

KEY FACTORS INFLUENCING INNOVATION IN GOVERNMENT¹

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ABSTRACT

This paper represents the first step in an effort to answer three questions: If innovation occurred in patterns, (1) What would be the most important factors? (2) What would be the patterns? (3) What would be their implications? Using a multi-disciplinary systems approach, the paper integrates a number of relationships that affect innovation into three principal factors: the individual's motivation related to the innovation, the culture within the workplace as influenced by its exterior environment, and the challenge presented by an innovation. This paper concludes by arguing that these three factors form patterns of behaviour in government, thereby setting the stage for a subsequent paper (Glor, 2001a) that develops a typology for innovation and presents cases illustrating the typology. An hypothesis for further exploration is developed.

Together, the two papers explore the intersection of organizational theory and innovation diffusion/adoption theory, while most innovation research, including that of Everett Rogers, has tended to focus on social systems levels of analysis, some on market dynamics. These two articles thus address a gap in the innovation literature, at the boundaries of the organizational and psychological, including both individual and group psychology.

BACKGROUND

How should innovation be conceptualized? This has been an important question for those who attempt to direct, to work within, and to understand organizations. While commonly recognizing that innovation is a mode of organizational change, and can be directed to some extent, philosophy, sociology, political science, social action theories, and systems theory have each had their impact. Such concepts as contextualism, population ecology, organizational life cycles, power in organizations, political models of change, social action theories, and the use of metaphor—for example, the organization as theater (Elkin, 1983; Wilson, 1992: 22)—have enriched descriptions of the process of change.

A number of these ideas, which are now being used to free up notions of innovation and change, are actually quite old. The notion that individual perceptions have theoretical relevance goes back to George Herbert Mead. This concept was supported by Dilthey's concept of "verstehen," and Weber's primary definition of sociology itself as "that science which aims at the *interpretative understanding* of social behavior in order to gain an explanation of its cause, its course, and its effects." (Shils and Finch, 1949: 72). Likewise, such Weberian notions as empathy (*Einfuehlung*), experience (*Erleben*), and re-living (*Nacherleben*), the idea of *phenomenology* in the works of Husserl, and the whole tradition of German idealism from Kant onward, understood that sociology has many aspects, and that at least one of these carries the decidedly anti-positivistic theme of the humanistic disciplines (*Geisteswissenschaften*), namely that the natural sciences (Naturwissenschaften) and those approaches to social science that attempt to employ its methods are doomed to fail. In the humanistic-cum-idealistic tradition "knowledge is not external but internal [and] men are intelligible to us in their uniqueness and individuality." (See Coser, 1977: 244-247). Norbert Long's frequent metaphorical expression that administration is an "ecology of games" goes back more than 50 years (as Mandeville's analogy to bees goes back hundreds).

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Still, by reintroducing these concepts, observers of innovation have been more able to see that organizations change all the time, to consider participants' subjective perception of organizational structures and situations, and to describe organizational functioning in terms of patterns rather than in terms only of static procedures, unambiguous products and pre-determined outcomes. Today an open systems approach is considered an appropriate framework for understanding the dynamics of innovation in organizations. Patterns reflect the relationships among people, structures and ideas at work in an organization and integrate the effects of these major elements (Wilson, 1992). What is required now are steps toward an integrated theory to render these several concepts and diverse patterns comprehensible.

In 1990, Perry and Wise issued an explicit challenge to those who seek a new and more satisfying understanding of organizations. It was to develop a “model that operationalizes the linkages between individual values, organizational environment and task structure, and outcome.”(Perry and Wise, 1990: 372) Everett Rogers, the dean of innovation studies, had already attempted to identify the factors determining the rate of adoption of innovations. He focused on perceived attributes of innovations, type of innovation decision, communication channels, nature of the social system, and extent of change agents' promotion efforts (Table 1). As well, Rogers and Eveland (1978) and Becker and Whisler (1967) identified the need for a theoretical framework that brought together external and internal factors, and structural and psychological factors.

This is the first of two papers that are intended to respond preliminarily to the expressed theoretical needs by defining pivotal factors in innovation, distinguishing possible patterns in innovation, identifying examples of patterns, and exploring the nature of the problems, promises and potential outcomes associated with the patterns. The current paper is an inter-disciplinary look at adoption and implementation of innovation through the lens of three comprehensive factors that affect the innovation process: individual motivation, organizational culture and challenge of the innovation.

Table 1: Rogers' Variables Determining the Rate of Adoption of Innovations

Variables Determining Rate of Adoption	Dependent Variable That Is Explained
I. <i>Perceived Attributes of Innovations</i> 1. Relative advantage 2. Compatibility 3. Complexity 4. Trialability 5. Observability	Rate of Adoption of Innovations
II. <i>Type of Innovation-Decision</i> 1. Optional 2. Collective 3. Authority	Rate of Adoption of Innovations
III. <i>Communication Channels</i> (e.g. mass media or interpersonal)	Rate of Adoption of Innovations
IV. <i>Nature of Social Systems</i> (e.g. its norms, degree of network interconnectedness, etc.)	Rate of Adoption of Innovations
V. <i>Extent of Change Agents Promotion Effects</i>	Rate of Adoption of Innovations

Source: Everett M. Rogers. 1995. *Diffusion of Innovations. Fourth Edition*. New York and Toronto: The Free Press, pp. 206-208 and Figure 6-1.

INTRODUCTION

Individual Motivation to Innovate

It is not easy to choose one dynamic to represent the effect that the individual has in the organization. Some authors emphasize individual resistance to management initiatives, the effects of training and of individual empowerment. To set the stage for construction of a framework for innovation in organizations, this paper uses the dynamic of motivation to represent the impact of the individual, in part because this concept addresses unconscious, conscious and proactive relationships to innovation. Motivation is a concept frequently used to illuminate changes in behaviour in the workplace.

