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**The Challenges of March and Simon's *Organizations*:  
Introduction to the Special Issue**

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## The Challenges of March and Simon's Organizations: Introduction to the Special Issue

### ABSTRACT

March and Simon pushed the study of organizations into the mainstream of academic writing about business. We outline central ideas discussed by the book and its pioneering role in studying cognitive processes underlying boundedly rational human beings. Through their representational approach, March and Simon defined and explicated key mechanisms of individual and organizational decision-making. *Organizations* provided an empirically-based understanding of human behavior and coordination, and set up core scientific criteria for creating the cumulative body of management and organization research. We summarize the papers presented in this special issue and point out contributions by *Organizations* that have been understated, forgotten or ignored in management studies.

*Keywords:* Carnegie School, decision-making, empirically-based theory, management cognition

### INTRODUCTION

Last year – 2018 – a book that profoundly shaped management studies, James March and Herbert Simon's *Organizations*, celebrated its 60<sup>th</sup> birthday. What many management scholars often regard as the foundation of the information processing approach to organizations (also termed Behavioral Theory of the Firm or the Carnegie School) continues to inspire research and debate. The book still impresses today by its drawing on nearly a dozen different disciplines, its critical analysis and synthesis of diverse literature, its repeatedly stated goal of 'replacing fancy with fact', its numerically indexed 206 variables and several hundred proposed relations for empirical verification, and its dense yet clear language. This special issue commemorates the anniversary.

Although *Organizations* did not attract immediate universal praise, many contemporary reviewers agreed it was 'surely destined to occupy a prominent place in the literature on organizations for many years to come' (Kaufman, 1959), praised its 'impressive intellectual tour de force' (Udy, 1959) and insisted on the 'systematic statement of the authors' emergent theory' (McCloskey, 1959). Even the less enthusiastic, more critical reaction of Selznick (1959), whose work had been analysed by March and Simon, noted the 'interesting and sometimes exciting volume' that 'merits careful study' by everyone interested in the theory of organizations.

To appreciate the significance of the book, and why it ‘merits careful study’ today, this introduction undertakes three tasks. First, we single out central ideas explored in and advanced by *Organizations*. Second, we summarize the papers presented in this special issue. Third, we compare the book’s ideas with empirical results this special issue’s contributors provide, and point out contributions by March and Simon that have been understated or ignored in management studies. In doing so, we do not seek to cover all the issues raised by March and Simon in this introduction or the articles submitted to the special issue. Given the variety of concepts, problem areas and methodological points structured or defined in *Organizations*, such an exercise would be hopeless.

## CENTRAL IDEAS

March and Simon (1958/1993, hereafter, M&S) pushed the discussion and study of organizations into the mainstream of academic writing about business. The very word ‘organization’ was rather newish, having only been in use (with its current meaning) for about 25 years.

In their reviews, most contemporary commentators pointed to the two last chapters (6 and 7) devoted to cognitive issues as the book’s most original and interesting. At the same time, they noted, sometimes critically, that these chapters had much less empirical support than other parts of *Organizations*. This apparent paradox relates to what many scholars regard as the book’s major contribution, namely its focus on cognitive processes and mechanisms underlying boundedly rational human beings as individuals and as organization members.

Of course, scientific publications before *Organizations* had connected organizations with bounded rationality and cognition (e.g., Simon, 1952, 1955). However, the book went far beyond introducing and popularizing these ideas among management and organization scholars. It explored the limits of individual reasoning in novel ways, specifying how such rationality is bounded – i.e., what mental mechanisms are at work – at individual and various organizational levels. Given the state of the cognitive sciences at that time, it is not surprising that the book quoted only a few works in ‘recent trends in the theory of cognition and perception’, (M&S, 1993, p. 28) like that of Bruner et al. (1956) or the information-processing project led by Allan Newell and Herbert Simon. Another significant source of inspiration for *Organizations*, Gestalt theories of self-organizing mechanisms in reasoning and learning, played rather a marginal role in the social sciences and humanities of the 1950s. This

demonstrates the pioneering role of M&S in identifying and exploring issues related to mental processes in organizations, at a time when the management literature, and even psychological research, contained scant theoretical or empirical treatment of such issues. In this respect, *Organizations* participated in the cognitive revolution and advanced the foundation for a field of research that we today refer to as ‘management and organizational cognition’ (e.g., Eden and Spender, 1998).

