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# THE PAST, PRESENT AND FUTURE OF STRUCTURAL CONTINGENCY THEORY

*Yücel SAYILAR*

## ABSTRACT

*Structural contingency theory was the first explanatory framework in organization theory. Structural contingency theory emerged with the consolidation of organizational research studies developed by open system theory since the 1950s. It defined its basic research concepts as organization, structure and environment and studied the relationships among them. Although organizational theory has been criticized since the 1970s and lost its dominance with the development of other paradigms, the theory has still been effective since then. In recent years, debates on the development of organizational research studies, their ability to optimize organizational integrity and their explanatory power have caused structural contingency theory to regain importance with significant revisions. This study describes the historical background, theoretical developments and explanatory power of structural contingency theory.*

## INTRODUCTION

Structural contingency theory (SCT) emerged as a social science of industrial organizations by integrating earlier research. Although this theory did not create an orthodoxy in organization studies in the second half of the twentieth century, defining this area, clarifying research facts, variables and analysis levels constituted the starting point for a common jargon, leaving its imprint on future research.

Organizational structure is clearly defined by structural contingency theory. The structure has transformed into an observable social phenomenon with its functionality and its researchable variables. In the 1950s, a new way to identify organizational structures and the causes of their differences was presented. Organizations were considered in the context of their external environments. The scientific framework for this approach was constituted by General System Theory (Bertalanffy, 1950). The organization, its environment and the relationship between these two phenomena contributed to the development of the idea. Technical and operational concepts of the environment are commonly used today and are based on structural contingency theory. This theory is based on organizational survival and success, hence the relationships between organizations and their environments are considered and analyzed in terms of their contribution to organizational performance. This way of thinking implies that organizational success is associated with specific conditional variables. Structure is the key concept of this research. Structural contingency theory focuses on discovering what constellations of organizational factors contribute to organizational survival and success. It also specifies the fit between contingencies defined by organizational characteristics. In the most general sense, the theory suggests that contingencies defined by environmental uncertainty, technology, competitive strategy and organizational size, require different organizational structures. The fit between contingencies and structure is the key to higher performance or organizational success. These factors make it possible to hypothesize contingencies and define the rules of organizational survival scientifically.

This study introduces the intellectual roots and history of structural contingency theory and its development within the framework of pioneering research. It discusses the classical theoretical debates of the basic concepts of organizational structure, contingencies and organizational performance. Finally, it presents the criticism of structural contingency theory since the 1980s and arguments about its current and future developments.

## 1. The Intellectual Background of Structural Contingency Theory

Until the mid-1950s, research on organizations focused on clarifying their nature and understanding how they function. This clarification was not at the conceptual level, but attempted to understand and monitor their operations. The production form had become the manufacturing system, or, in other words, the economic system had transformed into a capitalist system. This new production system brought problems with efficiency and organizational survival. Agricultural and craft production had been dominant for centuries, and for the first time in history, production moved into the cities and factories. Its volume increased extraordinarily. New forms of capital and labor required new production relations, control forms and managerial ideologies and practices as well. Therefore, early studies in the beginning of the twentieth century took an interest in understanding and regulating this new form of production. This early period was represented by practitioner-researchers, Taylor, Gulick, Mooney and Urwick, who outlined the problems and basic concepts of future research and also provoked objections to their work.

The objection was that there is no ideal organizational form for achieving organizational success—higher organizational performance—as suggested by the early practitioner-researchers. Pioneering researchers argued that the variables that define organizational structures and their operations should be included in this thought. However, the aim of early studies was not to create an ideal abstraction in academic research, but to rationalize capitalist organizational forms by understanding them, controlling them and ensuring their success. So, this was a period of coping with the problems of modern organizations at the operational level. Academic efforts developed more recently. In the mid-1950s, a range of research programs conducted in the US and Britain drew attention to the new macro conditions of large enterprises and basic industries, which developed significantly in the era's economic and political climate (Üsdiken and Leblebici, 2001). The studies conducted in this period re-considered the concepts of organization, enterprise and management. Organization theory attempted to affirm its presence as a social science discipline and define its boundaries in the 1950s. These US-centered attempts were intended to make management a science (Üsdiken, 2008), and structural contingency theory (SCT) was the first theory to define, study and assume the phenomenon of organization. In this period, studies finally reached a recently constructed concept of organization based on practitioners' reforming of enterprises and scientists tried to explain the phenomenon of organization. These years also included struggles in almost all the social sciences, including economics, sociology, political science and psychology. Social sciences, particularly economics, conducted studies for many years to replace Western metaphysics such as Weber's disenchantment (Yılmaz, 2009). Progress was based on the idea of rationality. All SCT research is based on Thompson's ideas of rationality and rationalization (1967).

Although the years between 1910 and 1950 are defined as the classical period when the understanding of scientific management was dominant, the influence of the studies conducted then is still felt today. The idea of scientific management was based on the concepts and especially principles of business managers in the classical period. The main question was the nature of good or successful management, and the main objective was to clarify the principles of organization management. Major concepts and tools that remain valid today were defined in this period: functional specialization, division of labor, chain of command, centralized decision making, work design and job definitions, individual performance and efficiency and bonus systems. However, the studies and research of this period were typically based on individual experience. Arguments were not empirically tested. Rese-

arch in the classical period was intended to describe the best methodology, asking the basic question: "What are the operational principles that ensure the success of organizations?"

When the academic research projects conducted since the 1950s were developed and funded, academics criticized all the earlier research severely (Üsdiken, 2008). Research in this period emphasized structural differences between organizations and attempted to explain them. These studies sought to learn why organizational structures differ and are important for three reasons: they show that there is no single best way of organizing, provide a much more precise set of concepts for describing organizational management and propose environmental determinants for different ways of organizing (Van de Ven et al., 2013).

SCT is based on the idea of investigating organizations as rational systems and social phenomena. General System Theory was proposed as a biological and mathematical theory (von Bertalanffy, 1950) and became an intellectual tool that was effective in many areas of social science after the Second World War. Social concepts and phenomena were re-interpreted using the system view, and they were purified and enabled to find a place in the objective, measurable and comparable scientific world of the West. On the basis of the system view, SCT defines organizations as consciously designed, rational systems with specific objectives. The system view had openness. Thus, it surpassed the closed system understanding of classical period and established the dualism of organization and environment. Early SCT efforts differentiated between rational and natural systems and took organizations to be natural systems (Gouldner, 1954).

Structural contingency theory is positivist (Donaldson, 1996). Positivist organization theory proved that organizations defined by physical factors can be explained by scientific laws. These laws are valid for all organizations in all social contexts. In SCT research studies, organizations are the main focus due to their analysis levels. In other words, the research phenomenon does not consider the individual behavior in the organizations, but it considers each organizational behavior as a social actor. Empirical research is conducted on organizational design elements and contingencies. SCT suggests that organizational structure and contingencies are interconnected when they do not exhibit contextual variability. Hence, the theory's questions and results are not time and space dependent, but have global validity.

SCT is based on the structural and functional paradigm of sociological meaning (Astley and Van de Ven, 1983; Morgan, 1980). Organizational structure is a functional tool for organizations to survive or achieve success. Organizational structure generates specific functional results that yield higher efficiency and success.

Executives are actors who make decisions related to organizational structure (design organizational structure) to achieve higher efficiency (Chandler, 1962; Donaldson, 1996). In other words, as a positivist science, SCT's functionalist paradigm accounts for its existence and the role of organizational structure (Morgan, 1980).

Structural contingency theory has described the variety of organizational structures and behaviors since the 1950s. SCT regards organizations as open and adaptive systems. This theory emerged as a result of a range of studies in the 60s and 70s, asserting that the fit between organizational structure and contingencies affects organizational performance levels. Particularly until the mid-1970s, organizational theory had a temporary theoretical framework around SCT (Üsdiken, 2008). The most prominent and frequently cited studies in SCT come from Britain (Woodward, 1958, 1965; Burns and Stalker, 1961; Pugh, 1973; Pugh et al., 1968, 1969; Emery and Trist, 1965; Child, 1972) and the



US (Chandler, 1962, Hage and Aiken, 1967; Lawrence and Lorsch, 1967; Perrow, 1967; Thompson, 1967; Blau, 1970).

SCT is research that tested a range of propositions using its own scientific basis. These propositions are:

1. Organizations are open systems, so they both affect and are affected by their external environment.
2. Organizational structures are designed in a variety of ways as required by contingencies. In other words, there is a dynamic fit between organizational structure and contingencies.
3. This fit leads to high organizational performance. Organizational success is a function of the fit between structure and contingencies.
4. Change in organizational structure starts with a lack of fit caused by a change in contingencies.
5. New organizational structure re-creates the fit between new contingencies and organizational structure.

