AN UNDERLYING THEORY FOR

STRATEGY, ORGANIZATION, AND MANAGEMENT:

BRIDGING THE DIVIDE BETWEEN ANALYSIS AND SYNTHESIS

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Abstract

Considerable progress has been made in strategic management, organization theory, and general managemente over several decades, yet they seem to be at an impass, riding off in all directions. Looking back may offer a way forward. This paper revisits an underlying theory for the field, then called Management Policy, that was developed in the 1970s but never publihed. Building on the work of two eminent scholars, Herbert Simon on the programming of work and Ludwig von Bertalanffy on General Systems Theory, one more oriented to analysis, the other to synthesis, these fields are considered in terms of (1) basic elements (the structuring of organizations, power in and around organizations, and the nature of managerial work), (2) the strategy processes (strategic decision making and strategy making), and (3) the role of the analyst (analytic programs and planning programs). This article may offer some cohesion in a field that has been divided between analysis and synthesis.

Introduction

Applied fields usually build on a foundation of underlying theory. Medicine makes use of physiology and anatomy, engineering builds on physics and chemistry, social work draws on psychology. Within the functional fields of the business school, finance uses economics, operations management applies mathematics and statistics, marketing looks to psychology. But how about the field of strategic management, as well as organization theory? The basic disciplines do not appear to have proved sufficient, or perhaps have sometimes tilted aspects of it out of balance (as in the use of economics in strategic management during the 1980s).

In the 1970s, at the start of an academic career, this scholar set out to write a textbook entitled *The Theory of Management Policy*, as an alternative to the dominant textbooks of the time, which were based largely on cases. This book was never published because all but one of its chapters ended up as books or articles in their own right, as listed before the references.

The exception was Chapter 2, entitled "An Underlying Theory for Management Policy." A copy of this sat unpublished since that time, labelled "© 1974, revised 1978." This might be a good time to reconsider this early effort, for a fresh look at a field which might be described by a line from the humorist Stephen Leacock, about a man who "flung himself upon his horse and rode madly off in all directions." Consider this as a journey into the past for the sake of the future.

If we look beyond the basic disciplines, we find two relevant bodies of general theory that can be combined for this purpose. The first, developed by Herbert Simon, described the programming of work, and the second, developed by Ludwig von Bertalanffy, established General Systems Theory—one oriented in scientific endeavour to the perspective of analysis, the other to that of synthesis.

Three Traditional Actors in Organizations

At the risk of oversimplification, we can identify three traditional views of the actors in organizations, as they evolved in the literature of management during the Twentieth Century.

The rational actor The rational actor is the offspring of microeconomic theory, although adopted by a wide range of other disciplines. In its simplest form, the rational actor has unlimited time and full information in decision-making. This actor evaluates the consequences of alternative courses in terms of a utility function, and selects the one that gives the most of whatever is preferred. A convenience of this is that the surrounding conditions remain stable while the decision making process unfolds. This view was implicit in the work of the early proponents of scientific management, notably Frederick Taylor (1911) and his followers, and remains alive and even front and center in the perceptions of many contemporary management scientists, financial analysts, and strategic planners.

The mechanical actor If the rational actor does what is correct, the mechanical actor does as directed. This view comes from the early writers on bureaucracy (notably Max Weber, e.g., 1946) and theorists who wrote about managing (e.g., Fayol, 1916, and Gulick and Urwick, 1937). Mechanical actors generally find themselves embedded in established

organizations, where they carry out their duties within a hierarchy of authority, with rules directing their actions, documents informing their communication, and principles guiding their practice of management. Proponents of the mechanical actor design organizations with ubiquitous charts and detailed job descriptions, all of this driven by systems of planning and control.

The behavioral actor Here we find personal needs alongside institutional goals. The behavioral actor is not “rational" in the economists’ sense of the term, nor is easily manipulated by organization design, as can be the mechanical actor. The father of these views, in some sense, is Sigmund Freud, but it is perhaps the theory of Abraham Maslow (1954) on the hierarchy of human needs (physiological, safety, love/belonging, status, self-actualization) that has had the greatest influence. The behavioral actor first emerged in an organizational setting as a reaction to the views of Weber, Taylor, and Fayol that many behavioral scientists saw as dehumanizing. This view eventually settled into the field that has come to be called organizational behavior.

