THE ECOLOGY OF MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS

Implications for Managing Teams and Work Groups in Complex Organizations

Seleshi Sisaye

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Seleshi Sisaye

Introduction

The Ecology of Management Accounting and Control Systems: Implications for Managing Teams and Work Groups in Complex Organizations applies organizational sociological approaches to describing recent developments in management accounting and control systems. The book specifically applies organizational ecology to study the effectiveness of teams and work group performance in complex organizations. In behavioral accounting research, there is growing interest in the application of sociological approaches to management control research. This book continues the current trend on emerging research by blending organizational sociological approaches into behavioral managerial accounting research. Although ecological issues related to environmental disclosures and social issues have recently appeared in a few accounting studies, the ecological framework has not been applied to sustainability and environmental reporting and the management of teams and work groups. Behavioral accounting research has not yet incorporated the theoretical and methodological issues of organizational ecology in management accounting and control research.

This book is the first attempt to bring the theory of organizational ecology to the forefront in behavioral accounting research. In sociology, organizational ecology has generated an abundant literature of theory and applied research. In the past, I have applied the ecological framework to study agricultural systems and the effects of commercial agriculture on natural ecosystems. I have now extended my work on ecology to behavioral accounting research.

The ecological approach has been widely used in various social science disciplines: sociology, economics, anthropology, political science, and geography. Within sociology, there are several ecological approaches ranging from community ecology to human ecology. Of the various sociological approaches, I have

applied organizational ecology and limited the scope to selection and adaptation strategies. The selection and adaptation organizational ecological approaches are used because the accounting issues discussed in the book—ecological and sustainability reporting, and the emergence of teams in managing work and performance in industrial and manufacturing organizations—are best suited for the application of the ecological framework.

At present in management accounting, there is an increased emphasis on the use of activity-based costing (ABC) to monitor the performance of teams and work groups and to allocate incentives based on performance. This book contributes to the literature of management accounting because it is the first application of the adaptation ecological approach to study the development and management of teams and work groups. The adaptation framework has been applied to incorporate environmental and technological issues, as well as organizational structural and contextual factors, to examine recent developments in management control systems, particularly the use of ABC in managing the performance of teams.

The book has been divided into seven chapters to discuss the ecology of management accounting and control systems. Chapter 1 discusses the various disciplinary approaches of the ecological framework. These include community ecology, geographical ecology, ecological economics, political ecology, and ecological anthropology. The sociological–ecological approaches include human ecology, population ecology, and organizational ecology. Chapter 2 addresses the influence of environmental factors covered in Sisaye, Praeger, 2004, cited in full below, to substantiate the organizational ecological approaches of selection and adaptation. Chapters 3 and 4 subsequently detail the selection and adaptation approaches to organizational change. Whereas Chapter 3 describes the underlying framework of the ecological approach of management accounting and control systems, Chapter 4 specifically discusses the adaptation framework and its recent use in incorporating environmental and ecological issues into management accounting reports. Chapter 4 highlights the recent recognition and importance given to sustainability reporting and the priority organizations have attached to ecological and environmental resources conservation. I have incorporated the chapter that I titled "Organizational Adaptation Approaches on the Development and Effectiveness of Environmental Management Accounting and Reporting Systems," published in a book titled *Environmental Disclosure Practices and Financial Performance*, edited by K.E. Karim and R.W. Rutledge, Praeger, 2004. Chapters 5 and 6 apply the adaptation approach to studying the operation of teams and work groups. I have integrated two articles, titled "Management Control Systems and Organizational Development: New Directions for Managing Work Teams," and "Teams and Management Control Systems: A Synthesis of Three Organizational Development Approaches," which are published in *Leadership & Organization Development Journal* (Vol. 26, No. 1, and Vol. 26, No. 3, 2005) in Chapters 5 and 6, respectively. Chapter 5 applies the cultural systems approach to describe the three types of power and compliance systems—normative, instrumental, and

coercive—that affect the formation and composition of team members and their subsequent performance. Chapter 6 focuses on the utility of ABC as a management control mechanism for these three team types. They can best be described as concertive control for normative power-based teams, remunerative for instrumental, and bureaucratic and electronic surveillance control for coercive power-based teams. Chapter 7 concludes by suggesting future theoretical and practical management control research and practice using the selection and adaptation strategies of organizational change.

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CHAPTER 1

Ecological Approaches of Organizations

This chapter presents several disciplinary ecological approaches to organizations. These approaches pertain to research on organizational evolutionary changes and management control systems. The disciplinary approaches discussed in chapter 1 include community ecology, evolutionary economics, geographical ecology, political ecology, ecological anthropology, industrial ecology, human ecology, population ecology, and organizational ecology.

In general, the ecological approach has been broadly applied to address people, history, geographical locations, geology, climate, agricultural practices, technology, environment, level of development, vegetation, social change, culture, and ethnic/local population characteristics, as well as organizational change and management. Although the ecological approach has its theoretical and methodological foundations in the biological sciences, it has attracted social science research in the late seventeen and early eighteen centuries. Thomas Malthus in the 1790s applied an ecological evolutionary analysis of population growth to describe famine, poverty, food shortages, and resource scarcity. Darwin extended Malthus's essay on population to develop the evolution of population growth by natural selection.[1] Darwin's theory of evolution and natural selection has been further applied by social and behavioral scientists—sociologists, anthropologists, economists, geographers, political scientists, among others—to explain societal growth and development, organizational change, political systems, cultural change, and structures, as well as management control systems. Chapter 1 presents an overview of the ecological approach and its applications in the social sciences, particularly sociology, anthropology, economics, and geography, as they pertain to the study of the ecology of management accounting and control systems.

The ecological approach focuses on populations of organizations and examines the effects the environment, market forces, technology, natural resources, and geographical locations have on organizational change and development process. It puts relative weight on internal and external environmental conditions as the determining factors for organizational forms and structures, as well as on both growth and maturity, and mortality rates. Although the subject of the study and research problems may vary among the social science disciplines, they all focus on populations or groups instead of units or individuals as their unit of analysis to study social, economic, cultural, and political systems, as well as human organizations. In essence, organizations are viewed as communities in which interdependency relationships among multiple and diverse populations affect the rise and fall of organizations and shape the conditions that develop homogeneity, diversity, stability, change, and growth among them.[2]

COMMUNITY ECOLOGY

The community ecology approach studies populations of organizations as communities. Although the community ecology perspective examines diverse multiple populations of organizational communities, it focuses on those distinctive characteristics that isolate an organizational species, for example, technology, from its members of the population. According to Astley, community ecology uses "variation as an important evolutionary force" that explains organizational dynamics of change.[3] Although community ecology recognizes that technology creates new organizational forms, organizational population survival depends on how well the members function and interact with one another. Survival and growth thus become a function of interdependency and mutual collaboration as well as of competitions among members within the organizational community.

Romanelli defined organizational communities "as a set of inter-related organizational populations" that are established in a given environment.[4] They exhibit characteristics of commensalism because of their functional interdependency and symbiotic relations involving mutual benefits from exchange transactions.[5] Nevertheless, there is still the question of dominance and influence that may contribute to imbalances in exchange relations. Although these organizations may become stable over time, because of their expertise in certain technology, they also develop new technologies to exploit the resources available to them. As technologies progress and new innovations develop, new sectors of industry of organization populations emerge. Accordingly, because of community evolution, new population of industry of organizations are formed and developed over time.

Hunt and Aldrich described community evolution as having three main components of organizational change. They are "(1) the importance of technological innovation, (2) the central role of entrepreneurial activities, and (3) the dependence of community development on the establishment of legitimacy."[6]

They suggested that community evolution does not follow a linear or "a structural functional pattern of change." Instead, the process is "a dynamic and fluid nature of community evolution through the process of co-evolution, in which changes in any given aspect of the community can influence changes in other aspects."[7] That is, changes in organizational evolution involve the replacement of old organizations by new organizational populations. This change is a continuous process and involves a transformational rather than a gradual change.

The ecological approach puts emphasis on environmental characteristics and conditions as the determining factors for organizational evolution and for changes in organizational structures. Burrell and Morgan referred to the ecological approach under the functionalist paradigm because the assumptions that structures evolve over time, and that these changes fit environmental selection, follow the functionalist determinative approach.[8] Child elaborated that the ecological approach gives little attention to management choice and decisions as factors influencing organizational evolution. Because the ecological approach "considers that units which do not have organizational forms characteristic of their sector or 'niche' have a poorer chance of survival," it underscores the role of decision makers in the organizational adaptation process. Because organizations as social systems benefit from learning what results in knowledge creation, they are capable of environmental adaptation.[9] In other words, adaptation involves both learning and technological change, where technology becomes the primary social agent in societal transformation processes.

Technological development plays an important role in the development of new organizational forms.[10] When technological development reaches to a maximum capacity, beyond which it cannot support the social environment of organizational communities, incremental technological improvements become costly because of market saturation. This results in newer forms of technological change that support the birth of new organizational forms and entry into new markets and territories. Technological changes affect the structure of political institutions and cultural and social systems, as well as economic organizations.

EVOLUTIONARY ECONOMICS

Evolutionary economics is a resource-based view of the firm that focuses on "resources, competencies and trajectories" of organizations.[11] It focuses on the internal pressures of environmental selection when examining forms of organizational behaviors and routines and their responses to environmental changes.

Evolutionary economics thus provides a coherent and integrated framework to explain the social and economic development processes and sequences of organizational adaptation and change in the environment. It has a microfocus on individual organizations and attempts to explain the behavior of organizations and their decisions in relation to environmental changes and requirements. The behavior of organizations is governed by the economic selection mechanism, in which individual decisions are made according to profitability rules of exogenous

factors involving shifts in consumers' demand and suppliers' input prices that can influence investment decisions.[12] Although there are variations among organizations in their behaviors and decisions about environmental changes, those organizations that survive and grow continue to develop new technologies and inventions in their industrial sectors.

Evolutionary economics examines an organization's response to environmental changes. The underlying premise is that when the environment changes, organizations rely on research and development or the trial-and-error process of organizational learning to solve their problems. Nelson, Winter, and Schuette indicated that the process of change is governed by "an economic selection mechanism" that organizations employ selectively including expansion when there is profitability, and contraction when there is loss.[13] The evolutionary dynamics of organizational populations including birth, growth, maturity, and death are affected by economic resources, and geographical location and spatial characteristics limit resource domain and availability.

GEOGRAPHICAL ECOLOGY

Geographical ecology refers to spatial arrangements; land use; natural resources; physical habitat including mountains, valleys, and lowland, and highland areas; climate; and location, among others. Lomi has identified three geographical characteristics that affect the evolutionary dynamics of organizational populations. First, geographical conditions may contribute to isolation or separation of organizational populations. That is, spatial arrangements create physical barriers that create separation among organizations. Second, local resource conditions contribute to differences in organizational adaptation. Third, the process of legitimating and competition may vary because of "geographical boundaries used to define organizational populations."[14] Accordingly, there is a tendency for some organizations, particularly highly specialized organizations (e.g., wineries and auto industry or technology software firms) to concentrate in certain geographical regions or territories. For these industries, location is important, as it provides the necessary economic resources and the evolutionary advantage for the birth and growth of these specialist organizational populations.

Geographical location becomes a factor for certain organizational populations where the local condition—rural or urban—determines the concentration and organizational density. Accordingly, geographical ecological factors constitute the main forces for the study of organizational change and development processes.

Ecologists have used geographical information systems to prioritize and conserve natural resources, manage patterns of land use, and promote the preservation of biological diversity among plants and animal species. They have noted that the biodiversity of plants and animals and their spatial distributions are influenced by "topography, soil texture, plant cover, and microclimate."[15] Environmental ecosystem changes caused by pollution, land use, and habitat modifications, as well as industrialization, have affected the natural assemblage

and distribution of animal and plant species as well as populations. Geographical information system guidelines have been developed to monitor population distribution, natural habitat, and environmental quality. These guidelines have been used for the conservation of the environment, protection of certain endangered species, and preservation of natural resources, including both nonrenewable resources and responsible use of agricultural land. Accordingly, geographical ecosystems play important roles in government policies for the management and control of population movement and migration policies. Hence, migration patterns, nature of competition, and survival rates are thus influenced by the geographic and spatial distribution of economic resources. The resulting activities in the form of competition, cooperation, or conflict among individuals and groups of these plant and animal species are compounded by their geographical environment.[16]

Ecological geography is based on the assumption that there is instability and disequilibrium in the biophysical and spatial environment resulting from irregularities in environmental variations; natural disasters such as fire, drought, landslides, and volcano eruptions; and epidemics as well as human interventions that cause environmental degradation. Science and technology justifies human-induced activities including environmental degradation to manage environmental conflict and hostility and to move society to equilibrium state. In the process, environmental management through conservation and development attempts to balance the need for growth with human ecological goals.

According to Zimmer, ecological approaches in human geography address "two types of relations between organisms and the environment. The first relation addresses human relations to biophysical environment; the second, the nature of these biophysical environments."[17] Although human environmental relations deal with adaptations and human adjustments to the environment in physical form, the process of adaptation is influenced by social, political, economic, and power distributions. Accordingly, ecological geography examines change as a dynamic and continuous process that creates environmental instability and eventually transforms society into an equilibrium state through human adaptation and adjustment to the natural, social, biological, and physical environment.

For the human population, geographical location has become one of the main factors that creates economic separation. These separations are reflected in neighborhoods, schools, and social gatherings including churches and playgrounds.[18] Although income and class may reduce separations along racial and ethnic lines, ecological factors continue to play roles in the geographical separation of human populations. Geographical location thus contributes to unequal access to resources, resulting in the control of the political system by the economic elite.

POLITICAL ECOLOGY

Political ecology indicates that differences in social and cultural dimensions, culture, history, and socioeconomic development are accounted by political

systems.[19] The approach examines power distribution, societal conflict, ethnic and racial groups' relations, and their effect on resource allocation and redistribution. Political systems have implications for the foundation, operation, growth, and decline of organizations.

Freeman related political ecology and economy studies of organizations to the natural selection framework. He provided three reasons for the relationship between political ecology and selection. First, the underlying focus of a political economy approach is on organizational conflict, not cooperation, which is analogous to the selection approach. The selection approach studies organizations' relations to their environment and their responses to environmental conditions. Second, organizations as political systems have limited/scarce resources, and the potential for conflict among members is high. Third, organization decisions and choices do not reflect economic choices but are based primarily on political reasons.[20] Accordingly, ecological studies examine organizations' relations with the environment and the process in which they survive, grow, or fail as they interface with the hostile environment. In other words, organizations as political systems follow the principles of selection when they adapt to the environment.

The selection process could provide political opportunities that would shape the organizational dynamics of founding, growth, and decline. For example, McLaughlin and Khawaja reported that in the United States, political parties contributed to the growth and density of environmental organizations. They argued that the political environment under the democrats and the economic prosperity resulted in the founding and growth of environmental organizations and groups who advocated for environmental and natural resources conservation.[21]

Politics become important when there is an increase in organizational density. Density intensifies competition, rivalry, and conflict among organizations, particularly in organizations that have competing ideologies and represent groups with diverse political views, as in the case of political parties, labor organizations, or cooperatives. Ingram and Simons in their study of the ecology of Israel workers' cooperatives reported that competition or cooperation in organizational populations with rival or shared ideologies could result in an increase or a decrease in organizational failure.[22] In other words, when organizations exhibit rival ideologies, competition could lead to failure. Conversely, organizations that have shared ideologies cooperate to promote their interests, resulting in a decline in organizational failure.

Depending on the ideologies of these organizations and their relationship to political parties and power holders, the state can provide institutional control that facilitates their failure or reduces their decline. Ingram and Simons have presented several cases in which the state (i.e., the Israeli government) selectively assisted some organizations by providing funds to take risks in research and development and contributes to the failures of others by confiscating their property. The state, in essence, endorsed legitimacy to certain institutions by granting copyrights, patents, and regulations, and by creating offices through special legislation to handle their issues.[23] The state regulated political behavior and

legitimacy of institutions through regulations, order and policing, and sanctioning their activities.

Ecological anthropologists have long recognized the role of politics among tribal and ethnic groups to explain agricultural land use, farming practices, pastoral herding activities, and population migration movements. Politics governed human land relations and interactions with the natural and social environment. In these ecological relations, class and economic structures regulate social and political order and environmental resources management. The process of natural selection influences the social behavior and interactions among groups, physical adaptations, and the social structure of organizations.[24] The process of natural selection and sequential adaptation to the environment involves physical and psychological adaptation. Although political ecology involves the process of environmental and structural changes, social change and adaptation focuses on ecological anthropology involving culture, people, and in general, sociocultural systems.

ECOLOGICAL ANTHROPOLOGY

Ecological anthropology examines human adaptation, cultural change, and diffusion in relation to environmental and technological changes. In doing so, it recognizes the role of culture as providing distinctive set of values and norms among groups. Culture, in essence, has become the main force behind humans' adaptation to the environment. In other words, cultural practices contribute to differences in local and regional systems. However, information technology and communication have spread across cultural and social boundaries and have minimized cultural barriers among groups of populations.[25]

Technological development has eroded cultural differences as well as altered the quality of life and way of living among cultural and population groups. Deforestation, irrigation, commercial farming, business development, and population growth have changed the local living conditions, and in some cases have lead to environmental degradation. The focus on ecological anthropology is not only on conservation policy but also on social soundness approach to development programs that pays attention to the needs of the people. Kottack has related the social soundness analysis (SSA) approach to "sustainable development aims at culturally appropriate, ecologically sensitive, self-regenerating change."[26] Social soundness analysis has implications in the development and preparation of management accounting sustainability reports that promote environmental resources conservation.[27]

Sustainability has economic and technological, as well as market development, dimensions and social components to safeguard and protect the environment and natural resources. Therefore, sustainability implies responsibility by those who are in power to protect the environment and to use that power in a manner that is morally and equitably sharing the ecological resources for the survival of humans and other species today and in the future. There is a

consciously intended social aim to use resources morally and to responsibly manage long-lived living systems. Environmental management enhances sustainability by linking environmental resources management "to quality, production, service and managerial systems."[28] It promotes organizational learning, where employees are trained and made aware of the importance of environmental issues and natural resources conservation. Accordingly, sustainable development and sound environmental management make up the primary components for establishing environmental and industrial ecology relationships.

INDUSTRIAL ECOLOGY

Ehrenfeld laid the basic foundation and underlying principles of ecology, industrial ecology, and sustainable development connections as follows: "Ecology is fundamentally a science of living systems. Ecology focuses on the interconnections and community character of a system and seeks to identify and characterize the web of energy and natural flow that maintain its health." Industrial ecology attempts "to understand the intricate web of energy and material flows and discover the rules that govern robustness and resiliency in such systems" of industrial societies. This knowledge has become instrumental "for designing more effective technologies and institutional structures."[29]

Industrial ecology has normative assumptions about human behavior that involve cooperation, competition, conflict, and interdependence in managing sustainable development. Interdependence involves exchange that is relational and dependent on human and community interdependency relationships. It involves adaptation and sustainability on a continuous process indefinitely.

Industrial ecology deals with organizational and human connection in business and organizational development, commerce, and industry in a sustainable manner, in which energy materials and natural resources flow between businesses and their communities. Industrial ecology as a humanistic and social interventionist approach promotes the integration of a balanced management between resources exploration and their better use to protect the environment. According to Cohen-Rosenthal, "industrial ecology is an intervention at the organizational and social level."[30] This includes human intervention with natural ecology to ensure that technological innovations are used to explore new connections, create new possibilities, and enable managers to make choices in responsible and sustainable ways. In industrial ecology, the notion of exchange and interconnections of economic benefits between industrial development and environmental management are important. Because of synergies, organizations can improve resources utilization and conservation, which would encourage competition and social responsibility.[31]

As a result of organizational learning, employees learn new roles and behaviors, working relationships, cooperation, and new approaches to solving problems. Through adaptive behavior and continuous learning, management and employees can share new information, develop networks, form teams, and

improve communication among them. Industrial ecology becomes central in developing human resources skills, knowledge, and training, and learning new behaviors and roles that increase employees' awareness, their environmental responsibility, and their relationships to business performance and profitability objectives. It is this social dimension of industrial ecology that becomes central in organizational and environmental relationships.

Cohen-Rosenthal described the relationship as follows: "Social aspects of industrial ecology stretch beyond the inter-organizational relationships within a symbiotic connection or eco-industrial cluster. The environment in which industrial ecology operates includes the larger community and social context. These factors can be enabling or inhibiting to achieving broad goals for industrial ecology."[32] It can be inferred that strategies that enhance industrial performance/profitability can be linked to global welfare in broader terms. Accordingly, "profit-maximizing strategies are linked to strategies that improve public welfare. The use of social processes," whereby the broader communities are involved, can become "essential for effective strategy development and implementation."[33]

The interrelationships among environmental management, industrial growth, community development, and societal changes have been described by Bailey as an open and interactive system whereby:

> society inevitably transforms its environment while adapting to it, just as the environment transforms the society. Thus, each stage in the cycle of societal-environmental relations sees successive transformation of both the society and environment. The society, as it grows, transforms the environment (positively as well as negatively) and in turn the transformed environment has further impact on society—in reality a changed society.[34]

In an open system, the boundary of a society is defined by a political border that defines the internal resources, including land, water, and all available natural resources. When communities interact outside the political border, they exchange and trade their internal resources to obtain external resources that are not available within their political boundaries. Communities can sustain economic development and minimize dependency of external resources through technological innovation and industrial growth.

Industrial ecology's goals of community growth, social welfare, and environmental management are linked to sustainable development and cultural change. Both industrial ecology and ecological anthropology assume that sustainable development is an evolutionary process that transforms culture and society over time. Accordingly, both industrial ecology and ecological anthropology incorporate the study of culture and business growth to the social systems' adaptation process. These social systems include population and their surrounding natural environmental resources. Culture, language, beliefs, and religion become part of the social and political systems, technology, organization systems, and accounting information that constitute human ecology.

HUMAN ECOLOGY

Human ecology studies "the manner in which humans adapt to their environment, both living and non-living."[35] It addresses the interrelationships among humans, communities, and spatial arrangements including land use, processes, regional and urban growth, and humans' use of natural resources, sustainable development, and environmental management. In human ecology, the community and humans' adaptation to the environment becomes the central focus in examining the linkages of the community to the society at large.[36] This linkage involves the exchange of information, economic transactions, and political relations in which dominance and influence affect the social exchange outcomes.

In human ecology, the process of human adaptation to the environmental surroundings encompasses broader societal issues that extend human ecology to social ecology. Bailey elaborated that although both human and social ecology study adaptive processes and behavior, social ecology examines broader societal issues involving the interrelationships and the simultaneous effect that environment has on society, and society's adaptive behaviors to environmental changes.[37]

Human ecology focuses on social evolution, which is based on Darwin's principle of natural selection, where competition or struggle among biological atoms can be related to humans. Darwin's approach to the human level is based on the group rather than the individual and takes an institutional theory to explain human and social evolutions. This is because, "institutions by definition are wholes encompassing relations among individuals. The study of human beings separate from the institutional setting, or the single organism existing apart from its ecological niche, is fallacious because it abstracts the individual or the organism from those relationships that define it."[38] Social evolution involves both competition and cooperation as cultural and legitimized processes in human adaptation. Whereas competition arises because of limited resources among humans or food among animals, the struggle for survival among self-interested groups becomes the source for cooperation and progress. Competition and cooperation form the basis of relationships for organizational communities and become institutionalized in the social and human ecological analysis of organizations and society.

Within the human ecology framework, in the organization–environment relationships, organizations are viewed as having characteristics similar to that of a community having collective processes of adaptation to environmental changes. The ecological analysis, which is done at the community level, looks for communal characteristics among organizations, although there are unique individual characteristics that affect organizations relations with the environment. A search for relative homogeneity characteristics and collective adaptation among organizational communities constitutes the main study of human ecology of organization–environmental relationships.

Social, industrial, and community ecologies all address humans' adaptation processes through technological and organizational changes. The ecological

models of organizations advanced by Hannan and Freeman,[39] which focuses on organizational populations instead of single organization and their relationships to the environment, incorporated the work of Hawley's human ecology.[40] The ecological model thus examined organizational populations' relationships to the environment and the nature of human social organization. Accordingly, Hannan and Freeman expanded human ecology by incorporating two explicit models of ecology: competition and niche theory. They used "explicit competition models to specify the process producing isomorphism between organizational structure and environmental demands, and by using niche theory to extend the problem to dynamic environments."[41]

Organizational growth and change tend to be limited by external environmental factors as well as internal organizational characteristics. The evolutionary dynamic change processes of organizational populations are thus affected by geographical boundaries, physical barriers, and localized environmental resources. Although these external environmental resources could serve as sources of organizational inertia or of change, the critical unit of evolutionary analysis for the ecological model is organizational population.

POPULATION ECOLOGY OF ORGANIZATIONS

Beard and Dess denoted that the term "organizational population designates all members of an organizational species or industrial classification during a specified time interval, and the term organizational form designates the typical organization in terms of a specified set of defining characteristics."[42] For a population of organization to occur, some variations in organizational forms must be established among a few organizations for a population ecology analysis to be adopted for examining organizations environmental vulnerability. The issues address changes in organizations structures and systems that sustain stability within a given population. The process of homogenization and stability through the sharing of technical know-how and inbreeding minimizes differences caused by environmental variation. Accordingly, population ecology focuses on homogeneity rather than diversity of organizations. It examines the process of selection and gradual transformation of organizations within the same population lineage or family. Although the approach describes the sources of variation among organizational forms, it concentrates on homogeneity—similarity in organizations and their dependence on their immediate environment. In doing so, the population ecology follows the Darwinian theory of change and selection where "the fitness of adaptation critically depends on the environment selecting organizational forms"[43]:

> The systems' approach becomes central in studying organizational populations, because systems relevant to the study of organization–environment relation are usually defined by geography, by political boundaries, by market or product considerations, etc. Given a systems definition, a population of organizations consists

> of all the organizations within a particular boundary that have a common form. That is, the population is the form as it exists or is realized within a specified system.[44]

The population ecology approach has focused on organization systems across geographical boundaries to examine how environmental conditions limit organizational structures and evolutions. As a systems approach, population ecology studies the process of biological evolution, functionalism, and the gradual adaptation processes of organizations to environmental changes. According to Young, population ecology models "apply concepts, theories, methods, and models derived from the biological study of the fluctuations of plant and animal populations to 'populations' of organizations."[45] It takes the population instead of an organization as the unit of analysis. The implications from the population homogenization focus are that the individual organization in an established population is not studied as a source where variation or change occurs. It incorporates competition and niche theories to examine the evolving relationships between organizations and the environment. External environment acts as the source of inertia by limiting organizations' ability to change and deviate from their current internal processes and operating activities. The rule of selection primarily favors those organizations whose structures have high inertia within a given population.[46]

Within the same population, competition and niche theories account for the differential successes and failures of constituent members. As some organizations fail, and others survive, new members are also created and join the population. Selections occur through organizational birth, death, and retention processes and transforms organizations over time. Accordingly, population ecology examines only organizational forms and diversity, if any, within existing populations. As Astley noted,

> Population ecology emphasizes forces that make organizations more uniform rather than more diverse. The theory of natural selection does not explain how new populations multiply to increase organizational variety; instead, it begins with existing populations and explains how differential survival progressively refines and homogenizes organizational forms as it perfects their adaptation to environments. By filtering out unfit members of the population and favoring only that subset of organizations optimally adapted to a given configuration of nice constraints, natural selection reduces rather than increases organizational diversity.[47]

Selection underscores the effect environmental changes and instability has on either the increase or the decrease of the variation characteristics in organizational populations.

On the basis of the selection theory, it can be inferred that organizational populations have a tendency to persist instead of tracking changes in their environment. Usually, well-established populations survive over time without significant evolutionary changes. Accordingly, environmental selection promotes homogeneity rather than diversity and change. When there is homogenization

and uniformity, selection governs the rules for competition and niche. When there is resource scarcity and when those resources are fully utilized, as in the case of mature industries or in the later mature growth stage of product life cycle, price, cost reduction, incremental product changes, advertising, and consumer incentives become the sources of competition.[48] However, the long-term survivability of an organization cannot continue unless that organization is able to offer new products and services. Technological innovations contribute to these changes in organizations' operating functions. In other words, organizations that are able to develop new niches and are innovative prosper until a period where a dominant population with new lineages emerges among them.

Selection in effect becomes the underlying factor that governs the rules of competition in situations of limited and scarce resources. When the supply of environmental resources is limited or less than the joint demand of those resources, there is environmental optimization in which "only a limited range of the most fit organizations are selected." "Population ecology's focus on selection through competition, therefore, points to factors that reduces rather than increase organizational variety and that effectively slow down the rate of evolutionary change."[49]

However, it needs to be noted that when there is organizational diversity, conflict accounts the processes for organizational form, evolutionary change, and development. Because diversity assumes that there is less homogeneity, it recognizes that demographic characteristics have important implications for the classification of organizations.[50] Demographic analysis shifts the focus of research and analysis "from individual to compositional and relational elements" by concentrating on those properties of social units that are measurable and quantifiable.[51] Organizational demographics have become sources of analysis to study organizational founding, mortality, and selection process; liability of the newness model's effect on organizations' survival rates and the chances for success at early age of an organization's life cycle; and longitudinal analysis of the vital rates of entry and exit.[52] Accordingly, demography and diversity constitute the underlying framework for the study of organizational stability and change.

ORGANIZATIONAL ECOLOGY

Organizational ecology is a sociological study of quantitative analysis of organizations that examines organizational demography and diversity in relation to the environment. Singh and Lunsden have provided the basic underlying framework of organizational ecology as follows:

> Organizational ecology focuses on the study of organizational diversity. Its key concerns are to investigate how social conditions influence (a) the rates of creation of new organizational forms and new organizations, (b) the rates of demise of organizational forms and organizations, and (c) the rates of change in organizational forms. The emphasis is on evolutionary dynamics of processes influencing organizational diversity.

> And, in contrast to the predominance of adaptation in the study of organizations, organization ecology investigates the role of selection process.[53]

That is, organizational ecology uses an evolutionary perspective to explain the demographic process that contributes to organizational vitality including founding or birth, growth, and death (mortality) over the internal adaptation process of change. In an evolutionary process, the number of trials for organizational forms to find a better fit will continue at a constant rate until it reaches a point at which organizational learning contributes to an increase in population fitness to the environment without selection.[54] Organizational ecology combines organizational inertia with environmental selection to provide a comparative analysis of the evolution of organizational forms and diversity. Whereas the inertia forces focus on survival issues, the environmental selection mechanisms that govern competition and legitimation in a density-dependent population are likely to vary in industry life cycles: founding, growth, and mortality rates.[55] It is the organization–environment linkage that selects organizational niches and forms that will either survive or die.

Accordingly, the evolution of organizational forms and inertial pressures influence the demographic processes of the vital rates of population life cycles, including founding, growth, and mortality. Three levels of analysis: organization, population, and community are applied to analyze variation, retention, and the selection approach of inertia and organizational adaptation. Selection becomes a multidimensional force in which selection pressures of mortality vary by age, where young organizations face higher mortality than established organizations because of external pressure forces, size, limited access to resources, lack of legitimacy, and political forces. It is the age liability of newness and size—the liability of smallness—arguments that influence the survival and retention rates of young organizations.[56] Because organizational ecology addresses both selection and adaptation, although the focus on adaptation is overshadowed by inertia, the evolutionary change process involves a macroanalysis of coadaptation between organizational populations including biological organisms and the environment, both social and geographical surroundings.

Although organizational ecology recognizes that there is relative inertia in organizational change, it assumes that there is similarity between the process of organizational and biological evolutions. It applies the social Darwinian theory of survival of the fittest to explain organizational change and survival rates.[57]

As an evolutionary model, organizational ecology does not adhere to the theory of the adaptation model of organizational change. Whereas the adaptation of change may be inherently operating in organizations, it is not considered critical in the ecology perspective. The ecology model examines organizational change as a process that occurs through selection and replacement rather than through internal transformation and adaptation.[58] Accordingly, efficiency and effectiveness of performance account for the process of one population replacement by another. Organizational ecology assumes that the selection processes are

influenced by political, social, cultural, and institutional factors, as well as environmental conditions. These external environmental factors shape the founding, growth, mortality, and entry and exit processes of organizations.

As Haveman noted, environmental changes can have either a considerable or a peripheral effect on organizational core activities. When the changes are considered significant, it can have a negative effect on organizations' core activities of accountability, reproducibility, and performance, which could increase mortality rates. However, if the changes are minimal and peripheral, it is likely to have a positive effect on improved performance by enabling organizations to enter into new markets or develop related products.[59] It is this surviving tendency of organizations that causes inertia to persist over time as organizations interface with their surrounding environment.

However, it needs to be noted that an evolutionary model recognizes that although there is inertia, organizations have to compete to secure scarce resources needed for their survival and growth. This evolutionary process implies that in competition, there is selection and learning. Competition enhances organizational learning and innovation to improve current performance. If the number of competitive organizations within a population increases, it creates resource constraints and increases the potential for acquisition. Through mergers and acquisitions, the weakest and underperforming organizations are selected out for death, and only the better-performing organizations survive. The learning, selection, competition, and performance processes continue to operate because of the evolutionary processes of the ecology of organizations. Barnett, Greve, and Park noted that when there are environmental changes, organizations respond as part of the learning process. Otherwise, they die. The weakest, which are not able to learn and survive, will be eliminated by the natural selection process.[60] Large organizations, even if they are weak, are more likely to survive, because of their size, structure, and market position, than are small organizations. Large organizations have the potential to reduce competitive forces/pressures through organizational strategic change.

Although it is true that organizations learn and the learning process facilitates adaptation and change, organizational ecology assumes that because organizations are inert, they are unable to reorganize their goals, strategy, authority, technology, markets, systems, and structures. This inertia process results on the replacement of one form of organization by another, or the eventual death over time.[61] However, the evolutionary processes of ecology recognize that although there is inertia, there is the process of organizational change and development through adaptation, organizational learning, and innovation. This evolutionary process may involve both gradual and organizational transformation changes.

The ecological evolution change processes thus establish the link and the potential reciprocal exchange between the environment and organizational population relationships. These relationships, although governed by the forces of selection, may also involve adaptation, communication, and organizational learning.[62] The organization–environment relationship is an evolutionary process that

involves cooperation, competition, and conflict as sources of progress and change. Chapter 2 examines those environmental conditions, both internal and external, that contribute to the selection and adaptations of organizational populations.

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CHAPTER 2

Environmental Influences on Organizational Selection and Adaptation Change Strategies

Chapter 2 discusses environmental influences on organizational selection and adaptation strategies. Broadly speaking, environmental issues are related to conservation, pollution, uncontrollable or limited growth, and sustainability development. These issues gained national and international attention in the 1960s and 1970s. Industrial growth during these periods contributed to environmental changes that included climatic changes, loss of agricultural land as a result of urban growth, and depletion of natural resources including water, forestry, and nonrenewable resources such as oil and natural resources. In response to these changes, the environmental movement gave rise to a number of disciplinary fields in environmental sociology and environmental economics to study environmental issues. Political economic studies that considered conservation, development strategies, and environmental sciences emerged to understand environment–organization conflictual relationships.

The issue of limits to growth versus sustainable development has become the primary focus of political ecological analysis. There are several factors: economic and organizational structures, control of government institutions, cultural systems, social and class structures, ownership and control of production systems that affect production, and consumption of environmental resources. The availability of resources to meet production and consumption requirements is bound to be affected by society's perceptions of natural resources scarcity, which are entwined within the social, political, economic, and cultural systems and structures.[1] Without selection and adaptation strategies of sustainable development, economic growth development strategies and political struggle by interested groups could result in environmental destruction and damage.

EFFECTS OF ECONOMIC GROWTH AND POLITICAL ISSUES ON ENVIRONMENTAL RESOURCES

Chapter 2 describes those organizational factors—environment, organizational attributes, technology, competition, and resource dependence—that affect selection and adaptation strategies of organizational change. Davidson suggests that a political ecology approach can be a useful framework in minimizing economic growth that is environmentally destructive. Economic growth policies are subject to change and can be modified by political, economic, and cultural decisions. Interested groups can lobby for legislation to halt the growth of certain manufacturing industries that are environmentally destructive. The clean water and air legislation acts have made businesses socially responsible and take measures to reduce air and water pollution. In essence, a political ecology framework has broadened the concern for environmental issues to a broader political struggle, where conservation, regional/geographical growth, and sustainable development issues can be related to social and economic justice.[2]

Freeman has incorporated the political economy and ecology approaches within the natural selection framework of organizations. He argued that political economy's concern about scarce resources and its potential to create environmental conflict among organizational members, the tendency for managers to base their choices on political instead of rational economic decisions, and the continuous environmental changes and hostility organizations face in their operating activities are central to selection studies of organizations.[3] It can be inferred that environmental conflict as a selection process has the potential to bring together diverse sets of groups of players who have interest in cooperating in organizational community–based conservation programs. Accordingly, conservation and environmental issues have become not only economic and political issues but also social issues embedded in anthropological and sociological ecological studies of selection and adaptive change strategies.