Understanding and discussing the content of these assumptions requires showing how concepts and the mutually variable relationships that constitute propositions are defined by the theory. This will clarify the positioning of the concepts of structure, contingencies, external environment and fit in SCT.

## 2. Basic Concepts: Structure, Contingencies and Fit

Organizational structure was previously accepted as one of the outputs of management processes. With SCT it was proven to be a scientific research phenomenon. Structure was described differently in early studies. The formal and non-formal dimensions of industrial organizations have been discussed since the classical period (Barnard, 1938; Rotlishberger and Dickson, 1946; Selznick, 1948). It was approached as autonomous and natural systems in the system framework (Gouldner, 1954) and analyzed by its technical, managerial and institutional dimensions (Koontz, 1961, 1980). This literature redefined the concepts of organization, structure, transformation, success and performance.

On the other hand, Aston Group studies in 1960s defined the variables that made it possible to define organizational structure as a measurable and observable phenomenon. The Aston Group is the designation of a group of organizational researchers who pursued their own research between 1961 and 1970 under the leadership of Derek S. Pugh. Its official name was the Industrial Administration Research Unit of the Birmingham College of Advanced Technology. Birmingham College was renamed Aston University in 1966 and conducted much SCT research in the 60s. Members of the group originated in different areas of research such as psychology, economics, political sciences and sociology. Among others, John Child, David Hickson, Bob Hinings, Roy Payne, Diana Pheysey, and Charles McMillan published for the Aston Group. This research clearly defined the organizational structure variables of formalization, division of labor and specialization, centralization, standardization and control, and the concept of structure gained importance in academic research as a measurable, observable social phenomenon (Donaldson, Child and Aldrich, 1975; Child, 1972b; Hage and Aiken, 1967).

Organizations were re-conceptualized. A complex organization is a set of interdependent parts that make up a whole because each contributes something and receives something from the whole.

This whole in turn is interdependent with some larger environment. These organizations are re-approached as natural systems (Thompson, 1967: 6). The assumption of classical period scholars was that organizations were closed systems, while in the new era they were defined as open systems. Organizations have instrumental and economic rationality, and they constitute a new research area for achieving specific objectives and efficiency.

There are ongoing debates on what organizational structure is and how it should be understood. One approach that affects both the concept of structure and the structural model was promulgated by Max Weber. A specific concept of bureaucracy was developed by Weber. Then it was interpreted in interesting ways, and one of these interpretations is institutionalized in terms of management and organization studies. In fact, Weber's analysis of bureaucracy in modernity has as fundamental a place as Marx's class theory (Burns and Stalker, 1966: 105). Bureaucratization is a characteristic of modern societies. Particularly in Western Europe, the modern state and its entities, armies, hospitals and industrial enterprises, have distinguished themselves from other social entities such as traditional societies by bureaucratization in this period of history. Weber discussed its moral, intellectual and social pressure and constraints, which suspend humans' natural and instinctual existence using the tools of social order instruments and generate alienation. Bureaucracy is a modern phenomenon.

Weber's studies did not reach the US until the 1940s (Perrow, 1972). Since the early 1900s, management studies in the US were based on the interpretation of past experiences by professional managers. Formal organizational structure, particularly in Fayol and Taylor's works, was described as a specific model. Formal organization was seen as an instrument to exert authority over, inform and discipline employees in a hierarchy. This was concretized in organizational schematics, job and task descriptions and chain of command. However, Weber's view of bureaucratic organization requires a rationalistic interpretation of industrial organization (Burns and Stalker, 1966: 107). In short, these organizational structure concepts are interpreted as the parts of the same conceptual path, but they actually include different intellectual systematic, objectives and results. The authors who studied the same phenomenon, in other words industrial organizations, analyzed efficiency, rationality, legitimacy or political domination. All of these analyses were considered within the context of classical management and conducted in the period when this discipline was not adequately developed. In the first view, organizations are considered a dominant form of order, while in the second, designing and improving the organizations through order and cooperation are significant.

Organizational structure is described as a knowable, observable, measurable and functional instrument in the framework of SCT. Contingency represents variables that determine the effects of organizational design elements on organizational performance (Donaldson, 2001). Organizational scale or size, technology use, competition strategy and operational diversity, environmental uncertainty or variability levels are defined as contingencies of organizational structure design. Contingencies have been conceptually integrated since the 1990s. Accordingly, the contingencies inherent to organizational structure and external environmental dependencies diverge from each other. Since contingencies have direct and indirect effects on organizational structure, this enables them to be conceptualized individually. In this framework, two contingencies are defined: task and scale. Tasks and the duties of employees in an organizational structure constitute an internal contingency variable, which can be divided into uncertainty about tasks and the mutual dependence of task-related activity. Scale defines the size of an organizational structure and included in the analysis as another internal contingency variable. Besides these internal contingencies, external environmental conditions are also accepted as external contingency variables. However, environmental variability has an indirect effect on organizational structure. For instance, it is assumed that higher environmental variability increases the

uncertainty level of the task, which changes organizational structural elements (Donaldson, 2001). All of them are subject to conceptual integration in analytical modeling and empirical research. In other words, the contingencies that define organizational structure are clearly analyzed and explained as task and scale variables.

Defining structure and contingencies puts the basic research question of the theory on the agenda. First, SCT assumes that there is a relationship between contingencies and organizational structure. Studies mainly include empirical research examining this relationship. The theory assumes a dual, but not routinely non-linear, relationship between contingencies and organizational structure. Second, a change in contingencies is assumed to lead a change in organizational structure. The theory explains the transformation of organizational structures in time with transformation in contingencies. Differentiation of contingencies in time will damage an organization's fit with an existing structure and lead to performance problems. Lower organizational performance will require a new fit to increase performance, which transforms organizational structure (Donaldson, 2001). Third, SCT approves that the relationship between organizational structure and contingencies have positive effects on organizational efficiency. The reason to focus on efficiency within the framework of SCT is to explain the success or failure of the organizations with a functional paradigm. Organizational efficiency implies access to organizational objectives as defined by Parsons (1956). The theory uses organizational efficiency and performance as synonymous concepts. The relationship between fit and performance lies at the heart of SCT (Donaldson, 2001). SCT research provides empirical support for this assumption. There are arguments about fit, but it constitutes the common ground for all SCT studies.

In SCT, organizational transformation describes a range of successive actions that are explained by change in contingencies and have a similar causal relationship. Structural transformation starts with change in organizational contingencies. If there is diversification or variation in organizational operations—for instance, if a computer producing organization varies its production by producing a phone or portable stereo—then fit is disrupted. If there is a change in technology use— (for instance, a shift from a mechanical production to computer-based production), a difference in market conditions, new competitors enter the market or competition with a new product, organizational scale changes with the establishment of new departments and units or the organization repositions itself in the market with a new competitive strategy—all these things disrupt fit. SCT assumes that change in contingencies triggers a transformation to regain required structural design elements. Finally, the organization fits its organizational structure, contingencies change and organizational performance increases. In other words, the transformation has its own cycle. A successful organization experiences some performance problems as a result of changes in contingencies. In such cases, the management determines the necessary transformations and when a new structural design is adopted, the organization fits new contingencies and its performance increases. In short, the lack of fit between contingencies and organizational structure leads structural transformation.

Inefficiency in this scenario appears with performance loss due to the lack of fit caused by changes in organizational contingencies. Temporal lag is due to the imperfect information of the executives who should notice the need for structural transformation. Executives notice this need in a certain time period and then make a new structural design (Donaldson, 1995).

The contingency approach says that the effect of one variable on another depends upon some third variable,  $w$ . The relationship between  $x$  and  $y$  is part of a larger causal system involving the third variable,  $w$ , so that the valid generalization takes the form of a trivariate relationship (Donaldson, 2001). In this causal framework, SCT takes organizational structure and effectiveness (organizational performance or success) as two basic variables. Industrial organizations are assumed to be units constructed

to do certain tasks in a defined order to attain open-ended goals. Organizational structure changes, altering the formal allocation of work roles and the administrative mechanisms to control and integrate work activities including those that cross formal organizational boundaries (Child, 1972a). Contingencies in the organization play a regulatory role in the relationship between the structure and organizational performance (Donaldson, 2001). This fit—fit causes higher performance—ends when stability in the competitive environment is replaced by variation.

These fundamental causal relationships are required to redefine variables for the internal consistency of the theory. Organizational structure and its behaviors are seen as measurable and observable phenomena. Organizational structure is a rational and relational pattern consciously designed to attain a specific goal (Thompson, 1967). Executives make strategic and structural design decisions and present rational behaviors on behalf of an organization's interests. In other words, organizational actions are collectively rational (Donaldson, 1995: 12).

