Companion to Organizations: An Introduction

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Organizations dominate our socioeconomic landscape. Their influence in our everyday lives has increased steadily over time, particularly in the most developed regions of the world during the twentieth century. Today, we are born, work, pray and die in organizations, and, along the way, many of us derive our identities from our associations with them. Organizations are the building blocks of our societies, and a basic vehicle for collective action. They produce the infrastructure of our societies and they will fundamentally shape our futures. Because they are such an integral part of modern societies, we readily turn to them, or construct them when a problem exceeds our own personal abilities or resources.

The ubiquity of organizations prompted Nobel Laureate Herbert Simon (1991) to question the use of the term "market economy" to describe the structure of economic interactions, suggesting that "organizational economy" would be the more appropriate term. As Richard Scott (1992, p. 3) points out, however, because organizations are so ubiquitous, they tend to "fade into the background, and we need to be reminded of their impact." Still, most of us are of two minds about the organizations in our lives. While we wonder in amazement at their innovative achievements and bask in the recognition and status they confer on us, we damn them when they don't (or won't) work for us and worry that we are powerless to take them on.

To understand organizations *is* to understand our world.

The perspectives and theories constituting our current understanding of organizations are different from those employed twenty years ago. Scott (1998) wonders whether these changes are due to an evolution in the nature of organizations themselves or in the theorists' interests and manner of creating knowledge. That is, changes in perspectives on organizations could represent development of a deeper level of understanding, replacement of old theories and ideas with new ones to match the changes in organizations while maintaining previous levels of understanding, or simply the adoption of new languages corresponding to different knowledge creation approaches with no significant increase – and perhaps even a decrease – in our understanding.

Does the diversity of perspectives on organizations enrich or fragment our under-

standing of them? Or worse still, does it undermine our understanding by encouraging a proliferation of uncorroborated ideas? The answers to these questions remain open, and are hotly debated by some theorists. This diversity has also generated disagreement over whether or not research on organizations has advanced sufficiently to be deemed "organization *science*." Many believe "organization *studies*" is a more appropriate label (Clegg et al., 1996), the field's multiple perspectives providing evidence that it is *pre*scientific in Thomas Kuhn's (1962) famous classification. As Kuhn also counsels, however, we should not be surprised to find in the early stages of development of a science that researchers studying the same phenomena describe and interpret them in the different ways. Here, we follow McKelvey (this volume, 2001) and refer to the field as organization "science" to signify our collective efforts in the field and within the *Companion* toward constructing a science of organizations.

The *Companion* presents a survey that consolidates and evaluates ten contemporary perspectives on organizations, providing you with the opportunity to explore what we know about organizations, and how we have come to know it. To set the stage for your exploration, in this introductory chapter, we perform three tasks. First, we review the fundamental definitions of organizations that underlie contemporary perspectives. Second, we provide an overview of the perspectives themselves. And third, we discuss approaches to knowledge creation in organization science.

Three Definitions of "Organization"

Although most of us "know an organization when we see one," the diversity and complexity of organizations and their activities is difficult to capture in a single formal definition. As a result, multiple, sometimes contrary, conceptions of organizations exist, each one highlighting particular features of organizations, but necessarily providing only partial and incomplete views. Also contributing to the definitional difficulties, most words ending in "-tion" are ambiguous between process and product – between the way one gets there, and the result. Our word, organization, shares this ambivalence, itself referring to the process of "organizing," or, to the result of organizing. Although the range of definitions can create confusion, together, they also provide a means of capturing the full breadth of organizational life.

Scott (1998, pp. 24–8) articulates three prominent definitions that capture well the spectrum of how organizations are conceived. Each definition calls attention to certain significant, enduring and essential features of organizations that distinguish them from related types of collectivities (e.g., families, small groups), and embodies different assumptions and beliefs about the nature of organizations. The definitions are given in order of their historical appearance, and each can be seen, at least in part, as a critical response to perceived inadequacies and limitations of the prior conceptions.

- *Rational system*: Organizations are collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures.
- *Natural system*: Organizations are collectivities whose participants share a common interest in the survival of the system and who engage in collective activities, informally structured, to secure this end.
- *Open system*: Organizations are systems of interdependent activities linking shift-

ing coalitions of participants; the systems are embedded in – dependent on continuing exchanges with and constituted by – the environment in which they operate.

Although historically, rational, natural and open systems definitions have been associated with distinct research programs, each with its own conceptual frameworks, guiding assumptions, and empirical approaches, contemporary perspectives built on these foundations invariably take an open systems view, and combine it with either a rational or a natural systems orientation; see, for example, the typology of contemporary theorists (Scott, 1998, p. 107, Table 5-1). Thus, most recent definitions of organizations tend to combine elements of rational, natural, and open systems definitions. Aldrich (1979 – cf. Aldrich 1999, p. 2) – for example, defines organizations as "goal-directed, boundary-maintaining, and socially constructed systems of human activity." Notably, the rise of open systems approaches has, as we will see, increasingly focused researchers' attention away from behavior *within* organizations, which had been the primary focus of rational and natural systems approaches, and toward the behavior *of* organizations as entities in and of themselves.

Although some researchers continue to seek a parsimonious formal definition that captures the essential features of all organizations, others have concluded that no single definition will travel well across all organizations (Pfeffer, 1997). Further, some observers suggest that these definitions correspond to different types of organizations operating in environments demanding different features and structures (Lawrence and Lorsch, 1967). Others argue that these definitions capture different aspects of organization. For example, the rational, natural and open system views correspond to the technical, managerial and institutional dimensions of organizations, respectively (Thompson, 1967).

It is impossible for us to do justice to either the range of imaginative rational, natural and open system ideas from which contemporary perspectives on organizations emerged, or even, for that matter, to the subtleties of those approaches selected for mention; see Scott (1998) for a detailed examination. But we will note some of the main lines of thinking within each conception, and attempt to capture the basic spirit of the ideas. Afterward, we turn to ten perspectives that evolved from these definitions and form the corpus of the *Companion.*

Rational system origins

The Greek root of organization, "organon," meaning instrument or tool, captures the image projected in the rational system view. Organizations are designed (created) to achieve specific goals; and rational view theorists normatively and descriptively argue that organizational designs involve formal structures – rules, roles and relationships – that are created to emphasize efficiency in achieving well-defined objectives. In this view, organizations are portrayed as machine-like bureaucracies in which all actions and behaviors are controlled and coordinated to ensure goal achievement in the greatest economy. They are comprised of standard operating procedures and formal structures, which specify responsibilities and ensure that these all procedures are reliably performed.

Historically, the study of organizations has been dominated by the rational system

definition, and its early focus on goal-directed activity-systems was critical to establishing "complex organizations" as a distinctive field of study. The rational systems approach emerged in Europe and North America alongside the rapid industrialization and increasing rationalization of business enterprises at the turn of the twentieth century. In Europe, Max Weber ([1922] 1978) and Robert Michels ([1911] 1949) documented the rise of the "bureaucracy," an organizational form based on a belief in normative rules and a hierarchy of officials elevated to authority under those rules who issue commands. In North America, Frederick Taylor and his followers (e.g., Frank and Lillian Gilbreth and Henry Gantt) championed "scientific management," which aimed to rationalize the activities of both managers and workers based on an analytical "regimen of science." On both continents, business practitioners – most notably French industrialist Henri Fayol and General Motors executives James Mooney and Allan Reiley – searched for a universal set of principles of administration to guide the specialization, grouping, and coordination of work activities. The enduring contribution of these early thinkers was the elaboration of the concept of the formal organization as an instrument purposefully designed to achieve explicit goals with the greatest economy of resources.

Perhaps the most influential rational system contribution, however, is the pioneering work of Herbert Simon and his colleagues James March and Richard Cyert, known collectively as "the Carnegie School" (Simon, 1945; March and Simon, 1958; Cyert and March, 1963). Many of the themes they introduced – among them, goals and constraints, formalized structure, bounded rationality, information processing, decision-making, political coalitions, and performance programs – remain central to contemporary organizational research. Simon and his colleagues were highly critical of earlier "prescriptive" efforts both for searching for a simple set of "dos and don'ts" and for focusing on *activities* rather than the *choices* that determined them. Underlying their model is a conception of human cognitive limits in which incomplete information about means and ends – bounded rationality – leads to "satisficing" choices that meet some minimum set of criteria, rather than best possible choices. Thus, while, like neoclassical "economic man" motivated by self-interests, Simon's (1945) "administrative man" does not always know what his interests are, is aware of only a few alternatives, and is willing to settle for an adequate solution.

In their "behavioral theory of the firm" (Cyert and March, 1963), formalized structure economizes on human cognitive limits and promotes rational decision making by providing a set of "givens" in which choice and action takes place. Rationality thus resides in the structure itself – in specialized roles, rules, training programs and operating procedures that assure members will behave in ways designed to achieve desired objectives, in control arrangements that evaluate performance and detect deviations, in reward systems that give members incentives to perform proscribed tasks, and in criteria for hiring, firing, and promotion. Their conceptualization reveals a tension between two images of adaptation, however. On the one hand, organizations' behavior is directed toward performance improvement, compatible with rationalistic assumptions of traditional economic theories of the firm. On the other hand, their behavior tends to be complex, slow and sensitive to organizational conditions, characteristic of bounded rationality. Thus, while *intendedly* adaptive, organizations' behavior might not necessarily result in performance improvement – structures developed to promote rationality may, under some conditions, have the opposite effect.

