

Top-Executives And Digitalization – Insights From The Academic Literature

Top-Manager und Digitalisierung – Einsichten aus der akademischen Literatur

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Abstract — The article systematically studies whether the literature on top-executives considers the construct of digitalization. Surprisingly, we find a lack of quantity *and* quality in the literature despite more than three decades of academic research and increased interest of practitioners. We provide four competing explanations for this by speculating that 1) research is disentangled from practitioners' needs, 2) digitalization is generally too broad and commonplace to be analyzed, 3) digitalization is a too distal construct to be analyzed as an outcome variable and 4) digitalization suffers from cohort effects.

Zusammenfassung — Der Artikel analysiert das Konstrukt Digitalisierung und dessen Verwendung in der akademischen Literatur zu Top-Managern. Trotz der wahrgenommenen Wichtigkeit der Thematik finden wir überraschend wenige wissenschaftliche Artikel. Wir spekulieren über vier mögliche Gründe für diese Ergebnisse, die 1) in der Lücke zwischen Theorie-Praxis, 2) in der Konzeptualisierung von Digitalisierung, 3) in der Eignung von Digitalisierung als Outcome-Variable und 4) an Kohorteneffekte liegen können.

I. INTRODUCTION

Conventional wisdom suggests that digitalization is a complex process that affects every aspect of human's everyday life whereby one can barely read a magazine or newspaper without reading about the digitalization. However, how does academic research, in particular with relation to the person at the top, covers digitalization? While research has started to uncover the consequences of technological progress on a customer level to strengthen the B2C relationship [1], research on a firm level has mostly been anecdotal and bound to cases in particular industries [2][3]. Consequently, academic studies complain about the unknown antecedents as well consequences of digitalization on a firm level [4].

This is surprising given the fact that practice agrees on the overreaching role of the person at the top, the upper-echelon.

McKinsey reports that digitalization “forces CEOs to rethink how companies execute, with new business processes, management practices, and information systems, as well as everything about the nature of customer relationships” [5]. Beyond key business practices (e.g., production processes) that are affected by digitalization, other practitioners argue that different positions such as Chief Digital Officers (CDO) lack the internal legitimacy to conduct the holistic transformation of an organization and external consultants exhibit heightened information asymmetries to understand external (specific market circumstances) and internal properties (hierarchies, core competencies etc.) of the organization [6].

Moreover, CEOs' function as upper echelon goes beyond his or her core function to detect and select corporate opportunities and to execute them strategically, but by providing a narrative that secures fellowship of key share- and stakeholders [7]. Therefore, this narrative function “to sell”

digitalization efforts is a key function of CEOs to initiate strategic change.

Therefore, giving the far-reaching consequences digitalization has on whole societies, consumers, and firms in particular, we study whether and how the academic literature of the upper-echelon considers the construct of digitalization.

II. THEORETICAL FOUNDATIONS

A. The upper echelon and their skills

At least since Hambrick and Mason's Upper Echelon Theory in 1984, researchers are interested in the observable and non-observable characteristics of top-managers that affect strategic decision making of companies (e.g., M&A-activities) and consequently, firm level outcomes (e.g., performance). Newer research on non-observable characteristics of CEOs considers conducive and detrimental effects of sub traits of CEO personality such as overconfidence and narcissism on firm level outcomes [8][9]. Within this empirical research stream, after the controlling for industry, firm, and personal variables, specific CEO characteristics explain a high share of firm performance variance [10].

The previous evidence on the source of variation in CEO characteristics suggests that it can be found in positive factor loads that appears to reflect overall managerial talent and ability as well as communication and interpersonal abilities such as Respect, Open to Criticism, Listening Skills, and Teamwork; in contrast, lowest factor loadings can be found in execution styles such *Aggressive*, *Persistent*, *Proactive*, *Work Ethic*, and *High Standards* [11]. These results point to the fact that there is little variation in personal attitudes in the execution

(e.g., work ethic, high standards) but in the overall managerial ability and interpersonal abilities.