Executives have positive roles in SCT. Chandler (1977, 1983, 1990), portrays competent executives and explains their vital role in a subtle way. However, this role is limited by contingencies. Contingency factors and their results are defined, and executives direct their relations like orchestra conductors (Donaldson, 1995: 13). For SCT, executives are conscious creators of designed fit. Executives make decisions according to current technology, innovation in products and processes, product diversity, organizational strategy and organizational structure (Donaldson, 1995).

The basic concepts and assumptions of SCT emerged in the findings of a range of studies conducted in the 1960s and 1970s. These pioneering studies of contingencies will be described and discussed in the following sections.

### 3. Early Studies: Defining Basic Contingencies

The basic variables of SCT are based on the birth and development the organizational theory discipline and attempts to define its legitimacy and boundaries. Since the 1990s, contingencies, which were redefined and remodeled in different SCT studies established the permanence of a new style of thought. New variables such as technology, environmental uncertainty, organizational size and strategy were defined in a variety of studies.

**Table: An Overview of Structural Contingency Theory**

| FACTORS THAT AFFECT STRUCTURE  | STRUCTURAL ELEMENTS AFFECTED               |
|--------------------------------|--|
| <b>Strategy</b>                | Form (Multidivisional, functional, matrix) |
| Product differentiation        | Size of the administrative component       |
| Price                          | Degree of bureaucratization                |
| <b>Size</b>                    | Formalization (use of rules)               |
| <b>Technology</b>              | Functional specialization                  |
| Production process             | Centralization                             |
| Information technology         | Standardization                            |
| Amount of variability          | Formalization                              |
| <b>Environment</b>             | Differentiation                            |
| Uncertainty / unpredictability | Number of levels                           |
| Degree of competition          | Number of departments / divisions          |
| Amount of change               |  |
| Resource munificence           |  |

**Source:** Pfeffer, J. *The New Directions for Organization Theory: Problems and Prospects*. New York: Oxford University Press, 1997, p. 160. Sargut A. S. and Özen Ş. (Uyr.), *Organization Theories*. İmge Bookstore, 2007, p. 57.

SCT is based on a range of studies that analyze the effects of specific contingencies, strategy, size, technology and environment, on organizational structural characteristics. Each contingency variable generates design variations in organizational structure. The studies based on this theory are introduced in the following section.

### 3.1. Technology

Debates on the effect of organizations' technology use on their organizational structures led to dependencies and dependency relationships in contingency theory and re-conceptualization of organization, structure and environment. The US and Britain-based studies of Woodward (1965), Thompson (1967), Hage and Aiken (1967), Aldrich (1972), Child (1972, 1973), Hrebiniak (1974), Blau et al. (1976), Reimann (1980), Henderson, Clark (1990) are fundamental for connecting technology and industrial design elements. Studies of technology use have focused on individuals, work units and organizations and their mutual dependency levels, routinization levels (non-routine technologies), complexity and operational diversity (Fry, 1982).

| <b>Table: Perspectives on Types of Technology and Organizational Characteristics</b> |   |
|--|---|
| <b>A. Woodward's Model</b>   |   |
| Technology type  | Associated Organizational characteristics               |
| Unit and batch production  | Decentralized decision-making structure                 |
| Large batch and mass production  | Centralized bureaucratic decision-making structure      |
| Continuous processing  | Decentralized decision-making structure                 |
| <b>B. Thompson's Model</b>   |   |
| Technology type  | Associated Organizational characteristics               |
| Long-linked technology   | Standardized sequentially interdependent linear process |
| Mediating technology   | Standardized procedures mediating transactions          |
| Intensive technology   | Unstandardized applications of machines and knowledge   |
| <b>C. Perrow's Model</b>   |   |
| Technology type  | Associated Organizational characteristics               |
| Routine technologies   | Low task variability – high task analyzability          |
| Craft technologies   | Low task variability – low task analyzability           |
| Engineering technologies   | High task variability – high task analyzability         |
| Non-routine technologies   | High task variability – low task analyzability          |

**Source:** Jaffee, David. Organization Theory: Tension and Change. McGraw-Hill Publishers, 2001, p.187.

Studies that inquire and determine the relationships between different technology classes and organizational design elements is the base of the literature.

Within the framework of SCT, technology denotes all methodologies and tools used to transform inputs into outputs and constitutes "technical core" of the organization (Thompson, 1967: 6). However, since organizations cannot generate isolated closed systems, the behavior of this technical core is always an incomplete representation of what the organization must do to accomplish desired results. Technical rationality is a necessary component, but never alone sufficient to provide organizational rationality, which is taken for granted by the technology, and dispensing outputs, which again are outside the scope of the core technology. These activities are based on the relationship with the external environment (Thompson, 1967: 6).

Technology is a significant variable in the analysis of complex organizational actions since there are many techniques to attain desired goals in modern societies. Clarifying this complex technical structure explains organizational actions as well. However, technical rationality that defines cause and effect relationships for a certain goal is a kind of abstraction, and uncontrolled environmental fluctuations do not allow technical rationality to operate in a perfect way (Thompson, 1967). In other words, the concept of rationality developed by technique rationalizes work, defines and requires parts, definitions, orders, instructions and procedures. However, the rationalization of work is not sufficient for the entire organization. The non-formal nature of work and changes due to uncertainties illustrate the insufficiency of rationalizing production.

There are primary components of organizational rationality. These are input activities, technological activities and output activities. Organizational rationality requires these activities to be interrelated with each other and also involves the organizational-environment interface. This idea does not allow for conceptualization of the organization as an isolated closed system (Thompson, 1967: 6). Under norms of rationality, organizations seek to buffer environmental influences by surrounding their technical cores with input and output components.

Thompson structures all his propositions for organizational actions under norms of rationality (Thompson, 1967: 20). These norms of rationality are generated to understand and explain organizational actions and also bring a range of conceptual relationships together. These include specific limitations, contingencies and controllable variables for organizations (Thompson, 1967: 24).

Thompson (1967) proposed three types of technology to explain organizational characteristics. Sequenced technologies are most common in manufacturing and involve a linear process that begins with raw materials and proceeds toward a finished product. Both mass production and continuous process qualify as sequenced technologies. Mediating technologies are those used by organizations that link clients or customers interested in engaging in a transaction. For example, banks bring together investors and borrowers. These organizations develop procedures and services for, and process information about, producer and consumer needs. Postal and cargo services provide transportation and delivery services for their customers. Intensive technologies are those forms of hardware and knowledge used to change some specific object. The construction industry and big hospitals are examples of this kind of technology. Medical technology is used to diagnose and treat a patient's disease (Thompson, 1967).

The concept of technology has a central importance in analyzing large industrial organizations. This view needs the best system to define and combine skills, competences and resources with technology to produce a specific object (Eldridge and Crombie, 1974). Each organization has its own technological mechanism that defines its organizational design elements. Structural variables include internal dependence, coordination mechanisms, hierarchical stability and fragmentation in the organizational structure. Thompson correlates technology and organizational structure design with task uncertainty and interdependence of tasks. Task uncertainty is related with the variability of the work, while task interdependence is defined as the relationships between organizational actions (Thompson, 1967). Changes in environmental conditions are determinants of effective organizational design to provide operational and technical efficiency using new technological mechanisms (Jelinek, 1977).

Technology defines the structural design of organizations and was defined and classified in a different way by Woodward. Woodward studied 100 English manufacturing firms, and she distinguished three types of core technology: small batch and unit production technologies, large batch and

mass production technologies and continuous process production. Woodward correlated these organizational technologies with different management structures. She concluded that mass production technologies tend to be associated with centralized and bureaucratic forms of management, while small batch and continuous processing technologies are most successful when coupled with decentralized management structures. Woodward focused on the elements of organizational designs such as control area, number of hierarchical levels, functional fragmentation, formalization levels of communication and job definitions, and noticed significant variations between different organizational structures. She confirmed that these variations are defined by different technologies (Woodward, 1958, 1965). Similarly, another study asserts that as the complexity level of technology use increases, the control over work increases job definitions become more detailed, and new control instruments are introduced. In other words, executive innovations focusing on auditing and supervision become necessary (Burack, 1967).

Perrow (1972)'s studies asserted that technology is a determinant factor of organizational structure and other characteristics. According to Perrow, technology should be defined by tasks rather than machines, equipment or methods. Organizational structure is defined by task-related technologies, not by techniques or tools (Perrow, 1972; Withey, Daft and Cooper, 1983).

