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BPM Maturity and Digital Leadership: An exploratory study

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INTRODUCTION

The rapid progress of digital technologies (i.e. digitalization) affects organizations (Edmead, 2016; Van Veldhoven and Vanthienen, 2019). An organization that is prepared for digital development can benefit from several advantages. Productivity increase, quality of service, and more insights in the needs of customers are some examples. However, digitizing causes changes to the organization and its processes (Markovitch and Willmot, 2014). The management paradigm that is centered on the continuous review and improvement of organizational processes is Business Process Management (BPM). BPM Initiatives are not easy, as different studies reported failure rates of 60-80% of BPM projects (Trkman, 2010; Chen and Reyes, 2017). This represents a significant waste of organizational resources. Many organizations want to start BPM initiatives but do not know where to start and are afraid to get bogged down in operational details (Markovitch and Willmot, 2014). Although much research has been done into BPM success factors (e.g. Hernaus, Vuksic and Štemberger, 2016; Kohlbacher and Gruenwald, 2011; Ravesteyn and Batenburg, 2010; Trkman, 2010; Zelt, Recker, Schmiedel and Vom Brocke, 2019), the insights towards effective organizational change management activities required for successful BPM is minimal (Van Looy, 2015). A possible approach to gain success is to use a BPM maturity (BPMM) model which aims at giving organizations direction in improving process maturity (Tarhan, Turetken and Reijers, 2016; Van Looy, De Backer, Poels and Snoeck, 2013; Roeser and Kern, 2015). Where BPM is a management technique that focuses on managing the business processes of an organization (where business processes include all activities that are carried out to realize an output for a specific customer or market (Ravesteyn and Batenburg, 2010)), BPMM is a model that measures the maturity (or availability) of process management capabilities and variables to measure process performance (Ravesteyn and Batenburg, 2010). Digitization is an important predictor for process maturity, especially in Small and Medium Enterprises (Ongena and Ravesteyn, 2019) and similarly digital leadership plays an important role in digital transformation readiness (Ravesteijn and Ongena, 2019). In this study we address the relationship between these concepts and try to answer the following question: What is the relationship between BPM Maturity and Digital Leadership? If organizations start to digitize, chances are that processes will change. An organization must face several questions if they want to know how to deal with these digital and organizational changes. In this digital era, it may be needed to have digital leadership in organizations. However, currently it is not known which competences of digital leadership have an influence on the BPM Maturity of an organization.

In the next section we describe the theoretical background of this study. After that, the research method will be explained followed by a discussion of the findings and subsequently the conclusion and recommendations.

THEORETICAL BACKGROUND

Digital leadership and competences

Nowadays, organizations struggle to keep up with digital developments (Deloitte, 2017). Also, leadership is constantly developing, especially with the rapid development of current digital trends (Sheninger, 2019; Goethals, Sorenson and MacGregor Burns, 2004). Management of non-technical aspects of digital transformation need more attention (Van Looy, 2015; Alter and Recker,

2017). An important non-technical concept is the willingness of users to accept and adopt digital transformation(s). If users are directly involved it increases their buy-in and reduces resistance to change (Vom Brocke et al, 2014; De Waal and Batenburg, 2014). These developments create a gap between the current mode of leadership and the mode necessary towards the future. To keep up with new digital trends, the aspects of leadership must shift towards digital leadership (Legner

Table 1: Digital competences (Van Laar et al., 2017)

