



# How Will the New Talents Change Project Management in a Data-Rich Era?

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## Executive Summary and Introduction

New opportunities from data analytics and digital technologies are shaping the digital economy of the 21st century. Data and digital transformation in project management is disrupting how organizations recognize and value the skills and expertise of the new data-savvy talents who enter the organization's decision-making processes and can support an improved project delivery. Existing research on digital transformation in projects has mainly focused on what technologies can help organizations and people achieve, without connecting to the disruptions that technologies bring to a project's human and social capital. People are crucial in projects and therefore, to address this deficiency and harness the data-rich era, this study went beyond the prevailing technological line of thought and considered human capital in project settings.

This research examined the talent management initiatives for project-oriented organizations to learn how to exploit the inherent advantages of the data-rich era and digital transformation to build an inclusive workplace, ready for the pipeline of new employees entering the project management profession. The study unpacked and utilized the unique characteristics of new staff and established project professionals, to help them collaborate, and provides new insights into their interactions. This was studied by examining the novel capabilities the new talents bring, in the data-rich era, through digital data-savvy skills and by creating synergies with the existing project communities. This work carries implications for projects and project-based firms by highlighting the capabilities of the new talent and how the new talent interacts with existing social capital. It brings new ideas about attracting, developing, and retaining this new talent in an inclusive way that can support business objectives around digital transformation. This report concludes with a set of directions for leveraging and integrating the new data-savvy talent in project-oriented organizations.

## Questions, Objectives and Hypotheses

The study poses three research questions (RQs) and objectives, which follow. Each of these RQs is addressed in a different research stage.

### Research Questions

- RQ1: How do project professionals understand and experience the trends of the data-rich era in the project environment?
- RQ2: Under what conditions and in what contexts do data-rich settings stymie and/or stimulate the project professionals' capability to shape and deliver projects?
- RQ3: What recommendations can we make to address the transformation of the project management talent pipeline by 2030?

### Research Objectives

- Investigate the extent to which social awareness of the data-rich era and demographic change in recent years has opened possibilities for new talents to engage in project practices (flowing directly from RQ1).
- Analyze what impacts project professionals' perceptions and practices of new talents in the data-rich settings (flowing directly from RQ2).
- Develop a practitioner-ready recommendation framework to better design, adjust, and govern project practitioner professional development to leverage the data-rich era (flowing directly from RQ3).

### Hypotheses Development

In addressing RQ1 to understand the experience and the trend of project management in the data-rich era, we established a research model (see Figure 1) to investigate the relationship among organizational talent support (OTS), personal digital competence (PDC), and personal project competence (PPC).

Following this research model, the following hypotheses were proposed:

Hypothesis 1 (H1): *The high degree of attracting new talent is likely to influence organizational talent support.*

Hypothesis 2 (H2): *The high degree of developing and training talent is likely to influence organizational talent support.*

Hypothesis 3 (H3): *The high degree of retaining existing talent is likely to influence organizational talent support.*

Hypothesis 4 (H4): *The high degree of organizational talent support is likely to influence personal digital competence.*