Simon’s administrative actor It was into this polarized world of rational, mechanical, and behavioral actors that Herbert Simon entered. Simon saw clearly the narrowness of all three views. Do people have the information or the singleness of purpose to act “rationally"? Are they prone to accept the highly structured situation of the mechanical actor? And can an organization staffed with behavioral actors accomplish its mission effectively? In Simon's words:

> The social sciences suffer from a case of acute schizophrenia in their treatment of rationality. At one extreme we have the economists, who attribute to economic persons a preposterously omniscient rationality… At the other extreme, we have

> those tendencies in social psychology traceable to Freud that try to reduce all cognition to affect… The past generation of behavioral scientists has been busy, following Freud, showing that people aren't nearly as rational as they thought themselves to be. Perhaps the next generation is going to have to show that they are far more rational than we now describe them as being—but with a rationality less grandiose than that proclaimed by economics (1957: xxiii).

In a number of books (e.g., 1947, 1960, and 1958 with James March), Simon sought to develop a more realistic view of actors in organizations. He introduced "administrative man," who intends to be rational but cannot be in the economist's sense of the term. Physical and mental limitations make it impossible to cope with the complexity and dynamism of the environment. Accordingly, the administrative actor "satisfices", namely seeks satisfactory rather than optimal solutions to problems, by making do with the information available and making use of convenient heuristics—rules of thumb, learned from experience, that produce quick and acceptable, if not optimal, solutions, most of the time. In sum, the administrative actor exhibits "bounded rationality".

Von Bertalanffy and General Systems Theory

In the 1930s, the Austrian biologist Ludwig von Bertalanffy began to question the thrust of scientific endeavor. He believed that conventional science concerned itself primarily with dividing phenomena into components that could be studied in isolation, whereas he was concerned with the interrelatedness of phenomena. To explain this, von Bertalanffy developed General Systems Theory (1968), defining a *system*, whether biological, physical, social, or otherwise, as a collection of parts that function as an integrated whole, separated from an

environment by defined boundaries. The atom is a system in an environment called matter, a business is a system in an environment called the economy.

All systems perform three basic functions. They take inputs, process or transform these in some way, and deliver outputs. Plants absorb water, soil, nutrients, carbon dioxide, and solar energy; transform them through photosynthesis; and generate oxygen and flowers. Universities take in students and educate them in classrooms with the intention of producing more intellegent human beings.

Systems are called *open* when they depend heavily on exchanges (of material, information, or energy) with their environments. *Closed* systems are essentially self-contained—their boundaries are impenetrable. Of course, there is no such thing as a completely closed system, but some are more closed than others—for example, the heating system in a house. Closed systems can be understood largely in terms of their internal workings, whereas open systems require more focus on the environments from which they receive inputs and to which they furnish outputs.

Organizations are systems with certain special characteristics. First, they tend to be *socio-technical* in nature (Emery and Trist, 1960), that is, they usually require the integrated efforts of groups of people, knowledge, and technologies.

Second, organizations are relatively *open* systems. Their environments figure prominently in what they do. The sterility of the early theories of management stemmed from their focus on internal operations to the exclusion of external factors. Fayol (1916) described managing as planning, organizing, coordinating,

commanding and controlling—arguably five words for controlling—yet research has shown that managers typically spend as much time with people outside their organizations as with those inside (e.g., Mintzberg, 1973). Contingency Theory (see Donaldson, 2001) sought to correct this by associating organization effectiveness with the fit between internal and external characteristics. But General Systems Theory went further, suggesting that the effective organization achieves an overall consistency—or *configuration*—among various characteristics, internal and external (see Mintzberg, 1979, Miller, 1999).

Third, in addition to being socio-technical and open, organizations are *extended* systems: they expand their social relationships well into their environments, to include groups with which they must have relationships, such as suppliers and customers, unions and trade associations, governments, sponsors and other special interest groups.

Von Bertalanffy elaborated on his theory with a number of basic properties of open systems.

