SOME ELEMENTS TO
A THEORY OF DIGITAL MANAGEMENT

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Abstract

Is digital management something else than general management? In this paper we propose that it is, both theoretically and in practice. To develop our argument, we suggest a framework for understanding the particular aspects and challenges of digital management. Our research questions are, (i) how can we conceptualize digital management, and (ii) how do managers conduct digital management?

In order to assess our framework, we conducted in-depth interviews with 13 carefully selected top managers from the public sector, who all had a visible profile in digitalization. We contribute to the digitalization research with a precise definition of digital management, and a more detailed understanding of the implications for managers. Further, we identify and discuss a managerial shift, from an organization-oriented view of digital management to an ecosystem perspective.

Keywords: Digital management, interviews, top managers, theory

1. Introduction

The relationship between managers and technology is a persistent topic in IS research. In 1958 Leavitt and Whistler predicted that IT in the future would lead to the flattening of organisations, and that top managers would become active planners and users of technology (Leavitt, H. and Whistler, T.L 1958). In 1988 Applegate et al. reviewed their forecast and found the vision to be quite relevant. They also offered their own predictions, such as widespread use of executive management systems and artificial intelligence, and argued, "future managers must be much more actively involved in directing technology and managing its influence on organizations" (Applegate, L.M., Cash, J., and Quinn Mills, D. 1988) (p.136).

In hindsight, it is reasonable to say that these predictions overstated the top managers' engagement with IT. What is new, 60 years after the first article and 30 years after the second? The answer, we believe, is that digitalisation challenges managers in both the private and the public sectors, in several new ways. At a macro level, digitalization leads managers to reconsider business models and their firm's position in the industry ecosystem (Bharadwaj et al. 2013). At a meso level, digitalization changes work processes and organizational structures, challenging divisions of labour and established reporting arrangements (Lacity and Willcocks 2016). At a micro level, digitalization changes the nature of work, necessitates new capabilities and skills, leading managers to initiate training programs and to recruit personnel with new competencies (Yeow, Soh, and Hansen 2017).

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Since digitalisation encompasses the whole organisation it cannot be relegated to the IT department, as IT matters traditionally were. It is hard to overstate the significance of this shift, because most organisations have had an IT department at least since the 1980s. During the last 30 years, there has been a well-established division of labour between the organisation and the IT department, where the organisation requires IT solutions, and the IT department delivers them. This is no more; it is clear that neither the IT department, nor the CIO, can "fix" digitalisation. Some organisations have tried to deal with the challenge by establishing a new top manager, a Chief Digital Officer to lead the digitalisation effort (Tumbas, Berente, and vom Brocke 2017), but it is clear that this can only a part of the answer (Andersson et al. 2018).

It is now common wisdom that digitalisation is the responsibility of all managers at all levels and in all parts of the business (Andersson et al. 2018). The strength of digital technologies does not lie in the technologies individually. Instead, it stems from how managers integrate them to transform their business and how they work (Kane et al. 2015).

In a seminal article on digitalization El Sawy et al. suggested six building blocks of strategy and organisation, addressing the digital context (El Sawy et al. 2016):
- A different kind of business strategy: from separate business and IT strategies to digital business strategy.
- Different kinds of business models, often bringing together digital and physical elements.
- A different kind of enterprise platform integration, connecting internal and external resources.
- A different kind of people mindset and skill set: more willing to experiment (and fail).
- A different kind of corporate IT function: rethinking the relationship of the CIO and the organisation.
- A different kind of workplace: catering the "born digital".

What does this mean in practice for managers? We subscribe to El Sawy et al.'s analysis, which highlights the dramatic shifts that digitalisation entails for most organization and for managers at all levels. We also think that the strategic agenda, with some exceptions and amendments, is much the same in the public sector. However, while it identifies the strategic issues, we know much less about how managers integrate these new insights into their managerial practices. Our research questions are, (i) *how can we conceptualize digital management, and (ii) how do managers conduct digital management?*

To build our argument we suggest a simple framework, which deals with the task of managing digital resources, compared to other key resources such as people and money. Our empirical evidence, thirteen in-depth interviews with top managers, was carefully analysed, providing us with insights on a significant managerial shift, which we use to assess our proposed theory.

