Institute of Information Management
University of St.Gallen

Technische Universität München
TUM School of Management

Technical University of Munich
TUM School of Management

A Strategic Human Capital Management Framework for Decentralized Organizations: Addressing Digital Talent Challenges in the Swiss Construction Industry's Digital Economy

Master's Thesis for the Executive Master of Business Administration in Business & IT at the TUM School of Management of the Technical University of Munich

First Supervisor	Prof. Dr. Helmut Krcmar Chair of Information Systems Department of Informatics (TUM)
Second Supervisor	Prof. Reinhard Jung (HSG)
Person in Support	Dr. Simon Stoepfgeshoff (HSG)
Name of Candidate	Gianluca Genova Alte Landstrasse 52 Männedorf/Zürich (CH) +41 79 817 58 86 gianluca.genova@metaxd.ch
Matriculation Number	03780085
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Abstract

This master's thesis examines the strategic challenges and opportunities in Human Capital Management (HCM) within the Swiss construction industry, driven by digital transformation and the transition to decentralized organizational models. As the sector adapts to the digital economy, the effective management of **digital talent** professionals with competencies in technologies such as robotics, artificial intelligence (AI), and the Internet of Things (IoT) is crucial for securing competitive advantage.

From an **academic perspective**, this research closes a gap by connecting theories of organizational design with digital transformation and analyzing the specific HCM challenges in traditional, project-based industries. For **business practice**, the thesis addresses central issues such as talent acquisition and retention, organizational agility, psychological safety, employer branding, and leadership in decentralized environments.

Using a mixed-methods approach, combining quantitative survey data with qualitative insights from expert interviews, the central areas of tension are identified: Decentralization increases project efficiency but complicates talent management. The results reveal a critical gap between the provision of digital tools and the insufficient development of agile processes and leadership competencies.

As a core contribution, this thesis develops a customized strategic framework: **"The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF)."** This practice-oriented model offers evidence-based solutions for optimizing talent management by focusing on a leadership-driven talent ecosystem, agile performance management, strategic community building, and a supportive digital leadership style. The thesis thus provides not only a well-founded academic contribution but also offers industry decision-makers a concrete and implementable roadmap to prepare their workforce for the complexity of the digital economy and create sustainable competitive advantages.

Content

1. Chapter I: Introduction

1.1. Preface

This master's thesis is systematically structured to guide the reader through a logical and coherent exploration of Human Capital Management (HCM) within decentralized organizations in the Swiss construction industry. Each chapter is designed to build cumulatively upon the preceding one, creating a comprehensive narrative that systematically addresses the central research problem and culminates in achieving the stated academic and practical objectives.

The **Introduction (Chapter 1)** establishes the context of the research, outlining the challenges posed by digital transformation and decentralization in the Swiss construction sector. It presents research problems, questions, and objectives while also highlighting the study's significance and providing an overview of the thesis structure.

Following this, the **Literature Review (Chapter 2)** critically examines existing scholarship on organizational design, human capital management, and digital transformation, with a focus on decentralized models and their application in traditional industries. This chapter identifies gaps in current knowledge, particularly regarding talent management in decentralized, digitally transforming sectors, and sets the theoretical foundation for the research.

Methodology (Chapter 3) outlines the study's robust methodological architecture. It details the rationale for employing a mixed-methods approach, which synergistically combines quantitative surveys with qualitative, semi-structured interviews to capture a multi-faceted and triangulated dataset from key industry stakeholders. This section rigorously explains the sampling strategy, data collection protocols, and analytical frameworks chosen to ensure the validity, reliability, and ethical integrity of the findings.

Chapter 4 (Integration of Traditional HRM Concepts) serves as a critical analytical bridge, connecting established Human Resource Management theories to the contemporary challenges of digital talent management. It deconstructs traditional concepts and reassembles them into four modern pillars, providing the analytical lens through which the subsequent empirical data is interpreted.

In the **Results (Chapter 5),** it constitutes the empirical core of the thesis. It presents the synthesized findings from quantitative and qualitative analyses, integrating statistical data with rich narrative insights from industry experts. This chapter illuminates key patterns and emergent themes in talent management practices, directly addressing the research objectives concerning talent acquisition, retention, agility, psychological safety, and leadership.

The **Discussion (Chapter 6)** transitions from empirical findings to theoretical interpretation and practical application. It critically analyzes the results within the context of the established literature to provide a comprehensive answer to the central research question. This analysis culminates in the development of the study's primary contribution: **The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF)**—a novel, actionable model for industry practitioners.

Finally, the **Conclusion (Chapter 7)** synthesizes the research journey. It summarizes the key findings, reflects on the study's significant contributions to both theory and practice, and proposes compelling avenues for future scholarly inquiry. The conclusion reinforces the urgent need for strategic, human-centric HCM in an increasingly competitive and decentralized digital economy.

1.2. Background and Context

1.2.1. Overview of the Swiss Construction Industry

The Swiss construction industry has traditionally operated under centralized, hierarchical structures, managing projects through well-defined chains of command. However, the rise of digital technologies is disrupting these models, pushing firms toward decentralized frameworks that prioritize flexibility and innovation. This shift aligns with global trends, where digitalization enhances productivity and sustainability.

For a long time, the building industry has been seen as an important part of Switzerland's economy. It is built on precision and engineering excellence. Traditionally, the sector has been run by centralized organizational systems with a hierarchy for making decisions and standard methods for managing projects. Standard models, which were created for safe and predictable situations, are under more stress because of the growth of the digital economy and all of its inherent complexity. Due to the project-based and cross-disciplinary nature of the industry, which includes architects, engineers, and contractors, there is a need for more teamwork and flexibility that centralized systems have a hard time meeting.

Recent trends indicate a significant shift toward digitalization, with the Swiss construction sector adopting technologies to enhance efficiency and competitiveness (EY, 2024). According to industry insights, digital transformation is driving a notable digitalization of products and processes, alongside a move toward data-driven decision-making (Deloitte, 2024).

Digital transformation is reshaping the global construction industry, and Switzerland is no exception. Technologies such as Building Information Modeling (BIM), Artificial Intelligence (AI), robotics, and the Internet of Things (IoT) are revolutionizing how projects are designed, executed, and maintained. BIM, for instance, enables collaborative 3D modeling, improving accuracy and reducing errors (Eastman, 2011), while AI and IoT enhance predictive maintenance and resource optimization.

However, digital transformation extends beyond technology adoption. It requires a cultural and structural shift within organizations to fully realize its benefits. The Swiss construction industry, once among the least digitized sectors, is now embracing these changes, driven by the need to address labor shortages, environmental concerns, and competitive pressures (World Economic Forum, 2016).

i) Switzerland’s Strategic Position

Although not explicitly mentioned in global digital talent reports, Switzerland is likely a “Frontrunner” in digitalization, given its advanced economy, technological infrastructure, and high innovation index. Frontrunner countries typically achieve up to 95% conversion rates of STEM graduates to ICT professionals, far surpassing less developed digital economies (Huawei, 2024). Switzerland’s world-class institutions, such as ETH Zurich and EPFL, produce graduates skilled in technologies critical to the construction industry, including Building Information Modeling (BIM), AI, and the Internet of Things (IoT). These institutions contribute to a robust talent pipeline, positioning Switzerland to meet the growing demand for digital professionals (Genova, 2023).