Studies of the effects of technology on organizational structure lost their significance in the literature since the early 1990s. During this process, some of these studies include criticism of SCT, and others take interest in research issues suggested by specific theoretical developments. However, they do not reach a consensus on the conceptualization of technology (Perrow, 1972; Lynch, 1974), which limits clear explanation of the relationships between technology and organizational structure. On the other hand, technology is not associated with the concept of *techné* (Habermas, 1998), which forms the whole organizational context and cannot be based on a philosophical thought system. Technology is reduced to a structural variable where it is denoted as an instrument and cannot go beyond its causality. At which analysis levels technology should be observed and with which dimensions it should be conceptualized becomes more complex in task and dependency contingencies.

### 3.2. Environmental Uncertainty

Studies on the relationships between organization and environment focus on defining and explaining the environment and its relationships to the organization. General System Theory developed by Bertalanffy (1950) is very significant in organizational studies. This theory is a convenient lens for defining open and closed systems in detail, introducing general characteristics of the open system, solving the environmental relationship of physical and biological assets and analyzing industrial organizations. The classical understanding led to the labeling of organizations as closed systems in early studies using the assumptions of general system theory (Barnard, 1938; Gouldner, 1954; Lawrence and Lorsch, 1967; Chandler, 1962; Thompson, 1967; Donaldson, 2001). Later, the environment came to be defined in terms of organizations (Emery and Trist, 1965; Dill, 1958; Terryberry, Katz and Khan, 1966).

The conceptualization of the environment is one of the main elements of SCT, which is mainly based on cybernetics, information theory and open systems. The contribution of this approach is its ability to clarify the concept of environment and to determine the relationships between environment and organization (Emery and Trist, 1965). In general, the external environment is defined as the space

that meets efficiency, innovation and other requirements to ensure success and survival (Hage and Aiken, 1967).

One of the first environmental decisions was made by Dill (1958). In the debates and studies about tasks, task environment and autonomy in executive decisions, information obtained from the task environment and its effects on executive decision making are analyzed. The task environment consists of related or potential factors for organizations to reach their goals. Therefore, the most relevant parts of this larger system compose an organization's task environment: customers and clients (including dealers and wholesalers); suppliers of materials, labor, capital, equipment and work space, and competitors for markets and resources and regulatory groups (government agencies, unions, and business associations).

The environment is an observable area for executives outside the organization. This area includes many complex relationships and actors. Even the understanding of external environment in the context of bounded rationality (Simon, 1965) does not cover an abstract estimation. Environment exists in mutual interaction with organizations. The relationship of environment and organization is considered an action and reaction mechanism (Dill, 1958).

The deterministic and reductionist approach of the natural sciences asserts itself in each analysis. The old question of whether an individual is an output of the environment or exhibits inherent characteristics has been a guide to analyzing organizations (Sargut, 2007). The effects of environment on organizations are not only valid for the organizational level, but also for behavioral studies at the individual level (Fiedler, 1967). Studies in the 50s and 60s mainly focused on behavioral issues, executive styles, organizational climate or executive tendency. In the organizational system context, employee behavior is shaped by the characteristics of other employees, job definitions, structural relations and dominant norms in the organization, rewards and control systems (Lawrence and Lorsch, 1967). Behavioral analysis at the individual level has reactive and environmental effects. Therefore, contingencies are even able to explain micro-level individual behavior.

Early studies of the environment are based on organizational autonomy and interdependent relationship. Their starting point is the assumption that regulations and adjustments in organizations or inter-organizations cannot be considered without the environment (Terryberry, 1968). In other words, it is not possible to understand the structure of industrial organizations only by intrinsic rationality. Extrinsic factors have critical importance in the continuity of the organization. Environmental uncertainty is produced by scientific discoveries, technical inventions, the emergence of new products and changes in current products (Burns and Stalker. 1966: 96).

Emery and Trist (1965) generated one of the environment typologies of the early period. Emery and Trist used the formulations of open systems theory and market classification of neoclassical economy, and proposed four causal textures of the environment. First, the placid, randomized environment is that in which goods and organizations are relatively unchanging, and actors are not informed by each other. The economists' classical market also corresponds to this type. A critical property of organizational response under random conditions is that there is no distinction between tactics and strategy (Emery and Trist, 1965). The best tactic, moreover, can be learnt only by trial and error for a particular class of local environmental variances. The environment is a determinant factor for the organization. Second, the placid, clustered environment corresponds to the economists' imperfect competition. Environmental conditions do not exhibit a randomized distribution or impact. Actors have some kind of relationship with each other, and survival becomes critically linked with what an



organization knows of its environment. Organizations may develop survival strategies to maintain their existence (Emery and Trist, 1965). In the clustered environment, the objective is optimal location, some positions being discernible as potentially richer than others. In other words, organizations should select a location for themselves. To reach these positions requires concentration of resources, subordination to the main plan and the development of a distinctive competence in reaching the strategic objective. Organizations under these conditions, therefore, tend to grow in size and also to become hierarchical, with a tendency towards centralized control and coordination.

The third environmental category is called the disturbed-reactive environment. It may be compared with the economists' oligopolistic market, and this environment includes more than one organization of the same kind. The existence of a number of similar organizations now becomes the dominant characteristic of the environment. Each organization does not simply have to take account of the others when they meet at random, but has also to consider that what it knows can also be known by the others. The part of the environment to which it wishes to move itself in the long run is also the part to which the others seek to move (Emery and Trist, 1965). Knowing this, each will wish to improve its own chances by hindering the others, and each will know that the others must not only wish to do likewise, but also know that each knows this. In these conditions, defining strategic objectives is not sufficient for organizations to survive. Researchers suggested that the terms of tactics, operations and strategy, which are formally distinguished by German and Soviet military theorists, are valid for organizations as well. Organizations select immediate actions from the available repertoire and should also choose their tactics and operations. The main objective is not only to make sequential choices, but to choose actions that will mislead the other organizations. An operation consists of a campaign involving a planned series of tactical initiatives, calculated reactions by others and counteractions. This flexibility encourages a certain decentralization and also puts a premium on the quality and speed of decisions at various peripheral points (Emery and Trist, 1965). Here, the main actors in the interaction are not only competitors. Regularity or stability is accepted as a condition of interactive organizations, and in addition to competitors, enterprises, interest groups and governmental institutions are also accepted as environmental actors.

Finally, there is the environment is called turbulent fields. In these, the dynamic properties arise not simply from the interaction of the component organizations, but also from the field itself. The ground is in motion (Emery and Trist, 1965). Organizations are not only interrelated with each other and with certain actors. There is deepening interdependence between the economic and the other facets of society. This means that economic organizations are increasingly enmeshed in legislation and public regulation, and only increasing reliance on research and development can meet competitive challenges (Emery and Trist, 1965). Researchers claim that the environmental conditions of modern organizations may be described as turbulent fields. Due to the nature and operational logic of environments, the structural decisions and strategies of organizations are inexplicable without their causal relationships with external environments.

**Table: Causal Textures: Environments and organizations**

| Type | Environment               | Characteristics   | Successful strategy   | Organizations  | Learning consequences   |
|------|---------------------------|---|---|--|---|
| I    | <b>Placid randomized</b>  | Economist's classical market. Static  | Tactics (=strategy) "Optimal strategy is just doing one's best on purely local basis"   | Distributed  | Optimal position is learned by trial and error.   |
| II   | <b>Placid clustered</b>   | Economist's imperfect competition. Stable   | Strategy dominates over tactics. Keys are distinctive competencies and "optimal location".  | Central control and coordination grow central hierarchies  | Knowledge of the environment becomes critical to success.   |
| III  | <b>Disturbed reactive</b> | Economist's oligopolistic market. More than one big player seeking same pot of resources. Dynamic.  | Operations (campaigns of tactical initiatives) between strategy and tactics. What is key is the capacity to move more or less at will to make and meet competitive challenge.   | Flexibility needs decentralization. Premium on quality and speed of decision at peripheral points. Interdependence emerges.  | "One has to know when not to fight to the death". Dynamic stability is obtained by a coming to terms between competitors.   |
| IV   | <b>Turbulent fields</b>   | Not just the interaction of organizations: "The ground is in motion." Increased reliance on R&D to build learning capability. Interdependency between economic and social spheres | Values become "power fields" overriding both strategy and tactics. Effective emerging values create ethical codes that enable simplified action to diverging causal strands. "Institutionalization" (embodying society's values) becomes strategic objective. | Individual organizations cannot adapt alone. Collaborative relationships between dissimilar organizations. Organizational matrix helps to attenuate the effects of turbulence. | 1 Increase in "relevant uncertainty"<br>2 Unpredictable results of actions; may not fall of with distance, but is amplified.<br>3 Emergent environmental forces may attenuate strong actions. Changes in values take about one generation to develop. |

**Source:** Martin Thomas. 2008. To What Extent Do Venezuela's Causal Textures Allow Scenarios to Work Towards Social Dialogue?. Rafael Ramirez, Joh W. Selsky & Kees van der Heijden (Der.), Business planning in turbulent times—new methods for applying scenarios: 147–164. London, Earthscan.