Perry and Porter (1982) identified motivation as that which “energizes, directs, and sustains behaviour.” They emphasized not only the amount of effort but also the direction and quality of the effort. Maslow (1973) identified a hierarchy of needs. In ascending order, people have physiological needs (hunger, thirst and rest), safety needs (physical and psychological), social needs (belonging, affiliation, friendship, acceptance), esteem needs (respect from others and self-esteem), and self-actualisation needs (reaching one's potential, fulfilment). Largely based on Maslow's needs, Herzberg (1968) distinguished between what makes people unhappy at work—the way they're treated—and what makes people happy at work—what they do or the way they're utilized. The former he called hygiene factors, those that will not increase motivation as such but will decrease it, and the latter he called motivating factors. Hygiene factors included working conditions, salary, job security and company policies. Positive motivation, on the other hand, derived from people having a sense of achievement, recognition, responsibility and opportunities for personal growth. The concepts of *extrinsic* and *intrinsic* motivation refine this understanding of motivation (Dyer and Parker, 1975).

Extrinsic motivation is “motivation for behavior that is neither inherent in the behavior itself nor representative of goals established by the behaving person” (Cofer, 1996). Extrinsic motivation “can refer to rather arbitrary rewards and goals, in contrast to the inherent reward of an act itself, or to self-determined [sic] goals that characterize intrinsic motivation” (Cofer, 1996). The tools available to management such as giving direction and rewards would thus typically create extrinsic motivation. Perry and Porter defined the variables affecting (presumably mostly) extrinsic motivation as individual, job, work environment, and external environments, and identified four motivational techniques: monetary incentives, goal setting, job design (all extrinsic) and participation (which could be either intrinsic or extrinsic).

Bandura (1986: 240-241) identified *intrinsic motivation* as comprising three types of relationship: one in which the consequences originate externally but are naturally related to the individual's behaviour, a second in which behaviour produces naturally occurring outcomes that are internal to the organism, and a third where a self-evaluative mechanism is at work. He suggested that pursuit of activities is lasting and least subject to situational inducements when the effects are either intrinsically related to the behaviour or are self-provided. According to Thomas and Velthouse (1990), intrinsic task motivation is achieved in four ways: through meaning (value of work goal or purpose), competence (self-efficacy), self-determination (autonomy in initiation and continuation of work), and impact (influence on work outcomes). But motivation is also generated in a different way.

Much of the motivational literature has concentrated on employees within business and industrial organizations. Based on a study of the differences in rankings for eight reward categories among a sample of 210 employees of public, private and hybrid organizations, Wittmer (1991) found significant differences among public and private employees with regard to preferences for higher pay, status, and helping others. Perry and Wise also studied the motivation of public servants. They explored the possibility that there is a unique public service motivation, defined as “an individual's predisposition to respond to motives grounded primarily

or uniquely in public institutions and organizations” (Perry and Wise, 1990: 368-369). This led them to identify three analytically distinct types of public service motivation. *Rational motivation* is grounded in individual utility maximization; it includes such motivations as the desire to participate in the formulation of good public policy, commitment to a program because of personal identification with it, and conscious or unconscious advocacy for a special interest. *Norm-based motivation* is based on idealism, and includes such motivations as the desire to serve the public interest, patriotism, a sense of duty to the government as a whole, and a commitment to social equity, defined as enhancing the well-being of minorities. *Affective motivation* is commitment based on personal identification with a program that develops out of such factors as conviction about its social importance, service to society, and Frederickson and Hart’s (1985) patriotism of benevolence, a combination of caring about the government’s values and caring about others. In a subsequent study, Perry (1996, 1997) identified four constituent dimensions of public service motivation: attraction to public policy making, commitment to the public interest and civic duty, compassion, and self-sacrifice, although he found little difference between a four-dimension model and a three-dimension model that did not include self-sacrifice. Personally, I find Perry and Wise’s formulation comprehensive and more descriptive of public servants as I know them.

In an empirical study of the motivation of 421 managers to adopt information technology innovations in 47 municipalities, Perry *et. al.* (1993) found that three categories of managers—top managers, other department and division heads, and information system managers—shared two major motivations, the desire to *improve productivity* and *enhance service*. They did not find professionalism or innovation to be important motivators, nor that managerial motivation was determined purely or even primarily by environmental factors. Altruism was more important than self-interest as a motivation (Mansbridge, 1990); control was not more important than production efficiency (Hannaway, 1987). Likewise prestige and professional status were not more important than service and efficiency.

This research suggests that these public servants are motivated by both intrinsic and extrinsic motivation.² The types of motivation fall into two basic categories: some—such as Perry *et. al.*’s (1993) norm-based, affective, rational, commitment to the public interest, civic duty, compassion, self-sacrifice, altruism, self-interest and control—derive from the personal belief or need systems of the public servants involved, and according to Thomas and Velthouse’s definition (1990) could be considered to be intrinsically motivated. Others—such as productivity, service, and arbitrary rewards and goals—relate to the external world and could be considered to be extrinsically motivated. The authors suggest that a complex interaction of experience, personality and environment determine motivation.

The concepts of intrinsic and extrinsic motivation have a passive flavour about them. People have somehow become like that: how, why, and how the condition is maintained are not illuminated. Even Bandura’s self-efficacy is a condition. Amitai Etzioni postulated a more active approach, which can be seen to be linked to the German tradition of searching for subjective meanings that impel action (Coser, 1977: 247). According to Etzioni, *individual consciousness* allows the individual to be aware and pay attention. This is a relationship, since awareness is always of something. *Societal consciousness* creates a generalized capacity to be aware on the part of societal actors, in part through an aggregation of individual members’ consciousness, but also through institutionalization of awareness on the collective level, for example, through the creation of sub-units charged with *paying attention* (Etzioni, 1971: 224-5).

² Brewer, Selden and Facer (2000) used Perry’s concepts to acknowledge the multi-faceted nature of public service motivation and to build four conceptions of public service motivation: samaritans, communitarians, patriots and humanitarians. The lack of provision for less altruistic motivations such as self-interest or fear in their model is striking.

