PART I

Philosophical, Epistemological and Theoretical Considerations

CHAPTER 1

Introduction

The Need for Qualitative Research in the Age of Digitalization

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1.1 Introduction

As noted in the Preface, we aim in this handbook to delve into the digitalization phenomenon and to go some way to answer the calls for more critical research on the topic (as mentioned, inter alia, by Newell and Marabelli (2015), Galliers et al. (2015, 2017) and Grover et al. (2020)). We do so in light of our increasingly digitized world and the reliance being placed on algorithmic decision-making by organizations (and society more generally) – but also because of our concern that there may well be *over*-reliance being placed on digitalization,[1] not just in practice, but in academic research too. More qualitative approaches would appear to be required given these concerns (cf. Van Maanen, 1979).

While recognizing the growing literature on the topic (e.g., Frické, 2015; Günther et al., 2017; Vial, 2019; Grover, 2020; Hirschheim, 2021), we aim here not only to address in some small way society's apparent taken-for-granted and unknowing acquiescence to this increasingly prevalent phenomenon (Markus and Topi, 2015), but also – and more specifically for the purposes of this handbook – to provide an alternative account of the *means* by which we might most usefully research the topic. Indeed, this is the primary purpose of this handbook: to investigate the rationale for and the role of qualitative research methods in the age of digitalization.

[1] Also called 'datification' (e.g., Galliers et al., 2017) or 'datafication' (e.g., in Lycett, 2013; Hansen, 2015; Mai, 2016).

1.2 Opportunities and Issues

As an example of some of the opportunities and issues such research may consider, Vial (2019: 137–138) notes that:

> As digital technologies afford more information, computing, communication, and connectivity, they enable new forms of collaboration among distributed networks of diversified actors. In doing so, they also create dependencies among actors whose interests may not fully be aligned. This new reality offers tremendous potential for innovation and performance in organizations, and extends beyond the boundaries of the firm to affect individuals, industries, and society … future research may … investigate … under which conditions an organizational design performs better than another … or explore under-researched relationships …

So, while transformational opportunities may well arise, new complexities and dependencies do also. Further, there are other considerations that require careful study. For example, Jones (2019: 3) makes the following critical point concerning the data themselves – in his terms, 'data in principle' as compared with 'data in practice':

> Rather than being a referential, natural, foundational, objective and equal representation of the world … data are partial and contingent and are brought into being through situated practices of conceptualization, recording and use. Big data are also not as revolutionary voluminous, universal or exhaustive as they are often presented.

Further, Newell and Marabelli (2015) raise an ethical argument that requires serious consideration when pointing to the fact that 'the many digital

devices that are increasingly in continuous use are capable of enabling the monitoring of "the minutiae of an individual's everyday life". Such data are often processed by predetermined algorithms that lead to decisions that follow on directly without further human intervention (often with the claim that the decisions are for the individual's benefit).' While the strategic value of such data for organizations can be considerable and is doubtless growing, as Vial notes, the implications for individuals and wider society are less clear and are debatable. Also, as Newell and Marabelli indicate, most often they remain 'unaware of how the data they [digital devices] produce are being used, and by whom and with what consequences'.

In their consideration of 'big data', Newell and Marabelli (2015) note the vast amounts of 'digital trace data [that] are collected through digitized devices (captured, for example, via social networks, online shopping, blogs, ATM withdrawals and the like) and through in-built sensors. As such, they fall under the "big data" umbrella (Hedman et al., 2013; Wu and Brynjolfsson, 2009)'. Having said that, they do not discount 'little data' in their discussion either. In their words, 'this targeting can now be taken further when data are used not to predict group trends but to predict the behavior of a specific individual'. Thus, 'little data' is based on 'big data', but has its focus on individuals, using the vast computing capacity that is available today to collect and analyze what is extremely granular data (Munford, 2014). In a nutshell, then, a major concern of theirs with 'datification' (whether in relation to 'big' or 'little' data) – one which we share – is that 'somebody else may . . . use the data . . . often with purposes different from those originally intended'.