Ecological approaches of selection and adaptation to environmental changes are thus embedded in the disciplines of economics, geography, political science, anthropology, and sociology.[4] Social organization theories that recognize organizations as fundamentally more complex have noted that in evolutionary processes, organizational changes are shaped by natural selection and adaptation strategies, which recognizes the ability of management to consciously make strategic choice to purposefully change the organization.[5] However, management behaviors or responses are dictated by environmental threats and opportunities as well as resource constraints. In sociology, environmental selection and adaptation became instrumental for the analysis of birth, growth, stability, and change in organizational forms.

ORGANIZATIONAL ENVIRONMENTAL ATTRIBUTES AND CHARACTERISTICS

Broadly speaking, the environment refers to a structured pattern of relationships among participants, including the relevant stakeholders: customers,

stockholders, employees, government regulatory agencies, and other entities/groups that have interest in the control and distribution of resources and power within the organization, where control over resources depends on resource availability—abundance or scarcity.

Organizational environments may create geographical barriers that create conditions for organizations to have their own evolutionary paths. Localized resource conditions could create potential problems of adaptation for some organizations. Geographical boundaries may create differences in organizational density and competition, as well as legitimation. Spatial aggregation defines not only population boundaries but also resource conditions and availability, as well as heterogeneity and concentration among organizations. Geographical location thus becomes an important environmental factor that shapes the evolution and concentration of organizational populations.[6]

Environmental resources present threats and opportunities for organizations, as well as create constraints on organizational growth and survival. Population ecologists have viewed the environment as creating constraints that affect organizational forms, structures, and decisions.[7] These ecologists have noted that the degree of environmental variation—small or large, defined by the niche width of organizations—has an effect on the survival rates of organizations. Freeman and Hannan have discussed the effect of these environmental changes on specialist versus generalist organizations. They suggested that when environmental variations are fine, generalist organizations have higher death rates, but when the environmental variations are large and coarse, generalist organizations have lower death rates when compared to specialist organizations.[8]

In contrast, the adaptation change framework primarily emphasizes the organizations' ability to expand their resource bases through innovation or substitution. That is, economic and technological changes shape the external environment. These changes may include gradual evolutionary changes that affect routine work tasks and contextual behavioral changes and transformations that focus on contextual human and organizational technological behavioral changes. The adaptation change approach places an emphasis on the ability of organizations to intentionally change their environments and resources bases. Managers are assumed to be able to select the environment in which they operate, although environmental constraints may influence entry and exit patterns.[9]

Accordingly, environmental variability, heterogeneity, and resource availability or scarcity are related to local/regional differences in terms of population size, density of population, and racial and ethnic compositions, as well as the number and size of governmental agencies. These differences have accounted for environmental conflict among racial and cultural groups, political organizations, and geographical regions. Environmental conflict that has emerged as a result of historical conditions and economic, cultural, social, and political relationships has led to war, invasions, and annexations. Others have focused on developing alternative resources to minimize the economic and social effects of environmental conflict and scarcity of resources.

For example, Baldridge and Burnham suggested that when environmental heterogeneity factors—resources scarcity and availability—are combined with organizational characteristics—differentiation, structured complexity, hierarchy, and size—a large, complex organization with a heterogeneous environment is more likely to adopt innovations than a small simple organization with a relatively stable, homogeneous environment. This is because "a heterogeneous environment surrounding an organization makes numerous demands for responsive behavior."[10]

Romanelli and Tushman expanded the organization and heterogeneous environment linkage and their relationships to innovative activities. They developed an organization–environmental typology that is based on staged growth of organization. These include "general states of emergence, rapid growth, transition to maturity, maturity, and decline."[11] They suggested that although "changes in environmental conditions that are relevant to the competitive survival of firms can be inferred," which of these environmental dimensions are critical for innovating and organizational change and learning depends on the type of organizational services and products.[12]

Freeman and Hannan elaborated that life-hosting strategies that are based on staged growth of development provide another dimension of strategies used by organizations. Accordingly, it is possible for some organizations to develop structural "forms [that] specialize in the ability to respond to new opportunities and to the appearance of ephemeral resources. Other forms depend on competitive ability, the ability to enter densely occupied markets and compete well."[13] Although environmental heterogeneity and variability factors and organizational structural characteristics are important variables that influence organizational innovation and change, it is important to note that personality attributes of leaders/managers, policy makers, and experts/specialists also account for the successful adoption and implementation of innovations in organizations.

Baldridge and Burnham noted that environmental changes not only create problems for organizations that adopt innovations but also vary by individuals and groups in the organizations. They argue that the payoff and the length of time the change will last influence the adoption of innovations by individuals or groups. They examined the relationship between adoption of innovations and organizational positions that involve leadership and administrative roles. In organizations that adopt innovations, organizational size and administrative complexity, defined by having more administrators, increased hierarchy of management positions, specialization and differentiation of roles, complexity of goals, integrative and coordinative mechanisms of resources to handle competitive goals and conflictual objectives, and centralization of decision making, were found to be factors to influence innovative behaviors. Their study revealed that the larger the size of the organization, the greater the chances are for adoption of innovation by managers. They found that larger organizations have the resources, structural mechanisms for handling conflict management among divisions and managers, and specialized staffs that support innovation.[14] Both the Baldridge

and Burnham and Freeman and Hannan studies indicate that organizational structural attributes and management characteristics affect the adoption of innovations and organizational change strategies.[15] That is, technological change has an organization-specific element that is multidimensional and that is incorporated into the organization physical and human capital as well as into the social aspects of the organization.[16] Because technology includes individual as well as group skills/knowledge that can affect organizational change and development, the process of technological change is shaped by environmental characteristics and organizational change strategies.

ENVIRONMENTAL ISSUES AND ORGANIZATIONAL CHANGE STRATEGIES

The external environment of organizations is continually changing, and organizations are always faced with uncertainties as the level of competition from their industry increases. Consumer demands, governmental regulation, internal competition, and stockholder requirements for improved performance continuously affect the internal organizational operating activities, systems, structure, strategy, functions, procedures, and day-to-day activities. Nevertheless, the effect of environmental changes on an organization's current performance is relative and depends on the organization–environment typology and degree and magnitude of organizational changes. Environmental changes may create problems for organizations that are in the process of adopting innovations.[17] Although most organizations are primarily concerned with adaptive innovative changes to maintain stability and continuity, mature organizations attempt to minimize the effect of environmental changes through incremental changes. They are able to implement incremental procedural changes that will sustain the organization's current operations with or without changing (i.e., sustaining existing performance).[18]

However, when there is environmental instability, there is uncertainty as to how the organization and its competitors respond to environmental changes.[19] When there are significant environmental changes that contribute to low performance, current structures and systems may not meet customer needs and production requirements. Increased uncertainty creates conditions for changes in the organization's structure—systems as well as strategy—and human and technological resources. Whether the changes are incremental or radical, the adaptation process shows differences in organizational approaches and responses to environmental changes.

Fox-Wolfgramm, Boal, and Hunt viewed organizational adaptation change as involving a shift from the current state of affairs toward a different state or condition in the future. They described these changes in terms of first order—incremental and second order—radical changes. For them, first-order changes are nontrivial changes that involve responses that are strategic issues and development that will influence an organization's ability to achieve its objectives. The incremental change strategy requires an integrated approach that examines both the institutional and organizational contexts within which change occurs.[20]

The incremental versus radical approach dichotomy of Fox-Wolfgramm et al.[21] is comparable to the Tushman and Romanelli[22] two-dimensioned approach of organizational learning and change—convergence that is incremental changes and reorientation that is radical change—and the Lant and Mezias first order—incremental and second order—reorientation typologies of organizational learning.[23] Incremental change involves minor adjustment to correct errors from existing rules and regulations through restructuring of existing rules and regulations and culture so that the system remains in balance. In contrast, second-order radical change alters and changes existing rules and procedures with new goals, strategy, structure, and mission, so that the organization develops new cultures, norms, and behavior to undertake transformational changes. Although organizations undertake incremental changes over time during the course of their history and growth, they cannot rely only on incremental changes in the long run, as this dependence will contribute to decline in performance. They need to undergo transformational changes to avoid failures where failure rates are higher among small and medium organizations.

When environmental uncertainties put pressure on organizations to change and adopt innovations, organizations that undertake transformational changes always perceive the environment as uncertain and unpredictable. Such organizations become proactive in their strategic choice and seize the opportunity to be innovative with new products and services, and they adapt their operating activities accordingly. Freeman and Hannan noted that when a turbulent environment exacerbates the demand for organization's products or services, it increases administrative intensity (the size of administrative and production worker personnel), resulting in making the organization big (i.e., increased differentiation both vertically and horizontally to manage complex organization work activities).[24]

Romanelli and Tushman, in their study of the minicomputer industry, noted that during periods of environmental changes and instability, the industry was competitive and dynamic, experiencing a rapid growth with increased concentration and growth. When the industry reached its maturity stage, there was slow growth and stability in the market, where the strategy focused on "develop[ing] stability of industry structure and technological progress."[25] The growth and stability dimensions of organizational change are related to the adaptation function of organizational activities.

Damanpour and Evan advanced the environment organizational continuous change linkage by noting that when "the organization-adapting function requires that the environment changes, the structure or processes of the organization undergo change to meet the new environmental conditions. Innovative organizations . . . not only adapt to the environmental changes, but also use their resources and skills to create new environmental conditions. . . . Innovations are means of providing these internal or external changes and are, therefore, a means of maintaining or improving organizational performance."[26]

The question of sustaining or improving current performance becomes of paramount importance for organizations, both generalist and specialist, that face

environmental changes and uncertainty. Generalist organizations attempt to manage their environmental uncertainties by expanding into existing geographical territories or by going into new geographical territories. Their strategies focus on diversifying their products and services, which would allow them to flourish. In contrast, specialist organizations concentrate on improving their existing products and services, or on developing new products to maintain their current market share.[27] The mix between strategy and structure influences the ability of the organization to adapt through either diversification (generalist organizations) or concentration (specialist organizations) to environmental changes. According to Lant and Mezias, "organizations with an adaptive strategy search for information that reveals the relationship between organizational characteristics and performance. That is, they determine which mix of organizational characteristics is associated with the highest performance and adopt those characteristics."[28] In other words, performance is dependent on whether or not there exists a close relationship between current environmental changes and the ability of the organization to handle and process these changes.

Organizational adaptations have been of paramount research interest among behavioral accountants and organization management researchers. Social science and organizational researchers have applied ecological and environmental contingency analysis to describe the process of change and development in organizations.[29] The ecological approach seeks to understand the diversity of organization by examining how social and environmental changes affect the composition or mix of organizations.

Ecology also examines competition as an evolutionary approach that is a function of the size and number of firms/competitors in a given industry. It considers factors like historical timing and an organization's experience in the competitive process, as well as environmental factors that cause disequilibrium and change among organizations.[30]

Environmental research, in contrast, has primarily focused on those internal and external processes that necessitate process innovation changes in organizations. In this chapter, environmental issues are examined to study those organizational adaptation and environmental factors—both internal processes and external factors—that affect the collection, analysis, and reporting of environmental and ecological information associated with organizational performance.

ORGANIZATIONAL ADAPTATION AND STRUCTURAL CHANGES

Organizational adaptation change deals with those environmental and technological factors that affect environmental accounting and reporting systems in organizations. Adaptive organizations are defined as those organizations capable of developing networks of relationships that are open, dynamic, and capable of learning and handling situations that are of "ambiguity and uncertainty."[31] The process of adaptation involves interactions and relationships between organizations and environment, where organizations exchange ideas and share

information on environmental and related issues within their networks. Where there is interdependency among units in organizations in making policies and decisions, there is the issue of control over resources, and the importance of the transaction to the unit and whether or not the transaction involves one or more unit.[32] Although the demand for control over resources intensifies competition, organizational networks can minimize conflict by fostering cultural changes for the adoption of innovative behavior that support organizational relationships and coordinated efforts in the management of environmental programs and reports.

The adaptation theory assumes that organizational change and development is an ongoing process "that is the result of the relative strength and type of power or dependency between organization and environment."[33] In other words, adaptation assumes that dominant coalition groups in organizations develop strategies or policies in response to environmental changes, which can create either threats or opportunities. Organizational structures and systems adjust according to these changes.

Whereas the environment affects organizations, leaders/managers develop strategies and make policy decisions and implement them to adapt to these organizational contingent changes. To maintain organizations as functional and adaptive systems, managers either buffer organizations from external environment threat or attempt to make minor adjustments that do not disrupt the existing functioning of organizational structures. It is possible for firms to switch paths by management direction or by reversing or revamping their existing business. Learning from failing and moving ahead to new areas based from past failures becomes the key to success in incorporating learning with strategy. Accordingly, the process of adaptation and change reflects organizational learning.

When organizations are unable to adapt or initiate, there is inertia. Singh and Lunsden discussed the effect that internal structural arrangement and external environmental constraints contribute to organizational inertia that inhibits change. They argued that inertia is likely to exist or operate as part of main core of organizational characteristics and features such as goals, forms of authority, and marketing strategy as well as technology.[34] Inertia is a liability of age that limits organizations' interest for change as a result of vested interests that inhibits transformations. As organizations develop networks and exchange relationships, it limits their ability to change. The rate of change, in response to internal processes and external factors, then slows down with age, which can be attributed to the rigidity and liability of the aging process.[35] Singh and Lunsden attributed the slow response and the length of time it takes to change as the fluidity of the aging thesis, in which younger and newer organizations are more likely to change and adapt than older organizations. In other words, "rates of change in core features may decrease with age, and rates of change in peripheral features may increase with age."[36] Accordingly, the lower level of fitness among older organizations is a cause for these organizations to be selected for mortality and death.

The adaptation strategies that organizations use to avoid mortality and manage environmental changes vary whether or not those changes are minimal

(stable) or substantial (drastic, in case of crisis). Organizations customarily adopt an incremental change strategy during periods of stability and a radical change strategy during periods of crisis and environmental volatility. When organizations choose to adapt, they select their adaptation strategies on the basis of whether that selection is either incremental or radical. Adaptation depends also on the intensity of competition and the entry–exit strategy prevalent within a given population of organizations.[37]

The adaptation–selection approach to organizational change is based on the assumption "that individual organizations cannot change easily and quickly; it also assumes that when they do change, great risks are entailed. By this view, when technologies and environments change, some existing organizations fail, while some new organizations also appear. The selective replacement of old forms of organization by the new forms constitute the main way this mechanism accounts for change in the world of organization."[38] The adaptation–selection process goes through periods of evolution, growth, and adaptation. Given that there is an organization selection process, when initial business experiences are coupled by local market condition, selection influences the success of business outcomes. When the adaptation–selection approach is extended to study environmental changes and reporting systems, adaptation study focuses on issues of transaction costs and level of technology development among units and divisions that are interdependent. The approach also examines the role accounting can play in reducing those costs associated with organizational environmental transactions and interdependency relations.

Technology

Environmental change also influences technological developments that shape the founding and growth of organizational populations and industries over time. Technology has become an important factor in the study of organizational and environmental selection and societal evolutions/transformations. Technology constitutes well-developed and well-formulated ideas to replace or modify human behaviors, organizational tasks, and structures and products through the use of existing or new tools.[39] When there are innovations or inventions that produce new technology, technological breakthroughs have occurred that replaces the old technology. Technology forms and developments have become the basis for organizational competition, as well as mechanisms to handle environmental changes and conflict. Baum, Korn, and Kotha, in their study of the telecommunication service industries, have used technology and dominant design as an environmental factor that shapes competition, as well as the founding and failure rates in these industries. They stressed that "understanding how technological factors condition patterns of competition is central to organizational ecology because competition forms the basis for selection among the adaptive capabilities of organizations within a population."[40] According to Frisbie et al., technology is based on a formulation that "recognizes three ecosystem

flows—energy, materials, and information—as basic to the survival and adaptation of populations."[41] Hunt and Aldrich have suggested that "technological innovation is a major catalyst for the creation of a new organizational community to the extent that it prompts the creation of new organizational forms."[42]

Astley applied the community ecology approach to advance the importance of "technology in shaping population forms: organizations within populations become more homogeneous as they converge on a common set of techniques and know-how, while differences in technologies that result from the difficulty of transferring technologies across population boundaries differentiate populations from each other."[43] Astley also noted that although homogenization is caused by inbreeding of technological know-how among organizational populations, the changes in the technology over time are incremental because "the core technology on which it was founded remains largely unchanged."[44] According to Zyglidopoulos, although incremental change improves existing products or services, the technological changes cannot be attributed to any particular individual or group inventors.[45] These modifications, which involve better ways of using existing technologies, could become significant as cost-saving and management control mechanisms.

Podolny and Stuart have applied an evolutionary theory of technological innovation, which corroborated Astley's (1985) analysis of incremental technological change in homogenized organizational populations. They have indicated that most technological changes that have affected organizational and industrial development and social structures occurred through an evolutionary gradual process over time. As a gradual process, technological change is "characterized by the accumulation of minor improvements to incumbent technologies." Evolutionary theorists argued that these gradual changes in technology "are determined by properties of the technology itself or that they can be inferred from the local search practices of organizations."[46] However, Podolny and Stuart suggested that technological change involves social relationships among "actors" that are "involved in developing particular technologies." In a social context, individual actors have their own niches of innovation and play important roles within the niche by sponsoring and championing technological changes.[47]

In contrast, when technological change involves a breakthrough in the invention of new products or products, and the invention can be attributed to an inventor/inventors, the process results in discontinuous or revolutionary changes, which can be either competence enhancing or competence destroying. "Competence enhancing discontinuities build on existing technological stocks, while competence destroying ones require the development or acquisition of fundamentally new and complimentary technological stocks."[48] Tushman and Anderson elaborated that although competence-enhancing discontinuities are usually attributed to existing organizations, competence-destroying ones are usually initiated by new entrants to an industry.[49] Depending on the magnitude of changes, technological changes in information systems can be incremental or revolutionary. If the information technological changes result in new

organizational structures and systems, they can become sources of competence enhancing strategies.

Competence-enhancing technological changes usually occur as a result of market reactions and competitive pressures. Technological ecology becomes instrumental when an organization takes advantage of competition by combining "interrelated set of goods and services markets that together comprise a technology system."[50] Windrum cited Microsoft as having cross-leveraged products by integrating its Web browser with its software products in its window and taking the market from Netscape. Microsoft gained competitive advantage by managing "cross-product integration and optimization of operative systems and browser software." It pursued a strategy of producing and integrating "complimentary products and/or services."[51] The integration of Microsoft window operating systems with other software enabled Microsoft to control the distribution channel and win the majority of users who are not technically competent to work with Netscape. Microsoft was able to centralize its operation and thereby gain control over the distribution channel.

Whether it is an incremental or discontinuous change, technological innovations are shaped by the political and personal interests of managers. Managers sometimes choose technologies that enhance centralization of control over the organization's functions, including workers' activities.[52] Nevertheless, the primary conditions that necessitate the need for technological changes are related to market demands, competition, and environmental changes. Initial environmental conditions including political, economic, legal, and social factors and historical developments have effects on technological developments of organizations. Zyglidopoulos related historical developments to foundings and imprints as creating boundaries for technological developments of organizations.[53] The suggestion is that an organization's future technological development is shaped by initial historical, social, and organizational structures.

From an ecological and evolutionary perspective, technology contributes to societal changes and new social structural arrangements. Technology not only shapes social structures but transforms societies by altering and improving social and productions' infrastructures and relations, and facilitating the process of organizational adaptation and change. As an agent of social change, technology transforms social and economic lives through economic growth that generates long-term income and wealth in regions and contributes to regional and national developments.[54] These technological changes have economic and commercial value and are transferred regionally and nationally to be adopted by organizations.

When organizations pursue continuous technological innovations that have commercial value, entrepreneurs seize some of these innovations and pursue them over time to create new populations of organizations. Hunt and Aldrich have noted that not all technological breakthroughs that create new populations are radical, or what Astley referred as punctuated equilibrium technological changes.[55] It is possible for new organizational forms to emerge from competence-enhancing

technology that enables organizations to readily adapt to what is being done from complimentary opportunities. In contrast, when firms lack the flexibility to adapt to new technological changes, technology can destroy existing organizational forms and create new ones. Whether technological changes involve competence enhancing or competence destroying, they play important roles in the economic growth process of organizations. However, differences in technological changes among organizations and individuals in their ability and knowledge to use technology in productivity and profitability account for the differences in competitive advantages resulting from innovation or early adoption decisions.[56]

Accordingly, technological changes in organizations will involve both imitation and innovation. If the numbers of imitators increase over time, imitation can intensify competition, which can increase disequilibrium among organizations.[57] The selection process puts a limit on imitation and intensifies the need for innovation, as well as organizational learning, to promote competitive growth among organizations.

It can be deduced that technology thus becomes one of the main factors that accounts for most theories of organizational evolution, including the radical and incremental approaches to adaptation change. Technology not only increases the ability of organizations to adopt to change but also improves their competitive advantage.[58] The possession of advanced technology increases the competitive advantage in populations of organizations and improves their ability to adapt to external environmental changes.

Effects of Environmental Factors on Organizational Structures and Systems

Environmental changes, whether stable or turbulent, will affect structures and systems, as well as the internal and external fit of the organization. Siggelkow extended the contingency literature to describe fit between an organization choices and its environment, where an organization's performance is examined as "a system of interconnected choices: choices with respect to activities, policies and organizational structures, capabilities, and resources."[59] Accordingly, internal fit is related to "whether a firm has a coherent configuration of activities," and external fit as relating to "the appropriateness of the configuration given the environmental conditions facing the firm."[60] Siggelkow suggested that highly coupled organizations have difficulty adopting to environmental changes. If there is a tight fit, the organization is vulnerable to environmental changes. Although tight fit can create conditions for inertia, loosely coupled structures become sources for technological change and innovation.[61] Whether organizational fit is either internal or external, it helps to understand the relationship between an organization's choice of strategies for change and adaptation and its environmental factors.

The effect of external environmental factors—stable or unstable environment—varies according to the age of the organization and the complexity of its structures. In stable environments, older organizations have advantages over newer

organizations because they have developed repetitive and fixed routines of accounting procedures to handle their day-to-day activities. In contrast, in dynamic–unstable environments, newer organizations are able to adapt easier than mature organizations, "as old established procedures [of mature organizations] may no longer accomplish what they were initially intended to do."[62]

As organizations grow, institutionalization and gaining legitimacy becomes important. Institutionalization occurs when social actions and practices are taken as granted, are accepted, or become a norm, and part of the organization behavior. Over time, as others adopt social actions, they are accepted because members of the organization and society share them. Once a social structure is set up for these behaviors, cultural values or organizational arrangements are formed in which these actions are legitimized and widely disseminated within the organization.

Meyer and Scott argued that although institutional theory considered legitimacy as something that is taken for granted, it is rituals, customs, and cultures that play important roles in legitimacy. Rules, regulations, and order only constitute the legality, not the legitimacy, of the organization.[63] Carroll and Hannan extended the institutional theory to define legitimacy in an organizational population. They inferred that "an organizational form is legitimate to the extent that relevant actors regard it as the 'natural' way to organize for some purposes."[64] In other words, when there is legitimacy, adding more organizations increases density, which makes it unlikely to "have much effect on its taken-for-grantedness."[65]

Carroll and Hannan further elaborated on the effects of institutionalization and legitimacy with their studies from the newspaper industry. They reported that when a small newspaper publisher challenges an established order, for example, "accepted notions of freedom of speech," the financial effects are significant and may force the publisher to shut its business. "But the institutional consequences of the action may very well benefit publishers who come later and attempt to do exactly the same thing which had previously been considered unacceptable."[66] As organizations institutionalize and become legitimate, they attempt to gain visibility and establish environmental dominance through mergers, acquisitions, diversification, or corporate interlocking with other organizations.

Although mergers and acquisitions are used to acquire resources, they can also restrict competitor's access to resources. This focus on the interdependencies of the organization with the environment indicates that resource dependence leads to interorganizational actions that involve mergers, acquisitions, cooptation, consolidation, and joint ventures.

Resource Dependence, Competition, Innovation, and Interorganizational Relations

The resource dependence model indicates that environmental resources shape an organization's adaptive change strategies. For example, if "organizations are

not able to internally generate either all the resources or functions required to maintain themselves," they will use interorganizational coordinating mechanisms to enter into "transactions and relations with elements in the environment that can supply the required resources and services."[67] However, the choice of coordinating mechanisms—competition or absorption through mergers and acquisitions—depends on management decisions, strategies, power, and influences used to manage the organization–environment relationships. Through transactions and relations, organizations can adjust their capabilities to fit environmental changes. At the same time, "environmental constraints leave the possibility of a variety of activities and structures consistent with environmental requirements."[68] Accordingly, the resource-dependence model treats the environment as comprising resources that can influence organizational actions but that do not necessarily constrain or limit the set of strategies organizations will undertake to survive. These strategies are not necessarily limited to interorganizational relationships. They may include technological innovation and competition.

When there is fierce competition, dominant organizations have a sustainable advantage over their competitors. They become leaders of the business ecosystems that consist of several industries. Moore referred to organizations as operating in several industries as business ecosystems and cited the automobile and the microcomputer industries as operating in several industries. The business ecosystem increases if the suppliers are included in the system. According to Moore, the evolution of business ecosystems include at least "four distinct stages: birth, expansion, leadership, and self-renewal—or, if not self-renewal, death" that brings cooperative and competitive challenges for innovation.[69] Although the business ecosystem perspective indicates that organizations' capabilities evolve around innovation of new products and services, either through competition or cooperation, the selection and adaptation strategies emphasize competition as the determining factor for innovation.

However, the size and age of organizations may accelerate or impede competition and technological innovations among organizations. Competition can thus become a destabilizing force in organizations. According to Barnett and Hansen, "competition is an important cause of disequilibrium among organizations."[70] It increases the likelihood for dissolution if there are too many small firms in the market, minimal or no barriers for entry and exit, or firms are undifferentiated and products are homogenous.[71] Although price is the main form of competition in many merchandising and manufacturing firms, for example, it is less important in service organizations such as auditing firms, where differentiation and reputation becomes the basis for competition. When too many organizations are competing in the same market, environmental and ecological management programs can be used by some organizations to differentiate their products and services from their competitors. There is recognition that environmental performance that reduces waste management and environmental risk effectively, and solves environmental and health problems can

provide a competitive advantage by providing protection against environmental liabilities, cutting costs, and increasing manufacturing and production efficiency.[72]

Accordingly, the environment–organization's performance interdependency relationship brings the question of ecologically sustainable practices to balance the unanticipated social and economic consequences of industrial growth. Because the ecological approach considers interdependency relations between the organization and the environment, sustainability has become an ecological issue. Sustainability of the ecosystem requires interdependent relations that are enduring and lasting over time. Thiele suggested that sustainability is an ecological issue that is inherently embedded in ethical issues, and ethical formulations are necessary to study interdependency relations. In this regard, "ethics might be defined as a system of mores that arises out of and sustains certain relations of social interdependence."[73] The ecological ethics underlying assumptions are based on interdependence relations in which cultural, social, and environmental factors cumulatively define ethical values, mores, and obligations for the continued sustenance of the community and the environment. Sustainability as an ecological ethical issue involves selection and adaptation strategies in balancing corporate growth, business performance, competition, conservation, and environmental resources management.

Haveman's study of Savings and Loan Associations in California corroborates Rumlet's findings that environmental factors not only affect an organization's performance but can also change the core of its competencies. The study revealed that "under conditions of dramatic environmental change, change in an organization's core features (products offered, clients served, and technologies employed) will prove beneficial to financial performance and survival chances. Moreover, the direction of change affects financial performance, but not survival chances. If organizations build on their original domain, financial performance is enhanced; if changes bear no relation to the competencies developed through experience in the original domain, financial performance is hurt."[74]

The resource-based approach to organizational domain puts emphasis on organizations to capitalize on their existing competencies, particularly if it involves the innovation of new products or services. If innovation change focuses on the original domain of what the firm does best, it can use past knowledge, experience, and technology in future endeavors of new products and services. The resources outlay and accounting costs incurred for such innovations can be managed effectively if future performance incorporates environmental transaction costs and organizational adaptation strategies that improve environmental accounting reports.

Transaction Costs and Organizational Change Approaches

Williamson introduced the transaction cost economic analysis to the study of organizations and environmental change. He provided an alternative view of the

organization based on economic choice and cost efficiency. The transaction cost approach assumes that there are differences among organizations "because transactions differ so greatly and efficiency is realized only if governance structures are tailored to the specific needs of each type of transaction."[75] Transaction then becomes the unit of analysis. He noted that transaction costs are critical because they constitute "the crucial importance of organizations for economizing on such costs. This brings organization theory to the fore, since choice of an appropriate governance structure is preeminently an organization theory issue."[76]

To answer the question of which organizations have better characteristics to fit and adapt, the transaction cost approach addresses "both product and capital market competition are the sources of natural selection pressures."[77] Organizational selection and adaptation is based on the notion that organizations with better transaction costs could adapt and survive environmental changes, while others with poor transaction costs fail or disintegrate. For Williamson, the transaction cost approach is based on the principle that organizations with "governance structures that have better transaction cost economizing properties will eventually displace those that have worse, ceteris paribus. The *cetera*, however, are not always *paria*, where the governance implications of transaction costs analysis will be incompletely realized in noncommercial enterprises in which transaction cost economizing entails the sacrifice of other valued objectives (of which power will often be one); the study of these tradeoffs is an important topic on the future research agenda."[78]

Williamson's proposition of transaction costs was based on the assumption that organizations that are functional–purposive when it comes into environmental and ecological concerns have lower transaction costs when compared to organizations that are differentiated on the basis of managerial power structures and influence.[79] The traditional management accounting approach, which is economics based, is based on the notion of functionality and purposefulness of the firm. Under the economic approach, management accounting systems are designed and implemented to reduce transaction and interdependency costs associated with large-scale divisionalized organizations. In other words, the usefulness of management accounting systems depends on whether or not those changes contributed significantly to organizational cost savings associated with environmental transaction costs.

Williamson's study of the transaction cost approach has the utility to study adaptation changes in environmental accounting and reporting systems to explain the functionality of accounting systems in complex organizations.[80] When organizations operate as systems, they are not only functional and selective in their adaptation processes but also pay attention to management accounting systems as mechanisms to reduce environmental transaction costs associated with technology, production, and distribution processes.

For example, process innovation changes in management accounting systems associated with activity-based costing (ABC), just-in-time technology (JIT), and the balanced scorecard are designed and implemented to reduce transaction and

other costs associated not only with production, distribution, and sales but also with inter- and intradepartmental transactions and services. Transaction cost analysis becomes important in the adaptation and monitoring task processes of accounting systems, as well as in planning and management of organizational systems.

Although environmental management is one of the main core competencies in organizations, the success of an organization depends on the ability of the organization to sustain and maintain continuous change. To remain competitive, organizations are not only continuously changing but are also reinventing themselves with new products and services that support responsible use of environmental and ecological resources.

The adaptation change framework indicates that environmental change, crisis, competition, leadership changes, strategic shifts in directions, and new technological developments create the preconditions that advance environmental reporting systems. To be successful, environmental change has to be managed. Responsible organizations have their own change agents or champions who are specifically assigned to handle environmental management programs. To manage environmental changes in organizations, change agents have to demonstrate success or minor accomplishments as a result of the change programs. Otherwise, the prospects to overcome those individual, group, and institutional barriers or resistance to environmental changes would be less likely.

The capability of environmental change management strategies to shape organization performance largely depends on the scope of selection and adaptive change strategies that are employed to manage the operating activities of organizations. Chapters 3 and 4 discuss the selection and adaptive organizational change approaches to present the underlying framework of the ecology of management accounting and control systems.

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CHAPTER 3

Selection and Organizational Change

The ecological model uses evolutionary biology to study the interdependence of human and other biological communities with their environment. In principle, the ecology model applies the Darwinian approach of natural selection and survival of the fittest to organizations. It has been used to explain organizational founding, growth, and mortality. In evolution, there is progression from simple (founding) to complex forms (growth). Although there is the process of organizational change, natural selection "does not necessarily involve progress to more complex or higher forms of social organization or to better organization." Rather, the process assumes that "social organizations are moving toward a better fit with the environment, but nothing more."[1]

Having its basis in the biological evolution of species, the natural selection approach has been applied in social sciences to study organizations and their characteristics on the basis of the following three underlying frameworks: classification of organizational forms into identifiable classes, development of taxonomy theory to describe their differences, and explanation of their evolutionary forms. There are at least "three central issues of the population ecology models." They are "the role of structural inertia in constraining adaptation, the classification of organizational species, and the salience of the environment in determining organizational survival."[2] Chapter 3 discusses those ecological selection characteristics that affect organizational change and development in relation to management control systems.

NATURAL SELECTION PROCESSES OF ORGANIZATIONS

The natural selection approach recognizes that organizations, over the course of their life histories, develop commitment and become interdependent with the

environment. Although environmental conditions select those organizational characteristics that can best fit the environment, the origin of the organizational relationship with the environment determines those organizational activities. The process of natural selection implies that organizations achieve a better fit with the environment through an evolutionary gradual process.

The selection approach is an environmental deterministic model that puts primary emphasis on the effect of the environment on organization social structure.[3] Environmental factors are considered as determinants to randomly select those organizations with the appropriate structures that can best survive and adapt to environmental conditions.

Selection as an Environmental Deterministic Approach

In the selection process, survival is dependent on the ability of the organizations to better exploit the environmental resources. This selection description is analogous to the neo-Darwinian biology perspective that genes mutate randomly.[4] It becomes apparent that environmental selection is the sole determinant of those organizational forms and their characteristics that will either survive or die. It is only those organizations who subscribe to the environmental requirements that are selected.

Hannan and Freeman have proposed that organizational forms are derived from population of organizations.[5] Accordingly, for research purposes there is a presumption that it is possible to select populations of organizations whose demographics can be studied. Therefore, the unit of analysis is the population level instead of a single level of organization. It is inferred that the individual social unit will not affect the selection process.[6]

Although the ecological framework has generated several empirical, history-based studies, it has been noted that there are limitations to the applicability of the framework and its interpretation in organizational studies. Amburgery and Rao have noted the shortcomings of the ecological approach as in the classification of a population of organizations that are diverse. The authors indicated that ecological analysis has not effectively addressed the identification of those factors that are associated with diversified organizations.[7] There is a recognition that diversity based on demographic and geographical characteristics can be useful in explaining the selection processes that contribute to population differentiations and subgroupings. Rather, population ecology focuses on environmental influences of organizations belonging to the same population.

Environmental Resources and Organizational Forms

Because the ecological approach focuses on selection, the environment becomes the major force of external control of organizations. Although management decisions and strategic choices made in shaping the control and distribution of environmental resources are downplayed, environmental characteristics are

considered as major sources of influence that shape resource-dependent relationships and organizational activities over time. Accordingly, the ecological approach focuses on external environmental resource pressure on selection. It is assumed that when resources are abundant, no selection is likely to take place. However, when environmental changes are accompanied by changes in policies or availability of resources (i.e., conditions of scarcity) because of limited resources, selection occurs. This process leads to the formation of certain organizational characteristics that are best suited to the environment.[8] It is apparent that survival or failure depends on the ability of organizational populations to sustain those organizational forms and characteristics that are critical for success.

Romanelli has described the organizational form as those characteristics that are distinct to an organization and that can be used to classify them as a member of the population with similar characteristics. These new organizational forms are caused by incremental changes primarily related to endogenous (internal) factors within the organization population.[9] Although organizational forms are related to formal structural arrangements, there could be variations of those forms by control systems. The ecological approach uses evolution of changes in organizational forms to classify organizational typologies. At the same time, there are limits on the number of new organizational forms that can coexist. The institutionalization process imposes structural conformity across organizations within the same population.[10]

To better understand environmental causes of organizational functions and forms across populations of organizations, ecological research has "focused on how selection processes create uniformity and stability in organizational forms, and how existing populations are sustained over time."[11] Therefore, the evolutionary biology assumptions of natural selections are based on differential reproduction and survival rates of organizations, depending on environmental characteristics and relative competitive advantages. Accordingly, although natural selection is associated with reproductive successes entailing more viable offspring, it does not necessarily guarantee fitness with the environment. Because nature selects those biological species who curtail overreproduction, natural selection has variations in fertility and mortality rates among biological—including organizational—populations.[12] The relative advantages of competition in certain environments make it possible for some organization population to increase their numbers.

Selection and Organizational Forms Variations

Using the ecological biological analogy, Freeman proposed two important logics of natural selection. "First, natural selection presumes a population logic." It is aimed at "understanding the range of variations" among sets of populations of organizations. Second, natural selection is conceptually a dynamic theory that "explains the pattern of variation observable" among organization structures that are best fit with the environment.[13] These variations among organizations may

include division of labor, organizational structures, product innovations, and technological development. Variations also occur in methods organizations use to acquire needed resources to obtain relative advantage over their competitors. Technological variations may include multiple standards, several techniques, and various processing methods of goods and services.[14] During selection, organizational forms, rules, and procedures, including culture, are selected to strengthen the prospect for organizational fitness and success. Heterogeneity and variation create ample opportunities for organizations to select those strategies and behaviors that best fit with the environment characteristics.

