

Organizational Innovation: The Theoretical Ideas of James G. March

Tor Helge Pedersen

Inland University College of Applied Sciences, Lillehammer, Norway

Tor.Helge.Pedersen@inn.no

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Abstract: The significant scholarly productions of James G. March have contributed to and even shaped several research fields, including political and organizational science. For example, his contributions to the topic of organizational learning are widely known in organization research. Furthermore, recent studies on the impact of the specific publications of James March have identified organizational innovation as an emerging topic of inspiration from his publications over the years (e.g., Wilden, Hohlberger, Devinney and Lumineau 2019). This is not surprising. James March, Herbert A. Simon and Richard Cyert were among the first to connect the theoretical concept of innovation to processes inside organizations (March and Simon 1958; Cyert and March 1963). However, even though March has long influenced research on innovation, there are few, if any, scholars who have traced his ideas about innovation over his long and influential career. Motivated by this observation, this paper focuses on James March's theoretical contribution to innovation in organizations. The objective is to identify, extract and discuss his ideas by asking the following question: how did March use the concept of innovation over time, and what relevance does it have today? The theoretical discussion is based on eight key publications from 1958 to 2015, which were selected because they introduce new theoretical ideas to innovation or innovation-related topics. The three examples (central findings) of the relevance today have the following implications or contributions. First, the idea that organizations must balance the pursuit of novelty and the pursuit of efficiency implies that internal innovation efforts are as important as adopting external innovations. Second, the idea of performance gaps is relevant in understanding organizational responses to the COVID-19 crisis and lockdowns. Third, the idea of sunk costs of innovation implies that innovations are investments that can (more or less) lead to inertia in connection to later changes. All of these implications contribute to the general discourse on innovation in organizations by adding the ideas of James March.

Keywords: innovation, novelty, exploration, exploitation, sunk cost, performance gap theory

1. Introduction

There are at least two main conceptions of organizational innovation. First, it can be viewed as a novel output and category in the theory of innovation-driven economic development (Schumpeter 1934). The other conception is that organizational innovation is a specific type of organizational change that involves adopting something new in the organization (Hage 1999) or the process of developing and implementing a new idea (Schroeder, Van De Ven, Scudder and Polley 1989, p. 108), whether this is a new technology, ideas, structures, models, processes, products or services. This conception has roots in the 1960s, when researchers adopted the classic model of diffusion to study organizational innovation (Van de Ven and Rogers 1988).

In their book *Organizations*, March and Simon (1958) used a new conception of (organizational) innovation. The focus was not on autonomous individual adopters (e.g., farmers and representatives of organizations) but within organizations: internal processes, structures, sources of innovation, behaviours (e.g., problem-solving, search) and the why and how of innovation. These innovations could be borrowed from outside or invented within organizations. From this first book with Herbert A. Simon and until 2015, March devoted at least a small part of his large scholarly production to innovation-related topics. He discussed innovation in connection with organizational change (March 1981), the technology of foolishness (March 1971; 1972) and organizational learning (March 1991). Later, he became interested in novelty and discussed it in connection with topics such as the technology of foolishness (March 1971; 1972), organizational learning (March 1991; 2003), the case study of the Rand Corporation (Augier, March and Marshall, 2015), and especially in two later publications (Becker, Knudsen, and March 2006; March 2010). This paper traces his thinking on innovation and extracts his ideas that are relevant today.

The objective of this paper is to identify, extract and discuss March's ideas on innovation. The theoretical discussion is based on eight key publications regarding innovation. Methodologically, these publications and identified theoretical ideas are related to three periods in March's academic career (see section 2). March's scholarly production is large and covers various fields. He is, with regard to organization research, the father of concepts and ideas such as organizational slack, standard operating procedures, organizational learning, sequential attention to goals, problemistic search, the firm as a political coalition, and exploration and exploitation (Brunsson 2019). March discusses or mentions innovation in several publications. Among these, we

have selected publications that introduce new innovation-related concepts (e.g., March 1971, 1991). This means that several publications are excluded. Examples include republished materials in anthologies, later publications discussing the same theme and publications not explicitly about innovation-related themes. The remainder of the paper is organized as follows. First, March's evolving theoretical architecture over three periods is presented. Next, the paper illustrates its relevance today through three examples: developing innovations inside organizations, performance gaps and sunk costs.

2. James March's thinking on innovations in three periods

As mentioned, James March (1928–2018) published prolifically during all three periods included here (Carnegie Tech, Irvine and Stanford). This section describes his ideas in relation to innovation, taken from key publications from the three periods.

