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Leadership in the Digital and Social Era

A Theoretical Review and Digital Gamification for Employee Development

by

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Abstract

The aim of this paper is to explore which skills and mindsets are necessary for successful leadership in the digital era. It is written for IKEA who are interested in remaining at the forefront of their industry by understanding how digitalisation affects their business and how to make the most of the opportunities it brings, one aspect of which is leadership. There is a gap in the existing knowledge on the topic of leadership in the digital era despite the amount research on the topics of digitalisation and leadership individually. We intend for this paper to contribute towards filling the gap by looking specifically at the intersection between the two areas.

The method we used to determine which skills are needed by leaders in the digital age was a review of the existing academic literature together with non-academic sources to gain an understanding from a real business context. We faced challenges relating to a lack of sufficient empirical studies on the topic, as well as the importance of context to leadership, which limit our ability to make normative conclusions about leadership skills necessary in the digital age.

The outcome of the literature review demonstrated that the ideas on leadership in the digital age are mostly homogenous, and while many sources lack empirical backing, they are in agreement with the opinions of business leaders. We identified four main categories of skills: communication, dealing with change, learning and practical changes, as well as one mindset, the growth mindset. There were two main themes throughout the review which we considered particularly important - openness to learning, which comes from a growth mindset, and empowerment of employees.

We used this information as the basis of a game design which aims to help IKEA employees reflect on the way they deal with some of the challenges presented by digitalisation. We produced two sets of questions to be used as the starting point of a quiz game which can be expanded based on new research or by adding new topics. The game is based on encouraging reflection rather than scoring points due to the nature of our findings from the literature review, which are not conducive to determining correct and incorrect answers.

Keywords: Digitalisation, Leadership, Skills, Mindset, Gamification

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1. Introduction

The digital era has been changing the way we live and work for some time now, and these changes show no sign of slowing down. Since the computer advanced from specialist to widespread use in businesses there have been many significant developments, with digitalisation being described as a revolution causing a level of disruption to the previous way of life comparable to the industrial revolution (Brynjolfsson & McAfee, 2014).

We have recently entered a new phase of digitalisation, a so-called social era (e.g. Merchant, 2012), characterised by a never before seen level of 'connectedness' between people of all kinds, both on a personal level as well as a public and professional level. In fact, not only people but also the objects they use on a daily basis are now able to communicate through the transfer of data in an ever-growing 'Internet of Things' to change and improve many everyday processes, for example adapting home heating depending on the weather or whether anyone is home (Kobie, 2016).

Companies in all kinds of industries are experimenting with digital transformation and benefiting from it (Bonnet et al., 2014). It is a major point of interest for businesses, who need to understand the effects this digital transformation will have on them and their organisation. Naturally, a changing environment raises potential issues for those who lead organisations and teams, and digitalisation has the potential to impact every type of organisation in any industry: start-up or multinational, old or new, private or public (Collin, 2015).

Some characteristics of digitalisation in a business setting (e.g. increased transparency and complexity or flatter organisational structures which started to take place of the hierarchy), lead to changes in the way people work (Khan, 2016). Whether it is in the way individuals communicate and collaborate with colleagues, or in the way executives empower employees. The need for fast reaction to frequent changes in the digital era, changes the old slow hierarchical models into flatter organizations in which employees are more empowered in terms of making decision (Jääskeläinen, 2015). Therefore, even the employees who do not have the title of leader, face situations where it is needed for them to lead their own tasks and operations with a greater responsibility and similar qualities that a leader has. Consequently, the leadership in this paper is referred as to not only the leaders by title but also the empowered employees who can freely share suggestions or ideas about their organisations and have the control over their own work.

Due to the acceleration of technological development, executives in all industries strive to keep up with the changes by learning about digital advances (e.g. social media, smart devices etc.) as well as upgrading their business processes by using technologies such as ERP programmes (Bonnet et al., 2014). In order for organisations to respond quickly to these changes and to capture the new business opportunities, there are some set of skills and mindsets that are important for competent leaders and empowered employees to have in the digital age (Li et al., 2016).

Competence in an area can be described as a combination of knowledge, skills and an appropriate mindset (e.g. Dubois, 2004). The knowledge necessary for leaders is very broad and context specific, however skills and mindsets can apply across multiple contexts, therefore gaining a better understanding of the skills and mindsets needed for successful leadership in the digital age can

contribute to improving these across a range of organisation types. Sometimes although the fundamental idea of a skill remains the same, new tools become available to perform it. This is very much the case relating to digital technologies, and therefore we consider skills to be the specific combination of an ability in a more abstract sense together with a specific tool to achieve it. Mindset is a set of attitudes or beliefs that determines how we handle situations, and the way we perceive and interpret the things that are happening around us. Since digitalisation is the source of huge changes across the business world, it is necessary to be able to deal with them in a way which is productive for the organization, meaning having a suitable skillset and mindset.

This project is being completed for IKEA, a company eager to remain at the forefront of their market through a willingness to challenge traditional methods and adapt to changing demands (IKEA, 2016). As stated by Khan (2016), there is a lack of research linking the digitalisation and how it affects the practice of leadership, despite it being an important issue. Therefore, they recruited us as students to perform research around the topic of leadership in the digital and social age and using this information develop a digital tool they can use to encourage development of the skills and mindset that are important for success in this new environment. IKEA recognise that modern leadership comes not only from those holding designated leader positions, but that every member of the workforce can contribute to leadership of the organisation (K Chahrour, personal communication, 5 April 2017), and therefore the game we design should be appropriate for all levels of employee.

The purpose of this study is therefore to explore important skills and mindsets for successful leadership by reviewing the current literature, focusing on changes relating to advances in digitalisation and social media in society. Based on this, we will design the basis of a digital game for IKEA to encourage development of these skills in their employees in accordance with IKEA's values, which they can expand on in future.

In order to fulfil this purpose, we have identified the following research questions which we need to answer:
What skills and mindsets are important for successful leadership as a result of developments in digital and social technology?
How can we design a game to encourage development of these leadership skills and mindsets in IKEA's employees?

2. Key Words and Definitions

In order to specify the scope of this thesis project, there are a number of terms we wish to define. These are complex concepts which have little consensus regarding their definition, so it is important to specify for the reader how we are using them.

2.1 Digitalisation and the Digital Era

Digitalisation is a global trend that is fundamentally changing the value chains in industries at a breath-taking speed (Collin et al., 2015). This radically increasing use of technology and its' subsequent effects on businesses has been a hot topic for companies all around the world (Bonnet et al., 2014); and it also has been the recent topic of discussions for many scholars (Brennen & Kreiss, 2014; Brynjolfsson & McAfee, 2014; Collin et al., 2015; Parviainen et al., 2017; Li et al., 2016).

The terms digitalisation and digitisation are closely related and used almost interchangeably (BarNir et al., 2003, In Khan 2016). But there is a clear distinction between these two terms (Brennen & Kreiss, 2014). According to Parviainen et al. (2017), the term digitisation refers to "the action or process of digitising; the conversion of analogue data into digital form." Digitalisation however is a broader concept related to this, although there is no clear consensus on how to define it. Brennen & Kreiss (2014) argue that digitalisation refers to "the adoption or increase in use of digital or computer technology by an organization, industry, country, etc.". This definition relates the technology to organisations, but is still rather broad. Parviainen et al. (2017) produced the following definition based on their own research (they use the term digital transformation as an equivalent to digitalisation):

> "digital transformation is defined as changes in ways of working, roles, and business offering caused by adoption of digital technologies in an organization, or in the operation environment of the organization" (Parviainen et al., 2017)

This definition is more specific to digitalisation in terms of organisations, although it includes the effects of digitalisation external to the business which is beyond the scope of this paper.

IKEA sees digitalisation as more than just a change of tools or the devices that provide interaction between people and the internet. Our contact at IKEA says that these devices are just the "tip of the iceberg" (K Chahrour 2017, personal communication, 5 April). Under the water, there is a bigger picture that involves the back-end information technology components - servers, networks and so on. Digitalisation is part of both of these aspects, affecting both the technology infrastructure as well as all the people around it. This whole iceberg represents digitalisation but also its effects on business processes; customer interactions and their changing needs, workplace structures, information sharing and most importantly, leading these changes in an appropriate and efficient way. IKEA refers to the significance of digitalisation in their company values by emphasizing their constant desire for renewal in order to adapt to customer needs with innovative solutions (IKEA, 2017, online). IKEA describe this process as "constantly being on the way" to review what is done today and asking what can be done tomorrow. This is a very broad definition, however it highlights the fact that digitalisation is more than just the practical implementation of new technologies - it has wider consequences for the business.

When we refer to digitalisation in this paper, we refer to the way in which organisations are affected when they adopt digital technologies. This includes both the practical use of new technologies such as social media tools, but also the secondary effects on an organisation's internal functioning, such as more flexible organisational structures enabled by technology (Khan, 2016). While digitalisation also affects a broader spectrum of factors outside of the business, such as business opportunities and customer interactions, our definition of leadership as described below means that we are concerned only with processes within the business. This definition is based on a combination of the above definitions in order to give a more specific and narrow meaning of the word as is relevant to this paper. In this paper, the digital era is referred to as the time period characterized by the existence of digitalisation.

2.2 Leadership

The concept of leadership is not clearly defined, and often overlaps with definitions of management. Contemporary ideas about leadership differ significantly from those from the previous centuries, with modern ideas being much less authoritarian (Markham, 2012). McGonagill & Doerffer (2010) explain that leadership is now considered an activity rather than a role belonging to one person. Cohen (1990) identifies leadership as "the art of influencing others to their maximum performance to accomplish any task, objective or project". There is also a wide range of literature describing different types of leadership, making an all-encompassing definition difficult.

Hoffman & Vorhies distinguish the two concepts of leadership and management as follows:

> Leaders of large organizations may benefit from a basic understanding of the various technical aspects of the organization's work, but they delegate primary responsibility for those aspects to managers while they focus on higher order questions of mission, strategic planning and implementation, and ongoing evaluation and improvement (2017, p.24).

Kotter (2001) states that management involves dealing with complexity, while leadership deals with change. Batten (1989) defines leadership as the development of "a clear and complete system of expectations, in order to identify, evoke, and use the strengths of all resources in the organization— the most important of which is people". Drath et al. (2008) identify leadership as the result of having direction, alignment and commitment within a group of people, rather than using the roles of leader and follower to determine the concept. This description is more applicable in cases when the roles of leader and follower are less clearly marked, which is relevant for our discussion due to digitalisation contributing to the increasing use of flatter hierarchies in businesses, as will become apparent later in the paper. Leadership is therefore a rather abstract concept, dealing with attitudes, relationships, and values rather than concrete tasks, which are the domain of managers. Leaders 'set the tone' for the work of the organisation, ensuring that everyone moves in the same direction. We therefore consider successful leadership to be leadership which is effective in helping the team to achieve its goals in the context of the organisation.

We also asked our contact at IKEA to describe his understanding of the difference between management and leadership, as an example of how these ideas are treated within the company.
He mentioned that leadership is earned rather than given, meaning that leadership is defined by how others see you rather than by a job title. Tasks of a leader include inspiring others, creating a

trusting environment and making sure everyone understands the goals of the organisation, and they should lead by example by following the company values (K Chahrour, personal communication, 5 April 2017).

Official IKEA materials use a much broader definition of 'leader', including for example 'develop the business and deliver results' is listed as a core leadership capability (IKEA, 2010), showing that they do not only refer to leadership of people. The concept of direction, alignment and commitment is referenced in one booklet about leadership development, as well as the idea of leadership as an 'approach' rather than focusing on positions of power (IKEA, 2010). However, we find this too broad for the purpose of our project.

Despite our own, and also our contact at IKEA's (K Chahrour, personal communication, 5 April 2017), belief that the two concepts of management and leadership can be separated to some extent as described above, the material we have read often uses both terms almost interchangeably and therefore we treat texts describing management as potentially relevant to our topic. Digitisation brings both change and complexity as we will explore below, so business leaders are likely to need skills in both areas to succeed.