2. Related research

Sixty years ago, Leavitt and Whistler provided a first attempt to understand the relationship between information technology and management in their seminal article 'Management in the 1980's'(Leavitt, H. and Whistler, T.L 1958). The authors forecasted that IT would reduce the number of middle managers, that the job of those remaining would become increasingly structured and programmed, and that top-level managers would be more involved in creative activities, such as innovating and planning. They envisioned that the processing power of IT would help managers analyse data more rapidly and make better decisions. 30 years later, Applegate and colleagues (Applegate, L.M., Cash, J., and Quinn Mills, D. 1988) made a similar prediction about what corporate life would look like. Following the early ideas of Leavitt and Whistler, they argued that computers would make managers more effective, enabling them to monitor and control large, geographically dispersed and complex organizations. IT would change information and communication flows and managers would thus be less insulated from operations. None of these influential contributions, however, dealt with how managers should manage digital resources and its implications for management.

Since then, research on IT management has become rich, but addresses mainly the traditional role of the IT department and its relation to the business (Luftman et al. 2015). A more recent literature focuses on digital strategy, competitive advantage and digital business models and capabilities (El Sawy et al. 2016). A key point is that organisations need to define their digital vision, and leaders must translate that vision into a set of targets that drive it success (Sousa and Rocha 2019). There is also a growing literature on digital entrepreneurship (Davidson and Vaast 2010).

In contrast, the literature on operative digital management is relatively sparse, although some contributions can be identified. In the 1990s, a body of research named *organizational informatics* (Kling 1999) repeatedly found that incentives matter when it comes to introducing digital technologies, and more importantly, getting employees to use them. These researchers argued that people need good reasons to change their organizational practices, and that they need time and training to make those changes. It was also the manager's responsibility to establish the 'supporting infrastructure'; key support staff and access to technical and social skills set.

In 2004, Lynne Marcus coined the term *technochange*, and envisaged a management practice, technochange management, for using digital technology to drive organizational change (Markus 2004). Markus argued, "merely combining IT project management and organizational change management approaches does not produce the best results" (p.4). Instead, she proposed an iterative, incremental approach to implement technochange, where each phase involves both new IT functionality and related organizational changes, such as redesigned business processes and skills. Technochange does not just happen; managers must deliberately use digital technologies to drive organizational change. Therefore, success with digitalization is less about technology deployment than it is about managing the organizational change that accompanies its deployment. Consequently, it was advocated that that managers should take a strong leadership role in managing digital technologies (Rockart 1988). However, it is still unclear what digital management mean, and more crucially, what is actually being managed.

One recent and interesting contribution is a proposed theory of the *actor-oriented organization* (Snow, Fjeldstad, and Langer 2017)*,* where hierarchy is being replaced by radically new ways of organizing, enabled by digital technologies. *In Designing the Digital Organization* the digitally enabled organizational form is characterized by three elements; (i) actors perform work activities by self-organization (ii) the availability of shared resources to support the work and (iii) infrastructures that connect the actors, and processes and protocols that encourage good behaviour and co-operation (Snow, Fjeldstad, and Langer 2017).

What will be the key managerial tasks in such organizations? The key implication is that digital management is not what the IT manager does, but rather that all managers should conduct digital management (Peppard 2018).

3. Framework

According to a synthesis of management research successful managers conduct four key activities; they plan what should be done, they organize the work, they lead and motivate, and they follow up the results(Bateman and Snell 1996). To do this they have traditionally control of two types of resources, people and money. People are managed though setting goals, planning activities and projects, leading and motivating, and following up the results. Money is managed through budgeting, delegation of income and costs, and through accounting and audit.

Our suggested theory is based on the premise that these two resources are necessary, but not sufficient, to manage digitalization. Digital technology is not a tool, but should be regarded as a particular resource, in line with people and money. Researchers, such as Brynjolfsson and McAfee, have described the particulars of digital technology; it is exponential, digital, and combinatorial (Brynjolfsson E, and McAfee A 2014). In the same line, Kallinikos has described its key characteristics as editability, interactivity, openness and

distributedness (2013). Building on this research, we suggest four unique features to characterise digital resources from a managerial perspective:

- It is a *global* resource, independent of location (Yoo 2012). It takes only a few milliseconds to connect an app in Europe to a database in California, as millions of users do every day.

- It is a *general* resource, in the sense that data can be used for many other purposes than they were collected for. Big data and analytics are prime examples (Davenport 2018).

- It is a *generative* resource, as they lead to more innovation through recombination (Brynjolfsson E, and McAfee A 2014) (Henfridsson et al. 2018). The more digital resources we can combine, the more services we can produce.

