have a transformational nature (Malik& Baek, 2019). Having a dynamic nature is one of the good system features as it allows free interactions with other systems and exchanging information with other parts of the environment (Edewor, 2017). Organizations that follow the system approach make managers comprehend and see the organization as a subunit of society where the activity of the sole segment affect the other segments' activities (Yaya et al, 2016). To have a successful system, managers should cooperate throughout several functional systems, especially if the system fails at any level because of inappropriate leadership, the system as a whole will fail such an incident is called 'systemic failure of leadership. Therefore, this theory gave importance to leadership as leaders are the responsible ones for the failure or success of the firms (Dahlgaard-Park et al., 2018). System theory emphasizes that when one segment of the organization is affected all other segments of the organization will be affected (Kitana, 2016). Accordingly, managers who follow the system approach should consider the effect of any decision they take on the organization as a whole rather than just one department. The organization is similar to the human body, both require that all parts have to function together in order to function properly as a whole (Sridhar, 2017). Sridhar,2017, also indicated the significance of interdependent parts plus the importance of looking at the organization from a holistic view. Shortly, the system approach emphasizes that managers' efforts shouldn't be restricted to their department output as it used to be in the traditional methods but they should pay attention to the organization as a whole. In this theory managers as part of the organization web, they have to communicate with the employees and other departments as the communication isn't limited to the internal environment of the organization but exceeds that to deal with other organizations (Kitana, 2016). The system approach is applicable in several domains such as economics, information technology (Mele et al. 2010), social security, and health (Baykan & Uzunboylu, 2018).

Boundary Spanning Activities

Boundaries are important in identifying the organization's characteristics as their roles include connecting the organization with the environment (Aldrich, & Herker, 1977). The boundary of the organization contributes to regulating the information flow between the organization and its surroundings (Leifer, & Huber, 1977). Therefore, boundary-spanning activities are connected with an open system perspective (Aldrich, & Herker, 1977). Furthermore, the function of boundary spanners is to interpret the environmental factors and convey them to decision-makers in the firm (Leifer, & Huber, 1977). Decision makers have to increase their information acquisition by considering the time, low costs, and efforts (Arrow, 1974). Organizations have to get updated information from different external areas and then use the information according to its relevance to the organization (Tushman, & Scanlan, 1981). The process of selecting the appropriate information from the environment is important as not all of them are valued information (Aldrich, & Herker, 1977). Therefore, a specialized unit of the organization must perform such function, especially with all changes that are happening in the external environment. However, these units were established to handle specific tasks related to organization and environment. As the members of these units must be skillful and trained individuals to achieve the work requirement (Tushman, & Scanlan, 1981).



Entropy

System theory is meant to deal with the complex problems of the organization and the idea of complexity here is related to factors such as entropy, organization and disorganization, and others (Mavrofides et al, 2011). Even scholars are using entropy in social science widely but its origin belongs to physical science (Proops, 1987). Entropy as a term has been used in works related to complexity (Mavrofides et al, 2011). To be more precise, we can say that entropy is a measurement of disorder and uncertainties in the system plus consumed energy (Alpan, 2011). In other words, entropy explains the level of randomness in the system (Karaivanov, 2019). That is why entropy is related to order and disorder within a system. Even though the origin of entropy concept came from physics and chemistry, scholars applied the idea and its principles to the closed and open system of the organization. Nevertheless, if the system were isolated from its surroundings, a closed system, the system entropy will tend to be at its maximum level (Martínez-Berumen et al, 2014). That means entropy increases in closed systems due to the great disorder the closed system has. However, in open systems, the entropy decreases or has a low level.. Entropy usually is used as a measure to forecast the next state of the system. If the next state was highly and easily predictable, in this case, entropy is low while if it is not highly predictable, that means the entropy is high which means the system that shows low entropy is classified as an organized system (Mavrofides et al, 2011). Thus, prediction represents an essential key when it comes to entropy context (Wiener, 1961). However, we can predict the sustainability of the system by determining its ability to minimize entropy (Martínez-Berumen et al, 2014). That means the open system is more sustainable than the closed system. Therefore, organizations should be directed toward the open system. However, there are 2 ways to reduce entropy either by preventing the dispersion of energy or putting more energy to undo the dispersion (Karaivanov, 2019). These ways can reduce the disorder and keep the system organized. Nevertheless, the idea of entropy has been introduced by Clausius in 1865 in thermodynamics after that came Boltzmann in 1870 to develop the idea of statistical mechanics (Atkins, 2010). The concept of entropy could be applied in social sciences in 3 types (Proops, 1987). The first type reflects concentration, inequality, and diversity measurement. The second application deals with system specification problems. The third one deals with information on thermodynamic entropy.

