60 Years of March and Simon's Organizations: An empirical examination of its impact and influence on subsequent research

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**60 Years of March and Simon's Organizations:
An empirical examination of its impact and influence on subsequent
research**

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**Forthcoming in the Special Issue in the Journal of Management Studies: “*Commemorating the 60th
anniversary of March and Simon’s “Organizations”*”**

60 Years of March and Simon's *Organizations*:
An empirical examination of its impact and influence on subsequent research

ABSTRACT

We provide an analytic and systematic review of the impact of March and Simon's seminal *Organizations* on management research and discuss the book's value for current research and propose future applications of it. Building on bibliometric and text-mining approaches, our empirical analysis reveals that although *Organizations* was contextually based in the industrial milieu of the 1950's, its concepts have found ongoing resonance with scholars. Further, we find that much of this resonance appears to be driven by the ability of scholars in different 'schools of thought' to find useful insights from March and Simon's generalized theoretical structure. However, we also observe that scholars have been selective in their usage of ideas from the book over the last 60 years. Based our analysis, we propose a particular set of future research areas, including a focus on new organizational forms and extending March & Simon's ideas to multi-level research, which can benefit from more holistically drawing on *Organizations* and connect its original ideas to address current management problems.

Keywords: Bibliometric, Coupling, Herbert Simon, James March, Organizations, Text Mining, Future of Work, Innovation

“A classic is a book which has never exhausted all it has to say to its readers.”

Italo Calvino, *Why Read the Classics?*

INTRODUCTION

James March and Herbert Simon’s (1958) *Organizations* (hereinafter *M&S*) is one of the most seminal publications in business and management, having been voted the seventh most influential management book of the 20th century (Bedeian and Wren, 2001). The initial publication, along with newer editions, has been cited more than 29,000 times (as of August 2019) according to Google Scholar. Together with Simon’s (1947) *Administrative Behavior* and Cyert and March’s (1963) *A Behavioral Theory of the Firm*, *M&S* laid the foundation of the Carnegie School (Gavetti et al., 2007). At the same time, similar to other work emerging from the Carnegie School, *M&S* has been criticized for its generality (Gavetti et al., 2012; Gavetti et al., 2007) and obvious propositions (Weick, 2017). However, despite *M&S*’s perceived and anecdotally discussed impact on subsequent management research, there is a lack of comprehensive and systematic reviews of its content and impact on business research. The various traditional narrative based reviews of *Administrative Behavior* and *A Behavioral Theory of the Firm* (Argote and Greve, 2007; Dosi and Marengo, 2007; Gavetti et al., 2012; Gavetti et al., 2007) focus largely at looking at the larger impact of the Carnegie School. The only direct review of *M&S* by Weick (2017) is predominantly a personal reflection.

Taking its significant impact on subsequent research into account, while accounting for criticisms as well, we aim to provide a broader, more detailed, and systematic analysis that better encompasses the wide scope of *M&S* and how it has inspired the research that followed its initial publication. In line with Makadok et al. (2018), we offer a critical perspective on the theoretical

arguments advanced by *M&S* regarding: levels of analysis (the who?), phenomena (the where?), and boundary conditions (the when?). To do so, we structure our discussion in two parts, beginning with ‘taking stock’ of *M&S*, followed by our ‘moving forward’ discussion, in which we outline that *M&S* is still relevant for a significant array of applications in the study of organizations, and how future scholarship can be enhanced by building on *M&S*’s original ideas. In doing so, we attempt to take into account the context and time period in which *M&S* was written, and how its relevance and use by scholars changed as the business and management environment changed in the intervening 60 years.

From a methodological perspective, the diverse nature and wide impact of *M&S* make it difficult to provide an inclusive and transparent review (Denyer and Tranfield, 2009) using a traditional narrative review approach. Traditional narrative reviews are very flexible due to their less formalized method (Hammersley, 2001), but they tend to rely on a more limited number of studies (Rousseau et al., 2008) and are often criticized because of their potential bias and lack of both transparency and reproducibility (Denyer et al., 2008). Furthermore, there is often a bias associated with traditional literature reviews and expert surveys as they are conducted based on the (conscious and subconscious) assumptions and perspectives of the review team (Ramos-Rodriguez and Ruiz-Navarro, 2004). To borrow from *M&S*’s concept of bounded rationality, the sheer volume of relevant publications combined with the diversity of fields from which they originate (spanning management, strategy, psychology, sociology, and economics) exceeds the capabilities of the best review team. Due to the size and diversity of *M&S*’s impact, this limitation would be particularly salient for any traditional narrative review, as a review team would have to focus and limit its analysis to particular aspects. To address concerns of inclusivity and transparency (Denyer and Tranfield, 2009), we combine two complementary

empirical methods. We use bibliometric coupling with network analysis to identify research streams in the form of related publications based on the structure of their references. Further, we apply text mining, which allows us to identify central concepts and themes in each research stream and to map their evolution over the last 60 years. By using text mining, we shift the level of analysis from publications, and their citations, to the actual content of each publication.

Our review is structured as follows. First, we introduce *M&S* by summarizing the book using text mining to identify its conceptual and thematic underpinnings as they are revealed by the words and language used by *M&S*, without any presupposition as to concepts and theories therein. Second, we then focus our attention on the scholarship that has followed on from *M&S*, again without any preconception that might be biased by our imposing a structure on that work. To do so, we use bibliometric coupling analysis to isolate key research streams and their most representative publications followed on from *M&S*, aggregating them into clusters that represent coherent ‘schools of thought’. Third, we examine these research streams with text mining to identify the key thematic underpinnings of each research stream, paying particular attention to their evolution. As such, our analytic approach did not focus on a set of key concepts we *a priori* identified as important but rather we derived concepts from the literature’s subsequent use of the book. Fourth, we compare how these 60 years of research have built on the themes and concepts that we uncovered in the original manuscript. Finally, building on a discussion of how *M&S* has withstood the test of time, we provide suggestions for future research.

METHODOLOGY

Data

Our analysis is based on two main data sources: the book *M&S* itself and the journal publications that cite *M&S*. The core data in the first instance were the text of *M&S*; suitably converted into

machine readable format, corrected for consistency and errors, and with the bibliography deleted. In the second step, we created a database of all journal publications that cite *M&S*. This was done by retrieving all publications (known as focal publications) citing the book from the ISI Web of Science (WoS) database in June 2017. We did not limit the search to specific journals or research areas (as frequently done in reviews) as we were interested in the overall impact of the book and its diverse nature. WoS is particularly suitable as it provides accurate and machine-readable bibliographic data on older publications via passive listing. Also, as common practice in most bibliometric reviews (e.g., Randhawa et al., 2016; Vogel and Güttel, 2012), we restricted our search to English-language articles only and excluded books and book chapters from our sample. This selection criteria led to an initial sample of 5,168 articles citing *M&S*.

In the next step, we downloaded the abstracts for all citing articles. However, as WoS did not list abstracts for articles before 1988, we had to complement our WoS data with abstracts retrieved through Scopus. Overall, we obtained 99% of abstracts for our analysis. Finally, to enable the bibliometric analysis and to provide a meaningful analysis of the relatively long analysis period of 60 years, we followed previous empirical reviews (Ramos-Rodriguez and Ruiz-Navarro, 2004; Randhawa et al., 2016) to split the data in four equal fifteen-year time periods: 1958-1972 (324 articles), 1973-1987 (1,226 articles), 1988-2002 (1,417 articles), and 2003-2017 (2,201 articles).

Coupling and network analysis

We use bibliographic coupling as a quantitative method to map and analyze scientific research, which has shown its usefulness in earlier management reviews (Devinney and Hohberger, 2017; Vogel and Güttel, 2012). Coupling provides a proximity score, which approximates the closeness between two publications by measuring the shared number of references between two documents

(Kessler, 1963). We then used the proximity scores to create a network representation of the publications citing *M&S*. The network approach to analyzing publications or references has become increasingly popular within bibliometric studies (e.g., Randhawa et al., 2016; Vogel and Güttel, 2012; Wilden et al., 2018). It possesses several advantages compared to classical clustering methods (e.g., clustering or multi-dimensional scaling), including allowing for the direct visualization of the relationships between publications (Randhawa et al., 2016), being more precise and effective (Zupic and Čater, 2015), and offering improved visual depictions for a larger numbers of publications (Vogel and Güttel, 2012).

We visualized the network with the Force Atlas algorithm implemented in the Gephi software (Jacomy et al., 2011). It estimates the position of a publication in the network by the proximity scores of the connections and the path length between publications. Next, we applied the Louvain modularity optimization to detect communities (clusters and streams of research) within the network (Blondel et al., 2008).ⁱ The number of resulting communities can be modified using a resolution coefficient (Lambiotte et al., 2008). We varied the resolution coefficients in an iterative fashion to optimize the quality of the cluster solutions (we only considered solutions with a modularity above 0.4) and to identify meaningful clusters. We also generated centrality measures for all publications. These are shown and explained in the Online Appendix.

Text mining

For the text mining part of our analysis we used the Bayesian learning algorithm implemented in Leximancer (Randhawa et al., 2016; Wilden et al., 2016). This approach allowed us to examine the words used by authors to conduct conceptual (thematic) and relational (semantic) analysis of the book and abstracts (Rooney, 2005). We investigated common text elements (concepts) and groupings of revealed text elements (themes). The algorithm automatically picks the best fitting

number of themes contingent on the recognized concepts and permits overlapping of clusters of themes. This approach is especially suitable to our review. Previous research has found the results to be highly reproducible and the concept identifications and the clustering to be reliable, leading to a reduced risk of biases often inherent in manually coded text (Dann, 2010; Smith and Humphreys, 2006). Furthermore, this approach exhibits high face and correlative validity (see, e.g., Grech et al., 2002). We used the scanned and converted version of *M&S* and the respective abstracts of articles citing *M&S* as inputs into our analyses. We opted to merge word variations (e.g., ‘organization’ and ‘organizational’) and used an integrated stop word list (e.g., ‘is’, ‘just’). Subsequently, the algorithm generates concept seeds “automatically using a ranking algorithm for finding seed words that reflect the themes present in the data. This process looks for words near the center of local maxima in the lexical co-occurrence network” (Smith, 2003, p. 23). The algorithm begins with a concept seed and widens the description to discover additional words (e.g., synonyms and modifiers), which carry comparable meaning. A weighting is then applied to the concept seeds, which is based on the frequency with which the seeds appear in sentences and is compared to how often the concept seeds appear in other parts of the abstracts. We used the standard learning threshold settings, opted to exclude name-like concepts (i.e., words starting with a capital letter) and limited the total number of concepts to be discovered to 60.

The outcome of this process step is the creation of an automatically generated dictionary containing relevant concepts. After close inspection of this list, we deleted concepts that did not carry significant meaning in our setting (e.g., ‘respondent’, ‘publication’). Subsequently, using the text-derived dictionary, the data is marked with the identified concepts to a two-sentence resolution, and a concept is found to appear in a sentence block if sufficient amassed evidence (i.e., the sum of the weights of the keywords) is found. The results are represented as plots of the

concepts in a semantic network via the application of an asymmetric scaling algorithm and the concept co-occurrence incidences are used to rank the concepts by their connectedness (map or meaning). Accordingly, both the frequency with which concepts occur, as well as the proximity with which they co-occur in the text, is investigated, resulting in “entity concepts [being] clustered according to weight and relationship, to create a concept cluster map” (Grech et al., 2002, p. 1719). Themes in the maps are represented by circles, comprising multiple concepts, and their color indicates the *importance* of the respective theme (i.e., the brighter, redder the circle, the more frequently the grouped concepts are mentioned in the data). The distance of the concepts and themes on the maps represents their degree of semantical relatedness (Campbell et al., 2011; Rooney, 2005). Lastly, we examined the maps of meaning and their statistical information and confirmed their stability by repeating the above procedure multiple times.

THE ORIGINAL PUBLICATION OF *M&S*

In this section, we analyze the content of *M&S*, which will serve as the benchmark for the subsequent analysis of articles citing the book to identify its influence over the last 60 years. To do so, we do not use our own reading or interpretation but let the book itself ‘speak’ via machine-based text-mining identification of the core concepts and themes and their relationships.

Figure 1 shows the output for the entire book (excluding the preface and postscript). In the discussion of the text mining results throughout the remainder of this paper, words in italics refer to identified themes, and words in inverted commas represent identified concepts. We can see that *M&S* focused on the interaction between the *individual* (bright red) and the *organization* (red-brown color), both representing the most central themes. The *organization* theme comprises the concepts ‘behavior’, ‘problem’, and shares the concept ‘decision’ with the *individual* theme. The *individual* theme overlaps with the *alternative* theme with concepts such as ‘consequences’

and ‘conflict’, indicating a discussion about the outcomes of individual decision-making. Notably, individual perceptions (the theme *perceived*) appear to be important in this context. Furthermore, decision-making is an important area, as indicated by the theme *decision alternatives*, which comprises concepts such as ‘decision-making’, ‘goals’, and ‘alternatives’. Some discussion also revolves around the *action* that results from decision-making. Relatively less attention was given to *group* dynamics (green color) and *system* aspects of decision-making.

INSERT FIGURE 1 HERE

As *M&S* discuss distinct aspects of organizations in different parts of the book, we text-mined the book by chapters. Table I shows the breakdown of themes and concepts by chapter. We can see that Chapter 1 provides an overview of *organizations*, discussing their importance, and ends with the introduction of several propositions, which are further developed in the remainder of the book. The theme *organizations* comprises concepts such as ‘behavior’, ‘human’ and ‘influence’. They set out the reason for the book as “psychology and sociology textbooks do not devote even a short chapter to the subject of formal organizations” (p. 2).