Aldrich and Pfeffer elaborated that the selection occurrence of variation in an evolutionary process involves three stages: the first stage involves the process of occurrence of variations or changes that are appropriate behaviors to adapt to environmental characteristics. The second stage is related to the selection of those variations over others that are best suited to exploit environmental resources. The third stage is the retention mechanism of those selected characteristics.[15] Aldrich and Pfeffer referred to this stage as being characterized by organizational stability, where there are adherences and observances to certain organization rules and procedures. Stability in the structure of decision rules could lead to the preservation of organizational forms and functional interdependency relations between organizations and the environment. Once certain organizational forms are maintained, these forms persist over time as organizations pursue stability and the retention of existing structural characteristics.[16] It is the process of natural selection that contributes to the existence of organizational variations, forms, survival, and retention in successful populations. Organizational ecology provides explanations for why organizational forms are different and what some organizational forms, and not others, do to survive and change.

Selection weeds out those organizational forms that are unable to meet the population operating requirements. When those forms that do not fit the industry standards are removed, selection increases the likelihood that those remaining will better fit and compete with other members of the population. Although selection increases the environmental fitness of those remaining forms, it also reduces competition when the crowding of organizations whose niches overlap causes an increase in exits at higher rates, particularly in localized competition.

When there is a higher exit rate, selection at first makes it less attractive for new organizations to enter the market. However, when the exit rate stabilizes and the market shows evidence of higher retention rates, the decrease in failure rates will encourage entrepreneurs to start new ventures. Sorenson attributed the increase in retention rates as being caused more by population pressures/characteristics than selection. "As retention rates increase, the competitive effect of population density increases." Because better-fitted organizations can create more competition, there will be a decrease in "competitive interaction among the surviving firms."[17]

Sorenson's historical analysis of the U.S. automobile industry supported the theory that "selection systematically modifies the nature of competition."

Selection also "raises the bar for entry into the population," and it "provides new opportunities for entrepreneurs by distributing the remaining forms across the resource space leaving exploitable interstices."[18] Selection thus becomes a fitness set theory that describes the set of strategies that provided organizations with evolutionary competitive advantages.

According to Hannan and Freeman, if selection occurs as a form of fitness, it involves the actual loss of organizations.[19] Selection then becomes an adaptive process if selection occurs for some organizations with certain properties/characteristics, but not for other organizations. Organizations adapt their characteristics according to the environment by adjusting the composition of their characteristics, but when organizations reach their limited ability to adapt to change, the forces of resistance to change create organizational inertia.

SELECTION AND ORGANIZATIONAL INERTIA

Organizational ecology theory assumes that inertia arises because organizations have limited capabilities to reshape their current structures (forms) to respond to environmental changes. The ecological approach indicates that inertia pressures within the population of organizations can involve either competition or selection to explain the organization–environment linkage.

Hannan and Freeman argued that when there is strong environmental pressure, there is lower organizational flexibility to adapt, and inertia prevails. Selection mechanisms thus explain the organization–environment linkage. "Inertial pressures arise from both internal structural arrangements and environmental constraints."[20]

Approaches to Organizational Inertia

Hannan and Freeman listed several factors related to internal pressures of inertia. These include sunk costs associated with organization investment in long-lived assets, inadequacy of cost accounting systems to provide required full information on organization activities to managers on a timely basis, and initiation of changes in organizational structures that would affect existing exchange and working relationships. Moreover, there are barriers to adaptive changes when organizations resist change because the costs associated with the change may be significant or affect certain power holding groups.[21] In contrast, external pressures that could create inertia include "legal and fiscal barriers to exit from markets," costs associated with recovering external information (e.g., related to information acquisition), and legitimacy constraints emanating from the environment. When organizations have "collective rationality problems," a rational decision for a given problem may not be adopted or applied by a large number of decision makers.[22] This condition creates a lack of consistency in uniformly adopting similar strategies to address similar or comparable environmental conditions facing the organization.

When there is structural inertia—both internally and externally—environmental changes, particularly those changes that are volatile and unpredictable, decrease organizational fitness. Hannan related the erosion in fitness resulting from the structural inertia inability to recognize the importance of environmental changes.[23] The underlying assumption in inertia is that as organizations get older, they get better in what they do. However, structures and routines also get obsolete over time and with age. Getting better at doing old things helps survival in a stable environment, not in a changing/volatile environment. That is, inertia becomes the cause for organizational mortality.

Inertia limits the capabilities of an organization to benefit from technological changes and thereby exploit opportunities created by dominant design technological changes. This inertia allows new firms/organizations to enter into the industry/market. This happens because incumbent organizations rely on past routines, strategies, and initial actions that limit decisions not based on information gained from current learning and experiences. There is a tendency among organizational members to resort to old methods and dominant design in their traditional business, which they know how to do best, rather than to try new areas/ventures that the market demands.[24] Although inertia problems can be partially addressed within the adaptation framework (refer to Chapter 5), Hannan and Freeman argued that it needs to be "supplemented with a selection orientation."[25]

Organizational Size and Inertia

According to the ecological model of organizational change, structural inertia increases with organizational size and affects mortality rates. The selection process usually favors those larger organizations with greater structural inertia because inert organizations have lower mortality rates.[26] Ranger-Moore noted that inertia is often prevalent among large organizations. Accordingly, organizational failure rates increase with size because "large organizations suffer from increasing inertia as a result of bureaucratization and other time-dependent processes."[27] When too much inertia is caused by bureaucratization and increased organizational complexity, an organization fails to keep up its performance with the changing environment and becomes less flexible to respond to those changes. In contrast, the mortality rate among younger organizations is higher. New organizations have a higher propensity toward failure because they need more time to learn new roles. Their socialization processes take time, and they face increasing difficulties to attract customers from other, established organizations.

The organizational selection process tends to favor those organizations with high levels of reliability and accountability, which tend to be predominantly large inert organizations. In these organizations, according to Singh and Lunsden, "the reproducibility of organizational structure [coordination, legitimation, socialization, organizational learning] increases with age. Because greater reproducibility of structure also leads to greater inertia, however, organizations become

increasingly inert with age. And since selection processes favor organizations with inert structures, organizational mortality rates decrease with age—the liability of newness."[28] It is the process of inertia that hampers change and innovations in organizations. Eventually, increased inertia with age could lead to organizational failure.

Durand suggested that inertia can positively affect an organization by providing guidance and strategies for growth. However, too much inertia confidence or "excessive inertia can hamper a firm's development" and contribute to its future failure. The strategy is to find the appropriate threshold that would enable the organizational population to survive. "However, once the threshold has been reached, relative inertia determines the level of selective pressure on populations and firms. Consequently, firm selection pressure is reduced as organizational inertia increases up to a point at which any additional relative inertia results in increased firm selection pressure."[29]

Inertia and Organizational Change

Within the ecological framework, it is apparent that selection instead of adaptation has become the main causal explanation for organizational change in population ecological research. It assumes that when there is selection as a form of environmental–organizational fit, it results in actual losses in organizations. Accordingly, the ability of organizations to select or adapt depends on environmental conditions: stable or unstable. If the environment is stable, organizations are able to adapt at lower performance levels at a lower cost through incremental technological changes. Incremental change increases the average fitness of an organization more in a stable than in an unstable environment.[30] However, when inertial pressures are strong, unstable environmental conditions create less mobility in organizations, and the strategy for adaptive changes is less likely to succeed. When there is adaptive flexibility, it is followed by environmental selection. That is, selection weeds out those organizations with structural inertia that are less efficient and that are unable to adapt to internal and external environmental pressures.

Hannan and Freeman discussed several factors that are associated with inertia. External environmental pressures of inertia include legal and fiscal barriers to entry and exit markets, and local, state, and federal regulations and political decisions, including legislation of rules and regulations.[31] According to Aldrich and Pfeffer, barriers to entry, such as economics of scale and relative cost advantages by large organizations, limit potential entrants into the market, lower rates of change and variations within population of organizations, and minimize the structure of activities and the abilities of smaller organizations to have control and influence on their environment.[32] Internally, organizational constraints of inertia are related to the lack of available information to make informed decisions, as well as the inability of structures and systems to respond effectively to environmental turbulence.[33]

Hannan and Freeman elaborated that internal political constraints arise when managers attempt to change organizational structure, which could affect the political equilibrium because structural changes involve the reallocation and redistribution of organizational resources. "Such redistribution upsets the prevailing system of exchange among subunits (or subunit leaders). So at least some subunits are likely to resist any proposed reorganization."[34] The lack of support is costly to the organization in the short run. However, if problems persist longer, it can become costly. Managers are likely to forgo these proposed changes, including planned reorganization, if they threaten the existing organizational norms.[35] These internal pressures of inertia are commonly associated with the existence of complex and bureaucratic organizational structures of large organizations. In general, large organizations have formalized and centralized structures that are cumbersome, incapable of anticipating environmental changes, and less responsive to customer demands through product innovation, retrenchment, and cost-cutting strategies to remain competitive. In most situations, large organizations with considerable characteristics of inertia tend to insulate themselves from selection when compared to smaller organizations who exhibit significant rates of failure. However, if there is growth from small to big organizations, growth is assumed to involve a selection process that is accompanied by a replacement of the small organization by a new, large organization.[36]

When inefficient organizations fail, competition makes it difficult for new organizations to enter, because the required resources and customers' base, loyal employees, and dependable suppliers are high in cost. It is expected that those organizations that entered the market early have structural advantages of competition over late entrants. However, even those who entered later are able to compete better, depending on the density of the population and their ability to survive and dominate the market.[37] If there is organizational learning without selection, there is a potential increase in the overall fitness of a given organizational population. The population level learning approach indicates that although there is a liability of newness in entering a new market, in mature industries, new entrants can historically adjust and learn faster the market process overtime.

LIABILITY OF NEWNESS: AGE DEPENDENCE AND ORGANIZATIONAL MORTALITY

Organizations differ in their availability of resources: human, financial, social capital, wealth, status, or political influence. Some organizations are better endowed with extensive resources, and others find themselves with disadvantaged conditions. Hannan elaborated the link between endowments and mortality rates, particularly for relatively newer and younger organizations.[38] He indicated that organizations with better endowments are able to survive better in their early stages. Mortality rates among them are lower unless endowments are replenished or depleted.

In addition to resource endowments, Hannan examined the relationship between age and organizational mortality in relation to organization experience and capabilities. He suggested that organizational capability and market position influence organizational survival chances. He defined organizational capability in terms of an organization's "ability to execute routines and solve problems." Capability consists of solutions that are "context specific" and are derived from codes of organizational learning acquired from years of experience.[39] Accordingly, young organizations have limited capabilities because they suffer from age-dependent or related acquired experiences.

Age provides a positional advantage within the organizational community members and has the effect of reducing mortality rates. Aging endows an organization with a well-developed social structure and favorable social relations (i.e., trust) with employees, customers, suppliers, and other constituent groups, which increases its chances for survival. Similarly, organizations that have "robust positions provide advantage over broader ranges of environmental variations." These robust positions take time to be developed, but once established, they persist.[40] By virtue of their positions, these organizations have social support groups that can provide advice, information aid to members, and networking that can help sustain organizational vitality.

Age and experiences are associated with an organization's capability to handle environmental uncertainty. Hannan ascertained that mortality rates resulting from environmental changes decline with aging and that those young organizations are vulnerable to environmental changes because of their age—the liability of newness. Age "insulates older organizations from damage due to environmental turbulence." Older organizations have advantages of handling environmental changes compared to younger organizations.[41]

In contrast, Ranger-Moore, in his study of the New York life insurance industry, reported that the effect of age on failure is mixed, although organizational growth and age increased inertia. He found that organizational size, that is, larger size, reduced failure rates, and the liability of newness at adolescence (old age) minimized mortality. Liability of aging became a risk for small organizations that have higher probability of failure. Successful organizations that are large were able to overcome the risk of failure associated with age. Ranger-Moore argued that organizational size and distribution of firms in an industry should be considered as a factor to be accounted for in mortality rates of a given population.[42]

The size and distribution of firms in an industry, therefore, have an effect on organizational performance. The rate of entry, exit, or dissolution could be caused by merger, absorption, or acquisition—or by outright failure. The findings of Boone et al. corroborated that the increase in mortality rates among organizations, including auditing firms, can be attributed to mergers and acquisitions.[43]

In general, organizational ecology studies have attributed that failures among new organizations are a result of the liability of newness hypotheses.[44] These new organizations fail because they attempt to enter new markets that are already established. Because existing organizations have control over economic, political,

and social resources, newer organizations cannot effectively compete with them, and they will eventually fail. Whereas small organizations are innovative and account for the largest share of the labor force, their failure rates are high because they have problems with raising the necessary capital or needed resources to continue operations, as well as with meeting government regulatory requirements that are usually strict or high among small businesses. The age-dependence mortality rate indicates that new organizations, because of limited resources and environmental conditions, are more likely to fail than older organizations.

Wholey and Brittan gave examples from the newspaper industry to substantiate the liability of newness and the age-dependence mortality hypothesis. They reported that the success and failure of newspapers was related to environmental conditions. For example, newspapers founded during periods of turmoil failed when the period ended at greater rates than established newspaper organizations did because of limited resources. Those organizations that succeeded the initial period of crisis, the founding years, were able to survive. Although organizations were imprinted by the conditions surrounding founding, size was related to survival because largeness provided advantages in economies of scale that contributed to fewer failures during time of crisis when compared to new and small organizations.[45]

ENVIRONMENTAL IMPRINTING AND ORGANIZATIONAL FOUNDING

Organizational ecology has examined the effect of ecological and environmental conditions on organizational founding, growth, and mortality rates. Messallam has attributed organizational founding to the formal incorporation or the formal starting date of an organization as reported by the government organization as the founding date for tax purposes.[46] Although it is difficult to determine when an organization was founded or came into existence, or where to trace the founding, in most cases, it can be traced to the time period when the idea was developed to found an organization. Nevertheless, "the organizational founding literature has focused its attention on the effects of ecological variables (population density, prior foundings, and prior deaths) and some institutional-environment variables (political and economic conditions) on organizational founding rates."[47]

Initial Environmental Characteristics and Leadership Effects on Organizational Founding

Ecological research has attributed to both environmental conditions and leadership characteristics as having significant influence on the founding of organizations. New organizational forms are primarily shaped by institutional environment and include external factors related to economic, political, legal, cultural and social factors and resources.[48] Similarly, Zyglidopoulos referred to

the initial conditions during the founding, birth, and first few years of an organization life as having both environmental and organizational conditions: "Initial environmental conditions include the technological, economic, legal, competitive, and social aspects of a firm's early environment, while organizational conditions refer to the founder(s), and the initial resource endowments of the firm."[49] Thus, the environmental and organizational conditions at the time of founding shape organizational structures and the accompanying persistent patterns of staffing, division of labor, policies, and strategies.

It is the cumulative effects of initial environmental conditions, founder–leader personalities, and organizations' early decisions that affect the structure, behavior, and performance of the organization for a long time. The founders' views—ideas, management styles, thinking—are institutionalized over time and can become persistent for a long time if the founders play roles in training their successors. This process, which is referred to as environmental imprinting, describes events that occur at important developmental stages of organizations, where they are expected to become enduring, persistent, and permanent effects throughout the organization's history and life cycles.

Imprinting, the process in which events occurring at certain key developmental stages have persisting consequences and structural inertia influences mortality rates. According to Hannan, "if imprinting occurs, then founders build organizations that fit specific environments. If core features of organizations get set by early decisions and actions and resist changes afterward, then environmental change will erode the fit between organizations and environments. That is, the joint action of imprinting, inertia and environmental change creates a liability of obsolescence."[50] It is the cumulative effect of capability and positional advantages coupled with the structural inertia and endowment processes that establishes the linkage between age and mortality rates among organizations.

Hannan viewed environmental imprinting as a process whereby "organizations best match their external environments at the time of their founding." When the environment changes, as a result of organizations' inertia, the imprinted features are hard to change, and older organizations fall behind and "become obsolete. Under this scenario, the hazard of mortality for old organizations exceeds the hazard for young ones."[51]

Moreover, the differences between current and the founding environment, which can be referred to as the drifting environment, are prone to creating different demands on the organization. The environmental dissimilarities between the founding and the current environment increase pressures on organizational capabilities, which become lower at older age, resulting in mortality. In contrast, organizations that have been founded under periods of environmental hostility have lower death rates compared to those founded under stable or low environmental hostility. Amburgey and Rao referred to this condition as trial-by-fire hypothesis, which was based on their studies from the American brewery industries. It needs to be noted that environmental instability that leads to political turmoil could also contribute to increased organizational failures.[52]

In organizational founding, ecological research has focused on the differences between emerging organizations and operational start-ups, where new entities that are successful can begin to produce goods and services. Amburgey and Rao compared the failure time period between emergent organizations and start-ups. They indicated that the failure rates for emergent organizations are higher than for start-ups because start-ups have better capabilities and resources to handle environmental and selection processes.[53] The selection pressures for emerging organizations are higher because selection weeds out those organizations that do not have clearly defined goals, strategies, technologies, and boundaries for their operational activities. That is, the prior start-up experiences at the time of founding have persistent effects over the lives of these organizations.

Differences in founding between emerging organizations and operational start-ups can be attributed to asymmetry in founding rates. Sorenson described the asymmetry as contributing to mortality. That is, although "selection raises the bar for entry into the population," it also "provides new opportunities for entrepreneurs by distributing the remaining forms across the space leaving exploitable interstices. These effects explain both the intensification of competition in a population over time and the eventual resurgence in entry rates. . . . Since evolutionary processes alter founding rates through asymmetry in legitimacy and competition, rather than directly, these processes should create similar asymmetry in the relationship between mortality rates and density."[54]

Organizational Density and Founding

Most of the organizational ecology research on founding has dealt with density dependence and population dynamics and has related increases in population density to decreases in the rate of founding as a result of competition.[55] In other words, density dependence—high or low—which is relative to a given population, explains the dynamics of organizational foundings and mortality. When organizational density factors are related to increasing concentrations of a certain population of organizations, intense competition and limited gains realized from investment in founding create barriers to entry or founding. Conversely, when the economic, legal, and political environments are favorable, potential entrepreneurs start up businesses, and founding increases.

It is assumed that as the number of founding organizations increases, new populations of organizations are created and communities are established. Growth in organizational founding contributes to the creation of new jobs and indirectly affects intraorganizational mobility. Over time, organizational populations gain legitimacy through political connections, understanding of their businesses, and exploring new business opportunities. When legitimacy is coupled with organizational learning, it can facilitate community growth. Hunt and Aldrich stated that entrepreneurship, age, technological innovations, legitimation, and organizational collectiveness contribute to the establishment of organizational communities.[56] In the process, as organizations mature, new

entrepreneurs help maintain growth and stability within the population until it is overcrowded.

Eventually, when "the population reaches its carrying capacity, a high level of foundings elaborates competition and constrains subsequent foundings, and, consequently, the founding rate declines."[57] Ruef referred to this concept of carrying capacity as a community and population ecology approach that is related to the maximum number of organizations with similar identities that can be supported in a given environment. When the carrying capacity and the size of the population is at a maximum, there is a decline in new organizational forms, or organizational founding.[58] Accordingly, density intensifies competition.

Kanazawa provided two propositions to explain the relationships between density (legitimacy and competition) and population vital rates (organizational foundings and mortality), as follows: "At low density, the *legitimation* process dominates and leads to high organizational founding rates and low organizational mortality rates. At high density, the *competition* process dominates and leads to low organizational founding rates and high organizational mortality rates."[59] In other words, although growth in legitimacy contributed to increased rates of founding and decreased rates of mortality growth; competition contributed to decreased rates of founding and increased rates of mortality.[60]

Geographical and Regional Attributes of Founding

The relationship of density and founding can be accounted for by geographical boundaries, location, and regional and local conditions. Lomi described how differences or variations in local, social, and economic conditions across regions produce differences in organizational founding rates. Location-dependent conditions include economic resources: industry versus agricultural employment, wealth distribution, and population skills/labor specialization concentration. Heterogeneity of social and economic conditions across geographical regions can explain the effect of location on organizational founding rates.[61]

In a study of agricultural credit unions in Italy, Lomi revealed that the ecological effects of geographical location on organizational founding rates are substantial. In Italy, the duality of regions between industrial and agricultural sections is primarily geographical.[62] Location defined variations in organizational founding where localized conditions become suitable for certain industries; for example, rural areas or an agricultural economy for agricultural credit unions. Location also defined organizational structures, processes, and functions as having their own distinct characteristics.

Lomi considered the ecology of localized conditions as determinants for the concentration of certain specialist industries in the case of agricultural banks in Italy. Lomi argued that specialized organizations, for example, rural credit banks in Italy, cannot expand beyond their regions and are prone to changes in their locality conditions. The study corroborated that "models of founding rates of cooperative banks [in Italy] are better specified at the regional level, while

national density has no effect on founding rates."[63] That is, spatial/geographical factors are important in the study of organizational founding rates and vitality/dynamics. For specialist banks in Italy, ecological factors related to government policies, and legal and historical factors, as well as large-scale institutional changes in the banking industry in both Italy and Europe, have affected their survival.[64]

In a related study of the founding and evolution of the Seven Bell companies in the United States, Noda and Collis noted that geographic and socioeconomic differences accounted for differences in original experiences in local market conditions, which shaped the future business development strategies of these companies. They determined that organizations' initial business experiences were imprinted on their future directions and influenced their business development strategies. These processes could have accounted for the beginning of organizational heterogeneity. The authors noted that important factors that led to organizations' intradiversity included favorable local regional and market conditions, environmental surroundings, and management entrepreneurial tendencies and willingness to take risks and learn from local experiences and market conditions.[65]

The environmental imprinting literature also indicates that strategic choices adopted at the time of founding persist.[66] Although throughout the organization life cycles there are evolutionary developments, changes in strategy or strategic choice occur at the time of founding. Entrepreneurs experiment with several strategies when they start business. Once they grow and become successful, they are concerned with managing the environment and are less likely to change. However, when there are political instabilities, they are more prone to fail without modifying or changing those earlier strategies. This process in environmental instability, cyclical business growth, and technology and capital requirements contributes to organizational decline and failure. For some organizations, environmental changes create opportunities for new niches to open and capitalize on their information processing capabilities.

ORGANIZATIONAL NICHE, DENSITY, AND COMPETITION

According to the organizational ecology framework, environmental variations affect selection related to differential birth and death rates of organizational populations. That is, distributions of organizations into generalists and specialists can be attributed to selection pressures in environmental variations. Freeman and Hannan elaborated that the concept of niche can be used to provide explanations on how the growth and death of generalist and specialist organizations are related to resource availability—scarcity or slack and the ability of organizations to tolerate environmental changes.[67]

Although the control and distribution of critical resources may significantly shape organizational activities, the selection framework maintains that environmental characteristics and variations are the primary determinants of organizational

activities. Whereas slack is related to organizational size, scarcity is related to constraints on resources availability, which could contribute to organizational decline and death. However, changes in environmental characteristics, for example, the advent of new technology, could facilitate the death of an older population and its replacement by new ones. Accordingly, the growth of organizations ultimately depends on their capability to tolerate environmental variations, including resources availability, and to resist pressures and withstand competition from members of the organizational population. That is, the niche width of the organization becomes one of the primary determinant factors that affects the survival or the decline of those organizations.

Organizational Niche

Baum and Singh claimed that almost all organizations in a population occupy an organizational niche. They referred to the organizational niche as characteristics related to organizational capabilities and as having a defined location space within the competitive environment.[68] They determined that the nature of competition varied, depending on where the organization niche—generalist versus specialist—is focused. Moreover, competition can be intense (high) or low, depending on the nature of resource requirements and production capabilities required for competing, as well as the ability of the environment to accommodate an increasing number of organizations within a population. Accordingly, the width of the organizational niche becomes an important factor that can affect competition.

Freeman and Hannan noted that the ability of organizational populations to compete and grow, and acquire the needed resources, depended on niche width—narrow or broad. For these authors, population growth and diversity are dependent on having a broad niche. They explained that "populations with broad niches are commonly called generalists. Populations with more limited ranges of tolerance are called specialists. Niche width theories are formulated to explain how environmental variations affect life chances of specialists and generalists."[69] They also noted differences in terms of strategy: whereas "specialist populations follow the strategy of betting all of their fitness chips on specific outcomes; generalists hedge their bets." Although generalists have slack resources, or excess capacity, "specialists commit most of their resources to a few tactics for dealing with the environment."[70] Accordingly, the size of the organization, access to resources, geographical proximity of competing organizations, and economy of scale in production and distribution create discrete segments of organizations that are differentiated into generalist and specialist organizations. The resource partitioning theory has been applied to describe this partitioning and aggregation of organizational populations into discrete segments of generalist versus specialist organizations.

The resource partitioning theory examines those market conditions and concentrations that give rise to specialist or generalist organizations. The theory states that when there are a few organizations, each organization attempts to control the center of the market. As the number of organizations increases, those

organizations that are large and powerful and that dominated the center of the market push those small organizations to the periphery. These small organizations become specialists and out-compete generalists by operating in distinct resource spaces.[71] Accordingly, the success and failure of specialist and generalist organizations depends on the conditions of resources partitioning. When mass market concentration increases, competition among generalist organizations increases, contributing to increases in their mortality rates. When market concentration and consolidation occur among generalist organizations competing for the largest segment of the consumer base, this increases the founding and decreases the mortality rates of specialist organizations who serve those consumers whose needs are not met by generalist organizations.[72]

Resource Partitioning Theory: Generalist versus Specialist Organizations

Resource partitioning theory describes the environmental characteristics that contribute to the classification of organizations into different segments. Environmental differences arise as a result of differences in social and economic conditions, location space, geographical boundaries, and other characteristics related to the availability of resources. Differences in the size of the organizations, the economy of scale, and the capability of organizations to exploit environmental resources affect the partitioning of organizations into different segments. The organizational ecology literature has used the resource partitioning theory to describe this segmentation of organizations into generalists and specialists organizations. The resource partitioning theory explains that the rise of specialist organizations in general can be associated with increased concentration and consolidation of the market by large generalist organizations.

As large generalist organizations compete to dominate the market and control the consumer resource base, the intensity of competition, focused on the center of the market, reduces their available resources to meet the needs of the peripheral market. This condition then gives rise to specialist organizations that occupy "resource space that lies outside the generalist target areas.... When these resources are sufficient to sustain a specialist segment, the market can be said to be 'partitioned,' in that it appears that generalist and specialist organizations do not compete; they depend on different parts of the resource base."[73] Thus, the increased market concentration by generalist organizations give rise to increased founding rates of specialist organizations. Over time, those specialist organizations that are able to survive increase their geographical or spatial dimensions and resource space available to them.

Organization–Environment Niche Fit and Selection of Organizational Forms. According to the resource partitioning theory, the organization–environment niche fit selects which organizational forms—generalists or specialists—will survive and flourish. Organizational population segmentation by age (old vs. new) or size (large vs. small) characteristics is related to the generalist–specialist

organizational form of concentration and resource sharing. In a resource partitioning context, it has been determined that the intensification of competition by generalist organizations to the center of the market leaves room for smaller organizations to enter the periphery of the market. The lack of attention by generalist organizations to other markets provides opportunities for specialist organizations to prosper. The relative size differential between small-specialist and large-generalist organizations contributed to small organizations' ability to take relative advantage of specialization without growing. At the same time, large organizations continue to grow and to expand their generalists' resource base and markets.[74] Although there is interaction between the two segments, market differentiation and product diversification have made it possible for specialist organizations to prosper in a given market.

Boone et al. applied the resource partitioning theory to describe the growth of auditing firms. The authors found that "the niche position of specialist auditing firms seems to be sustained by their flexibility over time. This dynamic capability allows specialist firms to meet the unique and changing needs of certain clients and other customers. In essence, they provide customized and personalized service of a kind that the large generalist auditors are incapable of providing (at least to small client firms)."[75] They attributed the success of auditing firms to their relative size and the nature of the service industry.

In service and professional industries, where there are a few large firms dominating the market (i.e., auditing and banking), small firms catering to the needs of customers with special and challenging needs have emerged and flourished. When institutional forces were in play, most enacted government regulations have benefited big auditing firms. Resource partitioning was at work in earlier periods, when there were minimal laws during the unregulated era, than in later periods, when legislation was put into effect to regulate the industry. In the unregulated era, there was competition. When there was legislation and regulatory activities, there was minimal competition, which led to concentration, but because legislation was put into effect, small firms did well along with the big auditing firms.

Boone et al. recommended that it is important for researchers to "investigate the relationship between the dynamics of organizational populations and the timing and form of legislation and regulation." In the auditing firms, "the ecological process causing a dual market structure [generalist vs. specialist auditing firms] was accelerated and institutionalized by law."[76]. In the case of the auditing industry, the political, institutional, and legal processes are the primary forces that facilitated the resource partitioning theory.

Organizational Forms: Generalist versus Specialist Organizations. Resource partitioning of markets into generalist and specialist segments has been described primarily within the context of environmental variations. Freeman and Hannan classified environmental variations into coarse and fine grained. They referred fine grained to "large patches of single kind of square" and small grained to "large

clumps of homogeneous squares."[77] They attributed grain to the time period of change and the frequency and length of periodical fluctuation of change. This change of fluctuation may either involve a long or a short time period. "When fluctuation occurs frequently so that tenure in any one environmental condition is short, the environment is said to be fine grained. Fluctuating environments, in which tenure is long, are coarse grained."[78]

COARSE- VS. FINE-GRAINED ENVIRONMENTAL VARIATIONS. Freeman and Hannan suggested that coarse-grained variations favor generalist organizations, and fine-grained variations the proliferation of specialist organizations. The authors applied variations, generalism, and seasonality to describe the age, sales volume, and concentration of the markets and market segmentation in the restaurant industry. They found that specialist restaurants are more likely to succeed in fine-grain environmental conditions and with width variations. The death rates of restaurants declined with age, and newer restaurants learned from the experience and death rates of older restaurants. In general, the authors concluded that age and continuous fluctuation of sales volume had effects on the death rates of restaurants.[79]

The Singh and Lunsden[80] study corroborated Freeman and Hannan's[81] selection-fitness dichotomy features of environmental variations—coarse- versus fine-grained—to specialist and generalist organizations. That is, a specialist strategy is preferable in a fine-grained and a generalist strategy in a coarse-grained environment. In a fine-grained environment, specialists have lower mortality rates because they are able to withstand small periodic variations or brief tough times. When the environment variability is coarse grained, generalists are able to withstand and sustain longer periods of environmental variations better than specialist organizations.

STABLE VERSUS UNSTABLE ENVIRONMENTAL CONDITIONS. Hannan and Freeman, in their 1977 study, used stable versus unstable environmental conditions, which used the same analogy of fine- versus coarse-grained environmental variations, as critical factors contributing to the success of generalist versus specialist organizations. The authors suggested that specialized organizations flourish in stable (fine-grained) environments, whereas generalist organizations are able to survive in unstable (coarse-grained) and uncertain environments. In unstable environments, generalist organizations have the resources to optimize the entire set of environmental configurations. In contrast, specialist organizations do not have the excess or the required resource base to meet environmental changes. In unstable environments, the need to maintain excess resources for a longer period of time becomes critical for survival and to insulate organizations from "environmentally induced disruptions" that are considered unnecessary by specialist organizations.[82] The authors noted that excess resources allow generalist organizations to set up specialized units to enhance performance and success in unstable environments.

Accordingly, generalist organizations can change their course of action by making slack resources available to take advantage of existing opportunities in unstable, coarse-grained environments. In comparison, specialist organizations have specific resources that are suboptimal and are unable to compete with the generalists, who have the resources to sustain competition and diversify to meet the continual environmental changes. However, when the environmental conditions are stable, specialist organizations have comparative advantages over generalist organizations in specialized niche markets.[83]

However, the effect of environmental instability on the founding and growth of specialist organizations depends on the time duration: short or long time period. If the time duration is short, generalist organizations can manage without changing their strategy. In contrast, if it is long, they can change the course of their actions relative to specialist organizations, which might be forced to exit the industry. Comparatively, in stable environments, specialist organizations are favored and are able to meet market demands better than generalist organizations. Therefore, environmental variations (coarse grained—unstable or fine grained—stable) select organizational forms (generalist or specialist organizations).

RESOURCE PARTITIONING AND PURCHASING PREFERENCES AND MARKET CONCENTRATIONS. In addition to environmental variations, resource partitioning is also dependent on customers' purchasing power. Peli and Nooteboom suggested that generalist and specialist organizations do perform in different markets to satisfy customer preferences. The possible market positioning of organizations depends on their ability to meet customer preferences, and their market positioning depends on their resource location space or niche, economies of scale, and market location: center or periphery.[84] To meet customers' preferences, "generalist organizations make appeal to a broad range of customer tastes, while specialists address specific ones. Accordingly, a generalist's niche is a broad region in the resource space, while specialists occupy small spots."[85] Concentration and diversification of resources and products thereby increases niche width and enables generalist organizations to maintain their market share. Although niche overlap and competition reduces prices, it also forces medium-sized generalists to exit the market. Eventually, small specialists emerge to fill the market vacuum on the peripheries.

Resource partitioning theory explains the interrelationship between two trends: increased market concentration and the rise of many small specialist organizations in markets that are matured and concentrated. According to the ecological theories of niche width, when the ranges of resources are wide/broad, the subpopulation of organizations contains generalists. In contrast, when the resource niche is narrow, the subpopulation of organizations contains specialists.[86] The resource partitioning approach predicts that when an industry or market is dominated by large generalist organizations, specialist organizations proliferate.

Boone et al. described two issues that account for the emergence and growth of specialist organizations. The first issue was related to the causes in the trend in

market concentration of industries for a considerable period of time. The second factor addresses why specialist-small organizations appear and flourish in certain mature industries, given that both generalist and specialist organizations operate in same industries. "The core theoretical imager of resource partitioning relies on notions of crowding among organizations in a market characterized as a finite set of heterogeneous resources. Organizations attempt to find viable positions within this market by targeting their products to various resource segments. Specialist organizations choose narrow homogeneous targets, while generalist organizations targets composed of heterogeneous segments."[87] Boone et al.'s study supported the resource partitioning theory's assumptions that specialist organizations tend to have a niche and locate themselves in "resource space that lies outside the generalist target areas." When resources are thin/limited, specialist organizations tend to be small and are more likely to be invaded by generalists forcing them out of business. Accordingly, the amount of space available for specialist organizations to operate is critical. The prediction is that "as overall market concentration rises, the viability of specialist organizations increases as well."[88]

RESOURCE PARTITIONING AND NICHE WIDTH. Swaminathan applied the resource partitioning ecological theories of niche width—broad or narrow—to explain the founding and death of generalist and specialist organizations in the mature industries of wineries. The study supported the resource partitioning model assumptions that when the level of market concentration increases in mature industries, there will be an increase in the death rate of generalists. The ones who are able to survive are able to control the market by moving to the center. When generalists move toward the center, there is the problem of crowding, which increases the death rate of generalists. Those who are able to survive use "economies of scale of production and marketing," which assumes that "the best location for a generalist firm is the center of a concentrated market." Accordingly, as a result of overlap by generalists, "the total resource space covered by generalist-firms is smaller than it would be in a competitive, un-concentrated market where firms offer differentiated products or services."[89] In contrast, when the market is concentrated, specialists in the periphery have access to resources located on the periphery and are able to differentiate and segment their markets on the periphery without facing competition from the generalist industries. Swaminathan accounted the differences in the founding and death rates between generalists and specialists to differences in these two subpopulations of organizations in the resource location.[90]

The amount of resource space that is available to specialist organizations depends on geographical location. Lomi found that geographical location and spatial surroundings were primary factors in shaping the evolution of organizational populations—agricultural credit unions and rural banks in Southern Italy. The study ascertained that location provided an ecological advantage for the birth and death rates of certain population of organizations, in this case,

specialized rural banks, than the internal structure of organizations.[91] Environmental attributes related to geography, space, and social and economic conditions provided favorable climate for the founding, diffusion, and growth of certain specialized organizations.

Carroll and Swaminathan, in their study of the brewing industries, suggested that location and organizational form identities—smallness, quality production, cultural factors related to differentiation, and uniqueness of product—played central roles in strengthening specialist organizations. Legitimacy as a beer specialty producer and identity associated with status and personal attraction were critical in both product appeal to consumers and increased opportunities for survival and growth for specialist organizations.[92] In a related study, Swaminathan noted that specialist winery organizations worked together to establish a collective identity that is distinct, to counteract the threat from generalist organizations. Through trade shows, conferences, and other forms of advertising, the organizations attempted to maintain the authenticity of their identity in their size (smallness), reputation, and quality of their products. If it so happens that generalists are able to incorporate some of the uniqueness identity characteristics of the specialist organizations in their products, they can reduce the chances for specialist organizations to grow and prosper. Swaminathan attributed this product differentiation strategy to economies of scale advantage that enable mass producers' wineries to offer a wide variety of wine products to both the mass and specialized markets. When there are higher levels of industry concentration, greater homogeneity of organization develops, contributing to the decline in the founding and increased death rates of specialized organizations.[93]

It can be inferred that industry concentration and organizational density generally accounted for the increase or decrease in the founding and death rates among specialist organizations. The ecological approach considers external environmental pressures associated with the number of organizations in a competitive environment (i.e., density and the environment's carrying capacity to support a given number of organizations) affects selection by favoring other forms through rules, regulations, economic incentives, and political rulings and legislation that restrict other organizations from entering the market. Selection as an evolutionary process decreases the founding rates when external environmental factors, for example, entry of foreign firms, affect competition.