Competences	Definition
Technical	The skills to use (mobile) devices and applications to accomplish practical tasks and recognize specific online environment to navigate and maintain orientation.
Information management	The skills to use ICT to efficiently search, select, organize information to make informed decisions about the most suitable sources of information for a given task.
Communication	The skills to use ICT to transmit information to others, ensuring that the meaning is expressed effectively.
Collaboration	The skills to use ICT to develop a social network and work in a team to exchange information, negotiate agreements, and make decisions with mutual respect for each other towards achieving a common goal.
Creativity	The skills to use ICT to generate new or previously unknown ideas, or treat familiar ideas in a new way and transform such ideas into a product, service or process that is recognized as novel within a particular domain.
Critical thinking	The skills to use ICT to make informed judgements and choices about obtained information and communication using reflective reasoning and sufficient evidence to support the claims.
Problem solving	The skills to use ICT to cognitively process and understand a problem situation in combination with the active use of knowledge to find a solution to a problem.
Ethical awareness	The skills to behave in a socially responsible way, demonstrating awareness and knowledge of legal and ethical aspects when using ICT.
Cultural awareness	The skills to show cultural understanding and respect other cultures when using ICT.
Flexibility	The skills to adapt one's thinking, attitude or behavior to changing ICT environments
Self-direction	The skills to set goals for yourself and manage progression toward reaching those goals in order to assess your own progress when using ICT.
Lifelong learning	The skills to constantly explore new opportunities when using ICT that can be integrated into an environment to continually improve one's capabilities

et al, 2017; Sheninger, 2019). A report on the Global Human Capital Trends (Deloitte, 2017) shows that only five percent of respondents that participated in the research feel that they have strong digital leadership within their organizations. Nonetheless, 72 percent of the respondents indicated that they would engage in or start to develop a program concerning digital leadership. This raises the question, what exactly is digital leadership? Research by Deloitte (2017) has shown that there is no unambiguous definition of the term digital leadership. This lack of an unambiguous definition also causes different notions concerning digital competences. According to Van Laar et al. (2017) digital competences are essential for people and organizations to keep track of developments and innovations of processes and products. Capgemini (2018) defines digital competences as: '*The use of technology to change how the company interacts with customers, operates internal processes, or defines its business model*'. For this research, the definition of Capgemini (2018) is used. Extensive research by Van Laar et al. (2017) that included 75 articles, shows that the most mentioned digital competences are: Information management (n=31), Critical thinking (n=30), and Creativity (n=29). The other digital competences are: Problem solving, Collaboration, Communication, Technical, Self-direction, Lifelong learning, Ethical awareness, Cultural awareness, and Flexibility. In Table 1 the digital competences are described.

Business Process Management (Maturity)

Throughout the years several definitions of, and approaches to, BPM were developed. Usually the different definitions can be separated into two different variations (Rosemann and De Bruin, 2005). One variant focuses on IT, while the other concentrates on holistic management (Harmon, 2003). Frederick Winslow Taylor was the first to analyze a workflow with the intention to improve it, this was around 1880 (Taylor, 1911). After him, several other people took his concept and tried to improve on that (Best and Neuhauser, 2006; Johnson, 2002; Hammer, 1990; Hammer and Champy, 1993). In time, this resulted in two dominant approaches to process improvement (1) 'continuous quality improvement' also known as the Total Quality Management and (2) 'business process redesign'. The combination of these approaches are synthesized in BPM as we know it today (Elzinga, et al., 1995; Lee and Dale 1997; Zairi, 1997). BPM has often been qualified as the number one business priority (e.g. by a Gartner study, 2005), a study by Paulk, et al., (1993) showed that an increase in process performance of an organization is an outcome of improved BPM maturity.

To assist organizations in BPM governance, maturity models have been developed (Ravesteyn et al., 2012; Tarhan, Turetken and Reijers, 2016; Aversano, Grasso and Tortorella, 2016). Maturity models provide organizations with the possibility to evaluate organizational processes and identify opportunities for optimization. Important research on the foundation of BPM Maturity models is done by Rosemann, Bruin and Hueffner (2004) and Rosemann and Bruin (2005). They based their BPMM on the Capability Maturity Model Integration (CMMI) which is a concept that consists of five maturity levels, which are defined by cumulative requirements for software development (CMU/SEI, 2010). In Table 2 the maturity levels are described. Curtis and Alden (2006) added insights in business process improvement guided by maturity models and subsequently Tarhan, Turetken and Reijers, (2016) compared different BPM maturity models in a search for prescriptive models but found most to be descriptive.