However, retaining this talent domestically is challenging, as global opportunities in countries like China and the US attract skilled professionals. The China Digital Economy Talent Report highlights a rising demand for mid-level management and specialized skills, such as data analysis and software engineering, which are also critical in Switzerland’s construction sector (LinkedIn & Tsinghua University, 2017). To compete, Swiss firms must emphasize unique value propositions, including Switzerland’s high quality of life, leadership in sustainability, and a vibrant innovation ecosystem. Initiatives like “Digital Next Gen,” which foster digital skills and talent networks, are promising but require broader human capital management (HCM) strategies to address the global talent shortage.

To thrive in the global digital talent economy, the Swiss construction industry must adopt proactive human capital management (HCM) strategies. These include enhancing employer branding to highlight

innovation and flexibility, implementing agile methodologies to support decentralized teams, and fostering psychological safety to encourage creativity. Initiatives like "Digital Next Gen," spearheaded by Bauen Digital Schweiz, are promising steps toward building a strong network of digital talents and fostering collaboration across the industry (Bauen Digital Schweiz, 2023). This initiative aims to connect innovators, promote knowledge sharing, and nurture the next generation of digital professionals through education and industry partnerships.

Moreover, decentralized platforms such as "Experts on Demand" offer innovative solutions to the scarcity of talent by providing flexible access to specialized skills on a project-by-project basis (Genova, 2023). For example, a Luzern-based firm utilized this platform to assemble a team of digital specialists, enhancing project efficiency and service offerings. Such platforms not only address the talent gap but also promote collaboration and innovation by breaking down traditional silos. Supported by education and policy, these decentralized models can provide a competitive edge in a rapidly evolving industry.

ii) Strategic Implications

The building industry in Switzerland needs to be proactive about managing its human capital if it wants to do well in the global digital talent economy. Some of the tactics are improving employer branding to highlight creativity and adaptability, using agile methods to help decentralized teams work together, and encouraging psychological safety to boost creativity. Switzerland could keep its own talented people and also attract professionals from other countries by making smart use of its educational and cultural resources. This would keep the construction industry at the forefront of digital change.

Switzerland is well-positioned to lead in digitalization, likely ranking as a "Frontrunner" due to its advanced economy, technological infrastructure, and high innovation index (Huawei, 2024). Frontrunner countries typically achieve high conversion rates of STEM graduates to ICT professionals; a strength Switzerland can leverage through its educational institutions. However, to compete globally, Swiss firms must emphasize unique value propositions, such as quality of life, sustainability leadership, and a vibrant innovation ecosystem. By capitalizing on these strengths and fostering an inclusive environment, Switzerland can attract and retain the digital talent necessary to drive its construction industry forward.

1.2.2. The Global Digital Talent Economy: Opportunities and Competition

The Swiss construction industry operates within a dynamic global digital talent economy, where the demand for skilled professionals far exceeds supply, creating intense competition among nations and industries. Research suggests that global digital jobs will increase by approximately 25% by 2030, reaching over 90 million roles, with a particular need for expertise in artificial intelligence (AI), cloud computing, and next-generation networks (World Economic Forum, 2016). This surge underscores the urgency for countries like Switzerland to secure digital talent to drive innovation, particularly in sectors like construction undergoing digital transformation.

i) China's Growing Influence

China has emerged as a formidable competitor in the global talent race, boasting the world's second-largest STEM (Science, Technology, Engineering, and Mathematics) talent pool, rapidly narrowing the gap with the United States (MERICS, 2024). The China Digital Economy Talent Report indicates that China's digital talent is concentrated in key cities such as Beijing, Shanghai, Shenzhen, and Hangzhou, which together host over half of the country's digital professionals (LinkedIn & Tsinghua University, 2017). In 2023, China's Information and Communication Technology (ICT) industry was valued at US$539.9 billion, reflecting significant investment in digital infrastructure and a robust demand for talent in areas like AI, 5G, and cloud computing (Huawei, 2024). For instance, the Port of Tianjin's digital transformation, integrating 5G and AI, highlights China's need for specialized talent to support such initiatives.

Despite its strengths, China faces challenges in attracting and retaining top foreign talent, primarily drawing ethnic Chinese or nationals studying abroad (MERICS, 2024). The *Annual Report of Global Digital Talent Development* notes that while China has 15 million digital talents among 48 million globally, there is a significant talent gap in advanced fields like big data, AI, and digital marketing, with over 85% of talents focused on product R&D (Pekingnology, 2023). This limitation presents an opportunity for Switzerland to position itself as a more inclusive destination for global talent.

ii) Challenges and Opportunities

Despite the critical role of digital talents, the Swiss construction industry faces significant challenges in attracting and retaining them. The global demand for digital talent is surging, with projections indicating a 25% increase in digital jobs by 2030, particularly in AI, cloud computing, and next-generation networks (World Economic Forum, 2024). This trend is not confined to the tech sector; traditional industries like construction are increasingly integrating digital skills into their workforce. However, Switzerland's construction sector struggles with a scarcity of qualified professionals, exacerbated by competition from other industries and the allure of flexible, entrepreneurial opportunities (Genova, 2023). Many digital talents prefer roles in startups or self-employment, where they can exercise greater autonomy and innovation, challenging the industry's ability to fully embrace digitalization.

The global digital talent economy presents both challenges and opportunities. China, for instance, has emerged as a formidable competitor, with its digital talent concentrated in cities like Beijing and Shanghai (LinkedIn & Tsinghua University, 2017). While China faces limitations in attracting foreign talent, Switzerland can leverage its inclusive and innovative work environment to attract diverse, high-caliber professionals (MERICS, 2024). Additionally, Switzerland's world-class educational institutions, such as ETH Zurich and EPFL, produce graduates skilled in construction-critical technologies, contributing to a robust talent pipeline (Genova, 2023). However, retaining this talent domestically remains challenging due to global opportunities in countries like the U.S. and China.

The global digital talent economy offers both challenges and opportunities for Switzerland's construction industry. China's focus on domestic and ethnic Chinese talent creates a niche for Switzerland to attract diverse, high-caliber professionals by promoting an inclusive and innovative work environment. The Annual Report of Global Digital Talent Development indicates that Chinese cities like Beijing and Shenzhen lead in specific digital skills, such as AI and computer hardware, suggesting potential for knowledge exchange or collaboration (Pekingnology, 2023). Switzerland can leverage its educational strengths and industry-academia partnerships to develop similar expertise tailored to construction-specific technologies.

Moreover, the global emphasis on disruptive technologies, such as AI and robotics, aligns with the needs of the Swiss construction industry as it adopts decentralized organizational models. By investing in targeted talent acquisition, retention strategies, and fostering environments that support psychological safety and agility, Swiss firms can enhance their competitiveness. For example, adopting platforms like "Experts on Demand," which connect firms with specialized talent, can mirror successful models in China, where digital talent is increasingly integrated into non-ICT industries like manufacturing (Pekingnology, 2023).