In this connection, one of the book’s key contributions is its elaboration of the idea of mental representations and their role in individual and organizational decision-making. At the time M&S wrote the book, the syntax of cognitive psychology was not established. Using terms like ‘simplified models’ or ‘cognitive frameworks’, they comprehensively demonstrate that bounded rationality implies creating and maintaining simplified subjective representations of objective reality. The book not only emphasizes that a human being is rational only in the context of such representations, but also specifies the content of mental models that individuals, and managers in particular, employ with respect to goals, knowledge and beliefs about actual and future states of affairs, available alternative actions, and the expected consequences of such actions. Through their cognitivist, representational approach, M&S define and explicate key mechanisms of individual decision-making, like means-ends analysis, span of attention, the role of operational goals, and rationalizing information flows.

For organizational decision-making, this approach has at least two major theoretical implications. First, the book emphasizes the role of organizational representations in terms of perceptual mechanisms. In their introduction to the Second edition, M&S state that *Organizations* developed a theory of attention more than that of choice. Thus, the book shows how bounded rationality, through its mechanisms of selective perception and attention, influences group values and triggers the core organizational process of goal and sub-goal setting. Sociological and socio-psychological studies dealing with institutions and primary groups had previously addressed phenomena pertaining common values and goals. Not only do M&S advance scientific propositions with regard to organizational and related sub-group motivations (e.g., Ch. 3), but they also relate this motivational (i.e., sociological and socio-psychological) standpoint to the emerging cognitivist standpoint. Precisely, they show how goal setting at different organizational levels follows from converging individual perceptions derived from common representations, including shared linguistic references. *Organizations* explore how common perceptions structure formal and informal organizational communication,

and how, in turn, these communication structures reinforce the resistance of common representations and rationalizations to debiasing or change.

Second, M&S view organizations as ‘coordinative systems’ (p. 23), or as restated in the introduction to the Second edition, ‘systems of coordinated action among individuals and groups’ (p. 2). Understanding such coordination is a major goal of the book. M&S frame the coordination problem largely in information-processing terms and, more precisely, in terms of the representational conformity (including the issue of shared perceptions) of various organizational groups.

*Organizations* are not only a striking integration of individual and organizational decision making. It characterizes contemporary organizations as a kind of high-order cognitive structure, in which human information processing mechanisms, both subjective and inter-individual, shape and influence the major structural features of organizations, like work division, hierarchy, communication, and coordination. Karl Weick later developed this idea, within the context of interpretation and sensemaking (see also Puranam et al., 2012).

Its major methodological contribution is the connection that the book establishes between organizational theory and objective analysis. M&S develop a scientific framework, that is, an empirically-based understanding of human behaviour and social interaction. They describe the organizational member as a real human being not merely a function or abstraction. One advantage of the famous propositions that *Organizations* elaborated for empirical testing is their ability to deal with one problem, or set of problems, at one moment, as distinct from all-at-once creation of a normative holistic general theory. The insistence on objectivity does not discard the instrumental value of research (e.g., for practitioners), but implies that coping with and altering social reality effectively requires scientific knowledge of this reality. This empirical hallmark of M&S sets up key analytical criteria, including ‘the usual scientific standards of public testability and reproducibility’ (p. 24), for developing the cumulative body of management and organization research pursued today.

*Organizations* and, more generally, the Carnegie School, advocated research as a way to reflect actual business practice and to improve its functioning. Influence on real-life organizations came primarily from the intellectual disciples of M&S. Notable examples include J. Galbraith who became a prominent consultant on organization design to major corporations, and K. Weick who gave advice to some large business firms.