Sorenson provided examples from the automobile industry in the United States, where the Japanese entry affected negatively the founding rates by increasing the retention rates among existing members of a population. That is, both selection and retention have different effects on entry rates: retention increases entry rates, whereas selection decreases founding rates. Sorenson attributed the effects of retention and selection on entry rates to their interactive processes. "First, selection might increase the average fitness of the remaining organizations making entry into the niche less attractive, as hypothesized. Second, high retention rates could signal entrepreneurs that the niche provides attractive

business opportunities since a high retention rate implies that few ventures fail." Retention in this case "simply measures population pressures," as retention increases population density/competition.[94] When there is retention, existing members of a population interact, learn better to adapt, and increase their overall fitness to the environment without selection. When there is selection, there is an increase in mortality rates of existing organizations and an increase in the entry rates of new organizations. Accordingly, the increase or decrease in selection pressures can be accounted for by the degree of organizational density, legitimation, and competition.

ORGANIZATIONAL DENSITY: LEGITIMATION AND COMPETITION

Population density refers to the number of organizations within a population. The ecological approach assumes that density influences the growth and decline in organizational population.[95] Freeman ascertained that density dependence, which is related to the proportions of organizations within a population, "generates homeostatic processes in populations, that is, it generates equilibrium levels toward which population size adjust, usually at a decreasing rates."[96]

When organizations evolve over time, they increase from small to large numbers. They grow by exploiting their resources and expanding their customer base. That is, a low level of density encourages subsequent foundings because of increased market size and profit-making opportunities. As resources become scarce and customer demand falls, organizations stabilize and eventually start to decline because of saturated markets. When the market is saturated, intense competition contributes to decline in founding and increased mortality rates. Those organizations that are able to develop new technology survive, and others, who lose their technological advantage, decline or eventually die. It is the process of competition and legitimation for limited resources that accounts for the density-dependence model of organizational founding, growth, and decline.[97] Over time, organizations go through a series of phased stages of growth and decline, depending on the interaction of legitimation and competition. Accordingly, legitimation and competition have become two important factors in the ecological study of organizations. To this effect, Sorenson has denoted density, which "counts of organizations in a population serve as a measurable proxy for both of these factors" in industrial evolution.[98]

Legitimation

Organization ecological approaches "focus attention on the legitimation of organizational populations, collections of organizations exhibiting a given structure or form."[99] Legitimation among organizations arises when they share cognitive frameworks that provide visions or expectation of goals and guidelines for survival and environmental fit. Ruef and Scott have identified three views of legitimacy based on "three basic components of institutions—the normative, the

regulative, and the cognitive."[100] The normative approach has an emphasis on prescriptive rules or social obligations that are widely accepted as fair and legitimate. Medical licensures or certified public accountant (CPA) certifications are examples of normative control systems. Government organization regulatory agencies and professional associations enforce regulative legitimacy by monitoring rules, imposing sanctions, promulgating regulations and laws, or enforcing professional conduct of behavior. Cognitive legitimacy is associated with the acceptance of certain beliefs and behaviors associated with the performance—delivery of products or services—of the organization. Over time, when these behaviors are communicated and incorporated as part of the vision and goals of the organization, they can become sources of normative internal legitimacy. Organizations can collectively pursue normative and regulatory legitimacy with governmental and institutional support where industry standards and performance activities are observed and maintained.[101]

When a population operates within the framework of modern institutional relationships having well-developed sources of normative and external legitimacy, legitimacy increases the resources available to existing organizations and potential entrepreneurs in a given industry, thereby expanding their leverage to exert influence on the market.[102] Legitimacy also decreases the costs associated with mobilizing these resources to found new organizations. Thus, legitimacy increases founding rates where the founding of many organizations eventually contributes to wider acceptance and legitimacy within the organizational community.[103]

Although regulatory legitimacy is associated with external regulatory agencies oversight, normative legitimacy is internal, where organizations attempt to influence the normative assessment associated with their performance. The degree of regulatory legitimacy governing managerial and technical requirements varies by organizations, depending on licensing and certification requirements. In accounting, those requirements are substantial, and external regulatory agencies from the government and professional associations such as the American Institute of Certified Public Accountants (AICPA) require high standards in managerial and technical competency to practice in the profession. Not only have these standards increased over time, but members are also required to be up to date on the latest technical and managerial skills developments in the profession, using continuing education to keep their certification. Increased legitimacy, either regulatory or normative, has the effect of increasing uniformity among members of a population and decreasing rates of mortality. Increased density intensifies competition, which could lead to concentration and consolidation of services by a few large firms, as evidenced in the concentration of accounting and tax-related services by the four major accounting firms in the United States.

It needs to be noted that when there is increased density, the population becomes differentiated. As population becomes differentiated and legitimized over time, density dependence becomes less important to competition. When the population is structured through differentiation, there is reduction in

competitive interaction, as density is reduced and declines in importance over time, when the population gets older. Such a trend contributes to the growth of large organizations that provide a wide variety of differentiated and specialized services, as in the case of the big four accounting firms. Although smaller organizations coexist, their size and numbers do not lead to density dependence to affect competition within the population.

Competition

Organizational density affects competition at higher levels of population density, while at the initial stage of organizational growth, density is generally low. As more organizations enter into the population, density increases, thereby increasing legitimacy. Legitimacy enables organizations to have access to resources, thereby increasing founding, where increased density results in intense competition. It is the nature of interdependency and overlap of resource use among members of a population to intensify competition, thereby creating more pressure and demand as the need for additional resources increases. This implies that organizations' competitive capabilities and differences in their strategic positions have a profound effect on their performance and on their ability to change or maintain their competitive advantage.[104] Although organizational learning improves performance, the more organizations face obstacles and competition pressures in the market place, the better they are likely to perform.

Barnett, Greve, and Park described the effects of increased competition on selection processes as follows: "Having many competitors increases the chances that an organization will not obtain the resources it needs, and so will fail. On the other hand, having many competitors increases the number of potential acquirers in the population, making an organization more likely to disappear through merger or acquisition when its rivals are more numerous."[105] Their study of retail banks operating in Illinois between 1987 and 1993 revealed that competition is a significant issue driving the process of organizational evolution, which shaped the strategies and structures of organizations.

In the long run, intense competition has a negative effect on founding rates because organizations will not be able to acquire the necessary resources to start new ventures or businesses. It has been found that whenever there is an increase in competition, it is followed by decreases in founding and increases in mortality rates.[106] Sorenson described how legitimacy and competition have interactive effects on population vital rates of founding and mortality when "increased legitimacy increases founding rates and decreases mortality rates, whereas increases in competition decreases founding rates and increase mortality rates."[107]

However, the effect of legitimacy and competition on founding and mortality rates is constrained by geographical boundaries. According to the organizational ecology literature, legitimation has no geographical constraints and encompasses national boundaries.[108] Competition is mostly a local phenomenon and is bound

by location and regional boundaries and largely driven by availability of local resources, where resource endowments can positively affect and depletion can negatively affect legitimacy and competition.

Competition is not entirely a density issue but is also related to organizational size. Ranger-Moore, Breckenridge, and Jones have related organizational size to growth rates and competition. They suggested that growth rates in organizations decline, as a function of size is related to organizational inertia, where inertia limits the opportunities of organizations to innovate, grow, and compete. That is, older organizations, because of their size, are inert and slow to change, and organizational age has a negative effect on growth rate. When organization size dictates strategy and structure, organizations of the same size compete more aggressively with each other than with organizations of different sizes. Accordingly, growth rate in same-size organizations is mostly influenced by internal conditions (inertia) or external factors (competition) from similarly sized organizations. However, "organizations of different sizes require different types of resources, which could result in size-localized competition." That is, in ecological studies, in addition to population, "organizational size *relative* to the sizes of other organizations in the population" needs to be included.[109] If organizations of the same population are different in size, they may not compete equally for resources, as well as experience equally the intensity of competition.

Accordingly, localized competition is thus specific to a certain population that has distinguishable characteristics from others. Size localized competition thus accounts for size distributions or variations among organizations within a given population.[110] Although "organizational size has a significant effect on vital rates (i.e., founding, failure, entry of organizations," inertia may account for organizations' abilities to perform and survive, thereby reducing failure rates.[111] Overtime, organizational inertia reduces their ability to adapt and compete, contributing to organizational failure and mortality.

The Ranger-Moore study of the New York State life insurance industry from 1860 to 1985 showed that because "size and growth are negatively related: the larger the organization, the lower growth rate," suggesting an inference to the effect that "growth rates decrease as size-localized competition increases." The authors reported that when there is an increase in competition from similarly sized organizations, as is the case with the life insurance industry, growth rate decreased. They accounted the decline in growth rate "as measured by the total value of policies issued" by insurance firms.[112] Overall, it was ascertained that organizations of the same size experienced intensified competition and experienced lower growth rates. However, because life insurance firms have primarily financial (liquid) assets holdings instead of production (physical plant that have sunk costs) assets, they showed less inertia, although the negative effects of size on inertia in general applied to them. It was, rather, the combined inertial forces from size and age that reduced growth rates in organizations, as evidenced by the New York State life insurance industry. The Ranger-Moore study identified two dimensions—size and age—in addition to density as causing intensified

localized competition among organizational population, contributing to decreases in founding and growth and relatively minimal effects on mortality rates.

ORGANIZATIONAL DENSITY EFFECTS ON FOUNDING AND MORTALITY RATES

Organizational ecology studies of legitimation and competition have related founding and mortality rates to density, where at low levels of density, founding rates of organizations rise, and at high levels of density, they decline.[113] Lomi and Larsen have suggested that the recurrent pattern in organizational growth, stability, and decline has been influenced by forces of legitimation and competition. Whereas legitimation is embodied in accepted and established institutional rules, competition arises because of resource constraints and organizations' dependence on the availability of these similar/related scarce/limited resources.[114] Accordingly, the rate of organizational growth—founding or death—is dependent on the forces of legitimation and competition.

Carroll and Hannan[115] gave examples from the newspaper industry to account for the effects of competition in decreasing the size of the geographical markets, and thereby increasing mortality rates. The authors reported that as newspapers grew in numbers, they achieved legitimation. At the same time, there were increases in competition, followed by decline in the size of the locality market and reduction in the number of daily newspapers. Those newspapers that have advantages of size and economies of scale over their competitors were able to monopolize and consolidate their local markets. When retention rate increases over time, it resulted in an increase of population density, which increased competition. While the daily markets declined, specialized newspaper markets experienced growth.

Selection in the newspaper industries was shaped by competition, age, and political changes that have broader implications on the local market.[116] Accordingly, the possibility that a particular organizational form (i.e., from the newspaper industry) will survive than other organizational forms could result in weeding out less efficient firms, thereby reducing competition within the industry.[117] In localized competitive situations, when organizations' resources overlap with other firms, because of selection, some firms' resources overlap with other firms, some firms will leave if it is crowded. The Baum and Singh study of daycare centers documented the consequences of overlap and nonoverlap densities within a population and its effect on resource requirements and mortality rates. Their study revealed that when there is overlap density, it increases mortality rates. Conversely, when there is non–overlap density, it is negatively related to mortality.[118]

Sorenson suggested that although selection improves a population of organizations' fitness to the environment, it also "decreases competitive intensity among surviving firms by distributing them more evenly across the resource space." Those firms that usually fail are mainly in crowded segments, rather than in the sparse resource segments.[119] However, learning and experience, which improve with

the age of the organization, provide better competitive ability and interaction with the environment and increase retention rates within the population.

Nevertheless, the effect of legitimation and competition were confounded by geographical boundaries. It has been ascertained that when compared to legitimation, competition is constrained by physical and political barriers. Bigelow et al. used geographical boundaries or demarcation to differentiate legitimation and competition within organizational population. They examined the American automobile producers to test the organizational ecology theory of density dependence, "that legitimation takes place at a broader level of geographic density while competition occurs at a more local level of analysis."[120] They found that "geography and physical distance [have] different scale of effects of legitimation and competition rather than nation-state political boundaries" for the American automobile producers.[121]

As a follow-up to the Bigelow et al. study, Hannan et al. used a larger sample that allowed for a comparative study of the European automobile manufacturers to test the ecological theory of density-dependence of legitimation and competition. They reported that during the early stages of organizational evolution "legitimation typically operate[d] on a broader scale than competition."[122] At the organizational growth stage, competition tended to be more local compared to the legitimation of the institutional environment, which tended to have a broader scope and operated across boundaries, regions, and countries. The authors noted that whereas competition has a national process among countries and manufacturers, legitimation, which requires acceptance leading to institutionalization, is a continental-wide "European-wide process."[123] Both the Bigelow et al. and the Hannan et al. studies documented that both legitimacy and competition have different effects on organizational founding and failure rates.

McLaughlin and Khawaja extended the Hannan and Freeman framework of legitimation, in which they defined legitimation in relation to the size of the market for environmental ideas. The authors denoted market size by the number of print books published dealing with environmental issues. Whereas their definition and extension of legitimation was slightly different than the ecological approach (see Hannan and Freeman[124] attribution of legitimation in relation to the number of organizations in a given population), their study nevertheless supported the ecological effect of legitimation on founding and competition for mortality rates of environmental organizations.[125] That is, legitimation was related to the founding rate of environmental organizations because an increase in the number of books published on environmentalism contributed to founding. An increase in the number of local and regional environmental organizations not only intensified competition but also contributed to a declining rate of national environmental organizations. It can be inferred that environmental issues have geographical boundaries that limited growth in local and regional environmental organizations, which in turn, have negatively affected the founding rates of national environmental organizations.

Ecological studies have used geographical location and boundaries to better specify the relationships between density dependence and organizational

founding rates. To this effect, Lomi has noted that if founding rates are location dependent, the responses to founding and decline are locally dependent—local region to geographical location, small or large—which affected organizational heterogeneity.[126] The implication is that potential founders are more likely to be more responsive to local variations of legitimation and competition when local conditions of market, capital requirements, labor availability, changes in investment laws, political factors, and environmental uncertainty are present that direct affect their businesses, instead of national events in distant areas that do not have bearings on local and regional competition.

Lomi and Larsen ascertained that location or spatial structure shaped evolutionary dynamics because the process, structures, and functions of organizational populations are described within the context of geographical space and longitudinal time period. The authors implied that "location dependence may be a general process affecting the vital rates in organizational populations."[127] Lomi corroborated that spatial factors of location and geography are relevant in the ecological study of organizational change processes, particularly for specialist organizations; for example, agricultural credit unions (banks) in Southern Italy. Accordingly, "ecological factors related to location will be of critical importance for the survival of these specialist banks because large-scale institutional change is rapidly eroding the historical, legal, and cultural boundaries around populations of banking organizations in Europe."[128] Geographical proximity has also positive effects on technological innovation and diffusion by enabling these organizations to collaborate on new products and technologies.[129]

In the long run, concentration of organizations as a result of location or geographical factors could contribute to uneven regional development. However, decentralization and devolution have enabled large organizations to become more responsive to local needs and to serve as agents for local regional economic transformation. Diversification, product innovations, reorganization, and competition not only contributed to market integration but also enabled large organizations to recognize that involvement and contribution to local and regional development promoted the growth of their businesses.

In addition to geographical factors, Singh and Lumsden noted that historical conditions and the prevailing social structures need to be considered on founding to determine whether those conditions have imprinted on the organization processes and structures. In most cases, some of the characteristics acquired at founding become persistent throughout the organization life history.[130] Although differences in organizations in form, fitness, and age are related to founding, these characteristics also influenced the later behaviors and actions of organizations, including mortality rates.

The effects of organizational founding and mortality on mobility have been extended by Greve and Fujiwara-Greve[131] and Haveman and Cohen.[132] Both studies found that organizational founding, which contributes to sustained growth and size, also increased interorganizational mobility. In contrast, organizational dissolution through mergers or acquisitions or mortality decreased mobility.

De Geus compared the mortality rates of business organizations to what is commonly referred to as living companies; for example, churches or universities. The study showed that in general, corporate death rates among business organizations are mostly premature and excessively high. When compared to living animals, or other institutions such as churches, armies, or universities, corporate death rates tended to be unusually high, untimely, and unnatural. Most companies die because they focus on capital, labor, and other economic issues and do not see the big picture that a living business includes a community of people in addition to labor, capital, and economic profit and technological change. In other words, long-lived organizations are living companies. They have personalities that define "who they are, understand how they fit into the world, value new ideas and new people, and husband their money in a way that allows them to govern their future."[133]

According to de Geus, living companies are capable of managing change and are able to transform overtime as technology changes. Living companies are conservative in their financial affairs by avoiding risks and using their capital only when opportunities for investment or venture are attractive. They also pay attention to the world issues/changes around them. In addition, they have clearly developed identities ("logo") and pursue technological changes/innovations and are tolerant and welcome new ideas and technologies that are not directly related to their areas of business expertise. They are willing to undergo change to survive.[134]

De Geus denoted that the success and the longevity of life of living organizations depend on the value they place on their employees and organizational learning. The implication is that living companies not only value their employees (labor force) but also give them power and control over their activities by encouraging them to participate in decisions that affect the long-term growth of the company. Through organizational learning, living companies acquire new ideas and skills that would enable them to be innovative.[135]

Because living organizations have long-term tenure, de Geus asserted that they can shape and change human communities and surroundings and use their environmental resources responsibility to ensure their continuity from generation to generation. In general, when living organizations live longer and organizational loses and death are avoided or minimized, societies and organizational communities, including shareholders and employees, benefit from organizational living or continuities.[136] Nevertheless, organizations' persistence in maintaining longevity creates inertial pressure to preserve and modify, if necessary, existing structures to adapt to environmental changes.

ORGANIZATIONAL INERTIA, ADAPTATION, AND ENVIRONMENTAL CHANGES

According to Hannan and Freeman, inertia pressures on organizations arise "both from internal arrangements (e.g., internal politics) and the environment (e.g., public legitimation of organizational activity."[137] Inertia is denoted as being

related to indifference to change by relying on past historical achievements. It is embedded in organizations because inertia represents an accumulation of individual organizational members' resistance to change. When there is inertia, the underlying assumption in inertia is that there is a persistence pattern among organizations to maintain existing activities even in situations where there are environmental changes.[138] Inertia largely involves the retention of the existing organizational design archetype.[139] Although the environment is constantly changing and organizations adapt to these changes, the forces of inertia reduce the speed of structural change required to adapt to environmental changes.[140] Over time, the cumulative effect of tension between inertia and environmental change results in organizational innovations and change.

Wong-Ming Ji and Millette provided the "in" theory of organizational change as a framework to resolve organizational tension/conflict brought about by the interactive forces of inertia and innovation. They argued that because "inertia is embedded within the status quo of organizations," innovations of new ideas and developments contribute to organizational members' awareness that inertia exists and has to be challenged.[141] This discourse creates tension or conflict between inertia and innovations. The authors suggested that this tension between the two opposing forces of inertia and innovation can be resolved through organizational change, which may involve either adaptation strategies or selection.

From an ecological perspective, the adaptation approach assumes that "subunits of the organization, usually managers of dominant coalitions, scan the relevant environment for opportunities and threats, formulate strategic responses, and adjust organizational structure appropriately." In adaptation, there is a focus on "a hierarchy of authority and control that locates decisions concerning the organization as a whole at the top."[142] Managerial actions, policies, and strategies affect organizational environment relations. Successful managers who are able to acquire slack resources are in a better position to buffer or insulate the organization from extreme environmental changes. Slack is related to organizational size. Slack enables organizations to adapt to environmental changes because it provides "a large enough margin for error so that failure in an adaptation attempt causes no lasting decrement to effectiveness outcomes."[143] However, when resources become scarce, subunits will assume power and control over internal resources as these resources become critical for organizational survival.[144] Romanelli and Tushman noted that conflict is essential to change and that there are advantages from conflict, as "conflict in organizations" becomes "a critical process determinant of adaptation."[145] Leadership plays an important role in the adaptation process by developing and formulating strategies that will enable the organization to adapt to environmental changes. Adaptation strategies are enacted so that there is a balance between the structure and environment relationships.

It is generally assumed that the potential reciprocal adaptation change management in the environment–organization relationship is part of the ecological paradigm. Everett, in his work on public relations theory, proposed that the

"concept of organizational adaptation is central to the ecological paradigm," since "organizational adaptation refers to the process by which some degree of fitness is reached between an organization and environment."[146] Because mangers develop strategies to adjust organization changes, adaptation process is related to the ecological approach where fit between the organization and environment characterize the relationships.

Eisenhardt and Galunic applied a coevolution theory, a biological application to business, to describe the nature of interdependency, adaptation, and evolution over time in organizations. The authors viewed the corporation as an ecosystem in which the forces of collaboration and competition regulate markets and organization performance. When markets become competitive, business organizations need fewer collaborations or balanced links.[147] Business unit managers take control of strategic and operating decisions to meet market requirements. Whereas collaboration is needed to build multibusiness teams, collaboration may not necessarily lead to better adaptation and performance. It is, rather, the leadership and management decisions that become critical in adaptive strategies.

Hannan and Freeman differentiated between adaptation and selection of organizational change in relation to environmental changes: stable with moderate changes or unstable with volatility changes. They suggested that when there are stronger environmental changes and pressures, there is less organizational adaptability. It is more likely that organizational selection is the relevant approach to explain the organization–environment linkage. Whereas adaptation examines the broader general interface of the organization and the environment, it understates the subunits and their differential access to environmental resources. That is, adaptation process examines the overall fitness of the organization with the environment. Therefore, fitness, within an adaptation framework, is viewed "as the probability that a given form of organization would persist in a certain environment."[148]

The problem in ecological adaptation, according to Hannan and Freeman, is that unless the environment is favorable to the organization, the organization will not flourish. If the environment variation changes, organizations then have to experiment with trial and error to select the appropriate strategy for that given environment. In this process, there is an interplay of organization–environment variation and competition in the "determination of optimal adaptive structure" to deal with uncertainty.[149] It is these structural and strategic changes that make the adaptation strategy the appropriate change strategy under conditions of stable environmental conditions with minimal variations. Chapter 4 discusses those adaptation change strategies that are applicable to environmental conditions experiencing relatively stable or minimal variations.

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CHAPTER 4

Adaptation and Organizational Change

Organizational adaptation change addresses those external and internal factors, including governmental, technological, and transactional cost factors (discussed in Chapter 1), that affect organizational change, as well as management accounting and control systems in organizations. In general, adaptation change refers to both internal process changes as well as external environmental factors that affect the performance of organizations and their environmental management accounting and reporting systems. Adaptation theories indicate that changes in organizations' policies, strategies, structures, and behaviors are brought by responses to environmental conditions. Chapter 4 presents several adaptation themes—systems approach, cultural change, organizational learning, and organizational development—that enable organizations to respond to environmental changes. Adaptation enables organizations to handle environmental changes by choosing those adaptation strategies that can sustain or improve their performance over time. It is pursued when the degree of external environmental pressures on organizations to change are lower or minimal.

Adaptation change is not likely to alter existing performance, but it is pursued to sustain or maintain current performance levels. It ensures that there is a fit between the organization form and the environment. It is expected that those organizations that are fit or suited for the environment have better chances of succeeding and being responsive to environmental changes. Therefore, adaptation as strategy of organizational change is appropriate when the environmental changes are favorable to the organizations' structures, policies, activities, and performance objectives.

THE ROLE OF EXTERNAL FACTORS IN ORGANIZATIONAL ADAPTATION PROCESSES

The adaptation framework pays particular attention to the effect of external environmental factors and market conditions on organizational change and development. Barnett and Carroll presented the adaptive change approach as more suited as an organizational change and development approach to study high growth and emerging companies.[1] During the last 15 years, there has been tremendous growth in public accounting organizations through mergers and acquisitions. They have also extended their service beyond the traditional accounting function of tax and auditing into management consulting and information technology. Although the accounting organizations have not changed their core businesses of tax and auditing, they have experienced growth in related service areas. It is rather evident that they have adopted an adaptive strategy that emphasizes organizational growth—but an incremental growth that focuses on meeting current environmental changes without changing the main operating activities of the organizations. In other words, adaptive change strategy ensures that the organizations' operating performance fits and can handle these environmental changes.

Barnett and Carroll maintain that adaptive organizational change process "assumes that change in the world of organizations occurs mainly through the adaptive responses of existing individual organizations to prior changes in technology, environment or whatever."[2] The adaptation approach primarily focuses on the analysis of the external environment and how it affects organizational change strategy and environmental accounting and reporting systems. Since the 1970s, external environmental factors, particularly governmental regulatory agencies, have played active roles in shaping organizational adaptation change strategies, including environmental resources management programs and accounting reporting systems.

The adaptation change approach is being used to selectively pursue organizational change and development strategies that facilitate continuous growth. When organizations selectively replace old forms, new forms represent the method by which environmental changes take place among populations of organizations. In the process, environmental changes, both internal and external, contribute to the development of new organizational policies and procedures. Substantial shifts in strategies and policies require changes in management accounting and reporting systems consistent with organizational change and development to sustain organizational competition and functional adaptation of accounting systems. The organizational adaptation change approach considers organizations as systems that are both adaptive and functional, but they also incorporate and manage transaction costs associated with technology, production, and innovation that can occur as a result of organizations' interaction with their external constituencies, including customers, shareholders, and employees as well as competitors.

Organizations, as open systems, have subsystems that are interdependent with one another and that are involved in managing the environmental transaction costs associated with technology, production, distribution, and delivery of products and services. The management of environmental and ecological programs and accounting systems can become instrumental in explaining the relationship between the functional approach to organizational change and the effect environmental factors, including technology and competition, have on the effectiveness in sustaining or improving organizational performance. The natural selection approach indicates that a population or an organization response for adaptation to environmental change depends on the magnitude of structural inertia in organizations.

An analogy of the selection, adaptation, and fitness trade-off in plants and other species can be made to organizations. Agarwal used selection experiments to study the effect of selection on adaptation and performance. It is apparent that "selection experiments are a powerful tool to investigate genetic trade-offs and the potential for adaptation. By selecting on particular traits, Agarwal was able to observe associations that might otherwise be difficult to detect using quantitative genetic techniques. The findings from selection experiments reveal that "local adaptation to host plants may be genetically correlated with reduced performance on other hosts and with altered host-plant preference. Adaptation to particular environments is often associated with responses in other phenotypic traits. If performance and preferences are positively associated and vary quantitatively on alternate hosts, local disruptive selection may be able to maintain genetic variation in populations of herbivores. Trade-offs and adaptation to host plants may often be subtle, and trade-offs may be difficult to detect by direct measurements, especially under apparently benign conditions."[3] The study showed that selection is a natural process that involves a trade-off between adaptation and fitness, and that adaptation to an environment contributes to an initial decrease in performance that improves over time, as the process of fitness with the environment improves gradually.

NATURAL SELECTION PROCESS, INERTIA, AND CHANGE ORIENTATIONS

Natural selection theory is a dynamic model that examines the continuous interactions of organizations with their environment. "The selection logic can explain variation in organizational characteristics that do not themselves have survival implications."[4] According to selection, a system of interconnected features such as organizational structures, capabilities, and resources also has an effect on a company's decision to adapt to its environment. In other words, organizational inertia becomes significant when a firm is confronted with environmental change.[5]

Environmental change affects organizational responses and fitness to handle environmental changes. Environmental dynamism describes the rate of environmental change and the degree of instability of factors within a given environment. When the environmental change is dynamic, managers face too much uncertainty that may present limited sets of loosely developed alternatives. In these situations, they have a few guidelines and evaluation techniques they can use to select the best alternatives.

Siggelkow described four different cases to demonstrate that environmental change can affect both external and internal fit: no change—the environmental change has no relevance to the firm, detrimental fit—destroying change—if both the external and internal fit are affected, benign destroying change—internal fit has been compromised by the environmental change, and fit—conserving change—external fit is affected.[6]

When the natural selection process is in operation, it can identify those organizational populations whose demographics can be analyzed, and its success can be determined on the basis of organizational characteristics and capability levels of organizational selection. Although selection pressure is generally organizationally specific, an organization can reduce the pressure on itself while increasing the selection pressure on its rivals. "Selection pressure can be considered to be firm specific, rather than an immutable, blind, exogenous dimension." The managers of firms have to craft and execute their strategies to escape from or lessen the effect of the selection pressure and enhance the selection in other markets.[7]

Accordingly, structural inertia, population species definition, and environmental selection form the basis of population ecology perspective on organizations. First, the inertial pressures have great influences on organizational structures. These inertial pressures might arise both from structural agreements and from environmental constraints. It is known that when the inertial pressure becomes stronger, this lowers the organization's adaptive flexibility. Second, the population ecology model emphasizes organizational populations within a species as an important unit of analysis. Finally, it is assumed in the population ecology model that the environment determines the distribution and form of organizations through selection.[8] These three major issues become interdependent and vital to the organizational evolution models. Accordingly, "organizational ecology sees organizational structures evolving as a function of environmental selection. When environmental conditions change, new organizations or new forms of organizations emerge, and adapted organizations die."[9]

Selection within populations of organizations in modern societies favors organizations whose structures have high inertia. Because structural inertia increases monotonically with age, organizational death rates decrease with age. Attempts at reorganization of current structure results in increase death rates. Complexity increases the risk of death caused by reorganization.[10] The presence of organizational inertia, therefore, accounts for the orientation of an organization to adapt to environmental changes.

INERTIA AND DECLINE EFFECTS ON ORGANIZATIONAL CHANGE

Inertia results in organizational decline. Rosenblatt, Rogers, and Nord listed characteristics of organizational decline as including rigidity in the structuring of activities because of centralization and bureaucratization; organizational politics arising as a result of conflict of interest, scarcity of resources, and uncertainty; lack of innovation and unwillingness to take risks; and decreased morale among employees.[11] When there is a decline, organizations can manage decline by being flexible to change their mission-priorities, goals, and structure and by realigning their staff and resources. Because decline results in failure, it can be avoided only through changes in performance.

It is widely accepted that change is beneficial for those organizations that are experiencing decline or as considered as low-performing organizations, because change enables them to move to the center of the market. However, the effect of change on performance depends on the size and age of the organization. It is likely that inertia deters change in performance in the high-performing, large, successful organizations. In the short run, as the inertia theory indicates, change contributes to decline of performance in these organizations, particularly if they are old and mature. In general, inertia attributed to organizational change is mostly related to changes in the organizational core—marketing strategy and production technology, among others—which affects relations with the organization's stakeholders (customers, shareholders, or employees). These changes require adjustments in related parts of the organization, which creates uncertainties and ambiguities that constrain change.[12]

Although change temporarily disrupts the organization's tasks, routines, and relationships with the environment, decline in performance eventually improves once the organization reestablishes and reinforces existing or new relationships with those actors and stakeholders of the organization's environment. Compared to small organizations, large organizations have enough resources to circumvent failure from inertia arising from low performance resulting from change. The liability of change is likely to decrease over time as these organizations introduce new policies to overcome the shortcomings of prior changes.

Greeve substantiated the effect of change on performance on the U.S. radio industry from 1984 to 1992. Radio stations choose their market and position themselves to compete by providing music and related programs that appeal to their targeted audience groups. The radio market is segmented by demographic groups—age, sex, income, and occupation—and the delivery of music and other programs is targeted accordingly. Whenever changes are introduced in radio programming, they involve format changes to retain current and attract new listeners. These format changes are expensive because they require "staff changes, market surveys, or help from format consultants." These format changes may affect relations with advertisers who may "withdraw advertising to renegotiate rates" because of an expectation of a decline in listeners after change

has been instituted. Disagreements over the formats of change have the potential to strain relations with the advertisers, customers, and external stakeholders. In competitive market situations, organizations tend to position themselves in markets that gave them "high and reliable performance" by leaving the uncertain markets.[13] When organizations face uncertain markets, they revise or change their policies or positions consistent with the market demands.

ORGANIZATIONAL AGE AND SIZE INFLUENCES ON GROWTH AND DECLINE

The failure rates of organizations tend to decline monotonically as a function of size. Compared to small organizations, large organizations have relatively extensive resources, favorable tax laws, and government regulatory agencies and can exert influence over environmental fluctuations, especially competition, either by "monopolizing key environmental resources or by exerting control over their institutional environment."[14]

When it comes into aging, "organizations experience a monotonic liability of aging that is reflected in a failure rate that increases at a decreasing rate with age."[15] There is a liability of smallness where young organizations are more likely to experience high failure rates compared to old organizations. Nevertheless, as organizations go through a learning experience, the failure rates decline monotonically with their age. Whereas age reduces failure rate, older organizations do relatively well in stable environments, and their failure rates are low. In dynamic and volatile environments, failure rates for older organizations are higher and lower for younger organizations. Because inertia forces accumulate with age, they result in obsolescence, which during environmental turbulence, creates panics and uncertainty, resulting in increased mortality or failure rates among older organizations.[16]

In addition to the failure rates, organizational size has an effect on the growth rates. Growth rates are observed to decline as a function of size, supporting the idea that the accrual of organizational inertia reduces the ability of organizations to capitalize on growth opportunities.[17] Whereas growing organizations tend to be less adaptable to changing environment conditions, increased organizational inertia makes these organizations more accountable and reliable, resulting in enhanced performance. In general, environmental periods characterized by government regulatory periods, economic depression or downturn, or growth periods increase or decrease organizational death rates.

However, organizations of similar size engage in fierce competition with each other rather than with organizations of greatly different sizes. The reason is that organizations of different sizes require different types of resources, which could result in size-localized competition. The Ranger-Moore, Breckenridge, and Jones study of the New York life insurance industry revealed that the relationships among size, growth, and competition lead to three results: organizational growth rates decreased as organizational size increased, growth rates decreased

as size-localized competition increased, and the effects of density or size-localized competition will be more highly statistically significant when the measure of size-localized competition is adjusted for density.[18]

Organizational Life Cycles: Staged Theory of Growth

The process of organizational birth, growth, maturity, decline, and mortality is based on the theory of organizational life cycles and failures. Wholey and Brittain argued that environment influences the processes of organizational life cycles and indicated that environmental conditions and slack resources contribute to organizational growth.[19] Organizations become generalist or specialist depending on environmental conditions: stable or volatile. When environmental conditions are stable, organizations become specialists. Volatile environmental conditions increase uncertainty, and organizations become generalists to diversify the risks associated with uncertainty.

Wolf suggested that there are cognized models that represent the conception and understandings of environment by the people who live, act, and interact with the environment. For these people, the environment guides their actions, beliefs, cultures, and rituals. The environment molds the changes, compositions, and relationships among them and their entities.[20] These cognized models also explain the actions and strategies organizations adopt to manage their environment. They are expected to vary depending on the condition of the environment: dynamic or stable and resource availability: slack or scarcity. When resource conditions are slack, environmental conditions are favorable to support growth. In contrast, when organizational resources are scarce, organizations adopt retrenchment strategies that enhance the organization's goal for survival and adaptability to environmental changes.

The theory of organizational life cycles thus uses a biological analogy to social systems to explain that life cycle growth is associated with age and that organizations pursue strategies of growth, survival, or death to manage their external environment and competitors. Freeman referred to the life cycle process as "patterns over time through which new organizations come into being, change, and disappear."[21]

Whetten applied the life cycle theory to examining the sequential growth of organizations. The growth stage involved four methods in which organizations can grow. The first method is growth in organizations' existing domains, where organizations expand their current activities that they have done well. The second method is through diversification into new domains, where organizations spread out their risks across several product lines. The third is through technological innovation or development. The fourth method is growth through improved managerial techniques that involve improved efficiency of management administrative processes and turn-around strategies.[22]

Theories of external or environmental control of organizations indicate that there are positive and negative consequences associated with organizational

growth. Growth indicates that an organization has been able to acquire the necessary resources that contribute to increased size. In general, organizational growth occurs when management uses resources, goals, priorities, and commitments to satisfy customer needs for products or services. When growth results in increased size, organizations have advantages over economies of scale because of efficient use of resources, become competitive, and if they diversify, are able to spread their risk across several industries, product lines, or services. Growth enables organizations to reduce their dependence on the environment and minimize external influence on the organization's activities.[23]

In contrast, there are also dysfunctional consequences of growth that are associated with complexity, rigidity, inefficiency, and inaccessibility. As organizations increase in size, profitability and innovation usually diminish with increased size. The organizational learning process focuses more on managing growth through formal management control systems, resulting in increased communication and coordination activities; bureaucratization of rules and procedures; management hierarchy of offices and positions; and specialization of jobs, all contributing to monotony, repetitiveness, and less autonomy, as well as mechanization of work and mass production and job alienation.[24]

Incremental and Transformational Organizational Growth Strategies

Organizational growth may occur through incremental or transformational change strategies. Incremental growth involves gradual change, whereas transformational growth is accompanied by revolutionary change. An incremental change involves minor modifications or adjustments in an organization's strategy, policy, or structure. Incremental changes are common in organizations' production activities when innovations are undertaken to improve current activities to reduce costs and increase efficiency of production.