1.3. Fundamental Concepts

1.3.1. Digital Talent: The Backbone of Transformation

Digital talent is the cornerstone of the Swiss construction industry's shift toward decentralized, technology-driven organizational models. These professionals—often referred to as "digital natives" or "tech-savvy experts" possess a unique combination of technical expertise. For clarity, this thesis will primarily use the term 'digital talent' to encompass individuals who have specialized knowledge in technologies like Robotics, Artificial Intelligence (AI), and the Internet of Things (IoT), alongside deep

industry-specific knowledge. Their ability to integrate these technologies into construction practices is essential for enhancing project efficiency, safety, and sustainability (McKinsey & Company, 2020). However, the growing demand for such talent, both globally and locally, presents significant challenges for Switzerland's construction sector, making talent acquisition and retention a strategic priority (Genova, 2023).

Digital talent professionals who are good at using tools like BIM, AI, and IoT and know a lot about business are very important to this shift. These people, who are often called "digital natives" or "tech-savvy experts," are very important for driving digital change and putting in place decentralized organizational models. As a way to spur innovation, they create virtual models, use AI to make processes more efficient, and use IoT for real-time tracking. In addition to technical skills, managers of remote teams need to be able to work well with others and lead them well.

But Switzerland does not have enough people with these skills. This is made worse by competition from other countries and the appeal of flexible, creative jobs in companies or as a self-employed person. Because there are not enough digital professionals, the business can not fully embrace digitalization. This makes finding and keeping digital professionals a strategic priority.

i) Defining Digital Talent in Construction

In the context of the Swiss construction industry, digital talent encompasses professionals who can seamlessly blend advanced technological skills with practical construction expertise. These individuals are not only proficient in using BIM for collaborative 3D modeling or AI for predictive maintenance but also understand the complexities of construction workflows, regulations, and sustainability goals. (LinkedIn Talent Solutions, 2020)Their role extends beyond technical execution; they are innovators who drive the adoption of decentralized organizational models, enabling firms to respond agilely to market changes and project demands. As industry moves toward a digital-first approach, the need for digital talent with interdisciplinary skills—such as leadership, collaboration, and adaptability—becomes increasingly critical.

ii) Global Trends in Digital Talent

The global demand for digital talent is surging, with projections indicating a 25% increase in digital jobs by 2030, particularly in fields like AI, cloud computing, and next-generation networks (World Economic Forum, 2024). This trend is not confined to the tech sector; traditional industries, including manufacturing and construction, are increasingly integrating digital skills into their workforce. For instance, the China Digital Economy Talent Report highlights a rising demand for mid-level management and specialized skills such as data analysis and software engineering across various sectors (LinkedIn & Tsinghua University, 2017). Similarly, the Annual Report of Global Digital Talent Development notes that while China leads in certain digital skills like AI and computer hardware, there is a growing need for talent in non-ICT industries, mirroring the Swiss construction sector's requirements. (Pekingnology, 2023)

1.3.2. Decentralized Organizational Models: A New Paradigm

Digital transformation is revolutionizing construction through tools like BIM, AI, robotics, and IoT, which improve project accuracy, safety, and collaboration.

In response to digital transformation, decentralized organizational models are gaining traction in the Swiss construction industry. These models distribute decision-making authority, empower employees, and foster agility, making them well-suited to the dynamic, project-based nature of construction (Mintzberg, 1979). Decentralized structures enable firms to respond quickly to market changes, integrate digital tools effectively, and leverage interdisciplinary expertise. For example, platforms like "Experts on Demand" allow companies to access specialized digital talent on a project-by-project basis, as

demonstrated by a Luzern-based firm that enhanced project efficiency through such a model (Genova, 2023).

Yet, decentralization introduces significant challenges. Distributed teams can struggle with cohesion, alignment, and communication, particularly in complex projects requiring tight coordination (Hinds & Mortensen, 2005). Managing digital talent in these environments demands new approaches to leadership, collaboration, and organizational culture. The shift to decentralized models also exacerbates the industry's talent shortage, as professionals seek environments offering autonomy and innovation, often outside traditional firms

The move toward decentralized structures reflects the need for agility and autonomy in response to digital transformation. By distributing decision-making and empowering teams, these models enhance responsiveness and innovation—critical for managing complex, project-based work (Rigby, Sutherland, & Takeuchi, 2016). For example, platforms like "Experts on Demand" allow firms to tap into specialized digital talent on a flexible basis, boosting project efficiency. Yet, decentralization introduces complexities, such as coordinating distributed teams and maintaining alignment, which amplify the demand for skilled digital professionals and adaptive leadership.

1.3.3. Importance of Human Capital Management

Human Capital Management (HCM) is the strategic process of managing an organization's workforce to optimize skills, engagement, and alignment with organizational goals. In the Swiss construction industry, HCM has become essential for navigating digitalization and decentralization. As firms adopt technologies like Building Information Modeling (BIM), Artificial Intelligence (AI), and the Internet of Things (IoT) while shifting toward decentralized decision-making, the need for a skilled, adaptable workforce grows (Cappelli, 2008). This section examines HCM's role in addressing these challenges, outlines key workforce management strategies, and highlights Switzerland's position in developing digital talent.

Digital transformation is reshaping Swiss construction through advanced tools that enhance efficiency, safety, and sustainability. These technologies require workers skilled in both technical expertise and soft skills such as adaptability and collaboration. Meanwhile, decentralization—with its distributed decision-making and empowered teams—needs cohesive strategies to maintain alignment and productivity. HCM bridges these gaps by helping firms attract, retain, and develop digital talent. Digital professionals serve as "bridge builders between tradition and modernity," combining construction knowledge with technological expertise (Tambe, Hitt, & Brynjolfsson, 2019). However, their scarcity creates challenges as many prefer flexible, entrepreneurial roles over traditional corporate positions.

Implementing digital tools like BIM and AI demands workforce upskilling, especially in a competitive market where digital natives value autonomy and innovation. While decentralization promotes agility, it risks fragmentation without proper coordination and trust. HCM addresses these challenges by aligning workforce capabilities with technology and fostering a culture that supports distributed teams.

Modern HCM requires a comprehensive approach centered on people and culture. It begins with strong talent acquisition and retention strategies, offering meaningful opportunities for growth and autonomy. Agile methods like Scrum and Kanban support this by enhancing team collaboration in decentralized environments (Beck, 2001). Creating psychological safety is vital, enabling employees to innovate and take calculated risks confidently (Edmondson, 1999).

The second pillar of HCM focuses on organizational identity and leadership. A compelling employer brand highlighting innovation and flexibility attracts digital talent through social media and industry partnerships (Ambler & Barrow, 1996). This requires both transformational leaderships to inspire vision (Bass, 1985) and distributed leadership to empower teams (Gronn, 2002). These elements foster shared responsibility and continuous innovation, helping organizations navigate digital transformation while maintaining alignment and productivity.

Switzerland's excellent educational system, including ETH Zurich, and its engineering heritage provide strong foundations for digital talent development. Programs like "Digital Next Gen" strengthen industry-academia collaboration, nurturing future professionals (Bauen Digital Schweiz, 2023). However, without strategic HCM, the industry risks losing talent to global firms or other sectors. Leveraging Switzerland's advantages—including quality of life and innovation culture—can strengthen talent retention and attraction.