Contingency Approach

The contingency approach is referred to as a structural contingency theory (Pfeffer, 1982; Donaldson, 2006) also called the situational approach and contingency organization theory. Contingency as a term means that things could be valid just under specified conditions according to Chenhall (Otley, 2016). However, the Contingency theory is considered an extension of the system theory (Baykan & Uzunboylu, 2018), and it is partially taken as a consequence of open system thinking (Luthans & Stewart 1977). When comparing the contingency approach with the system approach we can find that the contingency approach has a more valuable attribute to the outcomes (Ferdous, 2017). Studying organizational behavior and what affects organization functions and design can be done through contingency theory which elaborates the contingent factors such as culture, external environment, and technology (Islam & Hu, 2012). This approach has a significant role in setting organizational systems classifications and by going back to its connection with the open system approach it would be found that numerous of these classifications are related to organization's environmental systems (Luthans & Stewart 1977). Contingency theory indicates that the situation of each manager should be considered and viewed separately with paying attention to external and internal factors to be able to take the right action that fits the given situation (Sridhar, 2017). The situations in real life were the base that caused in development contingency approach therefore managers and consultants were part of its development in addition to researchers of course (Edewor, 2017). The origin of this theory returns to Joan Woodward, G.M. Stalker, Tom Burns, L.W. Lorsch, and Paul Lawrence (Baykan & Uzunboylu, 2018). Organization theory witnessed a major upheaval during the 60s of the 20th century which brought about the construct of a comprehensive contingency theory. Burns & Stalker's (1961) works which were supported by Woodward's research in 1965 were the foundation of the theory. By early 1970s the theory was firmly established and began to take its place in organizations as a dominant approach (Otley, 1980). During 1980's and 1990's situational approach started to have popularity (Hryhorenko, 2017). Contingency theory is concerned with elucidating the structure and design of the organization (Donaldson, 2001). The design of a structural organization has more efficiency when the structure fits the contingencies (Donaldson, 2006). Organizational performance is greatly affected by organizational structure therefore contingency approach is considering the structure mainly (Dahlggaard-Park et al., 2018). The contingency approach views the effectiveness of management as contingent on the interaction of a specific situation, behavior, and managerial applications (Hussain et al., 2019). Contingency as an approach is part of the management concept that depends on applying the appropriate management principles and practices to deal with real-life problems in the best way (Yaya et al, 2016).



Solving problems that are part of real-life situations requires effective techniques which the contingency approach provides as it enables managers to have comprehensive sight of the situation (Edewor, 2017). The situational approach is seeking suitable solutions for problems that arise from different management situations which impact the organization during a particular period as the approach strives to achieve the organization's objectives in the most effective mean (Hryhorenko, 2017). According to the mentioned approach, it is expected from the manager to choose the best mechanism depending on what suits the situation most to perform the organizational goals with considering circumstances and time (Nhema, 2015; Kitana, 2016). Before taking any decision the manager should consider all the surroundings of the current situation (Yasin, 2013). Moreover, managers have to develop skills to be able to recognize the factors that affect situations and deal with them (Malik & Baek, 2019). Sridhar indicated that organizations have a kind of complexity which means different types of situations require different types of managerial strategies as one specific strategy cannot be suitable for all situations (Sridhar, 2017). Even though it should be understood that the method that is effective in one situation could continue to be important in another situation (Edewor, 2017). The contingency approach emphasizes managerial strategies adaptation according to situation needs. Therefore, each situation should be examined independently by considering the various factors of internal and external surroundings to deal with the complications of the dynamic environment accordingly (Hussain, et al. 2019). The contingency approach could be applied in diversified activities such as motivating, developing, and training employees. Furthermore, it could be used to lead or structure the organization as well as to plan information decision systems or establish systems for communication and control (Sridhar, 2017). From here comes the overlapping of the system approach and contingency approach.