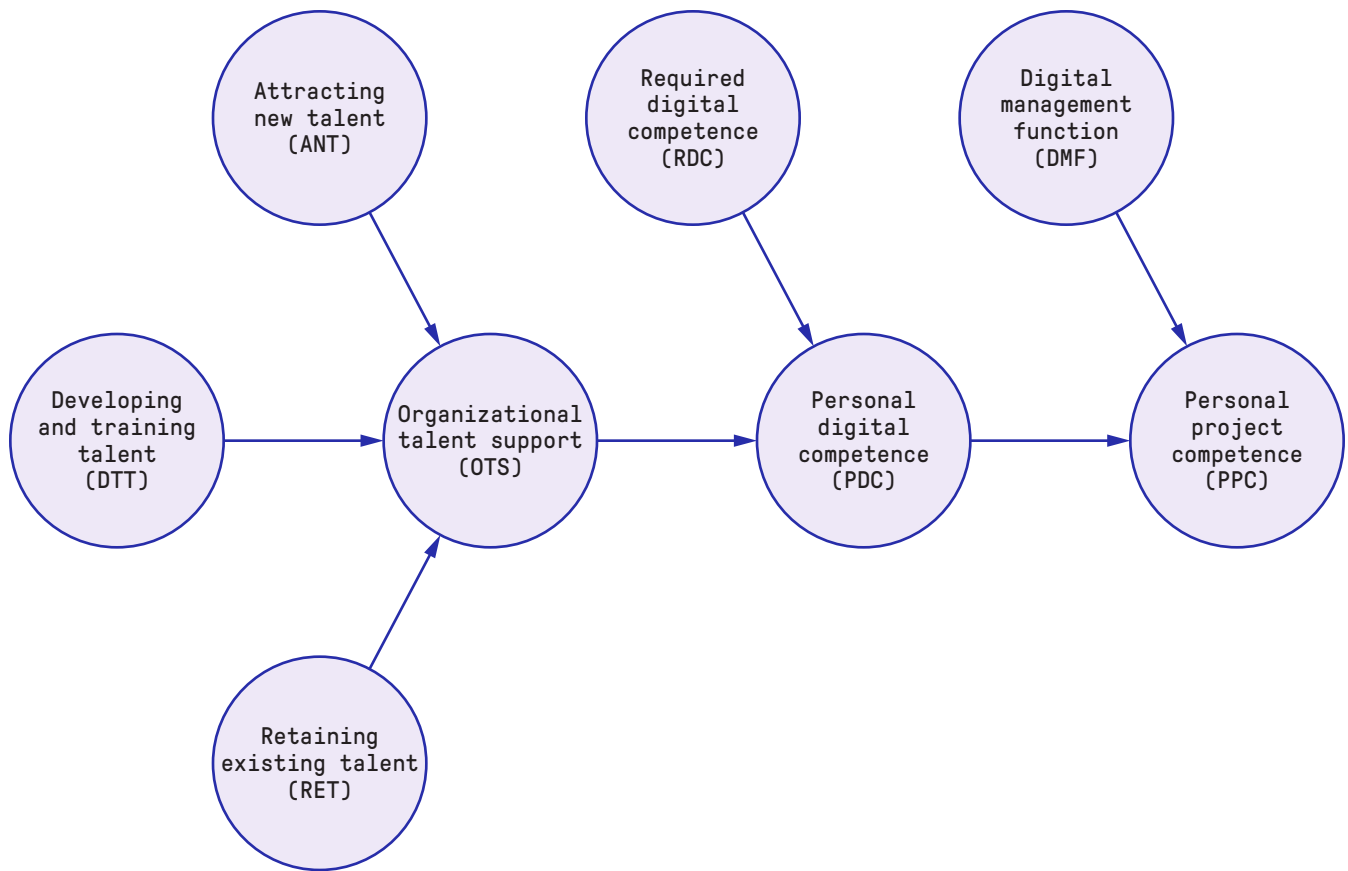


Figure 1. Research model.

Hypothesis 5 (H5): *The high degree of digital competence requirement is likely to influence personal digital competence.*

Hypothesis 6 (H6): *The high degree of personal digital competence is likely to influence personal project competence.*

Hypothesis 7 (H7): *The high degree of digital management function is likely to influence personal project competence.*

## Research Frame

### Key Concepts and Brief Literature Review

Increasingly, project work is everywhere and affects many aspects of our lives. From traditional capital projects to knowledge work in information and communication technology (ICT), financial services, and research and development (R&D), to increasingly frequent organizational change in all sectors, the “projectification” of society means that project work is now the fundamental unit and driver of economic action (Jensen et al., 2016; Hodgson et al., 2019; Schoper & Ingason, 2019). Project work creates

a third of gross value added in western economies, rising to half in emerging economies (Schoper et al., 2018). To maintain economic growth globally, US\$57 trillion is forecast to be spent by 2030 to accelerate infrastructure development projects (Söderlund et al., 2017). With this remarkable growth of projects, we see a promising pipeline of new talent entering the planning and managing of both ongoing and future engineering and construction projects.

Project management has become more interesting and attractive to a new demographic of talent coming from various backgrounds due to the many exciting and varied career pathways the profession can provide. As “digital natives”—that is, according to Prensky (2009), those born both during or after the digital age—typically the newest generation, can play a unique role in the rapid acceleration of the digital transformation of project work. This digital talent comprises not only the new generation but also individuals traditionally trained in other industries, such as computer science, oil and gas, and manufacturing, that are entering project-based sectors due to higher connectivity between sectors that traditionally were isolated. These digital natives learn and work with digital technologies in a different way than “digital immigrants”—those born before the digital age.

The power of digital technologies has made data more available and manageable in recent years, due to increased computational power, better internet connectivity, and more pervasive devices (Papadonikolaki et al., 2022). The disruptive nature of the COVID-19 pandemic has served as a catalyst for innovation and transformation as many industries and organizations have been compelled to change and adjust to digital ways of working. After worldwide lockdowns, many organizations are reconfiguring their business processes and operational practices through digital technologies, communication platforms, and information systems (Kamal, 2020; Ejohwomu et al., 2021).

Project management practices are being profoundly changed due to a combination of demographics such as the educational expansion creating a pool of high-skilled employees entering the market (Stier & Herzberg-Druker, 2017) and technical causes (due to a rise of digital innovations) (Nambisan et al., 2017). These changes lead to new jobs and roles, new professional accountability, and greater integration across professional functions. Additionally, COVID-19 has widened the digital divide (see Zheng & Walsham, 2021) and called into question how we educate, attract, develop, and retain project professionals. Project professionals need to become more sensitive during virtual interaction and better understand each other's behavior and thinking patterns. New talents bring experience and familiarity with digital technology and have a better understanding of emerging business tools. Nurturing a diverse and skilled workforce is a key element of the project profession's long-term agenda for change.

Through the study of the literature, the following themes were established (not included in this report, for communication brevity):

1. Impact of societal changes from data-rich era on the project management profession;
2. Human resources management in projects;
3. Talent management in projects (attracting, developing, and retaining talent);
4. Impact of digitalization and datafication on projects;
5. Importance of digital talent management in project management; and
6. Impact of digital talent management on project teams.

## **Research Gap**

Drawing upon these themes, the emphasis on digital transformation has so far been on what technologies can do for us, often neglecting how such transformation can radically change what people and organizations do (Robinson et al., 2016). To address this deficiency and harness the full potential of the data-rich era, our study explores beyond the prevailing technical line of thought to think about human capital. For example, although digital technologies, such as building information modeling, radically alter collaborative work, they are considered more as tools affecting the structure of work and less as sociotechnical systems affecting both structure and agents (Papadonikolaki et al., 2019). This study, therefore, examines the talent management initiatives and investigates how new (digital natives) and senior (digital immigrants) project professionals can build an inclusive workplace to exploit the inherent advantages of the data-rich era.