Digital transformation and decentralization can help Swiss building be more efficient, safe, collaborative, and environmentally friendly. These benefits depend on how well you handle your human capital. This thesis creates an HCM framework for decentralized companies and gives useful tips on how to hire good people, use digital tools, and stay ahead of the competition. The framework ties together theory and practice to help the industry do well in the digital economy. It does this by talking about talent management, organizational design, and Switzerland's strengths.

1.4. Research Framework and Objectives

1.4.1. Research Problem

The Swiss construction industry is undergoing a profound transformation, driven by the rapid integration of digital technologies and the adoption of decentralized organizational structures (McKinsey & Company, 2020). This shift from traditional, hierarchical models to more agile, digital-first frameworks is reshaping the industry's operational landscape, necessitating a reevaluation of human capital management (HCM) strategies. Central to this transformation is the management of digital talent—professionals equipped with the technical expertise and soft skills required to navigate and leverage emerging technologies such as Building Information Modeling (BIM), Artificial Intelligence (AI), and the Internet of Things (IoT) (Genova, 2023). However, this transition presents significant challenges in attracting, retaining, and effectively utilizing digital talent within decentralized organizations. These challenges are multifaceted, encompassing issues of talent acquisition and retention, organizational agility, psychological safety, employer branding, and leadership, each of which complicates the industry's ability to adapt to the demands of the digital economy.

One of the primary challenges lies in talent acquisition and retention within a decentralized, digital-first environment. Decentralized organizational models, which distribute decision-making authority and empower employees, offer increased autonomy and flexibility—attributes highly valued by digital professionals (Galbraith, 1973). Yet, these models also disrupt traditional talent management practices. Firms must redefine their acquisition strategies to attract individuals who possess not only technical proficiency but also the ability to thrive in autonomous, collaborative settings. Retention poses an equally formidable challenge, as digital talent often seeks opportunities that align with their preferences for innovation and flexibility, occasionally favoring entrepreneurial ventures or non-traditional sectors over established construction firms (LinkedIn Talent Solutions, 2020). Consequently, organizations must craft compelling value propositions that emphasize growth opportunities, autonomy, and alignment with organizational goals to secure and maintain a competitive workforce.

Agility represents another critical issue for organizations navigating the fast-paced digital economy. The integration of agile methodologies—such as Scrum or Kanban—into decentralized teams is essential to enhance collaboration, adaptability, and responsiveness to market changes (Rigby, Sutherland, & Takeuchi, 2016). However, implementing these practices in a distributed setting requires a reassessment of team dynamics and leadership approaches. Leaders must foster an environment where teams can rapidly iterate, integrate digital tools, and maintain alignment across diverse project sites. This demands both technical agility and cultural shifts within organizations to support decentralized decision-making and accelerated innovation cycles. The challenge lies in balancing the flexibility of agile practices with the need for cohesive project management in the complex, interdependent context of construction.

Psychological safety emerges as a vital concern in decentralized teams, where employees may experience isolation or disconnection from central organizational structures. In the digital age, fostering

an environment where team members feel safe expressing ideas, taking risks, and innovating is crucial for driving digital transformation (Edmondson, 1999). However, cultivating psychological safety in distributed settings is inherently difficult due to physical and communicative barriers. Organizations must implement strategies that promote trust, open communication, and inclusivity, ensuring that digital talent can contribute meaningfully regardless of their location. This requires intentional efforts from leadership to create a supportive culture that values experimentation and learning from failure, a task made more complex by the industry's traditionally risk-averse nature.

Employer branding also plays a pivotal role in addressing the talent management challenges posed by digital transformation. As the construction industry competes with other sectors for skilled professionals, firms must develop a compelling employer brand that highlights their commitment to innovation, flexibility, and sustainability (Ambler & Barrow, 1996). This involves not only showcasing the adoption of cutting-edge technologies but also emphasizing opportunities for professional growth and a supportive work environment. Effective employer branding must resonate with the values and aspirations of digital natives, positioning the organization as a forward-thinking employer in a sector often perceived as conservative (Backhaus & Tikoo, 2004). The challenge is to differentiate construction firms in a competitive labor market increasingly dominated by technology-driven industries.

Leadership in decentralized, digital contexts requires a significant departure from traditional hierarchical models. Transformational and distributed leadership styles are better suited to inspire and motivate autonomous teams, fostering a culture of shared responsibility and innovation (Bass, 1985). However, transitioning to these approaches necessitates a reassessment of existing frameworks and the development of new competencies among leaders. They must be adept at guiding diverse, distributed teams while maintaining alignment with strategic objectives, a shift that is particularly challenging in an industry historically rooted in centralized control. This evolution demands substantial cultural and structural changes to ensure leadership can effectively support digital talent in a decentralized environment.

To sum up, the move of the Swiss building industry to decentralized, digital organizations creates a lot of problems for managing digital talent. Strategic HCM interventions are needed to deal with these problems, which include finding and keeping good employees, being flexible, making sure employees feel safe, building a good employer brand, and being a good boss. If an industry does not adopt, it could lose the ability to take advantage of the opportunities that come with digital transformation. This could mean losing the ability to compete with faster-moving industries or global rivals.

1.4.2. Research Question

The central research question guiding this thesis is: "How can decentralized organizations in the Swiss construction industry effectively manage digital talent to address the challenges of the digital economy?" This question encapsulates the need to explore strategic approaches to human capital management (HCM) that align with the unique demands of decentralized structures and digital transformation. It seeks to uncover actionable insights into how Swiss construction firms can attract, retain, and optimize digital talent to thrive in an increasingly digital and decentralized business environment. The investigation will focus on several key areas critical to talent management in this context, including talent acquisition and retention, agile methodologies, psychological safety, employer branding, and leadership styles. By examining these dimensions, the research aims to bridge the gap between the industry's evolving organizational paradigms and the practical realities of managing a digitally skilled workforce.

1.4.3. Research Objectives

The main purpose of this thesis is to get a full picture of human capital management (HCM) in decentralized building companies in Switzerland, especially as they go through digital transformation. To do this, the study is focusing on a number of related goals that work together to solve the problems outlined in the research problem and are in line with the main research question. The first part of the

study will look at how decentralization affects hiring and keeping digital talent. It will look at how decentralized models affect finding and keeping skilled professionals in a digital-first world. After that, it will look at how agile methods can help handle talent, specifically how frameworks like Scrum and Kanban can be changed to support distributed teams and make organizations more responsive. The study will also look into how psychological safety affects teamwork, new ideas, and employee participation in autonomous settings of different sizes.

The study will also look at employer branding strategies that are designed to draw digital talent. It will focus on how Swiss construction companies can position themselves as innovative and flexible employers in a market where jobs are hard to come by. More study will be done to find the best ways to manage digital talent in decentralized organizations. It will focus on transformational and distributed leadership styles that encourage teamwork and flexibility. Finally, the thesis will end with the creation of a strategic HCM framework that will deal with the problems that have been discovered and offer useful, evidence-based solutions for the Swiss construction industry. The study aims to make these contributions to the management of digital talent in a time of decentralization and technological progress, both theoretically and practically.

