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Developing policy aimed at 21st-century digital skills for the creative industries: an interview study with founders and managing directors

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ABSTRACT

The creative industry is a sector where digitisation inevitably changes work practices and the skill requirements are high. The rapid digitisation makes it imperative for workers to acquire digital skills beyond mere technical use. The aim of this study is twofold: (1) to offer a deeper analysis of the nature and level of 21st-century digital skills and (2) to explore the roles of both individual workers and organisations in skill development. In total, 24 interviews were conducted with founders and managing directors of creative organisations based in the Netherlands. The results show that they believe that workers' technical skill levels are naturally high; while in fact, digital skills might require attention when content-related aspects are considered. The first priority in this case should be to raise awareness within an organisation's management. Thereafter, intentional and structural efforts on the part of individual workers and organisations are needed to improve skill development practices in the workplace.

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Introduction

The shift from industrial production to knowledge creation, increasing globalisation and pervasiveness of technology, change the skill requirements across occupations and industries. New job specifications and tasks emerge as digital technologies are being implemented (Berger and Frey 2016). The rapid expansion of digital technologies has a profound impact on the types of skills that are required by contemporary workplaces (Evans and Kersh 2014; Kaarakainen, Kaarakainen, and Kivinen 2018). Consequently, a number of studies have outlined skills required to participate fully in the digital age, which in turn leads to a myriad of closely related concepts (Siddiq et al. 2016). A common feature of these concepts is that they use a domain perspective (e.g. ICT, Internet, digital, twenty-first century) in combination with a knowledge perspective (e.g. competence, literacy, skills). Despite this diversity in terminologies, most of the literature agrees that not only technical skills such as programming and data management are crucial but also content-related skills such as social interaction and content creation. A popular example of a concept that covers a broad spectrum of content-related aspects is 21st-century skills, used to describe a broad range of skills that citizens need to contribute to the knowledge society (Voogt and Roblin 2012). However, 21st-century skills are typically not technology-driven (Joynes, Rossignoli, and Amonoo-Kuofi 2019). Recently, van Laar et al. (2017) introduced the concept of 21st-century digital skills to account for this shortage by covering and integrating ICT as a core element of content-related skills.

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Despite the diversity in terminology and categorisation, multiple studies attempt to identify and conceptualise the most important skills in a digital age. The question of how organisations support skill development and under what conditions is largely unexplored territory (Fettes, Evans, and Kashefpakdel 2020). The current contribution explores skill development practices within the creative industries (CIs). The CIs generally refer to traditional or core performing arts (e.g. arts/crafts, fashion, photography, music and theatre) as well as to those that are typically more commercially oriented such as advertising, design, media, software development and gaming (Daniel, Fleischmann, and Welters 2017; Flew and Cunningham 2010). They have in common that individual workers' creativity, skills and talent are their most important assets (Hodgson and Briand 2013; Mietzner and Kamprath 2013). A distinctive characteristic of the CIs is the freelance basis and temporary nature of projects (Bettiol and Sedita 2011; Grugulis and Stoyanova 2011), which affects organisations as well as individuals because they are often forced to adapt their existing knowledge and skills (Scarbrough et al. 2004). Their workforce needs to be at the forefront of technological developments to remain competitive and meet audience expectations. More specifically, the use of 21st-century digital skills is a form of knowledge-based activity that drives innovation in the CIs. In such a dynamic and fast-changing sector, 21st-century digital skills must be continuously empowered as a strategic factor for global competitiveness (Manuti et al. 2015). Nevertheless, only a few studies have focused on the qualitative experiences of skill development within the CIs (Hotho and Champion 2011; Kamprath and Mietzner 2015). Through in-depth interviews, this study focuses on the types of 21st-century digital skills with which founders and managing directors of organisations within the CIs may experience difficulties with and the ways in which they give meaning to skill development. The following research questions are addressed:

(1) *What is the importance of being digitally skilled for employees working within the CI?*
(2) *What is the level of 21st-century digital skills among incoming and existing employees working within the CIs?*
(3) *To what extent do organisations within the CIs use particular practices to strengthen employees' levels of 21st-century digital skills?*
(4) *What is the role of the employee concerning skill development practices?*

First, a conceptual understanding of 21st-century digital skills is offered. Thereafter, the value of investigating 21st-century digital skills and skill development practices within the CIs is explained.