- It is a *generous* resource, in the sense that data and software can be reused with almost no cost. This challenges traditional economic thinking of scarce goods and economies of scale (Svahn, Mathiassen, and Lindgren 2017).

We will briefly describe the implications for management, illustrated in Table 1. Obviously, managers are not expected to become techies, so it is important that digital resources are conceptualised and managed at the right level.

To plan digital resources means overseeing the technological progress, looking for new possibilities, and consider further initiatives. For instance, should the organization establish a platform in order to become a centre of an ecosystem, or should it connect to larger ecosystems? Orchestration is about interplay between several actors, often without a formal leader. Different from planning projects and budgets, orchestration is an on-going activity, including the tuning of ecosystems (Eaton et al. 2015).

Organizing digital resources involves establishing and resourcing digitalization efforts and infrastructures. Internally, in an ecosystem context, this usually means to develop a sound digital architecture, and leverage the interplay of platforms and complements. Externally, it means to engage in the development of larger structures, such as digital ecosystems, in co-operation with other private and non-private organizations. Structuring and co-ordinating digital resources is a continuous task for managers.

To lead digital resources means engaging in benefits management (Terlizzi, A.M, Albertin, A-L., and de Moraes, H.R. 2017) including managing organizational change and developing new competencies and skills. It also means to stimulate and visualize. Managers have a decisive role in leveraging how information from various sources can be visualized in decision-making situations, and used to develop a data-driven organization. For instance, in a digitalized hospital, patient flow can be visualized on electronic boards, in order to support both clinicians and patients in their needs, and the top management group would use visualized decision support in their meetings (Bygstad and Bergquist 2018).

Finally, following-up digital resources means to check that objectives are reached, and make running adjustments. For short-terms goals, a data-driven organization uses production data, i.e. the number of cases or complaints, patient flow, or web site visits, in order to make improvements. For long-term goals, the organization will use more advanced data analytics and big data to understand patterns in economy, productivity and customer satisfaction. This will be based on both internal and external data (Davenport 2018). In more developed ecosystems, leaders will identify and exploit network effects, i.e. to attracts more users and partners through growth.

	Management activity			
Resource	Plan	Organize	Lead	Follow-up
People	Setting goals	Plan activities and projects	Motivate	Check results
Money	Budget	Delegate	Show responsibility	Accounting and auditing
Digital	Oversee technological progress, position and orchestrate	Establish governance, build digital architecture and eco-systems	Manage change, stimulate use, visualize	Surveil, exploit network effects

Table 1 Managing resources

Dealing with these digital managerial activities requires competence; knowledge of the key technologies and their ecosystems, and a deep understanding of how they enable organizational innovation and new business models. This competence is dynamic and changing; Sheninger proposed *seven pillars for digital leadership;* of these, the first three pillars are focused on learning (Sheninger, E. 2019). The key point is that managerial digital competence is a learning process, because the field evolves so quickly; each year new technologies emerge, ecosystems change strategies and new actors enter center stage. No doubt, it will be quite demanding for many managers to position and exploit their digital resources in this arena.

A related characteristic of digital management is that it requires high speed in decisions and follow-up. This makes digital management a continuous task. As both Whistler and Leavitt (Leavitt, H. and Whistler, T.L 1958) and Applegate et al. (Applegate, L.M., Cash, J., and Quinn Mills, D. 1988) predicted, the availability of real-time production data (and other data) requires a continuous sense- and respond mode of management.

Summing-up our framework we suggest the following definition of digital management; it is the competent management of digital resources for business purposes, including the planning, organizing, leading and following-up. We also observe that digital management is quite demanding, both in terms of technology insight, ability to integrate business and technology dynamics, and the speed with which this happens. To assess the framework, we conducted an in-depth study of how a selected sample of digitally mature top managers executes these tasks.

4. Method

Since this is an explorative study we chose a qualitative approach (Yin 2003). This approach focuses on depth and precision in data analysis. It aims for analytical generalization (i.e. theory development), and not statistical generalization.

4.1 Data collection

The respondents were selected in two steps. We first selected 13 heavily digitalized organizations from the public sector of Norway, as shown in Table 2.