- **Gestalt** Every system is more than the sum of its component parts; it must be understood as what psychologists call a *Gestalt*. We see clear examples of this in sport, when a team performs better than what might be expected of its players. Igor Ansoff (1965) introduced the term *synergy* into the field that became strategic management to describe, for example, the benefits of a merger of one corporation especially competent in production with another that excels in marketing.

- **Cycling** Open systems exhibit cyclical patterns. After inputs are secured and transformed into outputs, these provide the basis for securing further inputs, into the next cycle, and so on.
- **Homeostasis** Within this cyclicity, systems maintain a dynamic balance across their component parts and with their environments, countering any disturbance to their normal functioning with a coordinated response to restore steady state. The term *homeostasis* was first used to describe the human body's remarkable ability to repair itself. To maintain homeostasis, systems store inputs in excess of those needed to produce outputs. The body builds up fat, the organization maintains *slack* resources. When an unexpected disturbance occurs, these are mobilized to help correct the system.
- **Feedback** To maintain homeostasis, systems seek feedback. They monitor their environments and internal functions to detect deviations from expectations. Hence, just as a thermostat measures the heat in a house to maintain a steady state of comfort, so too a manager reads a sales report to help maintain a steady growth of sales.
- **Differentiation** Organizations can use their slack resources to elaborate their internal structures into broader entities. Thus do medical specialists outnumber general practitioners and big conglomerates grow from focussed entrepreneurial ventures.
- **Hierarchy** Complex systems find it necessary to organize their differentiated parts into hierarchical structures, as layers of components.

Von Bertalanffy discussed the notion of *centralization* to help explain how hierarchical structures coordinate their differentiated parts. In effect, they develop "*leading parts*, that is, components dominating the behavior of the system… a small change in a leading part may, by way of *amplification mechanisms,* cause large changes in the total system" (1968: 213).

- **Equi-finality** Finally, in open systems, "the same final state may be reached from different initial conditions and in different ways. This is called 'equi-finality'" (von Bertalanffy, 1968: 40). For example, the identical aluminum cans may be manufactured in two different factories, one more centralized, the other more decentralized.

Programming in the Parts

Hebert Simon discussed the *program* as the basic element of work in the organization. A program is a generalized procedure, learned by humans or built into machines, that is used in response to a certain type of stimulus. A fire department initiates a fire-fighting program in response to an alarm, a manager carries out a program-solving program in response to a price-cut by a competitor. Programs are used because they are economical, being built on experience that is familiar. Every activity is *unprogrammed* the first time it is done (witness a child taking its first steps), but after being done repeatedly, the activity may converge on a set of procedures. This is as true of a child who has learned to walk as it is of a chef who prepares confit de canard. Pathways are built up in the

mind, just as they are in the forest. Eventually, some activities become so programmed that they require hardly any conscious attention.

But some activities do remain *unprogrammed.* There is no cut-and-dried method for handling an activity because its precise nature and structure are elusive and complex, or because it is so important that it deserves custom-tailored treatment (Simon 1965: 59).

The programming imperative In his book *The Naked Ape*, Desmond Morris described the tendency to program as common in all of human activities:

> …in painting, sculpture, drawing, music, singing, dancing, gymnastics, games, sports, writing and speech…we can carry on to our heart‘s content, all through our long lives, complex and specialized forms of exploration and experiment…[according to the following rules]: (1) you shall investigate the unfamiliar until it has become familiar; (2) you shall impose rhythmic repetition on the familiar; (3) you shall vary this repetition in as many ways as possible; (4) you shall select the most satisfying of these variations and develop these at the expense of others; (5) you shall combine and recombine these variations one with another; and (6) you shall do all this for its own sake, as an end in itself. (1967: 121)

The development of organizations since the Industrial Revolution can be described as the programming of more and more sophisticated work, from the

operations into the management, to the point where some scholars, among them Herbert Simon (as will be discussed), have claimed that it would only be a matter of time before a great deal more in organizations became programmed. To help understand how this programming of work applies across the system called organization, we describe the organization in five parts, a delineation that would appear to apply now as much as when it was conceived years ago:

- **The Operations** At the base of the organization are the operators who perform the basic operating functions—of input, processing, and output—as well as the functions that supports this directly (for example, the maintenance of operating machines).
- **The Management** The administrative or management function is concerned with the Gestalt—with ensuring that the different parts of the organization work as an integrated whole. This entails monitoring the activities of the operations as well as changes in the environment, to maintain steady state, or else change that state when necessary. In much of the literature, managers are assumed to function in a hierarchy of formal authority, with those on top formulating strategy for the rest to implement—a view that has come under challenge, especially in recent years (to be discussed).
- **The Analytic Staff** All organizations make use of two kinds of analytic functions to make their work more effective. To ensure the maintenance of homeostasis, the *control* function designs and monitors work, notably in the

operations, for example by planning, programming, budgeting, and measuring performance. The adaptive function monitors changes in the external environment to promote responsive changes internally. While managers may do this informally, especially in small organizations, larger ones tend to engage *analysts* to do much of this formally (an illustration of equi-finality)—for example, working in departments called accounting, forecasting, and strategic planning. Such analysts are usually referred to as *staff* (as opposed to *line*), because they act in an advisory capacity.

- **The Support Staff** Most organizations incorporate various activities to support their operating and other functions indirectly, for example, payroll, legal counsel, and human resources.
- **The External Influencers** Finally are a whole range of people outside the organization who seek to influence what it does internally (aside from those in direct trading relationships, namely suppliers and customers). These can include owners, partners, unions, advocacy associations and special interest groups, as well as government in its various forms.

Programming the operations With the Industrial Revolution came the extensive differentiation of work, which enabled it to be programmed, usually rendering tasks narrower and more repetitive (as Adam Smith famously described the making of pins in 1776).

Initially, such programming was presumably an idiosyncratic activity, carried out by managers or left to the workers themselves. Then Frederick Taylor came

on the scene. In the 1880s, he began a life-long series of experiments to improve the efficiency of manufacturing operations (1911: 117-118). Taylor chose a particular production process, such as the cutting of steal on a lathe or the shoveling of coal, recorded in meticulous detail the exact method used by the worker, and then analyzed each step to find a more efficient approach. In essence, he developed a descriptive program of the operator's task, and then reprogrammed it. Two aspects of Taylor's approach are especially noteworthy: his emphasis on systematic, empirical study ("science"), and his clear distinction between the person doing the work (operator) and the one programming it (analyst).

> It is true that whenever intelligent and educated men find that the responsibility for making progress in any of the mechanic arts rests with them, instead of upon the workmen who are actually laboring at the trade, that they almost invariably start on the road which leads to the development of a science where, in the past, has existed mere traditional or rule-of-thumb knowledge (p. 103).

In effect, Taylor initiated the age of the analyst—the technocratic specialist who programmed but did not perform the operating work of the organization. A multitude of disciples followed Taylor, swarming into factories under the titles Scientific Management, Work Study, Time and Motion Study, Industrial Engineering, and Reengineering.

Programming into the administration When there was little left to program in the operations, it was only a few short steps to the office. If the assemblers of the factory were fair game, why not the clerks of the payroll department? Hence the thrust of programming came to envelope white-collar operators, unskilled support staffers, even clerks in the technostructure itself. Indeed, there was no reason to stop with the staff. Certain decisions made by managers—such as to schedule production—seemed to be rather routine in nature, hence they too became the subject of programming.

Two major changes stimulated this third thrust of programming. First, another great division of labor was underway: the differentiation of middle management work in businesses into the functions of purchasing marketing, finance, and others. Just as the division of labor in the factory had given rise to the programming of the operating work, so too would this functional specialization give rise to programming of more complex jobs in the office.

Second, and perhaps more important, in the 1950s the computer became widely available as a powerful tool for programming mental work. With it came the rapid growth of the field of Operations Research, or OR (Churchman et al., 1957), significantly devoted to reprogramming the routine decision-making tasks found in the middle of the organization's hierarchy. Russell Ackoff, a co-author of this book, spoke in 1969 about a second industrial revolution, concerned with mental work, and added, "OR is to the second Industrial Revolution what Industrial Engineering was to the first."