The concept of 21st-century digital skills

The skills that are needed for education and the workplace in contemporary society are often labelled as 21st-century skills. To date, several initiatives such as Assessment and Teaching of 21st Century Skills (ATC21S), EnGauge 21st Century Skills and Partnership for 21st Century Skills (P21) have proposed definitions and outlined frameworks. Although no single definition is adopted internationally (Joynes, Rossignoli, and Amonoo-Kuofi 2019), an analysis of eight 21st-century skills frameworks conducted by Voogt and Roblin (2012) showed that the skills collaboration, communication, citizenship, creativity, critical thinking, ICT literacy and problem solving are mentioned in most of the frameworks. Multiple skills are attributed and listed as 21st-century skills, but they are generally not sufficiently defined. The concept of 21st-century skills covers a broad spectrum of content-related skills besides more ICT-related aspects. Additionally, the digital component is often not embedded within 21st-century skills. However, an increasingly technology-rich society requires individuals to acquire a new set of skills related to the use of ICT (Claro et al. 2012).

The role of ICT with regard to skills has mostly been covered in concepts such as digital skills. Therefore, the term 21st-century digital skills is used to understand the consequences of digitisation in terms of individual workers' skills. As digital technologies have transformed how we access and disseminate information (Nasiri et al. 2020), the concept not only comprises the necessary technical

skills for using digital technology but also the creation and understanding of content (see, for example, van Dijk and van Deursen 2014; Claro et al. 2012; Helsper and Eynon 2013). Despite the variety in emphasis, ICT-related skills are seen as crucial by most of the literature. In this study, the framework developed by van Laar et al. (2017) is used to understand what workers can do with ICTs to support a broad spectrum of 21st-century skills. They list the core 21st-century digital skills as follows: technical, information, communication, collaboration, critical-thinking and problem-solving skills. This list of skills results from a review of the academic literature concerned with closely related terms of 21st-century skills and digital skills.

The role of 21st-century digital skills within the CIs

Despite the variety in professional fields, the CIs are at the forefront of applying new technologies and state of the art in adopting ICTs (Kamprath and Mietzner 2015). They have in common that their economic activities typically involve the exploitation of creativity and intellectual property (Flew and Cunningham 2010; Potts and Cunningham 2008). Distinctive features of the CIs are that their products and services are increasingly driven by content and experience and organisational structures are devoted to project work and informal networks (Protogerou, Kontolaimou, and Caloghirou 2017). In the highly competitive, complex and dynamic environments of the CIs, knowledge and innovation are essential to organisational survival (Alcácer, Cantwell, and Piscitello 2016). Consequently, workers need to develop skills that empower them to adapt quickly to new markets, technologies, consumer needs, business models and jobs (Hennekam and Bennett 2017). The CIs generate ideas and they offer innovative products and services that are often used across fields (Ashton 2015; Fleischmann and Daniel 2015). The strong economic position together with CIs recognised potential for growth in other industries makes the sector crucial for shaping an economy's innovation performance (Earnshaw 2017; Müller, Rammer, and Trüby 2009). Workers' professional activities increasingly require that they can demonstrate a range of abilities that cross with ICT skills (Mangematin, Sapsed, and Schüßler 2014).

Workers within the CIs are intensive users of technology (Fleischmann, Daniel, and Welters 2017; Ooi and Stöber 2011). As such, *technical skills* are a first requirement to perform well. They need to have knowledge of the technical features and the abilities to use a variety of digital technologies. Also, the increased access to online information stresses the demand for *information skills*. Workers within the CIs need to process and exploit information, which is recognised as key to economic progress (Earnshaw 2017; Mangematin, Sapsed, and Schüßler 2014). They identify, access and evaluate relevant information to generate novel output that has value. Closely related to information skills are *critical-thinking skills*. Critical thinking involves carefully considering various arguments and generating sound inferences from online information and communication sources. In such a dynamic environment as the CIs, the ability to review outside sources of knowledge is crucial for strategic business decisions (Liu 2018). Furthermore, digital platforms enable workers within the CIs to stay connected with their target audiences and communities of fellow producers, suppliers and market players (Samuel 2020). They are increasingly being used to maintain contacts and share online content with those contacts (Flew 2017). Digital technologies provide the medium for communication and means for sharing and promoting creative expression (Hoffmann, Ivcevic, and Brackett 2016). As such, *communication skills* are a must to effectively express information to others by considering the audience and medium. Additionally, innovation within the CIs relies on bringing multiple disciplines together, which underlines the importance of *collaboration skills* (Bridgstock 2011). Workers also collaborate to share expertise, divide tasks and solve problems that cannot be addressed individually (Cybulski et al. 2015). Moreover, creativity drives the success of the CIs and determines if developed products or services are recognised as novel and useful within the field (Fazlagić and Szczepankiewicz 2020). *Creativity skills* allow new ideas to emerge and digital technologies enable implementation and execution of such ideas (Bicen and Gudigantala 2019; Mangematin, Sapsed, and Schüßler 2014). The creative use of digital technologies can, in turn,