## PRESENTATION OF PAPERS

K. Weick revisits his evolving impressions of M&S's book, starting with his reactions in 1957 when as a doctoral student in psychology he participated in a seminar devoted to the then-new book (Weick, 2019). The reactions of seminar participants situated *Organizations* amid the issues and topics prevailing in psychology and business studies at that time. How did psychologist readers evaluate *Organizations* 60 years ago? They were both underwhelmed and overwhelmed. They interpreted *Organizations* as an example of stimulus-response psychology, with which they were very familiar. They pointed out that many of M&S's propositions seemed to be obvious tautologies. They felt confused by the large numbers of variables and propositions in the book and its multidisciplinary range. Weick then goes on to report how he now sees the impact of *Organizations* as having influenced thought. He regards three specific perspectives to be especially influential: bounded rationality, reification, and mosaics. First, although subsequent authors have said *Organizations* talks about bounded rationality, Weick observes that the book does not use this notion. Instead, *Organizations* discusses 'boundaries of rationality' that it defines as 'elements of the situation that must be or are in fact taken as givens and that do not enter into rational calculations as potential strategic factors'. Secondly, Weick describes as 'reification' the self-reinforcing processes by which organizations distill their perceptions into general concepts and then use these concepts to edit their perceptions. In particular, such reification defines what information or situational factors organizations classify as important or unimportant. Thirdly, Weick observes that M&S explained how organizations are capable of dual, simultaneous coordination, that is, organizations can maintain high degrees of interdependence while giving much autonomy to subunits. They do this by fitting subunits and activities into mosaics of parts that mesh without bumping into each other.

Next, Anderson and Lemken demonstrate empirically the impact of *Organizations* on subsequent research (Anderson and Lemken, 2019). They present a citation context analysis of 1,400 articles in eight major management journals. It finds that more than half the citations cover two closely connected content areas, 'Cognitive Limits' and 'Routines and Programs'. Most of the citation contexts are peripheral (meaning tangential or non-essential to the article citing *Organizations*), and the proportion of substantive citations (meaning more relevant or crucial), declines significantly over time. One startling finding, given the strong empirical emphasis of *Organizations*, is that only 2 per cent of the citation contexts present original empirical evidence. We infer from these findings that scholars have failed to exploit the many conceptual and methodological contributions of *Organizations*. Anderson and Lemken advise

that management scholars avoid superficially citing limited rationality and cognition, and instead further investigate such limits in organizations. To do this, scholars need to better understand and test the propositions posed by M&S and to integrate them into modern cognitive studies.

Wilden et al. (2019) use a text-mining approach of the abstracts of peer-reviewed articles identified as having cited *Organizations*. They address how the book influenced research during four time periods covering 1957 to 2017. Their analyses highlight the book's core theme of how individuals and organizations interact. It shows that the concept of 'decision' is central to this interaction. At the same time, their analysis highlights the more limited attention the book gives to group and system dynamics in their effects on organizational decisions. In contrast to Anderson and Lemken, Wilden and colleagues drill down into the content of each chapter and its relevance to subsequent research. Importantly, they show that topics to which *Organizations* has been applied have changed over time, from a focus on individual member roles and their organizational experiences in the earliest phase to greater attention to organizational innovation, learning and market opportunities later. Like other canonical texts, the uses to which *Organizations* has been put depend on the problems characteristic of the particular era to which the research is tied. The article discusses how some contemporary research areas like new organizational forms or multi-level phenomena could benefit from integrating M&S's propositions.

We now turn to substantive empirical investigations of phenomena based on *Organizations*. Extending one of the most heavily researched offshoots from M&S and Cyert and March's (1963) *Behavioral Theory of the Firm*, Lim (2019) looks at how pay dispersion in top management team moderates the influence of performance relative to aspirations regarding international diversification. In doing so, this article extends the behavioural-theoretical approach to international diversification. Lim finds that while vertical pay disparity increases the influence of low performance relative to aspirations on international diversification, horizontal pay dispersion reduces the influence. Although low pay dispersion essentially eliminates the influence of performance relative to aspirations for international diversification, high horizontal pay dispersion results in a strong negative relationship between performance relative to aspirations and international diversification.