Regarding such considerations, Bholat (2015), for example, argues for a more balanced approach which considers human intelligence and decision-making along with algorithmic and data analytics. Those who point to the benefits associated with algorithmic means – Madsen (2015) and Van der Vlist (2016), among others – cite the emergent nature of such intelligence, the innovative concepts thus derived and the avoidance of preconceptions. Those who place greater emphasis on human intelligence – Sharma et al. (2014) and Seddon et al. (2017) , among others – express concerns about the 'unknowing' and 'out of context' nature of what might be termed the 'blind' dependence on the algorithmic approach.

1.3 Some Implications for Research

In light of this background, and as a result of a comprehensive literature review, Günther et al. (2017) identify three different levels of analysis for future research. These relate to tensions occurring at the work-practice, organizational and supra-organizational levels. At the work-practice level, tensions that Günther and colleagues identify relate to (1) inductive versus deductive approaches and (2) algorithmic versus human-based intelligence. Key issues identified include the collection of data without a predefined purpose that, in their words, promotes 'a bottom-up approach to big data collection, exploration and analysis'. Such inductive approaches as these are meant to lead to the identification of 'previously unknown patterns or distinctions'. Deductive, hypothesis-driven approaches 'where data are collected, processed, and visualized for specific purposes' (Tan et al., 2015) provide an alternative avenue. The risks inherent in the former concern data being potentially used out of context, while confirmation bias may arise with the latter.

Whatever the strengths and weaknesses of either stance, Günther et al. (2017) argue for more research on actual practices (cf. Peppard et al., 2014; Whittington, 2014), especially given the number of conceptual rather than empirical studies that have thus far been conducted. For example, actors in the study conducted by Shollo and Galliers (2015) argue that 'data should be supplemented with human experience, common sense, and contextual knowledge that are hard to capture by data [alone]'.[2] One of the dangers of over-

[2] Shollo and Galliers (2015) make the point that big data analytics is a similar concept to the older and more familiar concept of business intelligence that has been studied for over a decade (e.g., Power, 2002; Rouibah and Ould-ali, 2002; Thomsen, 2003; Negash, 2004), with the difference that, in the big data context, the sources and types of data are significantly more varied and often gain greater relevance for real-time processing.

reliance on algorithms is the potential of relevant tacit knowledge being lost or replaced – an aspect already noted by Markus (2015) and Newell and Marabelli (2015). Günther and colleagues conclude: 'As of yet, it remains unclear under what particular conditions organizational actors are able to generate insights through inductive or deductive approaches, or a combination of both. Nor is it clear what specific contributions human and algorithmic intelligence add to the creation of insights in different situations (e.g., stable and routine practices versus emergent and temporal situations).'

The tensions identified by Günther et al. (2017) at the organizational level refer to centralized versus decentralized big data capability structures and business model improvement, as against more radical innovations. Capabilities with regard to organizations developing and leveraging technical and human resources (cf. Peppard and Ward, 2004) have been a subject of considerable research over the years (e.g., Daniel et al., 2014; Huang et al., 2015). With regard to big data analytics, 'organizations face questions regarding not only how to acquire or develop [these] resources (Brinkhues et al., 2015; Tambe, 2014), but also how to structure them in teams or departments'. Arguments for the development of centralized competency centres tend to be focused on the (current) shortage of analytical skills (e.g., Davenport et al., 2010 in Sharma et al., 2014). Counter-arguments that highlight concerns about the potential of damaging communication between and limiting involvement with other organizational actors have also been raised. This has led to the identification of 'synergistic benefits of centralized capability structures … [alongside] specific expertise associated with decentralizing' (Sidorova and Torres, 2014). Importantly, Günther and colleagues point out that literature is still scarce regarding what is appropriate and how such data capability may be achieved in practice. While examples of centralized capability have appeared, such as in Bholat (2015), 'it is often not clear how these structures are put in place, how they interact with business units, or how they produce value'. Likewise, little empirical evidence exists to support a more decentralized approach. Similarly, the tension between incremental and radical approaches to innovation is seen as a further research topic (cf. Loebbecke and Picot, 2015; Woerner and Wixom, 2015). Here, again, Günther and colleagues note a lack of empirical studies, with few cases having been published concerning 'improvements in or innovations to business models based on big data (Gartner, 2013)'.