Based on the above discussion, we refer to leadership as a role encompassing the wide range of tasks revolving around reaching the maximum potential of the organisation. The fundamental basis of these tasks is ensuring that employees have a clear understanding of and commitment to the goals of the business, even in a context characterised by change and uncertainty which demands constant re-evaluation of progress towards the goals. A leader should be able to empower their coworkers to work effectively and efficiently towards the goals.
Although we acknowledge that IKEA include many other capabilities under leadership, for the purposes of our research we are not including those not related to the task of leading a group of people. We consider leadership to be something independent of formal job titles, and therefore a role which can be taken on by any member of a team.

2.2.1 E-leadership

The review revealed a term describing aspects of leadership in a digital world: e-Leadership. Avolio, Walumbwa & Weber (2009) use this term to refer to leadership of geographically dispersed teams through technology, but Robinson et. al. (2015) for example, use the term much more generally to refer to how leaders can make use of a variety of technological advances. Ochara (2013) states that the term e-leadership places ontological priority on both humans and technology rather than just one of these, emphasising how they interact as the most important feature. DasGupta's review of e-leadership research (2011) states that the goals of leadership remain the same despite the context changing.

Leadership in the digital age should not be confused with digital leadership, which refers more specifically to leadership in the computing, communications and content sectors (Wilson et al., 2004).

Avolio, Kahai and Dodge (2001, p. 617) define e-leadership as "a social influence process mediated by advanced information technologies (AIT) to produce a change in attitudes, feelings, thinking, behaviour, and/or performance of individuals, groups, and/or organisations"' (in Ochara, 2013).

2.3 Social Era

We refer to the social era as one aspect of digitalisation, that is, everything to do with the increased connectivity between individuals. This does not only refer to social interactions however, we also include interaction for a professional purpose. The phrase was introduced to us from IKEA's terminology; although some authors use it to refer solely to social media (Merchant, 2012), some also use it as described above.

The boundaries of organisations are becoming less clearly defined, leading to more two-way communication with stakeholders, which also moves some power away from companies and into the networks of individuals around the company (McGonagill & Doerffer, 2010). This change in dynamic contributes to the challenges and opportunities presented by digitalisation. Value comes from networks and connections, not just the organisation itself (Merchant, 2012).

According to Merchant (2012), the social era is concerned with building communities, where, motivated by shared purposes and shared ownership, everyone can contribute regardless of status, age or other demographic. These communities bring 'power, co-ownership and scale' (Merchant, 2012) by creating platforms where the wider community can work on a project together regardless of their location.

3. Method

3.1 Challenges

We face a number of challenges in conducting this project, relating both to the literature review and the learning tool we will create.

The primary challenge for this project is to review enough literature of a good enough quality to ensure we have a sufficient overview of the current ideas about leadership and digitalisation. To combat this we have tried to look for review articles, although these proved to be difficult to find, with the review of material on e-Leadership by DasGupta (2011) being the only one we have included. The main issue in terms of quality is a lack of empirical research. Much of the literature is based on case studies or small samples of interviews or surveys, which are by nature subject to biases from the participants and difficult to generalise. This lack of empirical studies makes it difficult to draw conclusions since not only are the sample sized very limited, but also there has been little attempt to operationalise the skills used by successful leaders in a digital context. Instead the theoretical discussions rely on rather subjective interpretations of small amounts of data. The lack of clear theories and models for leadership in the digital age also make it difficult to conduct such empirical research since there is little in the way of concrete material which can be tested against observations of real life leadership success, as an example. Without such theories and models, people's' thinking about the subject may also be limited by what they know, meaning business leaders may not be able to talk about leadership in terms other than what they have always been used to.

The validity of the key skills for leadership in the digital age relies heavily on the validity of the literature which we look at. For this reason we should be critical of the methods used by these studies and assess what we can take from them for the purpose of our review.
To provide some validation of the key skills we identify in the literature, we have chosen to compare them to skills mentioned in interviews or articles by people in leadership positions in businesses. The fact that business leaders acknowledge particular skills as necessary shows that they are applicable to real-life situations and not just theoretical.

We also face the challenge of ensuring the validity of the game, that is, that the game addresses the skills we intend it to. Within the timeframe of this project we are unable to have the game fully completed, therefore we will not be able to evaluate the final product in this paper. Due to the subjectivity of the skills and mindsets involved in the game, it would also be difficult to test any improvement in a valid way.

The literature has proven to be highly reliable as far as the skills it identifies as being necessary in the digital era are similar across everything we have reviewed. This implies that the authors have reached the same conclusions, despite having looked at the topic in a variety of ways, although we are also wary of the fact that being a relatively new area of study, this homogeneity may be a result of the lack of empirical study. Reliability of the tasks in the game is particularly important, as we need to ensure all users have the same understanding of what they are required to do, in order for it

to have the desired effect of encouraging development of the skills we identify. To achieve this, we must make sure all instructions and tasks in the game are clear and require little interpretation by the user.

The generalisability of the key skills we identify for leadership in the digital and social age should be high as far as the theoretical aspect of this project goes. Leadership can exist in any type of organisation regardless of its purpose, and as previously mentioned, digitalisation is affecting every industry. This means they all face some similar challenges, and therefore need the same skills to be successful. The game on the other hand will be designed with IKEA in mind, meaning that it may not be appropriate to other businesses, for example in another type of industry. The reason for this is the language in the game will refer to specific situations or contexts which are related to IKEA - although it could be made in a more neutral way, our purpose is to produce this tool for IKEA only.

Incorporating IKEA's values into our game has potential to be challenging if their values clash with the leadership skills we identify from the literature. This would make the game inappropriate for the required audience, however from preliminary research we can predict that this is unlikely to happen.

3.2 Process

The first part of this project consists of a traditional literature review, focused on the skills needed for leadership in a digitalised world. We also reviewed a smaller amount of material on gamification and employee development, to inform our creation of the game. Due to the field of leadership research being so vast, it was not practical to consider a systematic literature review (Easterby-Smith, Thorpe & Jackson, 2015).

The second part involves the process of creating the game. To do this we decided to create a quiz type game based on IKEA's suggestion and the limitations we have in terms of time which mean we cannot create a very complex game. We then took the skills identified from the literature review and found ways to ask questions or give tasks that encourage the use of or reflection on these skills. The details of this will be discussed in the section describing the game.

To find academic material for the literature review, we searched Lund University's library catalogue and also Google Scholar to ensure the widest variety of sources possible for us. We initially limited our search to articles from 2013 at the oldest, however some older material was reviewed due to its presence in a number of newer sources. This is because of the fast pace of change in the digital world - technology quickly becomes outdated and therefore the potential effects on leadership could change just as fast. In order for our tool to be relevant, we should make sure we are aware of this.

Material was occasionally unavaliable through Google Scholar, so despite its potential relevance we we not able to include it. Further material was also found by looking into the references from articles which seemed particularly relevant, especially if they were cited in multiple articles we read.

Although we aimed to find peer-reviewed sources as they are likely to be of good quality, we also included some other work such as theses, as they were highly relevant to our topic.

We also searched for so-called 'grey' material (Easterby-Smith, Thorpe & Jackson, 2015) on the same topic through a simple google search. This non-academic material is more likely to be up to date with current technological developments due to it being published with less delay than academic journals. We also ensured these sources were as recent as possible, as we wanted to gain an insight into current opinions of business leaders.

We documented our search terms and the results in a spreadsheet in order to save time, as it enabled us to avoid repeat searches, and helped to refine our searches. Our initial reading revealed new search terms such as 'e-leadership' which led to new material. We also made use of the research tool Zotero, to collect citations of the material we read as we go along, to ensure an accurate bibliography.

One focus of our searches was review articles as these would allow us to get an overview of the main themes and debates in the area of leadership and digitalisation, in order to then look into these further. However, these proved difficult to find, meaning we obtained most of the information from individual papers. We intended to review multiple sources on the same ideas in order to get a better understanding of the concepts as well as other perspectives which may reveal weaknesses in the idea.

We considered the impact of the business context on leadership, for example that there may be differences between small and large businesses. However, we decided not to filter the literature based on the type of business they looked at, as for example smaller businesses can be seen as working more efficiently and therefore can provide valuable lessons to larger companies (K Chahrour, personal communication, 23 March 2017). For this reason we also included literature specific to top management roles despite IKEA's requirement that the skills and tool we develop can be used by people at various levels of the business.

To determine the key skills for leadership in the digital age, we looked for common topics across all the types of literature.

IKEA specified that the game would be used by people throughout the business, meaning we will not adapt it to any particular business function or seniority level (K Chahrour, personal communication, 27 April 2017). For this reason we did not perform further research into the people who would be using the game. As we do not have the technical skills ourselves to develop the game, we will not be creating a finished product ourselves. We provided the content and design for the game, including description of the desired mechanics and functionality, as well as some prototype screenshots to demonstrate our suggestion for the visual design.

4. Literature review

4.1 Introduction to the literature review

In order to fulfil our purpose of exploring the key skills required for successful leadership in a digitalised world, we reviewed literature on this topic according to the method outlined above.
We also reviewed some literature on gamification to guide us when creating the game. We have grouped the skills we have identified into four main areas based on similar themes which provide the structure for our discussion. These are communication, dealing with change, learning and practical changes.

Avolio and Kahai (2003) agree that the fundamentals of leadership will always stay the same (in DasGupta, 2011), that is, implying that the skills required in a successful leader are to some extent the same as they have always been. The major changes in the business world influence the practice of leadership since it depends on its context (Bolden & O'Regan, 2016; Hannah et al., 2009; Hunt, 2002). Even though most leadership skills are not recent discoveries and are fundamentally the same as in the past, the difference is the emphasis on these skills in different circumstances and the methods available to perform them.

Robinson et al. (2015), in a research paper for the European Commission, identify eight aspects of technological change which require a change in skills: Mobility, cloud computing, Big Data analytics, social media, the Internet of Things, secure systems, microelectronics, as well as the convergence of each of these. They claim these are the developments which are causing change in the way people work. We would suggest however that these mostly require developing knowledge on how these things work rather than changing the way people work in a way that demands new skills.

Khan (2016) identified six main characteristics of digitalisation through a literature review, as follows: (1) interconnectedness, (2) Diminishing time lag and abundance of information, (3) Increased transparency and complexity, (4) Hierarchy removal and dissolvement of personal barriers, (5) Decision enabling and integrity enhancing, (6) Humanising effect. These are mostly involved in the discussion of various skill areas, as they impact on the skills needed by leaders in different ways, although it is not clear exactly what Khan means by 'humanising effect'. He describes digitalisation as both an enabler and disabler, pointing out the duality of many of its features as both benefits and challenges, meaning different skills may be required to deal with each aspect (Khan, 2016).

The literature review by DasGupta (2011) identified six new skills needed by leaders in the digital age by summarising the ideas in his fairly extensive literature review, although these are described as 'some', not all of the skills needed. This literature review contains very little critical assessment of the literature. The skills identified are as follows: (a) stronger written communication skills; (b) strong social networking skills; (c) a global, multi-cultural mindset; (d) greater sensitivity towards followers' state of mind; and (e) a 24x7 orientation. We do believe these skills are relevant and they are discussed in the following sections of the paper, however from our own review we believe that there are more skills to be identified.

To take one example which aimed to identify key e-leadership skills from the review by DasGupta (2011), we can see that there are already a broader range of skills described in the literature than

simply those above. Kissler (2001) identified several features of successful e-leadership based on a study of successful leadership actions in the past: 'cognitive skills and education; quick adaptability to change; flexibility; ability to work for more than one boss; the ability to keep ones' heads in the midst of disorder and ambiguity; experience in several different fields and the ability to transfer ideas from one to the other; individuality; and entrepreneurialism' (in DasGupta, 2011).

DasGupta (2011) also identified eight main challenges for leaders in the digital age, which seem to go beyond the scope of the above skills:

> (a) communicating effectively through the electronic medium; communicating enthusiasm digitally; (b) building trust with someone who may never see the leader; (c) creating a viable electronic presence; (d) Inspiring far flung team members; (e) mentoring virtual employees; (f) Monitoring and controlling social loafing; (g) preventing lack of technical competence from affecting performance; and (h) maintaining work-life balance (DasGupta, 2011).