Organizational Culture and Innovation

Etzioni recognized the importance of both individual and collective consciousness in producing autonomy and innovative behaviour. He identified three types of consciousness that contributed to action: consciousness of the environment, the acting self, and controlling overlayers. Moreover, he pointed to the *normative-cognitive pattern* that provides an evaluative structure for action. The capacity to innovate is related to the capacity for autonomous direction, and action, growing out of individual self-consciousness, self-identity, values, commitment, knowledge, and power. Self-conscious actors can also be expected to be less well integrated into their societal systems, communities (and, presumably, organizations), to be more instrumental and manipulative than others, and to have slower reactions. They can also be expected to be more creative, to engage in less trial-and-error behaviour when confronted with a new problem, to design solutions, to be more transformable and more utopian. (Etzioni, 1971: 225-9)

Making a societal unit more conscious of its societal environment, its structure, its identify, and its dynamics is part of the process of transforming a passive unit into an active one. Consciousness is an essential prerequisite for the active orientation: Although actors can act with limited or even no consciousness, we expect in this case that they will tend to realize fewer of their goals. On the other hand, an increase in consciousness *alone* implies mainly an increase in symbolic activity, and hence, if other elements such as commitment and power are lacking, the societal unit may not be more active. (Etzioni, 1971: 229)

The social environment in an organization is sometimes referred to as its organizational or corporate culture. Like the concept of motivation, the concept of organizational culture is commonly used to describe the social environment in a workplace. Corporate culture, according to Cummings and Huse, is “the pattern of basic assumptions, values, norms and artifacts shared by organization members.” These cultural elements are “generally taken for granted and serve to guide members’ perceptions, thoughts and actions” (Cummings and Huse, 1989: 421, 71). Artifacts are visible manifestations of the other levels of cultural elements and include observable behaviours of members, structures, systems, procedures, rules and physical aspects (Cummings and Huse, 1989: 421). Similarly, Schein defined organizational culture as “a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 1985: 9). Culture should be understood at three levels, according to Schein: Artifacts (the visible level—constructed physical and social environment), values, and basic underlying assumptions. Assumptions are likely to be taken for granted, and are less conscious than observed behavioural regularities, norms, dominant values, organizational philosophy, rules of the game or feelings and climates. Schein sees *organizations* or *groups* as “open systems in constant interaction with their many environments,” consisting of “many subgroups, occupational units, hierarchical layers and geographically dispersed segments” (Schein, 1985: 7). While the management literature has tended to treat organizational culture as a malleable instrument for improving performance (Peters and Waterman, 1982; Deal and Kennedy, 1982), organizational development studies usually consider culture a network of shared meanings (Turner, 1971; Smirchich, 1983) or a structure of symbols that is quite constant (Silverman and Jones, 1976; Burawoy, 1979).

From both Etzioni’s sociological perspective and the organizational development perspective, an important aspect of organizational culture is thus its understanding of power within the organization. Filby and Willmott (1988) perceived work culture as a medium and an outcome of the reproduction of a structure of power relations. With a critical, emancipatory intent, Burrell and Morgan (1979) saw *cultural myth* as a tool used to reflect and reproduce, in codified forms, relations of domination. Some innovation research has emphasized the role of structure and process as reflections of power and authority in organizational cultures. Rogers

and Eveland (1978: 191-192) suggested components of structure were control or authority structure, centralization or decentralization, complexity (represented by level of knowledge, expertise and professionalism), formalization (represented by codification of jobs), communication integration (identified by the degree to which the members of a system are interconnected by interpersonal communication patterns), organizational slack, and organizational efficacy. Individuals who provide an organization with openness are called cosmopolites—usually these were regarded as managers, but working level staff were also found to have networks exterior to the organization. Both internal and external structure were seen as important.

Magnitude of Challenge

If an innovation creates a reaction in individuals, affects motivation and creates change in organizational culture through its modifications of structure, process, and power, it also creates a direct challenge to members of the organization. An innovation presents itself to staff as a challenge and/or an opportunity. Although the challenge presented by an innovation could be defined as *risk*, the management literature tends to treat risk as challenges to management, without much reference to working level staff. In the interests of comprehensiveness, this paper introduces the concept of challenge instead, in order to address the phenomenon faced by both—working level staff and management. This approach allows more issues to be addressed.

Challenges and opportunities come in many forms. At the personal level they are found in the amount of money, time, work and psychic energy that would be given or received to implement the innovation. Losses or gains might be implied. Losses and gains can be personal, involving loss of power, money, status and respect, or they can be public, involving failure, career consequences, public scrutiny and/or negative media attention. The magnitude of change involved in the innovation also presents a challenge to employees. Change, especially change that affects an employee personally, is often disruptive.

The characteristics of innovations that affect the rate of adoption as identified by Rogers and Eveland (1978) can be considered challenges. They include the relative advantage of the innovation compared to what it is superceding, the compatibility with existing values and past experience of the implementers, the complexity both in terms of understanding and use, their testability, and the observability of the results. Rogers and Eveland identified advantage and compatibility dimensions, and found they contained both a potential perceived implication of commitment to further change and a threat of change. They acknowledged that each individual in the organization could have a different perception about the challenge or opportunity. Consider, for example, the reallocation of power. For some more power is welcome, for others it is not. For some loss of power is a large challenge, for others it is a relief. It was because of recognition of challenge that communication was seen as a vital component of dissemination.

Nadler and Tushman (1986) reflected the challenge in innovation when they offered their distinction between two types of change. They differentiated between incremental and strategic change, defining incremental change as changing pieces or components of the organization and strategic change as involving most of the organization's parts and features. Strategic change is more challenging to the people affected and the organization than incremental change. Hickson *et. al.* (1986) developed a system of classification for magnitude of change that is applicable to the perception of staff. They described four degrees of change: status quo, expanded reproduction, evolutionary transition and revolutionary transformation. Table 2 outlines their framework for understanding degrees of change. While *status quo* and expanded reproduction are usually concerned with operational decisions and produce incremental change, evolutionary transition and revolutionary transformation primarily involve strategic and policy decisions and require a shift in the current ways of operating or thinking about the organization's functions. Although *status quo* does not have much potential to describe innovation, some innovations

affect the status quo very little while other innovations change it a good deal. Hickson *et. al.*'s classification provides a framework that can be used for thinking about change as predicted and perceived by the members of the organization.