play an important role in the way they conceptualise and generate novelty. Finally, workers within the CIs need to develop innovative solutions influenced by technological and societal changes (Protogerou, Kontolaimou, and Caloghirou 2017). The sector does not operate in isolation but rather interact with other industries to address fundamental societal problems and needs.

The position of skill development within the CIs

Individual workers' skills are expected to play a crucial role in their employability and adaptability to economic shifts and changing demands in working lives (Evans and Kersh 2017). The CIs demand highly skilled knowledge workers whose job is to produce intellectual capital (Carey, Florisson, and Giles 2019). They are typically described as individuals who are passionate and willing to spend time on developing their skills. As the pace of digitalisation accelerates, continued skill development becomes even more vital. From an organisational perspective, the purpose of learning is to improve and utilise the workforce' skills in order to adapt and respond to external environmental changes (Liu 2018). In general, skill development practices include formal learning such as workshops and conference attendances and informal learning situated in the context of daily work (Daniel, Fleischmann, and Welters 2017). Informal learning can happen individually with self-directed learning activities or in communities of practice, which involves relationship building and practice-based interaction between individuals with similar interests. Bridgstock et al. (2019) note that workers who can build and use relationships to learn are more likely to have up-to-date skills and maintain employment. Creative communities beyond the workplace are also recognised as important open sources of knowledge within the CIs (Protogerou, Kontolaimou, and Caloghirou 2017). In general, the rapid technological change within the CIs implies that there is a great need for ongoing skill development.

Although the CIs is a growth sector, relatively little is known about whether they address skill level differences or engage workers in skill development (Fettes, Evans, and Kashefpakdel 2020). Previous qualitative studies have investigated, for instance, the changing skill requirements of CIs workers (Hennekam and Bennett 2017; Kamprath and Mietzner 2015) or professional development challenges for specifically regional CIs practitioners (Daniel, Fleischmann, and Welters 2017). However, in-depth understandings of skill development from the perspective of founders and managing directors is an underexplored area (Salder 2021). The current study provides more insights in this process by considering how organisations within the CIs support skill development practices and under what conditions. A deeper analysis of the nature and level of 21st-century digital skills and the role of skill development within the CIs is offered.

Methods

Semi-structured interviews

Semi-structured, in-depth interviews were conducted to explore views about 21st-century digital skills and skill development. This method was chosen to obtain deep insights from the participants. Not all the questions were designed and phrased beforehand, allowing some flexibility to discuss specific issues as they arise. Open-ended questions were used to generate a rich dataset. In doing so, participants were encouraged to express their personal opinions and experiences and further expand on their views.

Participants

The interviews were conducted across the Netherlands with members of the top-level management of organisations within the CIs. The sample selection was not random but was driven by a specific purpose. Purposive sampling means that participants are selected because 'they accommodate