Emery and Trist's study clarified and classified environmental texture. Research in the following decades widely accepted this environmental understanding. Transformations in organizational structure, design differences and their results are due to different environmental conditions.

A similar study includes the most explicit objection to the executive view of the classical era. Lawrence and Lorsch (1967) directly argue against an executive approach valid for every time and space as well as its organizational efficiency assumption. They report that a major part of the studies focus on the best ways and methods for organizations to achieve success, whereas executive methods to reach the success differ in different market conditions, even within the different departments of the same

organization. They initiated the discussion on the question: Which organizations will be successful under different market conditions? This emphasis on contingency was a significant intellectual transformation in the 60s.

**Table: The relationship between environmental uncertainty, differentiation and integration**

| Industry         | Environment   | Differentiation   | Integration  |
|------------------|---|---|--|
| <b>Plastics</b>  | High uncertainty- rapid uncertainty and product change      | Requires a high degree of differentiation to meet demands.  | High need for integration- low formalization, decentralized decision making and direct communication to deal with problems, mutual adjustment. |
| <b>Food</b>      | Moderate uncertainty – stable technology, some new products | Moderate differentiation                                    | Moderate to low integration  |
| <b>Container</b> | Low uncertainty– standard products, little change           | Requires low differentiation as fewer environmental demands | Low integration – integration through formal rules and procedures, centralized decision making, standardized procedures and practices          |

**Source:** Ann L. Cunliffe. *Organization Theory*, Replika Press, India, Sage, 2008, p. 19.

Lawrence and Lorsch observed complex and large organizations and found that while they are getting larger, integration becomes a major problem, so they introduced the concepts of differentiation and integration. In other words, each organization creates its own subsystems, different departments or units, each of which tends to develop particular attributes in relation to the requirements posed by its external environment. Their study involved six firms in the plastic industry in 1963, and they analyzed environmental uncertainty and its impact on organization design structure in a detailed manner. They defined as high uncertainty environments industries with higher product diversification. Organizations generate and spread knowledge and information with rapid changes due to these parameters (Lawrence and Lorsch, 1967). Researchers suggest that high uncertainty in external environmental contingencies determines two design factors of organizational structure. Organizations that strive to cope with high uncertainties have more complex structures with functional departments. In other words, their organizational structures differentiate horizontally. These organizations also need to integrate the increasing number of units and departments caused by this differentiation. These two design factors seem to contradict each other and require different structural arrangements, but organizations that make these arrangements together have the highest performance (Lawrence and Lorsch, 1967: 50). This research supports the argument that organizations with harmony between the contingency of environmental uncertainty and organizational design will achieve high performance.

Burns and Stalker (1961) conducted a pioneering study of the effects of contingencies in the external environment on organizational design. The external environment of an organization exhibits variability that defines organizational structure. Organizational structure models required by unstable and stable market conditions are defined as mechanistic and organic organizational structures, and the fit to these forms are significant in terms of organizational performance (Burns and Stalker, 1961).

Mechanistic organizations have high levels of differentiation, clear and rigid role definitions, strong hierarchies, and vertical communication and control. Organic organizations continually adjust and redefine tasks with as much horizontal as vertical communication and avoid formally laid down rules, procedures and role definitions. The contingency argument was, once again, environmental and task uncertainty. Mechanistic organizations perform well under conditions of certainty, and organic organizations perform well under conditions of uncertainty (Hage and Aineken, 1967).

The idea of environment and the effects of this factor on organizational success through organizational design elements introduced a new field in SCT independent of other research areas and theories. The concept of environment was brought to the social sciences from open systems and became a major issue, particularly in SCT. Academic studies of the differences between organizational structures and their causes differ from studies based on the classical era's ideal organizational design valid for every condition.

### 3.3. Organizational Size

All SCT studies analyzed or studied large enterprises as a social and economic phenomenon. Large industrial organizations, hospitals, educational institutions, public institutions and unions with formal objectives are in this category (Child, 1972a). The functionality of these studies were their mission to solve the efficiency issues of these organizations.

In this framework, organizational scale denotes another contingency variable. Organizational growth increases the complexity and number of employees, tasks, organizational positions and departments and their relationships with each other. Therefore, growth generates observable results as a contingent variable affecting organizational design elements.

Blau (1970) examined the relationship between size and organizational design elements. Research findings indicate that an increase in organizational size, at first increases the number of sub-units and increases the size of the control area. This also brings coordination problems with structural differentiation. The control area is widened at low levels, creating an economy of scale; however, an increasing number of executives is required to solve the coordination problems of the diversified structure, so the increasing scale also increases the number of administrative employees as well (Blau, 1970).

Aston Group studies were reanalyzed in the following years, and structural sizes were defined as the two main variables of restructuring operations and concentration of authority. Restructuring operations include the sub-variables of division of labor and specialization levels, standardization, formalization, chain of command (the number of vertical levels). These variables also have interdependent relationship. The concentration of authority also covers the number of decision-making units, the ratio of executives to number of employees, standardization of choice and promotion processes. This reevaluation of research findings produced positive views of Weber's description of administrative control as bureaucracy (1964). In a large organizational structure, the operational configurations have an inverse proportion with centralization. If there is an increase in division of labor, standardization and formalization, decision-making authority can be spread over sub-levels through rules and procedures. This leads to a Weberian rationalization of social organization (Child, 1972b, 1973c). In other words, growth produces some bureaucratic structural characteristics at a specific level that creates Weber's organizational efficiency (Weber, 1964).

Scale or size is a significant determinant of organizational structure, but studies of British and US based organizations, public entities and associations assert that it is not a sufficient explanatory variable. Large and complex organizational structure is used in the literature as a synonym for bureaucracy (Child, 1973b). However, complexity is defined as a variable that should be considered separately from size. Complex operations, high differentiation of roles and functions and increased specialization are the main characteristics of complex organizations. Increased complexity causes coordination and control problems in administrations. Administrative and commercial organizations solve this problem with a bureaucratic structure, unlike professional organizations. So, scale is not a determinant of design factors such as formalization and standardization. In other words, organization scale should be analyzed with other contingent variables.

Studies of the relationship between scale and organizational design factors were the basis of SCT's definition of organizations and organizational structure variables. Industrial organizations became a definable and observable research phenomenon. The fit between the size and structure is associated with organizational efficiency, another basic assumption of the theory.

### 3.4. Strategy

The final contingent variable is an organization's competitive strategy. However, the concept of strategy has brought dissent to SCT. The deterministic paradigm of structural sociology and the idea of strategic choice were criticized. The effects of environmental uncertainty, technology and scale on organizational design and performance were considered using a deterministic paradigm, but this was criticized within SCT. Strategic choice created a new topic of discussion by including actors and their behaviors.

The choices and decisions of the actors direct organizations has no place in this deterministic view. However, organizations do not have a deterministic effect and have the autonomy to decide and formalize the conditions that make actors significant in an explanatory framework. Of course, tension between the structure and actors constitutes the one of the oldest dichotomies in the Western tradition and organizational theories as well. Differences or relations between the structure and the actor explaining transformations led another paradigm to be taken into consideration in sociology and other social sciences, too.

Strategic choice became a basic discussion topic of SCT in the following years. The question whether organizational fit is established as managerial or environmental creates a new assumption in the theory against the deterministic view. Environmental determination against actor choice represents two separate sociological views; however, studies surpassed this contradiction with new sociological findings. In this framework, the nature of actors and choices, the nature of the environment and the relationship of actors with organizations and environment are examined (Child, 1997). Many approaches have contributed to the development of this theory. Some are closer to the atomized actor solution of neoclassical economics and defend choice decisiveness (Whittington, 1993), some analyze mutual relationships between structure and actor, and some try to overcome the tension between structure and the actor (Hrebiniak and Joyce, 1985; Oliver, 1991, 1997; Child, 1997).

Strategic choice points out that organizational autonomy can shape the organizational context, performance standards for environmental pressure and constraints and its own organizational structure (Child, 1972a). In this sense, organizational performance constitutes both an input and an output

since organizational performance standards and their success determine organizational design. Similarly, fluctuations in organizational design are assumed to affect organizational performance (Child, 1972a). Therefore, the question is how choice of organizational structure can cope with organizational constraints.