## **Research Methods**

The research used mixed-data collection methods to answer the research questions by collecting diverse perspectives. The methods used were (1) online questionnaire survey, (2) semistructured interviews, and (3) focus group discussions. The survey focused on addressing RQ1 and proving the hypotheses. Survey respondents were recruited from three main categories of stakeholders—industry, academia, and professional institutions—to ensure both the supply (higher education) and demand (industry/practice) sides of the phenomenon of digital transformation in projects were investigated.

The survey was followed by semistructured interviews from a purposive sample of 24 interviewees with diverse project management experience to address RQ2. The role of the interviews was to complement the survey while collecting additional data. Finally, the interview and survey data were synthesized, validated, and enriched through a focus group with eight participants addressing RQ3. Short stories (vignettes) were attained from interviews and the focus group, which gave insight into the future of project professionals, and their changing work (and workplace).

## Primary Results and Discussion of Findings

### Stage 1: Survey Method and Structural Equation Modeling (SEM) Results

#### *Social Awareness of Data-Rich Era In Projects and Possibilities for New Talent In Projects*

The first research stage addressed the research question “How do project professionals understand and experience the trends of the data-rich era in the project environment?” In this stage, the objective was to investigate the extent to which social awareness of the data-rich era and demographic change in recent years has opened possibilities for new talents to engage in project practices. This question was addressed through a survey.

A total of 124 respondents took the questionnaire survey. The research team reached out to their professional networks and shared the online survey link through LinkedIn and other social media, including the PMI LinkedIn channel.

The demographic details of survey respondents were as follows. Most of the respondents were males with N = 86 (69%), followed by females with N = 36 (29%), and the least identifying as nonbinary with N = 2 (2%). Most of the 124 survey respondents were between the ages of 26 and 35 with N = 54, followed by those between the ages of 36 and 45 with N = 39, those between the ages of 46 and 55 with N = 17, followed by those who were 25 years or younger with N = 7, then those between the ages of 56 and 65 with N = 6, the least respondents were

65 and older with only one responder in this age bracket. The typical highest education qualifications of the respondents attained were at the master’s level with N = 87 (70%), followed by those with bachelor’s degree-level qualification with N = 18 (15%), then doctorate level with N = 16 (13%). Those who had educational qualifications other than listed levels (bachelor’s, master’s/MBA, and doctorate) were the least with N = 3.

The survey respondents were an international sample from countries such as the United Kingdom, Netherlands, China, and Croatia. Most respondents stated that their country of work is China, with N = 47 (38%), followed by those who work in Croatia, with N = 39 (31%). Next were respondents who work in the Netherlands with N = 20 (16%), then the United Kingdom with N = 11, and finally the fewest - respondents with N = 7 (6%) who work in a country other than the mentioned countries. Most survey respondents had 5 years or less of work experience with N = 33 (27%), followed by those who had 20 years of work experience or greater with N = 28 (23%), then those with 6 to 10 years and 11 to 15 years of work experience each having N = 25 (20%); the fewest respondents had 16 to 20 of work experience with N = 13 (10%).

After the survey data collection was completed, the results were evaluated. The results were evaluated through discriminant validity evaluation. Afterwards, structural equation modeling (SEM) was applied to test the hypotheses. Finally, the survey data supported all seven hypotheses previously set, but to different degrees as will be explained next. Table 1 shows the summary of the hypotheses’ tests.

**Table 1. Summary of Hypotheses Tests**

HYPOTHESIS	PATH	RESULT
H1	Attracting new talent (ANT) → Organizational talent support (OTS)	Supported
H2	Developing and training talent (DTT) → Organizational talent support (OTS)	Supported
H3	Retaining existing talent (RET) → Organizational talent support (OTS)	Supported
H4	Organizational talent support (OTS) → Personal digital competence (PDC)	Supported
H5	Required digital competence (RDC) → Personal digital competence (PDC)	Supported
H6	Personal digital competence (PDC) → Personal project competence (PPC)	Supported
H7	Digital management function (DMF) → Personal project competence (PPC)	Supported

Overall, the data showed that digital talent management can support project competences. Looking back at the framework of Figure 1, Figure 2 shows which hypotheses are supported stronger than others. To this end, developing and training the new data-savvy talent influences organizational talent support (H2). Additionally, the high degree of digital competence requirement influences personal digital competence (H5). Finally, the high degree of digital management function assignment is likely to influence personal project competence (H7).

Especially hypotheses H2, H5, and H7 were strongly supported. The other four hypotheses (H1, H3, H4, and H6) found additional support by complementing with the interview data that will be discussed in the next section. The strongly supported hypotheses (H2, H5, and H7) show that there exists a robust, emerging relation between digital talent management practices and personnel project competences. This means that by strengthening digital talent management, and the attraction, development, and retainment of data-savvy talent in

project-based firms, we can strengthen their project competences and—indirectly—project outcomes. Therefore, the first research stage showed that strategic digital talent management approaches can support personal project competences and, consequently, support the delivery of projects by improving the data-savvy talent's project skills.

### Stage 2: Semistructured Interview Results

#### Talent Management and Managing Projects In the Digital Era

The second research stage addressed the research question “Under what conditions and in what contexts do data-rich settings stymie and/or stimulate the project professionals’ capability to shape and deliver projects?” In this stage, the research objective was to analyze what impacts project professionals’ perceptions and practices of new talents in data-rich settings. This question was addressed through a series of semistructured interviews.