At the supra-organizational level, Günther et al. (2017) identify two tensions concerning 'how organizations manage data access, and how they deal with stakeholder interests such as ethical concerns and regulation'. The tensions relate to controlled versus open access to big data and to minimizing or simply neglecting the social risks associated with realizing value from data. By social risks, they mean the potential of (inadvertently) revealing personal, sensitive information, in terms of, for example, 'privacy, identity theft, illegal discrimination, unjust classification' (see also Markus, 2015). Regarding the tension between controlled versus open access to big data, they highlight the literature that points to organizations relying on effective data exchange across their network (Malgonde and Bhattacherjee, 2014) and engaging in practices of data disclosure and screening in doing so (Jia et al., 2015). Two concerns arise relating to privacy and security (Chatfield et al., 2015) and the potential negative impacts of sharing proprietary or competitive information that may negatively impact an organization's strategic placement (e.g., Jagadish et al., 2014; Greenaway et al., 2015). Citing Van den Broek and Van Veenstra (2015), Günther and colleagues describe that some organizations have tried to 'square the circle' by controlling and opening data access, based on trust (e.g., Xu et al., 2016; McKnight et al., 2017), although formal agreements and clear communication channels are considered crucial by others (e.g., Kim et al., 2014).

Digitalization could increase control to communication and information channels which may create information asymmetries (Lightfoot and Wisniewski, 2014). However, digitalization could lead to empowerment (Leong et al., 2015). Therefore, understanding issues of power and digitalization is increasingly important. Power, knowledge, digitalization, learning and empowerment need theorization and research in the digital era (Simeonova, 2018; Simeonova et al., 2020, 2022).

A further dimension to this 'problematique' may be discerned. It can reasonably be argued that the question of the changing nature of professional work in the twenty-first century as a result of digitalization is something to which we as a research community can (and should) make a contribution (cf. Grant and Parker, 2009; Stein et al., 2013, 2016; Forman et al., 2014; Baptista et al., 2020). The nature of professional work is changing, as is the management of professional workers. Evidence-based management (Pfeffer and Sutton, 2006) and data-driven approaches to managing workers (e.g., Waber, 2013; Bersin, 2015) are already becoming prevalent in many organizations in modern society (Fecheyr-Lippens et al., 2015). Thus, these are topics that also require research and collaboration with colleagues in cognate fields such as Organization Studies and Strategic Management, given the complexities and nuances of the subject matter – a plea that has been made over the years (e.g., Galliers, 1995; Galliers et al., 1997; Whittington, 2014), but which has often remained unheeded in our quest for disciplinary purity.

In sum, aspects of the digitalization phenomenon – its issues, impacts and implications – that require further study include (based largely on Günther et al., 2017), in our view, a plurality of research methods (cf. Mingers, 2001) that incorporate qualitative research (cf. Van Maanen, 1979; Walsham, 2006):

- the practices and outcomes of inductive and deductive approaches to algorithmic decision-making, in isolation or in combination;
- effects of algorithmic and human-based intelligence – both positive and negative – on professional work practices, skill requirements and organizational performance;
- organizational capabilities and alternative management structures – their development and consequences;
- examples of datafication initiatives involving incremental change vis-à-vis more radical innovations;
- inter-organizational access to and exchange of big data – implications, risks and effects;
- ethical considerations and the social risks associated with datafication, including but not limited to privacy and security;
- further investigation and extension of various datafication patterns in different contexts;
- capturing richness in the digital traces of social interactions; and
- sociotechnical and sociomaterial design considerations for algorithmic decision systems.

1.4 Further Foundational Considerations

Contributors to this handbook provide further foundational considerations of the research methods that might be applied in the context of digitalization. In Chapter 2, 'A Philosophical Perspective on Qualitative Research in the Age of Digitalization', Allen Lee and Suprateek Sarker consider the place of the digitalization of qualitative research in its philosophical context. More specifically, they consider the following key themes: 'Induction, on which current rationales for the digitalization of qualitative research depend, deserves attention given that it can be helpful in the building of a theory while being flawed as a means for justifying a theory . . . How justifying a theory is indeed carried out, through deduction, deserves and . . . receive[s] . . . equal attention. Meaning, which is arguably the central object of attention in interpretive research, merits attention because the digitalization of qualitative research in IS has, so far, largely not effectively addressed it'.