certain features or processes that the researcher wishes to investigate' (Silverman 2001, 250). In this study, participants had to meet two inclusion criteria: (1) holding the position of founder or managing director within the CIs and (2) working for an organisation of at least 10 employees. The samples are selected for the specific purposes of the research, even if the samples are not statistically representative (Zikmund et al. 2010). The recruitment strategy was based on various network and industrial branch organisations associated with the CIs (e.g. Dutch Design Foundation, Dutch Digital Agencies and Dutch Games Association). Organisational members are often displayed on their website. The LinkedIn profile and organisation's website are, in turn, used to screen and contact potential founders and managing directors. This study did not rely on personal contacts and strived for a balance between industries. Participants from the following professional fields were intentionally approached for recruitment: architecture (N = 18), marketing/advertising (N = 17), gaming (N = 12), digital design (N = 12), industrial/service design (N = 10), Internet (N = 8), graphic design (N = 2), fashion (N = 1), film (N = 1), and music (N = 1). A total of 25 participants from 24 organisations were interviewed, representing a wide range of industries. The final sample included 18 men (72%) and 7 women (28%); one interview was a double interview. They worked in the following professional fields: industrial/service design (N = 5), gaming (N = 4), Internet (N = 4), marketing/advertising (N = 4), architecture (N = 3), digital design (N = 3), graphic design (N = 1). Through purposive sampling, a diverse range of organisations were included that share the characteristic of being intensive users of technology and bring together a combination of creative content and ICT skills.

Procedure

The study was approved by the ethical committee of the University of Twente. Informed consent was obtained verbally and all participants were fully informed about the purpose of the research, their rights and the storage and use of data prior to the interviews. They were also assured that their identity would not be disclosed. The interviews were conducted via a Skype video call or by telephone, per the preference of the interviewee. A key focus of the interviews was to ask participants about their perception of the meaning of being digitally skilled today. Thereafter, the researcher asked them how they viewed the level of digital skills among their employees. Attention was paid not only to the digital skill levels of existing employees but also to employees entering the workplace. Thereafter, they were confronted with the results of our previous studies concerning 21st-century digital skill levels among employees working within the CIs. In particular, the levels of information, communication and problem-solving digital skills remained worrisome (van Laar et al. 2019, 2020). The participants were asked to reflect upon the workforce skills and compare the results found with their own organisation. Next, they were asked to express their thoughts about who is responsible for skill development. They were asked to provide guidance on how they as an organisation give meaning to skill development. Additionally, the role of the employee in their own skill development was a topic of interest. A specific focus was on the lifelong learning capabilities of their employees. Furthermore, participants were first asked to express their own opinion about factors that might contribute to employees' skill levels before the researcher shared some of the findings. The role of initiative, motivation, social support and training was further elaborated upon (van Laar et al. 2019). Finally, participants expressed feelings of urgency and described challenges related to the development of 21st-century digital skills. The interviews lasted between 40 and 60 minutes. Participation was completely voluntary, and no incentives were provided.

Data analysis

All interviews were recorded and transcribed not to lose any details of the conversation. Each transcript was coded using thematic analysis. Thematic analysis was used as 'a method for identifying, analysing and reporting patterns (themes) within the data' (Braun and Clarke 2006, 79). The researchers used semantic themes to identify the explicit meaning of the data (Riessman 2008). An

explorative approach was taken because the themes identified were strongly linked to the data from our previous studies. This approach is considered to be most appropriate considering the limited number of studies on 21st-century digital skills in relation to skill development. The data analysis was an iterative process of rereading transcripts, refining codes and recoding. Quotes were labelled male (M) or female (F), followed by the interview number and professional field.

Findings

Digitally skilled in the 21st-century

In response to the first research question, participants described how digital skills are becoming core to diverse ways of working. Important consequences of digitisation include the constant need to develop new disciplines and work with a variety of digital technologies.

> 'It's important to keep up with developments in technologies and platforms, so that we can always give the best, latest and most recent advice to our clients.' (F8:Internet)

They mainly reflected on technical-related skills; the frequency and intensity of adopting and using digital tools. All participants considered digital savviness to be part of everyone's skill set as all roles within the CIs have some digital element. Here they argued that digital skills are related to one's ability to use technology effectively and rapidly as well as qualities such as interest and curiosity in digital technologies.

> 'Essentially, it means that if you're not able to do something digitally, then you simply look it up. You can find someone who made a YouTube video or wrote an article. You can teach it to yourself. I think that's a person who's digitally skilled.' (M2:Graphic Design)

In many of the accounts given by participants, digitally skilled persons were seen as those who are able to build on their acquired digital skills and apply them, aside from the technology involved, to a variety of working situations. They are confident in using digital tools regardless of how the technology is designed.

> 'Your digital savviness must not be seen as a goal in itself but as a means by which to reach your final goal.' (M13: Internet)

Concerning the routinisation and integration of digital technologies into daily work activities, participants were satisfied about the digital skill levels present in their organisation. Such skills were understood to predominantly involve technical aspects (e.g. 3D modelling and animation). The most prominent view was that digital skill levels were particularly high because within the CIs digital tools are intensively used and developed.