In contrast, transformation involves fundamental changes in strategy (where there is an exit or entry strategy in an industry), structure (reorganization to align functions, change management titles and managers), and power distributions (through turnover) in an organization. Real fundamental transformation requires revolutionary changes that require altering or changing "systems, strategies through short, discontinuous bursts of change over most or all domains of organizational activity."[25] In a true transformational change, there is a punctuated equilibrium, where there is a relative frequency that is high enough to sufficiently affect a change in form or substance for a true overall change in the system to occur.[26]

Organizational learning involves a gradual or transformational change strategy. When organizational change focuses on adaptation processes of managing growth, it involves incremental–first order change learning. When organizational change is accompanied by organizational response to natural selection process of new forms, it results in transformational–second order change learning. Incremental change is a mechanistic approach that focuses on formalization,

specialization and efficiency in operations. Transformational change is broader and addresses organic and dynamic learning that is entrepreneurial in orientation and focuses on new ways to do things, search for new market opportunities and product innovations, or seek for alternative responses to environmental changes.[27]

Those organizations not implementing radical changes the first time are likely to pursue radical transformations of strategic change following a trial-and-error period of incremental changes. These radical reorientations have been undertaken primarily for two major reasons: first because of sustained low performance, and second because of the need to address major technological, social, and environmental changes. It is widely accepted that in larger organizations, greater structural complexity and interdependence require an emphasis on incremental as opposed to transformational changes. Political, technological, and economic conditions of external environment have also greatly affected the evolution of organizations and their responses to environmental changes.[28]

Organizational responses to growth, maturity, or decline and environmental changes—stable or dynamic—tend to vary accordingly by age, size, and history. Fox-Wolfgramm, Boal, and Hunt suggested that organizations have biographies that describe their responses or reactions to change. These biographies are unique and distinct to organizations and describe their identities that reflect their prior successes and are used to reinforce their identities during periods of crisis.[29] Organizational identity and envisioned image help sustain organizational change, provide a common ideology to organization members, and reinforce common strategic orientation among members. These orientations reflect those ideas, ideologies, values, and beliefs that the organization does or aspires to do. Although an organizational biography reinforces image and identity, it does not necessarily imply that those images and identity are in conformity with institutional environmental changes, and in some cases, those identities may inhibit or deter change. However, those biographies that are conducive to change become positive forces that enhance institutionalization and organizational visibility.

Although growth and change, whether incremental or transformational, increase organizational size, legitimacy, and institutionalization, thereby contributing to high visibility, it also brings increased attention and regulation from governmental agencies. These regulations shape organizational policies and strategies to meet regulatory requirements. Accordingly, regulatory requirements arising from national and state regulations lead to conformity and inertia. That is, legislation enacted to promote and limit competition, norms and values, and cognitive models of divergent change will have direct effects on organizational change. For example, D'Aunno, Succi, and Alexander found that "organizations that meet regulatory requirements in their fields are less likely to make divergent changes," whereas "organizations that are members of multidivisional firms are more likely to make divergent changes."[30] In large, complex organizations with multidivisionalized structures, performance of divisions or branches will decline after a core organizational change takes place, when compared to small and unitary organizations.[31]

Irrespective of size, organizational performance can vary as a result of differences in strategic positions and competitive capabilities. Although organizational learning influences organizational performance, the more organizations face competition in the marketplace, the more likely they are to perform better. However, competition minimizes resource availability and increases organizational dissolution through mergers and acquisitions. For example, according to Barnett, Greve, and Park, "having many competitors increases the chances that an organization will not obtain the resources it needs, and so will fail. On the other hand, having many competitors increases the number of potential acquirers in the population, making an organization more likely to disappear through merger or acquisition when its rivals are more numerous."[32] Their study of all retail banks operated in Illinois from 1987 to 1993 revealed that competition is a significant issue driving evolution. Organizational evolution and change are caused and then shaped by the strategies and structures of organizations, which enable them to be adaptive to survive, regardless of whether or not they learned from their experiences in the market.

ORGANIZATIONAL ADAPTATION

Adaptation has thus become one of the mechanisms organizations use to shape their context and activities to respond to environmental changes. Organizational context refers to structure, tasks, institutional environment, and strategy.[33]

Structure

Organizational structures include both formal and informal (less formal) structures. Weber described formal structure characteristics as including specialization, formalization, hierarchy, decentralization, and management control.[34] Accounting control systems constitute part of the formal structures in organizations. Informal structures, in contrast, include norms and culture, as well as leadership behavior and attributes. Organizational structures shape technological change, innovative activities, management decisions and employee behaviors. Organizational structures influence an organization's ability to respond or adapt to environmental conditions or changes.

As divisionalized organizations increase in size, their structures become complex, resulting in more management hierarchy and bureaucratization of rules and procedures to handle their increased activities. Bureaucratization eventually becomes a barrier for organizational learning. As a result of bureaucratization, organizations have tendencies to create rules when they face new problems. However, bureaucratic rules enable organizations to respond to problems as far as the current rules permit. Bureaucratization creates obstacles for organizations to react in creative manners and instead allows organizations to follow programmed procedures to handle problems.

The ecological perspective indicates five elements that come into play when addressing bureaucratic rule births. These are ecological units—formal organization rules; vital events—a rule is born, revised, and suspended; resources—on which rule populations feed; population boundaries—joint dependence on the same resources; and density—the number of rules in a given organizational rule population at a given time.[35]

The rate of rule birth decreases with rule density as the organization grows bigger over time. As organizational size increases, the number of organizational rules will also grow, contributing to rule density. This positive density eventually leads to absorption and sorting mechanisms of rules, resulting in negative density. Organizational inertia and the temporal pattern of encoding problems in rules become factors that inhibit organizational learning. At the same time, the decline in rates of rule birth may be accompanied by suspension of rules if environmental turbulence necessitates rules change.[36]

Schulz suggested that density of rules in accounting is significant, and in most cases, as accounting rules are related to the core of the organization, they are shielded from external turbulence. Accordingly, this "strong density effect of accounting rules can be seen to be a result of low turbulence. Accounting rules are located close to the core of the administrative activities and presumably face a comparatively low level of environmental turbulence (their level of rule production is comparatively low: an average of .7 rules per year.)"[37] This implies that accounting rules are less subject to structural changes and have very low birth rates. Once accounting rules are established (e.g., accounting rules related to procurement), they tend to be bureaucratized, organizational learning declines, and the rules are less likely to change. That is, when there is a rule density, they tend to be absorbed and become persistent in the existing structure. In other words, the rules absorb problems by providing solutions to current and anticipated problems. Absorption and sorting mechanisms contribute to decline in rule birth rates.

Schulz elaborated that the negative density effect of accounting to change exists because accounting involves a formal set of technical administrative rules that is relatively closed compared to ambiguous rules in other administrative areas. When there are closed systems characterized by technical and formal administrative rules like accounting, "organizational learning and organizational rule production reach organizational limits." Whereas in "informal organizations rules such as norms, beliefs, traits, cultures, and practices," rule proliferation is more open and "less inhibited, displaying no density dependence or even positive dependence."[38] Compared to formal rules, cultures can easily adapt and change as circumstances warrant.

Bureaucratization is more prevalent in production and manufacturing organizations. In a study of craft-administered construction organizations that are referred to as specialist organizations, Hannan and Freeman found that these organizations did not fit the traditional bureaucratized manufacturing model of organizations. Rather, they were able to adapt to changes in demand of

construction by "varying the mix of skills represented in their work force." These bureaucratically administered construction organizations were more specialized, and as a result, they were efficient only when demand was high and very inefficient when it was low.[39] This assumes that organizational form becomes relevant when processing information and rules related to organization activities and functions and transforming these rules into actions/responses.

Accordingly, mobility in information processing and rule enforcement becomes an indicator of fitness of organization form to adaptation processes of environmental changes. This suggests that when bureaucratized structures are flexible, the organization can be responsive to changes with minimal rule changes. If they are inflexible, the changes required are beyond structural changes and may include other aspects of the organization's contexts, including the task and institutional environments.

Tasks

The task environment includes customers, employees, unions, suppliers, and competitors, as well as regulatory agencies, including governmental organizations that affect the goal setting and attainment of organizational performance. Tasks incorporate the rules, beliefs, and customs that govern the organizations' action and tend to affect the dominance of the organization. Organizational tasks are described as those factors that are directly related to the work activities of the organization.

Institutional environment refers to the external factors that indirectly affect an organization's work activities through societal norms, resources, and constraints. Carroll and Huo's study of the local newspaper industry revealed that although institutional environmental variables have strong effects on the founding and failure rates of organizations, they have weak effects on performance. However, task environmental variables are more likely to affect performance and dominance of individual organizations.[40]

Whenever there are increases in organizational tasks, they contribute to more job creation and better opportunities for intraorganizational mobility. Studies of job mobility have directly related the creation and destruction of jobs to organizational founding rates, places where they are founded, and organizational failure rates,[41] as well as the relational position of the first incumbent who occupied the position.[42] Organizational founding is supported by the study to increase the rate of intraorganizational mobility. In addition, organizational founding is found to increase the rate of interorganizational mobility.

Organizational dissolution is found to decrease the rate of intra- and interorganizational mobility. Mergers and acquisitions are examples of organizational dissolution that have negative effects on job mobility. They tend to decrease the rate of intraorganizational mobility because of increased rate of exit from the industry.[43] Although increases in organizational founding and growth positively affect tasks, structures, and job mobility, increases in dissolution through mergers and acquisitions negatively affect tasks and job mobility.

When increases in founding and growth are accompanied by proliferation of tasks and rules in organizations, task complexity could become counterproductive to increased performance and management change and adaptation strategies. Changes in management policies and strategies become necessary to bring new orientation that would enable the organization to modify its task and job structures to undertake a different course of action. Strategic choice by management makes it possible to develop alternatives suited for adaptive change.[44]

ADAPTIVE CHANGE STRATEGIES

The adaptive change strategy considers the effect external environmental factors—competitive forces, market conditions, technological changes, governmental regulatory agencies, consumers, and owners and other stakeholders—have on organizational change and development. In adaptive change, the goal is in sustaining or improving current performance within the range of industry standards. Adaptation involves strategic and structural changes. The question thus centers on maintaining the appropriate mix of strategic and organizational structural characteristics associated with high or improved performance.

There are several perspectives on adaptive change strategies, ranging from strategic management to organizational learning. They address the need for organizations to adapt to environmental changes. They provide contrasting views to the organizational ecology inertia view of strategy. Although organizational learning focuses either on the inventions of new techniques or the improvement of existing knowledge to improve performance, strategic change addresses the choice of either adaptation or selection as an ecological and evolutionary change strategy for organizational growth and development.

ORGANIZATIONAL LEARNING

Schulz gave an overview of the organizational learning and change processes in terms of the "number of processes that create new knowledge or modify existing knowledge."[45] The learning process affects how knowledge is gathered or obtained (codified), analyzed (explored), and communicated (selectively implemented or executed or put into action). Schulz described the organizational learning process as affecting the knowledge information gathering/codification and exploration (production) as well as the distribution (dissemination) processes. The learning process (input) that subunits experience influences the process (outflows) by which the knowledge is disseminated to peers and supervising units.[46]

The knowledge production and distribution process of organizational learning is an evolutionary process in which learning evolves over time to maintain or change systems or make them adaptive to the requirements of the environment. The evolutionary perspective notes that there are internal and external constraints that give rise to organizational learning. Barnett and Hansen related the

internal constraints to the organization's history and the lessons learned from past failures or accomplishments. These internal constraints are reflected in the organization's internal structures related to strategy, policies, employees, and organizational culture including norms, shared values, and behaviors. They mitigate the external constraints to the competition or the organization's rival firms. They suggested that an organization's competition changes when its cohort of rivals that share the same strategy interaction changes. The organization is then "confronted with new rivals that do not share the organization's coevolutionary history."[47] The new rivals bring new constraints and change the dynamics of competition. Competition thus becomes a cause for an organizational evolutionary change allowing for learning to operate.

Accordingly, organizational learning involves an adaptation process by which an organization uses its knowledge and history to adapt to the changes in the external environment. When an organization faces a shortfall in performance, it searches for changes and triggers the need for organizational learning. In general, organizations adopt changes or learning when the benefits outweigh the costs. The evolutionary process of learning deals with the ecological change and adaptation of structures and organizational, sociocultural, and administrative control systems in response to environmental changes. It is generally accepted that evolutionary change occurs in increments where "systems take a series of small steps to maintain themselves, and they gradually change."[48] That is, organizational structures evolve or change incrementally when faced with new and unpredictable environments. Managers usually respond to environmental threats and opportunities gradually and incrementally as strategies and structures evolve to handle them.[49]

The competitive environment and the age of an organization influence the learning process. Age accounts for development of organizations over time. It reflects experience and affects both the learning and competition of the organization. Although both age and competitive experience contribute to lower morality rates or organizational failure, they also result in intense competition. When organizations face intensified competition with experienced rivals, they are more likely to fail than to survive. Sometimes rival firms may be eliminated through mergers and acquisitions for learning to occur across organizations.[50] At the same time, they can increase their chances of survival by learning from the experiences of their rivals.

Over time, as organizations evolve, they retain what they learned from their experiences in rules and regulations. As new rules develop to codify organizational learning experiences, the proliferation of rules leads to bureaucratization. Schulz suggested that bureaucratization is "an outcome of organizational learning" in which organizations develop new rules to address "new problems that do not seem to be covered by existing rules and when these problems are fairly recurrent, consequential or salient."[51] As organizations develop more rules, it leads to bureaucratization and the breeding of more rules, which could minimize new learning experiences. To this effect, Schulz elaborated the obstacles created

by rule production on organizational learning. "As lessons from past experiences get encoded in rules or other systems of automated responses, new experiences become scarce, and learning through further codification of experiences declines. Making rules and routines help organizations respond to problems in a programmed and efficient way, but, at the same time, rules create a dangerous sense of familiarity with arriving problems that reduces the likelihood that new problems will be seen as opportunities to draw new lessons."[52]

Schulz suggested that absorption and sorting mechanisms can contribute to decline in new rule making, or birthrate of rules, particularly when organizational problems have "thematic relatedness" or require "joint dependence on the same resources" as often is the case with "accounting problems or procurement problems." Under these circumstances, organizations can develop a more generic common rule than when the contents are presumed to be different. Moreover, Schulz recommended a radical measure that will require a "large-scale abolishment of old rule populations." Such radical measures would "allow organizations to eliminate obsolete historical imprints on old rule systems and help to infuse new impulses into the system." The recommendation is for a "development of a new rule making body" that would undertake a "large scale intervention" on abolishing old rules and replacing them with new ones.[53] It can be inferred that Schulz's radical measures are consistent with reengineering approaches of organizational and administrative changes.[54]

When an organization introduces a change, the effect of that change will be affected by the learning strategy the organization adopts. This choice will influence the magnitude of the organization's change: gradual or radical. When process change is supported by organizational learning, it facilitates both gradual and radical changes. Stata viewed organizational learning as a competitive advantage for organizations to be able to respond quickly to changes in their institutional environments. "Organizational learning entails new insights and modified behavior. [It] occurs through shared insights, knowledge, and mental models."[55] In other words, organizations cannot effectively utilize a change program without a well-developed learning strategy to respond to the changes.[56]

Organizational learning has a two-stage process that involves either a gradual–incremental or a radical–transformational change process. A similar approach has also been provided by Argyris and Schon[57] and Argyris,[58] termed single-loop and double-loop learning.[59] Whereas single-loop learning is comparable to gradual–incremental learning, double-loop learning has similar approaches to radical–transformational learning.

Gradual–Incremental Learning

When learning occurs in small step increments over a period of time, it is usually referred as gradual learning. The learning process leads to a gradual accumulation of skills, techniques, and knowledge over time that has the potential to contribute to a mastery of knowledge in those areas. Most often, there

is a trial and error sequential process operation, and if knowledge is acquired over time, it could lead to mastery of skills. The action learning expertise acquired through actual or real problem-solving activities could lead to self-confidence, less alienation, growth, and the achievement of organizational goals. Organizational learning requires joint effort from all members of the organization, and that team (not individual) effort becomes critical in the dissemination of learning and change throughout the organization.[60] Most technological changes involving the innovation or adoption of new tools or better ways of using existing technologies require individual as well as team collaboration to realize organizational learning objectives and minimize the unintended consequences of learning.

Using Argyris[61] and Argyris and Schon[62] analogy, gradual–incremental learning is single-loop learning. The objective of single-loop learning is to find new ways and methods to speed up organizational learning and improvement. Although some organizations learn technological innovation through trial and error, other organizations adopt and imitate only successful innovations. The economic rationale for organizational learning in the adoption decision is that innovation "will increase a firm's present value above the pre-innovation level."[63] Accordingly, innovation will contribute to incremental change and single loop learning.

Radical–Transformational Learning

When organizational learning involves radical learning, it indicates that the organization has completely overhauled the existing procedures, rules, and modes or operating activities with new and fundamentally different methods of conducting business. There is a large-scale replacement of existing procedures and guidelines with completely new and significantly different methods of operations. Radical change involves organizational transformation of existing mission, strategy, policies, culture, leadership, and structural arrangements. The change requires employees to adopt new behaviors and approaches to organizational work environment.

Radical–transformational learning parallels Argyris and Schon[64] classification of double-loop learning. Double-loop learning occurs when an organization is able to "detect and correct errors in the operating norms" and activities of the organization.[65] Double-loop learning allows an organization to institute new norms and procedures to transform organizational activities. It is a second-order learning that leads to reorientation,[66] discontinuous change, and development of new paradigms to do things differently than in the past.

On the basis of the incremental–gradual (single-loop) and radical–transformational (double-loop) learning strategies, it can be inferred that learning is an ecological and evolutionary change strategy that primarily occurs in the form of adaptation. Ecologically, inertia creates the need for learning to have a better fit between the organization and the environment. Inertia is an evolutionary process that occurs

over time and presents an ecological dilemma to an organization. Inertia, which has been approached as an adaptive organizational change strategy, is viewed within the ecological framework of strategy and is presented in the next section of this chapter.

THE ORGANIZATIONAL ECOLOGY INERTIAL VIEW OF STRATEGY

Freeman and Boeker[67] and Hannan and Freeman[68] provided the underlying framework for the organizational ecology view of strategy. The main thrust of the ecological view of strategy is that organizations are inert and have stable routines and cultural practices that constrain them to adapt to environmental changes. Accordingly, organizations resist change and have vested political interests to preserve rather than to radically change their current strategies.[69]

The ecological analysis of strategy is based on the premise that populations of organizations have some organizational forms in common. These forms include structure, strategies, organizational characteristics, market, or technological production techniques. Accordingly, organizational forms provide a set of stable routines, procedures, values, and norms for accomplishing organizational objectives. These routines constitute repetitive organizational actions that can serve as a basis of competitive advantages and differentiate organizations. Freemen and Boeker argued that because of the existence of "stable routines or practices," organizations display inertia, where "their strategic and structural features change at relatively slow rates." At the same time, the ecological framework recognizes that managers and strategies do matter and that strategies are modified. However, "such changes occur as relatively abrupt modifications in the organization's mode of operative."[70]

These changes are abrupt and not systematic, even though changes in the same aspects of the structure involve changes in others. In most cases, changes are resisted because of the tendency to follow the same routines or procedures to conduct organizational activities. This is the case in large and successful organizations that are preoccupied by managing problems related to the environment instead of changing them. Because these organizations have a niche and possess resources that they can handle successfully, they tend to become inert and are less likely to change their strategies. Freeman and Boeker have proposed that strategies are more likely to change when there is population density and organizations are not able to expand their resource bases or develop efficient methods to utilize existing resources.[71] When these conditions intensify, new organizations develop, and competition among them results in the emergence of new strategies different from the previous strategies.

Barnett and Burgelman elaborated that the evolutionary perspective of strategy requires a dynamic model that examines "which paths organizations will grow, change their performances, or experience strategic events such as birth, restructuring, product innovation, merger, technological change, or failure." In

addition the framework examines "how *selection* processes affect, and are affected by the pace and path of strategic change."[72] These types of strategic questions have generated ecological research largely on founding and failure.

Industrial organization researches on strategy have used the evolutionary model of economics to analyze the long-run strategic choice behaviors of managers. Robles used an experimental setting to monitor the adaptive adjustment behavior of managers when faced with making choices among several alternative game situations. The "experimental evidence suggests that the random element of strategy choice declines with repetition. As agents repeat a game, they should become more certain of their environment and their productions of opponent's play, and hence less likely to experiment or make mistakes."[73] It can be inferred that strategy choice declines with repetitive actions because managers over time become aware of the environmental constraints that limit the choice of making decisions aggressively that could become risky and restrictive.

STRATEGIC ADAPTATION TO CHANGE

According to Freemen and Boeker, "the strategy construct encompasses two concepts: choice and the adaptation of firm to environment."[74] Child provided an extended review of the strategic choice literature. He argued that strategic choice is a political process that puts emphasis on power holders within organizations to decide the course of strategic actions including the design and structuring of organizations as well as the setting of standards of performance to be accomplished. Whole management action is a political process, managers are accountable for their actions. Although managers choose their actions based on information and their built-in preferences, there are limits to choice as a result of cognitive limitations. It is this concept of accountability that contributes to functional organizations' performance.[75]

Strategic Adaptation Approaches to Organizational Change

Strategic adaptation emphasizes the role that managers can play in monitoring environmental changes and developing or modifying organizational strategies to adapt to these changes. Managerial choice of strategies depend whether the organization is experiencing poor or high performance. When organizations face poor performance, it is accompanied by strategic and organizational changes. Organizational changes involved realigning organization functions and structures as well as changing leaders and executives to overcome political resistances to change. Organizational success, in contrast, is likely to contribute to inertia and less strategic change. This is particularly the case in organizations with long organizational tenure of management that exhibits strong social cohesion, understanding, and commitment to current organization policies and procedures and resists changes that many alter current modes of operations. There is a tendency for these organizations to pay less attention to external environmental

threats or opportunities. External environmental factors act as sources of organization inertia, as organizations have limited abilities to change their current operating activities.[76] Because inertia leads to resistance to change and eventually to lower performance, strategic changes may be necessary to bring improved performance unless the organization faces internal organizational structural processes that interfere with these strategic changes.

Molinsky argued that internal organizational processes could create obstacles to strategic change initiatives that are promising. The changes can become watered down or too ineffective to be implemented. Sometimes, when agents persist in disseminating their ideas over enthusiastically, their ideas become rhetoric, which in turn is often met with skepticism. The rhetoric will likely become so destructive that the agents or sponsors end up in the process of strengthening the existing leadership or status quo. When there is too much "catering to the wishes of current leadership of the organization," it could undermine the change process and has the undesirable effect of strengthening the existing status quo.[77] The three paradoxes of organizational change—management, leadership, and rhetoric—help to perpetuate and fuel conflicts, tensions, and antagonisms to strengthen the status quo.[78] In other words, change initiatives could be used by management to accumulate more power and create loyalty among subordinates.

Molinsky noted that the location of the change effort or the person who sponsors the change becomes critical for the realization of the change initiative. He argued that if a change is "exclusively associated with a particular division or project," the change is undermined not "because of questionable merits of the project, but because of an antagonism toward the project's sponsor." He found this to be the case in a hospital study, when a team project that was a multidisciplinary effort composed of nursing, pharmacy, and medicine was perceived as a nursing project because it was sponsored by the nursing department. The change initiative was opposed because of sponsorship and conflictual relationships and bias toward the nursing department.[79]

The lessons from the Molinsky's study are that unless an organization frames the change initiatives for potential leaders in a manner that fits the culture of the organization, the change effort will fail. A change effort requires the building of trust and cooperation, coordination, and open communication among employees. If managers neglect to attend meetings, and if workers are afraid to express their opinions freely at meetings, the change effort will be undermined. Change efforts are more likely to materialize if there are representations and participation of all concerned groups or parties at meetings.

Molinsky stressed the importance of leadership commitment to pledge the required resources to undertake the change effort. It is critical that the change efforts are limited or narrowed, as multiple projects stretch resources, create duplication of efforts, and undermine team effort and solidarity, which would affect the success of the change effort. The change initiatives cannot be implemented successfully unless all members of the team fully participate in the planning and implementation process.

Boeker reported that organizations with poor performance levels pursue strategic changes. Usually a change in strategy is necessitated when the current strategy does not meet the requirements of the environment. Under such situations, managers have the ability and discretion to influence strategy and the direction of the organization. Strategic change may also lead to changes in top management more often in poorly performing than in successful organizations, which could affect performance.[80] However, if leadership changes occur in institutions that have long organizational tenure, organizational politics could hamper the prospects for change.

Organizational Politics

Organizational politics have become part of the main facet of organizational life. Politics plays a significant role in the planning, goal formulation and implementation, strategic planning, budgeting, and resource allocation decisions in organizations. Leadership, human resources management approaches to motivation, and job satisfaction are integrated in the power and political processes of organizations. Organizational politics perceptions that are related to issues of fairness in rewards and merits allocation, goal clarity, and group interactions will likely influence and affect the quality of the work environment for employees. When politics become coercive, it decreases employee morale and satisfaction, as well as organizational effectiveness. If politics are used as mechanisms to control employee behavior, it results in intensive political activity, which can negatively affect organizational outcomes/performances.[81]

Drory and Romm argued that organizational politics as an activity are more commonly associated with informal instead of formal organizational behavior.[82] When there is a formal attempt by managers to influence employee's activities, the behavior process may become political. That is, organizational politics occurs in a social context when managers use politics to enforce policies. Although organizational politics create conflict, the political process becomes flexible to adapt to the particular situation where action is implemented. When politics become flexible and adaptive, it could lead to congruent behavior that supports the organization's strategies and policies.

When there is congruency in organizational politics, there is compatibility with an employment context related to employees' work attitudes, trust, goal perceptions, and job satisfaction. Employees have positive perceptions that the organizational political processes support their commitment to achieve organizational goals, and that supervisors reward their performance. Moreover, organizational size, diversity, and reputation are additional factors that affect workers' expectations for job mobility and career advancement opportunities.[83] Thus, organizational politics have both positive and negative dimensions and can be managed to influence employees' behavior and attitudes to the work place and organization.

When there is a conflict in organization, it leads to mediation to resolve conflict. The process of mediated conflict as a political process considers

"individual and group as actors who are self-seeking and calculating based on their interests." It "stresses conflict of interest rather than coordination problems as the ultimate cause of institutionalization and institutional change. In addition, power resources rather than cognitive resources are seen as important in explaining how institutions are generated and changed."[84] The basis of power and power resources—formal or less formal (informal)—and the relative scarcity or slack availability of resources influences the type of exchanges (competitive, cooperative, distributive, or unequal) in the organization.[85] Organizational politics can thus become sources of institutional change. At the same time, institutional variations create structural differences that contribute to variations in conflict management or mediation.

Institutional Adaptation Strategies

Watkins viewed institutions as having symbiotic relations of interdependence. A symbiotic relation arises from "the product of our cultural inheritance" and "takes the form of institutions." Accordingly, "institutions define the manner in which human beings" cooperate "with one another, based on particular patterns of ideas."[86] Ecologically, human beings, like any other living organisms, are governed by forces of nature. They live and abide by forming symbiotic relationships with others. According to Watkins, symbiotic relationships require humans to form cooperative relationships with the natural environment in preserving and using, but not necessarily destroying, environmental resources.[87] According to the evolutionary process of natural selections of institutions, institutions are governed by the principle of selective adaptation process of the survival of the fittest (i.e., only those institutions that are best suited survive or exist).

The ecological approach of institutions as having symbiotic relationships and selective adaptation mechanisms have implications for strategic and management control systems. Seal indicated that the institutional approach examines "the internal organization of the firm with a particular reference to management control mechanism."[88] In this context, control is related to structural arrangements of functions and work related activities (jobs) that allow managers to observe and monitor employee/peoples' behavior.

Lounsbury discussed the institutional structural differences in terms of temporal or spatial variations that contribute to the diffusion and adoption of organizational practices, which eventually become institutionalized as rules and organizational procedures. In the study of the staffing practices for management of recycling programs in universities, Lounsbury found that the creation of a recycling full-time manager or addition to an existing staff in either full-time or part-time capacity contributed to additional responsibility of recycling programs. Institutionalization of recycling programs reduced the normative pressures from national student organizations, social movements, and environmental coalition including students. In larger, more selective universities, full-time recycling

managers/coordinators were employed because student environment groups were active and lobbied for the creation of these positions. Comparatively, those universities "that staffed their recycling programs through role accretion tended to be public, smaller and were importantly influenced by social comparison processes among schools of similar selectivity."[89] The study revealed that organizational stratification played a role in the diffusion of organizational practices and their institutionalization over time.

As the organizational adaptation process implies, crisis created the conditions for strategic change. Universities were pressured to create institutional mechanisms to handle environmental and recycling programs by external parties and interest groups including students and environmental coalition groups. The groups' successful lobbying efforts resulted in strategic changes that brought organizational changes—either in full-time or part-time staff additions—to institutionalize the recycling program. Management control mechanisms were put into place to balance and check the administrative mechanisms of the recycling programs. Although there was institutional variation in organizational practices or recycling programs, the institutional adaptation process effectively provided legitimacy and visibility to those organizations that have fully diffused and adopted those environmental organizational practices.

Institutionalization of Environmental Programs. The ecological framework has argued that environmental concerns and responsibilities have become part of the institutionalization process of organizations.[90] Recently, organizations have prepared and issued reports of environmental audits and performance indicators such as the consumption and management of water, energy, toxic materials, and assets.[91] The amount of space an organization allocates to environmental issues on annual or other accounting reports indicates the level of commitment an organization has on environmental management systems. The support and commitment of management and the participation of employees in the design and management of environmental programs makes the process of institutionalization of environmental concerns and issues a continuous and an ongoing process. Because environmental concerns are of interest and concern to employees and are more likely to arouse public emotions and desires, it is important that top management plays an important role in recognizing the importance of environmental management programs as mechanisms in resolving the various contending issues among interest groups. Accordingly, it can be inferred that environmental management can become part of management's best organizational practices that prevail in socially responsible organizations.

Environmental management received priority in the federal government in the 1960s, with the establishment of the Environmental Protection Agency (EPA) to manage environmental programs associated with industrial growth in the United States. Since then, the Federal Government has issued several environmental regulations including the Resource Conservation and Recovery Act (RCRA) of

1976 and the Comprehensive Environmental Response, Compensation Liability Act of 1980 (Superfund) to balance the effect of business innovation and growth with the management of and conservation of natural resources. These regulations have contributed to the development of accounting standards, namely, SFAS No. 5, Accounting for Contingencies, to recognize and report corporations' environmental liabilities associated with business innovations and growth.

Effective management of the environmental resources has become important as corporations prepare sustainability reports.[92] These reports most often have contained economic, environmental, and social performance data as well as the management of responsible environmental values and commitment to manage and report future environmental strategies. However, the relative absence of environmental reporting standards has contributed to the generation of reports that are not uniform across companies, which has made the comparability and verifiability of environmental reports among organizations problematic.[93]

Nevertheless, environmental reporting has enabled companies to satisfy ethical and social responsibilities as well as meet investors' concerns and governmental regulatory agency external reporting requirements. Responsible environmental strategies are considered as enabling organizations to protect the environment and reduce transaction costs associated with regulation, litigation, and liabilities and clean up, which improves organizational competitiveness and performance. Organizations that possess complementary assets for process innovation and implementation benefit from cost advantages associated with responsible production processes, better product design through improved manufacturing processes and disposal of wastes, and access to complementary manufacturing and distribution processes in favorable terms for process innovation and growth. When marketing strategies that focus on cultural and humanistic values are designed to promote product sales, market share and synergy of production, and marketing and distribution linkages, they advance both environmental management and improved business performance. In other words, when corporations with effective environmental management strategies are coupled with a culturally and socially oriented marketing strategy, they have gained relative competitive advantage over those organizations without environmental strategies and policies.[94]

For example, Epstein and Young have suggested that economic value added (EVA) measures can be incorporated to develop profitable investment decisions in line with responsible environmental management policies.[95] In other words, these studies indicate that there is a positive relationship between a balanced pro-growth environmentally responsible management program and improved organizational performance. Florida and Davison have also indicated that an environmental management system (EMS) program serves as a formal system for gathering information and making choices among programs that balance environmental and green management with overall business strategy for managing balanced manufacturing growth and improved business performance. The

authors suggested that green management is not an alternative concern but, rather, balanced pro-growth and environmental management programs in which performance, productivity and profit motivations go together with environmental management programs that reduce waste, pollution, emission, as well as conserve natural resources.[96]

The Case for Balanced Environmental Management and Accounting Reporting Systems. Process innovation changes in environmental management, and accounting reporting systems are considered one of the main core competencies of responsible organizations, particularly in technology and manufacturing firms, characterized by a highly competitive environment. The successes of these organizations depends on their ability to sustain and manage continuously environmental and ecological change programs. To remain competitive, organizations not only continuously adopt policies that support the development and reinvention of new products and services but also pursue growth strategies that support continuous changes and adaptation in environmental and natural resources management. Environmental accounting systems are necessary to improve ecological data gathering and reporting and delineate criteria for the establishment of environmental priorities and programs.[97]

Nordhaus and Kokkelenberg developed guidelines for management accounting systems that incorporate environmental information systems associated with renewable and environmental resources related to agriculture, forestry, recreation, land, timber, and fisheries, as well as livestock and grain and nonrenewable resources of oil and natural resources. The authors recommended that organizations prepare environmental reports that focus on pollution, global warming, and sustainable resources to determine their costs (if any) and their effect on financial performance, as well as to report on public, natural resources such as air, ocean, water, and lakes that are of interest to the general public and to governmental regulatory agencies such as the (EPA), as well as state, local, and municipal governments.[98]

For example, Burritt proposed that environmental and ecological issues could be best handled at local and regional government levels. Ecologically sustainable development (ESD) is an important concern that can be addressed effectively at the local and municipal government levels. Local expenditures on environmental projects are handled well by local governments to satisfy voluntary disclosure of funds, accommodate contending stakeholders interests, and fulfill communication, reporting, independence, and accountability requirements. Although ecologically sustainable development is based on the principle of local autonomy, the program objectives cannot be fully realized unless there is interagency cooperation by governmental agencies at the local, state, and federal government levels on environmental data collection, design, and reporting.[99]

Recently, the National Research Council (NRC) Report recommended that nature's (environmental) numbers should be included in the national accounting

system. That is, the NRC calls for a systematic development of green accounting that will include assets and production activities associated with the natural resources and the environment.[100] In other words, the national income and product accounts (NIPA) would be extended to include nonmarket accounts (e.g., air and water quality) with near-market accounts/activities (such as cooking hot dogs at home or consumer products such as televisions or cameras). By developing parallel indicators for nonmarket accounts similar to those for near-market accounts, the NRC puts forward that protecting the environment (e.g., the air and water quality) contributes to the growth of gross domestic product (GDP). These indicators will increase voluntary environmental disclosures and reporting on environmental policies, expenditures, and audits. GDP indicators and processes can include benefits from environmental products and related details on sustainable and renewable resources as well as the limitations that companies in the chemical, forestry, paper, utilities, and related sectors face in managing environmental resources.

Along the lines of the NRC recommendations, Boons et al. advocated the need for an EMS as an important component of the strategic planning processes in the highly industrialized European countries. They provided examples from Western Europe and Scandinavian countries in which socially responsible firms have integrated ecological and environmental concerns into their strategic plans and policies. These firms have developed strategies by which the developments of new products and services are firmly grounded on the principles of environmental management systems.[101] Environmental concerns, which are often referred to as greening, have become a strategic issue whereby organizations have used it as part of their marketing device to attract new customers and recruit and retain employees, as well as serve as a public relations medium when dealing with the community, general public, and governmental regulatory agencies.[102] Environmental management systems have been employed as an effective management strategy to minimize the negative effect of unintended consequences of production activities on ecological systems and human welfare.

Accordingly, organizations that have legitimized environmental management systems have valued responsible behavior and cooperation with governmental regulatory agencies on environmental (greening) issues. As a result, the strategy of greening has been diffused and embedded in their organizational institutional structures. These organizations have voluntarily provided environmental accounting reports to account for the cost of their programs and to inform shareholders and employees and the public on the success of their EMS programs. For example, in the highly industrialized countries of Europe (e.g., Sweden), some organizations have environmental managers who are responsible for managing issues related to the environment and who prepare and report on the organization's activity on environmental and ecological matters on the principle that environmental reporting advances a more fair and responsible society. There is the belief that EMS contributes to resource conservation and

efficiency in resource utilization, as well as reduces the effect of technological advances on the environment.[103]

It can be inferred that implementation of environmental concerns and practices in organizations, if accepted and practiced regularly and repeated over time, can be internalized by employees. Such practices can develop into norms of acceptable behavior and serve as a frame of reference to meet the demands of the dominant constituencies, and thereby provide organizational visibility and legitimacy. Greening issues, once institutionalized, become legitimate and could develop into collective sense making that can provide employees with norms and shared ideology to guide their actions in day-to-day activities and for turning organizational policies into operational practices. Accordingly, organizations develop new routines to manage emerging environmental and ecological issues to legitimize their actions and ensure stability over time to balance institutional pressures for legitimacy, efficiency, and responsible environmental practices that could eventually advance competition for environmental concerns and subsequently contribute to increasing similarities among organizations.[104]

However, the long-term effect of the institutionalization of environmental reporting rules and regulations over time is that once these rules are established, they become fixed and uniform and tend to be bureaucratic in nature, making the density effect of rules in accounting significant. When accounting rules are close to the core of the organizations' administrative activities, they tend to be shielded from external environmental changes. Schulz inferred that a low level of environmental turbulence in accounting resulted in a low level of rule production and a very low birth rate for accounting rule change.[105] The low-level density effect in accounting is contributed to the mere fact that accounting involves formal and technical administrative rules rather than ambiguous rules like norms, beliefs, and culture in other administrative areas that are more open, adaptable, and amenable to changes as circumstances warrant. Accordingly, accounting rules by nature are technical and formal and tend to operate in closed systems. The consequential effect of closed accounting systems has been reflected in the low birth rates and proliferation of existing accounting rules, as has been the case in the environmental reporting systems and disclosures. As accounting rules receive more scrutiny by parties including external governmental agencies, they are forced to be open to accommodate these changes. The 1990s public interest in environmental and natural resources conservation and management have contributed to a gradual/incremental increase in the birth and growth of environmental disclosures and requirements in accounting reporting systems and their institutionalization across public and business organizations.