INSERT TABLE I HERE

In Chapter 2, the discussion remains focused on *organizations*, this time deliberating relevant ‘processes’ and their purpose. There is also a detailed discussion on the history of organizational *theory*, focusing on Taylor’s scientific management (as indicated by concepts such as ‘human’, ‘production’, ‘fatigue’ and ‘worker’) and, to a lesser extent, theories of departmentalization (as indicated by concepts such as ‘departmentalization’, ‘formal’ and ‘theory’).

Chapters 3 to 5 discuss how motivations and goals influence human behavior in organizations, thereby adding to ‘classical’ organizational theory by viewing the employee as more than simply a passive instrument within the organization. In Chapter 3, the discussion focuses on the individual motivation to produce and, to some extent, covers how the environment influences organizations. Consequently, several existing models of *control* such as the Selznick and Merton models are introduced. Furthermore, the *individual* is discussed in more detail, including a discussion about satisfaction, as well as the theme *alternatives* comes up, preparing Chapter 4 “where the decision to participate in (or leave) the organization is discussed” (p. 53).

Chapter 4 concentrates on the individual participant’s motivation to contribute to the organization. A detailed discussion is on inducements (as shown by the theme *inducements* and concepts such as ‘inducements-contributions’), which are defined as “‘payments’ made by (or through) the organization to its participants (e.g., wages to a worker, service to a client, income to an investor)” (p. 84). Principal participants influence the equilibrium of the organization and are identified as: employees, investors, suppliers, distributors, and consumers. The emphasis here is on *employees*, with a discussion of the factors that lead to ‘satisfaction’ and *perceived* ease to move (i.e., ‘movement’ and ‘turnover’) and the availability of job *alternatives*.

Chapter 5 discusses ‘conflict’ in organizations, which are categorized into individual decision-making conflict, conflict within organizations, and interorganizational conflict. This chapter dominantly addresses organizational conflict (see also the bright red color of the theme *organization* comprising the concept ‘conflict’). Accordingly, we see themes such as *decision-making*, *goals*, and *bargaining* mattering more materially. *M&S* also gives a detailed discussion about the difference in *goals* as a contributor to intergroup conflict within an organization. The theme *pressure* appears in this chapter, discussing factors that give “rise to a pressure toward

participation in the relevant decisions made by other participants and thus to pressure toward joint decision-making” (p. 122). In terms of organizational reaction to conflict, four strategies are mentioned: problem-solving, persuasion, bargaining, and ‘politics’. ‘Game’ theory is discussed in the context of *bargaining*.

In Chapter 6, *M&S* elaborates on *rational* decision-making as a limitation to existing organizational theory. Consequently, they discuss satisfactory vs. optimal standards when assessing *alternatives*. They discuss how different environmental *situations* (as perceived by organizational members) lead to different sets of organizational responses, which they term the performance *program*, which may be adaptive to a large number of stimuli. They give attention to the issue of *communication* and *coordination* and state that the “capacity of an organization to maintain a complex, highly interdependent pattern of activity is limited in part by its capacity to handle the communication required for coordination” (p. 162). In this context, uncertainty absorption through communication is meant to achieve coordination between units. This final part provides a brief discussion on organizational ‘structure’ and its impact on *behavior*.

In the final Chapter 7, *Organization* looks at ‘innovation’ in organizations. *M&S* starts by differentiating between continuation of a program vs. ‘change’ in a ‘program’ of action. Change in program, that is, innovation, often creates costs that are difficult to estimate, leading to the tendency of individuals to prefer program continuity. They stress that a ‘theory’ of ‘choice’ of persistence vs. change needs to also discuss ‘action’ vs. inaction, and also consider the environmental ‘conditions’ in ‘decision-making’ (see theme *decision*). Then, attention is shifted towards the *process* of innovation, which is linked to ‘problem-solving’. After discussing aspects of innovation (e.g., timing and institutionalization of innovation, non-programmed decision-making, *group* problem-solving), *M&S* moves on to consider the various organizational levels

and their relationships to innovation. In this context, the authors refer back to *goals*. Finally, the *process* of ‘planning’ is discussed, referring back to the *price* mechanism to direct decisions.

THE INFLUENCE AND IMPACT OF *M&S*

We now turn our attention to the research that has built on *M&S*. We start our analysis with a description of the research areas that have drawn on *M&S*. Table II categorizes the publications building on *M&S* across all scientific fields (Panel A), as well as within Business and Economics (Panel B).ⁱⁱ Overall, the book has had a recognizable impact across a wide range of fields, but, not surprisingly, most research has been published in Business and Economics, followed by Psychology. While the relative number of publications citing *M&S* in Psychology has remained relatively constant (between 10%-12%), its use in Business and Economics has become more dominant over time, increasing from 38% of all publications in the period 1958-1972 to 52% in the period 2003-2017. It is also important to note that the absolute number of publications has increased across most all scientific fields – with the notable exceptions of Sociology and Government and Law. However, *M&S* is a book whose appeal was, and remains, dominantly concentrated around Business, Management, Economics, and Psychology. A table highlighting the top 50 publication outlets can be found in the Online Appendix.

INSERT TABLE II

FOCAL CONCEPTS AND THEMES IN WORK CITING *M&S*

Next, we show the results of the coupling and network analyses to identify citing clusters in publications building on *M&S*. We compare four equal-sized time periods to analyze the evolution of the relevant research. Figures 2a, 3a, 4a, and 5a depict the results of the coupling-based network analysis and Table III shows the most cited (i.e., most important publications in

each cluster) and the most representative publications for each cluster based on their closeness centrality (a complete list of all publications within each cluster, including the associated network centrality statistics, can be found in the online Appendix). To keep the paper succinct, we show the labels for a number of particularly relevant publications in the network graphs and only the Top 3 publications in Table III. Based on the coupling results, we use text mining to investigate whether the research using *M&S*'s concepts and themes differed across time periods and across respective clusters of research. To do so, we use the cluster membership of each article as identified in the previous analyses and conduct thematic analysis per period (Figures 2b, 3b, 4b and 5b). Clusters are identified by #_t, where # indicates the cluster and t the time period: 1=1958-1972, 2=1973-1987, 3=1988-2002, and 4=2003-2017.

 INSERT FIGURES 2-5 AND TABLE III HERE

In the first time period, 1958-1972, the coupling analysis identified 7 clusters. However, given the small number of publications in two of these clusters ($n < 3$), we only analyzed the text of five clusters. Cluster 1₁ is closely related to research on 'individual' career development and how individuals identify their *role* in commitment to the organization (e.g., Hall et al., 1970; Hrebiniak and Alutto, 1972), whereas the work of Katzell and colleagues (1961) (Cluster 5₁) discusses *job* satisfaction and employee turnover. Cluster 4₁ discusses topics of *conflict* (Pondy, 1967; Schmidt and Kochan, 1972; Walton and Dutton, 1969) and the contingency strategy approach to organizational theory (Hickson et al., 1971), as indicated by the concept 'contextual'. Finally, Cluster 3₁ is dominated by the work of Perrow (1967), with its well cited comparative analysis of organizations, and Hage & Aiken's (1969) early discussion of routines and their link to organizational 'structures' and goal setting.

In the second time period, 1973-1987, we can see that the publications in Cluster 1₂ relate to communication and R&D in an innovation setting. This includes discussions on organizational *structure* and influential work on boundary spanning (Tushman, 1977), but also more general work on *information* processing, which is closely connected to the center of the network (e.g., Daft and Lengel, 1986; Daft and Weick, 1984). Additionally, in the text mining results, we see that this research also emphasizes the role and the characteristics of individuals. Cluster 2₂ comprises publications that focused on process-oriented organization theory (e.g., Burgelman, 1983; Fredrickson, 1984; Ireland et al., 1987), work that revolves around topics such as *organizational structure* (e.g., Miller, 1987) and ‘decision’-making (e.g., Huber and McDaniel, 1986; Shrivastava and Grant, 1985) in the context of organizational ‘change’ and evolution. It is also noteworthy that seminal work on institutional theory (DiMaggio and Powell, 1983) and upper echelon theory (Hambrick and Mason, 1984) are located in this cluster. What is interesting to note is that while these papers have been influential – i.e., well cited – they are less representative of the overall cluster – they possess low centrality. Similarly, in Cluster 3₂, the most cited article is Meyer and Rowan (1977), which discusses organizational structures as myths and ceremony, but it is not actually representative of this very diverse cluster. Cluster 4₂ is similar to Cluster 5₁, with its concentration of research on ‘employees’ role in the organization, including *job* ‘satisfaction’ and ‘turnover’ (e.g., Mowday et al., 1979; Steel and Ovalle, 1984) and ‘commitment’ (e.g., Angle and Perry, 1981; Bateman and Strasser, 1984; Eisenberger et al., 1986); themes which also clearly appear in the text mining analysis. While Cluster 5₂ is relatively diverse, and importantly includes work on transaction cost economics (e.g., Williamson, 1981) and ‘decision’ ‘process’ (e.g., Simon, 1979), it is largely centered around ‘behavior’, most obviously culminating in the behavioral theory of the firm. This group includes

work on managerial risk taking (March and Shapira, 1987), organizational ‘change’ (March, 1981), control (Lord and Kernan, 1987), and rational ‘decision’ making (Simon, 1979). Overall, it should be noted that Clusters 1₂, 2₂ and 5₂ are connected, with significant conceptual overlaps. On the other hand, Cluster 4₂ is clearly separated and quite distinct from the other research utilizing *M&S*. This is mirrored by the text mining results, where cluster 4₂ with its focus on ‘turnover’, ‘commitment’, and ‘satisfaction’, is distant from the remaining network and the concepts ‘organizational’, ‘information’, ‘performance’, and ‘decision’ are most central.

In the third time period, 1988-2002, publications in Cluster 1₃ largely center on issues around ‘environmental’ fit’ and contingency approaches in the context of competitive *strategy* (Miller, 1992, 1993), configurations of inter-organizational relationships (Bensaou and Venkatraman, 1995), environmental munificence (Castrogiovanni, 1991), and strategic fit at the business unit level (Govindarajan, 1988). Cluster 1₃ represents an *organizational* ‘behavior’ cluster with a relatively strong focus on ‘risk’-taking, including Greve’s (1998) work on aspiration and risk, March and Shapiro’s (1987) research on risk preferences and attention, Sitkin and Pablo’s (1992) publication on the determinants of risk taking, and Bromiley’s (1991) study on the relationship between risk taking and corporate performance. We see also that Cluster 2₃ is closely related to Cluster 5₃, which includes research on ‘top’ ‘managements’ team ‘decision’, such as upper echelon research and demographics (Finkelstein and Hambrick, 1990; Wiersema and Bantel, 1992), extending the work by Hambrick and Mason (1984) that appeared in time period 2. This cluster also includes research on search, innovation and ‘change’ (Gavetti and Levinthal, 2000; Henderson and Clark, 1990; Van de Ven and Poole, 1995). The text mining analysis also shows the close colocation of Clusters 1₃ and 4₃, with the associated concepts of ‘top’, ‘management’, ‘decision’, ‘cognitive’, ‘change’, and ‘behavior’. Cluster 5₃ is connected to

Cluster 3₃, where we see ‘innovation’, *learning*, ‘search’, and respective ‘capabilities’ forming the core concepts and themes. This cluster includes research on search and non-local search (Fleming, 2001; Fleming and Sorenson, 2001; Rosenkopf and Nerkar, 2001) and *learning* specific capabilities and dynamic capabilities (Zollo and Winter, 2002) – often in the context of *interorganizational* relationships (Dyer and Singh, 1998; Zollo and Winter, 2002) – and studies on the challenges of *knowledge* transfer (Szulanski, 1996). At the center of this cluster is research on evolution and change; for example, on the topics of renewal (Barr et al., 1992; Boeker, 1997; Huff et al., 1992), reorientation (Lant et al., 1992), and transformation (Miner et al., 1990). In the text mining graph, Clusters 5₃ and 3₃ are less connected. However, the text mining results of Cluster 3₃ are very representative of the associated articles (‘knowledge’, ‘interorganizational’, ‘innovation’, ‘capabilities’ and ‘governance’). Finally, Cluster 4₃ represents the continuation of scholarship on job *turnover* and commitment (Eisenberger et al., 1997; Mitchell et al., 2001; Settoon et al., 1996). Overall, it is worth noting that based on the text mining results, ‘strategic’ concepts became more dominant during the period 1988-2002.