Embedded in the challenges identified by Rogers and Eveland (1978), Nadler and Tushman (1986), and Hickson *et. al.* (1986) is the question of whether power can be expected to change for those affected by the change. If power will change, especially if it will change considerably, the challenge is heightened. Power is a complex concept that is treated by psychologists as a motivating factor or expectancy belief state internal to the individual. It fulfills the need for self-determination and a sense of personal efficacy (Bandura, 1977a). In the psychological conceptualization, power has its base within motivational disposition, is closely related to the concept of personal empowerment, and could be considered an element of intrinsic motivation.

While psychologists focus on personal empowerment, sociologists and political scientists see power as influence and control over sanctions. Most analysts start with Max Weber's (1968) definition of power: The probability that a person can carry out his or her own will despite resistance. Bierstedt (1974) saw power as force or the ability to apply sanctions. It included the potential, not just the actual use of force, i.e. the application of sanctions, and was distinguished from influence. Power was inherently coercive and implied involuntary submission, whereas

Table 2: Degrees of Organizational Change

Degree of Change	Operational/Strategic Level	Characteristics
Status quo	Can be both operational and strategic	No change in current practice
Expanded Reproduction	Mainly operational	Change involves producing more of the same
Evolutionary transition	Mainly strategic	Change occurs within existing parameters of the organization (e.g. change, but retain existing structure, technology, etc)
Revolutionary change	Predominantly strategic	Change involves shifting/ redefining existing parameters. Structure and technology likely to change, for example.

Source: Based on Hickson, D.J., R.J. Butler, D. Cray, G. Mallory and D.C. Wilson. 1986. *Top Decisions: Strategic Decision Making in Organizations*. Oxford: Blackwell; San Francisco: Jossey-Bass, as summarized in David C. Wilson. 1992. *A Strategy of Change: Concepts and Controversies in the Management of Change*. London and New York: Routledge, p. 20.

influence was persuasive and implied voluntary submission. Dahl's (1963) work was also based on Weber's definition: Power was exercised whenever one party affected the behavior of another, thus fusing the force and influence dimensions. An unused potential was not power, because power implied successful use of the potential. Wrong (1968) was also grounded in Weber: He held that the behaviour of others could be altered either by potential power or by use of power (actual power). Compliance is often based on the target's subjective expectation that

the potential can and will be used when necessary. Groups and individuals may control resources that can be developed into a base for power or the base can be left dormant and undeveloped: Attention should be paid to the subjective nature of power and the processes of power acquisition. Bacharach and Lawler (1980:13-26) regarded power as a sensitizing device.³

Challenges are factors that create resistance to adoption of an innovation. Albert Bandura (1977b) identified challenges such as perceived risks, negative self-evaluation, various social barriers and economic constraints. He suggested that challenge is counterbalanced by influences encouraging adoption, such as stimulus inducements, anticipated satisfactions, positive self-evaluation, observed benefits, and experienced functional value, which can be revealed through pilot and demonstration projects. If the positive benefits are perceived as dominant, the net magnitude of challenge will be low, if negative perceptions predominate, innovation will be seen as a major challenge.

DISCUSSION

Motivation and Innovation

Motivation to innovate is treated in this paper as the reason people become willing to adopt the sense of the need to change in the workplace.⁴ Whether and how individuals become motivated to innovate is important for the fate of innovations. As discussed above, innovation motivated by the requests, demands and direction of superiors will likely create extrinsic motivation and innovation motivated by meaning, competence, self-determination and impact (Thomas and Velthouse, 1990) will likely produce intrinsic motivation. For purposes of creating a framework for innovation, action, change and innovation can thus be thought of as being motivated one of two ways: intrinsically, growing out of individual drive and commitment, and extrinsically, due to direction, pressure or encouragement.

Like the Perry *et. al.* (1993) research, most study of innovation in organizations has focused on the role of managers in deciding to adopt an innovation. The current study seeks to include the role of all staff, because in some organizational cultures front-line staff play a major role in identifying and choosing innovations, and also because they are usually the ones

³ Bacharach and Lawler (1980: 13-14) distinguished two types of concepts, primitive and derived. Primitive concepts are less specific and derived concepts are at a lower level of abstraction. The value of primitive terms is largely heuristic; they sensitize people to an issue. They consider "power" to be a primitive concept. Elaborating the implications of a primitive term is not easy, but it is possible to distinguish forms and content in a social relationship. Form refers to the basic pattern or configuration of the phenomenon such as the parameters within which action or interaction occurs. In the case of power, the form consists of factors like sanctions, and is characterized by some level of dependence or interdependence in the power relationship. While these factors may vary by degrees across settings, they are likely to be present in every case, and to represent the most basic aspects of the phenomenon. Content refers to dimensions that are not omnipresent and that vary in terms of degree and presence. Authority and influence are the specific content of power; they may or may not be present. These definitions of power are described in Bacharach and Lawler, 1980: 12-14

⁴ "Motivation is a state of being that produces a tendency toward some action. That state may be a state of deprivation (e.g. hunger), a value system, or a strongly held belief (e.g. religion)....Social motives, such as the need for recognition and achievement, also account for behavioural patterns (e.g. studying hard to get good grades). However, the intensity of motivation to achieve at any task in any particular situation is determined by at least two factors: the achievement motive (desire to achieve) and the likelihood of success.... The expectancy factor refers to the subjective probability that, with the expenditure of sufficient effort, the object may be acquired or the goal reached." (Kaplan, 1991)

responsible for implementing innovations. Many innovations falter at the implementation stage, making the essential role of implementers apparent. Like the motivation to adopt, the motivation to implement innovation has not, unfortunately, been studied much (Rogers and Eveland, 1978).