In the 1950s and 1960s, computer programs were written to balance the work on assembly lines, schedule production and airline movements, plan the daily work of freight yards, decide on inventory levels and reorder points, locate warehouses, and price products. In each case, a somewhat complex decision process, previously the routine work of managers or analysts, was programmed for execution by a computer. Sometimes the new program was little different from the old, except that it was made more explicit and consistent.

Programming at the senior level As the role of the analyst entered this new stage of development, it was inevitable that analysts—encouraged by their successes at the operating and administrative levels—would turn their attention to the senior level of management, namely the making of strategic decisions and the formulation of strategies. This began in the 1960s, with strategic planning heralded as the new way to formulate business strategies (e.g., Ansoff, 1965, Steiner, 1979). PPBS (planning, programming, budget system), claimed to do much the same thing in government (Hitch and McKean, 1960). Work also began on massive models of the firm, giant management information systems (MIS), and cost-benefit and return-on-investment analyses to make strategic decisions., as well as a host of techniques introduced by consulting firms (such as the Growth-Share Matrix of the Boston Consulting Group [Henderson, 1979] and the 7-S framework of McKinsey & Company [popularized by Peters and Waterman in their best-selling book *In Search of Excellence, 1982]*).

But when the dust settled after much of this—most dramatically following the debacle in Vietnam, thanks in no small part to a reliance on PPBS—the actual

work of senior management, and the strategy process in particular, were found to be hardly affected, indeed sometimes weakened (e.g. Mintzberg, 1994). One problem was that the planners had failed to learn the essential lesson of Frederick Taylor: he never tried to change work processes that he did not thoroughly understand. In contrast, many proponents of MIS seemed to have had little idea about the information that senior managers actually used; strategic planners appeared to have had only the most rudimentary understanding of how organizations actually made their strategies; and many of the modellers and systems analysts knew little about how managers made their strategic decisions. For the most part, the descriptive research on the management processes lagged way behind the attempts to prescribe these processes, and so could not support them.

Were this the only problem, then research—albeit a great deal of it— could conceivably have overcome it. Simon took this position with his claim in *The New Science of Management Decision* (first published in 1960, and revised in 1977) that, in principle, any decision process could be programmed, up to and including the most unprogrammed ones of managers. To quote his conclusion of 1960: "The secret of problem solving is that there is no secret. It is accomplished through complex structures of familiar simple elements" (p. 69). In fact, his conclusion in the 1977 edition was similar, if a bit toned down: "Our growing understanding of nonprogrammed decision making…will open up prospects for automating certain aspects of the decision-making process in the

nonprogrammed domain, just as operations research has permitted the automation of many aspects of programmed decision making" (p. 81).

The Great Divide in Organizations

Simon's optimism led him into research on cognitive processes (and a move from the Carnegie Mellon School of Industrial Administration to its psychology department), to join the work being done on "artificial intelligence," which had as its goal "to construct computer programs which exhibit behavior that we call 'intelligent behavior' when we observe it in human beings" (Feigenbaum and Feldman, 1963: 3). Researchers in the field worked on a variety of such programs, some of them concerned with simplified, fabricated problems—such as to play tic-tac-toe, checkers, and chess—as well as to discover proofs for theorems in symbolic logic, recognize visual patterns, and solve cryptarithmetic problems. In other spheres, Simon predicted in the 1950s that a computer would discover and prove an important new mathematical theorem, write music acceptable to critics, and be used to express most theories in psychology. (See Newell and Simon, 1958.)

In his *New Science* book, Simon listed some related work that had been done in management, notably Clarkson's program (published in 1962) that predicted the portfolios that a trust investor would select. But, interestingly, the examples Simon cited in the 1977 edition of his book were virtually identical with those of the 1960 edition. In other words, Simon's hoped-for revolution had not yet come about. At least according to his own examples, no progress had been made

on the programming of true managerial decision processes—even by researchers, let alone by analysts intent on improving such processes.