The growing emphasis on environmental and natural resource conservation management and their voluntary disclosure in accounting reports supports the assertion of the convergence of ecological and institutional research. Singh and Lumsden indicated that if a convergence between them occurred, it can be examined in terms of how institutional environment variables have influenced

ecological dynamics of organizational populations and the role of legitimacy and institutionalization in population dynamics. Institutional variables such as customers, competitors, suppliers, and government regulatory agencies have profound effects on organizational vital rates: founding, disbanding, mortality/death, or performance change rates. In contrast, legitimacy or external institutional support reduces selection pressures on organizations. In general, legitimacy in institutional environment "provides access to resources, which reduces morality rates."[106] Although young organizations lack legitimacy and institutional support because of the newness liability assumptions, those organizations that have this support have relatively easy access to resources, which reduces their mortality rates. Environmental effects represent the cumulative effects of all organizations in a given population. Leaders of organizations formulate strategies to help organizations adapt to environmental pressure changes. The process of adaptive change is rooted in organizational learning, which has shaped the organizational growth strategies of public accounting firms.

ORGANIZATIONAL GROWTH STRATEGIES OF PUBLIC ACCOUNTING FIRMS

The accounting public organizations (i.e., auditing firms) have experienced relative growth over the years. Most of the growth has occurred through mergers and acquisitions. It seems apparent that organizational mortality or exits from markets of auditing firms have been largely caused by merger, acquisition, or dissolution. By the 1970s, there were the eight big firms, but that number was reduced by half by 2002. Now there are only four big accounting firms. The exception to the merged growth strategy was the dissolution or mortality of Arthur Andersen, LLP, in 2002 as a result of poor management and auditing practices. In the late 1980s, when the number of big accounting firms declined from eight to six, Sommer stated that the reasons for merger included "synergy, diversification to avoid excess dependence upon one product or line of business, economics of scale."[107] For accounting firms, mergers provided opportunities for weaker firms to have access for establishing services and build clientele for consulting, tax, and auditing services. It enabled them to consolidate resources—manpower, clients, and offices—both nationally and internationally. In essence, mergers enabled accounting firms to consolidate their services and to serve their clients at lower costs. The economy of scale advantage made them competitive in offering diversified services for both large and small clients. At the same time, they offered specialized services for certain industry segments such as health care and information technology. They used specialization as basis for product differentiation and for charging high premiums for these services.[108]

However, the diversification and provision of multiple services for the same client organization, for example, a combined tax and management advisory or consulting services, has the potential of creating conflicts of interest. Sommer

noted the conflict of interest arising between the consulting and auditing of firms and the apparent growth in consulting personnel and the larger benefits and economic rewards from consulting compared to auditing. He indicated that the conflict was a result of consulting being more lucrative, generating the bulk of growth in revenue for the big auditing firms, and being more attractive professionally compared to auditing and tax services. Although the accounting profession has both professional standards, the conflict of interest could potentially affect the fairness of financial accounting reports, as well as auditors' cultural perception of their relationships with those firms to which they could provide both tax-related public accounting and management consulting services.[109]

Sommer's (1989) expression of the conflict of interest between tax advisory and consulting services was reflected recently in Arthur Andersen LLP's relationship with the Enron Corporation. The dissolution or mortality of Arthur Andersen was contributed largely to the apparent conflict of interest and Arthur Andersen's failure to follow the standards and professional practices accepted by the public accounting firms and the profession at large.

Although conflict of interests may have contributed to unanticipated consequences, for example, the case of Arthur Andersen, increased size and diversification of services has offered several economic and political advantages to public accounting firms. The case in point is that of the Boone et al. article, which gave two reasons associated with cost and perceived quality advantages for the increase in size and market concentration of auditing firms. The authors indicated that cost advantage is related to "economics of scale and scope"—auditing firms invested in developing expertise to best serve their clients. The audit services for large clients are the same and are served by developing expert technical knowledge and skills. Regulatory control of firms and new laws increased the demand for auditing firms. As the technology of auditing (e.g., statistical sampling and risk analysis) progresses, the market expands. The scope of auditing increased when auditing firms were able to provide auditing expertise to clients in several "related advisory services (such as tax preparations, internal control systems design, consulting and personnel placement)".[110] Large audit firms diversified into several areas to offer their services to large companies who have regional offices and diverse product lines.

Boone et al. argued that there was a preference of larger firms to hire the big auditing firms, which made it a highly concentrated market, accounting for over 90 percent of large firms being audited by big auditing firms. Moreover, external financing (e.g., creditors, shareholders) increased the demand for high-quality auditing service, which can be met by big auditing firms. Big auditing firms were perceived to be independent and interested in keeping their reputation for expertise and quality of service.[111]

In their study of the public accounting firms in Netherlands, Boone et al. indicated that the large accounting firms have benefited from Dutch government regulations, which contributed to increased demand for large auditing firms'

services. The large auditing firms were involved in the legislative process through their representative, who served as a member of the Regulatory Board, which set up government regulations. Because of their indirect influence on legislation, the firms have benefited from government regulations.[112] Government regulations at the national, state, and local levels, coupled with market shifts and changes for auditing services, have continually shaped the restructuring of the big auditing firms.

The adaptation framework has documented that organizations continuously modify their strategies and policies to meet the demands of the external environment, particularly government regulatory agencies, competition, and market conditions. These adaptive strategies are not necessarily radical but, rather, are incremental, and gradually make it possible for organizations to fit with the environment. Adaptation thus increases organizations' chances for survival through retention. Adaptive strategies have important implications for internal organizational changes, including accounting control systems and the management of work activities by teams, which are presented subsequently in Chapters 5 and 6.

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CHAPTER 5

Adaptation Strategies in Management Control Systems

Management control systems in organizations are defined by internal processes of power relationships and organizational system characteristics, as well as by external environmental factors, including technological developments. Etzioni has identified three bases of power and control systems: normative, coercive and remunerative-instrumental (utilitarian).[1] They have generated three types of compliance and involvement: moral when normative, alienative when coercive, and calculative under remunerative. These three power and compliance typologies have constituted the underlying principles of management control systems in complex organizations. The adaptation strategy has related these management control systems to organizational process and structural intervention strategies, as well as to stages of development: emergence, growth, and crisis/realignment. Moreover, the adaptation framework has addressed the effect that quality management, leadership characteristics, and environmental changes including international competition and technological developments, particularly information technology, have on the evolution of management accounting and control systems.

Although management control manifests itself in all three forms of compliance and involvement in complex organizations, its focus in management accounting has remained on increasing organizational productivity by reducing costs of manufacturing, distribution, and marketing activities. However, the effectiveness of management control systems in complex organizations as adaptive control systems is contingent on several organizational structural, power relations, contextual and cultural process factors, management goals, and characteristics of technological changes.

When it comes to management control systems, the sources and basis of power have been found to significantly affect the type of control system that will prevail

in an organization.[2] Power affects organizational decision-making processes and the distribution of resources in organizations. It has implications for designing or planning and implementation of accounting-based control systems that monitor individual or group–team performance. It is therefore imperative for the adaptation strategies' framework to study the sources of power, management control, and compliance systems in organizations.

POWER, MANAGEMENT CONTROL, AND COMPLIANCE SYSTEMS

The subject of power and control has long been of interest to sociologists and organizational management researchers. Approaches to power and control in organizations have varied depending on the theoretical approaches: structural–functional, radical structuralism, conflict–pluralistic or interpretive, and definitions of power.[3] However, the common thread among these perspectives is that power involves a relative relationship in which an actor has the ability to influence another actor to carry out his or her directives. Power relationships are manifested in social structures of class, race, gender, occupations, and everyday organizational activities. In other words, power as a relative concept creates dependency and imbalanced relationships, which will affect social exchange mechanisms in networks or work group teams.[4] People in power use reward (physical, material, or symbolic reward) and punishment (deprivation) to secure employee compliance with organizational goals. Subordinate orientation to compliance can be either positive (commitment) or negative (alienative).[5]

Second, these approaches have stressed that the basis of power, whether at the individual, group, or organizational level, can influence the extent to which leadership and management can secure employee compliance. To this effect, Etzioni, in 1961[6] and again in 1964,[7] identified three bases of power and control: normative, coercive, and remunerative.[8] These three types of control systems have received substantial research attention in the management accounting and control literature. However, the management control literature has not applied Etzioni's (1961 and 1964) power typologies to discuss the interrelationships of these three approaches for managing teams in complex organizations. Chapters 5 and 6 have integrated the theories and approaches of these three control systems to extend the behavioral managerial accounting literature scope of teams and work groups' management. A background discussion of these three types of control systems now provides the context within which organization development and management control systems affect the operating activities of work teams.[9]

Normative Power and Control

Etzioni defined normative power as encompassing the allocation of "symbolic rewards," "esteem and prestige symbols," and the use of rituals and norms to facilitate positive response.[10] Normative power is associated with higher-level

organizational participants who are committed, have higher performance obligations, and whose remunerative needs are at least moderately satisfied. Leaders who exercise normative power have charisma and are persuasive and manipulative in their use of expressive activities to build their social power. Leaders have positive and affective interpersonal relationships with their followers, characterized by a high moral involvement and a "positive orientation of high intensity."[11]

Etzioni suggested that lower-level employees who work in professional organizations such as research and planning organizations and law firms are affiliated with normative organizations. In contrast to professional organizations, "normative controls play a relatively limited role in blue-collar industries."[12]

In normative organizations, there is a prolonged recruitment, selection, placement, and socialization process to facilitate the internalization of norms, identification with authority, organization guidelines, and supervisor directives, and in which the social control of a professional code of ethics and symbolic sanctions become highly effective. In other words, cultural goals are used as basis for normative compliance. Accordingly, a high level of intensity leads to identification, moral commitment, and intrinsic satisfaction from work.[13]

Elites who rely on normative compliance seek to integrate employees into organizational positions and structures through absorption and cooptation.[14] Because the effective operations of normative organizations require a high degree of consensus, the socialization process is extensive to allow lower participants a high degree of involvement in organizational activities.

Normative decision making, whether practiced at the individual, group, or organizational level, is grounded on the principles of functionality and consensus. Sociological studies have documented that in groups and communities in which decisions are reached through consensus, even in situations where there is low member participation, decisions are functional because of the dialectic process that balances the concerns of the individual with those of the group.[15] The group, in its attempt to resolve a social issue through consensus, is practicing normative decision-making mechanisms, which involve gathering of new information (adaptation) and the exercise of power (goal attainment). It is apparent that groups using the consensus method have developed affection and mutual trust (integration) and share common goals and values (pattern maintenance).[16] The formation of work teams thus fosters functional diversity and mutual interdependency among members, leading to activities guided by reciprocal exchange, collaboration, and close working relationships among team members to attain commonly shared organizational objectives. It is, therefore, plausible to assume that consensus among groups/teams could transform over time into concertive control, where group politics and leader desire for control affect the outcome of the decision process. In other words, there is a certain degree of coercion involved even in decision situations reached through consensus.

Coercive Power and Control

Etzioni defined coercive power as involving the threat or use of physical sanctions, including force, to secure compliance. Although coercive power, when it is negative, may result in alienative involvement among employees, it can be effective when an "organization is confronted with highly alienated lower participants."[17] If coercion is applied to less alienated employees, it will adversely affect their morale, their effectiveness, and their commitment to the organization. Alienation detracts from consensus about shared values and goals of the organization among lower participants. The organization can, however, operate for a long time even when there is dissension.

Although the word coercive has negative connotations, coercion has been integrated into compliance in most management control systems. Barker presented a negative view of concertive (normative) control when a team uses a more structured negotiated consensus decision making to practice "a tightening of the iron cage" by all means. He suggested that "the powerful combination of peer pressure and rational rules in the concertive system creates a new iron cage whose bars are almost invisible to the workers it incarcerates."[18] Sewell cites advances in information technology as bringing a new form of control—electronic surveillance control—where management uses video cameras to monitor self-discipline compliance and obedience among workers without face-to-face interaction.[19] In other words, technological development and the competitive business environment, coupled with the organizational desire to institute continuous improvement through process innovation, has given new meaning to coercive control. Coercive control no longer needs to be exercised through direct command and immediate supervision but indirectly through concertive and compliance control. Accordingly, in this chapter, coercive control will be discussed within the context of group coercive and surveillance control.

In accounting, coercive control has been closely defined in terms of restrictive control if accounting systems are tight and are enforced in a punitive manner. Although coercive control reflects the negative aspects of bureaucratic control, it can be administered in conjunction with remunerative/instrumental control.

Remunerative Power and Control

The terms remunerative and instrumental controls are used interchangeably in this chapter. According to Etzioni, "remunerative power" is based on control over material resources and rewards through allocation of salaries and wages, commissions and contributions, working conditions, "fringe benefits," services, and commodities.[20] Remunerative power is based on control of instrumental relationships, activities, economic incentives, and goals. Remunerative control is related to low-intensity involvement or mild commitment among employees whose behaviors become calculative as employees attempt to act rationally with their immediate supervisors.[21]

Remunerative control is more commonly used by utilitarian organizations to influence the behavior of lower-level participants whose orientations are characterized by calculative involvement. Etzioni classified manufacturing organizations and factories that have largely blue-collar workers and offices in which most of the lower-level participants are white collar and clerical employees as utilitarian organizations. In general, these organizations tend to have narrow scope and low pervasiveness that limits the range of work activities in which the employees are involved outside the workplace.[22] By limiting scope, the organization focuses on activities that are functional to production goals and utilitarian compliance.

Etzioni classified blue-collar workers into unskilled, semiskilled, and skilled, or into industrial and craft workers. He proposed "unskilled industrial workers to be the most subject to remunerative controls, and the skilled or craft-oriented ones to be relatively more affected by normative controls."[23] Therefore, utilitarian organizations would exhibit dual power structures in which remuneration incentives are the predominant form of control but are accompanied by coercive sanctions to secure employee compliance. Managers use of instrumental rewards, for example, in blue-collar industries, is limited by the bounds of the collective agreement or contractual relationships. If workers accept remunerative compliance, there is consensus on their performance obligations and the essence of the contractual agreements for any increases in their level of participation, involvement, and organizational activities related to production goals. For normative organizations, coercion has little or no value because coercion is perceived as negative, inflicting sanctions that lead to low gratification and decreased commitment among lower-level personnel.

In remunerative organizations, consensus on procedures and contractual relationships are supported by upward instrumental communication in the form of performance reports, and downward flow for performance appraisal and feedback purposes.[24] Compensation packages even among top management teams are remunerative, based on economic contractual relationships, and are tied to organizational performance. Although bureaucratic control in management accounting has been associated closely with remunerative control systems, recently critical studies in accounting have suggested that accounting control is primarily used for coercion and subordination of employees to accomplish management objectives. Although remuneration enforces competitive economic behavior, it has been found that cooperative behavior factors tend to narrow compensation gaps and thereby increase organizational performance.[25]

An important aspect of the remunerative and coercive control dimension is related to the extent of control—tight versus remote control—and the scope of control—narrow or broad—depending on the number of activities assigned to a subordinate.[26] Given these two dimensions, coercive control encompasses tight control and narrow activities, whereas remunerative control involves a combination of both tight and remote control and broader responsibilities. However, for lower-level participants, the scope is usually narrow and well defined.

Accordingly, the commitment of organizational members and their internalization of norms are likely to be affected by the prevailing power, control, and compliance system characteristics: normative, coercive, or remunerative.

If either type of management control system is expected to be adaptive and integrative, the control process becomes social and political, with decision outcomes reflecting concern for individual, group/team and leadership interests. Accordingly, a cultural systems analysis approach is presented below to examine the functionality of the three forms of management control—coercive, instrumental, and normative—and their relationships to organizational development and management of work teams.

Although there are significant differences in these three types of control systems, it needs to be noted that they all coexist in organizations in one form or another. Normative and coercive control systems both use economic incentives to legitimize either method of compliance at the work place and affect overall work team effectiveness.

From an organizational adaptive systems change perspective, it is argued that management control systems, whether normative, coercive, or remunerative/instrumental, have functional attributes. Organizations as systems are multidimensional and include management control systems, whose functions are purposive and are able to institutionalize cultural norms for managing teams. Accordingly, adaptive systems change strategies; for example, systems analysis, organizational, and cultural systems change, organizational change and development approaches, process and structural intervention strategies, and power relationships and compliance systems suggest that the three types of control systems can coexist at the same time. Accordingly, normative, coercive, or remunerative control systems follow adaptive strategies for managing teams and implement team-based organizational control systems.

SYSTEMS APPROACH TO ORGANIZATIONAL CHANGE AND DEVELOPMENT

An Overview of Systems Theory

Systems theory "is concerned with articulating patterns of contingent relationships among collection of variables that appear to figure in organizational survival." The systems approach studies organizations in relation to contextual environmental factors such as "structure, size, technology, and leadership patterns."[27] The approach views organizations as being composed of several systems that are interdependent, where a change in one or more parts of the system will affect the entire system.

Organizations as systems are purposeful. They comprise individuals, groups/teams, structures, systems, and policies.[28] According to Nadler, the systems model looks at organizations as comprising four major components (subsystems). These include: "the tasks (work to be done in the organization), individuals (who perform

the work in the organization), formal organizational arrangements (processes that motivate people to work or achieve organizational goals)," and a set of informal organizational arrangements that deal with "communication, power, influence, values, and norms."[29] The model assumes the four parts are interrelated, with functional relationships that promote congruence and system maintenance.

The stability of systems relationships and their congruence within organizations, as well as their ability to develop adaptive structures as they interface with environmental changes, have been the focus of structural–functional (SF) analysis. Selznick described the SF analysis as relating organizational structural behavioral characteristics of communication, authority, management relations, social roles, and sources of power to the maintenance and continuity of a stable organization.[30]

Accordingly, systems analysis indicates that the formation of teams in an organization is adaptive and systemic-integrative, as it draws members from several cross-functional areas to manage complex tasks that have a broader, organization wide scope. System analysis stresses that SF assumptions of congruity ensure a match between individual team member skills and the system goals of the organization. Functional importance matches rewards consistent with the skills of employees (including team members) and demands of the organization.[31] Although systems theory emphasizes stability, adaptation, and functional congruity, it also "recognizes the fact that individuals, tasks, strategies, and environments may differ greatly from organization to organization."[32]

Environmental Changes and Organizational Development Change Strategies

Organizations as systems are affected by environmental changes and are always in flux to attain a state of equilibrium to preserve system characteristics. As organizations strive to maintain a balance between the organization and the larger environment, they actively take inputs and transform them into outputs. The transformation process requires organizations to adapt to external environmental changes to survive and improve organizational performance.[33] Systems are defined by internal processes as well as by processes linking them to their environment. The continued interaction between an organization and its environment introduces what Thompson and McEwen referred to as environmental control, which brings about changes or even alteration of goals.[34] Accordingly, the degree of environmental control over the organizational goal setting process could be manifest in the form of competition, bargaining, cooptation, or coalition. Work teams are formed to prepare strategic plans and develop missions and goals to align organization resources with changing requirements of the external environment.

Organizations as functional systems not only adapt to environmental control but also incorporate transaction costs associated with technology, production, and innovation. Therefore, transactions from divisional interdependency can

occur even among organizations that are in direct competition.[35] As organizational subsystems become increasingly interdependent, they not only compete but also bargain, coopt, or resort to the formation of coalition groups to pursue their purposive goals. The use of work group teams in managing transaction costs associated with technology, production, distribution, and delivery of products and services becomes more critical[36] as organizations develop innovative ways to handle their operating activities and attempt to control environmental changes through cooptation, bargaining, cooperation, or coalition formation.

Environmental changes affect organizational systems, structure, strategy, functions, procedures, and day-to-day activities. The effect of environmental changes on the current performance of the organization depends on whether these changes are minor or significant. Whether the environmental effect is minimal or significant, organizations go through a series of stages to maintain stability and continuity. Work teams become instrumental in that organizational development process.

According to Barnett and Carroll, the adaptive organizational change process "assumes that change in the world of organizations occurs mainly through the adaptive responses of existing individual organizations to prior changes in technology, environment or whatever."[37] Stability, adaptation, and change have become the focus of the institutional approach, which has its theoretical foundation rooted in the SF analysis of organizations.

The Institutional Approach to Organizational Change

Baker, Faulkner, and Fisher advanced the view that organizations go through at least three stages as they are institutionalized.[38] These stages are emergence, stability, and crisis. Stages two and three—stability and crisis, are relevant for understanding the effect of organizational change and developmental stages on management control of teams: power relations and compliance types.

Stage One—Emergence. In the emergence stage, social structures, roles, and relationships are fluid. The rules of interaction and exchange among employees are not yet fully developed and understood. Organizational members devote their time to learning work rules and internalizing these behaviors. During this period, founding leaders (managers) who are charismatic and inspirational have substantial influence in shaping the future growth and direction of the organization.[39] Management control systems are informal, and the founding leaders continuously shape and enforce the formation and control of team activities. Although the limited number of employees allows face-to-face interaction, management control systems tend to be unidirectional from top to bottom, characterized by what Etzioni characterized as coercive–authoritative power that is a unidirectional–top down decision-making process. Founding leaders portray

normative behavior attributes that Etzioni described as having charisma, prestige, and esteem—characteristics essential to soliciting employee and team involvement and commitment in the initial growth stage of the organization.[40]

Selznick suggested that leadership role is effective and has the greatest effect on management control systems at the founding stage of organizational growth.[41] Strong leadership at the early stage provides guidance and direction and ensures the institutionalization of work rules, formation of teams, committee decision-making processes, and employee professional relationships as well as organizational norms, values, and regulations.

Stage Two—Stability. In stage two, organizations are mature and institutionalized. At this stage, organizations develop their own identity, norms, and values, which in turn provide direction, stability, functionality, and solidarity to group members.[42] Organizational norms and values shape members' behavior and work rules. Employees, as well as team leaders and members, demonstrate loyalty and commitment by observing these norms in all aspects of organizational life.

During stability, the social acts and behaviors performed by organization members tend to be recurring, persistent over time, and have a lasting effect on their actions. These behaviors are transmitted across organization members. Management control guidelines are developed, formalized, and enforced to guide actors' behaviors, authority, management hierarchy, communication, and reporting systems.

Instrumental (remunerative) control systems defining salaries, rewards, benefits, and the allocation of resources are tied to the functional importance of a position and the contribution of employees/teams to the achievement of organizational goals. Employee behaviors tend to be calculative and directed toward conformity with what Etzioni described as remunerative control systems that prevail in these stable organizations.[43] The stability stage is characteristic of manufacturing organizations that have well-defined mechanistic–centralized structures with well-defined management–labor contractual relationships. Organizations incorporate certain cultural beliefs, myths, knowledge, values, norms, perspectives, and attitudes that provide structures for guiding member participation in organizational activities.[44] When these ideologies are consistent and can be easily understood by members, and employees are rewarded for following them, management can use them to empower members, mobilize resources, and implement rational choices that consider all possible actions before selecting the best alternative.

STABILITY AND FUNCTIONALISM OF MANAGEMENT CONTROL SYSTEMS. The functional view of sociology defines social organizations as rational purposive social systems.[45] Accordingly, the formation of work teams in organizations is rooted in functional emphasis of stability and continuity, where management control systems and

compliance systems are grounded on concerns for authority, accountability, and contractual relationships between supervisors and subordinates. Stability and rational decision-making approaches among team members in management accounting systems are based on the functional view of social organizations.

The functional approach described stability as the ultimate objective of organizations, as it facilitated utilization of the rational choice model for the design of management control systems, resource allocation decisions, and the provision of services to enable the socioeconomic system to function effectively. Behavioral accounting research has applied the classical-functional approach to explain management use of formal control systems for incentives and compensation management, or to what Etzioni[46] referred as calculative remuneration, performance evaluation of individuals and teams, and ensuring behavior consistent with management goals.[47] Although management control systems at the lower and middle management levels stressed instrumental–remunerative control for contractual relationships between supervisors and subordinates, control at the upper levels of management is characterized by an integrated approach that combines both remunerative and normative features.

FUNCTIONALISM AND DIFFERENTIATION. When organizations grow over time, they tend to become more complex. This complexity creates a need for the organization to divide into subunits or departments,[48] providing ample opportunities for the formation of cross-functional work teams. Specialization and differentiation increase the size and complexity of the organization and eventually change the unitary (U-form)-functional organization to the multiple (M-form)-divisional structures. The internal structures of divisionalized organizations are highly differentiated, bureaucratized, and formalized and are less democratic. Managers seek to solidify their power through coercive mechanisms by controlling the decision-making process for resource allocation decisions. They develop several levels of hierarchy to solidify their control over employees, work teams, consumers, and suppliers.

Management control systems have been used to reinforce goal congruence through incentive systems, including coercion among team members. Management has institutionalized several accounting standards, including budget targets, profit goals, and performance evaluation systems, to evaluate divisional performance, control management behavior, and develop commonly shared corporate culture among employees and team members.[49] Management accounting systems have become avenues for reinforcing goal congruence through incentive systems, including coercion, if necessary, to secure employee and team compliance with organizational rules, procedures and goals. Thus, institutionalization becomes an effective process through which a planned change program can be incorporated into the organizational culture and team management control systems. However, over the long term, bureaucratic rules and formal control systems may be dysfunctional for an organization if there are continual turbulent changes and discontinuity in the organizational environment.

Stage Three—Crisis. When there are volatile changes in the external environment, an organization's choice of organizational growth and development strategies increases. If these turbulent changes cause an organization's level of performance to fall below the industry average, it can create a crisis. It increases the need for the formation of work teams to solve the organization's current crisis.

The crisis stage involves a period of unrest and instability. Crisis necessitates the need for organizational change and transformation.[50] During the crisis stage, it is critical that changes in the existing management control systems align control and reporting systems with organizational performance goals. The roles of leadership and teams are both critical in the organization's crisis stage of growth as the organization experiences changes in its functions, structures, systems, strategies, and policies. The crisis stage in many organizations has been accompanied by the formation of new teams to develop strategies for managing the organizational crisis, even if the strategy requires downsizing, divesting, and concentration of organizational resources in selected markets and geographical areas.

Although institutional approaches in sociology emphasized the key role of the leader in the early founding stages, evolution, and gradual adaptation of organizational systems to environment changes, management of the crisis stage also depends on leadership capability to institute adaptive organizational system change through a gradual, orderly, and consensual process. The effect of leadership and top management teams in large corporations, particularly when organizations adopt mergers and acquisitive growth strategies in response to crisis and environmental volatility, has been significant.[51] Although environmental changes generate discontinuity and "dysfunction" in social systems, the institutional approach emphasized the ability of leaders to facilitate the adaptation process of social systems.[52]

To this effect, Giddens noted that social actions and structures are influenced by dominant leadership characteristics, which shape regular relations of autonomy and dependence in social interactions. These social systems are continually shifting and adapting as leadership resources, skills, roles, positions, and structures change over time.[53] In the process, some systems persist by adapting to environmental changes, while others disintegrate. Management in these organizations institutes control system improvements that include changes that range from individually centered to team-based performance and reward systems. Accordingly, the formation of cross-functional teams and work groups become paramount in handling complex functions that cannot be effectively addressed by divisional/departmental specialists.

SYSTEMS INTERVENTION STRATEGIES: PROCESS VS. STRUCTURAL INTERVENTION

The systems approach indicates that organizations pursue simultaneously both process and structural intervention strategies to create desired changes in

work team functions. Process and structural interventions thus affect management control systems and the operational performance of organizations.

Process Intervention

Process intervention strategies target changing people's behavior, culture, organizational communication styles, and flow of information. Process changes address behaviors, attitudes, and interpersonal and intergroup interactions, which affect system maintenance and team functions.[54] The principles behind process intervention strategies are based on the relationship between teamwork characteristics and cultural change.

Process changes are functional if team members operate within horizontal and lateral structures. When team members receive nonhierarchical cooperation that allows their full participation in problem identification and resolution, process intervention facilitates the formation of interdepartmental and cross-functional management teams that can collaboratively work on specified activities.

Structural Intervention

However, structural intervention strategies are oriented toward changing the components of organizational systems. They include changes in organization/job design, reward systems, performance management systems, and accounting control systems that affect team performance outcome.[55]

Both process and structural interventions pursue an organizational development (OD) strategy in managing behavioral and organizational changes.

Organizational Development (OD): Definition. Porras and Silvers described OD as a change program designed to create a better fit between the organization's capabilities and the demands of its current environment, or to promote changes in the organization that help it better fit the future environment it expects to face. OD attempts to achieve this fit through planned change that emphasizes changes in employee cognition and behavior.[56] Recently, the focus of OD has shifted from affecting individual and group behavior directly to more indirect process intervention intended to alter behavior through changes in structural arrangements and reward systems. Porras and Hoffer considered the functional–congruence view of OD as important for organizational change. They proposed that "if behavior is influenced by characteristics of an organization's internal environment—that is, its system elements—then altering the system elements should lead to altering behavior on the job."[57] Accordingly, they proposed that the function of OD interventions is to alter individual behavior and internal organizational systems.

OD also can enhance organizational climate, which, in turn, influences labor relations, "employees' behavior and organizational performance."[58] Organizations that employ OD consultants search for experts who facilitate congruity of

employee behavior with organizational goals. Congruencies of behavior consist of those behaviors consistent with OD agent values, adaptable to change, open to new ideas and experiential learning, and adaptable to organization culture and values.

OD and Incremental Change/Learning Strategy. The OD approach to change advocates a gradual and incremental adjustment of change over time. It emphasizes the importance of consensus, participation, acceptance, and employee involvement in the change process. According to Buller and McEvoy, "the initial adoption of a planned organizational change is a function of a number of individual, group, and organizational factors. These factors combine to determine the overall level of acceptance and commitment to the change by organization members."[59] Institutionalization of these factors is supported through training, employee involvement, promotion, and a combination of intrinsic as well as extrinsic rewards. The objective of OD is to contribute to the personal development of organization members and the improvement of organizational performance.

The OD intervention strategy is described as incremental and gradual. The approach emphasizes the importance of leadership and change agents (champions) in change management. As such, OD stresses cultural change and education, which focuses on changing employee attitudes, behaviors, work habits, and beliefs.

The incremental OD approach, which is an example of single-loop learning, has been popular in continuous improvement programs such as total quality management (TQM). TQM is based on the principles of education, training, and organizational learning to sustain continuous improvement and change in organizational performance. TQM uses teamwork, interdivisional cooperation, cultural change, and institutional development in planning and implementing successful process innovation.

TQM's approach of bottom-up participation and the use of change leaders (e.g., quality circles) has been advocated for production and quality improvement programs. The incremental-gradual change strategy of TQM is reflected in the changes made in various accounting systems. Changes in accounting and internal control have become primarily incremental, involving procedural and operating changes.[60] Accounting as an administrative tool involves planning, budgeting, and internal control and reporting systems that affect managerial communication and decision-making. As described above, the culture of the organization shapes the accounting system and the degree to which planned administrative innovative changes in accounting systems can be implemented.[61]

According to Damanpour and Evan, "an administrative innovation that brings structural changes has more impact in organizational performance than one can expect from technical innovation alone. Administrative innovation supports and facilitates the adoption of technical innovations and improves the organization's ability for institutional problem solving. Administrative innovations can change an organization's climate, communication, interdepartmental relations, personnel

policies, and so on. In turn, they provide new opportunities for the initiation and adoption of innovations in the technical system."[62]

Daft stressed that the success of administrative innovation depends on organizational structural arrangements that support the innovation. Structural arrangements refer to the level and ratio of management groups in the organization's hierarchy.[63] The more management levels, the greater the management hierarchy and intensity within the organization. Damanpour pointed out that administrative intensity, related to high managerial ratio and multilayered management hierarchy, facilitates the adoption of administrative innovation. Because administrative innovations start at the top of the management hierarchy, administrative intensity affects the adoption process the most. As the management group ratio rises, the chances for successful administrative integration and adoption increase.[64] Such administrative innovation tends to be limited in scope because of constraints inherent in the hierarchical structure.

When management introduces cultural changes to support administrative innovations, process intervention changes are designed to initiate attitude and behavioral changes among organizational employees. Process changes involve new behavior patterns to foster interpersonal and intergroup interaction and create improved formal and informal communication linkages within work groups/teams and among individuals at all organizational levels. According to Van de Ven, "from a managerial viewpoint, to understand the process of innovation is to understand the factors that facilitate and inhibit the development of innovations. These factors include ideas, people, transactions, and context over time."[65] The end result of process changes is to encourage divisions and departments to work together to achieve organizational level objectives. When process innovations are accompanied by cultural changes, it has the desirable effect of motivating employees in the accounting department to participate in the achievement of department- and organization-wide objectives.

Organizations utilize the OD intervention strategy to introduce planned administrative innovation programs. As mentioned earlier, a popular OD intervention strategy in the 1990s was TQM, which was implemented to develop new operating methods to improve product quality or streamline an administrative system such as personnel or accounting. However, unanticipated implementation problems that can affect successful implementation of the innovation program are likely to prevail if these programs do not involve all members of the organization, including the accounting staff, and do not have the full support of management as part of their overall organizational change strategy.[66]

OD addresses both process and structural intervention strategies because they simultaneously affect team characteristics, functions, and cultural interactions, as well as the structural aspects of management control systems. Accordingly, accounting control systems will be affected by both structural and process intervention changes. These include changes in organizational structures, performance improvement requirements, and process changes affecting individual and team/group cultural environments. However, these changes may require a

radical approach of organizational transformation that goes beyond OD intervention strategies.

Organizational Transformation (OT): A Radical Intervention Learning Strategy

Organizational Transformation (OT) Strategy. In contrast to OD, OT strategy, according to Porras and Silvers, advocates a long-term plan that promotes paradigmatic changes to help the organization better fit its current environment or creates a more desirable future environment. It focuses on organizational learning and a new vision for the organization. The paradigm shift in OT affects the entire behavior across the whole organization, thereby creating new organizational behavior and giving individual employees a new way of viewing their job.[67] Thus, OT intervention leads to both cognition change and commitment to radical change.

The OT process in organizations involves reciprocal exchange relationships to promote congruency and coherence among various units of the organization. Congruence promotes stability and the alignment of resources to satisfy new requirements for system maintenance brought about by environmental changes.[68]

OT's Approaches to Organizational Systems Change. Barnett and Carroll indicated that OT could involve a change in either content or process. When an organization changes its content, it has dramatically altered an element or all parts of its organizational structure, including mission, strategy, authority structure, and technology.[69] A process change, in contrast, affects the way the organization operates within its environmental context, the sequence of activities, and the decision-making and communication systems, as well as the resistance encountered in the organization. Structural change entails changes in organizations' divisions/departments and functions, job design, and organization of work processes and performance evaluation systems.[70] Process and structural changes have become instrumental in bringing organizational change and development.[71]

Technological innovations such as business process reengineering (BPR) have made significant structural changes in manufacturing processes; among others, in inventory and production scheduling management, delivery techniques, and product design and quality improvements.[72] For example, BPR as an OT intervention strategy not only altered organizational systems but also resulted in downsizing and restructuring of organizations. With the advent of new information technology, the implications of BPR's resizing and work processes configurations are substantial for accounting and internal control, particularly with those repetitive, routine functions dealing with the management of current assets and liabilities.[73]

For example, Davidson has suggested that reengineering programs focus on business transformation (another terminology for OT), followed by organizational change. OT accompanies the BPR approach, which follows double-loop learning.

Accordingly, the philosophy of "transformation focuses first on business processes and infrastructure, and second on organizational structures and systems." In other words, business activities can be structured to improve performance "and to then drive organizational change to align with the new business model."[74]

BPR as a business transformation strategy is an example of the OT approach, which assumes that organizational innovations encompass structural changes that involve more than improvements in operational performance. Rather, the focus of the transformation is on the development of core competencies and infrastructure to support core business activities, where organizations can build their "capabilities to introduce enhanced services and value-added processes that in turn can grow into new stand-alone businesses. A philosophy that focuses on the latent business growth potential of the core business represents a fundamental shift in management focus."[75]

The Effect of Information Technology on OT

The role of information technology is critical for OT-oriented process innovation to take place in organizations. Information occupies "a central role as the enabler of entirely new, cross-functional business processes. Computer and communications technology enables organizations to break the old rules and conventions that dictated the design of business processes."[76] Information technology can serve "to increase flexibility, to improve communication, and to integrate different functions and organizations."[77] Accounting as an economic information system thus becomes a cornerstone in business process innovation. Whereas OD innovation intervention is limited to a single organizational unit or function, OT focuses on changing several units or functions with interdependent operating activities.