NATURAL SYSTEM ORIGINS

If goals, formal structure and efficiency best describe the rational system view, emergent purpose, informal structure and adaptation depict the natural system view. In addition, natural system theorists put little emphasis on formal structure, arguing that the informal structure of roles and relationships that emerge among individuals and groups shape organizational activities and goals. In this view, organizations are not purposively designed instruments performing tasks with machine-like efficiency, but rather organic entities that become infused value and meaning beyond the purpose intended in the formal structure. So, organizations may initially be created to pursue specific goals, but alternative (supplementing or supplanting) purposes and meanings emerge through human interaction and displace the initial objectives.

Although there is no single "unified" natural systems model of organizations, what sets natural systems models apart is their focus on the nonrational, informal and moral bases of social conduct and cooperation. Starting with Chester Barnard (1938), Elton Mayo (1945), and Fritz Roethlisberger and William Dickson (1939), the interplay between formal and informal structures is a recurring natural system theme. Whereas formal structure is viewed as a conscious expression of a cost-and-efficiency logic, informal structure represents the spontaneous logic of human sentiments and needs. Informal relationships facilitate communication and getting things done, maintain cohesion, and are at the center of political life in organizations. Some, including George Homans (1950), concluded from this view that small face-to-face groups, joined together by reciprocal bonds of activities, interactions and feelings were the basic building blocks of organizations. Others, including Robert Merton (1957), drew less "reductionist" conclusions, viewing organizations more holistically as finely balanced systems of mutual social constraint in which each individual's actions are shaped by the demands and expectations in his or her "role set."

Another natural system pioneer and Merton student, Philip Selznick (1949, 1957) stressed that, although organizations are "instruments designed to attain specific goals," they are also "adaptive organisms" that take on lives of their own, changing their unifying purposes and very reasons for existence in order to perpetuate themselves. Over time, he suggests, each organization develops a "distinctive character and competence" and becomes "infused with value beyond the technical requirements of the task at hand" (1957, p. 17). Selznick referred to the process by which an organization developed a distinctive character and became invested with meaning beyond its utilitarian value as *institutionalization.* Selznick's natural system approach is the foundation for contemporary research in the institutional perspective, or "neo-institutionalism," and has also influenced research on power and dependence. Selznick's institutionalism and its descendants follow the Weberian ([1922] 1978) tradition of focusing on *verstehen* – the subjective meaning of action – and on the effects of institutional structure. Subjective meaning underpins human behavior – we behave in ways that are meaningful to us, whether that meaning is associated with salvation or with material accumulation.

Also influential, and anticipating many themes pursued by open system models to follow, was Talcott Parsons's (1960) general analytic model identifying a set of functional needs that all social systems – from face-to-face groups, to organizations, to societies – must satisfy in order to survive. His model is identified by the acronym

"AGIL," which represents the four basic system-survival functions, **A**daptation (securing resources), **G**oal attainment (setting an implementing goals), **I**ntegration (maintaining solidarity and coordination), and **L**atency (creating, preserving and transmitting cultural values). In his examination of organizations, Parsons applied his model at three levels: "ecological," (i.e., the organization's social function); "structural" (i.e., horizontal functional differentiation and integration, and vertical differentiation among technical, managerial and institutional systems within organizations); and "social psychological" (i.e., finer micro-level subsystems such as face-to-face groups). Thus, although like many natural system models in his focus on functional needs, Parsons departed from most in his conception of organizations as a distinctive class of social system differentiated by their goal directedness.

Open system origins

In the rational and natural system views, organizations and their environments are separate entities with clear boundaries. In the open system perspective, however, this distinction is not so obvious, and focus is placed on the relationship and interdependencies between organizations and environments. Inspired by general systems theory and cybernetics (Boulding, 1956; Buckley, 1967; Katz and Kahn [1966] 1978), open systems models conceive organizations as both systems of internal relationships and as inhabitants of a larger system encompassing the environments in which they operate and on which they depend for resources. Organizations are conceived of as a throughput model, obtaining resources from the environment, processing them and distributing the output back to the environment. If the rational view projects a machine image and the natural systems view an organic one, the open system view suggests an organism analogy – organizations are adaptive and interdependent systems, comprised of various interrelated – possibly conflicting subsystems – attempting to meet and influence the dynamic demands of the environment.

Early open systems work focused on development of a "contingency theory" in which the best way to organize depended on the demands placed on the organization by the environment in which it operated, in addition to internal characteristics including the complexity of inputs, processes, and knowledge (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Perrow, 1967; Thompson, 1967; Woodward, 1965). For example, environments characterized by uncertainty and rapid technological or market change place different demands on organizations than do stable environments. Because different organizational subunits (e.g., research and development vs. production) may confront different environments, they may require specialized subunits with differing features. The more differentiated the organizational structure, the more difficult it will be to coordinate various subunit activities, and so, the greater the need for coordinating mechanisms. Thus, combining open and rational system logics, contingency theory asked: "Given that an organization is open to the uncertainties of its environment, how can it function as a rational system?" (Scott, 1998, p. 111)

In contrast to contingency theorists' content-oriented, "rational-open" systems approach, Karl Weick (1969, 1979) advanced a process-oriented, "natural-open" systems model of "organizing," in which organizational activities are directed toward resolving equivocal informational inputs from the environment. Organizational activities are car-

ried out in three stages – enactment, selection, and retention – a translation of Donald Campbell's (1965) influential variation-selection-retention model of sociocultural evolution. Weick replaces "variation" with "enactment" to emphasize the active role organizational members play in defining, giving meaning to, and influencing their environments. Over time, organizational activities become structured as loosely coupled systems of repeated, contingent, interlocked behaviors that establish a workable level of certainty for organizational members, but also allow variation in interpretation and action as organizational members selectively attend to their environments. Although, like Simon and colleagues, Weick gives great attention to the role of cognition in creating and sustaining organizations, his focus is on "interpretation" and "meaning creation" rather than on "computation" and "information processing."

Levels of Organization

The rise of open systems perspectives had several important side effects on organization science. Key among these was the increasing clarity and explicitness with which different levels of organization were recognized, conceptualized and studied – from individual members, to face-to-face groups, to departments, to organizations, to organizational populations and communities. These different levels can be seen as forming an *inclusive* hierarchy with the levels nested one within the other. Each "whole" is composed of parts at lower levels of organization, and are themselves parts of more extensive wholes. Organizational communities, for example, are composed of populations of organizations, themselves composed of organizations, and so on. A multilevel approach is thus useful because organizational systems are hierarchically arranged (Baum and Singh, 1994).

Although it is possible to identify a great number of organizational levels, in the *Companion* each perspective is approached from three commonly studied levels of organization. The levels are distinguished primarily by the phenomenon of interest to be explained (i.e., the dependent variable). At the *intraorganizational level*, the focus is on understanding the people, groups, knowledge, tools and tasks that make up organizations. At the *organizational level*, the focus is on understanding organizational processes, boundaries, activity-systems and strategies. At the *interorganizational level*, the focus is on understanding the relationships and interactions within and among aggregates of organizations.

Although accompanying the shift of focus over time from rational, to natural, to open systems conceptions of organizations was a tendency to shift attention from intraorganizational to organizational, and to interorganizational levels, perspectives originally conceived at one level, are now commonly applied at multiple levels. This has helped to foster research that spans multiple levels, and opened a great opportunity to connect research across levels of organization and to better reflect the hierarchically nested nature of organizational phenomena. So, while this differentiation among levels serves to organize, simplify, and reflect the complexity of the field (and of organizational systems), the particular distinctions among organizational levels are a matter of analytic convenience, and researchers at each level cognizant of the other levels.

Researchers have attempted to better demarcate levels of organizations – and in particular organizations – through efforts to conceptualize and study organizational boundaries. As Scott (1992, p. 181) points out, however, "accepting the notion of

organizations as open systems is to acknowledge that organizations are penetrated by their environments in ways that blur and confound any simple criterion for distinguishing one from the other." Two approaches to defining organizational boundaries, and social boundaries more generally, are the "realist" approach, which adopts a participants' perspective to identify boundaries salient to the participants themselves, and the "nominalist" approach, which adopts a conceptual perspective to locate theoretically salient boundaries (Scott 1998, p. 183). Regardless of the perspective taken, what features of the situation to attend to must be determined. One option is to focus on relationships among people, locating organizational boundaries where interpersonal relationships become sparse (Weick, 1979). A second is to focus on the nature of peoples' activities, identifying boundaries where the nature of activities and control over them change (Pfeffer and Salancik, 1978). A third possibility is to focus on normative criteria for membership and inclusion, and constitutive rules and norms that are applicable to participants, which locates boundaries where applicable criteria and rules change. Not surprisingly relational, activity-based and normative boundaries often do not coincide, and so organizational boundaries will typically be somewhat blurred. Thus, notwithstanding the efforts of groups and organizations to differentiate members from nonmembers, it will often be the case that formal group and organizational boundaries fail to delineate all key activities and relations.