Planning in the left brain and managing in the right? A possible explanation for this appeared in breakthrough research on the functioning of the human brain (see Ornstein's review, 1972). This began with a veteran (called W.J.), who had received head wounds in World War II, and was studied by Roger Sperry, a psychobiologist at the California Institute of Technology. W.J. had epileptic fits so uncontrollable that surgeons finally cut through his corpus callosum (the tissue that joins the brain's two hemispheres), and the seizures stopped. He seemed perfectly normal, until a series of tests revealed some curious behavior—for example, that he "could carry out verbal commands ('raise your hand,' or 'bend your knee') only with the right side of his body", and when blindfolded he couldn't even tell what part of his body was touched if it happened to be on the left side."

> In fact, as the tests proceeded, it became increasingly difficult to think of W.J. as a single person. His left hand kept doing things that his right hand deplored, if it was aware of them at all. Sometimes he would try to pull his pants down with one hand, while pulling them up with the other. Once he threatened his wife with his left hand while his right hand tried to come to his wife's rescue…
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> Only the left half-brain could speak…. But then came the day when W.J. with a pencil in his left hand, was shown the outline

> of a Greek cross. Swiftly and surely, he copied it, drawing the entire figure with one continuous line. When he was asked to copy the same cross with his clever right hand, however, he could not do it…. It was clearly not a lack of motor control, but a defect in conception—in striking contrast with the quick grasp of his nonverbal half. Since then, a tantalizing picture of the brain's mute hemisphere has begun to emerge. Far from being stupid, the right half-brain is merely speechless and illiterate. It actually perceives, feels, and thinks in ways all its own, which in some cases may prove superior. (Pines, 1973)

According to Ornstein's review, researchers—later able to measure activity in each hemisphere of the brain of normal people by wiring them up to electroencephalograph machines—came to believe that the right hemisphere (in right-handed people) is associated with spatial perception, dreaming, emotion, craft, and music appreciation (at least in the case of amateurs), also of the "communication of gestures, facial and body movements, tone of voice" (Ornstein, 1972: 59). In sharp contrast, the left hemisphere seems to be the focus of language and logic.

As results such as these came in, one central pattern seemed evident. The left hemisphere appears to be the seat of a mode of thinking that is linear, sequential, orderly—in other words, programmed (as we have been using the term) as well as analytical (Sperry, 1974: 30). And the right hemisphere appears to be the center of a very different mode of thinking, one that is simultaneous, holistic

(i.e., Gestalt), relational, but unprogrammed. One hemisphere seems to favor the explicit; the other the implicit, one is oriented to argument, the other to experience; one to analysis, the other to synthesis. The traditional label for thought processes that cannot be understood—by the people who perform them as well as the analysts who study them—is "intuitive."

In 1974, Roger Sperry concluded that the right hemisphere "performs with a synthetic spatio-perceptual and mechanical kind of information processing not yet simulateable in computers" (p. 30). In 1977, Herbert Simon concluded that "We now know a great deal about what goes on in the human head when a person is exercising judgment or having an intuition, to the point where many of these processes can be simulated on a computer" (p. 81). Here we had two giants of scholarship proffering diametrically opposite conclusions. (Sperry won the Nobel Prize in Physiology and Medicine in 1981; in 1978, Herbert Simon won the Bank of Sweden Prize in Economic Sciences, commonly but incorrectly referred to as a Nobel Prize. [See "Not a Nobel Prize" buried in nobelprize.org.])

Who to believe? Given the evidence cited above—on the experiments from physiology compared with the examples that Simon cited in 1960 and repeated in 1977—the answer appears to be Sperry. Perhaps analysts have been unable to program many important strategy processes because these rely, in part at least, on thought processes that are fundamentally different from those of analysis. They are "nonrecoverable" to quote Hammond & Brehmer (1973): they have remained nonverbal, subconscious, inaccessible even to the user, perhaps because they are based on a kind of knowledge (called experience or wisdom)

that the user has absorbed without conscious thought (much of that being non-verbal, including gestures and tones of voice).