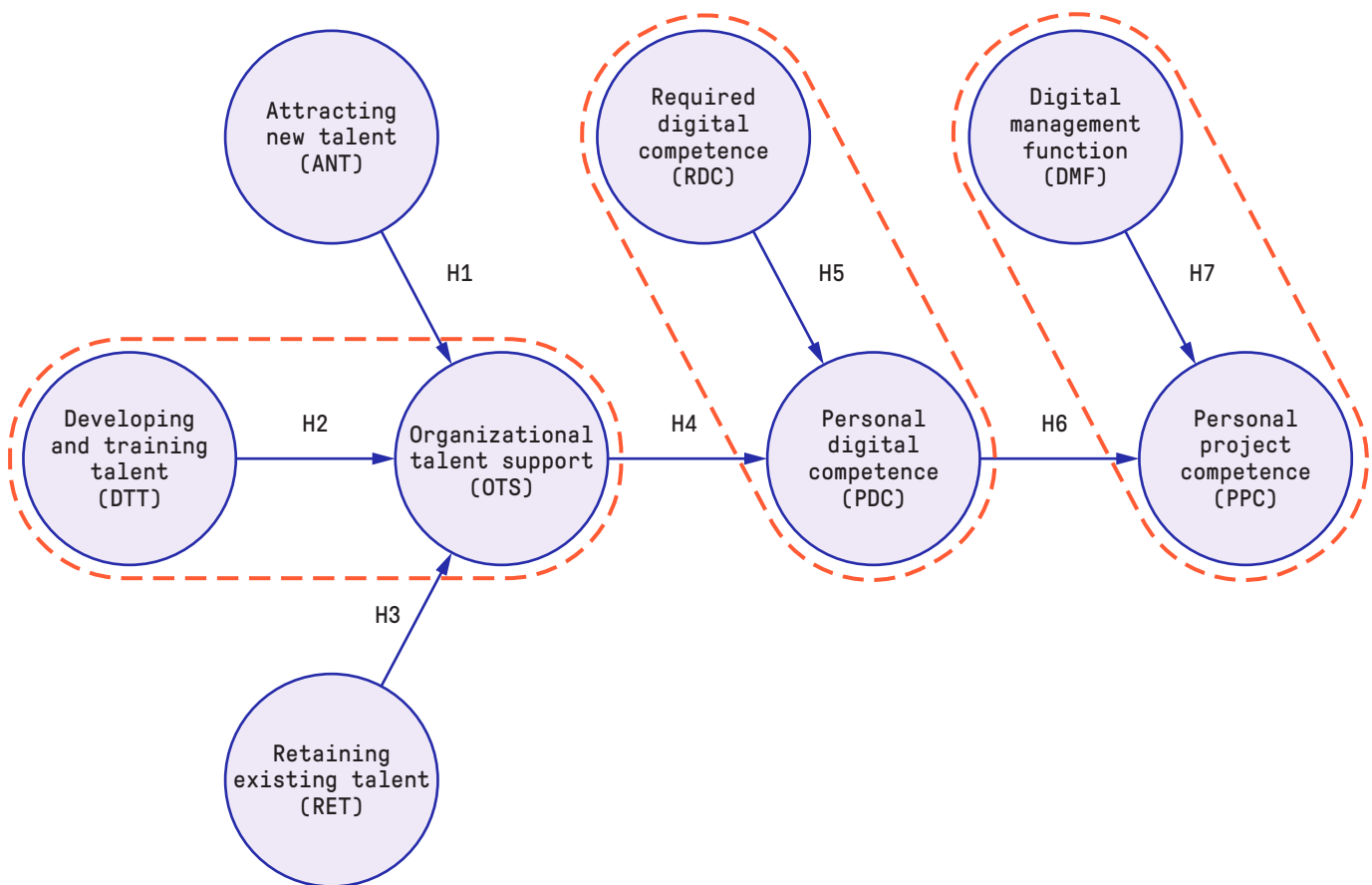


Figure 2. Relationships bordered in red show strongly supported hypotheses.

The semistructured interview questions explored the following topics:

1. Backgrounds of the interviewees;
2. Experiences and perspectives of digitalization in the project management profession;
3. Organizational perspectives of digitalization and project management;
4. Digital talent management; and
5. External support for the digital transformation of the project management profession.

Twenty-four interviewees came from three main stakeholder categories: industry, academia, and professional institutions such as Project Management Institute (PMI), Association for Project Management (APM), and International Project Management Association (IPMA).

**Attracting New Talent In Project Environments.** In this section we synthesize the opportunities and obstacles found through the interviews regarding lessons learned for talent management and managing projects in the digital era. In so doing, specific attention is also paid to the interactions between “digital natives” and “digital immigrants” that were coined by Prensky (2009) as individuals born during/after and before the digital era, respectively.

In relation to recruitment and selection, the interviews revealed that as projects become more complex particularly in the context of decision-making, there is a greater need for harnessing the power of integration across disciplines and organizations. Digital methods of working and managing data become a critical competence to develop in the project management profession. That said, while digitalization and datafication for handling higher levels of complexity is an opportunity, the interviewees also saw this as a challenge in current project management practice. Problems with integration across disciplines and organizations are long-standing challenges that have confronted the project management profession, and the addition of digitalization adds to the integration challenge.