In the most recent time period, 2003-2017, the coupling analysis identifies five clusters. In Cluster 1₄, we find publications that relate to innovation, knowledge, and search, as evidenced not only by the Top 3 articles but also in the other relevant work (Fleming and Sorenson, 2004; Nerkar, 2003; Rosenkopf and Almeida, 2003). We can see that Cluster 1₄ is closely linked to the concepts ‘innovation’, ‘knowledge’ and ‘external’ ‘capacity’, indicating that the papers in this cluster discuss the themes of *market* opportunities and *knowledge*. Publications in Cluster 2₄ focus on routines and change (Becker, 2004), absorptive capacity routines (Lewin et al., 2011), and routines (Parmigiani and Howard-Grenville, 2011). Accordingly, the text mining results show the key theme as *routines*, together with the concept ‘change’. Cluster 2₄ is closely related

to Cluster 4₄, which comprises publications related to the Neo-Carnegie School (Gavetti et al., 2007; Powell et al., 2011), as well as research on inertia (Gilbert, 2006), aspiration (Baum and Dahlin, 2007), and slack (Daniel et al., 2004). Cluster 4₄ is also related to the *capabilities*, *routines*, and *organizational* themes, which share the ‘learning’ and ‘change’ concepts. The *organizational* theme further comprises the concepts ‘behavioral’, ‘process’, ‘management’, and ‘performance’, the latter ones sharing with the *firm* theme. Cluster 3₄ represents a general human resource management cluster (Allen et al., 2003; Felps et al., 2009; Holtom and O’Neill, 2004) and has again a strong emphasis on turnover and motivation related publications. This is also reflected in the cluster’s location within the *job* theme, which comprises the concepts ‘voluntary’, ‘turnover’, and ‘embeddedness’. Finally, Cluster 5₄ is closely linked to the *firms* and *search* themes (McEvily and Marcus, 2005; McEvily et al., 2003; Moran, 2005) and *social* capital (De Carolis and Saporito, 2006; Villena et al., 2011).

DISCUSSION: HOW RELEVANT IS *M&S* TODAY?

We structure our discussion in two parts. First, we ‘take stock’ of our findings and highlight some areas where scholars have made limited use of *M&S*. We then ‘move forward’ by providing suggestions about how ideas from *M&S* could contribute to future research in areas such as organizational structure and control; individuals; and change and innovation. Thus, our discussion is grounded in and extends the preceding empirical analysis.

Taking stock

M&S not only has a continuing and sustaining influence but even a growing influence, receiving four times more citations over the period 2003-2017 than over the period 1958-1972. A reason for this appeal is that the book combines diverse and fundamental conceptual insights within management, including human motivations, decision-making, and organizational imperatives –

all topics that have been at the core of business and management scholarship, with varying degrees of emphasis, over the last six decades. *M&S* has the ability to speak to scholars from many disciplines in management – from organizational theory and behavior, strategy, and supply chain management – as well as other social sciences, particularly psychologists and economists. In addition, the work has spoken to different generations of scholars, albeit in different forms as topical areas waxed, waned, and were reborn. It is, therefore, no surprise that we find the book's widespread influence on several research fields in our coupling analysis (as seen in Figures 2a, 3a, 4a, and 5a). Our findings are in line with Weick (2017, p. 1), who states that “[t]he context in which ‘Organizations’ first appeared was one of diffuse social science that was being consolidated and gaining momentum.” At a time when scholarly journals were not well developed yet, the book synthesized many ideas about organizations.

To add precision to these observations, we conducted analysis of the complete text of *M&S*, which shows that around the core theme of *M&S* we see three groupings of ideas. The first concentrates on the themes of *group*, *system*, and *production*. The second is related to the themes of *action*, *alternative* and *individual*. The third is associated with the themes of *change*, *activity* and *program*. It is interesting how the subsequent literature has only peripherally picked up on these distinctions, as nearly all of the coupling clusters link back to a limited number of narrow themes and concepts. Examining Figures 2b, 3b, 4b, and 5b, we see that only four of the clusters – 1₁, 5₃, 0₄, and 5₄ – meaningfully link to more than one thematic area. This is reflective of scholars using *M&S* to build on relatively narrow areas of research; having then selected specific concepts from *M&S* to provide weight to their theorizing and justification. While some scholars used *M&S* in its totality, it has been more likely that scholars chose those parts of *M&S* that assisted them in their existing or emerging area of work. One proposition that follows from this

is that, perhaps, *M&S* has served primarily as an evolutionary impetus that helped scholars do what they were going to do anyway, but do it better, faster, and more parsimoniously.

Matching the book's content with how citing publications have used these ideas over time, our analysis shows that while some concepts and themes emerging from *M&S* have increased in attention over time, others have become less important, lending support to the view that *M&S* were not just describing a current context but where sufficiently robust in their conceptualization to incorporate potentially new and evolving ideas that they anticipated might be important in the future. The first period (1958-1972) following the publication of *M&S* saw work relating to industrial jobs (Cluster 5₁), technology and industry structure (Cluster 3₁), subunits of organizations and conflict (Cluster 4₁) and much more general work on the role of the individual as more than just a tool of the organization (Cluster 1₁). By the final time period (2003-2017), we see a very different pattern. Clusters 2₄ and 4₄ reflect related work on routines, with the former addressing routines and change and the latter routines, learning and organizational structure. Cluster 1₄ and 5₄ relate to knowledge, with the latter linking social search to firms, while the former concentrates on scholarship linking knowledge to innovation and opportunities. The intermediate time periods (1973-1987 and 1988-2002) are interesting in that they reveal how *M&S* was used to support and buttress research relating to strategy, structure, effectiveness, performance, and fit (Clusters 3₂ and 5₂ in the second period and cluster 1₃ in the third period), the rising importance of cognition and its relationship to change (Clusters 2₃ and 5₃), and the emerging work on top management teams (Cluster 2₂) and later that on governance (Cluster 3₃). As highlighted by the coupling and text-mining analyses, the only real area of work that consistently utilized *M&S* over the 60-year period was that relating to employment and jobs. This analysis further highlights how subsequent research has built on and

borrowed ideas from *M&S* even though their key ideas were not part of *M&S*. For example, the terms routine and capabilities did not appear as central themes or concepts in *M&S* in our analysis; however, research within the capability view of the firm are relevant in Cluster 4₄. On the other hand, some themes and concepts central to the book became less relevant to the later discussion. For example, the theme/concept of conflict, while central to the book and Period 1, does not appear in the later periods in our analysis.

Interestingly, our analysis of the forward citations led to the impression that research on global, service-oriented, internet-enabled, social media driven features of business activities, with its reliance on looser organizational forms and more individual-by-individual labor structures (e.g., Cirillo et al., 2018), has tended to not pick up on *M&S*. In addition, new technologies have changed the way individuals and organizations interact and contract with each other and given rise to greater economic representation of entrepreneurial firms supported by private equity and venture capital structures. To further investigate this observation, we collected various publication samples related to new organizational forms and compared the citation ratio of *M&S* in these samples to the citation rate in two control samples. We used five samples to approximate the very diverse research around new organizational forms: 1) business model innovation, 2) ecosystems, 3) platforms, 4) blockchain, and 5) industry 4.0. While none of these samples individually can provide a complete picture on the use of *M&S* within recent research on new organizational forms, the combination of the different samples provides an overall indication of its use related to new organizational forms. To control for the citation rates, we generated samples in research on “industrial organization” and in “general management”. In each case, we focused on publications within management and business journals and the most cited publications (max. 2,000 publications). The results shown in Table IV clearly indicate that *M&S*

is far less cited in the area of new organizational forms than in our general management sample. The fractional citation rates (*M&S* citation rate per overall references) for the new organizational forms ranges from 0.000% to a maximum of 0.015% for the platform sample. In comparison, the fractional citation rate for the control sample (general management) is 0.72%; nearly five times higher as the in the most citing sample for new organizational forms.

 INSERT TABLE IV HERE

Thus, we believe that research on new forms of organizing, such as internet and network-based organizations, ecosystems, as well as the rise of decentralized ledgers supporting smart contracts as seen with blockchains, could benefit from integrating some of *M&S*'s propositions. *M&S*'s underlying logic of individuals having employment contracts and working within a clearly and formally defined hierarchical structure can be rethought to suit the importance of emergent organizations, such as communities of practice and open source software development (Puranam et al., 2014) and the greater importance of systems integration (Hobday et al., 2005)

Moving forward

Based on our analysis, we find that *M&S* has been, and still remains to this day, a critical source for any management scholar. As noted earlier, there are three major concentrations of ideas in *M&S*: (1) Organizational structure and control (*Production, System* and *Group*), (2) Individuals (*Perceived, Individual, Alternatives*, and *Action*), and (3) Change and innovation (*Change, Activities* and *Program*); therefore, we structure our discussion along these three issues. For *M&S*, these were what the organization organized via the 'problems' it faced, the 'decisions' it made, and the 'behaviors' that it fostered. For *M&S*, it was these interactions, not our separate understanding of each dimension, that was key to understanding the organization. Hence, future

research could benefit from revisiting *M&S*'s foundational ideas but perhaps by doing so more holistically as we believe that a strength of *M&S* relates precisely to its integrative approach. Thus, we believe that there are several ways forward to extend *M&S*'s original ideas and its relevance to today's business environments.

Given that our findings highlight the limited impact of *M&S* on some contemporary research fields, we outline some suggestions for future research in regard to new organizational forms, innovation, and to extend *M&S*'s ideas to multi-level research (i.e., widen the level of analysis) (see Table V for sample research questions).

INSERT TABLE V HERE

1. Organizational structure and control

In line with Makadok et al.'s (2018) lever 3 of advancing theory ('Where'), we suggest that *M&S*'s ideas should be extended to the context of new organizational forms. For these phenomena, research can draw on important insights developed in the book that relate to the role of organizational structures and how they can help overcome the problems of division of labor and/or integration of effort. The importance of structure is especially relevant given the emerging new organizational form, such as the platform economy, which raises the question around value co-creation between platform or ecosystem partners (Wilden et al., 2017). Looking back at two of the core ideas in *M&S*, namely compensation and incentives, raises important questions about how systems of compensation and incentives in ecosystems and platform-based economies should be structured and controlled. For example, platform organizations such as Uber do not employ the drivers directly, but rather provide employment contracts without fixed salaries. Conceptually, the nature of organizational structures is still paramount to understand these platform organizations but the structures and mechanisms that need to be put in place are very

different from what is described by *M&S*. For example, performance evaluation in such organizations has often become very open with public feedback contributing to the driver's (i.e., employee's) reputation. Similarly, websites such as Yelp provide public performance feedback mechanisms for organizations and their employees. Thus, future research is needed to understand the role of customers in the performance evaluation process. Consequently, *M&S*'s ideas may thus help to extend consumer-related research on access-based consumption and platforms enabling these services (e.g., Zipcar). Such research has found that besides formal control mechanisms to guide behavior, such as penalty systems and formal rules, the organization uses social control mechanisms 'enforced' by the brand community (Bardhi and Eckhardt, 2012).

The locus of competition and value creation has shifted from the individual organization to an ecosystem of organizations. Therefore, Boudreau and Lakhani (2013, p. 69) called researchers and industry alike to "put as much energy and intelligence into designing systems for organizing work outside company walls as we do for work within them." Our analysis shows that *M&S*'s ideas have continually been extended by citing authors to suit their research area. For example, research addressing new forms of organizing have extended the initial ideas to the context of alliances and inter-organizational collaborations, although these organizational forms were not part of the book. Along these lines, we see many opportunities for future research to update and extend *M&S* beyond the scope of the single organization; in particular to encompass new organizational forms and the challenges of Industry 4.0. The current trend of automation and data exchange, the 'Internet of Things', cloud computing, and cognitive computing invites to revisit some of *M&S*'s insights. Sako and Chondrakis (2017, p. 3), for instance, state that "the two strands of research, one on firm boundary and the other on intra-firm organization design, have been conducted in parallel without much connection between the two."

An important idea suggested by *M&S*, and further developed by later publications of the Carnegie School, relates to the importance of the relationship between organizational structures and decision-making. It has led many scholars to study how organizational structures guide the way information is processed and, in turn, how decisions are made. Many important research streams such as behavioral strategy, theories of attention, and cognitive perspectives have been influenced by this work and are influential in contemporary business research. *M&S*'s conceptual insights about the influence of organizational structures bear very important implications to understand the pattern of communications and relations both within and across firms. A recent example drawing upon this information-processing view of organizational structures is the study by Lumineau (2017) who applies this logic to the influence of contracts on trust development. He argues that the type of contract design – through its respective focus on controlling and coordinating aspects – induce specific calculative and non-calculative mechanisms behind the development of trust. We see and encourage future studies to extend this line of enquiry to further analyze, for instance, how the division and allocation of tasks, the provision of rewards and information, or the nature of goal setting and performance feedback influence how individuals recognize and notice potential issues (i.e., focus of attention), diagnose situations (i.e., problem representation and formulation), and search for solutions (i.e., deliberation and reflection) in the intrafirm and interfirm contexts.

2. Individuals

In line with Makadok et al.'s (2018) lever 2 of advancing theory ('Who'), we stress the importance of future research addressing the above issue of new forms of organizing by bringing together different levels of analysis; that is, linking the micro-level (individuals) with the meso-level (organizations). Thereby, we believe that research can benefit from continuing to draw

from, and thereby extending some of *M&S*'s ideas. New technologies continue to change the nature of work, and thus motivation and incentivization. Much of *M&S* focuses on individuals in organizational context who make decisions and engage in social behaviour. However, limited research has used a *M&S* perspective to focus on the individuals in these new forms of organizing. Organizational design aspects influence how boundedly rational individuals focus their scarce attention and interpret informational cues. Judgment and decision-making are influenced by organizational structures that guide selective attention to organizational issues. Organizational structures shape the nature of the actions taken by individuals to gather information when making decisions. That is why it seems particularly relevant to further combine the individual and organizational levels (Puranam et al., 2014).