Table 2: CMMI's maturity levels (Software Engineering Institute, 2010)

Maturity level	Description
0 - Incomplete	Ad hoc and unknown: Work may or may not get completed.
1 - Initial	Unpredictable and reactive: Work gets completed but is often delayed and over budget.
2 - Managed	Managed on the project level: Projects are planned, performed, measured, and controlled.
3 - Defined	Proactive, rather than reactive: Organization-wide standards provide guidance across projects, programs, and portfolios.
4 - Quantitatively Managed	Measured and controlled: Organization is data-driven with quantitative performance improvement objectives that are predictable and align to meet the needs of internal and external stakeholders.
5 - Optimizing	Stable and flexible: Organization is focused on continuous improvement and is built to pivot and respond to opportunity and change. The organization's stability provides a platform for agility and innovation

As mentioned, there are various models to measure the maturity of BPM (cf. Tarhan, Turetken and Reijers, 2016). For this explorative study, the BPM Maturity model of Ravesteyn et al. (2012) is used. This model, as is true for most BPMM models, measures BPM maturity along several dimensions that are based on CMMI. In 2010 the model of Ravesteyn was first used to establish the BPM maturity of organizations within the Netherlands (Ravesteyn et al., 2012). BPM Maturity is measured through 37 BPM capabilities, which are translated into questions (items) that measure 7 dimensions of process maturity (see Table 3).

Table 3: Dimensions of BPM Maturity (Ravesteyn et al., 2012)

Dimension	Description
Process awareness	Management realizes the importance of a process oriented organization and includes this in its strategy.
Process description	Processes and related information within the organization are identified and captured in process descriptions.
Process measurement	A system to measure and control processes is in place in order to be able to improve processes.
Process control	Process owners are assigned within the organization whom are "horizontally" responsible for managing processes.
Process improvement	The organization strives to continually improve processes and there is a system in place to enable this.
Process resources and knowledge	The organization has adequate resources (such as people with process knowledge) to create a "culture of process orientation".

Process IT Tools	The organization uses IT to design, simulate and execute processes, and to provide real-time measurement information (key performance indicators).

Since 2010, several benchmark studies are executed using this method both in the Netherlands as well as internationally (Ravesteyn et al., 2012; Janssen et al., 2015; Exalto-Sijbrands, Maris and Ravesteyn, 2016; De Waal, Valladares and Ravesteyn, 2017).

The relationship between digital leadership and BPM maturity

A number of the competences of digital leadership discussed above can be found in the BPM maturity model used for this research, in particular the digital skills of Capgemini Consulting (2012). For example, defining business models is part of those digital skills. Also, the competence 'Communication' is in conjunction with the first dimension of the BPM Maturity model: Process awareness. For instance, information can be shared with others so that everyone, including management, realizes the importance of a process-oriented organization and Digital resources can be used to make everyone within the organization aware of all processes. Furthermore, the Information Management competence partly corresponds to the second dimension: Process description. Process description means that processes and related information within an organization are identified and recorded in process descriptions. This can be done with the help of digital tools to search efficiently for information, or with the help of information management.

Lifelong learning is also a competence of digital leadership that is in conjunction with two dimensions of the BPM maturity model. First of all, this competence is related to the dimension Process measurement. This dimension describes that processes can be improved on the basis of a system that measures and controls processes. The central point here is that an organization is constantly discovering new possibilities that can be used to improve the use of digital resources. In addition, the Lifelong learning competence also influences the dimension Process improvement. Processes can be improved by constantly discovering new possibilities.

The competence Self-direction shows some similarities with the dimension Process control. According to the BPM Maturity model of Ravesteijn et al. (2012), process owners are responsible for managing processes. Each process is assigned to a person responsible for the process, whereby a plan is drawn up for each process based on, among other things, goals and required output. With the Self-direction competence, it is emphasized that an organization must be able to set goals. In addition, the employees of an organization must be able to give direction towards achieving these goals.

Furthermore, the Problem-solving competence is related to the dimension Process improvement. The continuous improvement of processes ensures a qualitatively better end result in which the costs will decrease (Hayes, Lepisto and Goffnet, 2013). Process improvement may be necessary if problems arise in the current situation.