1.4.4. Significance of Study

This study is very important in many areas of life, including academia, the workplace, and everyday life. It makes important contributions to organizational design, human capital management (HCM), and digital transformation, especially in the Swiss building industry. The parts that follow go into more detail about how important study is for academics, for changing the way professionals and businesses work, and for helping businesses deal with decentralization and digitalization.

i) Academic Significance

This research advances scholarly understanding by exploring the effectiveness of decentralized organizational models in traditional industries, an area that has received limited academic attention. It addresses a gap in the literature by examining how such models can be applied within the Swiss construction sector, a field traditionally characterized by centralized structures (Mintzberg, 1979). The study expands the knowledge base on human capital dynamics in sectors undergoing digital transformation, providing insights into the management of digital talent within decentralized frameworks. Moreover, it bridges organizational design theory with digital innovation practices, contributing to the development of a theoretical framework for talent management in decentralized structures. This framework serves as a foundation for future research, offering scholars a lens through which to investigate the interplay between organizational architecture, digital transformation, and workforce management in similar industries.

ii) Professional and Industry Impact

The research results have important implications for the Swiss construction business and other fields going through similar changes. The study gives real-world answers to the problems of finding and keeping digital experts in a world where technology is changing quickly by showing how to use autonomous organizational models based on evidence. It gives building companies that are switching to digital-first operations frameworks they can use to manage organizational change during the digital transformation process. The study also helps make policy by figuring out what kind of structural and regulatory support is needed to encourage new ways of running an organization. These insights are very useful for business leaders and lawmakers who want to make companies more competitive and resilient in the face of new technologies, so they can adapt to the needs of a digital economy.

iii) Practical Applications

This thesis gives companies real tools and suggestions they can use right away to deal with the challenges of managing talent in digital, decentralized settings. It gives a plan for aligning talent strategies with the needs of the digital economy and provides a strategic framework for managing human capital for decentralized organizations. The study lays out the best ways to find and keep digital talent and gives advice on how to effectively adopt and grow decentralized models. It also provides metrics for judging the success of organizational change projects, which lets companies see how their HCM strategies are working. These real-world uses show that the study is not only sound in theory, but also useful in real life. This is especially true for construction companies that want to make the best use of their workers as they decentralize and digitize.

2. Chapter II: Literature Review

2.1. Human Capital Management (HCM)

Human Capital Management (HCM) is a strategic approach to managing an organization's workforce (Schultz, 1961), with an emphasis on optimizing employees' skills, knowledge, and abilities to enhance organizational performance (Becker, 1964). The concept of human capital, as articulated by Becker (1964), refers to the stock of competencies and expertise that individuals accumulate through education, training, and experience, which organizations can harness to improve productivity and generate economic value (Becker, 1964). Schultz (1961) further underscored the significance of human capital, positing that investments in education and training are vital for fostering a skilled workforce capable of driving innovation and economic growth (Schultz, 1961). HCM, therefore, encompasses the deliberate alignment of these human capital investments with organizational objectives, ensuring that employees are both competent and motivated to contribute effectively.

HCM's theoretical basis in human capital theory is complemented by the resource-based view of the firm, underscoring that digital talent represents a strategically valuable, rare, inimitable, and non-substitutable resource that can drive sustained competitive advantage (Becker, 1964). This perspective has been enriched by subsequent frameworks, notably Lepak and Snell's (1999) human resource architecture model (Lepak & Snell, 1999). This model classifies employees according to their value and uniqueness to the organization, proposing tailored management strategies for different workforce segments. For example, core knowledge workers, characterized by high value and uniqueness, warrant commitment-focused strategies, whereas less critical, non-unique employees may be managed through compliance-based approaches (Lepak & Snell, 1999). Such theoretical insights provide a robust foundation for understanding HCM, particularly as organizations face increasing demands for specialized and adaptable talent in a rapidly evolving technological landscape.

The evolution of HCM has been profoundly influenced by digital transformation, which has redefined the nature of work and the competencies required to succeed in modern organizations. Cappelli (2008) notes that digitalization has shifted employment dynamics, placing greater emphasis on flexibility, continuous learning, and adaptability to technological advancements (Cappelli, 2008). The integration of tools such as Building Information Modeling (BIM), Artificial Intelligence (AI), and the Internet of Things (IoT) has transformed traditional industries, necessitating a proficient workforce in both technical and adaptive skills. This shift has prompted HCM to prioritize upskilling initiatives, foster agility, and cultivate innovative cultures to meet the demands of the digital era. Consequently, organizations must adapt their human capital strategies to remain competitive in an increasingly technology-driven environment.

2.2. The Trend of Global Digital Talents

The global landscape for digital talents is undergoing a profound transformation, propelled by the rapid digitization of industries and the increasing centrality of technology in economic and societal advancement. Digital talents, encompassing professionals proficient in fields such as artificial intelligence (AI), cloud computing, data science, and cybersecurity, are critical drivers of innovation, efficiency, and competitiveness across diverse sectors, including traditional industries like construction. This section synthesizes contemporary research, yet challenges arise from the inherent limitations in collecting timely, reliable and comprehensive datasets on evolving digital skillsets and preferences. Subsequent analysis will account for potential gaps in the literature in its conclusions, with a particular emphasis on China's role and its interplay with broader international patterns. By examining these trends, the analysis contributes to the theoretical foundation for understanding human capital management (HCM) in the context of digital transformation and decentralized organizational models.

2.2.1. Global Expansion and Structural Shifts in Digital Jobs

The demand for digital talents is escalating at an unprecedented rate, reflecting the pervasive integration of digital technologies across economic sectors. The World Economic Forum (WEF), in collaboration with Capgemini, projects a 25% increase in global digital jobs by 2030, rising from approximately 73 million in 2024 to 92 million (World Economic Forum, 2024). These jobs, defined as roles conducive to remote execution and reliant on digital skills, span a spectrum of wage levels and sectors. Notably, the composition of digital jobs is shifting toward higher-wage, high-skill positions, with an anticipated net increase of 14 million high-wage roles (e.g., software developers, information security analysts) and a net decrease of 1 million lower-wage roles (e.g., customer service representatives) by 2030 (World Economic Forum, 2024) This structural shift underscores the growing premium on specialized digital competencies, driven by technological advancements, the proliferation of remote work technologies, and the global transition toward knowledge-based economies.

The distribution of digital talents is markedly uneven, with developed economies, particularly the United States, maintaining a dominant position. The U.S. accounts for 57% of the world's top AI talent, reflecting its robust innovation ecosystem and access to elite educational institutions (MERICS, 2024). European nations, while significant contributors, face challenges in meeting demand, with 85% of EU firms reporting difficulties recruiting skilled ICT professionals, projecting a shortage of nearly 8 million experts by 2030 (Iglesias, 2024). Emerging economies, such as China and India, are rapidly expanding their digital talent pools, leveraging large STEM-educated populations and government-led initiatives to narrow the gap with Western leaders.