A key integration challenge identified by the interviewees lays in the interactions between digital natives (often more junior workers) and digital immigrants (often more senior workers, although this feature is not entirely generational). It was recognized that while junior workers were more adept at using new digital technologies, more senior workers brought with them other skills that are

critical to delivering projects such as understanding the collaboration context and the politics of running projects (see also Gillberg & Wikström, 2021). Thus, the data highlighted the importance of valuing different skills and finding a way to facilitate productive exchange and interactions between digital natives, who can find more efficient ways of using digital technologies to transform the ways work is done in projects, and digital immigrants, who are more intuitive about knowing what works in project practices.

The interview data resonates with recent scholarship that suggests that technical ability is less important than one’s openness to learn from others (see Guinan et al., 2019). Datafication and digitalization bring new opportunities on recruitment and selection to extend the workforce beyond national borders. Digitalization allows organizations to engage with data analysts based abroad, and while this is regarded as an opportunity to tap into talent elsewhere, this can also bring challenges in ensuring a coherent (and colocated) approach to managing human resources strategically. In projects where the management of human resources is more operational than strategic, and where the project team may lack the autonomy to self-select in the formation of a project team, opening the possibility of having a part of the workforce from abroad can also present an obstacle.

### **Developing New Talent In Project Environments.**

Where development of talent is concerned, the interview data highlights three key lessons to consider. First, training on digital technologies featured as a topic of concern. On the one hand, digital immigrants commented that new digital technologies on the market meant that those with skills developed on earlier technologies now found their skills to be less relevant. For example, in managing and analyzing schedules for projects, Power BI (a general-purpose tool) has, now at least, replaced Microsoft Project and Primavera (project-focused tools) in daily practice. This therefore calls into question the scope and content of training that is required so project professionals are sufficiently proficient in using digital technologies. For example, should the training focus on putting the functions of the digital technologies to project work or should the training focus more on the fundamental principles that underpin the functions of the digital technologies? Taking the former approach, there is the risk that software upgrades and the introduction of new digital technologies might render the skills developed in older technologies obsolete or in need of retraining.

The second aspect relating to training on digital technologies is that there seems to be an expectation that skills associated with the use of digital technologies tend to be developed through learning-by-doing, rather than following a structured training course. Some organizations engage an external consultant or an in-house hub support to facilitate learning-by-doing. In either approach, there is an associated cost (both financial and time/effort) to the parent organization, and there is often a fear that the expertise developed will be lost through staff turnover. Digital expertise is much sought after, and this means that retaining staff with strong digital expertise is a challenge, as highlighted by many interviewees.

A third point relating to digital technologies is the distinction between technology as a tool and technology as a tool-in-use. The interviewees emphasized the importance of understanding how tools are used in practice, and the purpose of using specific tools for specific purposes. Rather than focusing on technology-as-a-tool, taking a technology-in-use viewpoint draws attention to the need to demonstrate, translate, and communicate the value of the tools. For instance, while digital tools have a strong capability to generate impressive visualizations of various kinds, what was most important for the experienced project managers was how this translated to the everyday, simple tools (e.g., an Excel spreadsheet) to facilitate a decision-making point. The data distinguished between technologies in use in various contexts, including the use of digital tools for visualizing analyses, for reporting on progress, and for cocreating and codesigning solutions. It seems that where collaboration was important, there tends to be more emphasis on complementing the use of digital tools with more basic forms of technology (such as flipcharts and Post-It Notes) (Ewenstein & Whyte, 2009).

**Retaining New Talent In Project Environments.** The final point on talent management is that of retaining talent. The interviewees reiterated the challenge of retaining junior workers who are often digital natives. Given the demand for digital expertise and the propensity for junior workers to change jobs due to better (financial) conditions, our interviewees appear to place more emphasis on retention than on recruitment of digital-savvy workers. This shows that retention is a growing issue in digital talent management (Guerra et al., 2023).

Considering the retention challenge, our interviewees highlight several key strategic and operational challenges that need to be taken into account. First, and perhaps a question that is more related to strategic choice, lies the question of whether data and digital work is seen as core (or not) to the business. For some, the growing power of (big) data analysis is something that project organizations (particularly those working in consulting firms) cannot ignore. Engaging with data science and digital technologies is a way of dealing with the growing complexity of the project environment. Yet, as just alluded to in the recruitment of data analysts from abroad, this also raises the question of how to manage these “remote” workers as a strategic core of the business. Given the difficulties of retaining talent with strong capabilities on data analytics and digital technologies, some of our interviewees questioned whether these workers should be seen as core to the project business. If these workers are not seen as core, then the strategy for retaining such talent is to see them as resources that can be accessed through outsourcing.

**How the Data-Savvy Talent Supports Project Outcomes.** For several interviewees, the strategic choice if digital talent is seen as core or not emanates from whether, and to what extent, the client sees data analytics as fundamental to the delivery of projects. While there is recognition of the power of data analytics and digital technologies to deal with the growing complexity of project decisions, others may see the reduction to the digital as not capturing the complexity of the social, cultural, and political dynamics of managing projects.

Finally, the interviewees also raised questions around the ways organizations structure their interactions between digital natives and digital immigrants, to encourage retention of digital talent. For example, mentoring, reverse mentoring, and links between early-career and board-level executives were seen as ways by which organizations can facilitate desirable communication between early-career and established workers. The goal here is to enable cross-generational learning and the feeling of being valued by the organization.