The Cultural Awareness competence relates to the creation of culture in process orientation. This shows some coherence with the Process resources and knowledge dimension. According to Ravesteyn et al. (2012), an organization must have the right resources (money, facilities, systems)

and right people (with knowledge and expertise) for each process to create a 'culture of process orientation'.

The Collaboration and Flexibility competences also influence Process resources and knowledge. Every department and/or team of an organization needs people with different backgrounds, as different people are specialized in different tasks concerning different aspects of the organization. To have the right people with relevant knowledge and expertise at your disposal, it is useful to use digital resources to set up a social network. This allows information to be exchanged within a team. In addition, knowledge and resources can be exchanged between teams and departments to make decisions with the focus on achieving a common goal.

The Technical competence influences the dimension Process IT Tools. An organization uses IT to design processes and to record KPI's (Key Performance Indicators). IT Tools can be devices and applications that can be used to perform practical tasks and to recognize and use specific online environments. This can be translated back to the Technical competence as a skill. The other three competences (Critical Thinking, Creativity, and Ethical Awareness) show less to no coherence with the seven dimensions of the BPM Maturity model of Ravesteyn et al. (2012).

The conceptual model

The conceptual model of the research is depicted in Figure 1. As discussed before, there are several competences of digital leadership and in the digital age, digital leadership is expected to have an influence on BPM maturity. The conceptual model shows that some digital leadership competences are able to influence and lead the BPM maturity of an organization. In the next section we describe how the explorative study is conducted, in order to find out which competences are needed.

Figure 1: Conceptual model.
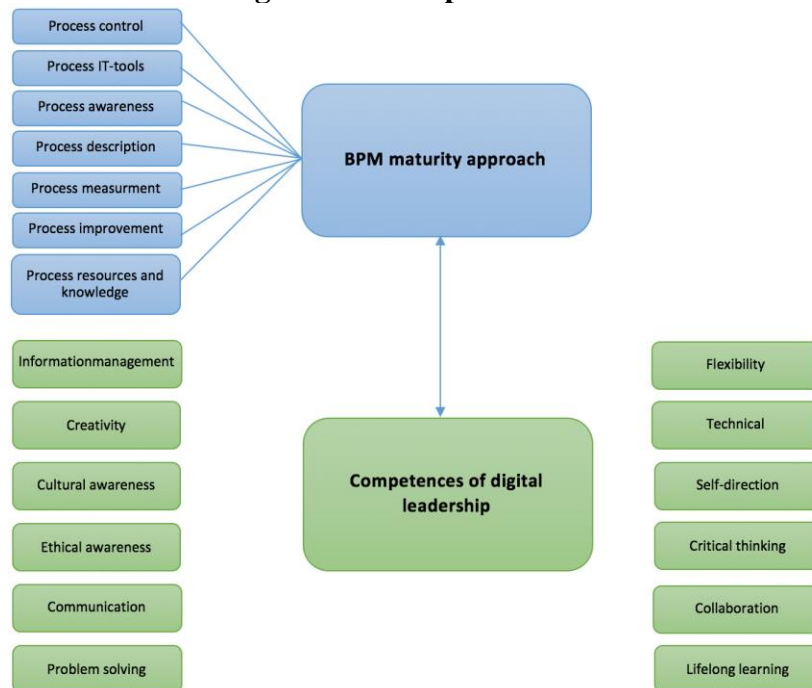
RESEARCH METHODOLOGY

This section describes the procedure of data collection, analyses, and validation of the findings.

Data Collection

For this explorative study a qualitative research approach was taken. Several people were interviewed in order to find the underlying perceptions of the experts. The competences of digital leadership which influences BPM maturity, were used as a foundation for the interview questions. The data is collected by conducting semi-structured interviews with five people from five different organizations. The interviews were conducted by telephone in week 44 and 45 during 2018. The questions are based on the results of the literature review and on how the organization applies this data within its business operations. The purpose of the interviews was to compare the statements of the experts with the results found in literature. In Table 4, an overview has been made of the five organizations in which the experts (respondents) work.