Lack of technical competence, for example, is not addressed by ay of the skills DasGupta gives. We therefore look to other literature to find out more about these challenges and possibly others, and the skills required to deal with them, since this review appears not to be comprehensive. Although building a comprehensive overview of these challenges and skills will not be possible for us, we hope to expand upon the existing research.

An overall comment on the leadership and digitalisation literature that we have reviewed is that there is little in the way of established theories and models to understand the skills necessary for success. Despite the very extensive fields of leadership research and technology research, there is relatively little combining the two areas. This means our review of what has been written can provide a useful overview for future research of the common themes in leadership research relating to digitalisation as well as how these are reflected in popular media.

The research which does exist appears rather homogeneous, with no conflicts in the main ideas. This also applies to the non-academic material, meaning both formal research and pieces based on popular opinion agree. This suggests that the skills identified in the research are in fact what business leaders and consulting companies consider to be important from their own experiences, that is, that the theoretical research is somewhat valid. However, this lack of conflicting ideas is likely also due to the newness of the topic - we would expect more variation to develop as further research emerges.

We have formed four categories of skills required by successful leaders in the digital era based on grouping related ideas found in the literature. We will discuss each of these in turn, and following this we will discuss gamification. The four areas for the basis for our discussion of the literature and are as follows:
- Communication
- Dealing with Change
- Learning
- Practical Changes

4.2 Communication

The review by DasGupta (2011) identified stronger written communication and social networking skills as two of the skills now required by leaders in the digitalised world. The reasoning behind these conclusions is not explained, however they both relate to the increase in use of written communication tools which is a logical extension of the increased use of email and social media in businesses.

Jääskeläinen (2015) identifies from a number of case studies across five occupations that readily available real-time data as one of the biggest opportunities provided by digitalisation, as businesses have never before had such comprehensive data about who makes up the market and how they use products and services. US entrepreneur Keith Krach emphasised in a blog post the potential to use this mass of data to gain useful feedback (Krach, 2016). However, the vast amount of information available together with the demand for fast responses means there is a major risk that decisions are not made based on careful analysis but on 'gut feeling' according to interviews with business leaders (Khan, 2016), because there is not time to analyse all the data and still respond quickly.

Leaders need to be able to use analytical and critical thinking to filter the 'noise' in order to guide their employees towards the most useful or salient sources of information (Jääskeläinen, 2015), as well as being able to do this for their own benefit. This involves channeling the right information to the right people, at the right time and in the right place (Wilson et al., 2004), which demands an understanding of who exactly the right person, time and place is as well as a constant understanding of what information is coming in.

An overall awareness of the messages travelling around the organisation is also important, as leaders must be able to intervene and make sure messages are aligned with the objectives of the organisation (Sasidharan, 2015). Practically speaking this could mean keeping an eye on what is posted to an internal social media platform and reminding employees of the company's vision and values regularly.

The challenges of communication between leaders and followers is a major difference in the digital world compared to previously. According to DasGupta (2011) these challenges include effective communication, trust building and inspiration of followers through electronic means, particularly if the whole team never meets in real life. Communication and trust building is also identified as a challenge in a study on graduate students playing a business simulation by Siewiorek (2012). Although people are more connected than ever, they have less personal, face-to-face contact (Khan, 2016). This can impact on the trust levels between team members at all levels, and therefore extra efforts must be made to build trust where there is a lack of regular in-person contact between team members.

Constant communication between leaders and followers can enable experimentation to happen but also to identify problems as soons as possible (Krach, 2016). In such a fast moving environment with so much uncertainty, it is inevitable that things will not always run smoothly. With consistently open communication channels, the likelihood of the right people becoming aware of the issue at the time it happens is increased, meaning it can be dealt with before it becomes too severe.

Effective communication relies on there being suitable infrastructure across the team, so leaders must be able to maintain open communication despite difficulties with, for example, software and hardware incompatibility, or failure of local infrastructure such as internet connections (Avolio, Walumbwa, and Weber, 2009, in DasGupta, 2011). To this end planning remains important in order to identify potential issues and ensure the team knows how to work around them, as well as ensuring other team members can do the same.

Social media in particular begins to shift the balance between work and personal life, both for leaders and co-workers, which leads to challenges relating to employee integrity in a complex and highly transparent digital environment (Khan, 2016), since a lack of employee integrity may become obvious to others through social media and reflect badly on the business.

MIT Sloan Management Review asked how technology is reshaping the practice of management to 15 experts from academia and industry including information systems professor, Monideepa Tarafdar. Tarafdar (2016) answered the question with a focus on technology use rather than a managerial perspective. According to Tarafdar, leaders and managers need to understand and develop empathy for the technology preferences of their coworkers. Tarafdar explains it with an example from her experience; "A colleague recently objected to me writing work emails to her late at night. On seeing the time stamp the next morning, she felt pressured to answer my messages immediately, to the exclusion of other, more important emails. My first reaction — that she was supposed to prioritize her own email and not be perturbed by what I did with mine — is typical of current organizational mindsets about technology use." Tarafdar argues that this is not the appropriate approach to technology preferences.

Some colleagues may prefer to be contacted by emails while others by phone. Differences between these preferences can disrupt the communication between team members and increase stress. Tarafdar's (2016) suggestion to avoid these conflicts is for leaders to be more proactive about communicating their own technology preferences but also develop an empathy about their colleagues' technology preferences, especially while working on the same projects. Another suggestion by Tarafdar (2016) — that leaders may need to assign employees with similar preferences on the same project — is in conflict with the other aspects of the needed practice of leadership in the digital era. According to other scholars and businesspeople, leaders need to encourage their co-workers to be more adaptive, open to new challenges and learnings (Avolio and Kahai 2003, in DasGupta, 2011; Bolden and O'Regan, 2016; Kakabadse et al., 2011; Michelman, 2016). If today's digital world calls for communicating through tools such as phone, email, skype call and so on, it may be more reasonable for leaders to encourage their co-workers to keep up with today's needs and adapt to different technologies instead of letting them remain in their comfort zone and expect others to adapt to their preferences. For leaders to assign co-workers to projects in accordance with their competences to be utilized in the best possible way or based on their motivation for the topic of the project, may deliver more successful results than assigning co-workers in the same team due to their technology preferences.

4.3 Dealing With Change

Change is one of the primary tasks for a leader to deal with (Kotter, 2001), and as we have previously discussed, digitalisation is bringing plenty of it to the world of business. Dotlich (2017) also cites

digitalisation as one of the reasons why being able to lead in times of transition is so important. While dealing with change has always been part of the leader's job, it is more important now than ever before due to the fast moving context of technological development.

A survey of over 2800 CIOs by US research firm Gartner Inc. (2014) shows 80% believing that the level of risk in the digital world is both higher and different to before, showing that businesses are recognising this importance too, but there are multiple types of change being brought about by digitisation, many of which have an impact on leadership. Risk is an inevitable part of the environment which cannot be avoided, making decision making trickier and perhaps also challenging leaders further to inspire their followers to persevere despite the high stakes.

4.3.1. Fundamental Change

According to Dotlich (2017), an experienced leader of international businesses, transitions create changes in the identity of an organisation. The 'story' of the business needs to change to reflect the changes, in a way which engages people. Digitalisation affects every type of business and many industries are fundamentally changing because of it, for example due to the emergence of the sharing economy. Companies need to make sure their vision, goals and values still align with the context around them, which may have changed dramatically since they were originally created.
Technology-driven leaders need to be able to 'create compelling digital narratives' in order to communicate with employees on a personal level (Sasidharan, 2015), which means not treating messaging in the company as something carefully controlled and diffused from the top, but involving employee input. Korhonen (2015, in Collin, 2015) agrees with these statements, explaining that logical and linear thinking are no match for these types of situations. Instead creativity is needed to keep employees engaged with the vision of the company.

According to Libert, Beck & Wind (2016), who are Wharton business school researchers, businesses often fail to transform themselves into organisations which make full use of digital opportunities because the changes they make are just surface level - without changes to the team's core beliefs, it won't be a success. They point out that actually looking for conflicting ideas is the key, so leaders need to make sure their teams are comfortable with breaking out of their comfort zone. A way to change the core beliefs in a company is to figure out the assumptions behind the way the business operates and then think about the opposite case, reflecting on the implications for every aspect of the company - and then share this with the rest of the employees (Libert, Beck & Wind, 2016).

Creating a strong identity can be particularly complex when working with various collaborating groups: leaders need to incorporate the inter-group relationship into each group's sense of identity (Chew, 2013, in Collin, 2015), to create a strong sense of purpose for the collaboration. This likely presents further challenges if the collaboration is only short term since there is less time to develop a strong identity. Working with geographically dispersed groups can also present challenges to a shared identity and goals, as Avolio, Walumbwa, and Weber (2009, in DasGupta, 2011) mention, urgent local demands may take efforts away from projects with distant groups.

Digitisation has also paved the way for completely new ways of doing business, with the CEO of Accenture claiming that as recently as 2015, many leaders do not see past the basics such as having a website or making use of cloud storage (Michelman, 2016). This leaves businesses vulnerable if their leaders cannot see more innovative ways in which technology can change the environment.

An article by US research firm Gartner Inc. (2014) claims that, in regards to technology, CIOs focus on what is easily measurable rather than what is most valuable to the company. This is an example of where fundamental changes to the control measures used could more accurately reflect the value created thanks to new technology, in this case within the company but it also applies in relation to value for customers. In fact, Jääskeläinen (2015) argues that the measures chosen to be monitored end up blinding decision makers in the organisation to anything outside of those measures, which could leave an organisation vulnerable to focusing on the wrong things.

4.3.2. Dealing with Uncertainty and Complexity

The effects of digitalisation to business environment involves reshaping of the very context and structure of organisations (Khan, 2016). The reason behind this alteration is regarded as the increased uncertainty and complexity in the digital age. And according to Collin et al. (2015), this has strong implications on the practice of leadership in terms of leader's abilities. Adaptability is one of them due to the fast changing environment and nature of the digital era.

Nielsen and Meehan identify five paradoxes involved in leading businesses in a digital world in a 2015 Harvard Business Review article, including for example the need to innovate at the same time as optimising existing operations. These show the complexity involved in leading businesses nowadays - there are often conflicts in choosing the best strategies which means leaders must be able to compromise between the competing demands - and there may not be a solution which satisfies every demand.

Leadership in a context of digital disruption calls for adaptability in order to enable individuals and organizations to navigate their way through complexity and ambiguity (Bolden and O'Regan, 2016). Rick Haythornthwaite, the chairman of *Centrica* and *MasterCard* emphasizes the significance of context and adaptability in the practice of leadership.

> *"One lesson to be learned is that leadership is context specific. There is no one approach to leadership. It must be adapted to the needs of the day and shaped to make the best of opportunity and tackle the worst of threat. The only immutable truth of leadership is that people truly matter, and your job is to help them negotiate the complexity that dominates their working lives"* (Bolden and O'Regan, 2016)*.*

Whether it is a personal opinion or a reflection on the past experiences of Rick Haythornthwaite, it is agreed by other scholars as well. Kakabadse et al. (2011) adds to this statement by pointing out that the ability to "adapt to context" can be the key to success for leaders while managing transformations. Leaders need to be able to adapt to the complex context of contemporary developments. Considering today's business environment where the development of digital technology is rapid and continual, adaptability could be one of the important skills for leaders to develop.