Nr.	Organisation	Type of organisation	Informant
1	Directorate for e-health	Digital	CEO
2	National Archive of Norway	Digital	CEO
3	Norwegian State Educational Loan Fund	Digital	CEO
4	Norwegian Mapping Authority	Digital	Director
5	The Brønnøysund Register Centre	Digital	CEO
6	University of Oslo	Education	Dean
7	University of Oslo	Education	Dean
8	South-Eastern Norway Regional Health Authority	Health care	Director
9	University of Bergen	Education	Director
10	Directorate of Fisheries	Directorate	Director
11	Bergen Municipality	Municipality	Director
12	Directorate of Financial Management	Directorate	Director
13	Oslo municipality	Municipality	CFO

Table 2 Informants

The informants were interviewed in a semi-structured technique, using an interview guide. The interview guide built on the framework (as presented in section 3); we asked the managers to describe how they planned, organized, led and followed-up the digital initiatives. We asked follow-up questions and asked for practical examples. The interviews were taped, and documented.

4.2 Data analysis

Following Miles and Huberman (Miles and Huberman 1994) in conducting qualitative analysis, we first analysed the interviews on the four managerial criteria from our resource framework. Then we conducted a comprehensive analysis of each interview, aiming to identify how the managers dealt with the digital resources. This resulted in six key findings, i.e. six new managerial practices, which we describe in the form *from x to y*.

5. Findings

Our analysis revealed that most of the managers were in the process of a managerial shift from traditional IT practices to new digital practices. We identified six such shifts, which we describe in detail below.

The managers were in different stages of these shifts; some were just beginning to reflect on the issues, some were in transition, while others had institutionalised the new practices within the whole organization.

5.1 From strategy to continuous development

From the strategy field we are used to think in terms of future aim, with a time horizon of 3-5 years. Then we choose the means to get there, such as projects and programs.

Our material shows that the most mature digital managers think differently, and focus less on strategy and more on continuous development. This way of thinking is inspired from the Internet companies such as Google and Netflix, and is based on the premise that the organization has a digital infrastructure in production, which is extended with new products and services, responding to customer demands and to new digital options. This shift is deeply significant, because it changes our conceptions of planning. One of our informant leaders said:

> "My job is to be a change agent, and focus on leveraging the digital resources. We must be prepared to change both our organization and our solutions."

Another informant commented:

> "We do have a strategy, but our focus is on continuous innovation of services. I am particularly focused on exploiting windows of opportunity when they open."

Another informant argued,

> "…our job is to digitalise *in spite of* the existing technical and organisational structures. Continuous and agile development requires that we cannot wait for the old structures to change; rather we must build new structures on top of the old ones. Our municipality has 50 different units, but our citizens cannot relate to these silos; they live their lives horizontally, so we build horizontal solutions, catering to the needs of the individual".

Digital managers do not stay away once a plan has been made. They are constantly following technological advancement, considering new options, and engage in daily decisions on digital matters.

5.2 From optimization to reconceptualization

For most managers in the public sector, digitalization has traditionally aimed at optimizing the work processes. But sometimes this leads to *paving cow paths*, (Hammer and Champy 1993) i.e. digitalizing a process that should be rethought or abandoned. One of our informants, a top manager from a university, commented:

> "We tend to think that the big changes will come in the organization and the processes, but this is not where the change takes place, it is in the domain!"

Our informant from the National Archives of Norway points out that the digitalization affects the basic conditions of the organization.

> "Paper documents becoming data, not only gives more efficient processes and opportunities for new applications and services. It also changes the relationships and interactions between the established players across the ecosystem, and perhaps across entire domains."

When domains and scientific field are digitalized, content is changed. For instance, biologists increasingly work with mathematical models, requiring programming skills, redefining the discipline. Another example: The automatic personal tax statement in the Nordic countries transferred the responsibility for collecting information from the taxpayer to the tax authorities (who collected the data from banks, employers etc). More examples: 3D printing may lead to less organ donation in medicine; the EU PSD2 directive makes it possible for digital media companies to provide bank services.

5.3 From customer/vendor relationship to cross-disciplinary partnership

For public organizations, a mantra has been to develop a professional practice of procurement, enabling the market to compete on the best solutions. This model works well with simple procurements, such as buying 1000 office chairs. However, the complexities of digital solutions mean that formal procurement processes may result in the wrong solution (Edquist, C. and Zabala-Iturriagagoitia, J.M 2012).

The digital managers argue that digitalization require a much more relational approach, where the customer and vendor develop a cross-disciplinary co-operation and learning, and develop good solutions over time – of course within the legal and regulatory frameworks. One of our informants said:

> "We establish product teams with both our personnel and vendor specialists. They work together in a fully integrated process – although there is no doubt where the formal authority rests".