2.1 The Carnegie Tech period (1953–1964)

Herbert Simon hired James March from Yale to Carnegie Tech in 1953. The latter was an emerging innovative interdisciplinary milieu with funding from the Ford Foundation that was intended to reform business education, and the milieu had connections to the Rand Corporation. Out of this environment came two books in which March participated. The first was *Organizations* (March and Simon 1958) on organization theory. It built on ideas from various disciplines, such as sociology, social psychology, economics, game theory and statistical decision theory. The chapter on innovation did not follow Schumpeter's approach to or conception of innovation. Unlike Schumpeter, March and Simon looked inside the organization at its structure and behaviours. While Schumpeter (1934) separated economically significant innovation from inventions not relevant to economics, March and Simon (1958) included both invention and innovation in their conception of innovation. Their inspiration drawn from diffusion research was also limited. For them, the adopting and innovating unit is the organization, not the individual. Their inspiration was drawn more heavily from inside the Carnegie Tech milieu. For example, Simon (1952) had previously identified innovation as a research area relevant to organization theory. Other examples are the notion of sunk cost (Simon 1947, pp. 66, 95, 110) and the idea of the cognitive limits of rationality, that is, limited information, attention and processing ability. March and Simon begin the chapter on planning and innovation by writing that their task is one of "analyzing more completely how cognitive limits on rationality affect the processes of organizational change and program development [innovation]" (March and Simon 1958, p. 193). The innovating process is closely related to problem-solving processes, so the search activities during the innovation process will be limited in scope. Rather than searching for all possible alternatives, an organization finds a satisfactory solution, and the search is terminated.

March and Simon (1958) define initiation and innovation as introducing "new performance programs that have not previously been part of the organization's repertory" (p. 195), which represent the extent of change because innovation "cannot be introduced by a simple application of programmed switching rules" (p. 195). Newness and change are, therefore, keywords in their definition. They adopt an individualist perspective on innovation: individuals cause innovation. A search for innovation is initiated via dissatisfaction with, for example, the organization's perceived achievement relative to its changing environment. They call this a theory of choice between persistence and change. The absence of a search for new alternatives means that there is no dissatisfaction with existing programs (p. 194). Perception and performance dissatisfaction are keywords. The lower an organization's satisfaction with its performance, the more likely it is that new programs will be initiated. Comparisons with other organizations and an awareness of better programs may affect decision makers' perception of their own existing programs; therefore, they write that better programs will be pursued "when changes in the environment make the existing organizational procedures unsatisfactory" (March and Simon 1958, p. 204), although "some innovation will result from accidental encounters with opportunities" (p. 204). The innovation process is normally not programmed and is seen as closely related to problem solving. In connection with the process of innovation, March and Simon (1958, pp. 198–9) point out that even complex problem solving or "complex processes can be aggregated from simple elements" (p. 199).

March and Simon (1958) also discuss the sources of new program ideas, suggesting that innovations in an organization may be borrowed or invented. In this way, they include invention in their conception of innovation, but they hypothesise that borrowing is the normal source of innovation because it saves "an organization many of the costs associated with innovation" (p. 209). Furthermore, they discuss the parenthood of innovation, such as necessity versus opportunity, and the optimal stress hypothesis, as well as the nature of innovative activity (p. 208). For example, they write about the processes where new programmes of decision and actions are

“discovered, developed, and put into action” (p. 208), and they discuss the sunk costs of innovation that stem from introducing new programs, ideas and organizations (p. 194). Finally, they discuss organization level and innovation, for example, in relation to participation in the innovation process, the type of innovation and sensitivity to innovation (pp. 215–221).

March’s next early book is about the business firm, seen as an adaptive political coalition, and how it makes business decisions (Cyert and March 1963). It has a narrower focus regarding innovation. Cyert and March write about search processes. Perception is a key word in this text because the authors argue that the perception of an organization’s success by its participants depends on past experiences of performance rather than on an absolute level of performance. When performance falls below the aspirational level, organizations or leaders search for solutions (Cyert and March 1963). Furthermore, the perception of success may vary among the subunits in the organization.

Innovation is about search behavior, and innovation activity is a form of organizational search. Whether organizational search is problem-driven or opportunity-driven (slack search), the search is conducted in the immediate neighbourhood of the perceived problem, and past experiences in searching for innovations shape the organizational search rules (cognitive limits on rationality). For example, Cyert and March write that “when an organization discovers a solution to a problem by searching in a particular way, it will be more likely to search in that way in future problems of the same type” (Cyert and March 1963, p. 174).