The digital transformation in project management is disrupting how organizations recognize and value skills and expertise of new data-savvy employees in the organization’s decision-making processes for improved

project delivery. Our data shows that organizational talent support and precise digital competence requirements will significantly affect the development of personal digital competence. Especially developing and training talent play a more critical role than attracting new staff and retaining existing talent when supporting talent management at the organizational level. Our findings appear to resonate with recent scholarship that suggests that technical ability is less important than one's openness to learning from others (Guinan et al., 2019). Our study provides some direction on strengthening the development of talent management through in-house activities that promote communication or outsourced training programs. It suggests focusing on technology-in-use as opposed to technology-as-a-tool, as well as learning lessons from other sectors that can disrupt the traditional project management sector.

### **Stage 3: Research Validation Through a Focus Group**

#### *Recommendations for Project Management*

#### *Professional Development In the Data-Rich Era*

The third research stage addressed the research question: “*What recommendations can we make to address the transformation of the project management talent pipeline by 2030?*” In this stage, the research objective was to develop a practitioner-ready recommendation framework to better design, adjust, and govern the professional development of project professionals to leverage the data-rich era.

This research stage was addressed through a focus group that consisted of eight experts, four of which were interviewee participants. The goal of the focus group was to validate the interview findings and provide more data to elicit concrete recommendations for the professional development of project professionals in the data-rich era. The focus group participants came from industry and academia. Unfortunately, participants from professional institutions could not be included due to their availability.

Through the focus group discussion, the participants agreed that managing the project management talent pipeline—specifically attracting, developing, and retaining workers—faces challenges in the data-rich era. The following themes were identified: openness and individual characteristics to learning the use of digital technologies, reverse mentoring or cross fertilization, digital way of working, and human–technology conflict.

### **Openness and Individual Characteristics to**

**Learning.** The focus group shared their thoughts on the importance of openness to learning for talent recruitment as workers' skills are short-lived. The participants explained that this should form the basis of the categorization of talent, not the use of digital native or digital immigrant categorization since that is only a partially helpful classification. They stressed, nonetheless, that the distinction should be more on the employees' personalities and their openness to learning the use of digital technologies. The focus group shared that the recruiters for talent in a technological era should be looking for openness to learn and a growth mindset more than anything. This resonates with recent scholarship that suggests that technical ability is less important than one's openness to learn from others (see Guinan et al., 2019).

**Reverse Mentoring or Cross-Fertilization.** The reverse mentoring system or cross-fertilization, as explained in the interviews, is the exchange and sharing of knowledge. Here, junior professionals learn from more senior professionals who, for example, may have more experience in the running of projects, and—in return—the junior professionals share their digital technology experience with the senior professionals. The consequence of such experience sharing and learning is explained as talent development across the profession, which bridges the gap between the so-called digital natives and immigrants. The system of reverse mentoring where more experienced project workers are partnered with more junior workers, and therefore more technologically capable, is useful to this end. This is similar to workplace mentoring where junior talent may receive some of this cross-fertilization from the more experienced yet less technologically capable and equipped individuals (Jacobsson & Linderoth, 2021). So, senior staff members can learn more about digital working practices, and junior, less experienced in project terms can learn in a buddy system. Supervisors may choose to seat people next to each other, purposefully, within project offices to generate useful interactions and conversation. Importantly, these ideas shift the focus from the data-savvy talent to their interactions with the existing personnel.

### **Digital Ways of Working and Human-Technology**

**Conflict.** The focus group participants expressed concerns about the digital ways of working, particularly on the employees' dependence on digital technology.

Within the next 10 years, a generation of employees may not be able to work effectively without technology. For some focus group participants, this may take away the opportunity for employees to work physically together in a project environment. For example, project communication can be supported using digital tools. Finally, some focus group participants shared their concern that the adoption of digital technology may result in human–technology conflict. The adoption of these technologies may render some positions and employees redundant in the workforce, especially in an intensely human-populated industry such as project-based industries.

Therefore, we outline a strategic framework for project organizations navigating their unique digitalization and datafication needs; the buy (hire)/lease (consult or contract)/make (train internally) framework.

- **Buy (Hire):** Hiring full-time digitally savvy staff is advisable when the organization has a continuous stream of digital initiatives that justify a full-time position. This option is best suited for organizations where digital transformation is integral to their business model, or has strategic goals, requiring dedicated personnel to drive these initiatives. A key consideration here is the ability to provide a career path that is rewarding and allows for professional growth, ensuring the retention of talents.
- **Lease (Consult or contract):** Utilizing consultants or contractors is an excellent choice for organizations that encounter sporadic needs for digital expertise. This could be for specific projects where specialized knowledge is required temporarily or when external insights can catalyze innovation. This option provides flexibility and access to a broad skill set without the long-term commitment of full-time hires.
- **Make (Train internally):** Developing internal capabilities through training can be a cost-effective solution, especially for organizations with existing staff who have the aptitude for digital skills. This not only enhances the skills within the organization but also promotes a culture of continuous learning and adaptation. Internal training might not replace the need for advanced expertise from external sources, but it can significantly empower teams to manage and utilize digital tools effectively.