The systems approach, whether it involves OD's process and structural changes or OT's radical changes, advocates that the functional goals of organizational systems are to sustain acculturation, organizational achievement, stability, adaptability, and survival. In accounting, the systems approach implies that environmental change, systems interdependency, transaction costs, and performance improvement will affect management control systems, whether they involve normative, coercive, or instrumental power control and compliance systems. In other words, the effective functioning of teams or formal work groups in management control systems is dependent on the prevailing characteristics of power control relationship and the organization's cultural and social environments.

A PROCESS VIEW OF CULTURE AND ORGANIZATIONAL POWER CONTROL

The systems approach defines organizations as having cultures. Over time, as organizations become increasingly complex and institutionalized, they develop their own cultural identity, norms, and values.[78] Organizational culture shapes

individual as well as team member behavior by providing direction, stability, and solidarity to group members.[79] Team members show their loyalty and commitment by observing and participating in the rituals of organizational life. Institutionalization ensures that cultural change results are observable and detectable through employee behavior, cognition, and values. Institutionalization becomes an effective process through which planned change programs can be incorporated into organizational culture. "If organizational norms and values are supportive of the change, it will achieve a high level of institutionalization; if norms and values are not supportive, then the change is not likely to occur."[80]

The systems approach takes a functional view of organizational culture when describing decision-making processes. As functional groups, teams contribute to the overall maintenance and operation of organizational subsystems. Team culture and operating procedures become effectively integrated into the overall organizational culture. When institutionalized, culture plays a central role in the formation of social structure and the distribution of power and resources.[81]

Culture—Definitions

By definition, culture encompasses a set of shared assumptions, values, beliefs, and norms that are understood and accepted by individual members and groups within an organization. "Drawn from anthropology, the concept of culture is meant to describe the relatively enduring set of values and norms that underlie a social system."[82] Accordingly, cultural behaviors tend to exhibit enduring patterns of persistence and continuity over time.[83]

Organizational culture thus consists of norms, values, beliefs, procedures and rules that are shared and bind members together. Feldman defined "organizational culture . . . as a set of meanings created within the organization but influenced by broader social and historical processes. Organizational members use these meanings—norms, roles, plans, ideals and ideas—to make sense out of the flow of actions and events they experience."[84] Leadership, founding members, and individual and team/group commitment to certain ideals can help create an organizational culture that influences behavior, commitment, organizational decisions, and attitudes toward innovation.[85]

Accordingly, culture becomes an important component of the organizational change, development and management control process.[86] Cultural norms can be transformed into normative control if they emphasize solidarity, social identity, and the feeling of being part of the group; increase individual identification with the group; and strengthen commitment to the group and organizational goals, thereby reducing turnover.[87] Accordingly, understanding cross-cultural differences in a diverse group or team is critical for promoting cultural diversity as well as increasing assimilation into the group culture, an important component of the organizational change and development process in a diverse society.

Teece approached culture as part of an organization's informal structure.[88] Culture represents the subjective and nonrational values shared by organization

members. The subjective view of culture indicates that "culture focuses attention on the expressive, non-rational qualities of the experience of the organization."[89] Culture expresses what Etzioni referred as the normative–ritualistic expressive control system.[90] Culture thus incorporates issues related to emotion, affection, bias, and prejudice—issues not addressed by the rational model of organizations, but related to expressive–ritualistic aspects of organization life.

Culture becomes a salient form of organizational power and control systems. Culture can augment coercive control if it is used as "an effective way of controlling and coordinating people without elaborate and rigid formal control systems."[91] Once members internalize culture, it becomes part of formal management control systems in organizations. Once culture is institutionalized, it can be "managed, controlled and intentionally changed" by managers to support existing power and compliance systems.[92] If managed properly, culture can become an important instrumental and normative power control for managing teams and directing their activities toward improving organizational performance.

Cultural Change and Development in Organizations

Managers can use existing culture as a lever to influence the course of strategy formulation and implementation. Culture in essence can become "the central focus of an organization's strategy for change."[93] "The belief is that firms that have internal cultures supportive of their strategies are more likely to be successful."[94] At the same time, management can use the coercive control mechanisms of culture to legitimize existing control systems and power wealth disparities.

The cultural perspective views organizational change as encompassing "changes in patterns of behavior, values and meanings" where "changes in strategy, structure and leadership . . . are intimately connected to cultural change."[95] Kanter argued that there are at least four positive attributes of organizational development associated with cultural change. First, when cultural change flattens hierarchical structures and decision-making processes, it encourages employee involvement in organizational decisions. Second, cultural change facilitates effective lateral and horizontal communication. Third, it creates a positive work environment. Fourth, it encourages egalitarian working relationships.[96] In other words, normative cultural attributes of flat hierarchy, job restructuring to permit work teams to perform specific production functions, and on-the-job training have been associated with continuous improvement programs. Normative cultural control thus provides a supportive climate conducive for the effective operations of functional teams.

The OD literature has advanced the view that when cultural homogenization among organizational team members develops, a high degree of social interaction facilitates information sharing.[97] Culture performs a functional role when team members develop loyalty, trust, and commitment, as their relationships with the organization and its external environment remain relatively stable. When group membership is diverse, cultural issues enhance instrumental control when they

are directed on how best to manage groups to facilitating functional relationships among employees, organizations, and the environment.

Barsade, Ward, Turner, and Sonnenfeld discussed the role of positive affective diversity in groups and top management teams. They described positive affective diversity as encompassing psychological personality factors and dispositions that arise from pleasant emotional engagement, high levels of enthusiasm, positive attitudes, energy, and other demographic factors such as age, gender, or race that affect group composition. They suggested that affective diversity of both personality and group components would affect individual member relations with the group, group cohesiveness, and individual perceptions of influence, satisfaction, and participation within the group.[98] In groups characterized by positive affective diversity, normative culture that increases group process interaction results in better group functionality and performance.

An organization's need for managers, teams, and groups to coordinate the growing functional areas increases as the organization evolves from the unitary (U-form)-functional organization to the organization with multiple (M-form)-divisional structures. As organizations become complex, their internal subsystems are divided into subunits or departments.[99] With increasing organizational complexity, cultural homogeneity cannot be sustained. Managers develop layers of hierarchy to monitor complex structures and solidify their control over employees, consumers, and suppliers. Grattet, Jenness, and Curry suggest that in addition to structural complexity, institutionalization "can also produce differentiation of cultural forms and practices."[100]

Yet organizations that are highly differentiated and heterogeneous can support the formation of teams and work groups drawn from several functional areas of management. Differentiation can provide management avenues for normative control by promoting cohesiveness and solidarity among team members who share similar views and opinions on a given issue. Differentiation requires instrumental control of teams if cross-divisional teams are assigned to work on a given specific task.

The relationship between cultural diversity and normative versus instrumental control is related to the size of the organizational populations and systems. As systems size increases, cultural homogeneity decreases, minimizing the affective attributes of normative control mechanisms to facilitate work team compliance. "Large organizations have greater cultural diversity than do small organizations."[101] In larger organizations, specialization and diversity of topics on work-related issues, as well as opinions and political differences, are greater. Teams become instrumental by providing forums for diverse group members with similar interests and specialization to work on projects directed towards improving overall organizational performance.

Burke and Litwin have stressed that "corporate culture (beliefs and values) determines the type of reward system an organization has."[102] If a corporate culture has a stated policy to reward either individual or team performance results, then the organizational reward system should reflect those stated policies. To

change employee behavior, managers need to change those values that conflict with organizational goals and reward those instrumental behaviors that reflect new values consistent with management behavior and strategy. According to Burke and Litwin, "culture change must be planned as well and aligned with strategy and leader behavior."[103] The effect of cultural change on organizational performance depends on the degree and scope of change. When cultural change focuses on organizational mission, it affects the total system. "Changing structure, on the other hand, may or may not affect the total system. It depends on where in the organization a structural change might occur."[104] When cultural change is accompanied by structural change, a successful change process becomes more integrative and systemic, resulting in long-term sustainable change in organizational activities accompanied by continuous innovations in management control systems.

A CULTURAL SYSTEMS VIEW OF MANAGEMENT CONTROL INNOVATION: THE SHIFT FROM INDIVIDUAL TO TEAM-BASED MANAGEMENT CONTROL SYSTEMS

The systems approach to organizational change and management control innovation is rooted in the principles of OD intervention strategy. OD has been viewed by Porras and Silvers as a change program designed to create a "better fit between the organization's capabilities and its current environmental demands, or promoting changes that help the organization to better fit predicted future environments. . . . OD concentrates on work-setting changes that help an organization adapt to its external environments." It focuses on "planned change" approaches that emphasize "change in individual employees' cognitions as well as behaviors."[105] Accordingly, OD has focused on individual and group processes as well as structural arrangements and reward systems.

The cultural intervention approach of OD has been popular in continuous improvement programs of TQM, where bottom-up participation and the use of change leaders (quality circles) have been advocated for production and quality improvement programs.[106] However, as Brynjolfsson, Renshaw, and Alstyne noted, targeted changes in a single system can be counterproductive: "It may be that no single isolated change can improve a process, but that a coordinated change can."[107] The OD approach has advocated simultaneous changes in all organizational systems. Because all systems are interrelated, a change in one component of the system affects all other organizational systems.

The systems approach maintains that the adoption of new methods, including technological and administrative innovation, requires OD-based cultural intervention changes in attitudes, behaviors, and beliefs. These changes can be taught through formal education and training, seminars, delegation to employees, reward systems, and communication channels. To bring about successful cultural change, it is essential for leaders to champion these systemic changes by encouraging members to be involved in teamwork and increasing their involvement

in decision-making, and granting employees more responsibility for making managerial decisions. When process changes are accompanied by structural intervention improvements through job restructuring and enrichment, organizational design, task realignment, and horizontal reporting systems, management control innovations are likely to be successfully implemented throughout the organization.

Systems research in management control has concentrated on a variety of subsystems, including the external environment, organizational structures, and production technologies, that affect the design and implementation of management control systems. Systems theory and its effect on the study of organizations as interdependent systems, the definition of functions and formal positions as embedded in a particular social system, and analysis of a structure in relation to its environment all emphasize the importance of contingency theory in management control research.

Contingency research, in turn, analyzes the components of a given organization and its structure and cultural settings, a firm's ability to innovate and adapt to change, and the effect that environment, technology, and competition have on strategy and the subsequent design and implementation of management control systems.[108] For example, given current changes in the manufacturing environment, contingency approaches could be applied to explain variations in process adoption strategies, relating to just-in-time (JIT) and activity-based costing (ABC) methods for improving cost-accounting systems. Contingency analysis, derived from social systems theory, can be extended to study those unique, situational characteristics of control systems[109] that create a better fit for team decision making on controlling costs and improving organizational profitability, an approach that would corroborate the findings of Drake et al.[110]

Contingency analysis was especially applicable in the 1990s, when substantial changes took place in the business environment. These included intense international competition; shifts in customer demands from high-volume, low-cost products to better quality, customized products; increased governmental regulation molding business organizations accountable for their products and services; and increased organizational concentration resulting from mergers and acquisitions in high technology, electronics, telephones, and consumer products and services. To respond to these rapid-paced environmental changes, business organizations initiated the quality movement. New management philosophies such as TQM and business process reengineering (BPR) were implemented in many organizations to support more flexible organizational structures and systems to manage process innovation changes.[111]

These organizational changes have shifted the basis of management control systems from meeting separate, individually based budgetary goals to a dependence on the achievement of organization-wide goals. Performance and compensation packages are now being increasingly tied to team-based performance goals. These environmentally induced changes in management control systems have led to profound cultural changes. The conventional model of

management control, which stressed individual control, centered on principal–agent (management–subordinate) relationships, hierarchy of authority, chain of command, and bureaucratic control, has changed its focus from individual to team-based control systems. Accordingly, in Chapter 6, the effectiveness of team-based management controls that are employed in manufacturing organizations to monitor production quality and cost control, as well as manage incentive systems, will be discussed. Chapter 6 outlines the management control contexts under which self-managing teams have been extensively used in the design and implementation of process innovation changes in management accounting systems such as ABC. It is shown that team-based control in organizational management, in turn, has been necessitated by innovative approaches in management accounting systems such as ABC.

NOTES

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CHAPTER 6

Management Control Systems and the Functional Adaptation Performance of Work Teams

The theory and practice of management control of teams has received research attention recently, as organizations recognized the importance of adopting improved management accounting systems to respond to environmental changes in the 1990s. International competition highlighted the importance of cost and the need to undertake changes in organizational structures and systems, which contributed to the restructuring of organizations, including downsizing and closing of departments/branches, as well as management changes.

The emergence of new organizational structures and the need to cut costs and to change the cost structures associated with growth brought forward the importance of teams in managing organizations. Moreover, organizational growth through acquisition and diversification strategies, coupled with technology and structural changes, have created the need to coordinate team activities. The adaptive framework of organizations has advanced the view that management control systems in organizations are functional and have the objective of improving decisions.

THE ADAPTATION FRAMEWORK OF MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS

The theory and practice of management accounting and control research have incorporated the adaptive approach to organizations to document that decisions reached through teams/groups yield better results when compared to decisions made by individuals. Accordingly, teams and work groups are perceived to perform important functional roles in organizations.[1] Recent studies in behavioral accounting research have indicated that management control decisions in

complex organizations are adaptive and can be substantially improved if teams and work groups participate in organizational decision-making processes.[2] These studies have suggested that teams and work groups can yield relatively better management decisions than would have been realized from individual decisions. They have recognized the contribution teams can make in improving management control decisions as well as performance.[3]

An organizational adaptation systems change approach examines teams' performances in relation to organizational change and development, managerial power relations, cultural systems, and process innovation changes in management control systems. Systems analysis provides a theoretical perspective to study the formation and operational activities of teams in relation to organizational development and emerging power control in organizations. It examines the functional role of teams, as well as the effect that organizational, environmental, and development stage factors have on team performance in management control system innovations. Teams' performances in the managerial decision-making process thus depend on environmental factors including the size, composition, and tasks assigned to teams. When organizations are viewed as systems, team members are expected to be representative of several disciplinary or functional areas of management, including accounting, finance, and production, as well as marketing. Once teams are formed to carry out purposeful actions, the effectiveness of self-managing teams depends on the type and mix of the types of power relations—normative, coercive, and utilitarian (remunerative–instrumental)—and three associated forms of compliance: moral under normative power, alienative when coercive power is used, and calculative in remunerative power.[4] These three approaches constitute the underlying framework in the management control systems literature, particularly for managing teams in industrial organizations.

WORK TEAMS: DEFINITIONS

Work teams are defined as having members who are drawn from several departments or possess different functional areas of specialization; for example, accounting, finance, marketing, production, or organizational expertise. Hollenbeck et al. have identified three team attributes that are important in team decision-making processes. First, teams are highly interdependent, and members collaborate with each other to share information relevant for their task assignment. Teams plan and schedule their work, assign specific tasks to individuals, select leaders who can manage and lead, and take initiative in innovations and problem solving. Second, team members share "a common goal and a common fate" where the success or failure of the team affects individual outcomes. In other words, teams are held accountable and responsible for their performance outcome. Third, there is interaction, influence, and feedback among team members.[5] Hollenbeck et al. stressed that process feedback coupled with outcome-type related information yields better performance results.[6]

There is substantial research in the management accounting literature, which relates performance feedback and economic incentives to performance outcome and accountability.[7] However, it needs to be noted that there are cultural, social, and political barriers that hamper the effectiveness of teams.[8] Implementation of self-managing teams is a long-term continuous process evolving over time as the organization begins the process of forming work teams. Therefore, cultural, social, and power control issues can affect the effective functioning of teams in organizations. Accordingly, the effect of power and compliance systems on the three types of teams' management control systems—concertive–normative, group-based control–coercive, and remunerative-instrumental—in complex organizations is presented.

TEAMS AND MANAGEMENT CONTROL SYSTEMS

In the 1990s, the development of teams and work groups changed the traditional top-down hierarchical management control systems in many business organizations. Accordingly, three competing models of team-based control systems in organizations have evolved. Two of them are the concertive control proposed by Barker[9] and the coercive group–based control advanced by Ezzamel and Wilmott.[10]

The remunerative–instrumental control, the third model, has constituted the basic control model in management accounting literature. The next section discusses the theories and approaches of these three control systems for managing teams and management control systems process innovation changes.

Concertive Control

Barker suggested that concertive teams in manufacturing organizations develop their own rules and regulations to manage member performance. These rules are either implicit or explicit and do not follow the traditional model of management control systems based on superordinate and subordinate relationships. Barker argued that in team-based management, organizations transform from a hierarchy to "a flat confederation of concertively controlled self-managing teams."[11] Self-managing teams have been commonly used in organizations that are downsizing to eliminate unneeded supervisors, middle-level managerial positions, and change management-labor authority relationships. They have changed the basis of management control from the individual to a group-based control system. Teams use corporate vision and guidelines to formulate rules and regulations to maintain organizational stability through group behavior. In essence, teams have developed contingency guidelines of concertive control system to manage the behavior and performance of team members.[12]

Barker defined concertive control as a team-based control system in which control shifts from management to workers. Workers openly discuss team goals. Through dialogue, they reach consensus on their own control systems and the performance of goals expected from self-managing teams. Team members,

through peer review and participatory control systems, develop guidelines for member performance and reward systems. Concertive control becomes the new method whereby workers develop a set of core corporate values through negotiation.[13] Unlike the traditional control model of managed supervision through reward–punishment and coercion to secure employee adherence to organization rules, concertive control uses peer review and participatory group control to monitor member performance.

Barker described the team participatory decision-making process as "negotiated consensus" decision-making. He believed that "this negotiated consensus creates and recreates a value-based discourse that workers use to infer 'proper' behavioral premises: ideas, norms, or rules that enable them to act in ways functional for the organization."[14] The inference is that this consensus is then translated into rules and procedures by and for the team.[15] In essence, the team is expected to practice self-discipline in their work behavior. Over time, the culture of concertive control further rationalizes the legitimacy of team rules and regulations in organizations and its institutionalization among work groups, employees, and other members of the organization.

Participation, involvement, commitment, and cohesiveness, which are described in teams as democratic decision-making processes, are attributes associated with concertive control systems.[16] When team rules reinforce group cohesiveness, trust, and cooperation, teams become interdependent with one another and collectively share responsibilities among themselves. Decentralized structures promote member participation in team activities and facilitate the flow of information. Inclusive involvement of work team members creates a flat organizational structure, which enhances democratic work place environment. Coopman associated the process factor of involvement in decision making, team interaction, listening, and sharing feelings as components of team democracy that encourage communication and satisfaction while increasing team performance.[17] Both Barker[18] and Coopman[19] view democratic decision-making—involvement, trust, cooperation, and group responsibility—as the essence of concertive control among team members. Although both Barker[20] and Coopman[21] do not explicitly discuss structural factors, they emphasize that team settings provide a decentralized structure that supports a democratic workplace environment. In other words, structural factors, decentralization, process attributes, participation, access to information, and perceived empowerment are necessary conditions for creating a democratic workplace environment that enhances both individual satisfaction and team performance accomplishment.

Concertive control is based on the principle that individuals are committed to the group and are willing to take risks in situations of social uncertainty.[22] Because teams are interdependent, they are expected to share information (feedback), use feedback for improving performance,[23] and collaborate to improve organizational performance and resource allocation decisions.[24] Teams have contributed changes in organizational systems, including structures and accounting control systems. Commitment among team members promotes shared control and mutual

responsibility. Concertive control systems develop when team members jointly agree to monitor their behavior as well as the behavior of group members. Concertive control can eventually evolve into administrative innovation systems, which production and service industries can use to introduce new approaches for resolving existing bureaucratic problems.[25] An extension of Etzioni's[26] view of instrumental control indicates that accounting as an administrative control system enables managers to simultaneously use both concertive and coercive controls as coordinating mechanisms for managing the internal operating procedures of the organization.

Group-Based Coercive Control

Ezzamel and Wilmott suggested that teams are susceptible to the development of a group-based coercive and dictatorial control system. They presented a slightly different interpretation, in that they maintain that team-based management control systems are neither democratic nor participatory in their composition and enforcement of team rules.[27] The authors challenged Barker[28] and other management scholars whose views suggested that teamwork is prominent in restructuring work and organizations, as well as in decentralized flexible work settings.

Ezzamel and Wilmott carried out a critical perspective analysis, in which they argued that the self-management democratic approach of teamwork might contribute to less autonomy and lead to disempowerment through concentration of managerial control and expansion of certain coercive features of team culture and ideology. In certain teams, charismatic and influential leaders may use the team decision-making approach to advance their own work and political ideologies so their agenda becomes part of the operating team culture. Ezzamel and Wilmott suggested that teamwork reveals political aspects in work reorganization that may include coercion and individual control of teamwork.[29]

Ezzamel and Wilmott noted "the shift to teamwork was generally experienced as posing a threat to the narrative of self, not as an empowering relaxation of managerial control."[30] They elaborated that over time, concertive control will evolve into a set of ideologies that tend to be ritualistic in nature, where adherences to these rituals are strictly observed. They advanced the view that accounting numbers were used as rituals to justify the team approach, and they argued that accounting has played an important role in justifying, supporting, and rationalizing the team-based dictatorial approach to management control.[31] If accounting numbers are used to evaluate and reward performance, coercive control can be legitimized and justified through remuneration and economic incentive systems. In other words, as Etzioni[32] suggested, coercion could be reinforced through remuneration and can become an effective way to enforce compliance for blue-collar organizations—the focus of the Ezzamel and Wilmott[33] study—including lower-level white-collar workers.

There is validity to the Ezzamel and Wilmott argument that team decisions have political ramifications of coercion, control, and ritualistic behaviors, and that team members do not necessarily behave in an egalitarian manner.[34] In

corroboration, Katzenbach noted that even among top management teams in those best-managed companies, nonteam behavior was manifested by the committee chair controlling the team agenda, lobbying to gain support of individual members, and implementing team decisions.[35]

Although there is a strong organizational culture favoring management control of team agenda and operations, teams have the potential to offer the most democratic approach in organizational decision-making processes. In most situations, decisions made in committees and groups tend to be democratic because the group provides a forum for all members to participate and express their views. Contrary to the assumption that dictatorial fiat and imposition of in-group decision-making prevails, most teams reach decisional agreement through consensus, allowing for mutual understanding and cooperation.[36] This decision-making approach corroborates what Barker referred to as a "negotiated consensus" decision-making process.[37]

Similarly, a problem associated with in-group consensus and concertive control is that the conflicting demands between individual and team performance do not support the collective/mutual accountability essential to the effective functioning of teams under normative control. Rather, there is competition and coercion among team members for access to organizational resources. Once teams and work groups are formed, the extent of their autonomy and effectiveness depends on the structure and process by which they were organized, the degree of legitimacy accorded to them, and the reward/incentive allocation systems tied to their performance outcomes. If management granted teams more autonomy and flexibility, teams would be empowered to be responsible for completing their assignments, tasks, or jobs on time.[38]

Organizations as political institutions involve coalition building, exercising control, allocating resources, and defining evaluation systems and compensation packages as well as managing the external environmental factors. The role of power and exchange influences the resource allocation decisions,[39] the incentive systems, and the operating structure of teams.[40] To counter the effects of power and politics, whereas the normative approach advocates an empowerment that allows teams to develop their own rules and policies, remunerative control emphasizes access to resources, the sharing of strategic information, and the bridging of teams across organization.[41] Remunerative control works best when formalized accounting systems such as activity-based costing (ABC) are put in place to institute instrumental oriented human resource management policies for managing team performance and accomplishment.

Remunerative Control

Remunerative control is based on the assumption that individual accountability is more appropriate for maintaining control over performance through material remunerative rewards. In extreme cases, coercive control can be used to supplement remuneration to secure employee compliance.

Accordingly, remunerative control has been the focus of management accounting control—particularly ABC systems—in many industrial organizations. ABC as an administrative control tool plays a central role in the design and implementation of instrumental-remunerative control systems for self-managed teams and groups.

Activity Based Costing Administrative Control Principles. Activity based costing (ABC) is an administrative innovation that was introduced as part of the quality movement in the 1990s to adapt management accounting information reporting systems with changes in technological developments in manufacturing organizations. Argyris and Kaplan suggested that competitive and technological environmental changes in the 1980s contributed to the development of new products and services. Accounting systems developed new techniques to account for changes in product costs, quality, and customer requirements. The ABC approach developed techniques "for assigning the indirect and support expenses of production, marketing, and selling activities."[42]

According to Drucker, the underlying assumption in ABC "is that manufacturing is an integrated process that starts when supplies, materials, and parts arrive at the plant's loading dock and continues even after the finished product reaches the end user. Service is still a cost of the product as is installation, even if the customer pays." ABC takes a systemic approach in analyzing and integrating "what was once several activities-value analysis, process analysis, quality management, and costing—into one analysis."[43] When calculating product cost, the objective of ABC is to help eliminate those activities (i.e., non–value added activities) that do not contribute to improved performance.[44]

ABC is designed to provide accounting information on the cost of activities associated in producing products and delivering them to customers. Activity drivers that generate costs are assigned to products and customers, and cost drivers are assigned to all activities that generate those costs. Product costs are determined by adding costs of each activity incurred in making the product. Overhead is identified with those activities that generate the costs, instead of being allocated to products or operating departments on the basis of selected already existing allocation bases, such as direct labor hours, units of volume produced, or processing/machine hours spent on the product. ABC attempts to provide cost information on each activity and other quality costs associated with each activity.[45] Cost drivers associated with each activity determine the workload required to perform an activity and thereby measure the workforce productivity for the work done in the activity.

ABC assists in identifying the major activities needed to make the product and provide the associated quality costs to assist production managers to control quality costs through continuous improvement of the major product activities. The ABC system thus allows for identifying the costs associated with the activities of the product, accurately determining the total and unit costs for each product, and facilitating a more profitable product pricing system. Accordingly,

the focus of ABC's cost objectives has been directed at those activities that affect production decisions. As an accounting method, ABC "refers only to the actual technique for determining the costs of activities and the outputs that those activities produce . . . the aim of ABC is to generate improved cost data for use in managing a company's activities."[46] ABC thus gathers information on operational activities that support continuous improvements.[47] Because of ABC, accounting has been increasingly integrated in organization processes at both strategic and operational levels.

For accounting to play a role in promoting change in organizations, the contribution of accounting for improvement should be directed on the "real activities" of the organization, but "not on objectives or general principles."[48] Improving the activities of the organization requires an administrative infrastructure that is systemic and integrative. Such interactive work can be handled through dialogue, negotiation, and communication among divisions/units. Results that are obtained are based on concrete experiments with defined time periods. The learning process in organizations requires identifying problems, collecting data, and solving problems in a step-by-step format incrementally, with the objective of satisfying people and improving employees' competence and the organization's performance.[49] These accounting changes, although incremental, have been able to extend accounting information systems to business and information technology strategies.

Activity Based Costing Implementation Issues. Although the benefits of ABC innovations are higher than the costs associated with implementation, organizational structures such as decentralization, centralization, formalization, and differentiation have affected ABC's implementation. Organizations with organic structures tend to have structures that are decentralized, less formalized, and undifferentiated and that are more appropriate for initiation of administrative innovations. Those with mechanistic structures that are centralized, formalized, and differentiated have become instrumental for the adoption and implementation of administrative innovations.[50] "ABC is an administrative innovation because its implementation may lead to new administrative procedures, policies and organizational structures."[51]

When organizations decide to adopt ABC, bureaucratic structures, including centralization, play an important role in the adoption decision. Gosselin raised three related issues that are associated with the adoption of ABC in centralized structures. First, "centralized and formal organizations that adopt ABC are more likely to implement ABC than decentralized and informal organizations." Second, "decentralized and less formal organizations may have greater flexibility to stop the ABC implementation process . . . if they feel it would be relevant to do so." Third, "vertical differentiation may have more impact on the adoption decision than on the implementation process."[52]

Mechanistic organizations prefer to adopt ABC because it is a formal accounting system. Because bureaucratic organizations are centralized and have

higher levels of vertical differentiation that encourage ABC adoption, they are able to carry the administrative innovation all the way through implementation. Centralization and formalization become the appropriate organizational structures to commit the resources needed for ABC implementation.[53] Organizational contextual factors affect the diffusion of ABC innovation process and either encourage or discourage the "implementation of innovation."[54] Moreover, the successful implementation of ABC depends on the extent to which managers support their implementation in the organization.

Administrative innovations in accounting and control systems have received less acceptance and minimal support by senior level management. The resistance to administrative innovations including ABC has been attributed to the slow pace in innovation, resulting from organizations with constraints in organizational, personnel, and hierarchical structures. It has been found that organizations with decentralized and autonomous divisions have resisted the adoption of ABC, compared to centralized organizations.

ABC as a formal accounting system is more likely to be adopted by mechanistic centralized organizations. It benefits organizations that are hierarchical and interdependent with cross-functional arrangements and that incur a great deal of transaction costs. The key to ABC is the understanding and analysis of transaction costs, activities, and intraorganizational relationships.[55] The economies of scale advantage that centralized organizations enjoyed as low-cost producers have created barriers for ABC implementation. They include "too many or too few identified activities and cost drivers; overly complex system design; reciprocal cost allocation; and lack of technical expertise on the identification and analysis of activities."[56]

Implementation problems are largely organizational issues associated with the sociotechnical settings of ABC. ABC requires the commitment of materials and resources for the project. If senior managers mandate ABC without commitment from lower level personnel, it will have minimal effect. ABC systems meet the least resistance in situations "where senior operating executives had sponsored the project and were actively involved in its early phase."[57]

Senior management's involvement in ABC provides legitimacy that ABC is a serious and important undertaking, and it also promotes coordination and interaction among functional and divisional managers. If senior managers can provide job security to employees and possible reassignment for employees affected by ABC, they can receive ABC support at lower personnel levels. By minimizing barriers through incentive structures and performance reward systems aligned to ABC, implementing ABC at a critical time when information is available, and knowing the potential savings and costs, ensure the success of ABC.[58]

Argyris and Kaplan stressed that ABC would promote changes in organizations when ABC has incentives aligned with support programs. Organizations develop "systems or structures that facilitate, reward, and reinforce collective change. Examples of such organizational enablers include employees empowered to act at the local level, reduced managerial layering, financial and non-financial rewards

for successful implementation, and information systems that produce relevant information in a timely and user friendly manner."[59]

The adaptive systems view of organizations indicates that external environmental factors influence the adoption and diffusion of innovation. Competition is an important institutional environment that has bearing on innovation. Anderson's study of ABC implementation at General Motors Corporation (GM) revealed that competition brought with it the importance of cost and the need to design new cost systems. GM adopted ABC, because GM's competitors had adopted ABC. It corroborated the assertion that "the identity of voluntary adopters of ABC is consistent with the claim that competition and environmental uncertainty promote ABC adoption."[60] Anderson's GM study supported the idea that external communication through publicity and competition from outsiders provided internal support and external validity to ABC implementation. It helped to "overcome internal resistance by management" and "reinforced management's commitment to ABC."[61]

ABC, as an administrative innovation change program, requires a series of process stages for the successful completion of the initiation process.[62] The initiation process includes data gathering, resource funding availability, cultural program of attitudinal change, education and training, and management support/sponsorship. The implementation process requires structural support of formalization, centralization, and decision-making in the organization's bureaucratic structure. Although organic structures support initiation, it is the mechanistic structures that implement them. The implementation of ABC and other accounting changes as administrative innovations will thus be influenced by the prevalence of mechanistic structures in organizations. Once ABC is adopted, the potential gains to be realized from ABC as remunerative control mechanisms are substantially higher than the costs incurred to implement them.

Activity Based Costing and Remunerative Control Systems. Accounting studies have emphasized the role ABC plays as remunerative–instrumental control when teams are involved in cost management and control to improve organizational performance and profitability. Drake, Haka, and Ravenscroft examined the importance of team-based decision making in relation to ABC in controlling manufacturing (product) costs related to volume. For them, "ABC systems differ from more traditional volume-based costing (VBC) systems by highlighting the consumption of process resources that are under the control of multiple individuals. These resources are typically related to batch-level, product-sustaining or facility-sustaining costs. To reduce such costs typically requires the coordinated effort of multiple workers rather than isolated efforts by individuals."[63]

Drake, Haka, and Ravenscroft suggested that team effort is needed in ABC systems to control costs associated with volume. "By fostering or inhibiting cooperative efforts among workers, incentives can play a key role in the type of decisions that occur."[64] Their study documented the relationships among ABC, teams, innovative activity, and firm profitability. The results revealed that "in

ABC-type settings, where significant cost reductions can be gained primarily from coordinated efforts of multiple workers, incentives that motivate cooperative innovations result in higher profits. Providing ABC information to workers with individually oriented incentives results in fewer multi-person process innovations and lower profits."[65] Because individual incentives worked against team effort, it is only cooperative work that can contribute to higher profit. The authors stressed the critical role of team incentives in the successful implementation of ABC.[66] Their results demonstrated that remunerative rewards and economic incentives increase profitability when directed to team rather than individual performance.

Drake, Haka, and Ravenscroft's findings provided empirical support for Etzioni's assertion that remunerative economic rewards are appropriate mechanisms of control for manufacturing and production organizations processing a high volume of goods and commodities. Accordingly, when compensations/remunerations are instrumentally allocated consistent with team performance, immediate team performance is not only enhanced but improves over time as teams participate in performance measurement and reward allocation decisions.[67] Teams can play important roles in providing better cost information for cost reduction and optimal resource allocation, both in manufacturing and service organizations.

Evans's study extended the role of teams in providing better cost information to service organizations, particularly hospitals. He discussed the importance of health care teams in hospital cost management and their effect on changing operational processes. He also noted that team management has decentralized decision making among physicians. Teams have been effective in developing physician profiles to compare hospital resources use with their associated costs. Hospitals not only used the team approach to reduce costs associated with labor and overhead but also adopted a quality management program to continuously improve their health care delivery systems. According to Evans, departmental teams not only compare results but also develop alternative systems in situations in which a physician's consumption of resources exceeded the hospital average.[68] Although this approach provided effective individual remuneration incentives, it also facilitated cooperation and mutual working relationships among team members.

Evans further discussed how organizational performance depends on the mix of relationships among changing organizational structures, teams, and employee commitment levels.[69] Coopman's study of health care teams described the relationship among commitment, trust and cooperation, involvement, compensation incentives, member satisfaction, and accomplishment of team tasks.[70] Accordingly, satisfaction and retention affect organizational performance. High-performance teams have been associated with improving both product quality and labor productivity in manufacturing organizations.[71]

Nevertheless, the quality of information shared among team members, which varies according to process feedback, intervention strategies between managers

and subordinates, and team member experience, have all affected the accuracy of team decision-making processes.[72] If teams are able to pool information not shared before, there has been substantial improvement in overall accuracy of team decisions[73] beyond the simple pooling of shared information alone. Remuneration systems and instrumentality control have affected the flow and quality of information exchanged among team members and its subsequent use in organizational resource allocation decisions. Remunerative control accordingly can align traditional individual management control, contractual relationships, and incentive structures to collective control, group incentive arrangements, and responsibility systems. However, the effectiveness of remunerative–instrumental control depends on the extent to which remuneration and calculative material incentives are institutionalized as part of the normative or coercive culture of the organization.

PROCESS, STRUCTURAL, AND TECHNOLOGICAL FACTORS: THEIR EFFECT ON MAKING MANAGEMENT CONTROL SYSTEMS OF TEAMS ADAPTIVE

Teams operate in organizational contexts. Accordingly, process, structural, and technological developments of the organization affect the type of management control system—concertive, coercive, or remunerative—and the operating activities of teams.

Organizational Process Development Issues

Barker has suggested that concertive control in general supports normative compliance characteristics that are congruent with behavioral changes and organization process development.[74] In other words, in concertive control systems, team and work group behaviors are characterized by openness and objectivity in their decision-making processes. Stata described openness as a process whereby team members communicate agendas in advance of meetings to promote cooperation and trust among members. Objectivity, in contrast, occurs when team members search for fact-based impartial solutions that are free of political and parochial interests.[75] The extent to which team leaders observe concertive control practices largely depends on the degree to which individual team members feel that the organizational climate fosters openness and objectivity in team interactions.

A major principle behind concertive control is that both process and structural interventions in management control innovation happen simultaneously. When they occur in tandem, team members experience affective behaviors that motivate them to work cooperatively to implement the required process and structural changes.

Organizations that are continuously adopting process intervention strategies and innovations are constantly revising and changing their philosophies and

approaches to management control systems.[76] The technological changes and the quality movement of the 1990s have contributed to changes in management control processes from the earlier more formalized accounting procedures of meeting budgetary goals and individual performance guidelines (mechanistic approach) to the more recent processes of participation, delegation, and autonomy to attain team-based management performance targets (organic approach).