Digital managers engage actively in organizing and coordinating digitalization efforts.

5.4 From IT silos to platform ecosystems

User-friendly solutions have been a central requirement in the public sector digitalization. We often say that we should satisfy user needs, but this may be too simplistic. Historically, user-driven development has led to many *silo systems*, i.e. solutions tailor-made for specific user groups. Such systems are fine for the users individually, but become barriers for innovation, interactions and simplification. The best public organizations therefore develop platforms. Public platforms are basic registers for large amounts of data, and provide APIs for developers of user services. The CEO of the central register agency of Norway explained:

> "The most important feature of our solutions is that they connect various actors in an interplay. Our trust platform is used for tax and salaries, but also to support private services. We observe that the ecosystem is growing, first within Norway, but also for other Nordic countries, such as the Finnish Bureau of Statistics. We expect the same development within the whole EU."

In their book *Platform Revolution* (2016) Parker, van Alstyne and Choudary (Parker, Van Alstyne, and Choudary 2016) write that every organization should assess whether it has the resources to establish a platform for an ecosystem, or if it should connect to other ecosystems. The same logic may apply for public organizations. Digital managers consider how their organization can be part of a wider ecosystem, and their role in such systems.

5.5 From PowerPoint to dashboards

There is nothing wrong with PowerPoint presentations, but the digital manager asks for something more, current data on the performance of the organization. Most public organizations produce large amounts of data every day, as expressed by the CEO of the Map Authority:

> "Data from our production systems continuously informs me and my executive group how we perform, in order to move the organization in the right direction".

Another informant pointed out, representing the Norwegian State Educational Loan Fund.

> "Our organization has become clearly more data-driven. In my management team, we now continuously follow a number of indicators of our production. Analysis of production data is the foundation for management decisions, regarding for example customer satisfaction, the uptake and success of new services, and how campaigns work."

One informant showed us his laptop.

> "In our municipality we have problems with the building industry not being compliant with regulations and permits. In this dashboard I have a real-time overview of all the municipal building projects. I can follow the number of reported deviances, such as unregistered workers, health incidences and so forth."

The director had a similar dashboard for traffic and environmental data, such as air quality at different locations in the city. Digital managers are utilizing real time data to make decision and to follow up business performance and development.

6. From internal benefits realization to position in ecosystems

It is reasonable to expect that IT investments should save costs and increase benefits, and managers are expected to harvest the benefits through systematic realisation (Terlizzi, A.M, Albertin, A-L., and de Moraes, H.R. 2017).

However, the digital managers focus differently. Benefits realisation implies to look inward in the organisation, while the ecosystem deals with the interplay with other organizations. Many tasks can be solved better in a co-operating ecosystem, rather that developing solutions locally. For instance, many organisations have customer registers with poor data quality. How should this be addressed? The old way is to invest in new systems and routines, and then struggle to justify and retrieve the money spent. The new way is to ask, which organisations already have this information, and then initiate co-operative solutions. This example may be trivial, but the same logic applies for many advanced solutions.

> The CEO of the National Archive commented: "We aim for a clear role in the ecosystem, we are the national memory of information. Linking our data with other data sources will be crucial for producing future services".

6. Discussion

Returning to our research question, (i) how can we conceptualize digital management, and (ii) how do managers conduct digital management?

In our approach we have focused on management, not strategy. One reason is that the strategic implications of digitalisation have been much more researched than the managerial. But there is another salient point, which is that the planning horizon has become shorter. The digital scene is consistently turbulent, with new technologies and business models continuously changing. Building on the "strategy-as-practice" turn in research, some researchers (Sheninger, E. 2019) have argued that this blurs the differences between strategy and management. This requires that top managers engage in daily decisions on digital issues.

6.1 Digital resources

We believe that our findings strengthen our conceptualization of digital resources as a key managerial asset. The most advanced top managers are focused on continuous development and a systematic orchestration of digital resources. Thus, the digital manager, as we have portrayed her or him in our empirical section, has a different focus than the traditional manager.

We build on and contribute to Snow et al.'s (Snow, Fjeldstad, and Langer 2017) theory of the digital organisation. This new organisational form is characterised by (i) actors who have the capabilities to self-organize (ii) the availability of shared resources ("commons") to support the work and (iii) infrastructures, processes and protocols that connect the actors, and encourage good behaviour and co-operation.