2.2.2. Switzerland's Strategic Position in the Global Talent Race

Switzerland is recognized as the world's most talent-competitive country, a position bolstered by its high quality of life, world-class educational institutions, and robust employment prospects (World Economic Forum, 2024). Institutions such as ETH Zurich and EPFL produce graduates skilled in technologies critical to the construction industry, including Building Information Modeling (BIM), AI, and the Internet of Things (IoT), contributing to a robust talent pipeline. Switzerland's strategic focus on sustainability, innovation, and technological advancement positions it as a frontrunner in attracting digital talents, particularly those with expertise in high-demand fields like data science and cybersecurity. The country's business-friendly culture, political stability, and commitment to intellectual property protection further enhance its appeal to global talent and multinational corporations (Source Group International, 2024).

Despite these strengths, Switzerland faces intense competition from other global talent hubs, such as Singapore, with its highly educated workforce, and the United States, with its prestigious universities (World Economic Forum, 2024). The WEF's Future of Jobs Report 2023 suggests that organizations must prioritize career progression opportunities and skills development to address talent attraction and retention challenges, a critical consideration for Swiss construction firms seeking to compete in the digital economy (World Economic Forum, 2023). Initiatives like "Digital Next Gen," spearheaded by Bauen Digital Schweiz, aim to foster digital skills and talent networks, promoting collaboration across the industry and nurturing the next generation of digital professionals through education and partnerships (Bauen Digital Schweiz, 2023).

2.2.3. China's Role in the Digital Talent Ecosystem

China has emerged as a key player in the global digital talent race, driven by its ambition to lead in technological innovation and achieve self-reliance. Government initiatives, such as the Thousand Talents Program, have boosted the proportion of Chinese-educated academics working domestically from 37% to over 43% between 2019 and 2022 (MERICS, 2024). The focus on "ABCD talents" (AI, Blockchain, Cloud Computing, and Data Science) underscores this strategy, with the digital talent pool growing from 780,000 in 2016 to 910,000 in 2018 (Digital Transformation of Chinese Industries, 2019).

However, China's share of top-tier AI talent remains at 12%, far behind the U.S.'s 57%, reflecting difficulties in attracting elite non-Chinese professionals (Maurer, 2020).

The Guangdong-Hong Kong-Macao Greater Bay Area (GBA) highlights China's regional talent development. Shenzhen, Guangzhou, and Hong Kong host nearly 80% of the GBA's digital talents, with Shenzhen's digitization rate exceeding 30%, above the regional average of 26.98% (GBA Talent Development Report, 2023). While the ICT sector achieves over 80% digitization, traditional industries like construction lag, representing just 2.69% of digital talents (GBA Talent Development Report, 2023).

China struggles to attract non-Chinese talent due to cultural and institutional barriers (MERICS, 2024). The construction industry shows one of the lowest ratios of ABCD talents, revealing a significant gap in digital adoption compared to sectors like software and IT services (Tsinghua SEM Center for Internet Development and Governance, 2019).

China's challenges offer Switzerland an opportunity to attract diverse digital professionals by leveraging its inclusive environment. The Swiss construction industry, despite a strong talent pipeline, faces similar digital skill gaps and retention issues.

2.2.4. Challenges in Talent Acquisition and Retention

The global competition for digital talents is intensified by widespread shortages and uneven skill distribution. In Europe, the scarcity of ICT professionals is acute, with 62.8% of companies facing difficulties filling vacancies, contributing to a projected shortfall of 8 million experts by 2030 (Iglesias, 2024). This challenge is compounded by Europe's reliance on foreign digital products and services, which account for over 80% of its market, highlighting the urgency of developing domestic talent pools (Iglesias, 2024). Gender disparities further exacerbate the issue, with women constituting only 20% of the ICT workforce, despite gradual increases since 2014 (Iglesias, 2024).

Retention poses an equally significant challenge, as digital talents prioritize flexibility, continuous learning, and innovative work environments. Research indicates that 90% of organizations view learning opportunities as the top retention strategy, with 94% of employees more likely to stay if career development is supported (Iglesias, 2024). Online learning platforms have emerged as a critical tool, offering personalized, engaging training through techniques like gamification and storytelling, which can increase retention rates by up to 60% (Iglesias, 2024). These platforms enable organizations to address the rapid pace of technological change, ensuring that digital talents remain equipped with relevant skills.

2.2.5. Implications for the Swiss Construction Industry

The global trend of digital talents has profound implications for the Swiss construction industry and this master's thesis, which aims to develop a strategic HCM framework for decentralized organizations navigating the digital economy. The construction sector is increasingly adopting digital technologies—such as BIM, drones, and AI—to enhance efficiency, safety, and sustainability (EY, 2024). However, the industry faces significant challenges in attracting and retaining digital talents, with only a small proportion of ICT professionals currently engaged in construction compared to tech-driven sectors (Deloitte, 2024). The global shortage of digital skills, coupled with competition from other industries, underscores the urgency for Swiss construction firms to implement innovative HCM practices.

The thesis's objective assessing decentralization's impact on talent acquisition and retention, analyzing agile methodologies, investigating psychological safety, examining employer branding, and determining optimal leadersship approaches—are directly informed by these global trends. For instance, the need for agility in decentralized teams aligns with the adoption of iterative project management practices like Scrum, which can enhance collaboration in construction projects (Rigby, Sutherland, & Takeuchi, 2016). Fostering psychological safety is critical to encouraging digital talents to propose innovative solutions, such as drone-based inspections, in a traditionally risk-averse industry (Edmondson, 1999).

Employer branding strategies must highlight the industry's digital advancements and sustainability efforts to counter perceptions of construction as outdated, appealing to digital natives (Ambler & Barrow, 1996). Leadership styles, such as transformational and distributed approaches (Bass, 1985), are essential for empowering decentralized teams to leverage digital tools effectively (Gronn, 2002).

Comparatively, China's GBA experience highlights the importance of regional collaboration and policy interventions to address talent shortages in traditional industries like construction. While the GBA's construction sector lags in digital integration, Switzerland's more balanced talent ecosystem offers a competitive advantage. However, both regions must invest in upskilling and talent development to bridge the digital skills gap. The thesis's strategic HCM framework will draw on these insights, proposing solutions tailored to the Swiss construction industry's unique context, such as leveraging platforms like "Experts on Demand" to access specialized talent and fostering industry-academia partnerships to enhance digital skills training (Baumeister Swiss, 2023).

In conclusion, the global trend of digital talents is one of fast growth, fierce competition, and a shift toward jobs that require a lot of skill and pay a lot. Switzerland is a talent hub thanks to its high-quality education and innovation environment. This gives the construction industry a solid base to deal with digital talent challenges. The proposed HCM framework will help Swiss construction companies deal with digital transformation and decentralization by incorporating global best practices like inclusive employer branding, continuous learning, and agile methodologies. This will ensure long-term growth and competitiveness in the digital economy.

2.3. Decentralized Organizational Structures

Decentralized organizations distribute decision-making authorities across various levels or units, rather than concentrating it at the top (Mintzberg, 1979). Unlike centralized structures, where senior management holds primary control, decentralized models empower lower-level managers and employees to act independently. Key characteristics include:

- **Autonomy**: Units or individuals can make decisions without constant oversight.
- **Flexibility**: The organization adapts swiftly to external changes.
- **Flatter Hierarchy**: Fewer management layers enhance communication speed.
- **Empowerment**: Employees gain motivation through increased responsibility (Galbraith, 1973).