Organizational Environments

A second, and perhaps the most fundamental development accompanying the rise of open systems thinking, was the systematic conceptualization of the nature of organizational environments. Most commonly, organizational environments are conceived as *task environments*. First proposed by William Dill as encompassing all aspects of the environment "potentially relevant to goal setting and goal attainment" (1958, p. 410), in practice, the task environment is more narrowly conceived as comprised of sources for inputs, markets for outputs, competitors, and regulators (Scott, 1998). A closely related conception, the *technical environment*, is one in which organizations produce a product or service and are rewarded in the market for outputs for high quality and efficient performance (Scott and Meyer, 1983).

Task and technical conceptions of environments emphasize the rational system idea that organizations are activity systems created to economically achieve goals. Since organizations are not self-sufficient, to survive, they must enter into exchanges with the environment to acquire needed resources and information. Organizations' need for information creates uncertainty (Thompson, 1967); their need for resources creates dependence (Pfeffer and Salancik, 1978). In general, the more complex, unstable, interconnected and uncoordinated the environment, the greater the uncertainty it creates. And, the scarcer the resources, and more concentrated and coordinated their sources, the greater the dependence. Although it is possible to characterize an organization's general task environment as "complex" or "munificent," it is not necessarily informative to do so because the specific location an organization occupies within its environment strongly influences the conditions it faces, and, in addition, because different subunits of a given organization may confront quite different task environmental conditions.

Organizational environments are more than simply sources for inputs, information, and markets for outputs, however. Symbolic and normative aspects of environments – institutionalized rules and beliefs about organizations also figure prominently (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). Institutional theorists emphasize that organizations must conform to these rules and requirements if they are to receive support and be perceived as legitimate. In *institutional environments* organizations are rewarded for using acceptable structures and practices, not the quantity and quality of their outputs (Scott and Meyer, 1983). The state, professions, unions, and trade associations are among the most consequential sources of institutional structures in modern societies. The role of such normative and cognitive (as opposed to task and technical) constraints has figured with increasing prominence in organizational research as natural-open systems thinking has expanded.

Some view the relationship between technical and institutional environments as complementary, suggesting that they be treated as dimensions along which environments vary, with organizations inhabiting environments with varied intensities of technical and institutional pressures (Scott, 1998). Schools, for example, experience stronger institutional than technical demands, while commercial airlines experience the opposite. Some organizations also inhabit environments in which both technical and institutional demands are significant (e.g., banks), while others experience little of either (e.g., restaurants). Increasingly, however, institutional environments are conceived as contextual to technical environments – the relationship between them is not only complementary; it is also "hierarchical" (Tucker et al., 1992). From this point of view, the institutional environment constitutes the broader social context for defining technical processes – the institutional environment may prescribe the technical criteria for judging whether an organization is worthy of environmental support. The markets that reward organizations for efficient performance, for example, are institutionally constituted and structured by rules regarding property rights, norms governing exchange, and so on.

Although influential and common, the distinction between technical and institutional environments has not been without critics. Powell (1991; 1996, p. 295) argues vehemently that this separation is "wrongheaded" and "simple minded," perpetuated more by scholarly turf fighting than substantive debate over how to accurately conceptualize environments and their relationship to organizations. In Powell's view, these distinctions are purely analytical; all organizational environments include *both* technical and institutional elements. Recognizing and acknowledging this, according to Powell, provides a more accurate and useful conception of organization–environment interactions than those relying on two or more separate environments conceived as interacting independently with organizations. Even advocates of the technical/institutional distinction do not appear to dispute this claim, however. Scott (1992, p. 140), for example, thinks that all organizations operate in both technical and institutional environments. And, therefore, that we "must not overlook the institutional supports of even the most technically oriented organizations . . . the markets that reward organizations for effective and efficient performance are themselves institutionally constituted and structured."

Because organizations must respond effectively to the demands of the environment (or environments) if they are to acquire the information and resources they need to survive, how organizations relate to their environments is an important conceptual question. For the environmental demand to influence an organization's decisions and actions, the organization's members must have knowledge of it. Environments may not

only be *observed* and *(mis)interpreted*, however, they may be *enacted* as organizational members actively constitute and give meaning to them (Weick, 1969). How the environment is enacted (and responded to) depends, among other factors, on how organizational members' attention is structured by organizational arrangements and information collection practices. Of course, not only perception and enactment matter. What organizational members do not know (or do not know all that well) can impact organizational outcomes – for better or worse. Organizations produce outputs (products and services) whose quality, quantity and form is largely under their members' control. But organizational performance reflects the interaction of organizational outputs and an environmental response that is much less under their members' control. And, the environment will respond regardless of whether or not it is known.

Contemporary Perspectives

The *Companion* presents ten contemporary perspectives on organizations. Figure 0.1 lists the perspectives, and maps them in relation to rational, natural and open system definitions. Although by no means exhaustive, together these ten perspectives encompass most areas of inquiry into organizations. As with their rational, natural and open systems predecessors, these current perspectives are based partly on different disciplines (e.g., economics, sociology, psychology, anthropology, and biology). They also reflect differences between "subjectivists," who hold that knowledge is constitutively a social product, and "objectivists," who see knowledge as being distinct from and independent of the social realm. A majority of the perspectives, however, draw on multiple disciplines and include both subjectivist and objectivist accounts. Selected perspectives include some that are well established (e.g., economics, ecology, institutions, power and dependence), some that are now expanding rapidly (e.g., cognition and interpretation, networks, learning, technology), and some that are still emerging (e.g., complexity and computation, evolution). As noted earlier, contemporary perspectives on organizations invariably take an open system view, and combine it with either a rational or a natural systems orientation. Nine perspectives combine open and natural systems thinking, although five of these have a rational-open system substream. Economics is the lone remaining perspective dominated by rational system thinking. As such, as we will see, it is often viewed with great skepticism, and even "fear and loathing" (Pfeffer, 1993).

These perspectives are not "theories" (i.e., descriptive or explanatory frameworks), but comprise multiple theories. The economics perspective, for example, includes agency, resource-based, transaction cost, industrial organization, and game theories. Nor are they "paradigms" (Kuhn, 1962). Although each perspective has its own core conceptual frameworks, distinctive processes, and guiding assumptions that help to establish the importance of various research problems and how to conduct research to solve them, they are not "incommensurable." Rather than adoption of concepts from one perspective rendering concepts from the others meaningless, as Kuhn's incommensurability implies, the perspectives *complement* one another either by focusing on different organizational phenomena and problems, or by emphasizing different aspects of similar phenomena and problems. The institutional perspective, for example, is concerned with how routine organizational practices become taken-for-granted and meaningful. The network perspective is concerned with how organizational practices are developed in a

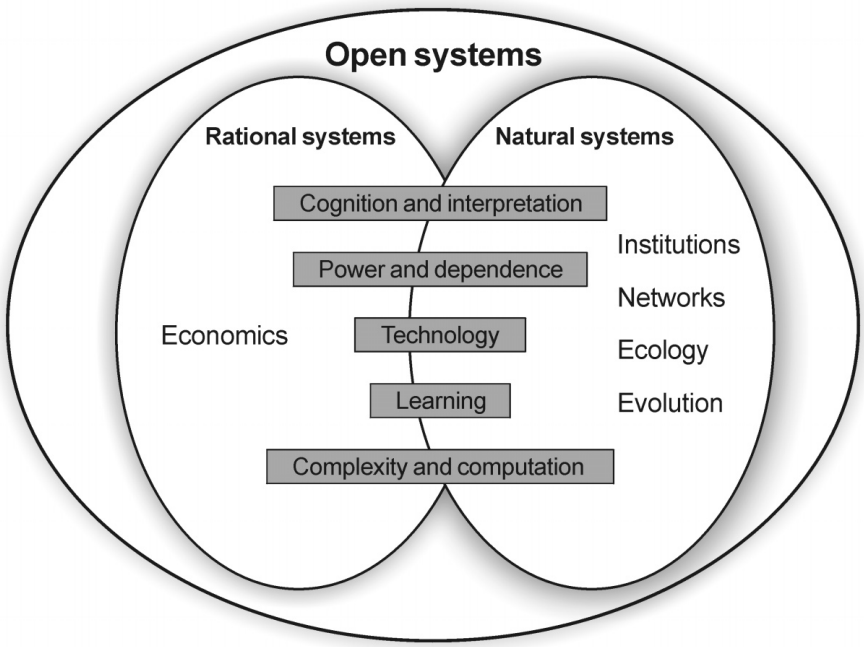

Figure 0.1 Mapping contemporary perspectives on organizations: Rational, natural and open systems

social milieu, and with how they are constrained by that milieu. The power and dependence perspective is concerned with how power influences economic patterns and the rise and fall of organizational practices. The economics perspective is concerned with how competitive pressures and the quest for efficiency shape firm behavior and organizational arrangements. Less frequently, perspectives *compete* with one another by offering alternative explanations for particular features of similar phenomena and problems.

In practice, research within each perspective thus tends to draw on, rather than challenge, the others. Rather than seeking to disprove (or ignore) the other perspectives, researchers based in one perspective typically borrow from others liberally. Indeed, in contemporary research the perspectives are less frequently used alone than they are in combination. McGuire and Granovetter (2001), for example, use a structural theory of power in their network-based study of electricity generation to explain technological choices. Some institutionalists, including Strang and Meyer (1993), use network theory to explain how organizational practices diffuse. Others, notably Davis et al. (1994), incorporate an economic perspective into their account. Power and dependence theorists, particularly Fligstein (1990, 1996), have incorporated both institutional and network elements to explain how new norms and practices diffuse across corporations. Ecological researchers, including Baum and his colleagues (Baum and Haveman, 1997; Baum and Mezias, 1992; Baum and Oliver, 1991, 1992), have increasingly used institutional, network and economic concepts and measures in their models of organizational population dynamics.