Mechanistic and Organic Structures

Mechanistic and Organic structures are two organizational structures that belong to contingency theory. The mechanistic structure could be referred to as a bureaucratic structure while the organic one is referred to as a professional (Lunenburg, 2012). The bureaucratic model was depending on using rationality and systemization in the organization (Weber, 1947). This structure strived to increase operating efficiencies and productivity by considering role specialization (Dust, Resick, & Mawritz, 2014). While organic organizations have a more flexible structure and could be adapted to environmental changes (McNamara, 2009). Identifying if the organization is an organic structure-based or mechanistic structure based is related to the contingency applications as the nature of the structure could be known based on the structural level such as specifying the structural fit with the environment also could be known from the structure of organizational development (Zanzi, 1987). However, organic organizations and mechanistic organizations have completely different structures. For example, if the organization has Low complexity, High production, High efficiency, Low adaptiveness, High stratification, High centralization, High formalization, and Low job satisfaction, then the organization is classified as a mechanistic organization. While organic organizations represent the opposite which means organic organizations have High complexity, Low stratification, Low efficiency, High job satisfaction, Low production, Low centralization, Low formalization, and High adaptiveness. These characteristics of organic and mechanistic structures are used to define organizational structure. Furthermore, the organic organization doesn't pay much attention to the chain of command. This kind of organizations adjusts job definitions constantly and the employee's commitment is going toward the organization's task. The communication is lateral in organic organizations. Whereas mechanistic organizations are constrained to the chain of command as they depend on functional divisions of work and the tasks are specialized, the communication is vertical and decisions come from top management (Reigle, 2001). However, the classical management theories adopted mechanistic structures while modern management theories needed more flexible structures and therefore applied organic principles. (McNamara, 2009).

METHODOLOGY

The quantitative approach, system approach, and contingency approaches were reviewed separately in the literature as well literature related to management science theories and modern theories evaluation were considered in the review. Also, keywords related to boundary spanning, entropy, and organizational structure have been used. However, the construct of this study was built and based on secondary data. Accordingly, the study took a qualitative method-based structure as it is considered a theoretical base. The nature of the study is descriptive. Google Scholar was used as a primary database to collect the data used in the study.



COMPARISON OF THE THEORIES

The theories of management are considered as means and intermediaries used to classify the knowledge of management to provide managers with substantial skills and abilities as well as provide guidelines to solve managerial problems (Inyang, 2008). The classical/scientific approach was the one that paved the way for modern management theories. This approach represents the basis of management theories as it was developed and continued until the 1930s (Ochoa, & Mujtaba, 2009). However, Industrial Revolution caused in evolving the classical theories due to an uneducated workforce and disempowered people at that time, management needed to set principles to deal with these issues and classical theory included this kind of support by building hierarchical systems that include formality, centralization, and specialization (Ochoa, & Mujtaba, 2009). Nevertheless, modern management theories came to integrate the previous management theories and continue the construct of management principles. Modern theories of management focus on organization and individual complexity as it takes into consideration the motivation, needs, and potential of the employees (Kitana, 2016). The essence of modern theories indicates that this complexity demands diverse managerial strategies to be able to deal with organizations and employees. Plus to organization complexities, the context, and connectedness of the organization, the three shapes the main characteristics of modern management theory (Sridhar, 2017). Interdependence, multiplicity, and ambiguity are reasons caused in extending the complexity in the functions and operation of the organization (Hussain et al, 2019). Modern management theories branch into quantitative management theory, system theory, and contingency theory. The quantitative theory uses quantitative tools to investigate managerial decisions and solve complex issues as well this method considers management science and operational research to conduct numerical investigations. This approach provides the manager with a combination of the mathematical model, reasoning and logical perception, and calculated symbols which enable them to make wise judgments. However, the characteristics of quantitative theory could be concluded in the following points (Rana et al, 2016):