> 'I would say that our digital skill levels are above average, and I link that to the fact that we only work digitally, use many digital tools, and develop things in this area ourselves.' (F14:Industrial/Service Design)

A few participants critically noted that they encounter relative differences in digital skill levels. Some of their employees still need to make progress.

> 'I think seventy percent of the people are just really good and thirty percent still have to learn. Even in a technically oriented company like ours, there're quite a number of people who have to take some steps to familiarise themselves with the technology.' (M6:Digital Design)

In the same vein, they argued that there is a high demand for digital skills (e.g. DTP skills). However, applicants are not expected to possess these skills; they are assessed based on potential that can be developed as long as the person wants to learn.

Level of 21st-century digital skills

Concerning the second research question, participants diverged in their reactions to the lower levels of 21st-century digital skills. For about half of the participants, the results were not recognisable mainly because their employees are self-reliant when working with online platforms. The other half of the participants critically reflected on each skill. With regard to digital information skills, most participants reported that verifying the quality and sources of online information is embedded in the organisation. However, according to several participants, skills in interpreting online information could be improved.

> 'They are handy in subtracting information from the Internet, but maybe a little on the superficial side, you know.' (M17:Marketing/Advertising)

With regard to digital communication skills, they did not express difficulties with online networking. However, several participants explained that skills in understanding the rules for etiquette and tone of voice during online communication leave room for improvement.

> 'In particular with communication, making sure that you use it well and that you don't email just for the emailing, but that you ask the right questions and receive the right information, yes, that's complicated.' (F20:Marketing/Advertising)

For most participants, solving problems creatively is part of their strategy. One participant even stated that they use a digital format that forces users to propose multiple options. Other participants made critical notes about whether their employees always use a considered, online problem-solving approach.

> 'I think in our company, it's often the case, 'well, I have a problem, this solves it, and then done'. So, actually a quick-fix is looked for.' (M22:Gaming)

Differences in skill levels were related to employees' personalities and experiences, for instance, their personal interests and affinity with ICTs. The level of 21st-century digital skills was not considered to be a problem because it forms the basis of how they work.

Skill development

The participants provided little evidence that they are systematically assessing 21st-century digital skills within the CI. A common explanation was that if employees' digital skills were lacking, they would notice it in their daily work.

> 'That's something you notice day-to-day. Everyone works digitally, and also our clients expect that from us. You have to keep pace; otherwise you lose clients. So, it goes without saying.' (M12:Marketing/Advertising)

Not every participant recognised the need for a more formal and systematic approach. They differed in how responsibilities around skill development should be distributed or shared. A few participants considered it to be a shared responsibility of the organisation and employee.

> 'I think it's a joint effort. On the one hand, that lies with the employer, who should facilitate, say, an ecosystem where personal development is possible.(. . .)On the other hand, it's also a mindset that needs to be shared among employees. So, training is something that needs to belong to the person to move forward in life and not something that you just do to keep a job.' (M19:Internet)

For most participants, the responsibility primarily rests with self-directed teams or employees themselves.

> 'I think the responsibility initially lies with the person, but, in practice, it's often the case that a supervisor tries to get things going.(. . .)My experience is that too few people are proactively involved in self-development or self-reflection.' (M4:Gaming)

The latter was in contrast to another participant who stated that one is too late when the initiative comes from the organisation rather than the individual. In general, participants agreed that some form of responsibility or initiative should rest with the employee.

Organisational practices

Concerning the third research question, formal training is structurally provided when a specific skill need is identified. The majority of training tends to be on an ad hoc basis to meet individual needs when requested. The participants mostly talked about informal skill development activities. In particular, peer-to-peer learning plays an important role in acquiring digital skills.

> 'We have created mentorships, a program in which everyone has their own mentor. At the start of each year, you look at your own ambitions and the direction in which you want to grow. Then you look at which colleague of mine would be a good mentor to help you to reach those goals.' (M1:Industrial/Service Design)

Similarly, learning digital skills is often reliant on just a few enthusiastic and dedicated employees who actively engage in activities promoting digital skills.