The phenomenon at work seems clear, however—intrinsically motivated staff are empowered. While empowerment has been defined a number of ways, the most empowering strategies seem to be personal enablement and participation, generating self-efficacy, power and intrinsic motivation, while the least empowering strategies are delegation by third parties of powers and responsibilities to middle managers and front line staff (Glor, 2001b), generating extrinsic motivation. Since motivation affects the objectives served, as described by Perry *et. al.* (1993) and Perry and Wise (1990), it also has an impact on the effort expended and the quality of work. People are more likely to persevere in tasks, work harder, and do higher quality work if they are intrinsically motivated (Lepper and Greene, 1975; Deci and Ryan, 1985; Harackiewicz and Elliot, 1993). External rewards can have the opposite effect desired, by causing intrinsic motivation to decline (Lepper and Greene, 1975; Eisenberger *et. al.*, 1999; McGraw, 1978). The motivation created has implications, as well, for the level of creativity of the ideas produced. Theresa Amabile has identified the factors that *promote problem solving or personal creativity*.⁵ Although group factors were not shown to do so, with one exception—qualities of the group assisted creativity—personal characteristics did relate to creativity: specific personality traits, self-motivation, special cognitive abilities, a risk orientation, diverse experience, expertise in the area, social skill, brilliance and naiveté. The qualities of problem solvers that inhibited creativity, on the other hand, were lack of motivation, lack of skill, inflexibility, external motivation, and lack of social skills. Individual creativity was enhanced, in other words, by domain-relevant skills, creativity-relevant skills and *intrinsic task motivation*.⁶ The intrinsically motivated person was more creative than someone who was extrinsically motivated (Amabile, 1988: 142-3).

While intrinsically motivated people are committed to different objectives, work harder, produce better quality work, and are more creative, they may also be more willing to change. For an individual who is intrinsically motivated, individual needs and wants are met, and s/he is engaged. Some people are frequently intrinsically motivated, are more often self-actualized (Maslow, 1973), and actively position themselves where they can work on their personal interests. Other people can become intrinsically motivated, given a suitable, supportive environment within which to work.

Given that people are differently motivated in relation to innovation and that these differences should have implications for innovation, is there any indication of how people are typically motivated when innovating? In his survey of 217 Ford Foundation–Harvard University Innovation Award finalists, Sandford Borins found that 48 per cent of the innovations were initiated by frontline workers and middle managers (Borins, 1998). On the other hand, from the perspective of the other half of the applicants studied, the innovations were initiated by agency heads, politicians, interest groups, non-profit groups, and individual citizens, people outside the immediate work unit. In his survey of the members of the Institute of Public Administration of Canada, J. Iain Gow found most members of IPAC—Canadian academics and employees of

⁵ “Creativity is the production of novel and useful ideas by an individual or small group of individuals working together. ... Organizational innovation is the successful implementation of creative ideas within an organization.” (Amabile, 1983: 126).

⁶ Amabile’s conclusions are based on a group of three studies with three different subject populations: (1) 120 research and development scientists from over 20 different corporations; (2) 16 marketing and development employees of one of the nation’s largest banks; and (3) 25 marketing and sales employees of a major railroad (Amabile, 1983: 127; summary from Glor, 1998: 1).

Canadian federal, provincial, municipal and territorial governments—looked to senior staff to develop innovative ideas (Gow, 1991). In the Gow study, more than half of the innovations were initiated organizationally from above those who would implement them, while in Borins it was 41%. Initiation and/or direction of innovations from senior staff or politicians enhance extrinsic motivation for working level staff and do not fully engage intrinsic motivation, individual effort, creativity, and commitment.

At the same time, in a hierarchical organization like government, central agency and senior management support is crucial to secure the approval necessary to implement an innovation. Central decision-takers are most likely to approve an innovation if they themselves are intrinsically motivated by it. If motivation, creativity and acceptance are to be maximized, the creation of intrinsic motivation and control at both the frontline and at the centre becomes a core problem for innovation in organizations generally and in government in particular.

Intrinsic and extrinsic motivation thus have important implications for innovation. Innovation is probably affected by the types of objectives sought by the individual and the motivation created in the individual, both in terms of how creative the options identified are and how interested the person is in the innovation. But innovation is not solely affected by what happens internal to the individual. It is also affected by the social environment—the collective attributes of the work environment or organizational culture and how it manages itself. While individual motivation and organizational culture can be seen as being interdependent (Bandura, 1977b: 206), it is also useful to consider the ways in which they are independent.

Organizational Culture

Many change models are built from the perspective of management. Some explore how leaders can overcome individual and collective resistance to change (e.g. Maurer, 1996; Strebel, 1996; Collins, 1999). These are defined here as top-down approaches. Other models of change take bottom-up approaches. Many quality models, for example, emphasize the role of staff in identifying quality problems and solutions; satisfying customers, suppliers, and investors (in the private sector); and controlling resources.⁷ Quality models also focus on culture change but emphasize frontline staff and leaders working together cooperatively. Participative models, too, suggest non-managerial staff have a cardinal role to play in change (Cotton, 1993).

Top-down change models are the most common. Schein (1985) saw organizational cultures as being created by leaders, asserting:

Organizational cultures are created by leaders, and one of the most decisive functions of leadership may well be the creation, the management, and—if and when that may become necessary—the destruction of culture...there is a possibility...that the only thing of real importance that leaders do is to create and manage culture. (Schein, 1985: 2)

The function of culture is to solve the group's problems of survival and adaptation to an external environment, and integration of internal processes to ensure capacity to continue to survive and adapt (Schein, 1985: 50). Schein perceived organizations as going through three developmental phases, during which the function of culture and the change mechanisms vary. During birth and early growth, culture is the glue that holds the organization together and socialization is a sign of commitment. Change occurs through natural evolution and managed revolution by outsiders. During organizational midlife, new subcultures are spawned, key goals and values are lost, and an opportunity to manage the direction of change is presented. Change mechanisms include planning change and organization development, technical seduction, scandal and explosion of myths, and incrementalism. During organizational maturity, markets mature or decline, the

⁷ The best known quality models were developed by Richard Deming, Joseph Juran and Philip B. Crosby. The six-step model leads to both improved employee satisfaction and customer satisfaction (Treasury Board Secretariat, 1996).

organization is internally stable or even stagnates, and there is a lack of motivation to change. The culture becomes a constraint on innovation, preserving the glories of the past as a source of self-esteem and defense. Change occurs through transformation, where some points of the culture change, or through destruction. The change mechanisms are coercive persuasion, turnaround, reorganization, destruction and rebirth (Schein, 1985: 271-2).