Although this wealth of perspectives might appear as an embarrassment of riches, as we noted at the outset of this chapter, the value of this diversity is currently a point of heated contention. While some organization theorists celebrate the multiple perspectives as sources of new insight (Van Maanen, 1995a, 1995b), others criticize the fragmentation and diminished consensus they produce (Pfeffer, 1993, 1995). Later, we address the question of multiple perspectives in more detail; before doing so, however, we introduce some main lines of thinking in each perspective, again attempting only to capture the basic spirit of the work, leaving the task of detail and subtlety to the chapters that follow.

Natural-Open Systems

Institutions

Dissatisfied with the view rational system view of organizations as dominated by environmental constraints and efficiency considerations, John Meyer and Brian Rowan (1977) and Lynne Zucker (1977) proposed that the increasing rationalization of cultural rules provided a basis – independent of technical and economic demands – for constructing organizations. Two features set their "neoinstitutional" approach apart from Selznick's (1949, 1957) earlier formulation. One is the centrality of *cognitive* (vs. normative) elements of institutions – the rules and symbols that constitute the nature of reality, the frames through which meaning is made, and social action constructed – and associated *social constructionist* or *phenomenological* orientation (Berger and Luckmann, 1966). The other is a focus on institutional effects – how organizations are influenced by institutionalized rules and institutional environments, rather than on how organizations become institutions in the first place. Meyer, Rowan and Zucker portray organizations as complexes of cultural rules rationalized through the actions of professions, the state, and mass media. Institutional processes create both *structural* and *cognitive* constraints – an "iron cage" in Max Weber's terms – limiting not only organizational structures by rendering some options *unfeasible*, but organizational members' imaginations by rendering some options *unimaginable*. Formal structures signal organizations' commitment and conformity to acceptable standards of organizing. Formal structures may be adopted in the absence of specific, immediate coordination and control problems, and so are only loosely coupled with actual behavior. Organizational performance is inherently *social*, depending not on technical and economic competence, but on conformity to rationalized rules and requirements necessary to acquire needed social support and resources and to be perceived as legitimate. Emphasizing *isomorphism* (i.e., similarity) among organizations as basic product of institutional processes Paul DiMaggio and Walter Powell (1983) elaborated a set of mechanisms – *coercive*, *normative*, and *mimetic* – through which institutionalized rules and practices are diffused among organizations as they follow the actions of other organizations to reduce uncertainty and acquire legitimacy.

Networks

The study of networks has a long history in organization science. Like the institutional perspective, the network perspective is *phenomenological*, in the sense that it focuses on the *content* of networks of interpersonal and interorganizational relations and the meaning of action as defined by the network. Sociological network theory builds closely on Émile Durkheim's ([1893] 1933) concern with how social milieu produces social identity and, in so doing, shapes the actions of individuals – not merely in the negative sense of undermining antisocial behavior, but in the positive sense of establishing accepted, rational forms of action. Over time, the network concept has evolved from a metaphor for "informal structure" to a formal research tool (White et al., 1976), and also shifted levels of analysis from a focus on patterns of relations among people *within* organizations, to focus on how organizational environments are constituted. The shift to formal tool lends itself to quantitative analysis and is a valuable and flexible device for characterizing and analyzing the actual interconnectedness among individuals and organizations. The shift in level was sparked in part by Harrison White's (1981) pioneering "sociology of markets," which became a call to action to network theorists in sociology. White's work was reinforced by Mark Granovetter's (1985) revival of Karl Polanyi's (1944) concept of "embeddedness" – the notion that organizations and the economy are part of a larger institutional and interorganizational structures, and that the context of human and organizational action shapes rational choice in market situations. Building on the basic insight that much of organizational behavior takes place within dense networks of ties among organizations and their members, research has made great headway, particularly over the last decade, in explaining how the structural and informational properties of networks and network positions can predict organizational behavior.

Ecology

Until the mid-1970s, the prominent approach in organization science emphasized adaptive change in organizations. In this view, as the environment changes, leaders or dominant coalitions in organizations alter appropriate features to realign their fit to environmental demands. Since then, an ecological approach to studying organizational change that places more emphasis on selection processes has become increasingly influential. Inspired by Michael Hannan and John Freeman's question, *Why are there so many kinds of organizations?* (1977, p. 936), organizational ecologists seek to explain how social, economic, and political conditions affect the relative abundance and diversity of organizations and attempt to account for their changing composition over time. Ecological theory stresses the difficulty organizational members have changing their organizations' strategies and structures to keep pace with the demands of uncertain, changing environments. Longitudinal studies of founding and failure in organizational populations – sets of organizations engaged in similar activities and with similar patterns of resource utilization – thus figure prominently in ecological research because they affect the relative abundance and diversity of organizations. The focus of organizational ecology research has transformed dramatically since Hannan and Freeman's (1977) original theoretical statement. Some researchers have turned their attention

inside organizations to focus on processes of organizational change and selection of routines and strategies. Others have begun to investigate how the links binding a set of organizational populations into a "community" affect the likelihood of persistence and stability of the community as a whole and the creation and disappearance of entire populations of organizations. As ecological models have spanned multiple levels of organization the kinds of organizations surviving are increasingly conceived as the result of a multilevel interplay: the order that is favorably selected ecologically is the result of ecological processes boiling up from within (Aldrich, 1999; Baum and Singh, 1994). The implication of this view is that organizational change is best studied by examining how social and environmental conditions and interactions within and between organizations and organizational populations jointly influence the rates at which new organizations and new populations are created, existing organizations and organizational forms die out, and individual organizations change.

Evolution

Organizational evolution reflects the operation of three basic processes: *Variation, Selection,* and *Retention*, or *VSR* (Aldrich, 1979, 1999; Baum and McKelvey, 1999; McKelvey, 1982). This view of change, which is derived from Donald Campbell's (1965) seminal article "Variation and selective retention in socio-cultural evolution," is based on an analogy between "natural selection in biological evolution and the selective propagation of cultural forms" (1965, p. 26). The three elements of the model are V) occurrence of variations – "blind," "chance," or "random" but in any event variable, S) consistent selection criteria – selective elimination of certain types of variations, and R) a mechanism for the preservation, duplication or propagation of the positively selected variants. Combined, *blind* variation and selective retention generate "evolution in the direction of better fit to the selective system" (Campbell, 1965, p. 27). Variation generates the raw material from which selection is made. Retention processes preserve and transmit the selected variation. If any of the three components is missing, however, no fit or order will occur. Campbell emphasized the "blindness" of variation to highlight the danger of basing variations on restrictive *a priori* understanding or knowledge of their outcomes and the possibility that elaborate adaptive social systems could emerge *without* conscious planning or foresight. From an evolutionary perspective, adaptation requires exploring the unknown, going beyond existing knowledge and recipes, and "fumbling in the dark" (Campbell, 1974a, p. 147). Although ecological research has informed us about the selection component of Campbell's model, the variation component has seen far less attention, perhaps because as the work of technological, organizational and institutional innovators it is seen as less amenable to systematic study (Aldrich and Kenworthy, 1999; Romanelli, 1999). We also know very little about the "genealogical" side of organizational evolution – the structures of organizational inheritance and transmission. Whereas biological inheritance is based primarily on propagation of genes, inheritance processes for social organizations appear very different, suggesting more equivocal patterns of organizational descent and evolutionary dynamics perhaps strikingly different from those expected with purely genetic transmission.

Natural/Rational-Open Systems

Cognition and interpretation

The application of cognitive concepts to organization originated with the open-rational systems view pioneered by Simon and his colleagues (Simon, 1945; March and Simon, 1958; Cyert and March, 1963). The role of cognition in organizations has been seen differently, depending on whether organizations are seen as systems of *information* or systems of *meaning* (Lant and Shapira, 2000). March, Simon, and Cyert view organizations as information processing systems that code and enact information in a computational manner. That is, the problem that organizations face is one of searching and processing relevant information when such search is costly and decision makers are boundedly rational. Other cognition researchers adopt a natural systems view. Following Karl Weick (1969, 1995), they conceive organizations as social entities whose members enact their world, and emphasize the cognitive processes entailed in creating and sustaining organizations. While the information processing approach emphasizes prospective, intended (though bounded) rationality, the enactment approach emphasizes the retrospectively rational nature of human behavior, that is, that individuals and organizations will take actions to make sense of or to appear to be consistent with their prior actions. These two views represent distinct branches of cognition research in organizations. The "computational" stream of research examines the processes by which organizations and their members *process information* and make decisions. The "interpretive" approach investigates how *meaning* is created around information in a social context.