## Research Significance and Novelty

The emphasis on digital transformation has so far been on what technologies can do for us, often neglecting how such transformation can radically change what people and organizations do (Robinson et al., 2016). This study departed from technological determinism and harnessed the full potential of the data-rich era by going beyond the prevailing technical line of thought to think about people's issues. For example, although digital technologies, such as building information modeling (BIM), radically alter collaborative work, they are considered more as tools affecting work structure and less as sociotechnical systems affecting both structure and agents (Papadonikolaki et al., 2019). This study continues this line of thought and contributes further by revealing how project management as a profession and skill adjusts to the developments around digitalization and datafication, supporting a data-intensive and more inclusive professional environment. The study confirms and extends the findings by Marnewick and Marnewick (2021) where more emphasis is placed on social competences (communication and collaboration), rather than the more technical aspects of digital intelligence such as cybersecurity. This shows a recognition of the impact of digitalization on the human and social capital of projects beyond the task-oriented considerations. Equally, it is important to consider human resources in project settings as a strategic, as opposed to operational, consideration. Nurturing a diverse and skilled workforce is key to the project management profession's long-term agenda for change. Finally, our study reveals that industry places more emphasis on retention than on the recruitment of data-savvy employees. This brings new evidence against extant literature that found more emphasis placed on retaining than attracting talent (Guerra et al., 2023), showing the importance of retention in digital talent management.

### Practical Implications

The adoption of digital technologies still needs to catch up in traditional industries such as the construction sector, which is behind the traditional Gartner hype curves (Bosch-Sijtsema et al., 2021). Such sectors seem to be searching for ways of adopting new technologies to retain the old ways. Our study findings resonated with existing voices about resistance to change in the project-based sectors. We must upskill and reskill project professionals in highly complex project environments, so they are better equipped to address complexity. More importantly, project professionals are encouraged to change their mindset to

add digital innovation to their daily work and make digitally informed decisions, thereby leveraging the data-rich era. The implications of our research for policy are helping to shape an agenda for responsible transition to the new normal that lies ahead and attract and develop new talent to the project management profession.

The study also has implications for educational bodies, project management bodies, and professional institutions in aligning with the current trends shaping, and being shaped by, new talent entering the profession. Digital technologies challenge the project management profession through changes in functions, jobs and roles, new professional accountability, and greater integration. Especially developing and training employees play a more vital role than attracting new staff and retaining existing talent when supporting talent management at the organizational level. These disruptions reveal the need for well-designed and conscious talent management strategies for attracting, developing, and retaining new data-savvy talent for projects.

Due to the highly practical nature of the topic, the study showed concrete managerial directions for further action. The new data-savvy talent requires an upheaval of traditional human resource management practices. Most importantly, the attraction or selection and retainment of the data-savvy talent needs to become more structured and strategic. This can be done by training the human resources department, allocating more generous budget to data-intensive activities/departments, and consciously trying to keep the data-savvy talent happy. This culminates in the strategic framework Buy-Lease-Make for data-savvy talents, that can be used in different ways by project-oriented organizations to support their diverse needs and strategic priorities. Human resource managers, project managers, and line managers can organize the entrance of new data-savvy talent into a less data-savvy and more traditional environment by providing support and resources to help them integrate into the organization by focusing on both individual and collective development goals.

This can involve providing training and development opportunities to help them learn about the organization's culture and systems, as well as introducing them to key stakeholders and decision-makers. Human resource managers can also facilitate communication and

collaboration between the new data-savvy employees and their senior colleagues, either with face-to-face or online interactions. This can involve setting up regular meetings or workshops to share bilateral knowledge and experiences, as well as providing support and guidance to help everyone work together.

## Conclusions

Digital transformation brings a change in the status quo in project management. This study departed from the well-documented technocratic view of identifying the applications and benefits of digitalization and datafication in projects. It instead focused on the people aspect, particularly how human resource management and talent management can leverage and support people in this transition. Of particular importance is the emergence of the new data-savvy talent and how it affects relations in project management. We found that this data-savvy talent can either grow within firms or be recruited by other sectors, although most talent management practices around recruiting and selecting for digital skills is unstructured and lack strategic support.

A promising way forward is leveraging the connectivity opportunities of digital technologies to support the interactions between the data-savvy and the more traditional employees, as well as recruiting talent from different geographies. Apart from the patchy approach to attracting new talent, retaining this data-savvy talent is also mixed and undeveloped. Our study provided some direction on strengthening the development of talent management through in-house activities that promote peer learning, reverse mentoring, communication, and outsourced training programs. We suggest focusing on technology-in-use as opposed to technology-as-a-tool, as well as learning lessons from other sectors that can disrupt the traditional project management sector. Project delivery and information management were seen as transactional vessels, to promote a test bed for developing and stimulating the data-savvy talent. Finally, regarding retaining the data-savvy talent; an emphasis on teamwork, project work, and well-being is a promising way forward that can look beyond the individual level of the phenomenon; bringing collective action and impact to project teams.

## Future Research

The research has shown some promising directions for further research. Due to its multimethod approach and satisfactory sampling approach, it is envisaged that the study can be extended toward new themes. In particular, the opportunity to dive deeper into the data and elicit insights on the use of artificial intelligence (AI) and its impact on project work. Additionally, the findings around cross-fertilization, project learning, teamwork, and well-being show the need for extending the study into the area of project leadership, teaming, and psychological safety. These ideas can bring an important view at a microlevel to understand and be able to better support project teams in their transition to the digital economy.