An example of how *M&S* can inform multilevel issues is the impact of new organizational forms on the behaviour of and consequences for the individual employee (Randhawa et al., 2019). Opening firm boundaries has also affected traditional employment models, which requires reinterpretation of some of *M&S*'s core concepts, such as individuals' motivations, goals, decisions to contribute to or leave the organization, as well as employee turnover. For example, General Electric's Geniuslink enables organizations to implement tech-enabled and crowd-powered work models by providing them with experts when needed, thereby implementing project-based organizing (Biesenthal and Wilden, 2014). Related, the responsibility for careers has shifted from organizations to workers, leading to a more individualized career orientation (Gubler et al., 2014b). The concept of boundaryless careers stresses individual's careers as being independent of traditional organizational career structures (Arthur and Rousseau, 2001), given that employees move across organizational boundaries of

separate employers; seek and find validation and marketability from outside markets; and break away from existing ways of hierarchy and career advancement (Gubler et al., 2014a).

The changing nature of industries towards the importance of ecosystems and platforms also affects the nature of psychological contracts between organizations and employees. Much of previous research on psychological contracts has largely focused on the individual employee level of analysis (Baruch and Rousseau, 2018). For example, Baruch and Rousseau (2018, p. 3) stress the importance to “assess employment-related exchange arrangements beyond the individual worker and an employer, where participants (workers, managers, employers, clients, team members, network partners, etc.) develop multi-faceted psychological contracts across several stakeholders”, which also operate across different organizational levels. In platform organizations such as Uber, *M&S*’s concepts of inducement-motivation, satisfaction, and search can be adapted to be given a “second youth.”

Finally, we showed that in time periods 2 and 3 upper echelon research drew on *M&S*. Related, and building on *M&S*, the micro-foundations research stream in strategy has provided us with valuable insights into senior managers and their decision-making, including dynamic managerial capabilities with their focus on cognition (Adner and Helfat, 2003; Helfat and Martin, 2015). However, less research has looked at the role of middle managers in organizations, although these employees play an important role in implementing strategies (Balogun and Johnson, 2005; Wooldridge et al., 2008). Notable exceptions are studies by Glast et al. (2016) and Heyden et al. (2018) who show that lower-level managers initiate and implement change. This is due to these managers more directly being closer to technological and market developments (Fourné et al., 2014). Thus, we suggest that future research should investigate these managers’ decision-making processes, their motivations, and how organizations

can best design incentives that align with these motivations, as well as how they design their decisions to exit the organization and pursue future opportunities.

3. Innovation and change

Related to Makadok et al.'s (2018) lever 6 of advancing theory ('When'), we believe that *M&S*'s assumptions need to be more critically applied to the today's context of innovation and change. Linked to the idea of co-creation, today's business environments have also led to core business processes, such as innovation, being distributed across the ecosystem, thereby indicating a need for permeable firm boundaries (Randhawa et al., 2016). Our data have shown that current research citing *M&S* is skewed toward innovation-related topics. Innovation-related research identifies the inability of organizations to organize, control, and conduct all the value chain activities necessary to achieve innovation success in-house as one of the core 'problems' facing firms today. For example, research on open innovation proposes that in order to drive innovation-related activities, organizational boundaries should open up moving to a relational system with external partners (Bogers and West, 2012; Chesbrough, 2006). Consequently, research has looked at innovation as the result of intentional and planned inflows and outflows of knowledge between partners (Chesbrough, 2003; Enkel et al., 2009). This research stream is yet to resolve questions around optimal organizational structures to motivate and incentivize employees to share and absorb innovation across organizational boundaries (Randhawa et al., 2019), for which it could draw on some of *M&S*'s key ideas.

Picking up on the above point of looking at multi-level phenomena, future research could build on *M&S* to better reflect the complexity of the role of the individual in open innovation and strategy perspectives. Even though these concepts are situated at the organizational level, organizations rely deeply on individual actions; for example, firms deploy crowdsourcing by

engaging an external voluntary crowd of individuals to gather innovative ideas and solutions (Afuah and Tucci, 2012; Boudreau and Lakhani, 2009; Howe, 2006). Only limited research has investigated the relationships between organizations and open innovation communities and platforms (Dahlander and Wallin, 2006). More specifically, previous research has been critical of the fact that little research has investigated the individual's role and personal motivations in open innovation related activities (Randhawa et al., 2016).

An open system of innovation necessarily requires a change in behavior at the individual level fostered and coordinated by organizational structure, routines, and activities. In *M&S*, internal employees are assumed to conduct all innovation-related processes, and thus need to be incentivized accordingly. However, nowadays organizations complement or even substitute internal employees with external crowds to drive innovation. In this context, Lifshitz-Assaf (2018), investigating NASA, found that engaging in open innovation can only lead to breakthrough innovation when R&D employees adjust their own professional identity. That is, only when employees are able to truly adopt external knowledge and share internal knowledge through refocusing their identity, external solutions will be incorporated. On the other hand, when R&D employees try to implement open innovation without changing their own identity, R&D processes will not change. Related, Randhawa et al. (2019) find that organizational open innovation success depends on the degree of project team motivation to implement crowdsourcing. More specifically, motivated employees feel a sense of 'reciprocal responsibility' (Hamel and Prahalad, 1989), inspires "organizational members to higher levels of achievement" (Hart, 1992, p. 337), in turn leading to better engagement in open innovation and positive innovation outcomes. Thus, future research is needed to extend the discussions about motivation and incentives to both external crowds as employee substitutes as well as how

employees can be motivated to engage with external stakeholders to foster innovation and accept external ideas. While the basic idea of *M&S*'s inducement-motivation can be applied to this context, the intricacies of this relationship are significantly more complex.

CONCLUSION

In this paper, (1) we provided an empirically grounded *summary* of *M&S*; (2) we empirically *explicated* the impact of *M&S* over time and discussed the influence of *M&S* on current research; and (3) we *envisioned* suggestions for future research. Despite the validity and strengths of the multi-methodological approach we have used, there are limitations to our study. Some are procedural. For example, we opted to exclude books, book chapters, and conference proceedings, thereby limiting ourselves to work that the review process may have forced to conform more to traditional perspectives. This is noteworthy as, particularly during the initial periods of our analysis, books had a more prominent stance in the business field than in later periods. By looking at specific time periods, we also may have lost sight of when critical changes in thinking occurred and erroneously report more stability than was present. Due to the large number of articles included in this study, we conducted the text mining on the abstracts of articles only. Although this is in line with previous research (Huber et al., 2014), future research could identify relevant subsamples of interest, and then run the presented analyses on the full text of the articles. We have attempted to address many of these issues in an Online Appendix.

Our results reveal that *M&S* has had significant influence on academic scholarship, with this effect having arisen in an evolutionary fashion. Scholars have integrated their ideas, concepts, themes and structures to facilitate and enhance their own work across a variety of fields. What is most remarkable is not that this tendency existed but that it appears to be accelerating as more and more scholars are looking to *M&S* for ideas an inspiration (see Table

II). Indeed, what makes *M&S* influence so long lasting is the fact that each generation of scholars and each disciplinary variety of scholars still find new and helpful insights when reading the book from their own perspective. Indeed, to echo our introductory quote, *M&S* represents a classic in the sense that it has never exhausted all it has to say to its readers with more and more readers seeming to look to it for inspiration.

NOTES

Figure 1: Concept and Theme map based on text mining of March and Simon (1958)

Figure 2a and b: Coupling and text mining period 1958-1972

Figure 3a and b: Coupling and text mining period 1973-1987

Figure 4a and b: Coupling and text mining period 1988-2002

Figure 5a and b: Coupling and text mining period 2003-2017

Table I: Themes and concepts by chapters

Entire book					Chapter 2						
Theme	Con.	Concept	Count	Relev.	Theme	Con.	Concept	Count	Relev.		
individual	100%	individual	386	45%	organization	100%	organization	63	95%		
		participants	162	19%			tasks	51	77%		
		conflict	160	19%			process	26	39%		
		factors	143	17%			purpose	17	26%		
		consequences	126	15%			theory	41	62%		
		function	117	14%			problem	40	61%		
		members	106	12%			departmentalization	21	32%		
organization	98%	organization	855	100%	activities	62%	formal	17	26%		
		problem	169	20%			activities	66	100%		
		behavior	159	19%			group	20	30%		
		decision	136	16%			efficient	17	26%		
alternatives	42%	goals	227	27%	time	55%	fatigue	12	18%		
		alternatives	219	26%			time	53	80%		
		conflict	160	19%			work	42	64%		
		consequences	126	15%			standard	15	23%		
action	35%	decision-making	81	9%	production	51%	human	25	38%		
		situation	136	16%			machine	19	29%		
		level	126	15%			production	17	26%		
		action	120	14%			methods	9	14%		
theory	35%	search	105	12%	propositions	34%	propositions	20	30%		
		theory	158	18%			form	12	18%		
		time	143	17%			empirical	12	18%		
		task	118	14%			coordination	10	15%		
group	33%	human	90	11%	management	18%	behavior	15	23%		
		group	268	31%			management	14	21%		
		propositions	165	19%			worker	15	23%		
		social	62	7%			Chapter 3				
activities	29%	activities	236	28%	organization	100%	organization	185	100%		
		process	188	22%			goals	53	29%		
change	22%	change	114	13%	consequences	85%	participation	44	24%		
		model	92	11%			consequences	63	34%		
		conditions	91	11%			behavior	49	26%		
program	16%	program	278	33%	system		system	48	26%		
		production	124	15%			model	47	25%		
production	16%	work	117	14%	individual	85%	human	16	9%		
		system	106	12%			individual	132	71%		
		control	65	8%			work	30	16%		
social	9%	social	62	7%	satisfaction		satisfaction	23	12%		
		perceived	110	13%			needs	21	11%		
		Chapter 1					group	61%	group	155	84%
organizations	100%	organizations	81	100%	relations	57%			factors	54	29%
		behavior	24	30%					relations	58	31%
		human	13	16%			productivity	52	28%		
		influence	12	15%			perceived	39	21%		
		social	10	12%	identification	37%	identification	69	37%		
		environment	10	12%			norms	29	16%		
		significant	8	10%			task	26	14%		
		system	7	9%			control	38	21%		
		formal	7	9%	alternatives	34%	decisions	32	17%		
		psychologists	4	5%			hierarchy	20	11%		
		society	4	5%			alternatives	54	29%		
		individual	3	4%			evoked	43	23%		
		propositions	13%	propositions	25	31%	members	20%	members	47	25%
				members	4	5%			time	16	9%
time	10%	time	15	19%							
		memory	8	10%							
specificity	5%	specificity	7	9%							
		degree	6	7%							
evoked	5%	evoked	10	12%							
		process	6	7%							
variable	5%	variable	19	23%							
theory	4%	theory	12	15%							
aspects	3%	aspects	7	9%							
action	2%	action	10	12%							

Chapter 4					Chapter 6				
Theme	Con.	Concept	Count	Relev.	Theme	Con.	Concept	Count	Relev.
perceived	100%	perceived	50	34%	organization	100%	organization	139	94%
		alternatives	50	34%			individual	36	24%
		movement	44	30%			tasks	23	16%
		factors	36	25%			problem	22	15%
		search	24	17%			complex	18	12%
organization	82%	satisfaction	19	13%	program	75%	program	148	100%
		organization	145	100%			performance	29	20%
		participants	86	59%			stimulus	15	10%
individual	53%	behavior	23	16%	situation	70%	process	56	38%
		individual	74	51%			situation	52	35%
		change	33	23%			definition	22	15%
inducements	52%	groups	30	21%	alternatives	53%	problem-solving	15	10%
		inducements	50	34%			goals	37	25%
		utility	34	23%			alternatives	35	24%
job	40%	balance	21	14%	activities	37%	consequences	25	17%
		inducements-contrib.	13	9%			uncertainty	13	9%
		job	52	36%			activities	52	35%
employee	17%	satisfaction	19	13%	action	31%	function	20	14%
		workers	18	12%			action	39	26%
		conditions	17	12%			decision	25	17%
level	11%	employee	53	37%	rational	30%	rational	45	30%
		turnover	32	22%			choice	21	14%
work	5%	level	24	17%	behavior	22%	behavior	26	18%
		work	24	17%			structure	19	13%
business	3%	business	16	11%	communication	17%	communication	54	36%
Chapter 5					Chapter 7				
Theme	Con.	Concept	Count	Relev.	Theme	Con.	Concept	Count	Relev.
organization	100%	organization	140	100%	organization	100%	organization	123	100%
		conflict	133	95%			program	109	89%
		individual	83	59%			innovation	72	59%
		problems	26	19%			activity	60	49%
		decision	26	19%			level	52	42%
goals	22%	participants	23	16%	process	41%	change	45	37%
		organization	140	100%			units	32	26%
		goals	43	31%			criteria	23	19%
		factors	15	11%			process	72	59%
		differentiation	13	9%			problem	49	40%
pressure	16%	reward	9	6%	action	32%	individual	42	34%
		pressure	21	15%			search	27	22%
		time	14	10%			time	20	16%
alternatives	15%	behavior	14	10%	price	30%	analysis	18	15%
		information	10	7%			action	42	34%
		alternatives	55	39%			structure	27	22%
decision-making	13%	search	17	12%	goals	27%	theory	26	21%
		decision-making	35	25%			attention	24	20%
bargaining	9%	members	12	9%			decision	22%	choice
		bargaining	31	22%	planning	60			49%
situation	6%	game	13	9%	group	9%			price
		situation	24	17%			mechanism	34	28%
theory	4%	theory	21	15%			group	9%	conditions
group	9%	decision-making	24	20%	decision-making	24			20%
		goals	68	55%	human	17			14%
		operational	35	28%	group	37	30%		
decision	22%	function	19	15%	group	9%	problem-solving	21	17%
		planning	60	49%					
		decision	33	27%					
group	9%	conditions	27	22%					
		decision-making	24	20%					
		human	17	14%					