These traits enable decentralized organizations to respond effectively to dynamic conditions, a feature particularly relevant to industries like construction.

Decentralization influences talent management by offering both advantages and challenges. It attracts and retains talent by providing autonomy and flexibility, qualities prized by skilled professionals (Foss & Pedersen, 2019). Empowered employees are also more likely to innovate, enhancing organizational creativity (Rigby, Sutherland, & Takeuchi, 2016). However, decentralized talent management can lead to inconsistencies in recruitment, training, and evaluation practices across units, potentially creating uneven employee experiences (Foss & Pedersen, 2019). Construction firms, for instance, must ensure uniform standards despite varied project demands.

Decentralization shifts organizational design from rigid hierarchies to networked or matrix structures (Galbraith, 1973). This fosters collaboration and rapid decision-making but complicates coordination and alignment with strategic goals (Mintzberg, 1979). In construction, where projects span multiple locations, such designs enhance responsiveness but require robust systems to maintain quality and safety consistency across sites.

Industries like technology and manufacturing offer insights into decentralization's application. Spotify's "squad" model, where autonomous teams function like startups, promotes agility and innovation (Kniberg & Ivarsson, 2012). In construction, this could translate to independent project teams tailoring solutions to specific sites. Similarly, W.L. Gore's lattice structure, with fluid leadership based on

expertise, supports adaptability (Robertson, 2015), a model suited to construction's need for site-specific problem-solving. However, both examples highlight risks like silos, requiring strong communication to avoid fragmentation.

In construction, decentralization suits the industry's project-based, geographically dispersed nature. Project managers can address local conditions and regulations swiftly, improving efficiency (World Economic Forum, 2016). Yet, firms must prevent inconsistencies in safety and quality, balancing autonomy with standardized practices through clear communication and shared values.

Decentralized organizational structures provide the construction industry with agility and local responsiveness. While they pose challenges in coordination and consistency, effective management of these factors can unlock significant benefits.

2.4. Digital Transformation in Traditional Construction Industry

Digital transformation in the construction industry involves integrating digital technologies into all stages of the construction process, including design, planning, execution, and maintenance. Technologies such as Building Information Modeling (BIM), the Internet of Things (IoT), Artificial Intelligence (AI), robotics, drones, and virtual/augmented reality (VR/AR) are driving this shift, fundamentally changing how projects are delivered and managed (Li, 2018).

The construction industry is undergoing a significant digital transformation, shifting away from its traditionally conservative approach to innovation. Several key technologies are driving this change. Building Information Modeling (BIM) has become essential for project planning and management, enabling stakeholders to collaborate in real-time through digital building representations (Eastman, 2011). The implementation of IoT devices and sensors on construction sites provides real-time monitoring of equipment, worker safety, and environmental conditions (Woodhead, 2018). AI and machine learning technologies are improving decision-making through predictive analytics and process optimization (McKinsey & Company, 2020). The industry is also seeing increased adoption of robotics for repetitive tasks like bricklaying and welding, while drones are revolutionizing site surveys and safety inspections (Bogue, 2018). Additionally, virtual and augmented reality technologies are transforming design visualization and worker training, leading to fewer errors and better project outcomes (Li, 2018).

The shift toward digitalization in construction brings significant implications for talent management, presenting both hurdles and benefits.

The rapid introduction of advanced technologies demands digital skills that many current workers lack, creating a shortage of qualified professionals (World Economic Forum, 2016). Furthermore, some employees resist adopting new tools and processes, slowing the pace of transformation (Autor, 2015).

Upskilling the workforce requires substantial investment in training programs, posing financial and logistical challenges (Brynjolfsson & McAfee, 2014). Additionally, attracting and retaining digitally skilled talent is difficult in a competitive market, putting pressure on firms to enhance their talent strategies (Cappelli, 2008).

Automation of routine tasks allows workers to focus on higher-value activities, boosting overall efficiency (McKinsey & Company, 2020). IoT and drones enable real-time hazard detection and site monitoring, reducing workplace accidents (Woodhead, 2018).

Digital platforms improve communication and coordination among project teams, streamlining delivery (Eastman, 2011). Analytics provide actionable insights, optimizing processes and cutting costs (Brynjolfsson & McAfee, 2014). Furthermore, digital transformation creates roles such as BIM managers, drone operators, and data analysts, expanding career paths (World Economic Forum, 2016).

In summary, digital transformation in the construction industry offers a dual landscape of challenges and opportunities for talent management. Overcoming obstacles like the skills gap and resistance to

change through targeted training and recruitment strategies is critical to unlocking the benefits of enhanced productivity, safety, and collaboration.

2.5. Key Concepts in Digital Talent Management

Digital talent management includes a variety of strategic actions meant to find, hire, and get the most out of workers with specific digital skills. In the Swiss construction business, where organizations are spread out, managing digital talent well is important for figuring out how to make the transition to digital easier. This part looks at five important ideas that are at the heart of managing digital talent in these kinds of settings: finding and keeping talent, agile methods, psychological safety, workplace branding, and leadership styles. Each idea is looked at through the lens of academic literature and is closely linked to the problems the Swiss construction industry is having as it moves toward decentralized, digital-first business models.

2.5.1. Talent Acquisition and Retention

Talent acquisition and retention are foundational to building a workforce capable of driving digital innovation. Modern strategies for attracting digital talent—professionals skilled in areas such as data analytics, artificial intelligence (AI), and digital project management—include leveraging online platforms for recruitment (Cappelli, 2008), offering competitive compensation packages, and providing opportunities for continuous learning and career development (LinkedIn Talent Solutions, 2020). Retention efforts focus on creating a supportive work environment that emphasizes recognition, autonomy, and alignment with organizational goals (Collings & Mellahi, 2009). Research indicates that digital talent prioritizes intellectual stimulation and flexibility, making these strategies essential for organizations seeking to remain competitive in a tech-driven economy.

For the Swiss construction industry, these strategies must be tailored to address its traditional, labor-intensive nature and decentralized structure. Construction firms can attract digital talent by showcasing their adoption of technologies like Building Information Modeling (BIM) and the Internet of Things (IoT), signaling a commitment to innovation. Retention can be enhanced through upskilling initiatives that equip employees with cutting-edge digital competencies, ensuring long-term employability (World Economic Forum, 2016). This aligns with the thesis's aim to develop a strategic human capital management (HCM) framework, as it addresses the challenge of securing and retaining digital talent in a sector transitioning to decentralized, technology-enabled operations.

2.5.2. Agile Methodologies

Agile methodologies, rooted in iterative and collaborative approaches to project management, play a pivotal role in managing decentralized teams (Bauer, 2010). Practices such as Scrum and Kanban enable flexibility and rapid adaptation, which are particularly valuable in distributed settings where team members may operate across different locations. By breaking projects into smaller, manageable cycles, agile methods facilitate the integration of digital tools and ensure alignment despite geographical dispersion (Rigby, Sutherland, & Takeuchi, 2016). This adaptability is crucial for organizations seeking to harness digital talent in dynamic, technology-driven contexts.