- Following mathematical procedures for analysis and decision-making
- This approach is quantifiable based
- This theory is called also Management Science or Operations Research
- This approach follows scientific techniques which are numerically based to make a wise judgment
- Management follows this approach applies logical or reasoning practices
- Tools used in this approach are Linear programming, queuing, and simulation
- Computable expressions are used for making a decision
- For investigation, quantitative techniques are applied

The second modern theory that depends on the system approach views management as a unified system that consists of interrelated elements (Kitana, 2016). Based on that it could be said this approach considers the organization as a whole and look at it as one system which means the management could follow the super system approach which is consisted of subsystems. If anything or change happens in one part of the interrelated parts, accordingly the whole system will be affected (Rana et al, 2016). System construct consists either of the organization subunits or from the organization itself and other organizations, in this case the organization as a whole is considered as a subunit of the system. Thus, the application of the system approach is inevitable because the organization can't work separately without interacting with other environmental factors to perform its goals (Edewor, 2017). Therefore, managers conceive the organization as a template consisting of many parts which have a significant role in increasing the welfare of the organization (Ferdous, 2017). The background of system theory is diverse (Edewor, 2017). As this approach could be applied in multidisciplinary contexts related to society, economy, institutions, and information technology (Hussain et al, 2019). Nevertheless, the features of system theory could be summed up in the following points (Rana et al, 2016):

- The system is shaped by subsystems, and each system has sub-parts
- The sub-system is connected and follows the super-system values and principles
- Systems include inputs that are passed by a specific process to transfer them into outputs
- The system is prepared by a super system, as the system is considered goal-oriented
- The system includes interrelated parts as it is adjusted according to its surroundings changes.

The third modern theory of management is contingency theory which is concerned with studying organization design, structure, behavior, planning, performance, and management strategies (Van de Ven, & Drazin, 1984). In other words, this approach takes



managerial actions based on the situation and adopts the idea that says there is no one method or way to suit all situations as every situation deal with different concerns (Rana et al, 2016). The contingency theory is basically concerned with conditional variables and reacting according to them. For example, in conditional situations such as communication, involvement, empowerment, and self-management, managers make an effort to perform organizational goals through these different situations (Ferdous, 2017). The contingency approach can be concluded in the following points (Rana et al, 2016):

- Managerial decisions are made according to situations
- The engagement of management is conditional
- This approach considers the external and internal environments of the organization
- It explains organizational objectives and strategies
- It provides effective guidelines which consider the environmental fluctuations for solving problems
- Help managers improve their skills to meet the requirements of the different situations
- This model considers the databases and organization policies

CONCLUSION AND LIMITATION

Management objectives could be concluded into three main objectives (Yasin, 2013). The first objective is about making sure the goals of the organization are met with its target. Objective number two is connected with taking care of the staff, safety, welfare, and health. The last objective is linked to organizational resources, including machinery and human resources. Beginning from classical management theories to modern management theories, all theories complement each other. Therefore, managers should take advantage of these theories as understanding how these theories could contribute to the process of development is considered an essential feature to apply them effectively (Kitana, 2016). The best way to achieve organizational goals is by integrating these theories. Nevertheless, modern management theories combine a lot of effort regarding the behavioral sciences, statistics, and mathematics (Sridhar, 2017). Furthermore, modern theories included issues related to personnel affairs, the environment, and management (Ferdous, 2017). However, modern theories of management could be summarized in three prime theories which are quantitative, system, and contingency theory (Rana et al, 2016). Koontz in 1961 stated that the flood of management theories caused confusion in a huge way (Lemak, 2004). Koontz indicated that there are some concerns related to the widespread of management schools and theories that try to degrade the previous theories and advocate the new ones. Even though he divided the management schools into six schools, later he added five more theories to the list, which complicated the issue of management further (Lemak, 2004). However, Koontz, after making a lot of efforts, realized that there is not much progress had been achieved (Ochoa, & Mujtaba, 2009). In the beginning, management theories were just a kind of practice and experiment and were not really theories. The concept, before it becomes a theory, it must pass numerous modifications, tests, and syntheses, and therefore, it is necessary to conduct a conceptual framework to form the theory. Despite that, theories of management in the current century aren't perfect and have some unsolved issues. Some of these problems return to the fact of management science that says it is an applied science that lacks a cohesive theoretical perception of its own. However, scholars in the management field have borrowed concepts from other fields like statistics, mathematics, and behavioral sciences to apply them in the management domain and create an independent conceptual framework of its own. Regardless of that the research of management remained closer to practice than being a theory (Sridhar, 2017).