The CEO of Accenture states that due to the uncertain nature of the digital era, businesses need multiple strategies simultaneously, and to constantly reinvent their pathway in order to reach their goals (Michelman, 2016). Mcgonagill & Doerffler (2010) go as far as to say planning makes less sense in the digital age. This situation calls for leaders and empowered employees who are agile enough to

understand and respond quickly when there is change in their plan. Agility refers to ability of quick response to opportunities and threats in the business environment. According to Li et al. (2016), agility in the digital age refers to the skill of a leader to lead effectively in new, dynamic and ambiguous circumstances with disruptive technologies. Agility is also linked to pro-activity and foresight in detecting changes in the environment. According to the foresight research and analysis program that is conducted by the global management consultancy firm Hay Group and strategic foresight consultancy firm Z_Punkt, organisations, especially international companies, need agility due to the fast changing environment of the digital era (Hay Group,2014). Nanterme, the CEO of Acenture (Michelman, 2016) agrees that agility is very important for leaders to have in order to guide people, especially in a world where it is very difficult to foresee things in the short term. Leaders need to be agile enough to recognize the critical crossroads in their journey, be prepared to react to them in the best possible way and accommodate these changes (Dotlich, 2017).

Another important aspect of dealing with high uncertainty is being clear and open. It is important for leaders to provide clear purposes and direction to their teams in order to manage in the face of increased uncertainty and complexity in the digital era (Bolden & O'Regan, 2016). According to a survey conducted that garnered responses from 1,559 executives in a wide range of industries (Fitzgerald et al., 2013), leaders need to have a clear vision to lead the digital transformations in the organisation in order to benefit from the business improvements brought by digitalisation (in Collin et al., 2015). It is also very important for leaders to articulate this clear vision and make sure that this vision is clearly understood in their organisation (Collin et al., 2015). A study by MIT Sloan Management Review and Capgemini Consulting firm, also reveals that leaders often see the opportunities that could be brought by digital transformations, but they are not very clear when guiding others on how to deliver the results (Fitzgerald et al., 2013). And this lack of clarity can demotivate employees to push for digital transformations, especially if there is already resistance to digital changes in the organisation. Consequently, it is important for leaders to provide clear vision and structure to their organisations in order to reduce the complexity as much as possible while leading digital transformations effectively.

4.4 Learning

The skills required for successful leadership change just as quickly as the technology (Wilson et al., 2004). This means that leaders need to be able to learn constantly not only about the new developments themselves but also how it affects their work and teams, or spot innovative ways it can be used to improve their business. There is a need for senior management to lead the way and embrace new ways of learning, as if they fail to do this there is no encouragement for the rest of the workforce (Hopp, 2012, in Walsh, 2014).

A substantial amount of knowledge is necessary in a knowledge based society, and leaders should also be aware of what they do not know, and how they can learn the information they are missing (Wilson et al., 2004). This means leaders must be able to reflect on their own knowledge and help their employees to do the same. Part of the reason for the need for learning is that followers often have access to the same information as the leaders do, meaning they are likely to have to justify themselves to their team based on the latest information (Avolio and Kahai 2003, in DasGupta, 2011), otherwise they risk being seen as out of touch or perhaps untrustworthy.

The need for constant learning makes a growth mindset valuable for a leader and their followers. Leaders need to look after not only their own personal development but also encourage it in their followers. Growth mindset is a concept created by Carol Dweck (2007) based around how people fundamentally understand intelligence and skills. The fixed mindset understands intelligence as something a person is born with whereas someone with a growth mindset believe they are capable of developing their basic characteristics such as intelligence and personality (Dweck, 2007). Those with a growth mindset embrace challenges and risk as a learning opportunity, are persistent despite setbacks and are able to learn from negative feedback (Dweck, 2007). As the previous section on dealing with change described, the digital era is characterised by high uncertainty and therefore failure should be expected and dealt with constructively. This does however present a challenge to Dweck's theory on mindset as she describes growth mindset as being focused on the long term outcome rather than instant gratification (2007) - which in a fast moving digital environment may not always be appropriate if the context changes before a long term plan pays off.

Leaders can work towards creating a growth mindset in their working environment in a number of ways according to Dweck (2007). Presenting skills in a way which shows they can be learned; emphasising that the organisation values learning and perseverance rather than talent; ensuring feedback promotes future success and showing that managers are a resource for learning can encourage coworkers to develop a growth mindset.

Experimentation is a valuable tool for learning according to Andrew McAffee, a researcher at the center for Digital Business at MIT (McKinsey Global Institute, 2014) as it can provide new perspectives and experiences which can be drawn on when problems arise in future, but in order to be comfortable doing this employees need to know that mistakes are acceptable and that facing new challenges is a chance to learn. This of course also relies on the context of the experimentation - the resources of the company and the size of the risk may not always allow such freedom.

In Bolden & O'Regan's (2016) interview about "*Digital Disruption and the Future of Leadership*" with the chairman of Centrica and MasterCard, Rick Haythornthwaite states that leaders must be able to take sensible risks, be willing to fail fast if necessary, and learn from both success and failure. Padmanabhan (2017) agrees and states that "To think of leadership as only success is passé". According to Padmanabhan (2017) "failure handling" is a very important aspect for leaders, especially in the face of VUCA (Volatility, Uncertainty, Complexity, Ambiguity). For leaders to have a fearless approach to failure reinforces the efficiency of their practice of leadership, to deal with VUCA. Furthermore, it is also important for leaders to encourage this fearless approach due to the fact that leaders are a big influence on their colleagues.

4.4.1. Digital Literacy

Digital strategist Courtney Hunt (2015) argues that leaders need to be digitally literate in order to have the knowledge and understanding of relevant digital era concepts such as; digital tools, systems and social technology platforms. Furthermore, digital literacy involves more than the ability to use social and digital technologies efficiently but also the judgement is needed in order to use these advancements effectively, for example, knowing the right channel to use for a given communication (Eshet, 2004; Hunt, 2015).

In Paul Michelman's (2016) interview with the CEO of Accenture, Pierre Nanterme states that leaders need to be both digitally savvy and business savvy. Nanterme (Michelman, 2016) argues that the future of the business models will embrace combining business and technology opportunities due to the fact that digital technologies are becoming enablers of new business models. In order for organizations to comprehend these new business models, it is important for leaders to have a basic understanding of technology capabilities (Michelman, 2016). According to the "Leadership 2030" research that is conducted by the global management consultancy firm Hay Group and Germany-based foresight company Z_Punkt (2014), digital knowledge is rapidly becoming the powerhouse of the global economy considering digital systems offer cheaper and faster communication, organization, production and so on. Therefore, Hay Group (2014) argues that leaders not only need to be digitally savvy but also embrace the 'digital natives' – young people who are familiar with technology from an early age – and provide guidance where it is needed. Furthermore, it is essential for leaders to encourage the collaboration and information sharing between 'digital natives' and other workers who do not have much digital information.

4.5 Practical Changes

On top of the previously discussed areas, digitalisation brings more practical considerations as well as less tangible ones. As well as communication skills, DasGupta's 2011 literature review identified three more skills needed by leaders in the digital age: a global, multi-cultural mindset; greater sensitivity towards followers' state of mind; and a 24x7 orientation. The point about greater sensitivity to the state of mind of followers is not mentioned in other literature and it is not clear exactly what is meant by this from the review.

Due to more open communications both within and outside of the company, leaders need to interact with people from a wide range of demographic and professional backgrounds (Wilson et al., 2004). This suggests leaders need an understanding of the different values that may be held by different groups in order to understand how best to motivate them for example, as well as practical differences in how they work such as working hours.

The 24x7 orientation mentioned by DasGupta (2011) is necessary for leaders since a geographically spread out team is able to work on a project continuously (e.g. when workers in Sweden finish for the day, their colleagues in India will still be working), and therefore the leader of such a team must be aware that the project does not stop moving when they leave the office.

Tarafdar (2016) argues that changing work environment will require leaders to develop mindful approaches in order to deal with the changing digital technologies. The nine-to-five workday is becoming less meaningful due to the fact that digital technologies enable remote work. Most organisations are facing challenges such as information overload or stress, because of the current management mindset that is focused on the separation of work- nonwork time (Tarafdar, 2016). Nevertheless, technologies will increase in flexibility that will lead to greater use at home for work and vice versa. Therefore, leaders needs to develop a mindful relationship with the technology that support employees in managing the possibilities of flexibility, instead of having troubled work-home boundaries which might not be maintained in the future.

'Global' mindset need not only refer to different countries - Khan (2016) mentions how leadership needs to be holistic according to interviews with business leaders, for example, CEOs need to know

much more than just things relating to executive decision making. If a leader is to achieve their purpose of guiding people towards common goals (e.g. Drath, 2008), then they should pay attention to available information from all over the business to ensure they have an overview of how the tasks of different teams fit together.

Being able to look for new ideas from outside the business is also easier thanks to digitalisation (McGonagill & Doerffer, 2010). Leaders should therefore be open-minded about what is going on outside not only their business but also in other industries and markets to make sure their team can incorporate the best people and knowledge into their teams. This sentiment is echoed by US entrepreneur Keith Krach in a 2016 blog post on LinkedIn, where he also points out the need for leaders to take the initiative to discover these new ideas as well as giving and receiving feedback from employees. This also means being transparent enough to allow others to see what issues the team may be facing, within the company as well as outside it, in order to be open to receive help from other teams - leaders should ensure teams are not closed off.

4.5.1. Virtual Teams

Virtual teams are also a new challenge presented by digitalisation. The terms refers to team which are dispersed geographically, and who communicate through technological means such as e-mail or video conferencing (Krumm et el., 2016). These kinds of team are advantageous because they facilitate the acquisition of knowledge from a variety of business areas, markets and perspectives which can also aid innovation (Krumm et al., 2016), which is likely to contribute towards their growing popularity.

An issue for teams like this is that when some members are isolated from a bigger part of the team, they can feel negatively about the team due to being excluded from team processes, and the reduced communication with those team members contributes to a lack of trust (Siewiorek, 2012). A leader should therefore make sure that communication is consistent even with remote members of the team, for example by notifying them of new developments in a project at the same time as the local team, or making sure to take into account their opinion whenever it is relevant. Creating relationships between team members also helps to improve trust, by counteracting the tendency of reverting to face-to-face leadership despite the presence of virtual team members (Siewiorek, 2012).

According to a review of studies on virtual teams by Krumm et al. (2016), the skills which were more important to virtual teams than to traditional teams were initiative, autonomy and goal setting, as well as written communication, analysis and effective use of digital media. An effective leader can help to ensure the team makes use of these skills, although initiative and autonomy emphasise the importance of team members having the ability to lead themselves rather than looking to one leader figure for guidance - certainly an advantage in situations where the leader is not always present as in virtual teams. This study supports the notion that leadership is becoming more about empowering team members rather than controlling them.

Strong levels of commitment are needed even more for virtual teams, who otherwise are under much less social pressure to take on extra tasks for example (Krumm et al., 2016). Without a manager or leader to directly oversee them, they may not dedicate resources to project to the same extent that they would normally, making the collaborative work less efficient. Krumm et al. (2016) also point out that team members need to be more active in acquiring information and be able to

work independently to resolve problems, emphasising that team members in virtual teams need to be less passive than they may be in a regular team.

Despite the concentration of virtual teams in some of the literature, this does not affect all businesses equally as many, particularly smaller businesses do not need to make use of such teams. However, in a context where they are used it, there is certainly research so suggest it presents some new challenges compared to 'standard' teams.

Dweck (2007), developer of the growth mindset theory, says that employees in organisations with a growth mindset feel more trust for the organisation, more empowerment and more ownership and commitment. These are exactly the things which research suggests is lacking in virtual teams, and therefore encouraging a growth mindset within the members of virtual team may go some way towards reducing the problem.

4.5.2. Structural Changes

The fast pace of interactions thanks to social media as well as other technological developments means equally fast reaction times are necessary - a major reason for less hierarchical business structures (Jääskeläinen, 2015). Many organisations now opt for a 'flatter' structure, in which managers are both more independent, having less people above them to advise them, and more responsible as they have a large number of people below them.

Leaders in the digital age therefore need to be used to letting others in the business take charge, even if they are not in a designated leadership role, to enable the organisation to benefit from new technology, or as McGonagill & Doerffler (2010) term it, they must learn the 'art of letting go'. It is therefore important for teams to see that their leaders are willing to do this, rather than seeing a leader as a threat to their own ability to direct the work of others if they are the most appropriate person to do so. Dweck (2007) also states as part of her growth mindset research that effective leaders don't emphasise their higher position in a hierarchy.