As briefly mentioned above, Cyert and March (1963) also discuss the origins of innovation, which they call “problem-oriented” and slack innovation. Initially, they write, “everything else being equal, relatively unsuccessful firms would be more likely to innovate than successful firms” (p. 188). This hypothesis concerns problem-oriented innovation, such as closing perceived gaps in an organization’s performance. Cyert and March suggest a complementary hypothesis regarding slack innovation. They argue that successful organizations can channel slack resources toward innovation activity. They use the findings of another Carnegie Tech study of technological change as an example (Mansfield 1961; see Cyert and March 1963, pp. 188–189). Slack (excess resources), the disparity between the resources available to the organization and the resources required to maintain the organization (p. 42), can spur innovation. They conclude that

“Problem-oriented innovation will tend to be justifiable in the short run and directly linked to the problem. Slack innovation will tend to be difficult to justify in the short run and remotely related to any major organizational problem” (Cyert and March 1963, p. 189).

Thus, in 1963, they concluded that organizations may innovate “both when successful and when unsuccessful” (p. 189). The next section focuses on the Irvine period, which began a year later.

2.2 The Irvine period (1964–1969)

In 1964, March went to Irvine to become a professor of psychology and sociology and the dean of the School of Social Sciences at UCI. Here, he carried out organizational experiments based on elements such as interdisciplinary collaboration, a lack of departments (called disorganization internally) and a quantitative approach to studying social phenomena. March wanted the school to “be conspicuously experimental and innovative” (Kavanagh 2020, p. 46) and felt that it “should be viewed as an experimental laboratory rather than as primarily a production facility” (p. 46). After the Irvine period (1964–1969), ideas such as ambiguity (with Michael Cohen), garbage can decision processes (with Michael Cohen and Johan P. Olsen) and the technology of foolishness emerged in the publications in which March participated.

Especially relevant in connection to the innovation topic in this paper is the idea of the technology of foolishness (March 1971). The article was published about the same time that March was a visiting researcher at various Scandinavian business schools and universities. In it, March argues, “Individuals and organizations need ways of doing things for which they have no good reason. Not always. But sometimes, they need to act before they think” (March 1971, p. 10). He calls this the technology of foolishness and contrasts it with the technology of reason. This concept was devised to supplement the technology of reason, not to replace it. He writes, “Suppose we treat action as a way of creating interesting goals at the same time as we treat goals as a way of justifying action” (March 1971, p. 10). He encourages organizations and their members to experiment to develop their preferences, because preferences may be affected by the experiment (action). Additionally, such experimentation (action) may lead to new and perhaps better preferences and goals. This is a so-called

endogenous change in preferences. As he states earlier in the article, “Human choice behavior is at least as much a process for discovering goals as for acting on them” (p. 8). Finally, March suggests five small beginnings for a technology of foolishness. This article can be related to the pursuit of novelty, which was confirmed by March in an interview (Dong, March and Workiewicz 2017).

2.3 The Stanford period 1970–2018

March went to Stanford University in 1970, and during that period, he was part of the so-called Renaissance in organization theories (Dobbin and Schoonhoven 2010). A decade into the Stanford period, March (1981) discusses innovation in relation to change and research on innovation in organizations. The focus is especially on the later stages of innovation, such as implementation. He argues that during this stage, both innovations and organizations tend to be transformed (p. 569), and this argument builds on an earlier argument about endogenous changes in preferences and goals, for example, “the possibility that preferences and goals may change in response to behavior [the innovation process]” (March 1981, p. 570; see also March 1971, p. 8). Furthermore, he questions assumptions in innovation research at that time, for example, “relying on the assumption that innovations spreading unchanged” (March 1981, p. 569). He discusses solution-driven problems and solution-driven innovation, meaning that the innovation may be a popular idea or fad. In this way, he introduces a new hypothesis about why organizations innovate: innovation may be solution-driven. Finally, he briefly discusses foolishness, new ideas and mechanisms that shield organizations “from the operation of normal rationality” (pp. 572–3). Examples of such mechanisms are organizational slack, ambiguity and loose coupling.