M&S emphasized that organizations have multiple goals, which people cannot always pursue simultaneously: some goals have to be given priority. Mazzelli et al. (2019) analyse data from investment decisions by 2477 Spanish firms to compare two ways organization members



set such priorities. The authors infer that the pursuit of profit dominated the subordinate goal of raising productivity. However, this subordinate goal appears to influence the searches decision makers engage in to identify possible actions, and thereby affects the firms' abilities to achieve their profit goals. This finding is consistent with M&S's observation that the limited attention spans of decision makers lead them to array simultaneous goals in means-ends hierarchies, in which operational goals support general goals, but simultaneous goals may influence actions and their outcomes independently. Multiple goals are put into hierarchies based on both perceived causal relationships among them and the available analytic capacity of decision makers. In consequence, firms are prone to pursuing suboptimal actions.

M&S explored many connections between individual and organizational decision-making. They insisted that human cognitive differences, conceptualized in terms of 'span of attention', affect screening mechanisms and, lead to selective attention to organizational subgroup goals. Laureiro-Martinez et al. (2019) employ this conceptualization and the exploitation/exploration framework to explain decision-making performance. They use more recent work on 'working memory' to extend M&S's discussion of attention span and to explore the emergence of heterogeneity in individual choice patterns under uncertainty. In an experimental study and two replications involving 171 individuals, results show that higher working memory leads to more appropriate selection between exploration and exploitation, which in turn leads to higher performance. This article draws several implications for management theories and practices. Overall Laureiro-Martinez and colleagues demonstrate the strong explanatory power of the cognitive concepts and propositions advanced by M&S – and that many more insights remain to be mined from empirical investigation of the issues Organizations raised.

Drawing on the M&S's concept of the 'mosaic of programs', including highly elaborated rules, and on the Carnegie-inspired theories of learning, Zhu and Schulz (2019) explore written rules in a Canadian regional healthcare organization. In doing so, they investigate rule-based models of organizational learning. Zhu and Schulz study the impact of a formal rule network on rule revision, by conducting a longitudinal, quantitative analysis of citation ties between clinical practice guidelines. The rule network strongly influences changes to embedded rules, although these changes are not network size dependent. There is a negative relation between network density and external knowledge uptake (i.e., incorporation of general research-based evidence) and a positive relation between adding a new rule and overall revisions. The multifaceted network dependence of written rule adaptations provides a

remarkable example of the observation that ‘most organizational programs (...) are comprised of a complex structure of interrelated decisions’ (M&S, p. 211).

Gibson et al. (2019) apply concepts from *Organizations* to explicating the phenomenon of hierarchical erosion, that is, how shared favourable perceptions of organizational practices can break down from higher to lower hierarchical levels. Their findings underscore the cognitive differences in judgment and focus of attention that exist among organization members across different levels based on the distinct frames of reference and social information available at each level. Based on the cognitive and social processes M&S identified, this study highlights the bases of a fundamental problem in change management and strategy implementation, that is, the difficulty in creating shared understandings across hierarchical levels. Their findings also underscore an often-overlooked but important intervention for reducing hierarchical erosion: change and communication interventions targeting an organization’s intact social groups, in order to influence their social networks and prompt social information processing in order to create shared understandings and a common organizational reality (see Stouten et al., 2018).

## FORGOTTEN CONTRIBUTIONS

Attempting to trace March and Simon’s influence on subsequent research runs into two major problems. First, M&S detail so many postulates and interrelationships that if our criterion is the application of their specific models, only a small fraction have been tested or applied. Even where M&S’s major ideas have influenced subsequent research, only a portion of the propositions and models *Organizations* described has been empirically tested in any detail, as Anderson and Lemken’s analysis confirms. Moreover, the book includes a wide variety of complex multivariate models. For example, Figure 3.7, Factors Affecting the Perceived Consequences of Evoked Alternatives, includes 16 variables arrayed with several levels of mediation. If one wanted to empirically test M&S directly, measuring and modelling phenomena in organizations in such detail remains problematic to this day.

Second, the book directly influenced research in the 1960s and 70s, as would be expected, so its impact on research in subsequent decades may be indirect. For example, a massive literature has developed on individual motivation and decisions to participate in organizations, but later work may not acknowledge the connection to *Organizations* even where it has been foundational. Indeed, much of the influence may have been indirect through Cyert and March (1963) which expands on many of the concepts introduced in *Organizations*.