Connectivity (Con.): indicates the importance of the respective theme relative to the most central theme

Relevance (Relev.): indicates the importance of the respective concept relative to the most central concept

Table II: Areas citing March and Simon (1958) by academic field and time period

<i>Area</i>	Period 1-4: 1958 - 2017		Period 1: 1958 - 1972		Period 2: 1973 - 1987		Period 3: 1988 - 2002		Period 4: 2003 - 2017	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Panel A: Across scientific fields</i>										
Business & Economics	3389	46%	183	38%	667	38%	928	45%	1611	52%
Psychology	784	11%	57	12%	192	11%	237	12%	298	10%
Social Sci.	394	5%	38	8%	143	8%	101	5%	112	4%
Public Administration	367	5%	14	3%	96	5%	93	5%	164	5%
Sociology	319	4%	48	10%	110	6%	97	5%	64	2%
Government & Law	266	4%	24	5%	113	6%	61	3%	68	2%
Computer Sci.	248	3%	5	1%	44	3%	69	3%	130	4%
Operations & Mgmt. Sci.	246	3%	14	3%	50	3%	81	4%	101	3%
Engineering	219	3%	8	2%	38	2%	73	4%	100	3%
Inform. & Library Sci.	184	2%	8	2%	19	1%	38	2%	119	4%
Education	182	2%	21	4%			52	3%	48	2%
International Relations	59	1%	9	2%	29	2%				
Urban Studies			6	1%	61	3%				
<i>Panel B: Within Business & Economics</i>										
Gen. Mgmt. & Strategy	1174	35%	76	42%	276	41%	326	35%	496	31%
Org. Behavior & HRM	843	25%	33	18%	150	22%	257	28%	403	25%
Economics	262	8%	23	13%	44	7%	73	8%	122	8%
Mgmt. Sci. & Operations	234	7%	13	7%	51	8%	65	7%	105	7%
Marketing	155	5%	8	4%	37	6%	38	4%	72	4%
Other	128	4%	11	6%	24	4%	17	2%	76	5%
Innovation	123	4%			10	1%	41	4%	72	4%
Psychology	109	3%	8	4%	21	3%	32	3%	48	3%
Int. Business	102	3%	3	2%	15	2%	15	2%	69	4%
MIS, KM	89	3%			6	1%	21	2%	62	4%
Finance & Accounting	78	2%	8	4%	27	4%	21	2%	22	1%
Entrepreneurship	65	2%					16	2%	49	3%

Note: Only areas >1% are included in this table

Table III: Clusters and central publications by time period

Period 1: 1958 - 1972			Period 2: 1973 - 1987		
Cit.	Publication	Centr.	Cit.	Publication	Centr.
324	Hrebiniak & Alutto 1972	0.83	0	2476 Daft & Lengel 1986	0.84
198	Hall et al. 1970	0.71	0	1575 Daft & Weick 1984	0.84
150	Hall 1971	0.71	0	613 Milliken 1987	0.80
818	Simon 1959	1.00	1	9219 Dimaggio & Powell 1983	0.86
13	Isard & Dacey 1962	0.75	1	2651 Hambrick & Mason 1984	0.73
13	Dahl 1959	0.75	1	1148 Dess & Beard 1984	0.73
1024	Perrow 1967	0.56	2	6090 Meyer & Rowan 1977	0.81
313	Collins 1971	0.50	2	332 Ouchi 1977	0.65
270	Hage & Aiken 1969	0.41	2	327 Cook 1977	0.65
617	Hickson et al. 1971	0.89	3	2158 Mowday et al. 1979	0.76
385	Pondy 1967	0.67	3	1831 Eisenberger et al. 1986	0.76
117	Walton & Dutton 1969	0.67	3	807 Mobley et al. 1979	0.72
85	Katzell et al. 1961	0.75	4	1438 Williamson 1981	0.52
46	Indik 1963	0.75	4	954 March & Olsen 1984	0.51
26	Parker 1963	0.50	4	896 March & Shapira 1987	0.47
Period 3: 1988 - 2002			Period 4: 2003 - 2017		
Cit.	Publication	Centr.	Cit.	Publication	Centr.
915	Oldham & Cummings 1996	0.77	0	551 Jansen et al. 2006	0.73
409	Eisenhardt & Zbaracki 1992	0.63	0	472 Jansen et al. 2005	0.71
333	Dean & Bowen 1994	0.63	0	440 Rosenkopf & Almeida 2003	0.69
530	Sitkin & Pablo 1992	0.75	1	792 Gibson & Birkinshaw 2004	0.87
419	Haunschild & Miner 1997	0.67	1	582 Borgatti & Cross 2003	0.87
404	Bromiley 1991	0.67	1	291 Becker 2004	0.83
3243	Dyer & Singh 1998	0.58	2	374 Allen et al. 2003	0.60
2460	Szulanski 1996	0.53	2	294 Sun et al. 2007	0.57
1719	Grant 1996	0.52	2	211 Takeuchi et al. 2007	0.53
751	Eisenberger et al. 1990	0.60	3	271 Gilbert 2005	0.86
620	Settoon et al. 1996	0.60	3	229 Ethiraj & Levinthal 2004	0.80
548	Mitchell et al. 2001	0.50	3	187 Gavetti et al. 2005	0.77
2392	Henderson & Clark 1990	0.66	4	418 Mcevily et al. 2003	0.64
856	Walsh & Ungson 1991	0.66	4	318 Moran 2005	0.61
799	Vandeven & Poole 1995	0.63	4	298 Mcevily & Marcus 2005	0.58

Table IV: Citation statistics for *M&S* in selected research areas

Sample	New Organizational Forms					Control Sample	
Topic	Business model innovation	Ecosystems	Platforms	Block-chain	Industry 4.0	Industrial organization	General management
Journal selection restriction	Business & management	Business & management	Business & management	Business & management	Business & management	Business & management	Business & management
Journal selection restriction	none	none	none	none	none	none	last 10 years
Journal selection restriction	none	none	none	none	none	none	High reputation journals
Number of publications	475	2,000 ^B	2,000 ^B	180	234	1,089	2,000 ^B
	26,234	108,656	102,656	6,096	9,028	42,119	191,079
M&S references	2	8	15	0	0	9	138
M&S cit. articles	0.421%	0.400%	0.750%	0.000%	0.000%	0.826%	6.900%
M&S cit. references	0.008%	0.007%	0.015%	0.000%	0.000%	0.021%	0.072%
Most cited references	Teece, 2010 Zott et al. 2011 Chesbrough, 2010	Gansiti & Levien, 2004 Adner & Kapoor, 2010 Moore, 1993	Chesbrough, 2003 Barney, 1991 Kaplan & Heanlein, 2010	Nakamoto, 2008 Swan, 2015 Tapscott & Tapscott, 2016	Brettel et al. 2014 Kagermann et al. 2013 Stock & Seliger, 2016	Porter, 1980 Barney, 1991 Porter, 1985	Barney, 1991 Cyert & March March, 1991

Notes:
 Selection of high reputation journals include: Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly, Journal of Management, Journal of Management Studies, Organization Science, Strategic Management Journal.
 Limited to the 2,000 most cited publications. We removed the Eisenhardt (1989) publication from the general management and platform samples, as it is a method article.

Table V: Sample future research questions

Research Gap	Possible Research Questions
1 <i>Organizational structure & control</i>	<p>How should organizations best design structures and incentivization systems that comprise ecosystem participants who may be considered as being employees – and make them fulfil important roles in the value creation and delivery processes?</p> <p>Given employees can now receive instant feedback on their performance from external stakeholders (e.g., through online ratings), how should organizations design performance evaluation systems?</p> <p>How do the division and allocation of tasks, the provision of rewards and information, or the nature of goal setting and performance feedback influence how individuals recognize and notice potential issues (i.e., focus of attention), diagnose situations (i.e., problem representation and formulation), and search for solutions (i.e., deliberation and reflection) in the intrafirm and interfirm contexts?</p>
2 <i>Individuals</i>	<p>How do we need to rethink individual motivation when the individual is committed to several stakeholders?</p> <p>Given the increasing importance of middle-level managers, how do their motivations and incentives differ from those of top management teams?</p> <p>How can organizations still support boundaryless employees in their career development and advancement?</p>
3 <i>Innovation & change</i>	<p>What are the optimal organizational structures to motivate and incentivize employees to share and absorb innovation across organizational boundaries?</p> <p>How can external crowds as employee substitutes be motivated and incentivized to act in the best interest of the organization?</p> <p>How can organizations motivate and incentivize employees to engage with external stakeholders to foster innovation and accept external ideas?</p>

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ⁱ The Louvain algorithm is a greed optimization technique, which tries to optimize the so-called ‘modularity’ of communities in each network (Fortunato and Barthelemy, 2007). Thereby, modularity is a quantitative measure for the quality of the division of a network into sub-groups (communities) (Newman, 2004); in our case, groups of related research, which are based on the underlying network structure.

ⁱⁱ The classification of scientific fields is based on the publication classification by WoS and the classification with Business and Economics is based on the 59th edition of the meta-journal ranking by Harzing (2018).

Online Appendix

Sample

The Scopus database did not list *Organizations*, and thus it did not provide a suitable alternative for the initial search. Google Scholar (GS) is an alternative data source, which may provide a more comprehensive list of citation data. However, it also includes non-academic work, and the bibliometric quality of the listings is less reliable (e.g., it includes multiple versions of working papers or unpublished work). Finally, it should be noted that despite differences between the publication databases (Mongeon and Paul-Hus, 2016; Waltman, 2016), a recent study by Martín-Martín (2018) showed that the correlation between citations counts of the database are relatively high. Additionally, these differences are less relevant for our study as we focus on the most important articles (measured by citation) and not the overall population of articles, for this comparison should be even lower.

Furthermore, we excluded books and book chapters for multiple reasons. First, books often do not undergo an equally strict and rigorous review process as articles in peer-reviewed journals. Second, the historical coverage and the inclusion (directly or indirectly) of books in the academic databases is not as complete and reliable as for articles. Third, and specific to the text mining procedures, abstracts often do not exist or are not retrievable in the case of books and book chapters, which is necessary for text mining analysis (Randhawa et al., 2016). Thus, the inclusion of books would introduce an additional validity threat (Denyer and Tranfield, 2009). Table A1 shows the Top 50 journals, in which *M&S* have been cited. To depict the evolution and changes over time, we divided the data into four 15-year periods: 1958-1972, 1973-1987, 1988-2002, and 2003-2017. When we look at where *M&S* has been used, we see that there is also an evolution related to academic outlet. Overall, their work is cited in 1,168 unique journals. This varied from 162 journals citing *M&S* in 1958-1972 to 647 journals citing it in 2003-2017. In the

period 1958-1972, Administrative Science Quarterly (42), Human Relations (22), Behavioral Science (22), Journal of Applied Psychology (16), and Management Science (14) dominated the outlets, while by 2002-2017 this changed completely with the dominant outlets being Organization Science (124), Journal of Applied Psychology (76), Strategic Management Journal (71), and Journal of Management (64). Overall, we see a clear change in the number and style of outlets used by academics that relate their work to *M&S*, with a growing dominance of those working in the strategy and organizational science domains. This change is more noticeable in journals published in the Business and Management category than in Psychology journals.