Table 4: Description of organization and experts

Respondent	Branch organization	Number of employees	Type of company	Age of organization	Function of respondent	Experience in this function
1	Consultancy strategic business	2	Profit	10 years	CEO	10 years
2	Source information property	1700	Non-profit	150 years	Product owner	7 years
3	Tourism recreation	3000	Profit	70 years	IT-Director	6 years
4	Products primary education	200	Profit	9 years	Marketing and Communication Manager	3 years
5	Online warehouse	900	Profit	65 years	Manager Digital Category Growth Enablement	1 year

All experts work at the strategic level within their organizations. Various sources showed that successful digital transformations are managed via a top-down approach (Westerman, Bonnet and McAfee, 2014) and that is why we chose to interview people who work on a strategic level. Furthermore, the five companies in which the experts are employed, are or have been undergoing a digital transformation. The experts were initially approached by email. This email introduced the researchers and gave a brief explanation of the subject of the research. During further contact,

agreements have been made about the date and topics of the interview. Interviews were conducted by phone, advantages of an interview over the telephone are for example that nobody has to travel and it is easier to make appointments, even outside working hours. Another advantage is anonymity, the interviewer and the expert have not met (Saunders, Lewis and Thornhill, 2016).

Each researcher had their own role during the interviews. Researcher 1 spoke at the beginning of each interview, to become acquainted with the respondent and vice versa. Furthermore, Researcher 1 got deeper into the topics to explain subsequently to the respondents what the purpose of interviewing them was. Hereafter, Researcher 2 took over from Researcher 1. Researcher 2 asked all the questions that were formulated beforehand. Researcher 1 followed the conversation and offered support when needed. Researcher 3 listened to the whole conversation and took notes of the conversation. This made it possible for Researcher 1 and Researcher 2 to easily read back statements the interviewee stated during the interview.

As mentioned before, Capgemini's (2018) definition of a digital leader is used in this research. When a respondent was not familiar with the concept of digital leadership or had a different understanding of it, this definition was explained. The questions were formulated objectively to ensure that the answer of the expert was not biased.

Analyzing procedure

To correctly process the collected data, an audio recording of all interviews was made with permission of the experts. The recordings were made with two devices, where one served as back-up. The interviews were transcribed in Microsoft Word. The sound recordings have been delayed with VLC Media Player. This made transcription easier. The written versions of the conversations are open encoded (Saunders, Lewis and Thornhill, 2016). In the coding, if an expert addressed or described something multiple times, it is reckoned as one time. For example, if an expert mentioned a competence of digital leadership several times, it is noted that the expert mentioned the competence once. The number of times the same competence is mentioned by one expert is not noted. Furthermore, the method of coding was done per question and not per respondent. This was done because it was easier to work with the same objective per question. The collected data has been treated confidentially by storing it with a password. Only the researchers who conducted this research have had access to this data. For privacy reasons, the transcripts of the interviews are not included in this paper.

Validity procedure

To examine the main question of this paper, five interviews were separately conducted with five experts. There are four aspects of validity that are applicable for this explorative study: construct validity, internal validity, external validity, and reliability (Yin, 2009).

To ensure construct validity, various scientific sources, and perspectives have been used to describe the constructs (digital leadership and business process management maturity). Furthermore, we tried to guarantee internal validity by conducting interviews with different experts. One expert per organization is interviewed. That is why we cross-checked the transcripts and we checked matching statements which were made in different interviews. Moreover, this research was carried out at various organizations. From profit to non-profit organizations, but also

from organizations with more than 3000 employees to organizations with only 2 employees. This protected the external validity. To govern the reliability, the same interview protocol was used for each interview, a transcript of the interview was sent to the experts for approval and a database was created. Several questions were main topics and from these topics we went deeper into the reactions of respondents. This has been done to find out why experts gave certain answers.

DISCUSSION

In this section the results of the interviews will be described. First, the findings on the competences of digital leadership will be presented. Secondly, the relationship between BPM Maturity and digital leadership is discussed.

