Data as Strategic Resources

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Summary

Triggered by press articles, business journals, industry magazines and white-papers around “big data” and “data science” (Madsen & Stenheim, 2016), managers have increasingly been considering how they may leverage data to realize economic and social value. Organizations in various industries are creating data-driven solutions and are thinking about how they may rely on data to improve and innovate their existing ways of creating and appropriating value (Schüritz & Satzger, 2016; Hartmann et al., 2016; Woerner & Wixom, 2015). This signifies a trend wherein organizations are starting to see data not only as a by-product of IT processes, but as *strategic* resources, that is, resources that they can leverage to “create differential value” (Bharadwaj et al., 2013, p. 478).

All of the optimism and hopes around data as strategic resources are, however, also met with skepticism. Scholars have associated the phenomenon with hypes and buzzwords (e.g., Arnott & Pervan, 2014; Boellstorff, 2013; Madsen & Stenheim, 2016), and anecdotal evidence shows that managers are struggling to effectively implement and utilize data and data-related technologies (Gartner, 2016; Ransbotham et al., 2016, Gartner, 2018-2). In this dissertation, I aimed to move beyond the hype that surrounds this phenomenon, and critically assessed: *How do organizations explore the opportunities of data as strategic resources?*

In the first study, I performed a literature review of Information Systems literature that discusses organizational changes, drivers, and actions related to big data value realization at different levels of analysis. This helped me to understand what tensions organizations face when they (try to) realize value from data. In the study, I present six debates that are central to big data value realization: 1) inductive and deductive approaches to big data analytics; 2) algorithmic and human-based intelligence; 3) centralized and decentralized big data capability structures; 4) big data-driven business model improvement and innovation; 5) controlled and open big data access, and 6) minimizing and neglecting the social risks of big data value realization. Drawing on my review of the literature, I also present two socio-technical features of big data that influence value realization, that is, portability and interconnectivity. I argue that organizations need to continuously realign work practices, organizational models, and stakeholder interests in order to be able to realize social and economic value from data. I synthesize my findings into an integrated model.

In the second study, I conducted an in-depth case study of an organization that was triggered to invest in data and data-related technologies by the promises of social and economic value, yet struggled to actually realize the expected benefits. The specific research question for the second study: “*How*

do data shape the process of data-driven strategizing?" was driven by the observation that literature has been pushing the potential role of data to the background (Jones, 2018; Tempini, 2017). The case concerns a European postal service organization, and served as a rich case for understanding the range of challenges and mechanisms that may prevent organizations from successfully leveraging data as strategic resources. In the study, I narrate how LogiCo tried to realize value from data and how the data shaped strategic processes and outcomes. I illustrate that while data can enable strategic exploration, they may also encourage organizations to remain close to the data's traditional purpose. I also explain that, because of the nature of data, organizations may be encouraged to closely collaborate with external stakeholders. However, the data may also prevent stakeholders from becoming fully engaged in such collaborations. I elaborate on these tensions and discuss what the findings imply for our understanding of how organizations may realize value from data.

In the third study, I explored: *What are the expected responsibilities and positions of data analytics leaders?* To answer the research question, I collected job ads for senior managers with titles pertaining to "data analytics", "digital", and "information technology", from a popular job website (Indeed.com). I applied a topic modeling algorithm to analyze the contents of these job ads and explored: 1) What are the data-related responsibilities that characterize data analytics leadership? 2) Which positions will be responsible for providing data analytics leadership? and 3) Which (combinations) of responsibilities are stressed as the most important for "data analytics leaders"? In the study, I present four data-related responsibilities: "data infrastructure", "data control", "applied analytics", and "data privacy", which characterize leadership in the age of data analytics. The data suggest that job ads for "data analytics" positions often provide explicit information regarding data-related responsibilities, which implies that organizations do not just signal these terms in the job titles. Conversely, positions with titles pertaining to "information technology" and "digital" are much less likely to be responsible for providing data analytics leadership. I also found that most "data analytics leaders" in our sample focus on applied analytics, while the privacy implications hereof are only marginally represented and discussed in their job ads. I discuss the implications of these findings for both research and practice.

Based on the findings from my studies, I concur that—while terms like "big data" or recently even "thick data" might die out—the *phenomenon* that data are becoming strategic resources is very real and may be "here to stay" (e.g., Abbasi et al., 2016; Madsen & Stenheim, 2016; Marr, 2016; Woerner & Wixom, 2015). Yet, scholars and practitioners alike should not be overly optimistic about the opportunities of data as strategic resources. The insights from this dissertation present learning opportunities for both scholars and prac-

titioners who aim to understand how organizations can realize value from data.

Scholars may learn from this dissertation that, to fully understand how organizations can leverage data as strategic resources, they should consider bringing the data to the forefront and critically examining what characteristics of data influence value realization, and how this happens (Jones, 2018; Tempini, 2017). Additionally, the findings presented in this dissertation affirm that data are extremely dynamic resources, of which the nature and role may continuously change over time as actors work with them in practice (Kallinikos et al., 2013). The findings also highlight that data are *historically situated* (Jones, 2018), and that scholars can capture the dynamic, historically situated nature of data by adopting a process lens. Finally, the findings suggest that there is an increasing need for research that focuses on how organizations can deal with the (unforeseen) social implications of data analytics.

Practitioners may learn from this dissertation that data-driven value realization is a cross-level process that requires efforts at different levels of analysis to be aligned. This may also require actors at different levels to closely collaborate, including those at the level of senior management and stakeholders from outside of the organization. Additionally, practitioners may learn from this dissertation that data-driven value realization is often *not* a linear process; rather, it is a journey in which they may have to continuously revisit past choices and actions. Finally, practitioners should take care to "mind their data", as they should have a solid idea of *what* data they have, *where* these data *come from*, and how these data may shape their strategic processes and outcomes.