Power and dependence

Dissatisfied with the rational system view of organizations as ruled by environmental constraints and efficiency considerations, the power and dependence perspective, a descendant of Karl Marx ([1894] 1954), stresses the importance of varying interests and goals and particularly the role of power in determining whose interests are most likely to prevail. The focus is on how powerful groups manage to get their way using force and persuasion to promote the practices and policies they favor. One stream, the legacy of C. Wright Mills (1956), explores the structure and influence of the "corporate elite." The main idea is that elite networks whose interests transcend those of particular organizations develop strategies collectively, shaping organizations and public policy (Useem, 1984). A second stream concerns the exercise of power within and between organizations. Contemporary research in this stream has its origins in political economy (Zald, 1970), exchange (Emerson, 1962; Thompson, 1967), strategic contingency (Hickson et al., 1971) resource dependence (Pfeffer and Salancik, 1978), and network (Burt, 1980) theories of power and dependence. A power struggle among competing management groups – marketing versus finance managers, for example – may determine corporate response, and the group that wins control of the organization may direct future decisions for some time to come (Fligstein, 1990). Of course, power struggles for control also go on between organizations. Financial corporations, for example, use their economic

leverage to coerce desired behavior from nonfinancial firms (Mintz and Schwartz, 1985). Contrasting, but complementing these *structural* theories focused on resource acquisition and control, are *behavioral* theories focused on an individual's ability to use resources, and *personal* theories focused on individual characteristics such as expertise or personality that have been researched extensively at the intraorganizational level.

Technology

In contingency theories advanced by Charles Perrow, James Thompson, Joanne Woodward and others during the 1960s, technology played a vital role in shaping organizational structure (Perrow, 1967; Thompson, 1967; Woodward, 1965). The greater the technical complexity, the greater the structural complexity; the greater the technical uncertainty, the greater the decentralization and lower the formalization; the greater the technical interdependence, the greater the need for coordination. Technology lost its prominent position, however, as empirical research failed to support theoretical predictions, and evidence mounted that technology and technology-structure relations were both influenced by informal structures within organizations and the broader social context. Technology increasingly became seen not as a product of technological determinism or economic efficiency, but as socially shaped – a combination of what is technically feasible and what is socially acceptable (Bijker et al., 1987; Piore and Sable, 1984). In contrast to the contingency view, organizational politics and arrangements were seen as shaping and selecting successful technologies, which focused attention on the role of organizations in fostering technological change and supporting and diffusing new technologies. Attention also shifted to broader patterns of technological change in organizational environments (Abernathy, 1978; Dosi, 1982; Tushman and Anderson, 1986) and competition among rival technologies (e.g., Arthur, 1989; David, 1985). Drawing inspiration from Joseph Schumpeter ([1942] 1976), this work characterized technological change as a process of "creative destruction" in which technologies evolve over time through cycles of long periods of incremental change punctuated by the arrival of new, radically superior technologies, which displace old, inferior ones. Organizations are "carriers" of technology whose fates are influenced profoundly by these technological dynamics. Recently, as the idea that "knowledge" is key to superior organizational performance has become more influential, attention to technology has increased dramatically in organization science.

Learning

Interest in knowledge has also sparked an interest in organizational learning. Organizational learning involves processes through which organizations and their subunits change as a result of experience. Organizational learning occurs when new knowledge is embedded in various repositories – organizational routines, technologies, and individuals, for example – so that it is retained over time (Argote and Ingram, 2000). Learning need not always, or even often, lead to improved outcomes. Organizations can, for example, learn to do things that are not valued by their environments. Further complicating matters, learning from experience is not an unbiased activity; rather it is myopic – when organiza-

tional members mistakenly credit a practice or skill for good performance, they rarely receive any information that might reveal their error, making it more likely that any false or superstitious beliefs they hold will be reinforced. That said, organizations can try to learn from both their own direct experience and from the experience of other subunits and organizations. Knowledge transfer is the process through which an organization or subunit is affected by the experience of another. Historically, research on organizational learning has emphasized organizations' learning from their own experience (Yelle, 1979; Argote, 1999). This research has documented a robust phenomenon known as the *learning curve*: as organizations gain experience producing a given output, their cost and/or time to produce decreases, although at a decreasing rate. Notably, even though accumulating experience may lead to internal efficiencies, such experiential learning can become harmful, however, if the criteria for organizational success change after the organization has learned. Then the organization may perform poorly and even fail by doing well what it learned in the past; it may suffer the so-called "competency trap" (Levitt and March, 1988). There is no contradiction in this: experience simultaneously enhances performance in the short run and lowers it in long run. More recently, attention has shifted to "transfer learning" among organizations and their subunits (Argote and Ingram, 2000). Transfer learning occurs when one organization or subunit causes a change in the capacities of another, either through direct experience sharing, or by somehow stimulating innovation – inferential learning from observation that sparks imitation, for example.

Complexity and Computation

Many dynamic systems fail to reach equilibrium and so appear to behave randomly. Processes that appear random may, however, be chaotic. Chaotic processes follow rules, but even simple rules can produce great complexity. Interest in applying complexity theory to organizations has been great in recent years, driven by the promise of this new branch of mathematics to untangle and elicit order from seeming disorder. Complexity theory suggests that adaptive systems tend to steer themselves toward "the edge of chaos" by regulating levels of autonomy and dependence, both among components of the system and between the system and other systems in its environment (Kauffman, 1993). Consider an organizational example. If an organization's subunits are too tightly coupled, there may be excessive interdependence and rigidity – if every act of one subunit influences every other then the repercussions of any given action can destabilize the entire organization. Coupling that is too tight thus leaves no room for desirable subunit autonomy, making change difficult to mount. If, in contrast, subunits are too loosely coupled, there is no coherence. Coordination is problematic, knowledge fails to diffuse or accumulate, confusion sets in, and the organization begins to disintegrate. In short, "too much structure creates gridlock . . . too little structure creates chaos" (Brown and Eisenhardt, 1998, p. 14). The edge of chaos lies between these extremes, where partially connected subunits never quite reach equilibrium, but never quite fly apart either. It is a transitional realm in which organizations, characterized by a relatively few simple structures, enjoy a balance between interdependence and autonomy that generates unpredictable, adaptive behavior. In the emerging organizational literature, complexity theory tends to be invoked mainly metaphorically, with increased turbulence and accelerating environmental change sufficient to motivate the label "chaotic," and

so fails to take advantage of complexity theory's rich conceptual models and empirical techniques for detecting and analyzing complex behavior. Despite the limited serious theoretical attention or empirical evidence, unabashed claims that complexity theory is the "next major breakthrough" abound. Given the historical frequency with which organizations have been conceived as complex, adaptive systems characterized by a wide array of dynamic behaviors, complexity theory merits our serious attention – but much work remains.

Rational-Open Systems

Economics

In mainstream economic theory, the firm observes market prices and then makes efficient choices of output quantities. All firms are alike, having complete access to the same information and technology, and the decisions they make are rational and predictable, driven by cost and demand conditions. Little attention is given to why firms might use managerial hierarchies to plan and coordinate, institutional settings and arrangements are abstracted away, and the varied character and capabilities of "real firms" are not considered. Since the mid 1950s, however, "organizational economists" have challenged this view, departing from the neoclassical view of the firm.

Adhering closely to neoclassical economic assumptions about firm homogeneity, Joe Bain's (1956) "structure-conduct-performance" (SCP) framework in industrial organization economics sought to explain how market processes direct firms in meeting consumer demand, how market processes break down and result in socially wasteful "monopoly profits," and how these processes adjust (or can be adjusted) to improve economic performance. Harold Demsetz (1973) and George Stigler (1968) challenged Bain's view of strategies such as collusion to create entry barriers as necessarily anticompetitive, instead viewing the principal managerial objective as profit maximization through development of specialized, high-quality resources and capabilities. The role of the manager implied in this view was a key point of departure for Richard Caves and Michael Porter's (1977) – also see Porter (1979) – rewriting the SCP causal chain as "conduct-structure-performance" to explain firm conduct and performance. Although this inverted framework had little to say about how managers organize and direct particular firms, it has been used widely to define and explain the strategies available to firms in their search for profits.

There were also departures from rational-choice neoclassical microeconomics. Resource-based theory (Barney, 1991) and evolutionary economics (Nelson and Winter, 1982) emerged from dissatisfaction with the ability of the neoclassical theory of the firm to handle real-world management problems outside an equilibrium context. Edith Penrose (1959, p. 31) provided an influential dynamic view of the firm as "an administrative organization and as a collection of resources" designed to explain firm growth. Building on Ronald Coase's (1937) pioneering work on firm boundaries and internal organization, and Alfred Chandler's (1962) work on the strategic growth, administrative evolution, and economic performance of large firms, Oliver Williamson's (1975, 1985, 1991) transaction cost theory explored the boundaries of markets and firms as arrangements for conducting economic activity, suggesting that "transactions" should take place within

governance regimes that best economized on costs imposed by uncertainty, bounded rationality, information asymmetry and opportunism. Agency theory departs in similar ways from neoclassical theory but focuses on "agency relations" between stockholders (principles) and managers (agents) paid to act on their behalves (Jensen and Meckling, 1976), and in particular, dealing (through performance-contingent incentives, and information and control systems) with potential conflicts between them – agency problems – stemming from agents' hidden actions (or, "moral hazards") and information (or, "adverse selection") that are costly to monitor and observe.