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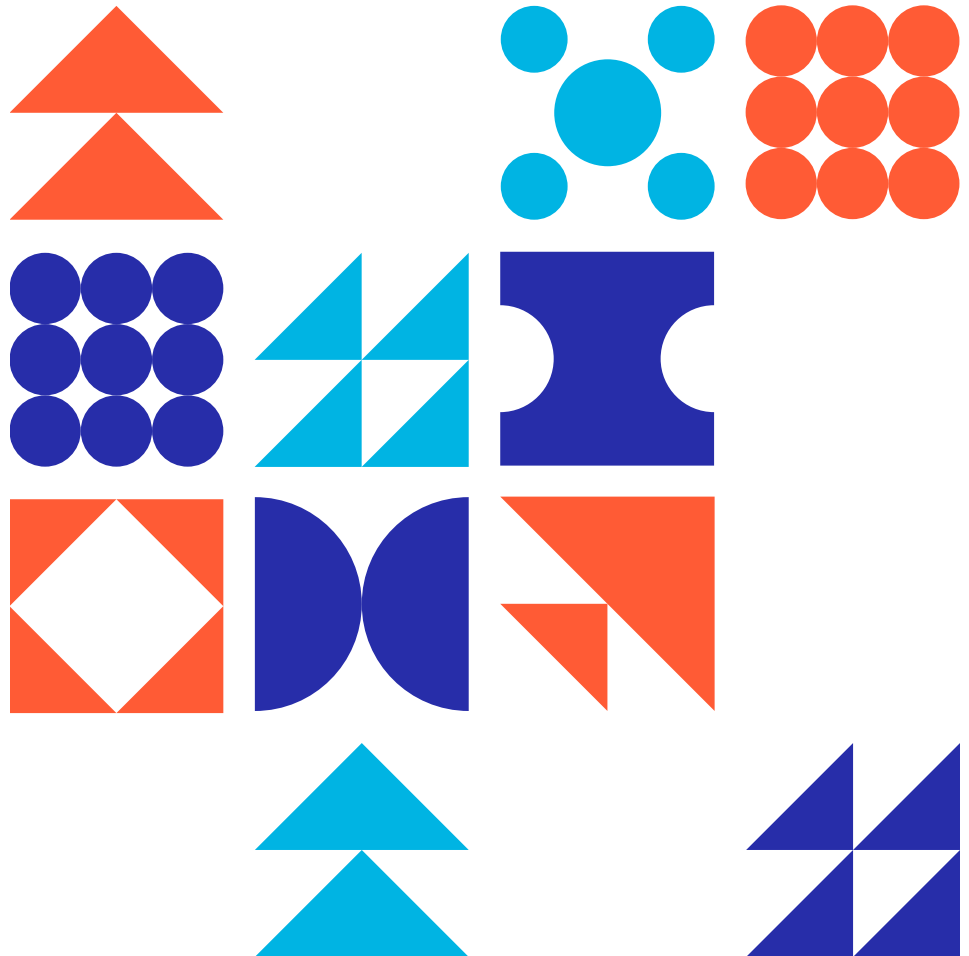
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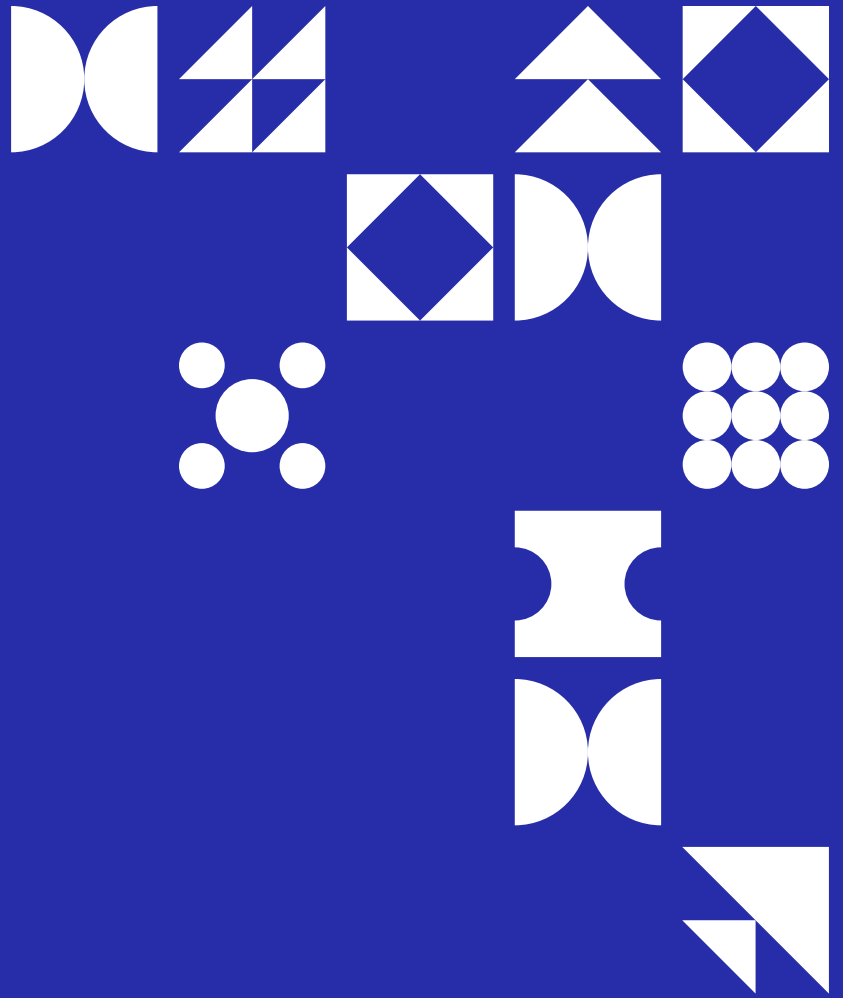
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