Competences of digital leadership

The literature study described above already showed that there is no unambiguous definition for the concept of digital leadership. Various sources indicate different conceptual descriptions. This is not only apparent from the literature, but the interview results show the same. It appears that most respondents have difficulty seeing digital leadership as a possible function or role within an organization. Nevertheless, Respondent 1 and 5 sketch a visionary type such as the CEO, CIO, and/or other executive level function. This places more emphasis on leadership skills than on digital skills. There is an overlap between the competences that were previously mentioned in the section 'Digital leadership and competences' and the competences of digital leadership according to the experts. In Figure 2 an overview has been made of the competences that have been mentioned most by the experts and that correspond to the competences that have been found in literature.
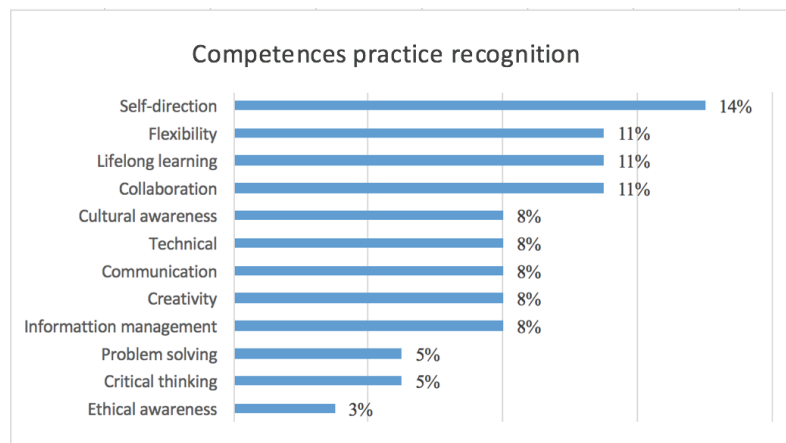
Figure 2: Competences of digital leadership.

Figure 2 shows that the Self-direction competence, as it is mentioned in the literature, is mentioned most in practice (the percentages are derived by the total number of respondents who mentioned the competences in the interview). This competence is continued by Flexibility, Lifelong learning, and Collaboration. A feature that has not been named in the literature but that is derived from the interviews is that someone must feel comfortable with the competences of digital leadership. As

Respondent 3 says: '*You have to have fun*'. Digital leadership is not there to change a company to a digital organization, but to use digitalization to be a better organization (Westerman, Bonnet and McAfee, 2014).

BPM maturity and the relationship with digital leadership

The interviews showed that not all respondents are satisfied with the BPM Maturity of the organization at which they work. All respondents were asked to grade the process maturity of the organization for which they work, on a scale of 1-10. Where 10 is highest and 1 lowest. Respondent 1 believes that the BPM Maturity of the organization scores insufficient, see Figure 3. Respondent 1 says that the organization is still in the middle of the transition of process-based working. However, this respondent does emphasize the importance of process maturity.

Respondent 2 finds it somewhat more difficult to indicate to what extent the entire organization works in a process-oriented way. Respondent 2 works in a much larger organization compared to Respondent 1. This means that the departments have various activities, according to Respondent 2 certain departments, such as the Production department, work in process steps and these departments score higher on BPM Maturity than other departments. The department at which Respondent 2 works, is less BPM Mature due to the fact that the department not only cooperates with different departments, but also with different organizations. Despite this fact, the department does not score insufficient according to the respondent (see Figure 3). Respondent 3 says that the organization still has to work on cross-departmental processes.

Within the organization at which Respondent 4 works, people did not work in a process-oriented manner in the past. Now the organization is increasing its BPM Maturity and therefore Respondent 4 scores the organization on BPM Maturity a six.