Lewin's top-down change model used *forces at work*. He identified driving forces for change as new personnel, changing markets, changing attitudes, internationalization, social transformations and new technology. Restraining forces included fear of failure, loss of status, inertia/habit, strength of culture, rigidity of structure, lack of resources, contractual agreements and strongly held beliefs and recipes for evaluating activities (Lewin, 1951). According to Lewin, most of the driving forces come from outside the organization, while most of the restraining forces, many of which—such as strongly held beliefs—were cultural, come from within. Since he recognized very few internal driving forces for change, he can be recognized as seeing the need for top-down change.

The concepts of *change management* and *the manager as a change leader* are two other top-down models of change. While putting management of individuals at centre stage in change might lead to the conclusion that individuals have an important role to play in bringing innovation about, such models usually involve implementing preconceived models of change and achieving a particular set of expected, predetermined and desired outcomes. The approach of empowering managers to plan for change tends to ignore wider forces and implications of actions, including the implications for staff.

Peters and Waterman's (1982) *excellence* model is a structural approach and also top-down. Although critical of bureaucratic structure, the excellence model suggests that structure is important for performance and recommended a decentralized, project-based organizational design. In a causal, unidirectional, *one best way* approach to organization—a concept first developed by Frederick Taylor and used for design of assembly lines—change, organizational structure and culture are linked, and culture is manipulated through its structure. For Peters and Waterman the organization is decentralized to achieve change. Project-based organizations that place individuals at the centre of organizational attention are seen as those that succeed. While people are emphasized, the culture requires almost fanatical devotion from employees. Individual choice is limited and the culture is not recognized as having a contextual role for change. Despite its decentralization, the excellence approach remains top-down (Wilson, 1992: 75).

According to top-down approaches, a combination of culture change, human resource management and total quality management are said to be key to organizational performance and produce employees who share values and give of their best at work. While top-down cultural approaches became a central theme in management and organization literature during the 1980s, some authors were critical of this approach. In their skeptical article about culture, Alvesson and Willmott (1996) referred to the potential for the prescriptions of corporate culturism to have subjugating and even totalitarian implications, and pointed to the benefits of and the need to work for autonomy, self-conscious formulation of values, and democratic practices. The need for critical thinking to set the stage for encouraging emancipation in the workplace are highlighted. They advocated a bottom-up culture.

Compared to a structural approach, an *interpretive* view of culture uses the perspective of the individual to define the situation, and is bottom-up. The important factors are the interpretive and cognitive processes by which individuals support change, facilitate it, or attempt to disrupt it. While symbols, language and interpretation are essential to both the structural and interpretive approaches, through the interpretive approach corporate culture is personalized. The change process is seen as fueled by a variety of interpretations, each of which contributes to or detracts from spurring action, creating vision and sustaining energy in those participating. An

interpretive view recognizes more permanency in culture. Change can be seen internally to the organization in several other, bottom-up ways—occurring, for example in an open system, a population ecology or organizational life cycles (Wilson, 1992: 41-49). The structural and interpretive approaches are not mutually exclusive—both structure and interpretation are at work in an organization—neither the organization nor the individual is the sole element considered in organizational culture. As well, broader societal and institutional values affect change in organizations. They bring to bear such issues as the sense of individualism or community, the power distance that is acceptable, and the degree to which uncertainty is or is not tolerated.

David Wilson likewise recognized top-down and bottom-up approaches in his strategic choice and systemic conflict models of change. According to Wilson, if change is seen to be based on strategic choices, the organization is considered to be a social system that changes by exercising the freedom to make rational decisions, often in response to pressures from forces outside or from the top of the organization. The entrepreneurial approach is an example of a strategic choice model. Solutions are found outside the organization and the manager's job is to canvas the environment, import the most relevant solution, and act. The systemic conflict framework views the organization as a social system based on conflict, politicking and inherent tensions among individuals, departments and organizations. These interactions among people in the organization and the tensions among them provide the impetus for change. (Wilson, 1992) Strategic, planned processes are treated in this paper as top-down while systemic conflict processes are bottom-up.

Handy (1986) also recognized both top-down and bottom-up cultures: Of his four types of organizational culture, based on the division of labour, power and role cultures can be seen as top-down while task and people cultures can be seen as bottom-up. A *power culture* is centrally controlled by a single individual or group that determines the culture, and favours and nurtures strong individuals. In *role cultures* processes are subject to rule, precedent and regulation, and people are organized in a pyramid, with large power distance and reduced ambiguity. The *culture of the task* or *business project* is often found in decentralized, consensual organizations that favour group over individual work in matrix structures. A *culture of people* or *professionalism* favours individualism, avoids bureaucratization and large power distances and often lacks structure.

The culture-based change models described above have been grouped into top-down and bottom-up cultures. A culture that supports staff, pays attention to their ideas, and creates strategies for and implements those ideas is a bottom-up culture. One that provides direction to innovate from above—for example from leaders, managers or cabinet ministers—is top-down. These are fundamentally different approaches that could be expected to affect the outcomes of innovation.⁸ But staff's responses to an innovation are not just a function of their internal states and their organization's culture. They are also affected by their relationship to the innovation itself.

The suggestion that innovation could or should be initiated from within the civil service may have implications for ministerial and ultimately for democratic control of government. The suggestion that civil servants should not innovate suggests the public service should essentially be a conservative and reactive organization that responds to the prompting of the public and elected officials, and that the organizations that represent forty percent of the economy should have no built-in change function.