> 'I have five early adopters employed, the enthusiasts, and I need those people, and then it trickles down.' (M3: Internet)

Additionally, the value of regular informal gatherings to facilitate knowledge-sharing was emphasised, for instance, through organising lunchtime learning sessions, inspirational presentations and workshops. All participants mentioned various organisational practices to strengthen employees' skill levels; however, the extent to which such practices were formally or systematically implemented differed. They were unclear about the skills (e.g. job-related skills, technical-related skills or content-related skills) on which the initiatives should focus.

Individual practices

In response to the fourth research question, for a number of participants, employees must remain informed about developments in their own field or even about subjects outside their own discipline. The general viewpoint is to be curious and studious and to demonstrate a genuine passion for the product one makes.

> 'You should really be curious and be proactive. So, always be interested in new things and experience your field in such a way that you want to stay informed.' (M15:Industrial/Service Design)

According to several participants, employees can take the initiative to acquire new knowledge. Moreover, having a purpose in learning is often seen as a driver to acquire or develop a skill.

> 'I think it's about awareness and, like all personal development, you have to make a plan, be really involved, and invest time into it.' (M24:Gaming)

Most participants expected their employees to have a growth mindset, the belief that they can learn what is needed to improve and develop themselves. They reported that employees within the CI are typically enthusiastic and open to learning something new. However, the lifelong learning capabilities were also criticised. Several participants revealed that not every employee is equally motivated to actively participate in self-learning.

> 'There're people who do this naturally based on their own motivation and there're people who you have to give a little push.' (F18:Architecture)

Almost every participant considered the pursuit of lifelong learning to be a core value and not something to be formally addressed. The latter only occurs when necessary for work.

> 'We select people based on such capabilities, and it's also a culture that exists here.(. . .)I find it more important that an intrinsic motivation is present than that we, as an organisation, would impose that.' (M1:Industrial/Service Design)

In many of the accounts given by participants, it became clear that they believe that their employees naturally possess lifelong learning capabilities. A few participants extended this line of thinking and expressed that some of their employees need extra guidance and direction, for instance, through regular coaching conversations, to help them take on greater responsibility towards skill development.

Importance of skill development initiatives

The participants discussed a diverse range of factors contributing to 21st-century digital skill levels that apply to both individuals and organisations. They did recognise the factors (initiative, motivation, social support, training) investigated in our previous studies. Several participants also emphasised the importance of a supportive organisational culture in which employees feel confident and safe to experiment and explore. Essentially, individuals must actively seek out new knowledge and be self-inventive.

> 'Indeed, you must want to learn or be able to learn something. If you cannot figure it out yourself, you must dare to ask someone or look it up, and for that, you need initiative. It's all connected.' (M2:Graphic Design)

An isolated comment was made about the fact that it is sometimes difficult to find the right support sources for new areas of expertise.

> 'Everyone knows how to find support for the in-house areas of expertise. Only for the areas of expertise that we don't have yet, we have to reinvent where the real knowledge comes from, which is sometimes quite a search.' (F23:Architecture)

The participants furthermore indicated that employees cannot afford technological obsolesce but differed in whether they feel the need to continually pay attention to the learning of digital skills. On the one hand, exploring, learning and integrating new digital skills was considered crucial because organisations within the CIs often innovate with digital technology.

> 'It's the guideline for how someone operates within our projects and within our teams. Digital skills are, of course, not a goal in themselves but just a means of achieving the best results.' (F11:Industrial/Service Design)

On the other hand, the notion to continually pay attention to learning digital skills fades as it is part of their core business.

> 'Ninety percent of your job is that you're digitally skilled. So, I'm not worried about that. This is also because we work with very young people.(. . .)That's just a generation born with a phone in their left hand and a selfie stick in their right hand.' (M2:Graphic Design)

This quote also shows that the often-held assumption is that young people are digitally savvy.

Skill development barriers and opportunities

The costs and time associated with skill development practices appeared as the most mentioned barrier in our study.

> 'It mainly concerns time when it comes to programmers and developers because they don't follow a course in programming. Even if a course is designed, it's outdated knowledge anyway.' (M13:Internet)

Another common barrier faced by participants is the rapid rise of digital technologies. In this sense, knowing which digitally enabled business opportunities to explore and where to invest is critical for organisations.