Figure 3: BPM maturity scores of four organizations on a scale of 10
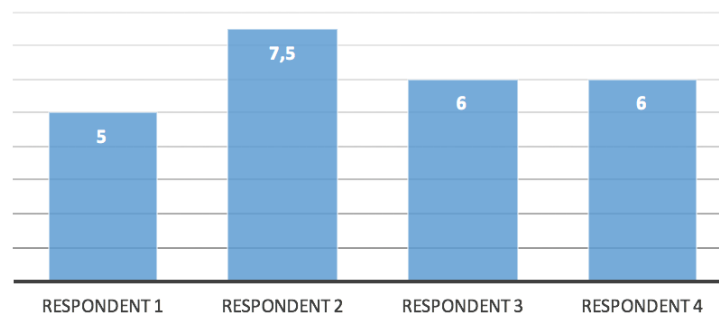
It is striking that Respondent 5 says that the organization of this respondent does not really work process-wise as much as people might expect. None of the other four respondents indicated that they work less process-oriented. The organization never plans several months in advance according to Respondent 5: *"We focus on things we are working on, certain touch points, initiatives and ideas. You look at the future and you want to include the view: where do we ultimately want to end? In this way there is almost no traditional process management anymore. But a continuous learning loop and improvement processes."*

However, processes remain necessary for some cases according to Respondent 5. Respondent 5 was the only one of all five respondents who was unable to give a rating about the BPM Maturity of the organization. The respondent indicates that this is because the organization is active in different markets. According to Respondent 5, the organization does score higher than the two largest competitors.

According to all respondents, within an organization that aims to become BPM Mature, digital leadership can play an important role. According to Respondent 1, digital leadership is "*extremely important*" for the development of BPM Maturity within the organization. Respondent 2 says that digital leadership is very important to shape processes in the right way. Respondent 3 thinks that "*if the process maturity is great, then digitization is easier. But the other way around you can also influence process maturity with digitization and digital leadership.*" Respondent 4 also confirms that digital leadership can have an impact within BPM Maturity: "*If you have digital skills you can of course collect more and more insights and share those with others, then you can use resources or systems to improve processes.*" Respondent 5 says that digital leadership is essential for the development of BPM Maturity of the organization.

According to all respondents, there are several competences of digital leadership that influence BPM Maturity of an organization. For Respondent 1, the Information Management competence in particular influences BPM Maturity. The dimension of the BPM Maturity model 'Process Control' is important here.

Respondent 2 and Respondent 3 both say that the Flexibility and Technical competences are very important for an organization that considers BPM Maturity to be of paramount importance. According to Respondent 2, these two competences influence two dimensions of the BPM Maturity model, namely Process IT tools and Process control.

Respondent 4 indicates that the competences Critical thinking and Self-direction are especially important when it comes to BPM Maturity. Respondent 4 for example, says it is important to set goals and to make progress "*Not that you do something to create a job and tasks, but that you do something to grow.*" According to Respondent 4, this makes Process Improvement possible, one of the dimensions of the BPM Maturity model by Ravesteijn et al. (2012).

Figure 4 shows the most frequently mentioned competences of digital leadership and the influence on dimensions of the BPM Maturity model.

Figure 4: Competences of digital leadership and BPM maturity dimensions
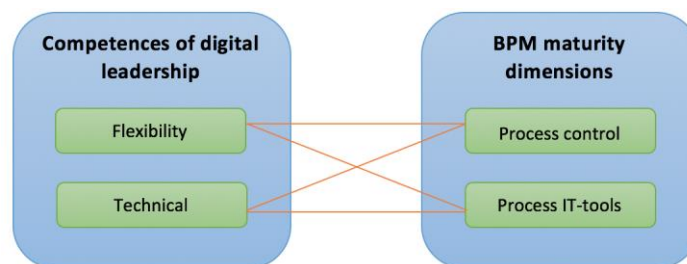
CONCLUSIONS AND RECOMMENDATIONS

For this paper, the following question has been investigated: What is the relationship between BPM maturity and digital leadership? This question has been examined with an explorative study for which five experts were interviewed. These experts all work at the strategic level within an organization.