Although clearly departing from mainstream economics in some respects, organizational discretion remains firmly disciplined by market competition in these models, ensuring individual and organizational rationality, and the efficiency of social and organizational arrangements. And, so rather than explaining decision makers' actual choices, contemporary organizational economists generally remain focused on explaining observed organizational arrangements in terms of their efficiency. As a result, many organization theorists – who have increasingly embraced a natural system view, while abandoning a rational orientation – view these developments, which do not stray too far from the neoclassical mainstream, with great skepticism, frequently challenging them with ideas about institutions, social milieu, and power. Some, harbor an even greater skepticism fearing that rational choice theory, which dominates economics, may end up "taking over" organization science (Pfeffer, 1993). These skeptics doubt the primacy of efficiency. They do not agree that bounded rationality is "an imperfect approximation of the 'unbounded' one" (Dosi, 1995, p. 5). They do not see economic practices as "givens" but as emerging in a murky world through distinctly social processes in which social networks, institutionalized rules and beliefs, and power relations play roles in the social construction and cognitive representation of certain actions as rational. And those actions may, or may not, have anything to do with "efficiency."

Organizational Epistemology and Research Methods

As James March (1996) has observed, while organization science has increasingly differentiated itself into a distinct semi-discipline with its own professional associations, journals, academic departments, and traditions, the field continues to depend heavily on more established disciplines for ideas, personnel and legitimation. Indeed, students of organization have borrowed ideas promiscuously from economics, sociology, psychology, anthropology, and biology. As a result, there is little inter-subjective agreement about what should be the foundation of explanation. This fragmentation and lack of consensus has led to pessimistic forecasts for the future of organization science. Jeffrey Pfeffer (1993: 620), for example, laments:

> without working through a set of processes or rules to resolve theoretical disputes and debates, the field of organizational science will remain ripe for either a hostile takeover from within or from outside. In either case, much of what is distinctive, and much of the pluralism that is so valued, will be irretrievably lost.

Pfeffer's invocation of Thomas Kuhn's (1962) argument that "multiparadigmaticism" is characteristic of low-status sciences is persuasive – without consistency and coher-

ence, knowledge claims become language games. His advocacy of the development of a single "paradigm" for organization science prompted many theorists to express their views on the "problem" of multiple paradigms. A conflict, dubbed the "paradigm war," emerged between groups loosely caricatured as "positivists" (Pfeffer, 1993, 1995) and "relativists" (Van Maanen, 1995a, 1995b). Importantly, this conflict is not between competing organizational perspectives; it is a philosophical "meta-war" about whether a diversity of perspectives is good or bad for organization science (Aldrich,1992; Baum and Dobbin, 2000).

Positivists lament the plurality of perspectives and the pull in the field toward relativism and postmodernism, which assert that the foundations of normal science – prediction, falsification and generalization – cannot work for organizational phenomena because too much organizational behavior is inherently idiosyncratic. Relativists balk at formal research design, quantitative corroboration, and accumulation of empirically generated knowledge. Instead, they call for richly descriptive natural histories focused on local specifics, and appear in principle willing to entertain as many perspectives as there are socially constructed interpretations. Positivists see such an approach as fraught with subjective bias and without a means of self-correction. They claim the resulting plurality of perspectives dooms organization science to irrelevancy at best, and hostile takeover by a higher status field at worst. Thus, while positivists worry that low paradigm consensus fields are given low status in the broader scientific community and lament the number of perspectives already in use, relativists call for more!

Unfortunately, this conflict is inspired by – and promulgates – an antiquated view of philosophy of science. While philosophers' views on how best to ascertain the validity of scientific theories have been transformed dramatically over the last quarter century, none of this has had much impact on advocates for either side in the organization science debate. Does it matter that organization theorists are philosophically antiquated and uninformed? Indeed it does (McKelvey, 1997, 1999). Much of the "paradigm war" has been driven by mistaken views of positivism (e.g., that it is synonymous with quantitative methods, determinism, reification and causal laws), as well as by ignorance of philosophers' abandonment of *both* positivism and relativism as incoherent decades ago (Azevedo, this volume). The result has been the unfortunate spread and legitimation of an incorrect view of positivism, a belief in the coherence of relativism, and the idea that organization theorists are positivists and relativists when, in fact, they are *neither*. Cooler, better-informed heads might have avoided this dysfunctional altercation altogether.

Organization theorists have *never* been positivists. To positivists, science "rests on empirical inquiry rather than philosophical speculation, a view in which there is no doubt that a real objective world exists" (McKelvey, 1999, p. 385). Positivists made a strong distinction between theoretical and observable (and measurable) terms in order to ensure that scientific truth – that which is verified in objective terms – was not contaminated by meaningless assertions. That is, theoretical terms that could not be captured through first-hand sensory experience were considered *unreal* and so were theoretical explanations of causality. To test the truth of theories they therefore founded an epistemology based on axiomatic theories that clarified the language of science by eliminating all metaphysical concepts. Thus, if organization theorists were positivists, theoretical terms that are difficult to capture in operational terms, such as "organization" and "strategy," concepts such as "uncertainty" and "ambiguity," as well as the

notion of a "cause-and-effect relationship," would all be meaningless.

For relativists, using external reality as the criterion for truth-testing was problematic because the external world did not exist beyond that which could be perceived and socially constructed by individuals, cultures and frameworks. What was known and believed was relative to a particular paradigm and competing paradigms were considered to be incommensurable because *truth* was relative to a specific paradigm, which possessed its own language and logic. Thus, inconsistency among paradigms could not be addressed, as discussions across perspectives were considered impossible. Consequently, organization theorists have *never* been strong relativists either. They do not believe that all paradigms are incommensurable. Incommensurability should prevent researchers from being able to communicate with or judge disputes among researchers following different paradigms, yet researchers – even those claiming to be relativists – read and write about all the so-called paradigms.

Organization theorists of all orientations appear, instead, to practice a logic-in-use that is primarily "scientific realist," one holding that there is "enough of an objective reality 'out there' that repeated attempts by various researchers, using a variety of generally approved methods of 'justification logic' eventually will discover the approximate truth of theories by successively eliminating errors" (McKelvey, 1997, p. 363). Given organization theorists' misconceptions of positivist (and relativist) epistemology, and lack of conformity to the expectations of normal science and higher status disciplines, the field is in great need of epistemological and methodological updating and direction. Scientific realism, the most widely accepted epistemology among current philosophers (Azevedo, 1997, this volume; Suppe, 1977, 1989), and the primary scientific logic-in-use in organization science, seems a good place to start.

Donald Campbell (1969, p. 328) offers a view on multiple perspectives, a "fish-scale model of omniscience," which is very much compatible with organization theorists' scientific practice:

> [the] slogan is collective comprehensiveness through overlapping patterns of unique narrownesses. Each narrowness is in this analogy a "fish scale" . . . Our only hope of a comprehensive social science, or other multiscience, lies in a continuous texture of narrow specialties which overlap with other narrow specialties.

In organization science, each perspective covers a given domain of organizational life, encompassing particular phenomena and problems, which, at the boundaries, overlap with the domains of other perspectives. Although each perspective does not overlap directly with every other one, adjacent perspectives share problem domains, and frequently complement one another. To us, the organizational phenomena and problems covered in the *Companion*'s perspectives chapters suggest the "fish scale" pattern of overlaps we have drawn in Figure 0.2. Our reading indicates that while there are unmistakable demarcations among the perspectives, there are also dense interconnections and substantial overlaps among them. Although our portrayal of these overlaps may not capture their full scope, it does illustrate the wide range of opportunities for linking the narrower "specialties" – many of which, as you will soon see, are already being pursued.

Campbell (1969) recommends researchers to focus their attention mainly within a given perspective, branching out to address overlaps at its boundaries. Because perspectives

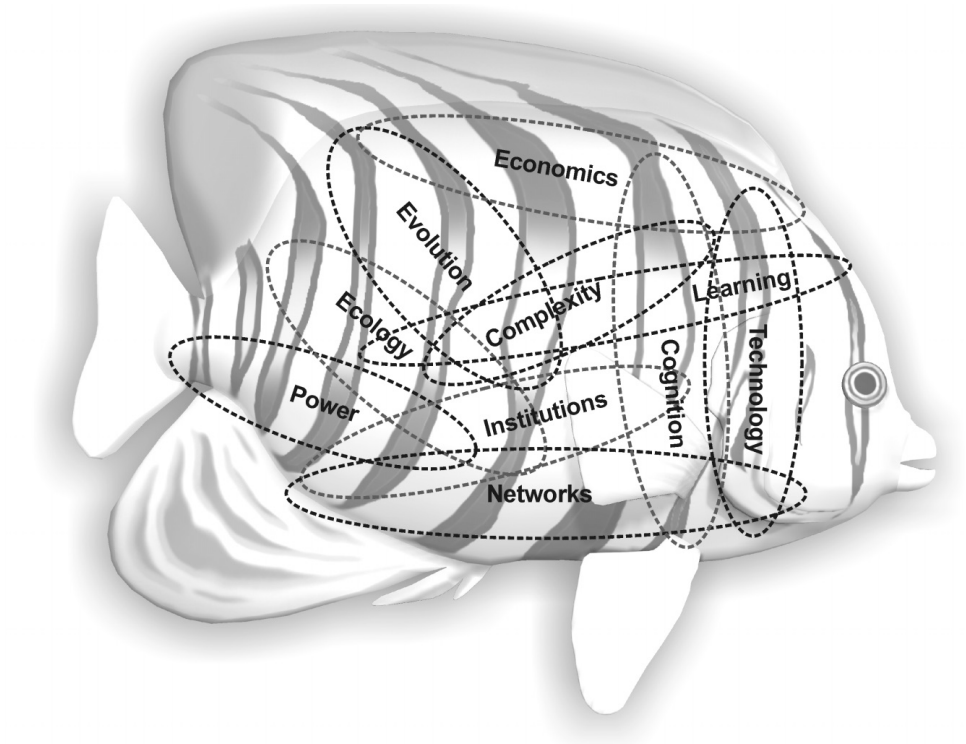

Figure 0.2 Mapping contemporary perspectives on organizations: Overlapping fish-scales

on organizations often attend to different features of related phenomena and problems, rather than phenomena and problems that are fundamentally distinct, boundary work involves *contingency studies* that beg questions:

- Under what conditions is one or another adjacent perspective better able to explain or predict a given organizational phenomenon?
- What features of a particular phenomenon does each perspective best explain or predict?
- How are processes specified within each perspective interrelated?