In Chapter 3, Matthew Jones returns to the issue of the veracity – or otherwise – of the data themselves. His contribution, titled 'Data as a Contingent Performance and the Limitations of Big Data', outlines that there is a commonly held assumption among data scientists, consultancies and organizations (public and private) alike, that data represent some form of 'reality' and that 'understanding of the world can therefore be gained through their analysis alone'. He begs to differ, and demonstrates that 'this was never the case, [not] even in the pre-digital era [and that this] . . . is not altered by the contemporary abundance of data, perhaps *especially of the digital variety*' (emphasis added). He argues that data 'are not, as is often claimed, a natural resource . . . that pre-exist their collection. Nor do

they stand in a direct relationship with the phenomena they are considered as representing. Rather, they are the product of situated practices that provide a selective and potentially inaccurate representation of phenomena.' The chapter considers the implications of this argumentation for research methods, specifically in the field of Information Systems, but also for organizational studies more generally.

In the chapter that follows, Rudy Hirschheim and David Whitchurch provide a complementary tale of caution, noting that both the academic and practitioner fields of Information Systems have been replete with hyperbolic claims concerning the transformative powers of new information technologies, going back to the mid-1980s (e.g., Porter and Millar, 1985), if not beyond. In Chapter 4, they 'examine a number of the underlying assumptions associated with the supposed big data revolution . . . highlight[ing] some of the fallacies and misconceptions that lie behind big data, and how these assumptions can lead to unintended and dysfunctional consequences'. Their chapter has the apposite title, 'Big Data, Little Understanding'. Their central thesis is that 'while big data provides correlations and patterns of the behaviours of large populations, it does not yield understanding/insight'. Questioning whether such behaviour patterns can properly be considered 'knowledge', they contend that 'the big data community have mistakenly adopted the view that what they produce is knowledge and moreover, it is the same as understanding'. They argue that the academic and practitioner communities alike 'continue to make the same mistakes, continue to embrace erroneous assumptions about what they should be doing with their research, what the products of the research should be and how we can help drive practice'.

In Chapter 5, Boyka Simeonova and Bob Galliers note: 'While knowledge sharing processes are of significant importance to organizations, they remain a challenge.' In their chapter, 'Power, Knowledge, and Digitalization: A Qualitative Research Agenda', they provide a qualitative theorization of power, knowledge and digitalization. The authors explain that 'scholars emphasize that science needs theory and explanations not data . . . particularly for studying complex social phenomenon and hidden factors, where it is important to understand behaviours, actions, processes and the effects of power which are not directly observable'. They question: 'What is unique about human knowing which cannot be replaced or replicated by intelligent machines? What are the impacts of intelligent machines on organizational learning, knowing and power? How might power dynamics influence digitalization and knowledge sharing and vice versa?' The chapter develops a power-knowledge-digitalization framework to theorize the different forms of power, the role of technology, digitalization, and knowledge and their dynamics. The theorized framework includes the quadrants: power as possession; power as asymmetries; power as empowerment; and power as practice. The role of technology and digitalization is theorized within these quadrants and a research agenda for qualitative research is outlined.

Following on from this consideration of power, in Chapter 6, Boyka Simeonova and M. N. Ravishankar describe how the development of new digital technologies, such as intelligent machines and learning algorithms, has had negative as well as positive impacts at societal, organizational and individual levels. They note the contrasting experiences and outcomes with these technologies that may arise from, inter alia, fault lines of power. The chapter is titled 'Information Technology and Power'. In the chapter, Simeonova and Ravishankar theorize that power mechanisms have an important role in the digitalization context and develop a power-IT framework outlining the different power mechanisms. The framework can guide IT implementation and utilization with the associated power mechanisms and their fault lines.