All this might, at least partly, explain the fact that while the book is widely recognized for its assumption of bounded rationality and its application to organizational decision-making, later research forgets or ignores some of the most original and intriguing implications of this assumption. We single out two implications of bounded rationality for simplified mental models.

One such implication involves ‘organizational identification’. M&S establish a link between perceptual processes and identification with organizational sub-groups. Whereas the book develops a coherent cognitive account of identifications (alongside its sociological account) and resulting coordination issues, most of the rich modern management literature, whether devoted to identification and identity or to organizational cognition, seems to ignore the cognitive account M&S put forth. Anderson and Lemken’s contextual analysis confirms this point. Accordingly, although cognitive issues account for more than half the citation contexts, only one (!) citation they find relates to identification.

The second implication pertains to ‘uncertainty absorption’. It is commonplace for management scholars to use this concept generically, that is, as a label for all attempts to make a situation more certain, or processes promoting uncertainty reduction. Uncertainty absorption, as conceptualized by M&S, means that, because organization members have very limited capacity to assess objective evidence directly, most of their decisions rely on information from other people. Organizational action is driven more by the legitimized beliefs regarding what is knowledge than by the knowledge of reality itself. Such ‘stipulated facts’ provide organization members with decision premises, helping them cope with uncertainty. Conceptualized in this fashion, uncertainty absorption links cognition to communication and raises myriad organizational issues, including legitimacy, power, expertise, common language, sociality of knowledge, coordination, etc. This facet of uncertainty absorption has largely been overlooked.

Although the most researched area of M&S, further developed by Cyert and March (1963), deals with aspirations, most management work in this field tends to focus on the organization rather than the individual. Nonetheless, management research at both levels has generally ignored the possibility that the expected value of rewards shapes search behaviour or the initiation of potential projects. Likewise, little work has addressed what determines the evoked set of alternatives, perhaps because such alternatives are hard to observe.

One of the key distinctions in *Organizations* is its emphasis on the subjective factors managers actual use in their decisions, as opposed to the objective factors academics might view as more correct. Scholars routinely replace subjective with objective factors, based on

what academics think individuals and organizations should value as determinants of behaviour. Yet, it is almost tautological that only what we believe can influence what we do. In some cases, this has had serious implications. For example, the immense literature on aspirations habitually uses measures like return on assets as the appropriate indicator of firm performance. However, some evidence suggests that managers do not apply these as primary performance measures. Firm performance announcements emphasize revenue, net income, and income per share, while seldom mentioning return on assets. Internal control systems in many organizations emphasize an income statement format in which net income is the bottom line. One implication of *Organizations* for management researchers is that we might try, where feasible, to use the measures managers really use or at least find to be more credible.

Another important phenomenon *Organizations* calls attention to is the role of group processes and social information in the experience of organizational decision makers and members. Although Gibson and colleagues discern the hierarchical erosion of attitudes toward the organization as a social information-related phenomenon, they are among the few to trace such insights back to M&S. In all, uneven recognition of the relevance and impact of *Organizations* on the contemporary work of management scholars is a poignant example of how bounded rationality characterizes not just organizations and their decision makers, but those who study them as well.

## CONCLUSION

M&S saw 'organization' as a generalization that deserved research study and as having potential to advance business practice. Directly or indirectly, through their disciples, M&S had significant effects on how big business firms organized (or reorganized) during the latter part of the 20th century and the first years of the 21st century. M&S pulled together knowledge about organizations from many academic fields in order to build a body of knowledge that had not existed as a distinct topic before 1958. The book had profound effect on academic research and teaching. One of the most interesting features of M&S is its ability to describe organization in terms of both inter-group interaction and cognitive processes.

Overall, the importance of *Organizations* has to some extent been under appreciated due to the subsequent popularity of Cyert and March's *Behavioral Theory of the Firm*. A great many of the central concepts in both books – boundaries of rationality and cognition, search, aspirations, comparison to aspirations, perceptions of the environment, organizational politics,

sequential allocation of attention, differences in goals within organizations, rules and routines, etc. – originated either in Organizations or in Simon’s *Administrative Behavior*.