> 'I find it really difficult to judge whether a digital tool is just a new gadget or really necessary.(. . .)I don't know that yet, I find that complicated.' (F16:Digital Design)

The participants were easily able to mention opportunities to further develop 21st-century digital skills. Several times, they proposed the involvement of employees in continuous learning and reflection, for instance, through the establishment of learning goals or personal development plans.

> 'Employees pay little attention to it naturally, I think.(. . .)Maybe an obvious answer is to make people aware of this. A kind of annual plan with development and learning goals, or the like.' (M10:Architecture)

Not only can organisations improve their initiatives, but employees can also seek positive change in their careers.

> 'Of course, I have to be curious, of course I have to be open-minded, of course I have to learn but, actually, I just have to redefine myself as a knowledge worker. What's the value I can add to the labour market, and how do I deal with the new reality.' (M5:Marketing/Advertising)

The findings indicated that they expect employees to anticipate and act on possible changes both in the internal and external labour markets of the future.

Discussion

Main findings

The overall purpose of this study is to explore how 21st-century digital skills are currently understood, deployed and developed to inform policy within the CIs. The interview study sheds light on the extent to which different types of digital skills and skill development practices are rewarded by founders and managing directors. First, concerning the meaning of being digitally skilled, participants often recognise that a distinctive feature of a digitally skilled person is the ability to recontextualise skills to put them to work in new and changing contexts (Evans and Guile 2012; Hager and Hodkinson 2009). The idea of resilience in the face of changing technology is considered to be key to being digitally skilled. However, most participants seem to have a narrow view of the 21st-century digital skills concept while multiple wider conceptions are prevalent in the literature. Existing definitions incorporate a range of content-related informational, social and creative digital skills to use technology (Scheerder, van Deursen, and van Dijk 2017).

The findings illustrate that participants find it difficult to deviate from describing technical abilities. Most participants perceive digital skills as the ability to easily work with various digital technologies and online platforms in a variety of contexts. After the distinction between technical and content-related aspects of digital skills is explained, they gradually become less vague and provide more examples regarding the meaning of a broader set of digital skills within their work activities. A possible explanation for this finding might be that digital skills are routinised in their daily work activities; therefore, participants already consider it to be a natural skill base.

21st-century digital skill levels

Concerning the level of employees' digital skills, participants predominantly relate them to technical skills. The technical notion is limited in how flexible digital skills can be deployed across occupational roles. The skills learned in this manner will soon be outdated as technology moves forward and practical applications of digital technology require more substantial skills (van Dijk and van Deursen 2014). Various scholars argue that the focus on technical operations is too limited (see, for example, van Deursen and van Dijk 2011; Claro et al. 2012). Nevertheless, participants tend to use technical skills as a reference point; as such, the entire range of 21st-century digital skills is not considered and might be overlooked or neglected. Partly this is because participants believe that their employees are self-reliant and confident in using digital technology because it is part of their core business. Another reason is that they often build on the assumption that a young workforce is sufficiently digitally skilled. This is worrisome because previous performance tests show relative differences concerning information and strategic digital skill levels of young adults (van Deursen and van Dijk 2011). Furthermore, research indicates that skill differences among young people are large (Hargittai and Hinnant 2008; Helsper and Eynon 2010).

When confronted with previous results, a number of participants are more critical in terms of their content-related skills. They explained that their employees experience difficulties with digital skills such as online expressiveness, interpretation of information and consideration of multiple solutions. In line with Hennekam and Bennett (2017), the need for so-called generic skills such as communication and problem solving featured strongly in relation to CIs practice. What is striking is that most

participants do not seem to have a skill development policy around 21st-century digital skills. The first priority here should be to raise awareness of the issue among the management of organisations. As founders and managing directors express that there are differences in employees' skill levels, they cannot operate based on the assumption that everyone naturally possesses 21st-century digital skills or develops them spontaneously. The findings demonstrate that it is not enough to expect that you select the appropriate candidates or consider skill development to be a solely individual responsibility.