But what of the methods we might employ in undertaking research that takes into account the above issues and topics? Having set something of a foundation by raising some of the philosophical, epistemological and theoretical considerations that might inform our consideration of the subject matter, we go on, in Part II of the handbook, to consider a range of qualitative research methods that might appropriately be employed when considering digitalization phenomena and their impacts.

1.5 Research Methods

We begin Part II of the handbook with Chapter 7 by Hameed Chughtai and Michael Myers, titled, 'Human Values in a Digital-First World: The Implications for Qualitative Research'. The question of human values is key not only because they are 'always inscribed into our apps and devices (whether intentionally or unintentionally)', but they are 'also inscribed into our research methods'. The authors reiterate that human values 'include ethical, moral, cultural, political, aesthetics and social values . . . [and] are attached to things, technologies and places, as well as [being] held by people'. Chapter 7 focuses on the implications for qualitative researchers by first considering how 'digital technologies impact human values in a digital society (and vice versa) . . . followed by a brief discussion of the current thinking and trends . . . [and concluding with the identification of a number of] implications and suggestions for integrating human values into qualitative research and IS research more generally'.

Chapter 8, by Hani Safadi, Marie-Claude Boudreau and Samer Faraj, is titled, 'One Picture to Study One Thousand Words: Visualization for Qualitative Research in the Age of Digitalization'. The authors note that, '[w]hile the availability of trace data and the advancement of computational methods . . . allow researchers to test new hypotheses and validate theories, the exploration and inductive understanding of social phenomena are more challenging and require new tools and apparatus'. Noting that this is particularly so 'when questions are not well defined and data are unstructured', they question whether quantification and computing is as appropriate as is often thought. They go on to argue: 'Researchers trained in the qualitative tradition are familiar with the difficulties, challenges and efforts involved in gaining a deep understanding of qualitative data . . . These challenges are only exacerbated when analyzing trace data in digitalized contexts such as in social media and virtual worlds'. Noting the advances made in qualitative methods over the years, particularly in the Information Systems field, Safadi and colleagues argue for further advances in this day and age 'by creating tools to investigate digital traces of digital phenomena'. Focusing on large-scale textual data sets, they illustrate how 'interactive visualization can be used to augment qualitative researchers' capabilities to theorize from trace data . . . and show how tasks enabled by visualization systems can be synergistically integrated with the qualitative research process'.

Chapter 9 introduces the concept of 'hybrid ethnographic' approaches to researching digital phenomena. Titled, 'Demystifying the Digital: A Case for Hybrid Ethnography in IS', the chapter is authored by Nicola Ens, Mari-Klara Stein and Tina Blegind Jensen. The authors, following Hine (2017), note that to 'understand . . . digitally mediated worlds . . . research designs which draw on multiple sources of digital and non-digital data present great opportunity'. In questioning how IS researchers might 'capture the ongoing sociotechnical entanglements that occur in . . . online and offline spaces', they present a research approach based on the hybrid concept, with researchers immersing themselves in the field in line with prior ethnographic studies (cf. Van Maanen, 2011). What is being recommended is thus not a radical departure from what has come before, but it does present what is argued to be a more balanced approach to ethnographic research whether related to online or offline working environments – thereby mirroring the realities of much of today's working life.

In Chapter 10, 'Case Study Research Revisited', Boyka Simeonova and Guy Fitzgerald reflect on the case studies research method, particularly in the field of Information Systems. Focusing on the interpretivist case study method, the authors consider the benefits and the common critiques of case study research. Following a reprise of illustrative cases, they provide recent examples of the case study method utilization and examples of different case studies that utilize digital trace data. The chapter concludes by reintroducing the notion of mixed-method and multi-method research that can usefully utilize the case studies research, digital trace data and different qualitative or quantitative methods, 'advocating this as a powerful way of making balanced contributions to the discipline' (Mingers, 2001).

Chapter 11, by Alex Wilson, Josh Morton and Boyka Simeonova, provides 'Social Media

Qualitative Research Vignettes'. Referring to McKenna et al. (2017), the chapter explains that qualitative studies using social media are limited, and 'that qualitative methodologies for research using social media have not yet been established, which creates a significant barrier to using social media in qualitative research', which provides a considerable agenda for qualitative researchers to interpret data and research designs. The chapter also considers the question of 'how' social media is used for qualitative research and 'what' social media helps qualitative researchers to understand. It provides social media vignettes that help to demonstrate the opportunities and challenges at different levels of analysis.