Research is not directly concerned with reducing the number of perspectives, either through integration or competing tests. Instead, emphasis is placed on corroboration and development of individual perspectives and conditional analyses at the boundaries of adjacent perspectives.

Of course, such a "multiscience" can only work if each of its "scales" has scientific credibility in its own right (McKelvey and Baum, 1999). Multiple perspectives (and theories comprising them) will persist (and proliferate) unproductively when a field has no means of carrying out studies leading to the incremental corroboration or refutation of key elements of the perspectives. In organization science, it is too easy for theories to stand unchallenged on the basis of speculation, intuition and *ad hoc* assumptions,

rather than the prediction of novel facts and systematic empirical evidence. Unchecked, this will foster theory proliferation and impede scientific advance by hampering theoretical integration.

A diversity of perspectives need not lead to fragmentation and a lack of consensus, however. Indeed, multiple views are vital to scientific advancement and do not condemn the field to an excess of unsubstantiated assertions disguised as new theories. What is required is an epistemology capable of encompassing diverse, even seemingly contradictory, approaches. An effective multiscience thus requires an ongoing process for generating, embedding, and discarding theoretical concepts and ideas within each perspective. Coupled with the linking of those that are left into broader, more compelling understandings, such a process would result in fewer but more productive theories and perspectives on organizations having more influence and practical impact. Scientific realism thus offers both an explanation for the current diversity of perspectives on organizations, and a research model that protects against unproductive proliferation.

Scientific realism provides a credible epistemology that maintains the goal of objectivity in science, while accommodating socially constructed metaphysical conceptions of phenomena, and offering a dynamic process through which a multiscience might reduce to fewer but more compelling theories. Scientific realists believe that the world exists largely independently of our perceiving it. In contrast to relativism, there is an "out there" for us to theorize about. The job of the researcher is to improve our perceptual (measurement) processes, separate illusion from reality, and generate the most accurate possible description and understanding of the world (Hunt, 1990). While believing that our perceptions can yield knowledge about an external world, scientific realists do not believe the resulting knowledge is certain. Our observations (as well as our theories) are fallible – some are more accurate and reliable (i.e., closer to the truth) than others, the validity of knowledge claims determined, at least in part, by the way the world *is*.

Multiple perspectives and research methods are essential – consistently working within one perspective or method, no matter how powerful and fruitful, will lessen our ability to detect errors, narrow our conception of what is possible, and prompt us more easily to dogmatism. Scientific progress is a matter of generating successively more accurate approximations to the truth about both observable and unobservable phenomena. One standing proposal for a content-neutral criterion of scientific success is Imre Lakatos's (1974) idea of progressive and degenerating research programs. A research program is a series of theories. For Lakatos, new theories introduce to a research program new ways of posing problems, and transitions between theories represent *problem-shifts*. Successive theoretical transitions are *progressive* if they enable novel predictions not covered by predecessors, while retaining most previously corroborated predictions. Transitions are *conceptually progressive* if they produce new concepts with rich and simplifying structures. If the new predictions are corroborated, then the theoretical transition is also *empirically progressive*. A theory *degenerates* if its advocates merely add *ad hoc* auxiliary assumptions and hypotheses, unjustified by empirical evidence or which do not enable the prediction of novel facts, in order to rescue it.

Producing conjectures that predict novel facts, trying to refute them and modifying them in a way that is not merely *ad hoc* are important procedures in producing scientific advance without excessive theory proliferation, while, at the same time, fostering theoretical integration. It is rational, however, for some researchers to pursue degenerating

theories: because both theories and tests of theories are fallible, a theory may be correct even when it appears to have been refuted. Given that a research community has the shared goal of finding true theories about the world, it is reasonable for part of the community to pursue degenerating theories; provided that most researchers pursue progressive theories, all is well (Lakatos, 1974).

Scientific realism thus supports pluralism without acceding to relativism, and provides the basis for a scientific method that can be used to select among and validate theories in perspective-neutral ways. Truthful explanation is achieved as individual researchers develop idiosyncratic interpretations of phenomena, their interpretations are socially cross-validated into a more coherent view held by the research community, which is refined over time as less accurate idiosyncratic interpretations and social constructions are weeded out. The basis for validation thus lies in inter-subjective – even cross-cultural – agreement, not in a particular theoretical or methodological approach (Campbell, 1974b).

In addition to a perspective-neutral scientific method that is up to date philosophically, several theorists also suggest that organization science needs a more explicit meta-framework to facilitate the interconnection and evaluation of theories required for an effective multiscience. Howard Aldrich (1979, 1999) and Bill McKelvey (1982), for example, suggest an evolutionary meta-framework based on Campbell's (1965) *VSR* model, which captures well the dual nature of "organization" as process and product. As described above, the three elements of the model are V) occurrence of variations – "blind," "chance," or "random" but in any event variable, S) consistent selection criteria – selective elimination of certain types of variations, and R) mechanisms for the preservation, duplication or propagation of the positively selected variants. Thus, for researchers interested in establishing such a meta-framework, the *VSR* model offers an appealing way to categorize multiple organizational perspectives based on their contributions to the evolutionary view of organizational persistence and change, as well as an explicit basis for examining the overlaps and relationships among them. We illustrate our interpretation of how contemporary perspectives on organizations might be interpreted and interrelated by adopting this evolutionary meta-framework in Figure 0.3. In the figure, we link variation, selection, and retention processes in an iterative sequence, and connect the ten perspectives to elements of the *VSR* model on which, in our view, they are most centrally focused. We do not offer this evolutionary meta-framework as the correct meta-framework, but rather as one standing proposal that enables us to interpret and connect contemporary perspectives on organizations in a meaningful way.

The Companion

To move toward a realization of Campbell's powerful vision in organization science, the *Companion* provides not only a comprehensive survey that consolidates and evaluates contemporary research perspectives on organizations, but also attends to possibilities for epistemological and methodological elaboration of the field. In Campbell's terms, then, the *Companion* aims to delineate the narrow specialties – "fish scales" – that comprise the field of organization science, evaluate their individual (and collective) scientific credibility and contributions to knowledge, and facilitate your examination of how they overlap with and relate to one another.

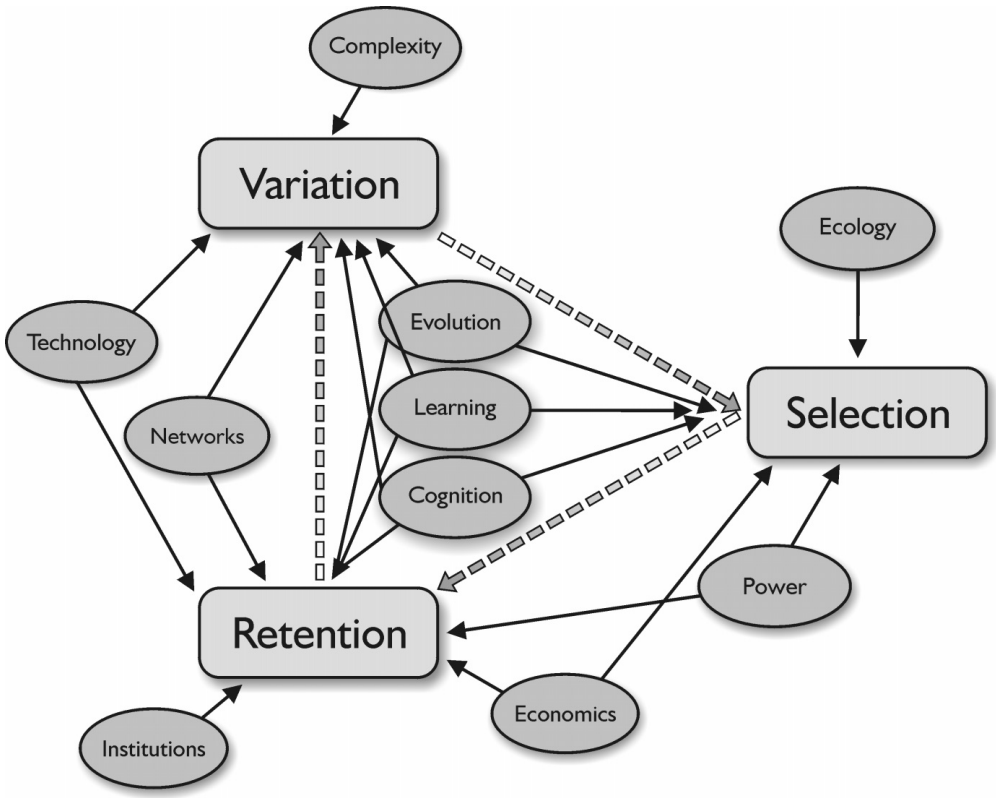

Figure 0.3 Mapping contemporary perspectives on organizations: An evolutionary meta-framework

Structure of the book

The *Companion* is divided into four parts.