Dweck (2007) claims that highly controlling leaders influence their coworkers into having a fixed mindset, that is, that they are closed off to the idea of learning. According to this theory then, more empowered employees will be open to learning themselves and facing challenges, making them better prepared for the challenges of the quickly changing digital environment. Digital organisations need to be prepared for leadership to be distributed around the business as required (Chew, 2013, in Collin, 2015), which demonstrates the need for people all around the business to be capable leaders who are able to step in when needed. This means leaders should be focused on the development of their team's leadership skills as well as their own to ensure that the team is never without strong leadership.

Khan (2016) describes 'hub and network based' leadership in which leaders focus on their own group, then move outside the group to connect with other hub leaders and exchange knowledge - therefore acting as a facilitator for the communication between different groups. This again emphasises the role of the leader as a facilitator for the effective work of their teammates. Khan describes this style of leadership as a consequence of a change in the way the structure of the organisation is seen, evidenced by all the business leaders interviewed in the study.

Kerfoot (2010) emphasises the role of virtual leaders as 'boundary managers' who inspire people to develop their ability to manage themselves from a distance (in DasGupta, 2011). That is, their aim is not to maintain tight control but to ensure others are equally capable of working towards the common goals of the team independently.

4.6 Gamification

Much of the literature regarding gamification is not related to quiz type games, so there is little of direct relevance to our project, however there are some features identified by researchers which we can make use of in our game. There were very few examples of leadership skills being targeted in a game, which may be due to the difficulties in creating normative skillsets as discussed above, but may also be due to the relatively new trend of gamification in training tools meaning it simply has not been attempted much yet. The below discussion provides information found in literature which we found relevant to our own project and which could inform our design of a game.

Simply knowing about different theories on leadership is not sufficient to develop skills in the area (Siewiorek et al., 2012). For this reason it is more effective to learn from a practical experience such as a game, where it is possible to apply the theories to real life situations.

Hoffman and Vorhies (2017) also point out that media can help learning by allowing people to learn through vicarious experiences. This means it is likely to be beneficial for players of our game to not only be encouraged to reflect individually, but also to discuss with others whereby they can learn the consequences of others' choices. However, we note that this can affect the replayability of the game unless there is a large amount of content, since players will become aware of other questions and outcomes than the ones they answered themselves.

Recording learning experiences can be very helpful during reflection according to Hoffman & Vorhies (2017). In the context of a quiz, we can make the player's answers available for them to go back and see after they have finished playing to help them reflect on their decisions.

Lanik & Eurich (2012) point out that not all leadership lessons should be learned on the job since they risk major consequences for the company, therefore simulating these situations allows practice of skills without the risk. Despite the fact we are not able to create a full simulation in this project, encouraging players to think in depth about the given situation enables them to increase their awareness of the way they deal with challenges before they actually experience it in real life.

Simulations are better predictors of performance and leadership potential than tools such as situational judgement tests (Lanik & Eurich, 2012). They are good for learning because they can provide immediate feedback and the situation can react accordingly, rather than simply judging a decision as right or wrong (Lanik & Eurich, 2012). A full simulation is beyond the scope of this ten week project, however we can provide questions which are based on the previous question in order to add an element of reactivity, and provide feedback specific to the question to help the player understand the problem given in the question and different ways to deal with it. This adds a higher level of interactivity with the game than a standard situational judgement test, and is also better suited to questions where the correct answers are not objective and clear as is the case with the material we will base our game on (discussed in the following section).

Debriefing provides an opportunity for reflection and discussion, which aids the learning process by externalising the experiences, which helps turn tacit knowledge into explicit knowledge (Siewiorek et al., 2012). It is not obvious that connections are made between the situations in a simulation and real life situations (Jaakkola, Nurmi, & Veermans, 2011, in Siewiorek et al., 2012), therefore reflection on the requirements of the situation and the reasoning behind the different responses could help to ensure the intended skills are being addressed and that the players of the game recognise this.

4.7 Conclusion of literature review

From the literature we have reviewed, we can identify a variety of skills needed by leaders in the digital era. For the most part these skills are the same as what has been required for leadership in the past, although there are now new aspects to the old issues or new tools which can be used to deal with them thanks to digitalisation. In fact, some authors such as Avolio & Kahai (2003) state that they are 'fairly confident' that leadership through technology can have the same content and style as face-to-face leadership can (in DasGupta, 2011), although this is mostly relevant to the case of virtual teams and the use of technology for communications.

Many other consequences of digitalisation are 'second degree' consequences, wherein the direct consequence of technological development created changes in the way things should be thought about on a more general level, beyond the scope of that one particular development. The consequences of digitalisation for leadership are therefore less obvious than expected in the sense that it may not be instantly obvious that digitisation is responsible for the change.

The four categories we chose were based on frequency of similar themes, and the existence of both academic and 'gray' (non-academic) material on that theme, although in many cases the themes overlap - it has been challenging to present these skills in a clear way since they do not fall into mutually exclusive categories. However, the list presented below represents our summary of all the skills we identified in the literature, which relate to the challenges existing in the digital age.

The list of skills we have is more extensive than the one given by DasGupta (2011) mentioned in the introduction to the literature review, which we feel is reflective of the complexity of leadership, the digital era, and the combination of the two, although it is not necessarily a comprehensive list. We have tried to cover all the skills related to digitisation which we could find, however due to the lack of reliable empirical studies there may be further skills which have not yet been identified. It is difficult to compare the ideas of academic researchers with those of businesspeople, since both use terminology in different ways and have different definitions of key concepts such as leadership.

Communication	- Dealing with information overload - Open and continuous communication to increase responsiveness - Effective virtual communication in place of face-to-face interaction - Ensuring consistent communication of values - stronger written communication skills - strong social networking skills
Dealing with Change	- Willing to make fundamental changes to the business model or vision - Being able to guide people in the face of uncertainty and complexity - Adaptability to digital developments - Quick response to opportunities and threats in the business environment - Less control, more empowerment
Learning	- Growth mindset in the whole organisation - Openness to mistakes - Willingness to learn - Digital literacy - Bridging the gap between digital natives and others
Practical changes	- Leading/inspiring virtual teams - Ensuring clear communication between teams - Creating shared identities - Global/multicultural mindset - Empowerment to more colleagues - Openness to collaboration - Encouraging self management 24x7 orientation - Mindful approach towards the effects of digital technologies in the organisation

Table 1: Overview of identified skills and mindsets.

However, from the available literature we do not believe the following list of skills can be considered a normative description of successful leadership in the digital era. This is both due to them not having being identified through an empirical study, as well as due to the importance of context in

leadership making if difficult or even impossible to generalise across all situations. They are instead indicative of a more general change in the way leaders need to think about their role.

Any business decision is part of a complex context which makes it impossible to determine a single correct action which can be generalised to all cases. Even with a focus on changes caused by digitalisation, it is not possible for us to claim that the skills are appropriate for any case related to digitalisation. Regardless we can use these skills as a basis for the game since they have still been identified as necessary in a majority of cases.

In order for these skills to remain useful, the mindset which goes along with them needs to match the context of the digital era. McGonagill & Doerffer (2010) describe new mindsets as the foundation for new skills. The growth mindset, in particular being able to face risks and persist despite setbacks, enables a leader to deal with the digital challenges of constant fast paced change and help the other team members do the same if this mindset can be encouraged throughout the organisation.

There is a strong focus on enabling other people, rather than controlling them. This links to Dweck's (2007) idea that too much control can reduce the growth mindset in employees, which is counterproductive when the team need to be always ready to learn. The types of feedback which encourage a growth mindset according to Dweck's research (2007) align with some of the skills we identify in this paper. Namely, praising employees for taking initiative, for learning new things, for persevering with difficult tasks, for not being intimidated by setbacks and for being open to criticism and feedback, all suggested by Dweck, match up with the ideas of empowering employees, openness to failures in an uncertain environment and the need for constant learning in a changing environment.

The challenges presented by working with virtual teams is the other standout point from our review, as there are clearly issues associated with their effective implementation which do not exist in the same way from regular teams.

The nature of leadership as context-specific therefore means it is likely not possible to create a normative skillset required by all leaders in the digital age - even when narrowing down to the digital context there are still vast numbers of variables which may make these skills inappropriate. For example, if we take 'the willingness to make fundamental changes'. Although a team leader may believe there is a need to make a fundamental change to the business, unless they are a member of the top management team they may not be able to put such a change into effect without permission, for example.

This also determines the kind of game we are able to create. A standard quiz requires clear correct and incorrect answers which we cannot provide on the basis of this review. As described in the following chapter, we can instead create a game which is aimed at encouraging reflection around the changes to leadership caused by digitalisation.

The eight challenges identified by DasGupta's review of e-leadership skills (2011) - listed in the introduction to the literature review - are addressed in the skills we have identified, although the focus of these challenges appears to be on virtual teams only and not the wider context of

digitalisation in organisations. We have identified further challenges relating to the role of the leader and changes in hierarchy, and also creating an organisation which is able to quickly adapt to the changing environment, both of which have gained even more importance due to digitalisation.

These are the skills we have focused on when developing our tool for IKEA. These skills align well with IKEA's existing ideas about leadership, even if those ideas were not really informed by the changes caused by digitalisation - for example, the responsibility of leaders for motivating and developing their co-workers is emphasised (IKEA, 2016b). This means there is no conflict on the 'official' level standing in the way of our game to develop leadership skills necessary in the digital age.

5. Presentation of game

The game is a quiz game that consists of three parts that involves various situational questions. Each question has 2 or 3 options that the user needs to choose from, with one option more closely matching the skills we have identified as being necessary for leaders in the digital age. After selecting an answer, the player will be given a reflection question which they should answer in text form, which will be saved for their own reference. Once this has been done, feedback will be given based on the initial answer chosen. The feedbacks give more information about how the leader can deal with the situation in the context of a digitalised world.

Due to the list of skills we identified not being particularly concrete, we have designed the game around encouraging reflection on the way the player reacts to the situations given rather than focusing on right and wrong answers. This is because we have not found enough empirical research to be able to determine objectively what the correct answers would be - indeed this may not be possible at all due to the complexity of leadership and the digital context. This means that the aim of the game is to become more aware of the challenges which appear for leaders due to the context of digitalisation and influence the player to reflect on their own mindset and move further towards having a growth mindset.

The skills we identified from the literature review will nevertheless form the basis of the questions we create for the game. The leadership skills which the game will address are:

Communication skills: In the game, we have created situations in which the leader needs to communicate clear and as frequent as possible in order to resolve conflicts or improve the situations.

Ability to deal with change: As we have discussed in the literature review, change is a constant thing that happens in the digital age. In the game, we have created situations where the leader needs to be ready for changes and also encourage his or her team to be motivated.

Encouraging growth mindset: Growth mindset is referred as the willingness to learn new things, strive for learnings and opportunities. In the game, we have created situations that the leader needs to encourage employee development.

Adapting to practical changes: Digital technologies lead to various practical changes that leaders need to be mindful about such as; virtual teams, more collaboration, more empowerment given to team members. In the game, there are situations in which the leader needs to deal with conflicts in virtual teams.

To create the quiz questions from the skills we identified in the literature, we began by creating a mind map based around the four skills categories as listed above. We decided on possible business situations which met the criteria of being related to both digitalisation and leadership, drawing inspiration from the digitalisation related challenges described in the literature we read as well as our own professional experiences and discussions with others to gain a wider variety of ideas. After coming up with as many ideas as possible, we then filtered them to ensure they fit with our definitions of leadership and digitalisation, as well as being realistic and simple enough to explain in relatively few words. In the process of creating options to the quiz questions, we have mainly thought of how contemporary organisations (which show, for example, more empowerment, global collaboration, transparency, etc.) are dealing with challenges that are brought by digitalisation in comparison to the traditional organisations which are more hierarchical and control focused. We chose answers to reflect both styles of organisation, and where possible gave an option encouraging a growth mindset response (E.g. Questions 1A, 2A, 3A, 5A, 1B, 10B) - mostly in combination with the contemporary organisation style response.