Organic innovative systems encourage the institutionalization of team-based management approaches as substitutes for formal control systems in which teams can independently establish their own performance goals.[77] A team-based management control system is inherently rooted in a cognitive approach to managing employees in which employees can use personal, face-to-face communication, flexible feedback, and interpersonal relationships to promote trust, cooperation, collegiality, and coordination among themselves and their respective divisions. Birnberg has described these shifts in control systems as cognitive-process changes to control, where teams have the autonomy to establish and enforce their own performance goals, thereby influencing their remuneration compensation packages.[78]

Cognitive control, like any process change, has drawbacks, as it creates conditions that can appear subjective to individual members when team performance is assessed.[79] Nevertheless, in cognitive-based team control, formal control is substituted with frequent use of personal and flexible feedback, interpersonal relationships, face-to-face contact and communication, cooperation, and open coordination among divisions—characteristics prevalent in organic organizations.[80] In other words, the cognitive process of performance feedback, whether negative or positive, involves escalation of commitment and trial and error learning.[81]

The organizational change and learning process highlights the importance of performance feedback and instrumental rewards to increase team member commitment to incrementally improve performance beyond current levels. Normative process control attributes of empowerment, autonomy, cooperation, team leader and follower relationships, and information exchange, when supplemented with instrumental–remunerative rewards, can enhance team functionality and team member effectiveness. It can also be inferred that there is an economic incentive for team members to share information and participate in decisions that affect product quality, labor productivity, and organizational performance. However, structural arrangements, whether mechanistic or organic, can affect the degree to which process issues contribute to the functionality of teams and improved organizational performance.

Organizational Structural Development Issues

Organization structural issues address structural arrangements and contextual and job-task activities. Structures that manifest in centralized or decentralized forms can be loose or tightly controlled or can involve independent or

interdependent tasks. These conditions have a direct effect on the operation of the three control systems—normative, coercive, and instrumental–remunerative—and in turn, affect organizational performance.

Structural Arrangements. Burns and Stalker have identified two types of organizational structures: mechanistic and organic structures.[82] Mechanistic structures exhibit hierarchical differentiation with several chain-of-command levels, concentration of power in top management, and centralized decision making. Organic structures, in contrast, have flexible organizational arrangements that are amenable and adaptable to changes in their institutional environments. Hierarchy is horizontal, with less differentiation, limited chain of command, and minimal bureaucratic features.

Given both mechanistic and organic structures, the team approach to decision making is more appropriate to divisionalized (organic) organizations with decentralized and matrix structures. Matrix structures support the formation of teams and team decision-making processes through horizontal structures and communication channels. In these structural arrangements, the team-based approach reduces the tracing of decisions to individuals by making members of the group as a whole accountable for the decision-making process. Morrill, in a study of the executive decision-making process, noted that "matrix systems promote the syndication of risk by entire executive corps as groups of high-level managers embedded in complex authority relations are responsible for decision-making rather than individual managers. In such a structure, it is difficult to trace decisions to any one manager; most decisions must be traced to some group process within or between product teams or departments."[83] Accordingly, the team decision-making process is a joint responsibility of all members of the group, whereby each individual member collectively shares the success or the failure associated with team decisions.

Contextual Job-Task-Related Issues. Organizational tasks/jobs can be either simple or complex, requiring interdependency relationships among several tasks. Tasks in centralized structures are relatively simple and mechanistic. In matrix and organic systems with decentralized structures, tasks can be relatively complex and interdependent, requiring a highly skilled labor force, experienced management, and autonomous, cross-functional teams.

Zetka noted that decentralized organizations with coordinating work structures have interdependent tasks for which efficiency, rationality of production processes, and cost control give rise to the formation of teams.[84] A dominant actor can control team and subordinate actions when technological production techniques require pooled interdependence, where task performances are segmented from one another, and when the tasks performed by segments are relatively simple and task coordination occurs in a face-to-face interaction. This structure is prevalent in blue-collar manufacturing organizations in which bureaucratic (accounting control) or simple personal control prevails. The operation of this team

structure corroborates with the description of coercive control described by Ezzamel and Wilmott.[85]

As Zetka described, when the technological process includes tasks that require collective or group-based coordination skills, it is necessary to restructure those task units so that processing of complex information is available on a timely basis for the groups to coordinate their actions collectively.[86] Complex task structures require the development of mature groups that are synergetic. Zetka described two task coordination structures in medical surgery that are applicable for both command–coercive and normative–symbolic control.[87] When the task coordination in the hospital involved conventional medical surgery, where physicians work face to face on surgery on a moment-by-moment basis, a command control mechanism managed by a dominant actor (i.e., a team leader) is effective for coordinating the actions of team members. Physical proximity of the work object has made the dominant authoritarian control system more effective.

In contrast, if there is no close physical proximity, and no-face-to-face feedback, the medical task structure requires nonverbal communication channels, including video screens and computer monitors, creating virtual interactive contexts. Workers who perform these tasks are highly experienced and specialized and do not rely on command and control mechanisms to carry out their tasks. In these situations, Zetka noted that coercive control is not recommended because it could slow down and disrupt collective performance.[88] To this effect, Etzioni noted that normative based control through peer review, which is nondictatorial control, is commonly used among higher-rank participants. If they fail to perform, they are transferred to less important positions. For them, moral involvement and intrinsic satisfaction from work associated with prestige and esteem are more important than remunerative rewards.[89]

A study by Zetka presented two contrasting situations in which the command control described by Ezzamel and Wilmott and the concertive control that Barker described could occur.[90] Environmental and geographical factors, in addition to structural and work/task-specific requirements, would create work conditions in which the two types of control systems operate simultaneously in complex organizations in their growth and stability, or crisis and realignment stages of development. Etzioni described power/control systems that need to be specified within the context of organizational structures and technological work/task complexities.[91] Complex organizations have work structures that are interdependent and require work teams that operate in normative, remunerative, or coercive control systems to coordinate complex tasks.

Tasks that are interdependent are complex, and managing transaction costs among these functions become critical in management control.[92] Accordingly, work task–related contingencies influence the type of control system—command–coercive, normative, or remunerative—that will be predominantly used by the team members to accomplish their tasks. It must be noted that both command and normative control cannot be entirely effective in securing the compliance of team members unless they are accompanied by instrumental–remunerative controls.

The type of management control system used is also affected by team member response and adaptation to environmental and process innovation changes.

Structure and the Control of Information Flow. The level of organizational structure—highly or loosely controlled team structure—has an effect on the control, flow, and accuracy of information among team members. Accounting and auditing studies conducted within auditing contexts have documented that organizational structures affect the flow and accuracy of information and communication within audit teams. Rudolph and Welker have pointed out that although organizational structure provides control and coordination that regulates information overload, it constrains the timely availability and accuracy of information exchanged for decision-making purposes.[93] The authors suggested that a highly structured audit committee apparatus, which is synonymous with Ezzamel and Wilmott's command–coercive control structure,[94] provided mechanisms for regulation and control but resulted in low-quality information and reduced satisfaction among employees. They implied that structured audit settings are appropriate for less experienced auditors, which Etzioni described as low-level white-collar workers.[95] It can be inferred that structured settings give rise to a dominant actor in the team structure, who then centralizes the flow of information.

These highly structured settings give rise to what Ezzamel and Wilmott described as group-based power control,[96] or what Etzioni referred to as coercive control[97]: a dominant actor or coalition would centralize the accounting information system and dominate the coordination and flow of information. Recent advances in information technology and computerization have contributed to increased management demand for accounting information for strategic planning purposes and the need to centralize (mechanistic structures with a command/coercive control mechanisms) the information system for planning and control purposes.

The Rise of Electronic Surveillance in the 1990s as an Alternative Control Mechanism. With advances in information technology, the use of accounting information has expanded beyond the traditional management control function. International competition has made accounting and related financial information a strategic tool to assemble inside information on competitors, or what Wilensky referred to as organizational intelligence.[98] Intelligent information systems also have been used in organizations for surveillance and monitoring. Sewell has noted that management information systems have enabled managers to use surveillance on teamwork to monopolize power and knowledge in the work place.[99]

Sewell suggested that surveillance, when conducted through electronic and peer controls, can become an effective way to control and subordinate the industrial labor force.[100] Although teams have become popular in many organizations to empower employees, counter worker alienation, provide workplace settings for self-managed teams to have autonomy over their work, and participate in the decision-making process, surveillance has created normative control tyrannies in

team management control. The demand for continuous improvement and better-quality products and the need for controlling costs have linked normative control with direct supervision of employees to improve labor efficiency. Information technology, although advancing communication, coordination, and integration of work among team members, has facilitated close monitoring of team member activities. Accordingly, technology has eroded normative team characteristics of autonomy and emancipation from direct control by management. Management can now use information technology to monitor and scrutinize teamwork activities to the point at which teams exercise a limited degree of autonomy in organizing their work plans. Technology enables management to group workers into categories of poor or good performers according to standardized performance criterion.

Sewell argued that "surveillance enable[d] the evaluation and reward or sanction of individuals in a context of teamwork."[101] Accordingly, electronic surveillance has increased "compliance through self discipline" and has "supported new relations of power and domination in addition to reinforcing existing ones."[102] Management has used surveillance to monitor workers' adherence to company rules but also to rationalize their activities in accordance with organizational goals. Surveillance has emerged as an alternative form of control to normative–concertive control for what Etzioni[103] referred to as the instrumental activities of the organization. It can be inferred from the Sewell[104] study that advances in information technology over the years have significantly changed the use of surveillance in the workplace. These evolutionary changes have included transitions from the technical control of the 1900s to the bureaucratic control of the 1940s, followed by the scientific management control of the 1960s, accompanied by the cultural control of the 1970s and 1980s, and eventually to the growth of electronic surveillance control in the 1990s. These advances in technology have most affected the informed and educated labor force, or the professional workers formerly subjected to normative control mechanisms.

However, it needs to be noted that the effective use of electronic surveillance control for performance monitoring depends on the degree to which the organization has integrated information technology in its functional areas of management. Technology has revolutionized bureaucratic–coercive control into normative–electronic and peer surveillance control without face-to-face interaction with team members. Sewell emphasized that surveillance enhanced concertive control, enforcing compliance through ideational control, in which all team members continuously improve their performance to accomplish team concertive activities.[105] Although information technology has changed the type of management control system, the essence of control, which is rooted in monitoring, subordination, and domination, has remained the same. As Etzioni noted, "most organizations most of the time use more than one kind of power. Control might be predominantly coercive, utilitarian or normative."[106] Therefore, it can be inferred from Etzioni[107] and Sewell[108] that coercive control, in either the form of concertive or surveillance control, may coexist with instrumental–remunerative as well as

normative compliance systems. Again, it is to be noted that these coercive control mechanisms would not produce the desired compliance structure unless accompanied by remunerative incentives.

TEAMS, MANAGEMENT CONTROL, AND PROCESS INNOVATIONS

The effective management control of teams is based on the assumption that bottom-up, group-based approaches, rather than top-down individual-based command approaches, provide better solutions to organizational crisis and problems.[109] When organizations face environmental uncertainty and are in crisis, they respond to their crisis through new strategic plans that call for both structural and process changes.

As a result, new organizational structures based on systems principles of proper (down) sizing and decentralized decision making are instituted that support self-managing teams. Krishnan and Park suggested that when organizational changes involve downsizing or restructuring, changing the composition of top management teams might be necessary to improve organizational performance.[110] However, changing functional teams that have been operating for a longer period of time, particularly at top management levels, require a negotiated approach so that the changes would not hamper the effective management of the organization strategic planning processes.[111]

If structural change requires the formation of new management teams, attention needs to be given to the composition of team members. Boeker suggested that if top management teams' members are less diverse and homogeneous, they exhibit low orientations to strategic change. In contrast, the diversity of team members results in more information sharing, interacting, decisions, and solutions that support broader strategic changes.[112]

Structural and Process Issues Affecting Management Control Innovations

New organizational structures are not likely to accomplish the desired planned programs unless they are accompanied by process intervention strategies of behavioral and cultural change.[113] Process changes include internal behavioral changes, where managers champion better group interactions and organizational commitment by promoting an open climate of interpersonal communication, information sharing, building trust and ownership among employees, and implementing matrix management to improve organizational performance.[114] With these new structures in place, teams can operationalize policies and strategies developed by top management into specific programs and projects, respond better to changing customer needs, effectively manage resource allocation, and undertake product development decisions. Team leaders as champions provide a constant vision on the course of action by motivating and rewarding members for team accomplishment.

Campion, Medsker, and Higgs indicated that management could help teams acquire the required process characteristics that facilitate group member interactions and cooperation. The authors identified several themes that included potency, social support, workload sharing, communication, and cooperation within the group. Campion et al. defined potency as team spirit and a high expectation that the group would get the work done. Potency induces task commitment and hard work among team members. Social support facilitates "positive social interactions" among members to sustain group effectiveness. Workload sharing prevents "social-loafing or free-riding. To enhance sharing, group members should believe their individual performance can be distinguished from the groups and that there is a link between their performance and outcomes."[115] Campion et al.'s study supported the conclusion that process characteristics were related to group productivity and can be affected by management through positive feedback, encouragement, modeling, and reinforcement.[116]

When teams plan and implement process intervention strategies directed toward changes in management control systems, cultural change programs most often are directed toward education and training that focuses on motivating employees to get involved in all aspects of decision-making processes. Recent examples of such process intervention strategies that have been incorporated in management accounting control systems are the quality-improvement programs of total quality management (TQM) and business process reengineering (BPR) of the 1990s.

TQM and BPR as Management Control System Process Innovations

TQM and BPR are examples of recent management control system innovations that followed the principles of process intervention, leading to cultural change and education for employees and teams.[117] Many organizations have adopted TQM and BPR to change the organization culture and promote continuous improvement of products and services. Japanese manufacturing organizations were in the front lines with the quality movement during the 1980s and early 1990s, and they applied TQM and BPR to manage their subsidiary organizations in the United States.

Besser provided a detailed study of a Japanese auto assembly transplant in the United States, the Toyota Motor Manufacturing (TMM) plant in Kentucky, which successfully implemented TQM programs. TMM adopted the TQM philosophy of empowerment to grant teams' autonomy and control over the production decision process.[118] According to Besser, Team Toyota developed normative cultural practices in which work teams and cells operating in flat hierarchical structures performed task-specific as well as cross-functional production activities. TMM organized more than two-thirds of its plant employees as line personnel, and about 15 percent as team leaders. Job restructuring, on-the-job training, and an emphasis on continuous improvement programs changed the organizational structures of Team Toyota. The company was clustered into three

"nested" teams: a work team, company team (TMM), and the corporate team; a very successful company.[119] The work team is made up of four to five production workers. A team leader heads a group comprising three or four work teams. Each group is responsible for specific assigned work tasks within the assembly line production. The essence of the company team is to promote a company vision of shared goals, create a sense of belonging, and build a team that works together for the benefit of all employees and the company, or what Etzioni would refer to as normative cultural control.[120]

Ripley and Ripley suggested that process innovation changes, TQM and BPR of the 1990's, have contributed to the development of information systems that shifted the competitive strategies of business organizations from cost volume-based to customer value-based, an approach that focused on quality of product, as well as improved production processes and maximum utilization of work-force talents. BPR has advocated a new paradigm that would completely change systems and processes to achieve organizational design and restructuring objectives.[121]

The case of Team Toyota presented contrasting results on the effect of TQM on organizational structures (mechanistic or organic) and design, as well as the effect of process change (education and cultural change) on team management. In organic-decentralized structures, team effectiveness and interaction contributes to satisfaction, high morale, and commitment among members, in a context where normative–concertive control and compliance attributes prevail. When a normative control system is administered in conjunction with instrumental–remunerative control, it contributed to improved team output and better organizational performance. At the same time, it should be noted that management's desire to control the accounting information system created a need for a centralized administrative structure for coordination, regulation and control of team activities. As discussed earlier, ABC is an example of an administrative control mechanism that has been recently used by management to both centralize accounting information and at the same time improve the performance of teams in production organizations.

When management control systems are supported by ABC, they enable organizations to use cost information for competitive intelligence, and industry financial accounting indicators as benchmarks to improve their performance.[122] Thus, with availability of cost accounting information, top management teams are in a position to launch an effective benchmarking intervention strategy to achieve competitive goals and to build the case for process innovation and organizational structural changes.

Leadership, Teams, and Process Innovation

In process innovations, management generally supports administrative control and accounting information innovations to improve team performance. As change champions, managers continuously revise existing bureaucratic control

systems and hierarchical organization rules and procedures that may hinder the formation of teams and their functional performance. Managers most often assist employees to form self-managing teams that are autonomous in formulating team guidelines to manage organizational control innovations.

Managers are instrumental in ensuring the availability of required organizational resources to support intrafunctional coordination, team collaboration, joint use of resources, and consensus decision-making processes. Greater team cohesion and instrumental cooperation lead to high productivity and output.[123] When teams receive loose monitoring and control mechanisms, the administrative processes encourage risk-taking behaviors.[124] Managers use their rank and authority strategically to influence teams and individual behaviors for the purpose of creating sociopolitical processes that support innovative behaviors and contested changes in organizations.[125]

When management provides positive reinforcement to teams and solicits their commitment, teams and workgroup members' contributions become instrumental for the successful adoption and implementation of process innovations. As a result, trust and cooperation develop between management and team members and a high-quality exchange of information and mutual collaboration occurs.[126] Thus, cultural change and educational programs succeed in the formation of cross-functional teams by promoting trust and cooperation among team members.

Cross-Functional Teams and the Role of Accounting Information in Process Innovations

The quality movement has emphasized a continuous improvement strategy for administrative and technical functions in accounting information systems. Accordingly, computers and information technology have changed the accounting function from that of producing financial reports to that of providing service.[127] Information technology has enhanced the accounting role from a staff function to a line function, where an accountant now serves as an expert in information management, rather than as a custodian of company resources. These changes in reporting relationships have enabled accountants to act as organizational development technical experts who participate in decision making on cost, quality, downtime, maintenance, inspection, delivery, and other factors indicating improved performance. Accounting systems are eventually being transformed to meet information requirements of global competitive economic systems as well as the requirements of increased management accountability.

Dixon et al. suggested that in radical innovation program changes such as BPR, which require organizational transformation, accounting has become one of the focus areas when teams are formed. The authors indicated that successful teams have "included a flexible mix of line managers and internal experts. Team leadership was often drawn from staff level management with close involvement from line managers. Teams were almost all cross-functional in composition,

though the extent of cross-functionality varied."[128] Teams responsible for project design were also involved in project implementation. In other words, empowering cross-functional teams to make decisions in both the development and implementation phases contributed to the success of the design as well as the implementation of management accounting information systems.[129]

Cross-functional teams exhibit normative attributes when team members direct their efforts to achieve overall organization mission and goals but also coordinate their activities with other company program areas. Management relies on teams to assume responsibility for their collective decisions, complete tasks on time, and eliminate unnecessary middle-level managerial positions to save costs and increase employee motivation, productivity, and commitment to the organization.[130]

Management accountants involved in cross-functional teams have provided expert advice on ABC. They have used ABC to advise marketing and production managers on the appropriate balance between cost and product features such as quality, function, and appearance.[131] Management accountants who worked with product development teams were delegated to product costing decisions and shared the information with team members for new product development and design innovations. When those teams became autonomous, they operated at the same level of improved productivity performances that are comparable to high-performance self-managed teams.[132] Their goals included cost reductions, reduced design cycle times, and continuous design improvements during the manufacturing process.[133]

Economists and geographers have discussed the scope of process innovations including cost-reduction devices as encompassing spatial distribution and interfirm networking in organizational adoption decisions. Geographical location and proximity to units or agents who have adopted innovations are assumed to facilitate the flow of information diffusion through personal contact and communication across areas or organizations. When organizations succeed in establishing network cohesiveness among adopters, users, and suppliers of innovations, networks not only reduced uncertainties associated with innovations but also produced positive influences on diffusion outcomes.[134]

However, the degree to which organizations and industries adopt innovations and respond to innovations in the form of investment in new technologies is affected by several factors including market size, demand for new products and services, number of firms in the industry, and the industry's life cycle.[135] Nevertheless, it is assumed that in the early stages of an industry life cycle, technological innovations and creative responses to environmental changes are higher than in later stages. Although the rate of adoption is lower at the start of the diffusion process, it will eventually spread over time as innovation costs decline and organizational networks enable other firms to gradually adopt the innovation.

In networks, boundary spanners have focused on creating organizational linkages among units to promote organizational innovations. For administrative innovations to be realized, coordination of resources and programs at the highest levels of the affected organization units is critical. Because administrative

innovations including accounting changes span many organizational boundaries, resistance to change and coordination difficulties are common. In this regard, information flows and networks are critical in minimizing organizational and departmental resistance to innovations.

Accordingly, team leaders and networks disseminate successful cost-saving (reduction) innovation programs within or outside the organization. Effective teams develop networks, which provide them with stability and support the dissemination of innovation information among members. Networks support reciprocal exchange that are conducive to open, long-term, and sustainable relationships. In reciprocity, the members know each other and attach value and importance to the exchange process. However, if some team members occupy centrality location within networks, they have better access to valuable information and resources, which in turn increases their social status, influence, and control among team members. Baker, Faulkner, and Fisher suggested that centrality in networks enables members to receive "more information about market conditions, new marketing ideas, competitors' actions, consumer trends, and so on." They affirmed that "access to information provides power."[136] In these networked situations, information power results in coercive–command control over normative-participatory control.

In general, networks support the formation of linkages and reciprocal relationships, which facilitate the exchange of information and other economic resources among organizational members.[137] By minimizing information disparity and increasing resource flows among functional team members, networks can sustain affective exchange relations. In doing so, networks help establish cultural norms and concertive control systems that increase team member interactions. Accordingly, networks facilitate the use of instrumental–remunerative control that aligns team performance with organizational objectives.

TEAMS, CULTURAL SYSTEMS CHANGE, ORGANIZATIONAL DEVELOPMENT, AND MANAGEMENT CONTROL SYSTEMS

In this chapter, three types of power and compliance systems—normative, coercive, and remunerative–instrumental—were discussed within the context of complex organizations. Both stages in organizational development—emergence, growth, and crisis—and organizational structural differences—mechanistic–centralized and organic–decentralized—have shaped the commitment of team members and team operating mechanisms. They have affected the types of control/compliance systems—concertive, coercive, or instrumental–calculative—that prevailed in a given organization. Environmental factors, including international competition as well as advances in information technology, have changed the composition and formation of team members, as well as management–labor control and contractual relationships.

To respond to environmental changes, management accounting control systems have incorporated information technology and adapted control-compliance

systems that are appropriate to the nature of specific tasks and required personnel management. Management control systems also have undergone profound evolutionary changes over the years. The management control evolution has included transitions from the scientific management bureaucratic–coercive control of the 1960s into the concertive–negotiated consensus or cultural control of the 1970s and 1980s, and into the surveillance–self imposed control of the 1990s, where the need for face-to-face interaction between supervisors and subordinates has been minimized.

This chapter presented contrasting views of normative–concertive, coercive, and remunerative controls and argued that the use and application of these three management accounting control system typologies in organizations are contingent on differences in organizational systems, culture, structure, and stages of development. Cultural differences are commonly associated with prevailing organizational forms and their accompanying management control systems. Because culture involves organization's values and norms, patterns of authority, and modes of exchange among organization members, it constitutes the ethical and social attributes of an organization.[138] It provides ritualistic orientation and organizational loyalty to members. When culture is institutionalized, it is rooted in political and historical ecological ideologies of organizational power elites.[139]

A cultural systems approach provides an adaptive functional view of management control systems. According to the functional theory of organizations, process and structural intervention change strategies in management control systems are purposive, goal-oriented actions. They strengthen mutual collaboration among management, individuals, teams, and groups to achieve organizational goals. Process factors are related to both attitudinal and personality characteristics at the individual level as well as the development of norms, values, and work-related behaviors at the team level that promote organizational performance. Organizational structural changes, in contrast, involve job and organizational design, production and manufacturing processes, work restructuring, and accounting and reporting systems. Structural changes are more likely to succeed when they are accompanied or followed by cultural and behavioral intervention change strategies.

Organizations develop their own widely shared cultural goals that justify the activities of the organization. Goals in an organization are set by management and other power players to govern the behavior of groups and individuals.[140] Cultural goals define those values, norms, roles, behaviors, and customs expected from employees, team members, customers, and suppliers.[141] A cultural change program can be structurally oriented if it addresses individual and team behaviors that have direct relationships to organizational structures, including missions, visions, values, goals, strategies, customers, and labor force.[142] Although cultural goals are embedded in organizational strategies and policies, management reinforces those goals through sanctions and rewards and institutionalizes them in the management control systems.

ECOLOGICAL ADAPTATION AND MANAGEMENT CONTROL OF TEAMS

The ecological adaptation view of organizations indicates that structural and process changes, particularly organizational culture and leadership factors, have substantially affected the development of teams and workgroups control systems, particularly those of coercive and concertive control systems. Although the development of accounting control systems is entrenched in organizational power structures to meet management goals and aspirations, their purpose largely remains functional. Accordingly, an ecological adaptation functional perspective of management accounting control systems has been utilized in all three forms of control systems: bureaucratic–coercive, remunerative–instrumental, normative–concertive, or surveillance to study the management processes of teams and workgroups' activities. Whether the goal of an organization's control and compliance system is to foster incremental change through TQM or to radically change employee behavior and business practices through BPR,[143] improved management control programs require long-term structural and process intervention strategies to achieve those desired changes.

Management control systems innovation, if properly designed, usually encompass all internal organizational control issues, including administrative control rules and procedures, accounting system controls, and management supervisory controls governing individual and team performance.[144] When there are fundamental cultural changes of control systems, organizations simultaneously employ all three forms of control systems—remunerative, normative–concertive, surveillance, or group-based coercive control—to manage teams. Advances in information technology have revolutionized management accounting control through electronic surveillance control system.

Although most organizations utilize more than one form of control/compliance system, it has been found that of the three types of control systems, concertive control, which uses both instrumental (remunerative) and normative (ceremonial and other forms of social activities), compliments cultural system change and management control innovations. Because the purpose of concertive team control is to empower teams to set up mutually agreed-on contractual arrangements consistent with organizational objectives, concertive control uses participation and negotiated consensus to design and implement process innovation programs. Through negotiated consensus, concertive control has been instrumental in reconciling the requirements of individual autonomy with group solidarity to create an affective working environment. By allowing positive affective cohesiveness and solidarity to develop within team diversity, concertive control not only increases group interaction but also improves team performance consistent with organizational objectives.

Accordingly, when there is high team consensus and low management control, cognitive control techniques are most often used to direct the actions of both management and work teams toward process innovation and cultural change programs, which promote organization goals. However, when there is low team consensus, managers or team leaders use centralized–bureaucratic

coercive control to direct and command employee activities to accomplish organizational objectives. Whether the control system is concertive or coercive, their functionality is enhanced with the simultaneous use of instrumental–remunerative control systems.

An ecological adaptation framework approaches management control systems including ABC and team-based control systems as living ecosystems that adapt, evolve, and develop over time as the organization environment changes. Ecology recognizes that in ecosystems, there are constraints and boundaries when designing and implementing team-based management control systems. Adaptation is a gradual process change strategy that organizations use to respond to constraints. System analysis involves analysis of the interdependence of nature, humans, and other animal species as they interact with the environment. An ecological approach of systems analysis to organizations studies the interdependent relationships among organizational units, subunits, or divisions as they interface with the environment: stable or dynamic.

Organizations as ecological adaptive control systems utilize gradual–incremental change strategies including TQM and ABC when the environmental changes are stable or predictable. If the environmental changes are unstable or dynamic, that is, continuously changing, it calls for a radical–transformational change strategy such as BPR. This implies that the formation and functions of management control systems and the subsequent operations of teams and work groups are contingent on environmental conditions and the forces that determine the prevalence of either adaptation or selection in organizational ecological systems.

NOTES

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CHAPTER 7

Conclusion: An Overview of the Implications of the Ecology of Management Accounting and Control Systems

This book has discussed the two predominant ecological approaches—selection and adaptation strategies—as they relate to management accounting and control systems. The ecological approach in general has noted the effect of the environment, geographical location, level of technology, culture, social groupings, and population characteristics on organizational growth and development. In particular, the ecological framework has argued that the environment has significant influence on organizational selection and adaptation strategies.

Chapter 7 concludes the discussion by presenting an overview of the ecology of management control systems. It outlines the contribution the selection and adaptation strategies have on the theory and practice of the ecology of management accounting and control systems.

THE SELECTION APPROACH TO MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS

The selection approach has focused on the demography of organizational populations, particularly on the relationship between density and rates of birth—founding, failure, and growth—as well as death of organizations. Growth is viewed as an evolutionary process that can occur through a series of sequential stages over time, and structural constraints and pressures shape the form of change. Aldrich[1] and Carroll[2] have indicated that these stages include variation, selection, and retention. Organizations may experience incremental changes within each stage or radical transformation when evolving from one stage to another. Environmental factors account for three incremental and radical changes.

Ecology has evolved as a management philosophy for environmental management when natural ecosystems approaches involving nature, humans, and other animal species are incorporated into corporate business strategies. Ecology has thus analyzed organizations as living systems able to adapt, evolve, and develop over time. When designing management accounting systems, ecological analysis provides a perspective to examine the constraints and boundaries within which these systems operate. These constraints provide feedback and limit the boundaries and scope of systems so that appropriate measures can be applied when designing and implementing new organizational cost systems.

In environmental management, ecology provides a framework for organizations to develop a sustainable development enterprise. As a result, organizational strategic plans can be designed to accommodate responsible use of environmental resources, including energy conservation, development of alternative sources of energy, and management of nonrenewable energy sources such as oil, petroleum products, natural gases, and coal, as well as renewable energy sources such as trees. The development of management accounting sustainability reports to accumulate, measure, and disseminate this information becomes critical.[3] Ecological use of natural ecosystems links organizations to their communities, and the effectiveness of these links is captured in organizations' sustainability reports, which provide the framework for social soundness analysis (SSA). SSA looks at the business boundaries, employees, the communities in which the business or industry is located and where the organization conducts its business, the economic and social relationships of the organization to these communities, and the organization's ability to meet the needs of those communities.[4] The ecological approach transforms organizations' operating activities by integrating community-based approaches to business strategies, incorporates SSA in management accounting reports, and focuses on achieving sustainable development. Ecological analysis can provide organizations with tools so that well-developed strategic plans incorporating sustainability and environmental accounting can offer a competitive business advantage.

The ecological approach assumes that both external and internal factors contribute to the growth and failure rates of organizations. Organizations can adopt an externally oriented growth strategy through mergers and acquisitions. Internally, they can expand through technology innovation and product development. However, as organizations grow larger, inherent structural problems associated with growth arise. As organizations gain legitimacy and become established, they develop prescribed rules, routine procedures, and defined functions to guide daily operating activities. Organizations grow accustomed to these rules, making it difficult to change routine procedures. Because internal procedures and structures become rigid over time, there is resistance to change, resulting in organizational inertia.

Inertia makes organizations less flexible to adapt to change, making it less likely they will adopt innovations. Selection suggests that it is only when organizations replace old structures with new structures, strategies, and systems

that they are capable of instituting innovative change. The selection approach considers inertia as a primary obstacle to change, which can render organizations incapable of adapting, thus leading to organizational mortality—and their replacement by new organizational populations. In contrast, adaptation views inertia as a natural outcome of organizational growth that acts as an equilibrium force that stabilizes organizational activities and helps maintain the organization. The key point is that the underlying theoretical differences between the selection and adaptation approaches to change rest on their interpretation of inertia: Is inertia a barrier for change, or does it allow organizations to maintain change strategies that create stability and contribute to organizational survival?

THE ADAPTATION APPROACH TO MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS

The adaptation framework emphasizes organizations' need for survival and their desire for stability and maintenance of existing social systems. It is assumed that stability requires organizations to be flexible and responsive to current and perceived future environmental changes. Adaptation has become a strategic process that overcomes organizational inertia constraints to meet current environmental changes. Adaptation is a prerequisite for organizations to change and adopt innovation strategies, including changes in cost and management accounting systems, so they remain competitive and effectively conduct ongoing business operations.

This book has detailed the ecological adaptation changes in management accounting and control systems, particularly sustainability and environmental accounting and reporting systems; and the use of activity-based costing (ABC) in managing teams and work group performance. The underlying assumption is that because adaptive organizations are continuously involved in the management of change and development programs, improved cost and management accounting systems support behavioral adaptation change strategies. The adoption of environmental management accounting systems advances and improves the collection, analysis, and reporting of ecological and environmental data on organizational performance. It has been argued that environmental reporting needs to be integrated into an organization's strategic cost accounting and operating performance systems. Such integration has the potential to minimize transaction and other related costs associated with technological changes in production, distribution, and marketing systems.

This book used the systems approach as an adaptation change strategy to examine recent changes in management control systems. These changes in control systems are discussed within the context of work teams and groups as their roles change in managing organizational work activities. Several examples have been included to show the uses of ABC in promoting team and group incentives consistent with the accomplishment of organizational goals and objectives.

Recent trends in management control systems show a shift from individual to group or team-based incentives and contractual arrangements where rewards are

allocated based on team/group accomplishments rather than individual performance. The current changes in accounting control systems in fact contradict the preconceived assumptions that accounting control systems are inert, inflexible, and resistant to change. To the contrary, recent developments indicate that although there is inertia in accounting, it is a relatively short-term phenomenon. Rather, changes in management control systems have evolved over the years and have adapted to changes in business requirements and environmental conditions. Changes in accounting control systems have been particularly significant in the 1990s.

The 1990s were a time in which international competition, global business changes, and environmental uncertainties brought significant developments in organization management. Various quality and productivity movements have been accompanied by new developments in management philosophy: total quality management (TQM) and process reengineering. These developments have shaped management accounting and reporting systems, particularly the methods that accountants use to gather, measure, interpret, and report cost data.[5] ABC has been the most significant management accounting and reporting change brought by the quality movement. ABC's effect has been significant in manufacturing and industrial organizations for its use in managing incentives allocated to teams and work groups based on meeting performance targets and accomplishments.

In Chapters 5 and 6, three types of power control and compliance systems—concertive–normative, coercive, and remunerative–instrumental—and their effects on team commitment and performance are discussed.[6] It has been documented that the formation and performance of work teams are contingent on the prevailing types of management accounting and control systems that govern team operating activities. As adaptive power-compliance systems, management control systems have responded to changes in environmental uncertainties, whether dynamic or gradual. These changes have brought profound evolutionary changes in management control systems. Nevertheless, management accounting and control systems are purposive, goal-oriented functional systems that have adopted evolutionary change strategies that are largely oriented to incremental and gradual changes. Although these changes are consistent with the process and structural intervention strategies of TQM, fundamental changes in management control systems require long-term processes to bring about the desired changes.

CONCLUDING REMARKS

Recently, the use of ABC in teams and work groups in management control systems exemplifies an adaptive incremental-TQM based strategy that gained popularity in the 1990s. However, Chapters 5 and 6 document that ABC's use in manufacturing and industrial organizations for improving teams' incentives and performance has not been fully realized. This has been largely a result of unanticipated consequences associated with the premature implementation of team management. As the organizational sociology and development literature suggests, team management requires a phased approach that uses process

improvements of cultural change and education programs, committed leadership or champions of change, and the full involvement of team leaders and members in the planning and implementation of team management and control systems.

While these process changes are in place, they need to be accompanied by structural changes including organizational contextual components—structures, work procedures, systems, strategies, and policies. These changes not only shape the management control systems for teams and work groups but also make the control systems adaptive and responsive to external environmental changes. It can be seen that management accounting and control systems as adaptive administrative control mechanisms have been gradually transformed over the years from the scientific management bureaucratic control of the 1960s to the cultural control of the 1970s and 1980s, into the team-based self-imposed concertive and surveillance control of the late 1990s and early 2000s. These evolutionary adaptive changes have made the functions of the management accounting and control systems central to organizational operations. As the emphasis on cost as a strategic factor that influences organizational performance increases, it is imperative that organizations develop strategies to adapt and modify existing management control systems to gain the potential organizational cost savings benefits from utilization of teams and work groups.

NOTES

1. H.E. Aldrich, *Organizations and Environments* (Englewood Cliffs, N.J.: Prentice-Hall, 1979).

2. G.R. Carroll, "Organizational Ecology," *Annual Review of Sociology* 10 (1984), 71–93.

3. S. Sisaye, "Organizational adaptation change approaches on the development and effectiveness of environmental management accounting and reporting systems," in *Environmental Disclosure Practices and Financial Performance*, ed. K. E. Karim and R. W. Rutledge (Westport, Conn: Greenwood Publishing, 2004), 75–101.

4. S. Sisaye, G.H. Bodnar, and P. Christofi, "Total quality management and sustainability reporting: Lessons from social soundness analysis," *Internal Auditing* 19 (2004), 32–39.

5. See S. Sisaye, *Organizational Change and Development in Management Control Systems: Process Innovation for Internal Auditing and Management Accounting Systems*, Studies in Managerial and Financial Accounting Series 10 (Amsterdam: Elsevier Sciences, JAI Press, 2001); and his "Process innovation and adaptive institutional change strategies in management control systems: Activity based costing as administrative innovation," *Advances in Management Accounting* 11 (2003), 251–85.

6. For background discussions, refer to S. Sisaye, "Management control systems and organizational development: New directions for managing work teams," *The Leadership & Organization Development Journal* 26 (2005), 50–61; and his "Teams and management control systems: A synthesis of three organizational development approaches," *The Leadership & Organization Development Journal* 26 (2005), 172–85.

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