In this type of organization, the key task of the managers is no longer to plan and direct the actions of the employees, but to ensure that the necessary resources are available. Most of these resources are digital; for instance, Snow et al. (Snow, Fjeldstad, and Langer 2017) described how the key digital resources support *shared situation awareness*. This refers to knowing what goes on in the organization, in order to take the right action. Production data are excellent for this purpose. For example, a clinician at a hospital can be updated by visual displays of the patient flow; how many patients wait in the emergency unit, how many doctors will be available during the next hour. Based on this kind of information the clinician may want to change priorities or decide to call in more help. The key point is that with the right orchestration of digital resources the competent employee is empowered to take quick and adequate decisions. The job of the top management is to conduct the orchestration.

Snow at al. also focused on the crucial role of infrastructure, processes and protocols. Infrastructures connect the actors, and enable the interplay of various digital resources (Snow, Fjeldstad, and Langer 2017).

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Self-organised actors use protocols ("codes of conduct") to co-ordinate the processes. Well-known examples are project management tools which deals with division of labour and co-ordinates tasks and people. It may be self-evident that these are digital resources; they are the ensembles of hardware, algorithms and data that increasingly run our economy.

6.2 A management shift

During the past decade, research has investigated how digitalization transforms organisations. Researchers such as Horlacher et al. (Horlacher, Klarner, and Hess 2016) have argued that digital transformation goes beyond merely digitizing resources, and involves the transformation of key business operations, products, and processes, culminating in revised or entirely new business models.

Our finding of six managerial shifts illustrates this transformation. These shifts are all enabled by digital resources, i.e. managers leverage the power of digital technologies to increase the performance of the organization. For instance, the automatic tax return (replacing a manual and individual one) of the Norwegian authorities in 2006 was due to three top managers' reconceptualising the tax revenue process (Bygstad, B. and deSilva, F. 2015).

Competent managers can do this for two reasons; first they have a profound understanding of the digital resources. Such knowledge includes an understanding of digital architectures, and the actors and forces of the larger ecosystems. Second, they have the necessary knowledge to know how to orchestrate these resources, including the awareness of network effects of digital platforms (Parker, Van Alstyne, and Choudary 2016).

As El Sawy et al. (El Sawy et al. 2016) pointed out, digitalization requires a different mind-set. This has deep implications for managerial practices. As our six managerial shifts illustrate, digitalization is about continuous development, where innovations lead to new innovations. Further, digital managers have the courage to trust their employees to take the right decisions, provided they have the necessary information.

Summing-up, we contribute to the digitalization research with a precise definition of digital management, and a more detailed understanding of the implications for managers. Further, we identify and discuss a managerial shift, from an organization-oriented view of digital management to an ecosystem perspective.

6.3 Limitations

We have called this contribution "Some elements to a theory of digital management". In doing so we acknowledge that it is exploratory work, which needs more elements and careful assessment.

In this study we focused on top managers in the public sector, which may limit the external validity of our findings. Arguably, there are many differences between private and public sector, but the digitalisation issues may be more similar than is often assumed. One of our informants had previous experience as a top manager of a private media (and platform) corporation. He commented, "the challenges are pretty similar. Seen from my point of view the biggest differences are between small agile organisations versus large and hierarchical."

Further research could replicate our study of public top managers in the private sector. This would assess the framework further, and should also shed more light on the presented managerial shift.

7. Conclusion

This paper proposed some elements to a theory of digital management. Digital management is different from IT management, which is basically to manage the IT department. Digital management, in contrast, is the responsibility of all managers to competently deal with the digital resources for business purposes.

We propose some elements to a theory of managing digital resources, i.e. to plan, organise, lead and follow-up the digital resources, by leveraging the unique features and dynamics of these resources. The theory was assessed through a qualitative study where we conducted in-depth interviews with 13 top managers in the public sector. Our empirical evidence revealed a significant shift from traditional managerial practices to digital management. These practices are characterised by continuous development and a systematic orchestration of digital resources.

Further research on digital management could contribute to the more general knowledge about what managers do. Mintzberg, for example, argued that managers work as they always have; that there is stability and timelessness in managerial behaviour (Mintzberg, H., n.d.)(Mintzberg, H. 1973). Other researchers, for example Tengblad, (Tengblad, S. 2006), claim that managerial work is shifting. How managers deal with digital resources is however not part of their theoretical generalizations.

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