Decision makers in organizational structures constitute basic factors in the strategic choice perspective. Certain decision-making positions in an organization determine operations and how they will be implemented. In organizations with higher specialization levels, high-level administrative positions have specific decision-making powers. Top management makes decisions to direct and control a whole organization and reshape practices. Thus, strategic choice perspective implies the concept of dominant coalitions. However, the concept of dominant coalition does not mean absolute power. On the contrary, more than one dominant coalition may exist and subunits of this coalition do not have absolute power and authority over other units of an organization (Child, 1972a). After all, organizational structure is shaped in accordance with the choices of the dominant coalition. However, factors such as resistance to transformation and the nature of information to be reinterpreted at top levels make this process harder to define as a deterministic relation.

The concept of strategy was firstly proposed by Chandler (1962). Chandler's study of SCT analyzed and discussed the relationships between strategy and organizational structure and clarified the role of executives in organizational design. However, this study was not based on a quantitative fieldwork, but on sample case studies. Chandler developed new definitions and arguments specifically based on organizational structure, the causes and results of its fluidity and the concept of strategy. Chandler (1962) identified strategy as the determination of the basic long-term goals of an enterprise and the adoption of courses of action and the allocation of resources necessary to attain these goals. In this framework, the volume of operations may change, new plants and offices may be built, and new operational areas and products may come to the agenda. In other words, the modification of organizational goals is a major source of changes in size, technology and location (Chandler, 1962: 15). The final claim is that the competitive strategy of enterprises is a determinant factor structural design elements. In other words, structural design follows strategic choices, and the fit between strategic necessities and organizational structure yields higher efficiency.

On the other hand, Thompson (1967) and Rumelt (1974) suggest that horizontal and vertical integration strategies lead to the diversification of organizational activities, or interdependence among tasks. Therefore, strategy, as a contingent variable, affects organizational structure's influence on task dependency. So, strategy is a structural contingency for task interdependence. Large enterprises with product diversification develop different organizational designs, establish autonomous sub-units responsible for each product and experience vertical and horizontal differentiation. The structural design differences of organizations are discussed along with internal growth and acquisition. A range of dissertations were written in the early 1970s and analyzed the relationship between competitive strategy and organizational design (Pitts, 1977; Child and Francis, 1977).

The strategic choice perspective associates all contingent variables with each other and with organizational structure. It objects to linear determination. The relation between all contingencies and organizational design is considered the output of decision-making processes (Child and Francis, 1977). In other words, strategy formulation is a built-up process that associates an organization and its external environment, and determines specialist roles, decision-making standards, procedure and programs. These organizational design factors shape strategic decision-making processes (Child and Fran-

cis, 1977). Strategic decision-making processes are conducted by top management and seen as the key to determining the relationships between contingencies and organizational design and performance.

Strategic planning and explanation of organizational behaviors around the strategy were considered in SCT until the 1980s. Mainly organizational strategies (Chandler, 1962; Ansoff, 1968), strategic typologies (Miles, 1978) and the relationships between strategic decisions and organizational structure (Chandler, 1962; Child, 1972; Child and Francis, 1977; Pitts, 1977; Mintzberg, 1983) were examined. Since the 1980s, this area was evaluated on a different level based on markets and corporations, or economic theories. This research area has developed under the name of strategic management and started to examine corporate behavior and performance differences between corporations by developing its theoretical base (Barca, 2003). The literature on strategic management was developed with the concept of competitive advantage, which was first introduced by Michael Porter (1985, 1987), and then the resource-based approach (Wernerfelt, 1984, 1995; Barney, 1991, 2001) of neoclassical economics (Penrose, 1958). It sustained interest in the relationship between strategy and organizational structure. This relationship is seen as an organizer of strategy implementation.

#### 4. The Problems and Potential of Traditional Contingency Theory

SCT made a significant impression on micro and macro level organizational studies with its basic assumptions, research questions and concepts. Academic studies of industrial organizations and their practices were the starting point and main route for the association between theory and practice. However, the literature suggests that SCT studies experienced rapid growth from the early 1960s until the mid-1980s when the number of studies began to decline gradually, losing influence in the early 90s (Barry, 2011).

Since the mid-1970s, studies of organizational theory experienced different theoretical transformations, and industrial organizations were explained using various and even contradictory approaches, which led to a decline in their number. Organizational theory, resource dependence, operational cost and organizational ecology theories brought new explanations of organizations. This diversification in the field drew attention to the deficiencies of SCT and led to the emergence of new problems.

In terms of practice, perhaps, no other area of management scholarship has had such a profound impact. Organizational design has spawned and sustains a multi-billion dollar management consulting industry worldwide. The designs of organizations and institutions directly affect the behavior and performance of millions of workers and organizations each day, as well as the aggregate productivity and well-being of economies throughout the world (Van de Ven et al., 2013).

In an increasingly globalized and knowledge-intensive economy, the design of work and economic life is no longer contained within a single organization or institution. It often transcends the boundaries of organizations, professions and countries. Knowledge-intensive services have become the dominant form of work in the industrialized world. This knowledge-based work often develops in several locations simultaneously and cuts across the boundaries of firms, industries and nations. This global distribution of work has been made possible by following conditions: technologies that enable the division, distribution and coordination of work across national boundaries; the lowering of institutional trade barriers with economic liberalization and the global diffusion of professional competencies (Van de Ven et al., 2013).

Advances in information technologies, global market competition and shortening product life cycles have created a huge demand for innovation and creative business solutions. Under these conditions, innovation and change have replaced scale and stability as determinants of organizational survival and success. Hence, instead of refining internal structural arrangements to fit a quasi-stable environment, today's organizational executives are designing for innovation, searching for distinctive and competitive ways to increase innovative capacity both in and outside their organizations (Van de Ven et al., 2013).

Studying the designs of these new work arrangements requires expanding the boundaries for contingency theory to include supply chains, inter-organizational networks, occupational and professional associations, and the multi-national institutional arrangements that are used to organize systems of work and economic exchange. Scientific methods can make significant contributions by providing evidence-based knowledge for designing complex organizations, and the research boundaries of SCT, its basic concepts and assumptions should also be expanded (Van de Ven et al., 2013).

Radical changes both in the macroeconomic and political conditions of the countries where this theory comes from and in the environments of organizations, and new scientific debates, particularly in the social sciences, shaped the literature on organizational theory. Therefore, SCT benefited from the changes in internal debates, basic problems and methodological integrity. Since the early 2000s, the findings of studies with SCT perspectives have led to its theoretical restoration.

In the last decade, the constraints of SCT were clearly presented by this process. The basic concepts of the theory such as organizational structure, environment, fit and performance have been reconsidered and newly correlated using different theoretical models. SCT analytically defines organizations, external environment and conditions to determine the relationships among external conditions, internal design and organizational performance.

Organizational design is an optimization problem for SCT (Van de Ven et al., 2013). Research during the 1970s and 1980s focused on a single level of organizational analysis, viewed fit as a static equilibrium and adopted reductionist and incremental methods of analyzing the external fit between individual context and design variables one at a time.

Organizational design is often viewed as a normative choice by powerful rational actors or a dominant coalition in structuring an organization to fit its environmental demands. Critics often question how contingency theory deals with the fact that organizational designs are both planned and emergent. Contingency theory deals with the shift in agency from that of the organization's management to stakeholders, such as customers, suppliers or regulators who impose their systems and structures on the organization. The question is how do you design and manage organizations effectively in these more ambiguous, temporary, and fuzzy-boundary settings (Van de Ven et al., 2013).

Support for the contingency proposition was found in jobs and organizations that are relatively simple and stable. The concept of fit in contingency theory was operationalized as a static equilibrium. Work design analysis were conducted at the individual level and did not reflect the multilevel nature of work design choices. Finally, studies of organizational design emphasized characteristics of organizational structure, strategy, and systems and tended to overlook how work is done. Studies to date have produced little insight on how work contexts, practices and performance are interrelated across hierarchical levels within and between organizations (Van de Ven et al., 2013).

The problems of traditional SCT and its theoretical and methodological constraints were summarized by Donaldson (2001: 246):



1. If there is a change in contingent variables in an organization, for instance the organization has lack of fit with an increase in task uncertainty or a change in task interdependency, a question needs to be asked and answered by SCT. Why do the organizations change their contingencies if the lack of fit this causes leads to lower performance? The theory should be extended to explain changes in structural contingencies.

2. SCT states that an organization with a lack of fit between its organizational structure and contingencies enters a transformation process to reacquire fit. This process leads to a second question to be answered. How do executives recognize fit if they have problems knowing which organizational structure design fits which contingent variable? This likelihood makes making decisions to regain fit difficult. This assumption requires the theory to explain more clearly and realistically how organizational transformation is accomplished.