With regard to strategic considerations and action research, Joe McDonagh, David Coghlan and Paul Coughlan focus 'on the theory and practice of action research as a Mode 2 approach [cf. Starkey and Madon, 2001] to knowledge production' as managers co-inquire into the practice of strategizing (cf. Galliers, 2011). In Chapter 12, 'Co-Inquiring in a Digital Age: Enhancing the Practice of Strategy Work in Government Organizations through Action Research', McDonagh and colleagues base their argument on the premise that 'good practice informs research and good research informs practice'. They 'pay particular attention to the action researcher … and explore both the case for and process of inquiring together into the practice of strategizing' (cf. Whittington, 2014). In this light, they discuss 'the practice of action research, enhancing the practice of strategy and the outcomes of co-inquiry … [concluding] by reaffirming the central role of action research in knowledge production and emphasizing how the practice of action research is … transformed by enabling digital technologies'.

1.6 Illustrative Examples and Emergent Issues

Part III of this handbook builds on the theoretical foundations introduced in Part I and the methodological considerations outlined in Part II. Chapter 13, titled, 'Observing Artifacts: How Drawing Distinctions Creates Agency and Identity', by Sven-Volker Rehm, Lakshmi Goel and Iris Junglas, raises questions and offers new perspectives for qualitative empirical research in the field of Information Systems (IS). They argue that: 'As technologies become increasingly complex, malleable and continuously co-created by users and software engineers, they test the limits of our observability [thereby raising] major concerns' for the qualitative IS research community. They suggest 'abandoning the traditional concept of identity in lieu of the concept of distinctions … achieved through the Laws of Form notation … [and adopting] a more emancipated and self-reflective perspective … that better mirror[s] emergent, evolving, or transformative processes … [questioning the very notion of] what "IT artifacts" mean to us'.

Chapter 14 is authored by Wendy Günther, Mark Thompson, Mayur Joshi and Stavros Polykarpou and is titled, 'Algorithms as Co-Researchers: Exploring Meaning and Bias in Qualitative Research'. Their contribution begins by noting: 'Augmenting traditional qualitative methods with advanced algorithmic tools … raises important epistemological and methodological questions for researchers'. Building on Jones (2016, 2019) – see also Chapter 3 – and in evaluating the use of algorithms, they consider that the 'qualitative researchers' reflexive relationship with the process of selecting, forming, processing and interpreting data is necessarily synthetic, or even creative', in that 'these activities inflect, and are in turn inflected by, the data themselves'. Using Jones (2019) as a foundation and noting the 'illusion' of the objectivity of data (analytics), Günther and colleagues investigate the fascinating notion of the 'reflexive dance'[3] – 'the inseparability of algorithms and the researchers who apply those algorithms in qualitative research', and extend the 'logic of epistemological relativity – hitherto applied in the context of studies *of* technologies – to the phenomenon of studies *with* technologies, where researchers employ algorithmic tools in undertaking their qualitative research' (emphasis in the original).

[3] With a nod perhaps to Cook and Brown (1999).

'Sensemaking about HRV Data of High-Performing Individuals: Crafting a Mixed-Methods Study' is the title of Chapter 15. Written by Stefan Klein, Stefan Schellhammer and Nathalie Mitev, the chapter reinforces earlier argumentation for pluralistic or mixed methods (Mingers, 2001) raised in Part II of this handbook. Their contribution is, to quote, 'an example of careful orchestrating and configuring the research process in order to validate, augment and complement [the] data'. The authors 'borrow and extend the notion of "crafting research" … [(Prasad, 2017), which] … includes configuring the different steps and components of the research, the equipment, the methods and the analysis approaches'. Engaging with interviewees is key in interpreting the data so that they become *co-producers of meaning*.