Exploration: Several years later, March (1991) explores the adaptive dilemma underlying organizational adaptation: how to balance efficiency and stability with novelty and innovation. All organizational adaptation, innovation and organizational learning involve a balance between “exploration” and “exploitation”. He introduces these two concepts and proposes that exploitation and exploration are two fundamentally different learning activities between which firms divide their attention and resources. Whereas exploitation is associated with activities such as “refinement, efficiency, selection and implementation,” exploration refers to notions such as “search, variation, risk taking, experimentation, play, flexibility, discovery and innovation” (March 1991, p. 71). In other words, March offers a host of synonyms for the two concepts and, as mentioned, connects novelty to exploration, writing that exploration is about the pursuit of novelty (March 2003; Dong et al. 2017), while exploitation is about the pursuit of efficiency (March 2003). March (1991; 1999) discusses the relationship and trade-off between the processes and activities underlying exploitation and exploration (Wilden, Hohberger, Devinney and Lavie 2018). For example, it is difficult to balance these two processes. Both excessive exploitation (the success trap) and excessive exploration (the failure trap) are dynamic threats to this balance (March 1999). This discussion has roots in March and Simon’s earlier discussion of daily routine versus planning (innovation) (March and Simon 1958, p. 206) and the distinction between program elaboration and program execution (p. 208).

Novelty: Novelty is deviation from established procedures or knowledge. March uses this innovation-related term in three later publications included in this paper. The first example of this is his discussion of Sidney Winter and an earlier unpublished article by Schumpeter (1932) on the sources of novelty (Becker, Knudsen and March 2006). They conclude that Schumpeter did not develop an explanation for novelty. Later, March (2010) discusses the emergence and pursuit of global novelty, which is “new to a population of organizations, not just new to the organization to which they spread” (March 2010, pp. 74–75). He distinguishes novelty from creativity, writing that “creativity is novelty that is subsequently judged successful” (March 2010, p. 75), and he stresses the fact that “[n]ovelty is a necessary, but not sufficient, condition for creativity” (p. 75). March argues that theories of adaptation “deal less well with the exploratory processes by which new ideas, forms, products or practices are created, made available, and protected from premature elimination” (March 2010, p. 74) and goes on to discuss the processes and notions that may constitute the rudiments of a theory of novelty. He identifies two theoretical tracks for understanding novelty: adaptive combinations (new elements that are produced from combinations of established elements) and adaptive inefficiency (e.g., ignorance and error). He concludes that these tracks are promising but have not provided a satisfactory understanding of novelty.

While March, in the early 1970s, argues for tolerance of foolishness or experimentation, he (2010) writes that a theory of novelty must provide an understanding of how exploration survives processes of exploitation. Novel ideas have two characteristics that threaten them: most novel ideas are bad ones, and “when novel ideas are generated, there is no reliable way to anticipate which of them will be successful” (March 2010, p. 75).

Exploration is the pursuit of novelty (March 2003). If organizations want to develop innovations, they must find ways to protect and buffer exploration and novelty and become more able to filter novel ideas and select which ones will be useful.

Highly innovative organizations (creative groups): The final example is a case study of the Rand Corporation, which, for about two decades after World War II, was a highly innovative and influential organization (Augier, March and Marshall 2015). The study illustrates his interest in the rise (flowering) and decline of a culture of innovation or collective intellectual creativity (p. 1142). Without denying the importance of individually idiosyncratic factors, his focus was on organizational features (Augier et al. 2015). He was concerned with which organizational aspects are produced, such as cluster/institution, the mechanisms and seeds of success (e.g., buffering exploration) and decline. The two latter publications, from 2010 and 2015, especially illustrate that March was interested in the mechanisms underlying novelty and innovation (2010; 2015).

3. The relevance of March's ideas of innovation: three examples

March's thinking on innovation evolved over time, and he used various innovation-related concepts, such as the technology of foolishness, exploration, novelty and creativity. Over the years, March put forward three hypotheses about why organizations innovate (i.e., problem-driven, slack-driven and solution-driven innovation). This section focuses on three examples of ideas that can be connected to March and have relevance today.

3.1 Developing innovations inside organizations

First, adopting or borrowing innovations from outside exploits existing knowledge, and this may reduce many costs associated with innovation (March and Simon 1958). As mentioned, March (1981) discusses such innovation, for example, the fact that both innovations and organizations tend to change during the implementation process. However, March most commonly discusses the problem of development innovations inside organizations, for example, in connection to novelty and exploration. The fundamental theorem related to innovation is that a long-term perspective allows for the exploration of new possibilities, while a short-term perspective requires the exploitation of existing knowledge and certainties. Developing innovation therefore implies sacrificing short-term effects for potential long-term effects.