3. Research suggests that there is a linear relationship between fit and efficiency, so different efficiency levels are defined for different fit levels. If the organization is unable to reach different efficiency levels, another problem arises. If the efficiency levels do not differ, why do organizations move from one fit level to another? SCT should offers new explanations for the assumed relationship between fit and organizational efficiency.

As the complexity of organizations increases, making conceptual deductions and developing theoretical models are getting harder. Conflicting environmental demands, interaction among internal design factors, diversified performance expectations complicate explanation of the relationships among these phenomena. However, this is also an opportunity for enrichment and development.

SCT, like other fields of study, has experienced breaking points with positive and negative effects. In the last fifty years SCT has gained various new understandings. This conceptual development is explained within the framework of four basic perspectives: configuration, complementarity, complexity and creativity. These perspectives have identified a number of key ideas and challenges for a research agenda (Van de Ven et al., 2013):

1. SCT has a rich theoretical base; however, it is criticized for its reductionist perspective and methods. These criticisms indicate that fit and design elements need to be considered in different ways.

2. While contingency theory continues to be useful and influential in framing research and practice in work design, the reductionist research methods that were used to analyze the external fit between context and design variables one at a time should be abandoned. The configuration and complexity perspectives build upon the conceptual richness of contingency theory and appear to avoid the pitfalls of this early research. Both perspectives take a holistic view of work design as consisting of configurations of subsystems (modules) nested in systems located within and between organizations.

3. In the configuration perspective, work design is viewed as a dual optimization problem: work systems are most effective when they maximize an external fit between environmental demands and design configuration, and an internal fit between design components and levels of strategy, structure, systems, style and culture. Organizational theory contributes to notions of fit through institutional demands and legitimacy, but also needs to be more concerned with organizational design.

4. The complexity perspective takes a more dynamic view by locating the external fit and internal fit of work configurations as they evolve on a fitness landscape over time.

5. Creative organizational design stresses design thinking and more artistic, flexible, and creative approaches to design than the engineering and analytical approaches of the past.

6. Achieving both internal and external fit remains an elusive goal, particularly in situations with multiple conflicting environmental demands, internal design configuration tradeoffs and diverse performance expectations. In these situations, it becomes difficult, if not impossible, to conceptually deduce or model a theoretical solution. The empirical approach of discovering an inductive solution by observing samples of organizations or institutions appears more feasible. In a specific length of time, it is not possible for either executives or researchers to assume all valid design choices.

## 5. Conclusion

SCT, its basic assumptions, intellectual and scientific bases and proposed research methods have not created an orthodoxy in organizational theory—like neoclassical economics—but constituted a significant theme in subsequent research on organizational behavior and theory. SCT dominated the 60s and 70s, but this did not continue for long as a base for academic research. On the other hand, SCT plays a critical role in academic studies of organizational structure (Donaldson, 1995). Management theory spread all over the world in US textbooks and is also based on SCT studies and perspectives.

SCT argued against earlier dominant views based on analyzing industrial organizations. This argument was intended to generate new and more effective solutions for organizational problems and to define its boundaries as a scientific discipline. Classical studies defined organizational structure as a hierarchical chain of command, higher formalization characterized by detailed planning and a centralized decision-making process. This was intended to be a valid model in every condition (Donaldson, 1995). A second research agenda, human relations, focused on employee behavior in organizations. These fields of study in the early 1960s agreed with SCT that centralized and participative decision making are related to organizational contingencies (Donaldson, 1995).

Studies in SCT reconstructed the idea of organization with the open system view and created new research questions. SCT is based on the argument that organizations should adapt to external environmental conditions (Donaldson, 1995). The analysis is conducted organizational level and organizational behavior should be analyzed instead of executives' individual behavior (Lawrence and Lorsch, 1967). Consistent with the functional sociological origins of the theory, the significance of academic information for organizational success and the contribution of this information to organizational efficiency are clearly defined (Woodward, 1965).

SCT emerged from the common assumptions of various studies of contingent variables. The fit between organizational structure and contingent factors is the prerequisite for high organizational performance. Thus, if an organization cannot fit contingent variables and cannot adapt structural design factors according to these conditions, then it fails. Structural fit brings success, and structural lack of fit means failure.

The structural features of organizations fit with contingent variables in general. However, if there is a change in contingent variables, it leads to lack of fit and performance problems. Thus, organizational structure is shaped by contingent variables (Donaldson, 1995).

SCT has a positivist, deterministic, prescriptive and functionalist view and defines organizations' technical, abstract and tangible factors (Donaldson, 1996). SCT's objective is a law-making theory that explains all observable phenomenon and has explanatory power without the need for context.

The theory has the West's rationality (Weber, 1964) and undertakes the mission to define, study and manage capitalism's industrial organization and modern technology.

The fragmentation of organization theory poses a host of problems regarding the credibility of the field and why the field should continue to be pursued and take resources and support from society (Pfeffer, 1993). The economic, social and political entities dominant in the US in the 1960s affected science, particularly the social sciences. Objections to sociology and political science state that structural factors are the hegemonic instruments of social elites or power holders, and similar reflections have been made about enterprises. According to Donaldson, this changed the direction of the debate from the functionality of structures to the politics of structures, and Chandler's definition of executives as functional strategists was left behind (Donaldson, 1995).

The last thirty years of organization theory research in the US have seen not the creation of an increasingly strong, well-established, consistent, refined and validated body of knowledge, but rather an increasingly fragmented and incoherent one. Diversification and non-conciliation since the 1970s have induced this problem. The main theorists define this diversification as a problem that makes an integrated theoretical framework impossible. Each of these theories is subject to its own limitations and defects. Finally, none of the theories became dominant, and rejecting SCT has led to problems (Donaldson, 1995). The dominance and sustainability of certain paradigms in organizational theory are a current discussion topic for SCT (Qui, Donaldson and Luo, 2012).

Since the 1980s, the theory's improvement and dominance has lagged. Afterwards, criticisms of the theory, their answers and the research phenomenon of the new conditions organizations face re-created its improvement potential. Studies in the last decade have redefined and remodeled the organization, its environment and its environmental relationships, the concepts of fit and organizational performance and put the restoration of SCT on the agenda. The theory has the explanatory potential of a positivist research agenda for organizations.

## REFERENCES

- Aldrich, H. E. (1972). Technology and Organization Structure: A Reexamination of the Findings of the Aston Group. *Administrative Science Quarterly*, 17, 26-43.
- Ansoff, H. I. (1968). Corporate Strategy. London: Penguin.
- Astley, W. G. and Van de Ven, A. H. (1983). Central Perspectives and Debates in Organization Theory. *Administrative Science Quarterly*, 28(2), 245-273.
- Barca, M. (2003). Economic Foundations of Strategic Management, Ashgate.
- Barnard, C. I. (1938). The Functions of the Executive. Harvard University Press.
- Barney, J. (1991). Firm Resource and Sustained Competitive Advantage, *Journal of Management*, 17(1), 99-120.
- Barney, J. (2001). Resource Based Theories of Competitive Advantage: A Ten Year Retrospective on the Resource Based View, *Journal of Management*, 27, 643-650.
- Barry, D. (2011). Re-designing organization design. Paper presented at the Design Business Conference, Barcelona.
- Bertalanffy, L. (1950). The Theory of Open Systems in Physics and Biology, *Department of Biology, University of Ottawa*, 111, 23-29.
- Blau, P. M. (1970). A Formal Theory of Differentiation in Organizations, *American Sociological Review*, 35(2), 201-218.
- Blau, P. M. and Falbe, C. M. and McKinley, W. and Tracy, P. K. (1976). Technology and Organization in Manufacturing, *Administrative Science Quarterly*, 21(1), 20-40.
- Burns, T. and Stalker G.M. (1961). The Management of Innovation, Tavistock Publications.
- Burack, E. H. (1967). Industrial Management in Advanced Production Systems: Some Theoretical Concepts and Preliminary Findings. *Administrative Science Quarterly*, 12(3), 47-500.
- Chandler, A. D. (1962). Strategy and Structure, The MIT Press.
- Child, J. (1972a). Organization Structure and Strategies of Control :A Replication of the Aston Study, *Administrative Science Quarterly*, 17(2), 163-177.
- Child, J. (1972b). Organizational Structure, Environment and Performance: The Role of Strategic Choice, *Sociology* 6, 1-22.b
- Child, J. (1973a). Parkinson's Progress: Accounting for the Number of Specialists in Organizations, *Administrative Science Quarterly*, 18(3), 328-348.
- Child, J. (1973b). Predicting and Understanding Organization Structure, *Administrative Science Quarterly*, 18(2), 168-185.
- Child, J. (1973c). Strategies of Control Organizational Behavior, *Administrative Science Quarterly*, 18(1), 1-17.
- Child, J. (1997). Strategic Choice in the Analysis of Action, Structure, Organizations and Environment:

- Retrospect and Prospect, *Organization Studies*, 18, 43-76.
- Child, J. and Francis, A. (1977). Strategy Formulation as a Structured Process, *International Studies of Management & Organization*, 7(2), 110- 126.
- Cunliffe, A. L. (2008). *Organization Theory*, Replika Press Pvt. Ltd., India, Sage.
- Dill, W. R. (1958). Environment as an Influence on Managerial Autonomy , *Administrative Science Quarterly*, 2(4), 409-443.
- Donaldson L. (1995). *American Anti-Management Theories of Organization*. Cambridge University Press.
- Donaldson L. (1996). *For Positivist Organization Theory*, Sage Publications.
- Donaldson L. (2001). *The Contingency Theory of Organizations*. Sage Publications.
- Donaldson, L., Child, J. and Aldrich, H. (1975). The Aston Findings on Centralization: Furter Discussion, *Administrative Science Quarterly*, 20(3), 453-460.
- Eldridge, J.E.T. and Crombie, A. D. (1974), *A Sociology of Organizations*. London: George Allen and Unwin.
- Emery, F. E. and Trist, E. L. (2009). *Organization Change: A Comprehensive Reader*, Burke, W. W. and Lake, D. G. and Paine J. W. (edt.). San Francisco: John Wiley & Sons
- Emery, F. E. and Trist, E. L. (1965). *The Casual Texture of Organizational Environments*
- Fry, W. L. (1982). Technology- Structure Research: Three Critical Issues, *Academy of Management Journal*, 25(3), 532-552.
- Gouldner, A. W. (1954). *Patterns of Industrial Bureaucracy*. New York. The Free Press.
- Habermans, J. (1982). *Zur Logik der Sozialwissenschaften*. Frankfurt: Suhrkamp Verlag. Tüzel, M. (çev.) (1998). *Sosyal Bilimlerin Mantığı Üzerine*. Kabcacı Yayınevi.
- Hage , J. and Aiken, M. (1967). Program Change and Organizational Properties a Comperative Analysis, *American Journal of Sociology*, 72(5), 503-519.
- Henderson, R. M. and Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35(1), 9–20.
- Hrebiniak, L. G. and Joyce, W. F. (1985). Organizational Adaptation: Strategic Choise and Environmental Determinism, *Administrative Science Quarterly*, 30(3), 336-349.
- Jaffee, David. (2001) *Organization Theory: Tension and Change*. McGraw-Hill Publishers.
- Jelinek, M. (1977). Technology, Organizations and Contingency, *Academy of Management Review*, 17-26.
- Lawrence P. R. and Lorsch J. W. (1967). *Organization and Enviroment*, Harvard Business School Press.
- Lynch, B. P. (1974). An Empricial Assessment of Perrow's Technology Construct. *Administrative Science Quarterly*, 19(3), 338-356.
- Katz, D. and Khan, R. L. (1966). *The Social Pyschology of Organization*, New York: Wiley Press.
- Koontz H. (1961). The Management Theory Jungle, *The Journal of the Academy of Management*, 4(3), 174-188.
- Koontz H. (1980). The Management Theory Jungle Revisited, *The Academy of Management Review*, 5(2), 175-187.
- Miles, R. E, (1978). *Organizational Strategy, Structure, and Process*, Mc. Graw-Hill Inc.
- Mintzberg, H. (1983). *Structure in Five: Designing Effective Organizations*, Prentice- Hall, Inc.
- Morgan, G. (1980). Paradigms, Metaphors, and Puzzle Solving in Organization Theory, *Administrative Science Quarterly*, 605-622.
- Oliver, C. (1991). Strategic Responce to Institutional Processes, *Academy of Management Review*, 16(1), 145-179.
- Oliver, C. (1997). Sustainable Competetive Advantage : Combining Institutional and Resource Based Views, *Strategic Management Journal*, 18(9) 697-713.
- Persons, T. (1956). Suggestions for a Sociological Approach to the Theory of Organizations, *Administrative Science Quarterly*, 1, 63-85.
- Penrose, E. (1958). *The Theory of the Growth of the Firm*, Newyork:Wiley.
- Perrow, C. (1972). *Complex Organizations a Critical Essay*, McGraw-Hill Inc.
- Pfeffer, J. (1997) *The New Directions for Organization Theory: Problems and Prospects*. New York: Oxford University Press, s. 160. Sargut A. S. ve Özen Ş. (Uyr.). (2007). *Örgüt Kuramları*. İmge Kitapevi.
- Pitts, R. A. (1977). Strategic and Structures for Diversification, *The Academy of Management Journal*, 20(2), 197-208.

- Porter, M.E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*, New York: Free Press.
- Porter, M.E. (1985). From Competitive Advantage to Corporate Strategy, *Harvard Business Review*, 65(3), 43-59.
- Pugh, D. S. (1973). The Measurement of Organization Structures, *Organizational Dynamics*, 1(4), 19-34.
- Pugh, D. S., Hickson, D. F., Hinings, C. R. and Turner, C. (1968). Dimensions of Organization Structure, *Administrative Science Quarterly*, 13,65-105.
- Pugh, D. S., Hickson, D. J., Hinings, C. R. and Turner, C. (1969). The Context of Organization Structures, *Administrative Science Quarterly*, 14(1), 91-114.
- Qiu, J. and Donaldson, L. and Luo B. N. (2012). The Benefits of Persisting With Paradigms in Organizational Research, *Academy of Management Perspectives*, 93-104.
- Reiman, B. C. (1980). Organization Structure and Technology in Manufacturing: System Versus Work Flow Perspective. *Academy of Management Journal*, 23, 61-77.
- Roethlisberger, F. J. and Dickson W. J. (1946). *Management and Worker*, Cambridge. Harvard University Press.
- Rumelt, R. P. (1974). *Strategy, Structure and Economics Performance* Boston. Harvard University, Graduate School of Business Administration Division of Research.
- Sargut, A. S. Ve Özen Ş. (2007). *Örgüt Kuramları*. İmge Kitapevi.
- Selznick, P. (1948). Foundations of the Theory of Organization, *American Sociological Review*, 13(1), 25-35.
- Simon H. A. (1965). *Administrative Behavior*. New York. Free Press.
- Terreberry, S. (1968). The Evolution of Organizational Environments, *Administrative Science Quarterly*, 12(4), 590-613.
- Thomas, M. (2008). To What Extent Do Venezuela's Casual Textures Allow Scenarios to Work Towards Social Dialogue?. Rafael Ramirez, Joh W. Selsky & Kees van der Heijden (Der.), *Business planing in turbulent times – new methods for applying scenarios*: 147 – 164. London, Earthscan.
- Thompson J. D. (1967). *Organizations in Action*. Mcgraw-Hill Inc.
- Üsdiken, B. ve Leblebici, H. (2001). Organizational Theory. N. Anderson, D. Ones, H.K. Sinangil ve C. Viswesvaran (Der.), *International Handbook of Work Organizational Psychology*: 377-397. Newbury Park, CA: Sage.
- Üsdiken, B. (2008) "Organizational Theory" International Encyclopedia of Organization Studies, Clegg, S. R. and Bailey, J. R. (eds.) Thousand Oaks: Sage Publications, 1196-1200.
- Van de Ven, A. H. and Ganco, M. and Hinings, C. R. (2013). Returning to the Frontier of Contingency Theory of Organizational and Institutional Designs, *The Academy of Management Annals*, 7(1), 393-440.
- Weber, M. (1964). *The Theory of Social and Economic Organization*, The Free Press.
- Wernerfelt, B. (1984). A Resource-based View of the Firm, *Strategic Management Journal*, 5, 171-180.
- Wernerfelt, B. (1995). The Resource-based View of the Firm: ten years after, *Strategic Management Journal*, 16, 171-174.
- Whittington R. (1993). *What is Strategy – and Does it Matter?*, Routledge Publications.
- Withey, M. and Daft, R. L. and Cooper, W. H. (1983). Measures of Perrow's Work Unit Technology: An Empirical Assessment and a New Scale. *The Academy of Management Journal*, 26(1), 45-63.
- Woodward J. (1965). *Industrial Organizations: Theory and Practice*, Oxford University Press.
- Yılmaz F. (2009). *Rasyonelite / İktisat Özelinde Bir Tartışma*. Paradigma Yayıncılık.