5.1 Requirements of the game

The game should have replay value, meaning employees can play it more than once and still have the chance to experience something new rather than repeating the exact experience from the first time. Due to time constraints on us, we are not able to produce the number of questions necessary for such a game - in a consultation with a company who develop games and simulations for learning in businesses, it was suggested that one could need up to 800 questions to create a game which includes a broad variety of topics (C Bach, personal communication, 3 May 2017). Furthermore, our contact at the gaming company stated that creating a project such ours, is normally conducted over 1 year period. Our contact at IKEA acknowledges that a 10 weeks thesis project is not an adequate time period for creating such a game. Therefore, our output for the game is regarded as the basis of the game that will be improved, deepened and expanded by IKEA in the long run.

However, the reflection questions included in the game are displayed at random meaning that the game experience is not completely the same each time someone plays, and also not the same between players. This gives more opportunities for discussion as well as increasing curiosity about the content which has not yet been experienced.

The audience of the game as specified for us by IKEA is "any employee in any company" even though the game will be played by IKEA employees. Therefore, we have not specifically named any company in the text of our game. Moreover, our target audience is not only leaders but also employees at any level considering that the digital era encourages flatter organisations where more employees are empowered.
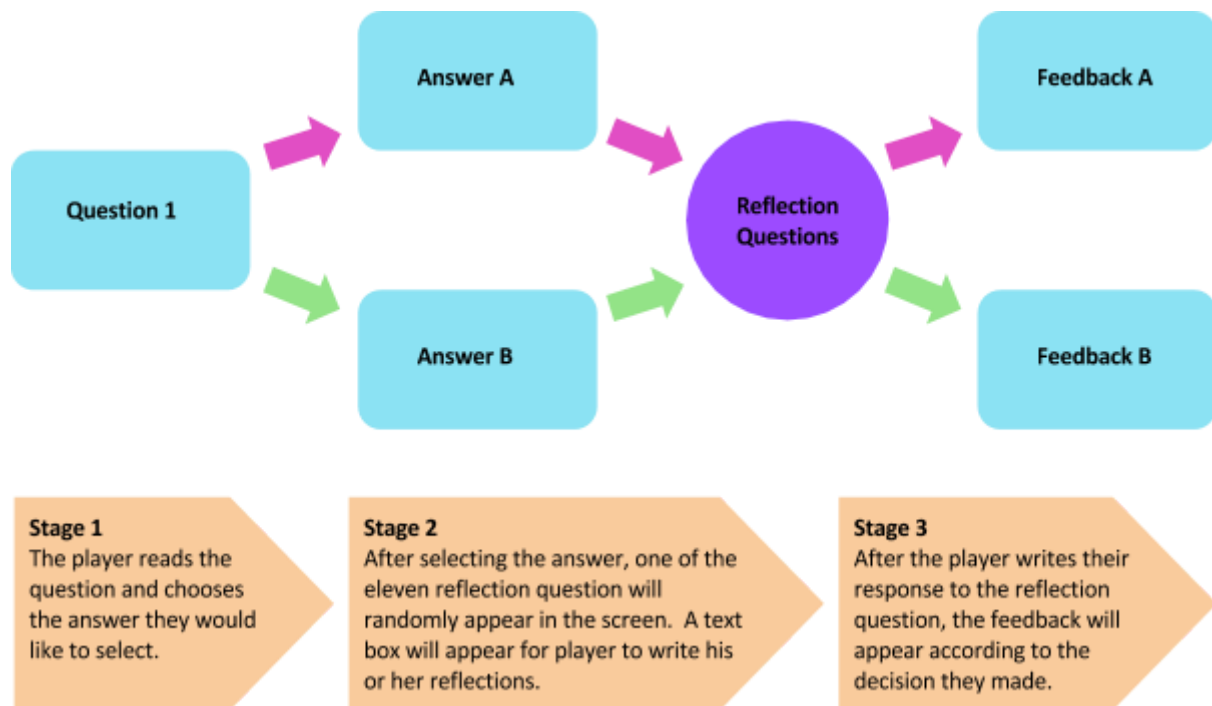
5.2 Structure and features

The game we have designed is a quiz based game, based on scenarios in a business setting. There are a series of questions about a particular case that challenge the player to think and reflect on the option they have chose and why they chose it.

This design was chosen to break the game up into chunks which can be played separately, making it more practical to fit into a busy working day. This gives players the flexibility to play the game during their lunch time or a longer period of time. Timing of the game varies depending on whether it is a group session where reflections and discussions take place or an individual playing. Ideally, the game is intended to be played in team so that the discussions will provide more depth and dimension on individual's learning. For instance, a player is not only going to learn from their own mistakes but also others'. A mini reflection session after the game ends can also be beneficial for players to learn from others' perspectives. We will be providing a list of questions which appear after the game in order to lead people reflect on different aspects of the game.

The game session ends with some reflection questions designed to 'debrief' the player, which should be discussed with another player or group of players.

Despite gamification often involving a scoring system, due to the lack of clarity regarding the skillset needed for leaders in the digital age, we have decided not to include scores since they imply that one answer is always correct. Due to the contextual nature of leadership discussed previously, we cannot make such claims. Once the feedback for an answer is displayed it is possible to click on other answers to see the feedback on the other options, to help them to see why the other answers were correct or not. Being able to see the other feedback option may aid in the player's reflection as they may come across different possibilities they had not previously thought of, enabling them to see the situation from a new perspective.

To demonstrate the structure of the game, we have provided a diagram of one question below. This shows the structure of each question set, which is repeated for each of the ten questions to be played each time.

Stage 1
The player reads the question and chooses the answer they would like to select.

Stage 2
After selecting the answer, one of the eleven reflection question will randomly appear in the screen. A text box will appear for player to write his or her reflections.

Stage 3
After the player writes their response to the reflection question, the feedback will appear according to the decision they made.

5.3 Content

The content of the game is comprised of a series of questions based around the skills and mindset that we identified followed by reflection questions. These are listed in the following sections.
It will be possible for IKEA to expand the range of questions using this format to form a more comprehensive game, perhaps in reaction to new research on leadership skills in the digital age.

5.3.1 Question set A

Question 1A (SKILL: Openness to fundamental change) The marketing team comes to you with a report they think you might be interested in. It shows some new industry trends which are quite different to what your company has previously focused on. How do you react?	A - Reflect on how these new trends could affect your business and start thinking of ways you can incorporate the new ideas into the business	Feedback A Conflicting ideas are very useful in an environment full of uncertainty as they can provide new perspectives on challenges, as well as hints at major game-changers which the company should prepare for. Thinking of the different possibilities for the future mean you can react more quickly when needed.
	B - Make a note of the developments but wait to see if they start to affect your existing plans	Feedback B While it is good to pay attention to new developments, waiting until they affect you directly may

		mean missing out on a good opportunity as digitalisation is causing changes at a faster and faster rate
	C - Stick with what you know - the trends could just be short lived	Feedback C When the pace of change is so fast, it's a big risk not to take any action. Even if you decide not to act on a new potential threat, it is important to consider the consequences further down the line.
Question 2A **(SKILL: Openness to fundamental change)** Your company has always been proud of the excellent customer service in its stores, which contributed to its great reputation. However technology is changing the way people shop and the face-to-face customer focus is becoming less relevant. How do you deal with the fact that the company vision no longer matches the demands of the environment?	A - Discuss with other leaders in the business the possibility of creating a new vision statement. Since technology is challenging the fundamental idea of the business, perhaps it is time to update the vision for the current context.	Feedback A Digitalisation is affecting businesses on both a superficial and fundamental level - and leaders need to be willing to challenge the whole idea of the business, to see if it stands up to the demands of the digital age.
	B - Modify the existing vision statement slightly, to make it more applicable. You don't want to change the way people think of the company too much.	Feedback B Part of the reason businesses are unsuccessful in transforming themselves into organisations making the most of digital developments is that they are not willing to take big steps in changing the way they see themselves.
Question 3A **(SKILL: Proactive learning)** You read on an industry magazine website about a new technology that one of your competitors is using to increase the value of its offering to customers. This is the first time you heard about the new development. How do you react?	A - Schedule a small amount of time each week to read up on new technological developments - you don't want to miss out on something important again	Feedback A As a leader, it is important for you to be willing to learn about new technology so you can understand how it could help you. However, perhaps looking at how other businesses are making the most of the new developments could lead to more innovations for you.

| | B - Read up on new technology but also look at your competitors for ideas on how to use technology both in similar ways to them and in ways they have not yet done | Feedback B
Effective leaders need to be willing to learn about technology in order to understand how it can affect the business both in its operations and in terms of creating value for your customers. Inspiration can come from anywhere, but competitors who are trying to achieve similar goals could be the spark for a new idea to revolutionise your business. |
|---|---|---|
| **Question 4A**
(SKILL: Collaborating with new demographics)
Your team is collaborating with colleagues from the Middle East, and one member of your team complains that they didn't get a response to an urgent email on a Friday. You know that they don't work on Fridays in that country. How do you respond? | A - Explain that other cultures have different norms for working and encourage both teams to interact and clarify their expectations from each other. | Feedback A
Technology is making collaboration between people all over the world easy, but this brings the challenge of dealing with people from backgrounds you or your team may not have worked with before. Employees need to learn to communicate even more clearly to avoid misunderstandings and be aware of cultural differences they may encounter. |
| | B - Tell the employee who complained to accept that business culture is not the same all over the world, and they need to be patient when communicating with others. | Feedback B
As a leader you should encourage employees to learn the skills to solve their own problems, so that they are able to manage themselves. This case calls for learning to communicate better with people from a different background, as clear communication is they key to avoiding misunderstandings. |
| **Question 5A**
(SKILL: Growth Mindset)
You are in the process of hiring | A - Hire Candidate 1 because she has more experience in the related industry. She might | Feedback A
In the digital era, the only constant thing is change itself. |

a new member into your team. Out of many applications, now there are only two remaining candidates. Both of them are experienced and successful people. Candidate 1 has more experience in the related industry for the particular position. But during the interview, you have observed that she seems to have a fixed mindset. She does not like to try new things in her professional life while candidate 2 is more motivated to strive for challenges and new learnings even though she is not as experienced as Candidate 1. Which one would you hire?	be more helpful with the recent project and it will not be a problem that she is not open to new challenges as long as she does a high quality job.	The way we communicate, the digital tools that we use, emerging markets that need to be learned about etc. For many leaders, one of the biggest challenge is to deal with the employees who are resistant to changes. It is essential for organisations to recruit and retain employees who are open to new learnings and challenges in order to improve themselves and the organisation in which they are working for.
	B - Hire Candidate 2. Having a team member who is highly motivated and open to new challenges will be a positive change in the organisation. As long as she strives to learn and develop, she will gain the experience needed soon.	Feedback B Digitalisation has been bringing many changes and challenges along the way. According to the research, it is very important for organisations to adopt a culture that encourages changes and new learnings. Therefore, hiring or retaining employees who are striving for new learnings and challenges, encourages the development of the organisation.
Question 6A **(SKILL: Enabling collaboration)** Two teams from across the business are collaborating on a project, but you sense there is some tension between them, possibly due to conflicting goals for the outcome of the project. How can you resolve this?	A - Get the teams to meet and review the overall goals and progress on the project to make sure they all understand what they are aiming for - they might have lost sight of the bigger picture	Feedback A It is important for leaders to help to make sure employees understand the goals of the business in order to avoid conflicts like this and keep everyone aligned to them. Getting them to talk together makes it easier to ensure everyone has the same understanding.
	B - Let the teams continue as they have been, as they both know what's best for their own	Feedback B While each team may have a better idea of how to deal with