This point mirrors, to a certain extent at least, the views expressed by McDonagh and colleagues in Chapter 12. The chapter considers an action research case, which attempts to 'illuminate the practice of co-inquiry … [to enable the participants] to co-create and co-own the future'. Thus, this chapter adds to our discussion by demonstrating the contribution qualitative methods have – not only in validating and interpreting data, but also in ensuring that our research has practical *impact*.

Chapter 16 is titled, 'The Rich Facets of Digital Trace Data', and is written by Jonas Valbjørn Andersen and Philipp Hukal. In it, the authors aim to 'demonstrate how IS researchers can leverage the richness captured in the digital traces of social interactions within digital environments … an approach to qualitative computational analysis based on "faceting" of digital trace data'. They describe 'three "facets" inherent to digital trace data', namely, 'social structures (relational facet), sequences (processual facet) and meaning (semantic facet)'. Utilizing these as a basis for their qualitative research, the authors demonstrate the richness of the analysis and of the digital trace data themselves. They argue that: 'Recognizing these rich facets of digital trace data … offers a methodological vocabulary for the generation of research questions that working with digital trace data is well suited to answer'.

In Chapter 17, Gongtai Wang, Andrew Burton-Jones and Saeed Akhlaghpour introduce the concept of 'datafication momentum'. The chapter is titled, 'Balancing the Momentum of Datafication with Qualitative Researchers as Design Thinkers'. Echoing the kinds of concerns raised in Part I of this handbook in particular, Wang and colleagues highlight the potential 'dark side' of datafication systems and call on qualitative researchers to combat the risk of such downsides with the attitudes of the designers. More specifically and by referring to the history of IT in addition, they recommend '"datafication momentum" as a concept referring to the tendency of datafication systems … to receive more influence from social systems in their young stage and exert more influence on social systems in their mature stage'. They note: 'This concept highlights that datafication systems are never neutral, but are always subject to potential biases and constraints'. They introduce three social forces driving datafication – expertise, pragmatics and cognitive – in parallel with technical forces, thereby reinforcing the need for qualitative perspectives to be taken. The '*expertise force* refers to the higher influence of people with credible and authentic research and work experience, skills, knowledge and education backgrounds … *pragmatics force* refers to the tendency that people … make design decisions with an emphasis on practical efficiency and effectiveness … *cognition force* refers to [the view that] data and data structures that fit with established cognitive patterns [are] more likely to be accepted than those that do not'. Implications for both research and practice are highlighted in their reflections on the concept they develop.

Chapter 18 is titled, 'What Data Sharing in Government Tells Us about the Digitalization of Government Services: Lessons from the UK Digital Economy Act', and is authored by Edgar A. Whitley. In it, Whitley reflects on his experiences in working with the UK government's recent activities that are aimed at improving data sharing across government departments, in particular, concerning activities associated with the 2017 Digital Economy Act. Data sharing across departments (whether in intra- or inter-organizational contexts) is complex and fraught with difficulties, as noted, for example, by Marabelli and Newell (2012).

While echoing some of the issues raised by McDonagh and colleagues in Chapter 12 – particularly those concerning the uniqueness of particular contexts – he argues that '[a]ssessing both the successful and less successful results of these activities from a qualitative perspective [can lead to] a better understanding of the state of digitalization [not only] in the UK government', but globally, since governments around the world 'are among the largest creators and collectors of data about their citizens, often holding the definitive records . . . in data centres associated with different functional areas of government bureaucracy'. In reflecting on his work, he provides useful guidance as to the use of qualitative methods in the digital age not just in organizations, but also across organizations, not just in the commercial sphere, but also in the public sector, and not just organizationally, but also societally.

1.7 Conclusion

As noted in the Preface, this handbook is an attempt not just to raise concerns about the potential over-reliance on data analytics in the age of digitalization, but also to present means by which the qualitative researcher may add value in working *with* data scientists in interpreting the results of their analysis and confirming once again the importance of qualitative approaches in Information Systems research. In many ways, the handbook can be seen as a foundation for ongoing research concerning the many key concerns that society faces in the digital age. Key implications are raised – not least for the new generations of IS academics (cf. Galliers and Huang, 2012) working within and between the relevant academies and with and for those in the world of practice.

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