- Parts I–III give perspectives on organizations, for each level of organization: *intra*organizational, organizational and *inter*organizational.
- Part IV concentrates on organizational epistemology and research methods.

Each of Parts I–III contains ten chapters, one grounded in each of the contemporary perspectives on organizations.

To make the *Companion* easier to use and study for students, and more versatile and practical for researchers, each chapter is structured around five common elements:

- Literature review and evaluation
- Contemporary issues and debates
- Central questions that remain unanswered
- New and emerging directions for future research that appear promising
- Connections across levels of organization

Although starting from a common platform, each chapter takes on a distinctive character reflecting the unique perspective and insight of its authors. To complete their "cross-level connections," chapters were formally exchanged across levels within each perspective, resulting in a rich commentary on the connections across levels within each perspective. Many chapters were also informally exchanged across perspectives, and so you will also find many connections among the perspectives throughout the *Companion*. Table 0.1 summarizes the key topics and themes for each perspective chapter at each level of organization.

The chapters in Part IV aim to sow the seeds for a stronger future foundation for organization science. There are three chapters on epistemology and then five chapters on research methods.

The first epistemological chapter updates readers on significant developments in the philosophy of science during the past two decades. Building on the first, the second offers a critical assessment of the current state of epistemological development in organization science, and the third presents an explicit, realist organizational epistemology that is up to date in terms of recent developments in the philosophy of science and is relevant in that it specifically focuses on the epistemological peculiarities of organization science. These three chapters address the root problem of organizational epistemology: how to know which theories are more or less truthful and how to systematically move toward more truthful theories and winnow out mistakes. Accompanying them is a detailed glossary of organizational epistemology terms that will enhance your understanding as well as being a valuable source for future reference.

The five chapters on organizational research methods review and provide concrete guidance for designing and doing exemplary research on organizations in five basic modes: survey, archival, simulation, grounded theorizing, and fieldwork. Their goal is to help students to understand how researchers create knowledge about organizations, and to stimulate researchers to use methods that will be more successful in the incremental refutation or corroboration of key elements of the perspectives on organizations. Each chapter:

- outlines elements of the methodology and research design
- characterizes the method's contribution to organization science
- describes exemplar studies
- provides detailed guidelines for implementing the approach, highlighting key decision points and criteria
- delimits the kinds of research questions it is best (poorly) suited for tackling.

Conclusion

Contemporary philosophy of science demands you take a skeptical stance toward theory: No theory can be proven true or false by empirical data. And any theory can be rescued by *ad hoc* addition of assumptions to fit with existing data. Fortunately there is a vast middle ground – and it is the job of students and researchers alike to evaluate theories of organization in this middle ground. A researcher committed to a scientific realist approach to theory corroboration is committed to constant search and open argumentation, is aware that his or her resulting beliefs are fallible, and therefore provisional in

Table 0.1 Key topics and themes across perspectives and levels of organization

	Intraorganizational level	*Organizational level*	*Interorganizational level*
Cognition and interpretation	*Fiol* • Symbolic architectures • Connectionist architectures • Mental models and cognitive maps • Knowledge structures • Cognition and affect • Sensemaking • Automatic and controlled cognition • Distributed and shared cognition	*Lant* • Organization as information processors • Scanning and search • Perception and interpretation • Organizations as enactors of environments and creators of meaning • Locus of organizational cognition • Collective cognition • Situated cognition	*Porac, Ventresca, and Mishina* • Industry belief systems • Enactment of organizational communities • Product ontologies • Boundary beliefs and market identities • Industry recipes • Reputational rankings and status-ordering
Power and dependence	*Brass* • Exchange theory • Controlling critical resources • Potential power and using power • Structural sources of power • Personal sources of power • Behavioral sources of power • Group sources of power • Power potential and use • Hierarchy vs. power	*Ocasio* • Functional, structural and institutional perspectives • Political coalitions • Structural contingencies • Punctuated equilibrium • Organizational demography • Networks and social capital • Weberian, normative and political-cultural approaches	*Mizruchi and Yoo* • Co-optation • Goal displacment • Political economy • Interorganizational relationships • Competition and symbiosis • Structural autonomy • Market constraint • Network centrality • Director interlocks
Networks	*Raider and Krackhardt* • Network form and structure • Network content and relations • Dyad • Ego network • Group network • Social capital – brokerage and cohesion views • Gender and homophily	*Gulati, Dialdin, and Wang* • Strategic interdependence • Network embeddedness • Network resources and constraints • Network centrality • Network configuration • Partner profiles	*Baker and Faulkner* • Organizational dyad • Organization triad • Organization set • Organizational field • Interorganizational embeddedness • Network organizational form
Institutions	*Elsbach* • Group identities and subcultures • Sensemaking	*Palmer and Biggart* • Goal drift • Co-optation	*Strang and Sine* • Cognitive, interactive and authoritative bases of institutions

	Intraorganizational level	*Organizational level*	*Interorganizational level*
	• Mindlessness and mindfulness • Group protocols, norms and routines • Group roles and composition • Categorization processes • Symbolic leadership • Repeated negotiation and interaction • Social verification	• Imprinting and structural inertia • Loose coupling • Isomorphism • Conceptions of control • Density dependence	• State and professions as institutional entrepreneurs • Naturalistic and dialectical institutional theories of change • Performance failure and institutional rivalry theories of institutional change
Economics	*Zajac and Westphal* • Positive and normative agency theories • Incentive alignment: Symbolic management and demographic similarity • Social influence and board of directors independence • Social exchange and board of directors monitoring	*Silverman* • Transaction cost economics • Governance choices: Make or buy? Make or ally? • Complex contracting • Resource-based view of the firm • Competence-based view of the firm • Diversification and performance	*van Witteloostuijn* • Industrial organization • Game theory • Perfect competition • Perfect contestability • Dynamic versus static efficiency • Bertrand–Cournot Nash games • Commitment and credibility
Technology	*Schilling* • Development of new technology • Impact on organizational structure, management and performance • Adoption of modular forms • Impact of information technology • Modular product and process • Interfaces and systems architecture • Role of proximity	*Tushman and Smith* • Technology cycles: Technological discontinuities, eras of ferment and dominant designs • Ambidextrous organizations • Organizational architecture • Incremental, architectural and discontinuous innovation • Innovation streams	*Stuart* • Technological structure of markets • Technological prestige • Technological crowding • Networks and structural holes • Inertia and evolution of technological systems • Technology-based competition • Technology spillovers
Learning	*Argote and Ophir* • Attention, interpretation and attribution • Distributed expertise	*Schulz* • Organizational rules and routines • Performance feedback models • Exploration and exploitation	*Ingram* • Absorptive capacity • Vicarious and congenital learning • Outcome and trait-based imitation

	• Knowledge depreciation • Knowledge transfer • Organizational memory and routines • Social networks • Team structure and dynamics	• Learning under ambiguity • Myopia and competency traps • Learning communities • Knowledge diffusion	• Knowledge spillovers • Interorganizational relationships • Relational capabilities • Learning races
Ecology	*Galunic and Weeks* • Variation, selection and retention • Interaction and replication processes • Organizational routines and comps • Competition between routines • Complementarity between routines	*Baum and Amburgey* • Age and size dependence • Structural inertia • Niche width dynamics • Population dynamics and density dependence • Demography of organizational founding • Population-level learning • Complexity in population dynamics	*Rao* • Commensalism and symbiosis • Community structure • Lotka–Volterra model • Community formation, change and collapse • Community coherence and organization • Institutional entrepreneurs • Social movements
Evolution	*Warglien* • Variation, selection and retention • Organizational rules and routines • Organizational genetics and replicators • Hierarchy of evolutionary processes • Cultural transmission in organizations • Search and learning • Representation and expression • Evolution as design	*Amburgey and Singh* • Strong and weak selection • Adaptation and selection • Darwinian and Lamarckian mechanisms • Organizational speciation and extinction • Micro- and macro-evolutionary processes • Coevolution	*Greve* • Variation, selection and retention • Evolution of market structures • Evolution of governance structures • Evolution of spatial structures • Coevolution • Competitive interaction • Emergence • Path dependence
Complexity and computation	*Carley* • Complex adaptive systems • Agents • Decision making and problem solving • Networks • Information technology • Algorithmic complexity • Computational theorizing	*Eisenhardt and Bhatia* • Complex adaptive systems • Loose coupling • NK models • Edge of chaos • Simple rules and complex behavior • Emergence • Recombination and evolution	*Sorenson* • Interdependence • Cellular automata • Micro-behavior and macro-structure • NK models • NKC models • Complex interorganizational dynamics • Sensitivity to initial conditions • Path dependence

nature and subject to further criticism. We challenge you to be critical consumers of organizational research, ever alert to *ad hoc* assumptions and hypotheses contained within perspectives, and to be boundary workers, seeking opportunities to refine adjacent perspectives by pursuing their interconnections. If you accept our challenge, you are sure to achieve a greater understanding of the organizational world in which we live, and you will also have helped to ensure a *progressive* future for organization science.

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