	parts of the project. They will find a way to resolve their differences.	their own part of the project, collaboration is what leads to stronger problem solving. It is a good idea for leaders to facilitate communication between the teams and make sure they are clear on the goals of the project.
Question 7A **(SKILL: Inspiring virtual teams)** A part of your team is located in Germany. You have been working on a project with them and their participation is very important . You have realised that the team have been missing some of the deadlines for their tasks that is holding the whole project behind. And the work they have been doing is not as good as you would want. How would you deal with this situation?	A- Schedule a meeting over the internet and explain clearly what your expectations are from them. For the future, try to schedule meetings more frequently for them to feel more engaged with the project.	Feedback A Digital technologies enable organisations to work as virtual teams on the same project globally. Sometimes it can be challenging to keep the engagement and motivation while working remotely over the internet. Therefore, leaders should make sure that communication is consistent with remote members of the team as well as the local team. It is also important for a leader to provide clear directions on what is needed from team members.
	B - Remind them what needs to be done before every deadline. Follow up with all the deadlines for their work.	Feedback B Employees need to know and remember their own responsibilities and deadlines. Being the leader in a virtual team can be challenging to keep the team members motivated and engaged with the projects. In order to prevent these challenges, leaders need to communicate with the team frequently. During the remote meetings, there can be misunderstandings due to the lack of face-to-face communication. Therefore, leaders need to be clear while explaining their vision,

		assigning tasks and responsibilities, setting the deadlines.
	C - Tell them that it is unacceptable to miss deadlines. There is no room for mistakes in this team and they have to be more careful next time.	Feedback C A part of being an effective leader is to inspire team members to feel more motivated and engaged which can be especially challenging with virtual teams. Leaders need to make sure that each team member is feeling involved throughout the process and understands their responsibilities clearly. Apart from that, it is essential for leaders to be more understanding to mistakes and see them as learning opportunities. Especially in today's fast changing environment, mistakes can happen often in the process of learning something new and adapting.
Question 8A **(SKILL: Dealing with fundamental change)** You notice that since the business has begun to provide more services for its customers, the actual sale of products is no longer where most of the value is produced. You need to make sure your team is also focused on these new sources of value, how can you encourage this?	A - Review the way you are measuring the success of your projects and consider using different metrics, even if these give less concrete results, for example user satisfaction ratings	Feedback A Digitalisation has effects on the whole value chain of a product or service. The measures a business uses can blind employees to anything not directly measured, so leaders should guide the team to focus on the right goals, even if this means making changes to the way you measure success
	B - Meet with the employees and tell them to focus less on the numbers, since there is more to the success of the service than sales	Feedback B Although telling employees to focus on something different, as long as the official measures of success are based on sales, this is what they will look at

		most. Consider adding different metrics to guide the team towards their goals, as digitalisation is changing the way value is created.
Question 9A **(SKILL: Creating a clear vision)** You have been informed that the company have decided to change their ERP (Enterprise Resource Planning) software programme. The process of changing the system will start in a few weeks and it is expected that you will inform your team about it. What would be your first step ?	A - Schedule a meeting with your team and start with explaining why this change was needed and what is expected to result from this project. Overall, explain the vision clearly to get your team ready for this change and help them feel motivated for the process. Make sure they are comfortable enough to ask questions and state that you will be supporting them during the project.	**Feedback A** In the digital era, one of the biggest challenges for organisations is to deal with the high level of uncertainty and complexity due to the continual changes in the business world. During these changes, employees can feel demotivated if they do not understand clearly what is happening around them. For this reason, leaders should make sure that their vision is understood clearly in their organisation. It is important for leaders to communicate clearly, share information on the reasonings behind projects and support their team through the process.
	B - Start the meeting with explaining the practical information about the programme.	**Feedback B** In the process of a change, employees need to understand the motivation behind this decision. Before the technical and practical information about the digital technologies, the leader needs to explain the reasons for the change and the expectations from the project. Colleagues need to understand the vision of the organisation before acting on learning the programme in order for them to be more motivated.
Question 10A **(SKILL: Encouraging employee**	A - Reach out to the team and ask if there is anyone who	**Feedback A** In the process of learning new

development) You have recently started to use the new ERP software programme. It has been a major change for your team and you have realized that one of your team member is struggling to adapt and learn the new system. What would you do ?	needs more training. Emphasize that you understand that this is a big change and you will be supporting every team member in the process of getting used to the new system.	things, it is possible for employees to struggle to adapt. Therefore, it is important that leaders encourage their colleagues to develop and improve themselves in the face of challenges. For example, ask for their feedback on what they would want to learn, provide help from a training company etc..
	B - Do not do anything about it. He needs to take the control over his learnings.	Feedback B For leaders to support employee development is necessary in the digital age. Individuals need to keep up with the fast changing technologies. It can be challenging for some of the employees to learn something out of their comfort zone. In this case, the leader needs to support employees to embrace challenges.

5.3.2 Question set B

Question 1B (SKILL: Growth Mindset) The same employee who has been struggling to learn the new software programme made a mistake in the system by entering wrong data that almost led to paying the wrong supplier. What would be your reaction?	A - Leave room for mistakes. It is okay to make mistakes, especially in the process of learning something new.	Feedback A Fast changing digital technologies can be a major challenge for individuals. Because employees fear to make mistakes, they may not want to try something new. In order to avoid that, leaders need to encourage their team members to develop a mindset that sees failures as learning opportunities and strive for new challenges. To do this, leaders need to influence them by being understanding

		to their mistakes and keep supporting them.
	B - Talk to him privately and make sure that he will not make the same mistake again.	Feedback B It is important for the leader to be more understanding of the situations in which employees make mistakes. The fast development of technology leads to the need for constant learning. Making mistakes is part of learning, so it is important that leaders influence their colleagues not to fear failure and be more open to new challenges.
Question 2B **(SKILL: Dealing with structural change)** A new project is coming up, and you know one of your team members helped to run a similar project in their previous job. How do you organise the team?	A - Let them take the lead since you know they have the experience and knowledge to lead the team to success.	Feedback A Part of being a leader is knowing when to step back. If there is someone better suited to lead a task then they should be able to take on this responsibility, even if you provide some guidance from the sidelines. Trusting others to make decisions allows the team to react faster which is important in the fast moving digital world.
	B - Make the decisions yourself but ask for advice from the experienced team member.	Feedback B Although it is great to get input from people who may have more expertise than you do, there is nothing wrong with letting them take the lead - flexibility is a great asset in an organisation and helps make sure you always have the best people on the job. Putting more trust in others means they can move more quickly, and fast reactions are necessary in the fast moving digital world.

	C - Keep control of the team yourself, since you have more experience in the current industry.	Feedback C New perspectives can lead to great things - and this could mean stepping back if there is someone who can do an even better job. Being a leader does not mean always being in control, trusting others to make their own decisions can increase the reaction times of the business which is important in the digital world.
Question 3B **(SKILL: leading virtual teams)** Half of your team is located in Italy while other half is in Sweden. The recent project that you have been running requires these two teams to work collaboratively. You have observed that there is a lack of engagement and communication between the teams. The team in Italy has good communication internally but they do not share much information on the process with Team Sweden. How would you solve this problem?	A - Schedule meetings together with both of the teams more frequently. Ask questions that will be answering the things that team members need to hear from each other. In order to raise the engagement feeling between the teams, set up some activities (e.g have a small party via internet that both of the teams will be attending to celebrate a success).	Feedback A Digitalisation enable remote working and empower virtual teams working together on the same projects globally. During the process, colleagues who work remotely can feel disconnected and demotivated to collaborate. In this case, leader needs to show the way by communicating with the teams more often. For example, scheduling weekly meetings with the teams, ask questions encourages more information sharing between the teams.
	B - Schedule a meeting in the local office in which they need to be there in person. It seems like it will not work out via internet.	Feedback B Communication does not need to be in face-to-face in order to work collaboratively. As a leader, it can be challenging to keep the engagement and connection between two virtual teams. This can be minimized by scheduling more meetings via internet and help them communicate clearly more often.
Question 4B **(SKILL: transparency)**	A - Next time, make sure that your team will be the ones	Feedback A In the digital age, information

The new company strategy was announced over the internet and your team have read it through a website instead of hearing it from you. They were disappointed with the fact that they were not the ones who had the chance to hear about it first. What would be your response to prevent this to happen in the future ?	who hear about these kind of announcements first.	sharing became more transparent than ever before. This transparency led organisations to be more open with their business processes. In today's world, it is easier for individuals to access the information before you share it with them (e.g. through social media). Therefore, It is more important to share new developments with co-workers. Leaders need to be open, honest and clear to their teams with business related informations.
	B - Tell them that they need to hear about it via internet anyway. You are already very busy and you do not have the time to share every relevant information with them.	Feedback B Information sharing has become more and more transparent in the digital age. Therefore, leaders need to be in communication with colleagues and team members frequently. For team members to feel engaged and motivated, it is important that leaders inform them about the updates and improvements of the organisation.
Question 5B (SKILL: establishing boundaries) One member of your team has been working a lot in the evening outside office hours. They recently became annoyed that you did not answer an email quickly enough, as they expected that you, as team leader, would be there to support them whenever needed. How do you deal with this?	A - Meet with the employee to clarify boundaries and expectations relating to communication.	Feedback A Just because technology allows constant communication does not mean this should be expected. Leaders need to help set boundaries within their teams regarding what is expected from them.

	B - Try to check your emails more often in the evening and prioritise replying to that team member to avoid conflict.	Feedback B Technology has blurred the lines between working and private life since it is possible to be connected to others 24 hours a day. However, no team member should be expected to be available all of the time. Therefore, it is important for leaders to help to set boundaries in order to reduce the pressure to respond.
Question 6B **(SKILL: Understanding technological preferences)** You have been sending emails to your team member who is working closely with the project that you have been leading. She is slow to reply to your emails. Most of the time, you have to call her to check if she has seen your email. It has been causing you stress and it is slowing down your progress in the project. How would you deal with it?	A - It is okay to have a technology preference to communicate with co-workers as long as it does not break down the flow of the communication. Let her know clearly how it affects the progress in the project and encourage her to be active on using several platforms to communicate.	Feedback A Some employees may have different digital technology preferences. While some may prefer to be contacted by emails while others by phone. This can be a problem that can break down the communication between co-workers and lead to stress or conflicts. Leaders need to encourage people to understand how these different preferences can affect the rest of the team.
	B - Keep calling her to check if she has seen your emails.	Feedback B It is important for the leader to be aware of the fact that colleagues might have different technology preferences to communicate. But it should not affect the quality of the communication flow between colleagues. Therefore, leaders need to influence their co-workers to understand how their different technology preferences might affect rest of the team.

Question 7B **(SKILL: inspiring virtual teams)** You are leading a virtual team on a project, that is, your team consists of people in a variety of locations who interact using technology. Some team members seem less enthusiastic about the project and one mentioned feeling out of the loop after some information was not shared with them. How can you improve the situation?	A - Remind the team that all members are equally important to the project and therefore communication needs to be open between everyone. Regularly bringing everyone together for video conferencing to share progress and successes could help with motivation.	Feedback A When parts of the team are working remotely, they can begin to feel disconnected from the rest, and may even miss out on something important. Leaders need to make sure that everyone in a virtual team is included in important information exchanges as well as celebrations of success.
	B - Let the remote workers know that they need to show more commitment and that they should try harder to look for the information they need.	Feedback B When co-workers do not see each other every day, it can be harder to make everyone feel part of the same team. Therefore, all team members should be encouraged to include each other, whether that means making sure everyone has access to the needed information or just making sure they share the celebration after a success.
Question 8B **(SKILL: dealing with change)** Due to a large amount of changes in the business over the last few months, some employees seem to feel more uncertain and demotivated than before. How can you get them back on track?	A - Meet with your team to update them on the progress of the changes and the goals for the changes, and let them ask questions or raise concerns that they have.	Feedback A Change can happen very quickly, and if employees don't understand it clearly then they can lose sight of the goals they are working for. It is a good idea to keep everyone updated as much as possible to reduce negative effects through the change process.