Table A1: Top 50 journals with citations to March and Simon (1958) by time period

Journal title	Period 1: 1958 - 1972		Period 2: 1973 - 1987		Period 3: 1988 - 2002		Period 4: 2003 - 2017		Period 1-4: 1958 - 2017	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Human Relations	22	14%	118	29%	78	18%	32	5%	250	21%
Journal of Applied Psychology	16	10%	38	9%	62	14%	76	12%	192	16%
Administrative Science Quarterly	42	26%	92	23%	43	10%	13	2%	190	16%
Management Science	14	9%	46	11%	52	12%	70	11%	182	16%
Academy of Management Journal	6	4%	62	15%	56	13%	57	9%	181	15%
Organization Science	0	0%	0	0%	57	13%	124	19%	181	15%
Journal of Management	0	0%	14	3%	72	17%	64	10%	150	13%
Strategic Management Journal	0	0%	14	3%	54	12%	71	11%	139	12%
Academy of Management Review	0	0%	47	12%	45	10%	33	5%	125	11%
Journal of Management Studies	1	1%	22	5%	44	10%	38	6%	105	9%
Journal of Organizational Behavior	0	0%	0	0%	48	11%	52	8%	100	9%
Organization Studies	0	0%	10	2%	40	9%	43	7%	93	8%
Journal of Business Ethics	0	0%	0	0%	20	5%	50	8%	70	6%
Org. Beh. and Human Decision Processes	0	0%	10	2%	32	7%	24	4%	66	6%
Human Resource Management	0	0%	2	0%	12	3%	44	7%	58	5%
Intl. Journal of Technology Management	0	0%	0	0%	24	6%	33	5%	57	5%
MIS Quarterly	0	0%	12	3%	15	3%	30	5%	57	5%
IEEE Transactions on Engineering Mgt.	6	4%	10	2%	8	2%	32	5%	56	5%
Personnel Psychology	8	5%	16	4%	16	4%	12	2%	52	4%
Behavioral Science	22	14%	26	6%	2	0%	0	0%	50	4%
Research Policy	0	0%	0	0%	14	3%	36	6%	50	4%
Journal of Applied Behavioral Science	2	1%	30	7%	5	1%	12	2%	49	4%
Administration & Society	0	0%	33	8%	11	3%	3	0%	47	4%
Information Systems Research	0	0%	0	0%	14	3%	32	5%	46	4%
Journal of Business Research	0	0%	12	3%	9	2%	25	4%	46	4%
Technological Forecasting and Social Change	0	0%	14	3%	12	3%	18	3%	44	4%
Journal of Product Innovation Management	0	0%	2	0%	16	4%	22	3%	40	3%
Long Range Planning	0	0%	6	1%	4	1%	28	4%	38	3%
Accounting Organizations and Society	0	0%	16	4%	19	4%	2	0%	37	3%
Journal of Vocational Behavior	0	0%	11	3%	10	2%	16	2%	37	3%
European Journal of Operational Research	0	0%	10	2%	20	5%	6	1%	36	3%
Information & Management	0	0%	6	1%	18	4%	12	2%	36	3%
Policy Sciences	4	2%	16	4%	14	3%	2	0%	36	3%
Public Administration Review	1	1%	10	2%	11	3%	14	2%	36	3%
American Behavioral Scientist	0	0%	24	6%	10	2%	0	0%	34	3%
Industrial and Corporate Change	0	0%	0	0%	4	1%	30	5%	34	3%
Public Administration	2	1%	6	1%	14	3%	12	2%	34	3%
Technovation	0	0%	0	0%	15	3%	18	3%	33	3%
Group & Organization Management	0	0%	0	0%	18	4%	14	2%	32	3%
Omega-Intl. Journal of Management Science	0	0%	20	5%	8	2%	4	1%	32	3%
Journal of International Business Studies	0	0%	4	1%	11	3%	15	2%	30	3%
Journal of Management Information Systems	0	0%	0	0%	6	1%	24	4%	30	3%
Personnel Review	0	0%	6	1%	4	1%	20	3%	30	3%
Sociology of Education	6	4%	10	2%	10	2%	4	1%	30	3%
Journal of Economic Behavior & Organization	0	0%	3	1%	17	4%	9	1%	29	2%
Journal of Occupational and Org. Psychology	0	0%	0	0%	6	1%	22	3%	28	2%
Policy Studies Journal	0	0%	20	5%	4	1%	4	1%	28	2%
Journal of Mathematical Sociology	0	0%	3	1%	24	6%	0	0%	27	2%
American Journal of Sociology	5	3%	10	2%	8	2%	3	0%	26	2%
Intl. Journal of Human Resource Management	0	0%	0	0%	5	1%	21	3%	26	2%
<i>Nr. of unique citing journals per time period</i>	<i>162</i>	<i>100%</i>	<i>401</i>	<i>100%</i>	<i>433</i>	<i>100%</i>	<i>647</i>	<i>100%</i>	<i>1168</i>	<i>100%</i>

Coupling analysis

Coupling analysis is related to co-citation analysis, which measures the proximity between two publications by the frequency with which these are cited by later publications (Small, 1973). Thus, while co-citation analysis measures the similarity between two cited publications, bibliographic coupling measures the proximity of citing publications (Devinney and Hohberger, 2017). This is of particular relevance for this study, as we are interested in the proximity (i.e., distance) of all publications citing *M&S* (1958). It is also important to note that coupling is a static approach as the references of analyzed articles will not change; this is different to co-citation analysis, which is considered a dynamic approach, as the frequency with which two publications are cited by future publications can change as new publications appear (Zupic and Čater, 2015). This implies that co-citation analysis is biased against newer publications, which did not have the time to accumulate citations. This is not the case of coupling; which is, therefore, more appropriate when analyzing current research (Vogel and Güttel, 2012; Zupic and Čater, 2015). However, as citation patterns change, it is recommended that coupling is used when examining non-extended time periods (Zupic and Čater, 2015). For this reason, we only show the coupling results for the four time periods rather than aggregating it for the entire 60 years.

Our coupling procedure follows largely the guidelines developed by Zupic and Čater (2015) and its application in recent publications (Devinney and Hohberger, 2017; Vogel and Güttel, 2012). We used the BibExcel software package (Persson et al., 2009) to calculate the proximity scores of the 500 most cited publications in each period.

In order to increase the interpretability and to focus on the most relevant and representative publications, the networks are built on the 500 most cited publications and were

further pruned using various thresholds on degree range, proximity score and number of citations for each publication (see Table A2). While we intended to use the same threshold across all networks, the volume and structure of the publications in each period are too different; thus, we had to make an adjustment for each period. To further increase the interpretability and to concentrate on the most relevant and representative publications, we further reduced the number of publications in each analysis. Therefore, we created multiple networks for each time-period with varying thresholds for degree range, proximity score and number of citations for each publication. The objective of this process was to exclude documents that are not central to describing the field, but to still provide a meaningful and representative picture of the research (Zupic and Čater, 2015). The volume and structure of the publications in each period are rather different; thus, we had to adjust the thresholds for each period.

Table A2: Threshold values

	Period 1: 1958-1972	Period 2: 1973-1987	Period 3: 1988-2002	Period 4: 2002-2017
Degree Range	4	4	3	3
Edge weight (proximity score)	5	6	8	8
Citations	-	84	125	55

The subsequent four tables (A3-A5) show a full list of the publication in each cluster (Cl.) across the four periods sorted by the number of citations (Cit.). The tables also include the complete list of centrality measures (closeness, betweenness, and degree centrality) for each period as a whole as well as for each individual cluster. First, we calculated the standardized closeness centrality for each publication with respect to the entire network and the network of each cluster. Closeness centrality represents the total distance of a node (i.e., publication) from all other nodes (Otte and Rousseau, 2002). In the context of a publication network built on proximity scores from coupling, this measure captures the representativeness of a publication for

its cluster/network. We also calculated the degree centrality and betweenness centrality. Degree centrality is defined as the number of connections of each node and can be interpreted as an alternative measure for representativeness. On the other hand, betweenness centrality is the extent by which the node is positioned on the shortest path between other pairs of nodes in the network (Otte and Rousseau, 2002). It is frequently used to capture boundary spanning activities or brokerage, and in the context of bibliometrics as a measure for interdisciplinarity (Leydesdorff, 2007).

Table A3: Period 1, 1958-1972

Publication	Cl.	Cit.	Network			Clusters		
			Closeness centr.	Between. centr.	Degree cent.	Closeness centr.	Between. centr.	Degree cent.
Hrebiniak & Alutto 1972	1	324	0.83	0.01	4	0.83	0.70	4
Hall et al. 1970	1	198	0.71	0.00	3	0.71	0.15	3
Hall 1971	1	150	0.71	0.00	3	0.71	0.15	3
Alutto & Belasco 1972	1	89	0.50	0.00	1	0.50	0.00	1
Schneider & Hall 1971	1	35	0.50	0.00	2	0.50	0.00	2
Lammers 1969	1	23	0.50	0.00	1	0.50	0.00	1
Simon 1959	2	818	1.00	0.00	3	1.00	0.67	3
Isard & Dacey 1962	2	13	0.75	0.00	2	0.75	0.00	2
Dahl 1959	2	13	0.60	0.00	1	0.60	0.00	1
Shubik 1961	2	10	0.75	0.00	2	0.75	0.00	2
Perrow 1967	3	1024	0.58	0.14	8	0.56	0.78	5
Collins 1971	3	313	0.38	0.00	2	0.39	0.00	2
Hage & Aiken 1969	3	270	0.44	0.02	2	0.50	0.50	2
Pugh et al. 1963	3	201	0.39	0.03	2	0.41	0.22	2
Knight 1967	3	171	0.41	0.00	2	0.38	0.00	1
Helmich & Brown 1972	3	154	0.25	0.00	1	0.25	0.00	1
Hage et al. 1971	3	73	0.46	0.07	4	0.41	0.39	2
Lefton & Rosengren 1966	3	63	0.38	0.00	2	0.39	0.00	2
Corwin 1972	3	48	0.33	0.03	2	0.32	0.22	2
Campbell & Faber 1961	3	10	0.29	0.00	1	0.30	0.00	1
Hickson et al. 1971	4	617	0.62	0.14	9	0.89	0.67	7
Pondy 1967	4	385	0.53	0.06	6	0.67	0.25	4
Walton & Dutton 1969	4	117	0.49	0.02	5	0.67	0.02	4
Schmidt & Kochan 1972	4	108	0.44	0.00	4	0.67	0.02	4
Walton et al. 1969	4	64	0.41	0.00	3	0.57	0.00	3
Lirtzman & Wahba 1972	4	24	0.39	0.00	1	0.50	0.00	1
Reeves & Turner 1972	4	19	0.46	0.00	2	0.50	0.00	1
Pondy 1966	4	13	0.35	0.00	1	0.42	0.00	1
Olsen 1972	4	10	0.39	0.00	1	0.50	0.00	1
Katzell et al. 1961	5	85	0.50	0.00	1	0.50	0.00	1
Indik 1963	5	46	0.50	0.00	1	0.50	0.00	1
Parker 1963	5	26	0.75	0.00	2	0.75	0.67	2
Katzell 1962	5	14	0.75	0.00	2	0.75	0.67	2

Table A4: Period 2, 1973-1987

Publication	Cl.	Cit.	Network			Clusters		
			Closeness centr.	Between. centr.	Degree centr.	Closeness centr.	Between. centr.	Degree centr.
Daft & Lengel 1986	0	2476	0.50	0.29	41	0.80	0.12	12
Daft & Weick 1984	0	1575	0.37	0.00	9	0.52	0.00	3
Milliken 1987	0	613	0.38	0.01	14	0.62	0.07	7
Tushman 1977	0	514	0.29	0.00	9	0.64	0.07	8
Schoonhoven 1981	0	370	0.37	0.00	10	0.55	0.00	5
Daft & Macintosh 1981	0	340	0.38	0.01	19	0.84	0.16	13
Tushman & Scanlan 1981	0	302	0.34	0.00	7	0.62	0.01	7
Argote 1982	0	254	0.35	0.00	9	0.64	0.02	8
Tushman & Katz 1980	0	220	0.29	0.00	6	0.55	0.00	5
Rousseau 1978	0	156	0.28	0.00	2	0.37	0.00	1
Tushman 1978	0	154	0.34	0.00	9	0.67	0.03	9
Tushman 1979	0	153	0.38	0.02	20	0.84	0.16	13
Katz & Tushman 1979	0	148	0.35	0.00	8	0.62	0.01	7
Withey et al. 1983	0	147	0.37	0.01	13	0.59	0.01	6
Ettlie 1983	0	144	0.29	0.00	3	0.46	0.00	2
Slocum & Sims 1980	0	97	0.35	0.01	6	0.57	0.13	5
Cameron 1981	0	90	0.38	0.00	11	0.57	0.00	5
Dimaggio & Powell 1983	1	9219	0.40	0.02	21	0.63	0.04	15
Hambrick & Mason 1984	1	2651	0.39	0.01	15	0.60	0.02	12
Dess & Beard 1984	1	1148	0.42	0.06	33	0.70	0.04	21
Miller 1983	1	997	0.37	0.01	14	0.56	0.02	11
Ouchi 1979	1	989	0.35	0.00	6	0.45	0.00	4
Vandeven 1986	1	835	0.38	0.00	12	0.55	0.01	8
Prahalad & Bettis 1986	1	829	0.33	0.00	9	0.52	0.00	7
Kimberly & Evanisko 1981	1	764	0.30	0.00	3	0.43	0.00	3
Hambrick & Finkelstein 1987	1	551	0.41	0.02	28	0.73	0.05	23
Meyer 1982	1	545	0.36	0.01	11	0.52	0.01	8
Singh 1986	1	503	0.40	0.02	20	0.60	0.02	12
Dess & Davis 1984	1	499	0.32	0.00	9	0.54	0.00	9
Hedberg et al. 1976	1	364	0.34	0.00	7	0.49	0.00	4
Miller & Friesen 1980	1	356	0.39	0.01	19	0.66	0.03	18
Hrebiniak & Joyce 1985	1	341	0.41	0.02	25	0.67	0.03	19
Burgelman 1983	1	322	0.38	0.01	18	0.63	0.02	16
Miller & Droge 1986	1	318	0.40	0.03	22	0.64	0.02	16
Fredrickson 1984	1	290	0.37	0.01	17	0.65	0.02	17
Nutt 1984	1	234	0.38	0.00	14	0.58	0.01	10
Singh et al. 1986	1	226	0.47	0.20	35	0.71	0.11	22
Bourgeois 1980	1	214	0.32	0.00	7	0.51	0.00	7
Miller 1987	1	205	0.42	0.06	38	0.86	0.20	31
Meyerson & Martin 1987	1	168	0.36	0.00	11	0.49	0.01	9
Fredrickson 1986	1	167	0.41	0.02	29	0.73	0.05	23
Chenhall & Morris 1986	1	157	0.36	0.00	7	0.51	0.00	5
Mckelvey & Aldrich 1983	1	156	0.39	0.02	18	0.62	0.02	14
Ring & Perry 1985	1	126	0.30	0.00	4	0.49	0.00	4
Boynton & Zmud 1987	1	125	0.36	0.00	6	0.49	0.00	5
Quinn 1978	1	119	0.30	0.00	4	0.49	0.00	4
Gupta 1987	1	116	0.37	0.00	12	0.53	0.00	8
Sutton 1987	1	109	0.33	0.00	3	0.43	0.00	3
Ireland et al. 1987	1	103	0.32	0.00	10	0.53	0.00	8
Huber & McDaniel 1986	1	101	0.38	0.01	16	0.57	0.01	10