Limitations of Quantitative Theory

Examples of the problems encountered by modern theories specifically the quantitative theory are that this theory considers mathematical methods for analysis and the problem is that these methods can't be considered as an independent system that could belong to the managerial concept as even mathematical models assist in analyzing problems but they couldn't be used instead of replacing common sense. Another problem with this theory is that it doesn't pay attention to the human element. This method takes a long time and managers can't wait that time to get the complete output to develop models, they need to make decisions quickly. Therefore, this method isn't helping them. Another thing is that even though this approach is used to help in making the right decisions but there are other managerial functions that this approach can't deal with it. Additionally, this theory proposes that the variables for decision-making could be measured and interconnected which isn't realistic (Hryhorenko, 2017). Furthermore, due to the complex techniques in this approach, it became hard for managers to use these techniques even though this theory helps managers



to make the most effective managerial decision (Yasin, 2013). Another flaw of this approach is that sometimes the information used in developing mathematical models isn't updated which could guide to wrong decision-making (Hryhorenko, 2017).

Limitation of The System Theory

Even though system theory didn't encounter criticism as much as the other theories but it still has some limitations. Applying a system approach in the organization could cause practical problems related to setting boundaries of the system and the interrelations of the subsystems. In other meaning, it could be said system theory has difficulty in identifying the nature of the interdependence and interrelations between the organization and its surroundings. Therefore, the system theory was criticized for being too abstract and unclear. The fuzzy interaction of the subsystems could hurdle the manager from processing things. Additionally, this approach doesn't provide managers with specific techniques or tools for practical application. However, due to its complexity in identifying the interrelationships between the sub-units of the system, the system approach could be used as a compliment, not as an alternative (Santosh, 2021).

Limitation of Contingency Theory

The idea of contingency theory was developed from the perception that says there is no specific solution that could be feasible to all problems and this theory was raised to apply empirical works which are based on fundamental contingencies as these works are applied from a different perspective to suit several circumstances (Otley, 2016). According to some scholars, this theory is widely accepted which stopped the controversy in its regard from moving on. This conception inferred from applying the theory in management and studying it in literature (Schoonhoven, 1981). Regardless of the theory's wide usage, it is considered not a very useful approach especially since the theory can't explain the differences in organizational structure and its effectiveness (Schoonhoven, 1981). The contingency approach depends on static therefore it fails in dealing with organizational adaption and organizational changes (Donaldson, 2006) even though this theory was established to handle these issues. Furthermore, this approach failed to identify the structure of the interactions that link the variables. The situational theory also can't provide theoretical clarity which caused severe criticism of the theory (Husted, 2000). The theory's inability to point out its theoretical and empirical dilemmas has resulted in losing its value (Van de Ven, & Drazin, 1984).

To sum up, management theories consider that there is no single managerial strategy that can be applied to all situations, external and internal factors, or all employees. The strategy that works for one situation may not work for another and so on with the employees. Managers should consider the differences in the situations, the surrounding factors, and the employees as each person have a different perspective and motives. Managers should consider individual differences and apply distinct strategies including these differences.

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