Challenge

The challenge of an innovation rests both in the power that must be exercised to bring it about and in the changes in the granting, transfer or sharing of power⁹ that are implied by its implementation. It is thus possible to draw a distinction between minor and major challenges. *Minor challenges* are expected by the participants to involve low personal threat, incremental change, status quo or expanded reproduction, and no or minor changes in power. *Major challenges* are expected by the participants to involve high personal threat, strategic change, evolutionary transition or revolutionary transformation, and changes in power relationships within the government or vis-a-vis groups outside the government. Part of the role of a leader in introducing innovation is to find strategies for reducing the magnitude of the challenges presented by innovation.

Values influence decisions about magnitude of challenge. What happens in government is affected by the values of public servants and also by political and ideological input to decisions. Those involved in decisions bring their own values to play, although the values are often not made explicit, especially in the public service context, where employees are expected to be politically neutral. Instead, values and political beliefs remain part of the tacit information that employees bring to discussions. An innovation that moves in a direction not valued by the participant is more of a challenge than a change in a valued direction. A right-winger, for example, would find pro-business innovations less of a challenge than expansions of the social safety net. A left-winger would have the opposite response.

Are These the Right Factors?

Acknowledging that it is not really possible to reflect reality fully in three dimensions, there are at least three good reasons for representing it this way. First, many students of organizations (e.g. Bandura, Schein) have identified these factors as fundamental to change in organizations. Students of innovation such as Perry and Wise (1990) have seen innovation through similar lenses. Second, Everett Rogers' five factors (Table 1) can be dovetailed into two of these three factors. The nature of the social system and type of innovation decision can be seen as represented in organizational culture, while the perceived attributes of an innovation, communication channels and extent of change agents' promotion efforts can be seen as part of the challenge and efforts to diminish the challenge. Rogers does not emphasize the role of the individual, as this author does. Lastly, by combining the dynamics into and limiting the analysis to three factors, it is much easier to use and to see the effect of these factors in creating patterns of innovation. These patterns will be discussed in a subsequent paper. Still, it is appropriate to ask: Are motivation, culture and challenge independent of each other?

Relationships among the Factors

Some observers treat motivation as a part of or even a by-product of the environment, culture or management style of the organization. These same observers typically emphasize the role of the manager or leader in generating culture and employee motivation and de-emphasize the beliefs, commitments and actions that employees bring to the workplace. Culture and management can influence motivation, as recognized by the concept of extrinsic motivation. Schein (1985), on the other hand, would say that culture helps define management and vice versa, so management and culture cannot be separated. Likewise, Bandura in his concept of self-efficacy (Bandura, 1977a; 1997), Csikszentmihalyi in his concept of flow, and the concept of intrinsic motivation, all belie the idea that motivation is entirely determined by context. These authors suggest that motivation is an individual characteristic and, at least sometimes, an internally generated phenomenon. Perry and Wise (1990: 368-69) confirmed the independence

⁹ Power is used in this paper as the potential or actual use of influence and sanctions.

of motivation with their three sources of motivation—rationality, norms, and feelings—all three of which, this author has suggested, could induce intrinsic motivation.

To be able to perceive the possibility of intrinsic and extrinsic motivation, the individual and the community/culture must be conceived as having, at least to some extent, an independent existence. New public management critics of public servants serving personal interests on the job also recognize that employees can be internally motivated, albeit that the critics prefer to diminish and control such independence. As Bandura put it: “From the social learning perspective, psychological functioning is a continuous reciprocal interaction between personal, behavioral, and environmental determinants. ... The efforts to gauge the relative importance of these factors, have not been especially informative ...” (Bandura, 1977b: 194). While the precise influence of personal motivation and organizational culture is unclear, both affect innovation.

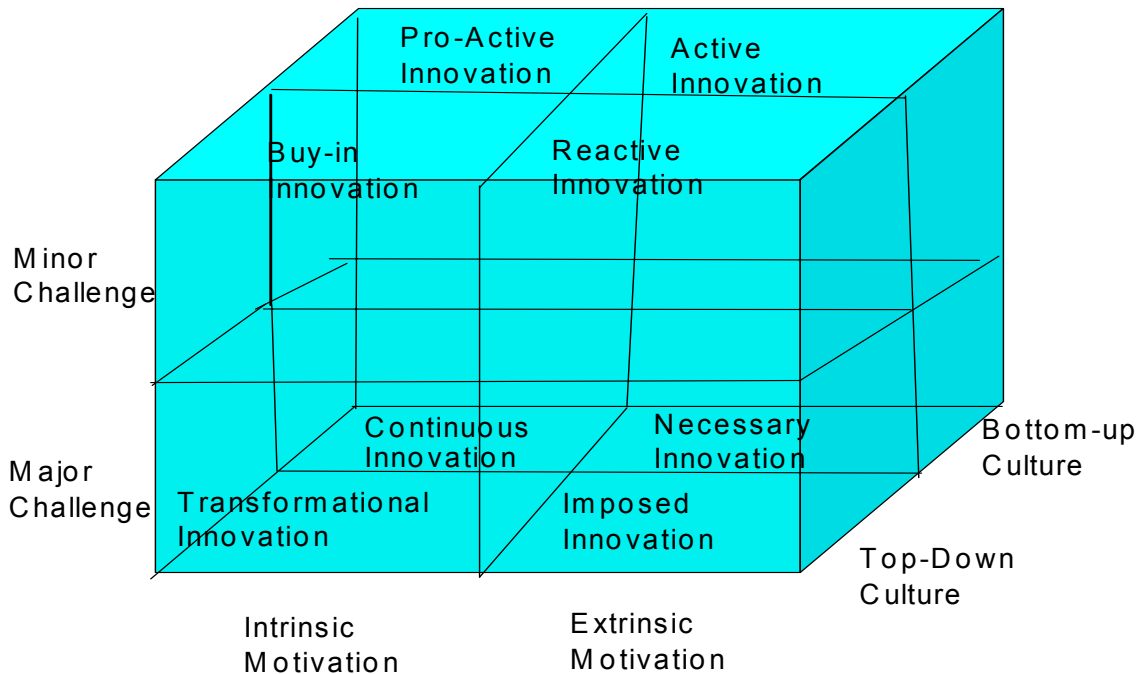
The same argument can be made for the relationship between challenge and the other factors. The challenge faced by an individual is a function not only of the dynamics identified earlier, but also of motivation and culture. For someone who is extrinsically motivated and works in a top-down culture, innovation may seem more of a challenge than for someone who is intrinsically motivated and works in a bottom-up culture. While at one level these factors are independent, they also influence each other.