Fredrickson 1985	1	96	0.32	0.00	8	0.53	0.00	8
Jones 1984	1	94	0.37	0.01	8	0.51	0.00	5
Miller & Friesen 1982	1	93	0.40	0.01	20	0.62	0.02	14
Jones 1983	1	88	0.32	0.01	7	0.52	0.00	5
Shrivastava & Grant 1985	1	85	0.33	0.00	18	0.64	0.03	18
Meyer & Rowan 1977	2	6090	0.31	0.01	4	0.54	0.04	3
Ouchi 1977	2	332	0.28	0.00	4	0.52	0.02	4
Cook 1977	2	327	0.33	0.03	12	0.81	0.48	10
Benson 1977	2	289	0.29	0.00	6	0.62	0.05	6
Staw & Szwejkowski 1975	2	202	0.32	0.01	6	0.57	0.09	4
Pennings 1975	2	149	0.28	0.00	5	0.59	0.02	5
Berman 1978	2	116	0.30	0.01	3	0.38	0.00	2
Khandwalla 1974	2	111	0.30	0.00	6	0.46	0.00	4
McKelvey 1975	2	99	0.31	0.01	8	0.62	0.06	6
Jurkovich 1974	2	93	0.26	0.00	3	0.52	0.06	3
Comstock & Scott 1977	2	92	0.36	0.04	14	0.65	0.06	7
Zeitz 1980	2	91	0.31	0.00	4	0.48	0.00	2
Georgiou 1973	2	89	0.30	0.01	4	0.54	0.00	3
Hrebiniak 1974	2	84	0.28	0.00	7	0.65	0.06	7
Mowday et al. 1979	3	2158	0.23	0.00	12	0.58	0.01	12
Eisenberger et al. 1986	3	1831	0.22	0.00	5	0.44	0.00	5
Mobley et al. 1979	3	807	0.28	0.02	21	0.72	0.11	21
Porter & Steers 1973	3	792	0.29	0.03	7	0.50	0.00	6
Steers 1977	3	649	0.22	0.00	10	0.52	0.00	10
Schneider & Bowen 1985	3	450	0.26	0.00	3	0.45	0.00	3
Mobley et al. 1978	3	449	0.27	0.00	14	0.63	0.02	14
Steel & Ovalle 1984	3	390	0.35	0.11	23	0.76	0.13	23
Wagner et al. 1984	3	345	0.33	0.02	10	0.57	0.00	10
Angle & Perry 1981	3	343	0.27	0.01	14	0.62	0.02	14
Price & Mueller 1981	3	330	0.34	0.12	20	0.71	0.08	20
Rusbult & Farrell 1983	3	308	0.26	0.00	3	0.51	0.00	3
Bateman & Strasser 1984	3	290	0.27	0.03	19	0.69	0.09	19
Arnold & Feldman 1982	3	238	0.27	0.00	14	0.63	0.02	14
Clegg 1983	3	217	0.27	0.00	10	0.53	0.01	10
Farrell 1983	3	203	0.26	0.00	4	0.48	0.00	4
Stevens et al. 1978	3	183	0.22	0.00	10	0.52	0.00	10
Stumpf et al. 1983	3	180	0.26	0.00	3	0.47	0.00	3
Decotiis & Summers 1987	3	178	0.27	0.01	16	0.64	0.04	16
Jamal 1984	3	159	0.27	0.00	6	0.55	0.01	6
Hackett & Guion 1985	3	155	0.27	0.00	6	0.53	0.00	6
Hom et al. 1984	3	138	0.34	0.07	18	0.68	0.06	18
Cheney 1983	3	136	0.22	0.00	9	0.47	0.00	9
Abelson & Baysinger 1984	3	135	0.42	0.36	7	0.49	0.00	5
Jackofsky 1984	3	124	0.33	0.02	12	0.59	0.01	12
Farrell & Rusbult 1981	3	123	0.28	0.03	23	0.76	0.15	23
Mowday et al. 1984	3	122	0.26	0.00	6	0.49	0.00	6
Miller et al. 1979	3	118	0.26	0.00	5	0.49	0.00	5
Angle & Perry 1983	3	116	0.22	0.00	11	0.52	0.01	11
Muchinsky & Morrow 1980	3	115	0.28	0.01	17	0.64	0.04	17
Koch & Steers 1978	3	111	0.27	0.00	9	0.57	0.00	9
Randall 1987	3	92	0.22	0.00	8	0.50	0.00	8
Hunt et al. 1985	3	89	0.27	0.01	13	0.58	0.02	13
Sheridan & Abelson 1983	3	86	0.27	0.00	8	0.57	0.00	8
Martin 1979	3	84	0.27	0.00	7	0.54	0.00	7
Williamson 1981	4	1438	0.33	0.02	11	0.47	0.20	5
March & Olsen 1984	4	954	0.35	0.00	10	0.43	0.03	7

March & Shapira 1987	4	896	0.34	0.01	7	0.41	0.02	5
Simon 1979	4	749	0.26	0.00	3	0.43	0.06	3
Feldman & March 1981	4	618	0.38	0.01	10	0.46	0.03	6
Schoemaker 1982	4	576	0.31	0.01	8	0.51	0.17	8
Kiesler & Sproull 1982	4	447	0.31	0.02	9	0.52	0.28	8
Levinthal & March 1981	4	366	0.34	0.00	5	0.43	0.00	4
Gioia & Poole 1984	4	264	0.25	0.01	3	0.40	0.15	3
Starbuck 1983	4	256	0.31	0.00	6	0.43	0.03	4
Neale & Bazerman 1985	4	215	0.26	0.00	2	0.35	0.00	2
Faulkner & Anderson 1987	4	209	0.35	0.00	3	0.30	0.00	1
Nelson 1981	4	202	0.31	0.00	5	0.39	0.13	3
Masuch 1985	4	143	0.32	0.00	8	0.37	0.00	3
Steers & Porter 1974	4	124	0.33	0.03	3	0.25	0.00	1
Williamson 1980	4	120	0.26	0.00	2	0.32	0.00	1
Lord & Kernan 1987	4	114	0.23	0.00	2	0.31	0.00	2
Cowan 1986	4	105	0.35	0.01	5	0.35	0.00	2
Bendor & Moe 1985	4	91	0.29	0.00	2	0.38	0.00	2
Miner 1984	4	90	0.37	0.05	8	0.33	0.12	3
Lord & Hanges 1987	4	89	0.28	0.02	3	0.33	0.06	3
Miner 1987	4	86	0.35	0.00	5	0.43	0.09	3
Lant & Montgomery 1987	4	84	0.36	0.00	8	0.40	0.00	4

Table A5: Period 3, 1988-2002

Publication	Cl.	Cit.	Network			Clusters		
			Closeness centr.	Between. centr.	Degree centr.	Closeness centr.	Between. centr.	Degree centr.
Oldham & Cummings 1996	0	915	0.21	0.00	1	0.26	0.00	1
Eisenhardt & Zbaracki 1992	0	409	0.39	0.00	9	0.47	0.00	4
Dean & Bowen 1994	0	333	0.38	0.01	6	0.48	0.01	5
Katz & Gartner 1988	0	314	0.40	0.00	9	0.50	0.00	4
Dean & Sharfman 1996	0	297	0.42	0.01	10	0.49	0.01	5
Miller 1991	0	295	0.46	0.02	21	0.60	0.05	11
Tan & Litschert 1994	0	273	0.39	0.00	8	0.55	0.01	7
Jaworski 1988	0	265	0.35	0.00	4	0.43	0.00	3
Bensaou & Venkatraman 1995	0	232	0.44	0.05	15	0.63	0.11	13
Govindarajan 1988	0	222	0.37	0.00	8	0.56	0.05	8
Snell 1992	0	219	0.37	0.00	5	0.52	0.02	5
Boyd et al. 1993	0	197	0.43	0.02	14	0.57	0.03	9
Smith et al. 1991	0	191	0.42	0.03	17	0.63	0.12	11
Castrogiovanni 1991	0	189	0.44	0.01	16	0.57	0.02	9
Boyacigiller 1990	0	184	0.34	0.00	4	0.46	0.00	4
Sharfman & Dean 1991	0	167	0.42	0.01	12	0.57	0.03	9
Miller 1992	0	160	0.55	0.21	38	0.77	0.39	18
Barki et al. 2001	0	149	0.37	0.00	4	0.51	0.00	4
Larsson & Bowen 1989	0	144	0.37	0.00	5	0.51	0.01	5
Wally & Baum 1994	0	142	0.39	0.00	7	0.49	0.01	5
Geletkanycz 1997	0	139	0.39	0.00	7	0.46	0.00	4
Gresov 1989	0	134	0.38	0.00	5	0.52	0.00	5
Thomas et al. 1991	0	129	0.35	0.00	6	0.44	0.00	4
West & Farr 1989	0	126	0.27	0.02	2	0.35	0.08	2
Slappendel 1996	0	126	0.37	0.03	3	0.51	0.16	3
Sitkin & Pablo 1992	1	530	0.28	0.00	3	0.60	0.00	3
Haunschild & Miner 1997	1	419	0.36	0.01	3	0.38	0.00	1
Bromiley 1991	1	404	0.33	0.00	5	0.67	0.13	4
Greve 1998	1	337	0.38	0.03	8	0.75	0.53	4
March & Shapira 1992	1	258	0.34	0.00	5	0.67	0.13	4
Baum et al. 2000	1	234	0.30	0.00	2	0.55	0.33	2
Dyer & Singh 1998	2	3243	0.30	0.02	8	0.52	0.23	8
Szulanski 1996	2	2460	0.27	0.00	4	0.45	0.02	4
Grant 1996	2	1719	0.27	0.00	3	0.48	0.01	3
Zollo & Winter 2002	2	1559	0.34	0.06	10	0.53	0.29	10
Dyer & Nobeoka 2000	2	1085	0.26	0.00	3	0.44	0.00	3
Gulati & Singh 1998	2	794	0.29	0.01	6	0.45	0.09	6
Rosenkopf & Nerkar 2001	2	736	0.32	0.03	9	0.58	0.32	9
Fleming 2001	2	542	0.25	0.00	4	0.41	0.01	4
Zaheer & Venkatraman 1995	2	539	0.35	0.04	7	0.40	0.12	6
Szulanski 2000	2	512	0.26	0.00	4	0.41	0.01	4
Edmondson et al. 2001	2	508	0.32	0.01	4	0.40	0.02	4
Feldman 2000	2	487	0.42	0.08	6	0.37	0.09	3
Williamson 1999	2	459	0.28	0.00	5	0.46	0.09	5
Zollo et al. 2002	2	378	0.27	0.00	5	0.48	0.10	5
Benner 2002	2	371	0.32	0.02	8	0.48	0.08	7
Orlikowski & Yates 1994	2	361	0.31	0.00	2	0.27	0.00	1
Fleming & Sorenson 2001	2	316	0.27	0.01	4	0.41	0.09	4