In giving more attention to empirical observation than theoretical speculation, *Organizations* foreshadowed the movement in management and organizational research today to build a cumulative body of knowledge and eschew pursuit of the novel idea for its sake alone. *Organizations* was not a fad or a ‘shiny object’ to attract novelty seekers. By hewing closely to empirical findings and looking critically and carefully at their cognitive and social underpinnings, March and Simon offer us still a seminal and enduring basis to view people and organizations more clearly. We hope that this special issue will help remind the field of the important contributions of *Organizations*.

## REFERENCES

- Anderson, M. H. and Lemken, R. K. (2019). ‘An empirical assessment of the influence of March and Simon’s *Organizations*: The realized contribution and unfulfilled promise of a masterpiece’. *Journal of Management Studies*, 56, 1537–69.
- Bruner, J. S., Goodnow, J. J. and Austin, G. A. (1956). *A Study of Thinking*. New York: Wiley.
- Cyert, R. M. and March, J. G. (1963). *A Behavioral Theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Eden, C. and Spender, J.-C. (1998). *Management and Organizational Cognition*. Thousand Oaks, CA: Sage.
- Gibson, C. B., Birkinshaw, J., McDaniel Sumpter, D. and Ambos, T. (2019). ‘The hierarchical erosion effect: A new perspective on perceptual differences and business performance’. *Journal of Management Studies*, 56, 1713–47.
- Kaufman, H. (1959). ‘Book Review: *Organizations*. James G. March, Herbert Simon with the collaboration of Harold Guetzkow’. *American Political Science Review*, 53, 1127–29.
- Laureiro-Martinez, D., Brusoni, S., Tata, A. and Zollo, M. (2019). ‘The manager’s notepad: Working memory, exploration, and performance’. *Journal of Management Studies*, 56, 1655–82.
- Lim, E. (2019). ‘Attainment discrepancy and new geographic market entry: The moderating roles of vertical pay disparity and horizontal pay dispersion’. *Journal of Management Studies*, 56, 1605–29.

March, J. G. and Simon, H. A. (1958/1993). *Organizations*, 2nd edition. Cambridge: Basil Blackwell.

Mazzelli, A., Nason, R. S., De Massis, A. and Kotlar, J. (2019). 'Causality rules: Performance feedback on hierarchically related goals and capital investment variability'. *Journal of Management Studies*, 56, 1630–54.

McCloskey, J. F. (1959). 'Book review. James G. March, Herbert Simon with the collaboration of Harold Guetzkow, *Organizations*'. *Operations Research*, 7, 137–38.

Puranam, P., Raveendran, M. and Knudsen, T. (2012). 'Organization Design: The Epistemic Interdependence Perspective'. *Academy of Management Review*, 37, 419–40.

Selznick, P. (1959). 'Book review. *Organizations*. By James G. March and Herbert Simon. With the collaboration of Harold Guetzkow'. *American Sociological Review*, 24, 911–13.

Simon, H. A. (1952). 'Comments on the theory of organizations'. *American Political Science Review*, 46, 1130–39.

Simon, H. A. (1955). 'Recent advances in organization theory'. In Bailey, S. K. (Ed.), *Research Frontiers in Politics and Government*. Washington, DC: Brookings Institution, 23–44.

Stouten, J., Rousseau, D. M. and De Cremer, D. (2018). 'Successful organizational change: Integrating the management practice and scholarly literatures'. *Academy of Management Annals*, 12, 752–88.

Udy, S. H. Jr (1959). 'Book review. *Organizations*. By James G. March and Herbert Simon. With the collaboration of Harold Guetzkow'. *American Journal of Sociology*, 65, 222–23.

Weick, K. E. (2019). 'Evolving reactions: 60 years with March and Simon's "Organizations"'. *Journal of Management Studies*, 56, 1527–36.

Wilden, R., Hohberger, J., Devinney, T. M. and Lumineau, F. (2019). '60 years of March and Simon's *Organizations*: An empirical examination of its impact and influence on subsequent research'. *Journal of Management Studies*, 56, 1570–1604.

Zhu, K. and Schulz, M. (2019). 'The dynamics of embedded rules: How do rule networks affect knowledge uptake of rules in healthcare?'. *Journal of Management Studies*, 56, 1683–1712.