Overall, this is surprisingly similar to classical management thinkers such as Drucker (1967) who see managers as those who “get the right things done” but with different personalities and ways how to achieve it [12].

B. Digitalization

The Collins dictionary defines the verb digitize to “transcribe (data) into a digital form so that it can be directly processed by a computer“. This requires information (i.e., data in form of objects, documents, photos) to be stored in machine-readable form (usually in form of bits and bytes). Therefore, the process of digitalization enables to create new business models on a supply and demand side as well as promises efficiency gains. However, the OECD makes the distinction between digitization and digitalization [13]. For the authors, while technical understanding of digitization is clearly a process of encoding analog information, the boundaries of digitalization are far from clear. For instance, to conceptualize digitalization, shall one only include the part of the e-commerce that is directly attributable to the sales of the digital tools that enables e-commerce transactions? Consequently, deriving a working definition is a non-trivial task and perhaps the biggest obstacle to measure digitalization. Therefore, this ambiguity may also affects the upper echelon research.

III. METHOD

In order to assess the literature, we use the so-called building-blocks-method as central approach to systematically link upper echelon theory and digitalization. We use Elsevier Scopus as a database for the analysis, an important academic database for literature. We search in the “title”, “abstract” and “key words” sections.

Goodman, Gary, & Wood (2014) describe the method as combination of Boolean operators (“and”, “or”), keywords and synonyms to create a systematic search string. We consider both analytical constructs separately and merge them for the analysis [14]. For the analysis, we use the Scopus “peer review” function to select only peer-review articles. Table 1 provides an overview about the search string. The total number of results is 21. We inspect the results qualitatively and exclude four articles without a content fit.

After having received the preliminary results, we then match the results with the Financial Times Top 50 Journal rank, a peer-created list (business schools) with commonly considered top journals in Management (e.g., Academy of Management Journal), Economics (e.g., RAND Journal of Economics), Marketing (e.g., Marketing Science) and other subfields. Finally, using the criteria’s as stated above, we manually searched in a second database (i.e., Google Scholar). Since the search criteria relates to fixed job titles, a clear level of analysis and established academic terms (e.g., CEO, Top-Management-Team), we decide not to extend the search string any further (e.g., leader).

TABLE I. SEARCH STRING WITH BOOLEAN OPERATORS (“AND”, “OR”)

| Core aspect 1 „CEO“ | Core aspect 2 „digitalization“ |
|--|---|
| <ul style="list-style-type: none"> - CEO - Chief executive officer - Top management - Top executive - Upper echelon | <ul style="list-style-type: none"> - Digital¹ - Digitalization - Digitalization - Digital-transformation |

IV. DISCUSSION

In total, we find 17 articles covering digitalization and the upper echelon directly. The overall little number of articles is surprising, given the academic importance of the upper-echelon-theory and practical need to implement digitalization as stated above. We argue that the given literature is mainly based on conceptual pieces and conference articles. A total of eleven articles can be assigned to journal articles. The results are displayed in Table 2 in the appendix.

Of the given articles, after imposing the Financial Times threshold, no article can be classified as highly relevant to researchers. This is even more surprising, given the importance of the upper-echelon stream in academia. Overall, the results point to a lack of research both in quantity *and* quality of top-management research and digitalization.

We provide mainly four explanations for these surprising results, namely based on 1) a research practice gap, 2) a lack of conceptualization of the construct, 3) problems related to digitalization as an outcome variable and 4) cohort effects.

First, the lack of articles considering digitalization may point to the fact that academic research is mainly disentangled from actual business issues, also known as research practice gap. It is well known that a gap between academic research and practice exists [15].

Second, the lack of conceptualization that is particularly prevalent among practitioners and therefore, its difficult measurement, make digitalization unlikely to be considered for scholarly attention. We are unaware of a generally established definition among practitioners or in academia. Practitioners’ wisdom should clearly state how digitalization is defined, which practices it comprises to enable academic research to develop the tools to assess the construct.