Skill development practices

Concerning the role of organisations with regard to skill development, the core of participants' conceptions indicate informal learning contexts as standard practice. The importance of on-the-job coaching, mentoring and training emerged. A policy recommendation for organisations is to facilitate collaborative practices among peers and structure the currently provided informal assistance. To further promote digitisation throughout the organisation, they can identify those people who are enthusiastic and open to it. Such people can, to a certain degree, promote digitisation and accelerate decision-making and knowledge-transfer processes (Kohnke 2017; Kotter 2014). Organisations can also facilitate knowledge-sharing practices by planning presentations or workshops. This learning-from-others allows individuals to understand the learning choices that have been considered by others and the most valuable aspects of each choice. Formal learning contexts, which are composed of planned learning activities, are considered less often. Training and development are mostly ad hoc and in response to a specific skill need, and organisations could adopt a more planned approach to learning. A policy recommendation is to focus on targeted skill development practices. This could be achieved by encouraging employees to explore, with guidance, in which direction they want to further develop themselves. Personalised guidance remains critical for the development of digital skills (Margaryan, Littlejohn, and Vojt 2011). Not all employees take advantage of the available options for supporting their continuing learning, even if they are offered. Through regular conversations employees can make their skill development needs known or receive support in identifying their learning goals.

Important to note is that the cost and time associated with skill development emerge as salient barriers. Commercial pressure sometimes means that opportunities for skill development are neglected (Norman and Jerrard 2015), especially because much of the work within the CIs is project-based. Additionally, the rapid technological change adds another layer of complexity to professional learning (Hennekam and Bennett 2017). For most organisations, the question is no longer whether to invest in skill development, but, rather, how and where to invest for the best results. A policy recommendation is to offer structured learning opportunities for employees to build the necessary 21st-century digital skills. By using digital technologies in such a risk-free setting, they are able to experiment with new ways of working (Kohnke 2017). Given the lack of regulation of standards within the CIs, keeping yourself up-to-date in terms of rapidly changing technology is largely the responsibility of the individual (Daniel, Fleischmann, and Welters 2017). The findings support Billett and Choy's (2013) theory that learning through daily practice is likely to be insufficient the dynamic workplace of the CIs. An opportunity for organisations is to create the necessary conditions to encourage learning to take place on the job.

In summary, employees must make a realistic estimation of their digital skills and of the value they add to the organisation. They can proactively seek new knowledge and identify gaps in their knowledge. Informal means of learning by doing with the help of the social environment are increasingly important (Selwyn, Gorard, and Furlong 2006). Organisations can steer their activities and needs in a particular direction; however, it is up to the employee to exploit the opportunities being offered. Individual workers are expected to actively manage their employability.

Limitations and further research

The exploratory nature of this research limits the number of participants interviewed; however, the interviewees were selected in such a way that a voice was given to various types of organisations operating within the CIs. As the research involved an in-depth study of a relatively small number of participants in a specific context, it cannot be claimed that the results can be transferred to other contexts. It is important to note that our aim was not to generalise findings from the sample but to develop a detailed understanding of how organisations within the CIs account for employees' levels of 21st-century digital skills. The participants were selected because they suit the purpose of our study, not because they are representative of a larger population.

Furthermore, this research does not presume to indicate which organisational approach or strategy is superior to another. Diary studies could be used to provide insights concerning the effects of the provided recommendations. This is a useful method to obtain contextual data from employees working within the CIs while several of the recommendations are implemented. Another method could be focus groups, which allow participants to discuss the type of policy recommendation that should be considered in the context of 21st-century digital skills. Our insights are useful to raise awareness of skill development and help the workforce to give meaning to skill development practices. This study proposes detailed policy recommendations on how organisations and individuals can potentially strengthen 21st-century digital skill levels, and future research could test whether this actually benefits the workforce.

Practical implications

This study highlights the need for academic and industry to maintain an ongoing dialogue about the type of digital skills that are precisely required and how they can be proactively refined. The in-depth perspectives of founders and managing directors of organisations working within the CIs provide a foundation on which to explore how 21st-century digital skills can be developed, supported and maintained. To summarise, the most important policy conclusions that can be drawn from our findings are as follows:

From an organisational perspective

(1) Realise that 21st-century digital skills are important, perhaps even more important than digital skills as perceived by founders and managing directors
(2) Be aware that 21st-century digital skills do not always develop naturally or spontaneously at the employee's own initiative
(3) Systematically structure learning and skill development in the workplace

From an individual perspective

(1) Realise that the requirement to learn is a lifelong imperative
(2) Be aware that skill development is part of the job, and spend a significant amount of time learning on the job
(3) Critically identify which skills are needed to add value to the organisation or even to the labour market of the future

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No potential conflict of interest was reported by the author(s).

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