Looking back on the thrust of programming, the enthusiasm by people such as Herbert Simon may have impeded acknowledgment of its failures. Even in the most programmed factory, there have always been jobs that escaped the analysts—the purchasing agent who haggles with suppliers in ways that systems analysts could not fully appreciate and the maintenance people whose "feel" for machines could not be taken into account by the industrial engineers. Even where computer programs have been installed, overrides have often been necessary to correct their deficiencies—as in a production scheduling program that cannot handle special customer requests. Analysts may support this work, but they cannot replace it. Shall we call those who do this work—a kind of fifth column in the otherwise highly programmed organization—the intuitive actors?

Building Applied Theory on this Underlying Theory

Perhaps there could have been more cohesion, and thus progress, had the research in strategy, organization, and management, instead of going off in all directions, sought to synthesize the central topics of these fields, building on such underlying theory. These topics, as outlined in that original textbook, are listed below and discussed in turn:

I. The Elements of Managing

- the structuring of organizations
- the use of power in and around organizations

- the nature of managerial work

II. The Strategy Processes

- strategic decision making
- strategy making

III. The Role of the Analyst

- analytic programs
- planning programs

The structuring of organizations The practice of management cannot be understood without a deep appreciation of how organizations function and are structured: how they differentiate and integrate the work of their operators, managers, analysts, and support staffers. It is, in fact, rather surprising that organization theory has not taken a central place in the curricula of management schools, let alone in their research.

From way back, the literature split into the great divide introduced earlier, with one side favoring the rational and mechanical actor in hierarchies and the other focusing on the behavioral and initiative actor in loose, decentralized forms of structure (e.g. Burns & Stalker, 1966, on bureaucratic and organic forms of organizing), with new labels for the latter appearing regularly—for example, adhocracy, network organizations, being self-organized, and agile.

Contingency theory, and the notion of configuration, has helped to provide some synthesis, for example in my own books on structure (Mintzberg, 1979, 1983b) that describe organizations as (using the labelling of a revision

underway) personal enterprises, programmed machines, professional assemblies, and project pioneers.

Power in and around organizations The other face of structure is power, namely how groups divide and share their influence to control the organization. Here the open-systems view of the organization comes to the fore, as the external influencers act from the environment, while the organization extends its own influence into that environment. Early work by Pfeffer & Salancik (1978) and my own (Mintzberg, 1983) has addressed this, the latter distinguishing internal and external coalitions to delineate various configurations of power (instrument, closed system, autocracy, missionary, meritocracy, and political arena) to build on the configurations of structure. Homeostasis may be one concept deserving more attention here: how healthy organizations maintain a dynamic balance in the face of the varied forces of power and politics.

The work of managing It is remarkable how little research has been devoted to the central topic of management, namely what managers actually do. As noted, the early writings were highly rational, indeed almost mechanical, and internally focussed, as if management happens in a closed system. And then came some research (e.g., Carlson, 1951, Mintzberg, 1973, Hill, 1992) that revealed a very different face of managing, significantly externally-oriented and dynamic, with a hectic pace, much unscheduled activity, an orientation to action and oral forms of communication. This indicated that managing is less a science

or a profession than a practice, deeply rooted in the experience of craft while making use of the insight of art.

In fact, it is these very behaviors that have rendered the use of formal analysis so problematic in the practice of management. Effective managers appear hardly to be the conventionally rational actors, not even quite the administrative ones. Here, then, we see the great divide between analysis and synthesis nanifesting itself most detrimentally, especially in how management is taught, or at least assumed to be, in many MBA programs (see Miller & Xu, 2015, 2017, on the performance of MBAs as CEOs). Research could well be devoted to how effective managers maintain homeostasis in the face of the pressures of their work.

The making of strategic decisions This divide has also had a detrimental effect on the strategy processes. The making of strategic (namely important) decisions has long been dominated by a highly rational model. We think in order to act, or in Simon's description of unprogrammed decision-making, we engage first in *intelligence* activity ("searching the environment for conditions calling for decision"), then *design* activity, ("inventing, developing and analyzing possible courses of actions") and finally *choice* activity ("selecting a particular course of action from those available", 1965: 54).

In contrast, Karl Weick (1979) has suggested that sometimes, especially for the most difficult decisions, we act in order to think. Some research has suggested just how cyclical and dynamic such decisions processes can be (eg., Mintzberg et al., 1976 and Langley et al., 1995). How, then, can we bring an

appropriate level of structure to bear on unstructured decision processes—to recognize the role as programming while accepting that which is best left unprogrammed?