Third, and a related point to the second, is that digitalization must be imbedded in a broader context that states causal relationships and mediating/moderating mechanisms. For instance, digitalization might not be an adequate outcome variable but a context variable that affects organizational outcomes, similar to the idea of Hambrick and Mason that CEOs affect strategic decisions but not organizational performance per se or directly [16]. Herrmann and Nadkarni (2014) show that the construct of “strategic change” can be derived by using five aggregate measures (e.g., formal incentives granted to executives; change in organizational structure etc.) via unobtrusive measures and expert evaluations [17]. To substitute digitalization against established conceptualizations and therefore, measurements, would be one way to cope with the lack of results regarding digitalization. This may also help to explain why certain CEOs may be better suited to initiate strategic change but *not* to implement. This also points to the fact that academic research selectively does consider strategic change but not under the banner of digitalization. It may also point to the fact that this research is

¹ Includes all versions with word stem “digital”

more abstract and technical, a style that might be less likely to be found and processed by practitioners.

Fourth and finally, one aspect may be cohort effects. As digitalization is a relatively recent phenomenon, long peer-review periods make it less likely for research to keep up with these developments. Moreover, previous evidence suggests that there is CEO experience effect whereby CEO education and background directly affects firm decisions [18]. Therefore, any past academic research would necessarily include age effects whereby the majority of included executives have a prototypical background (e.g., experienced or extremely experienced, male, white). As future CEOs grow up in an already digitalized world, we expect to see a higher focus on digitalization in the future.

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TABLE II. OVERVIEW ABOUT PUBLICATION RESULTS OF JOURNAL ARTICLES

| Author(s) | Document Title | Year | Source Title | Document Type |
|---|--|------|---|-----------------|
| Melander L., Pazirandeh A. | “Collaboration beyond the supply network for green innovation: insight from 11 cases” | 2019 | <i>Supply Chain Management</i> | Journal Article |
| Cooke F.L., Liu M., Liu L.A., Chen C.C. | “Human resource management and industrial relations in multinational corporations in and from China: Challenges and new insights” | 2019 | <i>Human Resource Management</i> | Journal Article |
| Ruiz-Alba J.L., Guesalaga R., Ayestarán R., Morales Mediano J. | “Interfunctional coordination: The role of digitalization” | 2019 | <i>Journal of Business and Industrial Marketing</i> | Journal Article |
| Auvinen T., Sajasalo P., Sintonen T., Pekkala K., Takala T., Luoma-aho V. | “Evolution of strategy narration and leadership work in the digital era” | 2019 | <i>Leadership</i> | Journal Article |
| Manfreda A., Indihar Štemberger M. | “Establishing a partnership between top and IT managers: A necessity in an era of digital transformation” | 2018 | <i>Information Technology and People</i> | Journal Article |
| Holmlund M., Strandvik T., Lähteenmäki I. | “Digitalization challenging institutional logics: Top executive sensemaking of service business change” | 2017 | <i>Journal of Service Theory and Practice</i> | Journal Article |
| Tay H.L., Low S.W.K. | “Digitalization of learning resources in a HEI – a lean management perspective” | 2017 | <i>International Journal of Productivity and Performance Management</i> | Journal Article |
| Dasi A., Elter F., Gooderham P.N., Pedersen T. | “New business models in-the-making in extant MNCs: Digital transformation in a telco” | 2017 | <i>Advances in International Management</i> | Journal Article |
| Tay H.L., Low S.W.K. | “Digitalization of learning resources in a HEI – a lean management perspective” | 2017 | <i>International Journal of Productivity and Performance Management</i> | Journal Article |
| Hung S.-Y., Chen C., Wang K.-H. | “Critical success factors for the implementation of integrated healthcare information systems projects: An organizational fit perspective” | 2014 | <i>Communications of the Association for Information Systems</i> | Journal Article |
| Buccoliero L., Calciolari S., Marsilio M. | “A methodological and operative framework for the evaluation of an e-health project” | 2008 | <i>International Journal of Health Planning and Management</i> | Journal Article |