The most surprising result is the different definitions of digital leadership and as a consequence different competences are attributed to digital leadership. This lack of clarity corresponds to a lot of discussion found in literature as well as in practice. Despite this discussion, the competences of digital leadership, according to the experts, are well matched with what the literature outlines. For instance, it is important for digital leadership to have skills such as Information management, Critical thinking, Creativity, Problem-solving, Collaboration, Communication, Technical, Self-direction, Lifelong learning, Ethical awareness, Cultural awareness, and Flexibility. From the interviews with the experts, the competences Self-direction, Flexibility, Lifelong learning, and Collaboration were mentioned the most.

According to the experts, there is also a relationship between digital leadership and BPM maturity. Our research shows that four (out of five) respondents believe that digital leadership is important for the development of process maturity within an organization. Respondent 1, 3, and 4 noted that there is still room for improvement with regard to the BPM Maturity of their organization. Furthermore, it appears that within an organization BPM Maturity in combination with digital leadership can play an important role. Digital leadership would be "*extremely important*" for the development of the process maturity of an organization.

In Figure 5, various competences of digital leadership are described. The most mentioned competences from the interviews are shown in bold (Self-direction, Flexibility, Collaboration, and Lifelong learning). These four competences are derived from Figure 2. We recommend that organizations always bear in mind that these are four basic competences of digital leadership. In addition to these four competences, the model also contains the competence Technical in relation to digital leadership. This competence is related to two dimensions of the BPM Maturity model, which is also displayed in Figure 4.

Figure 5: Combination of competences of digital leadership and BPM maturity dimensions
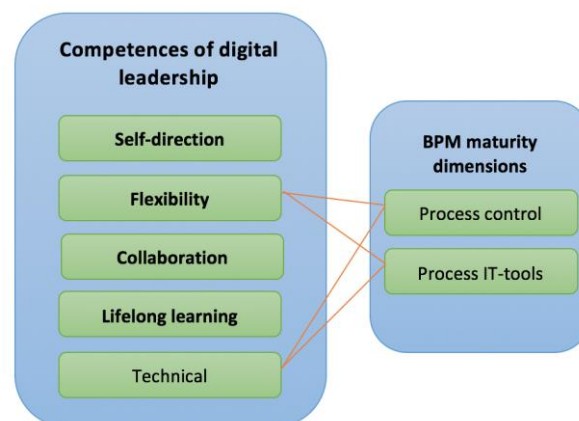
According to the respondents, the Self-direction competence is a requirement for digital leadership. The Flexibility competence is connected to two dimensions of the BPM Maturity model, namely Process control and Process IT Tools. According to the respondents, Collaboration is also a required competence of digital leadership. However, the interviews show that the competence is not in coherence with BPM Maturity. Lifelong learning is also an important competence for the respondent. With digital leadership it is important to constantly discover new possibilities that can be used to improve the application of digital resources. However, the competence of Lifelong learning was not mentioned by the respondents in combination with BPM Maturity. The interviews also showed that the Technical competence influences two dimensions of the BPM Maturity model (Process control and Process IT Tools).

During this explorative research there were also some limitations. First of all, the research question mentions many unique terms, namely: competences, digital leadership, and BPM maturity. The concepts that are part of the research question are currently very popular but when the different terms are combined in various search engines, limited coherent information can be found. At the moment there are no studies comparable with this exploratory research (according to the authors' knowledge). Of course, there are researches on the different concepts that are included in this study, but none that combine all concepts.

Secondly, the different concepts caused a lot of ambiguity among the respondents. This could be due to, among other things, the fact that the different concepts that are used for this research are relatively new to the respondents and there is no unambiguous definition of the concepts in the literature either. On multiple occasions during the interviews it was needed to explain and clarify different terminology and concepts to the respondents. That is because these concepts have not (or only limited) found their way into their organization.

Thirdly, this research is focusing on a small group of organizations in the Netherlands. The findings of this explorative research can be useful and a good first introduction. Unfortunately, based on this study it is not yet possible to generalize the outcomes to other organizations. We suggest further research with more experts within an organization, and more interviews within each sector. Besides, confirmation of the outcomes can also be done with the help of a survey or focus groups. In this way, triangulation of data makes it possible to see if this explorative study does not consist of incidental results.

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