The development of strategy The field of strategic management has long been, and remains, divided between depictions of the strategy process as, on the right hand, rational deliberate planning (e.g., Steiner, 1979, Porter, 1980 and 1985)—managers *formulate* in order to implement—and, on the left hand, emergent learning (Mintzberg & Waters, 1990, Mintzberg, 2007)—strategies *form* as all kinds of actors try things. Yet how often is a process such as this exclusively one or the other, instead of some dynamic mixture of the two? For example, strategies may form in an emergent process of learning to consolidate as deliberate to go forward once that learning has led to a defensible position. Here, especially, we can make use of von Bertalanffy's notions of gestalt, cycling, feedback, even equi-finality (different paths to effective strategies).

The programs of the analysts Analysts have major roles to play in decision-making and strategy-making so long as they do not force some rational imperative on these processes. They are simply too dynamic—in their use of soft data, their necessity to deal with multiple influencers, their need for the experience of craft as well as the imagination of art alongside whatever analysis can be used. Analysts need to help managers find effective syntheses of rationality and intuition, thinking and acting, analyzing and learning. All organizations need analysis, but as an aid, not a club. Large established

organizations perhaps tilt one way, entrepreneurial ones the other, but both need to operate in the spirit of General Systems Theory.

Looking back into the future

Many years have passed since the initial drafting of these ideas, and considerable progress has been made in strategic management as well as organization theory and general management. Yet all seem to be at an impasse, apart and together riding off in all directions. Looking back into the future, each of these fields requires more consolidation. Perhaps they can find it together, as was intended—however inadvertently at the time—for *The Theory of Management Policy* book. The rigor of highly focussed research is necessary to develop a better understanding of our central concepts, bu t the very nature of managing, organizing, and strategizing requires synthesis beyond analysis. If we expect that in practice; should we not be addressing it our research and our theorizing?

To paraphrase Mario Bunge, a renowned philosopher who has given attention to our work, management remains a craft struggling to become a sociotechnology (1998). With the great divide perhaps ever widening, is now not the ime to take stock, in part by looking back?

Author's main publications on the topics described

Introduction:	"Policy as a Field of Management Theory" (Academy of *Management Review* January 1977)
Structuring:	*The Structuring of Organizations* (Prentice-Hall, 1979), also shortened as *Structure in Fives* (1983b); being revised as *Structure in Sevens*
Managing:	*The Nature of Managerial Wor*k (Harper and Row, 1973)
	Managing (Berrett-Koehler, 2009), also shortened as *Simply Managing* (2013)
Power:	*Power In and Around Organizations* (Prentice-Hall, 1983)
	"Who Should Control the Corporation? (*California Management Review*, Fall 1984)
Decision:	"The Structure of 'Unstructured' Decisions Processes" (with Duru Raisinghani and André Théoret) *Administrative Science Quarterly (*June 1976)
	"Opening up Decision Making: The View From the Black Stool" (with Ann Langley, Pat Pitcher, Elizabeth Posada, and Jan Saint-Macary, *Organization Science*, May-June 1995)
Strategy:	"Strategy Making in Three Modes", *California Management Review* (Winter, 1973)
	Strategy Safari (with Bruce Ahlstrand and Joseph Lampel, Pearson, 1998 and 2009)
	"Of Strategies, deliberate and emergent" (with James Waters) *Strategic Management Journal* (1985)
	Tracking Strategies (Oxford University Press, 2007)
Analysis:	*Impediments to the Use of Management Information* (National Association of Accountants, 1975)
	"Coupling Analysis and Intuition in Management" Chapter 4 in *Mintzberg on Management* (Free Press, 1989)—contains correspondence with Herbert Simon on analysis/intuition vis-à-vis the brain research
	"Planning on the left side and managing on the right" *Harvard Business Review* (July-August, 1976)

"Beyond Implementation: An Analysis of the Resistance to Policy Analysis" (in Haley (ed.), *Operational Research '78* (North Holland, 1979)

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