Hart & Saunders 1997	2	259	0.31	0.00	3	0.33	0.00	2
Nelson & Winter 2002	2	257	0.26	0.00	3	0.38	0.01	3
Williamson 1998	2	245	0.28	0.00	3	0.36	0.00	3
Kogut & Kulatilaka 2001	2	175	0.40	0.06	4	0.43	0.00	3
Hargadon 2002	2	162	0.31	0.01	2	0.29	0.00	1
Mitchell & Singh 1996	2	158	0.34	0.03	6	0.40	0.01	5
Sutcliffe & Zaheer 1998	2	138	0.35	0.00	3	0.29	0.00	1
Eisenberger et al. 1990	3	751	0.60	0.00	5	0.60	0.58	5
Settoon et al. 1996	3	620	0.43	0.00	3	0.43	0.00	3
Mitchell et al. 2001	3	548	0.50	0.00	4	0.50	0.17	4
Eisenberger et al. 1997	3	395	0.43	0.00	3	0.43	0.00	3
Trevor 2001	3	196	0.38	0.00	3	0.38	0.00	3
Hom & Kinicki 2001	3	163	0.38	0.00	3	0.38	0.00	3
Jaros et al. 1993	3	162	0.60	0.00	3	0.60	0.56	3
Coyle-Shapiro 2002	3	156	0.41	0.00	2	0.41	0.00	2
Lynch et al. 1999	3	141	0.45	0.00	4	0.45	0.03	4
Chen et al. 1998	3	139	0.50	0.00	4	0.50	0.17	4
Henderson & Clark 1990	4	2392	0.38	0.00	4	0.41	0.00	3
Walsh & Ungson 1991	4	856	0.45	0.06	19	0.56	0.14	15
Vandeven & Poole 1995	4	799	0.32	0.00	3	0.35	0.00	3
Ocasio 1997	4	796	0.39	0.03	8	0.49	0.02	7
Wiersema & Bantel 1992	4	739	0.43	0.03	17	0.53	0.06	12
Gersick 1991	4	638	0.38	0.00	5	0.48	0.02	5
Finkelstein & Hambrick 1990	4	591	0.47	0.03	24	0.59	0.05	14
Levinthal 1997	4	589	0.44	0.06	8	0.48	0.03	6
Orton & Weick 1990	4	556	0.37	0.00	3	0.36	0.00	2
Hambrick et al. 1996	4	537	0.38	0.00	9	0.48	0.01	8
Gavetti & Levinthal 2000	4	523	0.35	0.01	3	0.37	0.00	2
Porac et al. 1989	4	500	0.33	0.00	4	0.41	0.01	4
Davis 1991	4	493	0.26	0.00	1	0.29	0.00	1
Zenger & Lawrence 1989	4	434	0.30	0.00	2	0.35	0.00	2
Hayward & Hambrick 1997	4	421	0.34	0.00	2	0.42	0.00	2
Orlikowski & Gash 1994	4	402	0.32	0.00	4	0.37	0.00	3
Barr et al. 1992	4	400	0.42	0.01	7	0.49	0.02	6
Vandeven 1992	4	390	0.37	0.00	7	0.43	0.01	5
Hambrick et al. 1993	4	361	0.38	0.00	7	0.46	0.00	5
Lant et al. 1992	4	345	0.47	0.07	26	0.66	0.21	20
Hill & Jones 1992	4	341	0.35	0.02	2	0.41	0.05	2
Porac & Thomas 1990	4	322	0.34	0.00	5	0.40	0.00	3
Miller 1993	4	314	0.53	0.15	29	0.66	0.22	19
Child 1997	4	297	0.38	0.00	4	0.41	0.00	3
Carpenter & Fredrickson 2001	4	265	0.33	0.00	4	0.41	0.00	4
Burns & Wholey 1993	4	244	0.40	0.00	7	0.44	0.00	4
Walsh 1988	4	224	0.34	0.00	3	0.43	0.00	3
Spender 1996	4	223	0.32	0.00	2	0.38	0.00	2
Boeker 1997	4	219	0.48	0.05	25	0.63	0.16	20
Barnett & Hansen 1996	4	199	0.37	0.00	5	0.47	0.00	5
Lant & Mezias 1992	4	195	0.49	0.07	20	0.59	0.07	14
Daveni & Macmillan 1990	4	194	0.36	0.00	3	0.43	0.00	2
Lant 1992	4	173	0.35	0.00	3	0.42	0.00	2
Miller & Chen 1996	4	160	0.44	0.02	15	0.53	0.04	11
Miner et al. 1990	4	159	0.45	0.02	17	0.56	0.06	13
Kilduff et al. 2000	4	158	0.33	0.00	5	0.41	0.00	5

Fredrickson & Iaquinto 1989	4	154	0.43	0.00	14	0.51	0.00	8
Wiersema & Bird 1993	4	152	0.35	0.00	6	0.47	0.01	6
Huff et al. 1992	4	151	0.44	0.02	17	0.58	0.07	14
Lord & Maher 1990	4	150	0.34	0.00	3	0.43	0.00	3
Carley 1992	4	127	0.43	0.01	10	0.49	0.02	6

Table A5: Period 4, 2003-2017

Publication	Cl.	Cit.	Network			Clusters		
			Closeness centr.	Between. centr.	Degree centr.	Closeness centr.	Between. centr.	Degree centr.
Jansen et al. 2006	0	551	0.36	0.01	8	0.44	0.00	3
Jansen et al. 2005	0	472	0.33	0.00	11	0.52	0.01	8
Rosenkopf & Almeida 2003	0	440	0.34	0.00	13	0.54	0.00	10
Lavie & Rosenkopf 2006	0	355	0.41	0.08	33	0.68	0.10	15
Alvarez & Barney 2007	0	340	0.31	0.00	5	0.47	0.00	4
Barnett 2007	0	331	0.32	0.00	5	0.49	0.02	3
Fleming & Sorenson 2004	0	289	0.33	0.00	13	0.51	0.00	7
Song et al. 2003	0	275	0.31	0.00	9	0.60	0.01	9
Hill & Rothaermel 2003	0	265	0.37	0.01	17	0.61	0.04	10
Ramos-Rodriguez & Ruiz-Navarro 2004	0	199	0.34	0.03	18	0.63	0.13	12
Phene et al. 2006	0	175	0.35	0.01	19	0.71	0.07	16
Mishina et al. 2004	0	170	0.30	0.00	3	0.45	0.00	2
Nerkar 2003	0	151	0.34	0.00	17	0.64	0.02	13
Afuah & Tucci 2012	0	138	0.36	0.01	26	0.69	0.07	16
Garg et al. 2003	0	128	0.26	0.00	2	0.40	0.00	2
Monteiro et al. 2008	0	125	0.32	0.00	6	0.48	0.01	4
Miller et al. 2007	0	122	0.35	0.01	21	0.69	0.05	15
Wadhwa & Kotha 2006	0	120	0.37	0.01	22	0.68	0.07	15
Liao et al. 2003	0	114	0.35	0.00	7	0.49	0.01	4
Agarwal et al. 2007	0	96	0.39	0.04	29	0.73	0.20	17
Petersen et al. 2008	0	85	0.35	0.00	8	0.44	0.01	4
Gruber et al. 2008	0	81	0.32	0.00	6	0.48	0.00	3
Alvarez & Barney 2010	0	69	0.32	0.00	7	0.47	0.00	4
Cattani 2005	0	65	0.38	0.01	19	0.68	0.02	14
Keil 2004	0	60	0.38	0.02	28	0.60	0.01	11
Branzei & Vertinsky 2006	0	60	0.32	0.00	10	0.54	0.03	9
Miller 2011	0	60	0.31	0.01	7	0.47	0.01	4
Zahra 2008	0	58	0.31	0.00	6	0.54	0.01	6
Gibson & Birkinshaw 2004	1	792	0.36	0.23	3	0.47	0.00	2
Borgatti & Cross 2003	1	582	0.36	0.01	9	0.53	0.00	4
Becker 2004	1	291	0.38	0.02	25	0.87	0.11	17
Bechky 2006	1	236	0.29	0.00	3	0.45	0.00	2
Feldman & Orlikowski 2011	1	214	0.35	0.01	15	0.77	0.12	14
Levinthal & Rerup 2006	1	207	0.38	0.01	26	0.74	0.01	13
Pentland & Feldman 2005	1	198	0.36	0.00	16	0.77	0.04	14
Farjoun 2010	1	175	0.44	0.21	30	0.74	0.08	13
Feldman 2003	1	143	0.32	0.00	13	0.69	0.00	12
Howard-Grenville 2005	1	136	0.35	0.00	14	0.74	0.01	13
Okhuysen & Bechky 2009	1	134	0.31	0.01	4	0.51	0.01	3
Zellmer-Bruhn 2003	1	118	0.38	0.04	11	0.63	0.04	9
Rerup & Feldman 2011	1	117	0.38	0.01	22	0.74	0.01	13
Lewin et al. 2011	1	111	0.42	0.08	49	0.87	0.08	17
Becker et al. 2005	1	105	0.35	0.00	14	0.74	0.01	13
Augier & Teece 2009	1	105	0.32	0.00	6	0.53	0.00	4
Parmigiani & Howard-Grenville 2011	1	73	0.38	0.01	24	0.83	0.05	16
D'Adderio 2008	1	71	0.31	0.00	11	0.67	0.00	11
Choo et al. 2007	1	67	0.36	0.00	10	0.57	0.01	6
Salvato & Rerup 2011	1	66	0.37	0.00	20	0.77	0.02	14

Felin & Foss 2009	1	57	0.36	0.00	13	0.61	0.00	8
Allen et al. 2003	2	374	0.18	0.05	3	0.42	0.22	3
Sun et al. 2007	2	294	0.25	0.00	6	0.41	0.01	6
Takeuchi et al. 2007	2	211	0.30	0.23	8	0.46	0.03	7
Aselage & Eisenberger 2003	2	179	0.15	0.01	3	0.31	0.04	3
Crossley et al. 2007	2	133	0.20	0.01	8	0.49	0.04	8
Maertz & Campion 2004	2	124	0.18	0.00	8	0.47	0.01	8
Felps et al. 2009	2	122	0.20	0.00	6	0.45	0.02	6
Kehoe & Wright 2013	2	120	0.25	0.00	6	0.41	0.01	6
Gittell et al. 2010	2	110	0.29	0.10	6	0.38	0.08	6
Trevor & Nyberg 2008	2	105	0.25	0.13	12	0.53	0.16	12
Boswell et al. 2005	2	98	0.20	0.00	9	0.50	0.01	9
Gong et al. 2009	2	95	0.25	0.01	7	0.46	0.03	7
Chen et al. 2005	2	87	0.15	0.01	3	0.31	0.04	3
Lee et al. 2008	2	83	0.21	0.02	13	0.57	0.10	13
Carmeli & Gittell 2009	2	81	0.35	0.11	4	0.28	0.00	1
Tharenou & Caulfield 2010	2	79	0.20	0.00	6	0.44	0.01	6
Van et al. 2004	2	77	0.20	0.00	7	0.48	0.00	7
Benson et al. 2004	2	77	0.20	0.00	7	0.48	0.00	7
Moynihan & Pandey 2008	2	73	0.17	0.00	2	0.38	0.00	2
Allen et al. 2010	2	71	0.21	0.00	8	0.51	0.02	8
Griffeth et al. 2005	2	70	0.22	0.08	10	0.60	0.33	10
Gardner et al. 2011	2	64	0.26	0.09	8	0.52	0.16	8
Holtom & O'Neill 2004	2	63	0.21	0.01	11	0.52	0.07	11
Ramesh & Gelfand 2010	2	60	0.17	0.00	4	0.39	0.00	4
Hausknecht & Trevor 2011	2	59	0.24	0.04	9	0.50	0.10	9
Sekiguchi et al. 2008	2	58	0.13	0.00	2	0.24	0.00	2
Gilbert 2005	3	271	0.35	0.00	16	0.60	0.01	8
Ethiraj & Levinthal 2004	3	229	0.28	0.00	3	0.41	0.00	3
Gavetti et al. 2005	3	187	0.33	0.00	13	0.59	0.03	9
Siggelkow & Rivkin 2005	3	179	0.33	0.00	11	0.59	0.02	9
Harris & Bromiley 2007	3	138	0.31	0.00	5	0.46	0.01	5
Davis et al. 2009	3	130	0.38	0.03	22	0.60	0.04	10
Baum & Dahlin 2007	3	116	0.41	0.09	24	0.67	0.06	13
Powell et al. 2011	3	111	0.33	0.00	7	0.57	0.00	7
Ocasio 2011	3	111	0.33	0.00	9	0.55	0.00	7
Gavetti et al. 2007	3	109	0.39	0.03	27	0.77	0.10	17
Gilbert 2006	3	107	0.38	0.01	21	0.69	0.04	13
Greve 2007	3	102	0.38	0.05	15	0.60	0.06	9
Hodgkinson & Healey 2011	3	99	0.37	0.00	17	0.59	0.01	9
Madsen & Desai 2010	3	90	0.41	0.06	26	0.63	0.03	11
Gulati & Puranam 2009	3	90	0.35	0.00	6	0.49	0.00	4
Greve et al. 2010	3	86	0.34	0.01	9	0.53	0.01	5
Daniel et al. 2004	3	85	0.29	0.00	4	0.42	0.00	3
Siggelkow & Rivkin 2006	3	76	0.34	0.00	10	0.56	0.00	7
Kaplan 2011	3	75	0.34	0.00	12	0.59	0.01	9
Rerup 2009	3	75	0.35	0.00	9	0.52	0.00	5
Gavetti et al. 2012	3	73	0.42	0.07	45	0.86	0.17	20
Gavetti 2012	3	73	0.43	0.08	44	0.80	0.12	18
Knudsen & Levinthal 2007	3	67	0.36	0.00	16	0.65	0.03	11
Chen 2008	3	61	0.36	0.01	16	0.62	0.06	10
Haunschild & Rhee 2004	3	59	0.32	0.00	4	0.51	0.00	4
Mcevily et al. 2003	4	418	0.27	0.00	6	0.52	0.04	6
Moran 2005	4	318	0.26	0.00	4	0.47	0.02	4
Mcevily & Marcus 2005	4	298	0.36	0.07	16	0.64	0.46	7

Taylor & Greve 2006	4	232	0.29	0.03	3	0.45	0.26	2
Jehn & Bendersky 2003	4	188	0.23	0.02	2	0.33	0.14	2
De & Saporito 2006	4	159	0.26	0.00	3	0.45	0.00	3
Bitektine 2011	4	157	0.27	0.00	3	0.39	0.00	2
Higgins & Gulati 2003	4	143	0.32	0.00	5	0.40	0.01	3
Muthusamy & White 2005	4	136	0.27	0.00	5	0.50	0.01	5
Villena et al. 2011	4	133	0.31	0.03	10	0.61	0.18	8
Goo et al. 2009	4	117	0.27	0.00	5	0.50	0.01	5
Barkema & Shvyrkov 2007	4	101	0.19	0.00	1	0.25	0.00	1
Puranam & Vanneste 2009	4	80	0.24	0.00	4	0.42	0.00	4
Mitsubishi & Greve 2009	4	66	0.31	0.00	4	0.48	0.03	3
Lee 2007	4	58	0.33	0.03	11	0.58	0.28	7

The subsequent seven figures represent an alternative (i.e., graphical) representation of the seven book chapters of *Organizations*. The statistical information is shown in Table I in the main manuscript.

Figure A1: Chapter 1

Figure A2: Chapter 2

Figure A3: Chapter 3

Figure A2: Chapter 4

Figure A2: Chapter 5

Figure A2: Chapter 6

Figure A2: Chapter 7