These types of interrelationships are recognized by systems analysis that identifies patterns, not causal relationships. The three factors—individual, culture and challenge—can be understood as interacting in patterns. Each interaction is unique, yet the interactions tend to form into patterns, perhaps in a manner conceptually similar to those produced by chaos theory. The enormously complex behaviour represented by the individual, culture and challenge may thereby be seen as assuming recognizable shapes. The three factors of motivation, culture and challenge are interrelated to form patterns in Figure 1, and the patterns are named. These patterns are examined and some evidence is offered that the patterns exist in a subsequent paper.

The Relationship between Organizational and Societal Culture

So far this discussion of organizational innovation has looked only within the organization. But organizations cannot be separated completely from society. Robert Putnam, for example, has argued that societies have long-established ways of functioning—hierarchical or democratic ways in the Italian context (Putnam, 1993). It is possible that organizations have long-established ways of functioning, as well, that are extremely difficult to change.

Figure 1: Innovation Patterns, Based on Source of Motivation, Organizational Culture and Magnitude of Challenge



Putnam's work on civic culture and its relationship to good government and innovation raised the issue of whether or not organizational culture and societal culture are related. Do hierarchical and elitist societies tend to have hierarchical and elitist organizations? Similarly, do participative and democratic civic societies also tend to have participative and democratic organizations? Although this paper cannot articulate a position on this question, the source of the culture of governmental and private organizations is an important one for future consideration. If it were true that organizations tend to replicate society's patterns of authority, and that methods of interacting within organizations mirror methods of communicating in societies, organizations could be expected to create vicious and virtuous circles internally. This in turn would help to explain the innovation adoption patterns of organizations.

Etzioni suggested there are two essential links between the level of societal consciousness and societal capacity for innovation and transformation: "One concerns the building of new structures and systems; the other involves the 'unlocking' of old ones" (Etzioni, 1971: 240). The capacity to build new structures and systems grows out of a capacity to transcend the self, to design new patterns, and to direct efforts toward their realization. The most significant factor that interferes with this process is subscription to views that conceal options, often associated with ideology. Etzioni acknowledges that transformation almost always involves a power struggle. He expects increased consciousness of *existing societal morphology* to be associated with more effective unlocking and easier transformation because increased societal consciousness is associated with increased personal willingness to change, elites more conscious of societal patterns are more able to innovate and design alternate ones, and societal patterns are at least partly symbolic, and so can be changed somewhat through increased consciousness. Moreover, the conditions under which the capacity for transformation are high are determined in part by the extent to which the environment is changing (Etzioni, 1971: 238-243).

CONCLUSION

Because staff often are not intrinsically motivated by innovation (either because their intrinsic motivation is not induced by the government's action or because of an organization's management style), a stream of management theory, research and practice has been occupied with the question of how to encourage or persuade staff to become more creative and innovative (Amabile, 1988). Private sector companies, moreover, are actively using creativity enhancement techniques to accomplish this goal (Basadur *et. al.*, 1982). One journalist reported that half of the firms in the U.S.A. had used such techniques in 1997 (Johnson, 1998). Creativity techniques attempt to draw on tacit knowledge and encourage staff to realize connections with their intrinsic motivators. Unlike private industry, governments are not using creativity enhancement techniques much. While public servants often feel committed to their work, this is primarily self-generated through intrinsic motivation because governments as organizations do not often seek to encourage creativity or induce intrinsic motivation very much.

Motivation speaks to inputs and individuals, culture addresses the social environment, while the magnitude of challenge addresses risk for the people in an organization. The advantage of a model that integrates motivation, environment and risk is that it allows the linkages among the three factors to be made more apparent. The purpose of this exercise is to help generate discussion and theory building about the major factors at work in innovation. An hypothesis is suggested:

How people are motivated, the culture of an organization and the magnitude of challenge are primary relationships in determining patterns of innovation.

The factors suggested—motivation, culture and magnitude of challenge—interact in an organization. The next step is to examine the nature of the patterns they form.

Further research must address additional issues. First, it must deal with the likelihood that these factors are not really bifurcated, and so should be considered to be along a continuum. If the factors are arranged on a continuum, the patterns would lean toward categories rather than fitting solidly within them. Second, are some factors more important than others? Bandura has suggested, for example, that the inclination to adopt innovations is best considered "in terms of controlling conditions rather than in terms of types of people" (Bandura, 1977b: 54). The implication might be that organizational culture is more important than motivation or challenge in determining adoptive behaviour. Third, each of the categories requires further exploration. Is the individual role in innovation best expressed in terms of motivation or, for example, should it be considered in terms of roles played in relation to innovation? Or, perhaps certain players are important at specific points: champions, leaders and implementers play different roles in innovation—perhaps the former is most important at the acquisition stage, while the latter is at the implementation stage. Fourth, what other factors are important in the successful adoption and implementation of innovations? Bandura (1977b: 50-51), for example, has identified modeling as the medium by which most people are influenced both to acquire and to adopt innovation. Is the role model therefore crucial? Fifth, is the collective way of doing things best expressed as a culture? Lastly, the concepts of top-down and bottom-up cultures also need to be explored further. They seem to parallel Putnam's high and low civic capital concepts: Is there such a thing as social capital in an organization? Consideration needs to be given to these alternate concepts and approaches.

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