The concept of exploration (March 1991) covers what he previously called program elaboration (March and Simon 1958, pp. 207–8), the technology of foolishness (March 1971; 1981) and generating novelty (March 2010). March focused on organizational factors (e.g., mechanisms), for example, the roles of ambiguity, uncertainty, complexities, organizational slack and novelty in organizational adaptation (e.g., innovation). Even though exploiting existing innovations reduces costs, organizations must also develop their own knowledge and innovations. The pursuit of novelty (exploration) must be buffered from the processes of exploitation. For novelty to be useful in innovation (organizational adaptation), it must be judged successful and survive (March 2010). March's idea of balancing exploration and exploitation is well known and much discussed in relation to adaptation more generally (Wilden et al. 2018). It is also an idea that must be explored more deeply in relation to novelty and innovation (March 2010, p. 74).

3.2 Performance gaps and innovation

The second example is a theory that has renewed relevance. The theory of performance gaps has roots in March and Simon (1958, pp. 203–206; Cyert and March 1963). Briefly, performance dissatisfaction, or performance gaps, is seen as a stimulus for innovation and change (March and Simon 1958). As mentioned above, "changes in the environment" (p. 204) may lead organizational decision makers to perceive that the organization's course of action is unsatisfactory. Several others have later also discussed sources of performance gaps: technological changes in the environment (Downs 1966; Zaltman, Duncan and Holbek 1973); environmental shifts, such as radical changes in technology, regulation or competition, and seeking an attractive opportunity (Wischnevsky and Damanpour 2006; Damanpour 2020). In the Minnesota studies on innovation, they refer to March and Simon's hypothesis when they, in seven case studies, found that shocks, internal or external to the organization, triggered innovation (Schroeder et al. 1989, p. 123). They also stress that "a shock can come in many different forms" (p. 123). "Ideas were often generated but are not acted on in an organization until some form of shock occurred" (p. 123). Today there are similar cases in the management of the lockdowns in connection with the COVID-19 crisis. The lockdowns triggered the use of new technologies that had been available several years

before. The old idea that perceived performance gaps (problem-driven innovation) increase the search for new solutions may be relevant to understanding why organizations attempt to change or innovate.

3.3 The sunk costs of innovation

The third example is an old idea by March and Simon (1958) that has received less attention in later research. Innovation has sunk costs; “even if there are no tangible sunk costs, like factory buildings or specialized equipment, there will almost always be associated with a change in program a number of sunk costs of innovation” (March and Simon 1958, p. 194). They argue that these types of costs work in favour of program continuity or inertia and are difficult to estimate. However, the idea of sunk costs could also help researchers understand the consequences of innovation. It is not only investment in physical assets that may create sunk costs but also investment in programs, ideas, services, the organization and competences. These types of investments may also lead to inertia and path dependence.

4. Conclusion

March’s interest, over nearly 60 years (1958–2015), in the organizational aspects of innovation places his ideas in relation to the topic of organizational innovation. He did not suggest recipes for success or believe that organizational processes follow the rational model of choice. He discussed limited rationality, adaptive dilemma, ambiguity and uncertainty. Unlike previous studies on March, including those that have discussed the topic of innovation (Wilden et al. 2019), this paper has focused especially on his evolving innovation-related ideas over time. The discussion is based on a selection of key publications, and one limitation is that the discussion in section 3.1 could have included more publications. The three ideas (see sections 3.1–3.3) identified and discussed here can lead to the following recommendations for practice or further research. First, innovation must also be developed through exploring new possibilities rather than merely exploiting existing knowledge and old certainties. Such development of innovations inside the organization is important in the long run but is also connected with uncertainty, and it may lead to excessive exploration. Therefore, March suggests balancing the pursuit of novelty (exploration) and efficiency (exploitation). Studies of cases of deliberate exploration efforts are a possible direction of research. Secondly, the old idea of closing perceived performance gaps seems to have a renewed actuality in times of crisis and environmental shifts. Further research could, for example, examine the importance of perceived performance gaps in organizational innovation and change. This can be done through comparing perceived performance gaps with other reason, and in relation to different contexts. Finally, the idea of the sunk cost of innovation helps us understand that investments in competence, services and structures may have sunk costs, which favours inertia. Decision makers should therefore be aware that investing in certain innovations may create inertia in relation to later changes. A possible direction of research is to explore which types of innovations lead to possible sunk costs and inertia and which do not. This insight may, for example, be relevant in connection with innovation in public sector organizations that involves introducing new programs and services that may require an investment in competences and technology.

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