	B - Give them more time to adjust, since there has been so much change they just need to get used to things again	Feedback B Change without a clear direction can leave employees feeling demotivated as it may no longer be clear what their goals are. Make sure to keep them updated as well as ensuring they see the bigger picture of why and how the change is happening.
Question 9B **(SKILL: Leading virtual teams)** Team members have been sending e-mails back and forth, trying to get a project finished before the deadline. You have realized that the conversations through the e-mails which you were copied into, turned into interpersonal conflicts on which team member did what (or did not) in the past. What would you do to resolve the conflict?	A - Schedule a meeting with all the team members. Listen to their opinions on what happened and why. Help them to communicate with each other clearly in order to resolve the conflict. Make sure that each team member understand their own responsibilities so as not to face the same problem in the future.	Feedback A Lack of clear communication is a common reason behind misunderstandings and conflicts. Communicating through emails can even be more challenging while working remotely. Therefore, it is essential for leaders to be clear while explaining their expectations, assigning the tasks and make sure that it is understood by the team members.
	B - Do not interfere with the problem. Let them solve it.	Feedback B Leaders need to be the one who show the way to their team members when there is a difficult situation. In today's digital world, clear communication is even more important than before. Lack of face-to-face communication can lead to misunderstandings and conflicts. In order to minimize these disagreements, it is important that the leader communicates clearly about what is expected from who.

Question 10B (SKILL: Encouraging growth mindset) You helped to resolve a heated discussion via email between two employees whose misunderstanding caused confusion in their teams. How can you encourage them to learn from the situation to ensure it does not happen again?	A - Speak to both employees about why the conflict happened, ask for their opinion on how the issue started and how to prevent it in future. They should think about how to be clear with someone when they both have different understandings of the situation.	Feedback A Clear communication in writing is vitally important when most of your correspondence happens via email. Getting the employees to reflect on their own behaviour also helps them to learn from it.
	B - Let it go and don't discuss it further - the problem is already resolved.	Feedback B When you can't always speak face-to-face, it can be more challenging to make sure you are understood properly. It is important for the leader to make sure that the employees can recognise the reasons behind this conflict, so that they can develop their own ability to communicate clearly.

5.3.3 Reflection questions

After each of the above questions has been asked, a reflection question will appear. This will be randomly generated each time. The following list provides the reflection questions:

1. Have you ever experienced a situation like this? If so, what do you think about the way you handled it?
2. What was the main motivation behind choosing this answer over the other option(s)?
3. What assumptions do you have about others' behaviour which lead you to this answer?
4. Do you think the other people involved would agree with the decision? Why? Did this influence your decision?
5. Does this situation challenge your abilities or are you comfortable dealing with it? Why?
6. Does your answer reflect the way you have acted in the past?
7. What changes do you think would happen as a result of this choice? Can you see any unintended consequences?
8. Why do you think the other option was not the optimal answer for you?
9. Do you think this is an important aspect of leading? If yes, why?
10. Do you think there is a better option that is not written here? If yes, what is it?
11. Can you think of situations where this answer may not be appropriate? What would you do instead?

5.3.4 Debrief questions

Once the game is completed, a number of questions will be presented for reflection on the game as a whole. These questions should be discussed in a group with others who have also played the game. This encourages the players to share their thoughts, enabling them to benefit from new perspectives.

1. What is the main idea that stayed in your mind after the game?
2. Is there any feedback that you do not agree with? If so, why?
3. Have you or your team taken any steps to deal with the impact of digitalisation?
4. Did you ever come across any ideas that you have not thought of before, from the game or from discussing with others?

6. Discussion

This section is intended to bring together discussion related to both the literature review and game parts of this project, although there is already some discussion of the skills in section 4.7.

6.1 Skills for leadership in the digital era

The main challenge while writing the literature review was the lack of sources due to our topic of leadership and digitalisation only appearing in academic research quite recently. We expected there to be much more existing empirical research on leadership relating to digitalisation in the same way as there is for the field of leadership in general. There are many books and articles related to 'digitalisation' or 'leadership' but not many that includes both of them. We have tried to be as specific as possible and used sources that are specifically related to leadership in the digital era. Thus, many of the sources of our literature review are data from interviews and articles in magazines rather than peer reviewed literature. We are aware that the information in the paper is not consisting of academically proven facts. However, most of the data we found is referenced by multiple authors from multiple magazines which are written by global leaders and management experts (e.g. Harvard Business Review, MIT Sloan Management Review) as well as by academic researchers, which suggests that the issues identified by researchers are also things that business leaders find important.

It was difficult to classify the skills and synthesise what we read into a coherent list. This is partly due to the lack of solid theoretical basis for the area of research - this leads to authors describing the same concepts in many different ways as there is little consistent language to use when describing leadership skills in the digital age. While we have attempted to collect current ideas on leadership in the digital age, we did not attempt to create a definitive model or theory to describe these ideas as we believe it would take a more robust empirical study to validate the skills described in the literature. Indeed, while there is a lot of emphasis on new skills required in the digital era across the literature, due to the lack of established definitions of leadership and digitalisation, the arguments in the literature often fall outside of the definitions we are using. What the authors are considering to be new skills may not be new, but it is not easily identifiable since there is a lack of clarity and coherence in the theories.

There were many more skills which we identified compared to those identified in reviews of the literature which existed previously. Since the idea of complexity is a common theme in material regarding digitisation, this may be the reason for the lengthy and complex set of skills needed. As noted previously, the skills identified in the literature review by DasGupta (2011) seemed too simple to deal with the challenges identified by the same author. On the other hand, by trying to incorporate a more holistic view of the skills needed may mean our results are less clearly focused, which makes them more difficult to apply to the game, or indeed to real life situations. In order to be useful it is necessary to simplify this complex topic into something more easily comprehensible, which due to the abstract nature of the topic is a very challenging task even if there were a substantial existing theoretical basis.

We expected to be able to come to a clearer conclusion about the skillset needed and therefore be able to create a quiz game around a more concrete set of skills, however as this was not the case, we

had to adjust our game to suit the outcome of our research. This outcome was that it would not be possible to conclude a normative set of skills applicable for leaders in the digital era, although the skills we identify are likely to be useful in the majority of cases. Instead, we could identify two general trends in the challenges and skills relating to digitalisation which we could use in the game - these are the importance of learning and the empowerment of employees.

The outcome of our research is limited in generalisability by the fact that the majority of the empirical sources involve individuals from large companies. Although this is applicable to IKEA, the finding that leadership is very much dependent on context implies that it could be difficult to generalise the skills needed for success between companies, particularly if they don't match the profiles of the companies or leaders used in the studies.

Most of the authors from different literatures agreed on the same idea. Therefore, there are not many conflicting ideas between sources. We believe that it is an indicator towards the validity of our data in the literature review. However, it may also be due to the lack of research about this specific topic meaning that such ideas have not yet been developed, which has contributed to our cautiousness in creating a list of skills necessary for leaders.

Due to the leadership skills identified in the literature as necessary in the digital era being, for the most part, the same as leadership skills not related to digitalisation (as predicted by Avolio and Kahai, 2003 in DasGupta, 2011), it seems that it is the way leaders think about their business which is changing more fundamentally. Therefore, we believe it is the mindset necessary in the digital era which is new despite the skillset being generally the same.

6.2 The Game

Our purpose of creating the game is to provide a digital tool for employees in order them to learn about the necessary leadership skills and mindsets in the digital era. Our original expectation was that we would be able to create a quiz with multiple choice questions which could be scored depending on the answers. However, due to the nature of our findings we decided scoring was not appropriate for the game since we cannot reliably determine the correct answer in a generalised question - the answer depends on context. Instead we designed a game which is heavily based on individuals reflecting on their own thinking and assumptions since we can encourage them to think of different possibilities regarding reacting to a situation and get them to question their own decision making process.

Deciding on questions for the game was also more challenging from an perspective outside of IKEA, since we are not aware of the situations which occur in day-to-day life which could be used as the basis for the quiz to make it more relevant to the players.

Considering our lack of experience in the field of designing content of a game, we asked for practical suggestions from a gaming company. According to their suggestions, we have tried to keep the game as simple and general as possible in order for users to understand the intended information clearly.

One of the challenges throughout the process of creating the game was to keep questions short to make them fit on the phone screen. It is difficult to keep it understandable, informative and short at

the same time. Therefore, we have prioritized the game to be more understandable and informative than short. We have also provided instant feedback when the user selected options in order to make the game more informative. Each feedback explains indirectly the motivation behind asking that question and directly the intended information to be taught.

Our intention was to test the game and get feedback in order to improve it. Unfortunately, voluntary testers from IKEA have not been found in the given amount of time, leaving us unable to assess the validity and reliability of the game with its intended audience. For future development, it is suggested to test the game with employees from different departments and positions in order to receive a variety of feedback both on practical aspects of the game as well as the content.

We were not able to work with a developer while designing the game, meaning we did not know about any practical limitations or opportunities which existed from a practical point of view. There may have been ways of improving the game design using the technology, but our focus in the project was on leadership in the digital era rather than how to create an app for learning and therefore we were not able to dedicate time to learning in detail about the scope of the tools used to create such an app.

6.3 Value of the research

One of the reasons that this research is valuable is due to the lack of linkage between leadership and digitalisation in the literature. We have intended to provide more research that connects different related literature from magazines, interviews and academic articles in order to contribute towards filling the existing knowledge gap, to emphasize the significance of changes due to the digital technologies and its effects on business setting.

We have not been able to identify a normative skillset for leaders in the digital age, but we have collected a range of theories and opinions about the topic which have provided further insight into the ways in which digitalisation has changed leadership. It seems unlikely that such a normative description of the skillset needed effective leadership in the digital age is possible considering the emphasis on the importance of context.

Digitalisation has been changing many things in the way people work and these changes show no sign of slowing down. Leaders have an essential role in organisations such as leading these changes and influencing people along the way. Therefore, this area of research can be a major interest for organisations who need to learn about it and be prepared for what the future holds in the business environment.

7. Conclusion

This paper aimed to explore the skills and mindsets which are important for leaders to be successful in the digital era. Our method was to review the available literature on the context of leadership in the digital era. In accordance with the literature review, we have designed the basis of a digital quiz game for IKEA to encourage their employees to be more aware of these skills.

Our review identified a range of new challenges that affect businesses as a result of digitalisation, and therefore there are a large amount of different skills that are important in order to deal with this complex environment. Through a literature review of material relating digitalisation and leadership, we identified four groups of skills relating to successful leadership in the digital age, and one mindset, the growth mindset, which is necessary (Table 1). We conclude that the range of skills necessary for leaders in the digital age is in fact rather similar to pre-digital times, although certain attitudes such as those included in a growth mindset are even more necessary. The importance of learning as well as the empowerment of employees seem to be two main themes linking many of the skills we identified in the literature. However, due to the lack of empirical data, we can not claim that our list of skills and mindset are a normative definition of the required characteristics that leaders should have.

We can conclude that this area of research would benefit from more in depth empirical studies to validate the skills that are important to have for effective leaders in the context of changes brought by digitalisation. This collection of skills and mindsets we have identified can serve as a starting point for further research on the topic.

We were able to create a game based on our findings which as well as raising awareness of the leadership skills should also contribute to encouraging a growth mindset in the players. Despite there not being a concrete skillset we could rely on to create a game, we were able to design something more open-ended to suit the information we were able to find. We intended to encourage players to reflect on situations where digitalisation influences the practice of leadership and to explore different ways of dealing with these situations, which open ended reflection questions and chances for discussion with other players should achieve.

7.1 Recommendations for Future research

Based on the research we have done, we can suggest the following main possibilities for future research.

- There is a lack of empirical research leadership skills in the digital age, so future research which observes the skills that successful leaders are using would help to identify what is necessary and validate the existing literature, which is currently very theoretical. As well as moving towards a more comprehensive look at leadership in the digital age, this would help to clarify future research on the topic by providing a more substantial basis for it.
- It would be beneficial to test the game as originally intended on the group who will use it, to ensure that they are able to understand the questions clearly and that they are able to reflect in the way we intend, as described in the presentation of the game. There may be

practical considerations we have not been able to deal with such as creating sufficient discussions between players.

- As the field of research on leadership skills relating to digitalisation develops, the content of such a training tool as we have developed can be extended and refined, with more questions being added or the current ones being modified to better suit the requirements of the digital age.

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