In the Swiss construction industry, agile methodologies can enhance the management of decentralized teams working on complex projects. While construction traditionally follows linear processes, the adoption of agile practices can support the implementation of digital solutions—such as AI-driven scheduling or IoT-based monitoring—by fostering collaboration and experimentation. Case studies from other industries, such as Spotify's agile squad model, suggest that decentralized teams can excel with clear communication and shared goals (Kniberg & Ivarsson, 2012). The thesis will explore how integrating agile practices into an HCM framework can address the coordination challenges of digital talent in construction, promoting efficiency and innovation.

2.5.3. Psychological Safety

Psychological safety, the assurance that individuals can voice ideas and take risks without fear of retribution, is a cornerstone of effective team performance in digital and distributed environments (Edmondson, 1999). In decentralized organizations, where face-to-face interaction is limited, fostering psychological safety encourages open communication and innovation—key drivers of success for digital talent. Google's Project Aristotle underscores its importance, identifying it as the primary factor in high-performing teams, particularly those reliant on creativity and problem-solving (Duhigg, 2016). This concept is vital for leveraging the expertise of digital professionals in technology-intensive settings.

Psychological safety can help the Swiss construction business make the switch from old ways of doing things to digital ones. The high-pressure environment in construction often stops people from taking risks, but decentralized teams need a mindset where digital experts do not feel afraid to suggest new ideas, like using drones for inspections or predictive analytics. This thesis will look into how an HCM framework can build psychological safety into distributed teams in the building industry through leadership training and feedback systems. This will make it easier for these teams to work together and come up with new ideas.

2.5.4. Employer Branding

Employer branding, the process of shaping an organization's reputation as an attractive workplace, is a powerful tool for recruiting and retaining digital talent in decentralized organizations (Aguinis & Kraiger, 2009). Effective strategies include highlighting innovation, flexibility, and a strong organizational purpose through digital channels like social media and employer review platforms (Backhaus & Tikoo, 2004). In decentralized settings, where physical presence is diminished, a compelling employer brand helps convey culture and values, making it a critical differentiator in competitive talent markets.

Employer branding in the Swiss building industry can fight the idea that the field is out of date by highlighting digital progress and efforts to be more environmentally friendly. To attract digital natives, firms can talk about how they use BIM, AI, and other technologies. They can also use Switzerland's image for quality and innovation to help their case. This thesis looks at how employer branding can be used in a strategic human capital management framework to draw digital talent. This will help decentralized construction firms build a workforce ready for the digital economy.

2.5.5. Leadership Styles

Leadership styles suited for decentralized, digital environments prioritize empowerment and adaptability over traditional command-and-control approaches. Transformational leadership, which inspires through vision and intellectual stimulation, motivates digital talent to embrace technological change (Bass, 1985). Distributed leadership, where authority is shared across teams, aligns with decentralization by fostering collaboration and accountability (Gronn, 2002). These approaches enable leaders to manage remote teams effectively, ensuring cohesion and innovation in digital-first organizations.

In the Swiss construction industry, leadership must evolve to support decentralized teams adopting digital tools. Leaders can transition from centralized decision-makers to facilitators, empowering site teams to leverage technologies like virtual reality (VR) for design or AI for resource management (Li, 2018). This thesis will propose an HCM framework that cultivates these leadership styles through training and mentorship, addressing the unique challenges of managing digital talent in a decentralized construction context.

2.6. Legal Limitations in Decentralized Organizations

Decentralized organizations, which make decisions and run their businesses across various geographic or operational units, face special legal problems that have a big effect on managing talent. These problems come from having to follow different sets of laws in different places, especially when it comes to things like data privacy and employment rules. This part goes over these legal issues in more depth, focusing on how they affect the Swiss building industry as it moves toward digital and decentralized models. Each part is looked at in the context of the thesis, which aims to create a strategic framework for human capital management (HCM) to deal with the difficulties of finding digital talent in this field.

The fact that decentralized construction firms work in multiple jurisdictions makes the law very complicated. This is especially true in Switzerland, where labor laws change a lot between cantons, making it necessary to carefully follow different rules. It gets even more complicated when these firms do business in other countries. Employment laws, which say how to manage employees, and data privacy laws, which say how to handle employee and operating data in a digital setting, are two important things to think about. These legal issues are very important for talent management because they affect how companies hire, keep, and grow their employees, especially digital talent. Understanding and working around these legal limits is important for successful HCM in the Swiss construction industry, where companies work across cantons or internationally and use digital tools more and more. The suggested strategic framework in this thesis aims to include these legal aspects to make sure compliance while also improving the way talent is managed.

Employment laws regulate critical aspects of workforce management, including working hours, wages, benefits, and employee rights. In decentralized organizations, these laws vary by jurisdiction, creating challenges in maintaining consistent HR policies. In Switzerland, for instance, labor regulations differ between cantons and are further complicated when firms operate across borders, requiring compliance with international standards such as those outlined by the International Labor Organization (ILO) (International Labour Organization, 2019). For example, minimum wage requirements may exist in some regions but not others, while regulations on remote work and overtime differ widely (Swiss Federal Department of Economic Affairs, Education and Research, 2021).

As a result, Swiss construction companies need HR strategies that can be changed to fit the needs of their decentralized teams working on various project sites. This is dealt with in the thesis by suggesting an HCM framework that includes localized employment policies that are made to fit the laws of each area. Firms can hire and keep digital experts like those who know Building Information Modeling (BIM) or project management software by following different labor rules. This makes the workforce more flexible and compliant in the digital economy.

Data privacy has become a pivotal legal consideration as decentralized organizations increasingly rely on digital platforms for talent management and operations. Regulations such as the European Union's General Data Protection Regulation (GDPR) and Switzerland's Federal Act on Data Protection (FADP) impose strict rules on the collection, storage, and processing of personal data (European Union, 2016). In a decentralized context, where employee data may be processed across multiple jurisdictions, compliance becomes more intricate. The GDPR, for instance, requires explicit consent for data processing and grants employees' rights to access or delete their data—obligations that must be upheld consistently across all operational units.

The use of digital tools like cloud-based collaboration platforms in the Swiss construction business makes data privacy even more important. Because their operations are spread out, decentralized companies have to make sure that employee and project data is in line with both Swiss and foreign rules. The strategy HCM framework in the thesis addresses this issue by including strong data management protocols. These protocols allow companies to keep private data safe while using digital tools to efficiently manage their employees. This is very important for building trust with digital workers, who put data security first in a workplace that is becoming more and more digital.

Legal restrictions, such as job laws and rules about data privacy, can be both a problem and an opportunity for decentralized construction companies in Switzerland. These things have a direct effect on talent management because they change how companies set up their HR policies and handle employee data in a world that is becoming more digital. This thesis suggests a strategic human capital management framework that takes these legal factors into account. It is a complete way to manage digital talent that promotes compliance while also encouraging creativity and competition in the digital economy.

2.7. Summary of Literature and Research Gaps

2.7.1. Summary of Literature

The literature review commenced with an analysis of HCM (Becker, 1964), conceptualized as a strategic approach to maximizing workforce capabilities (Schultz, 1961). In the context of the digital era, HCM has evolved to prioritize adaptability and lifelong learning, reflecting the rapid pace of technological change. Decentralized organizational structures were explored next, characterized by autonomy, flexibility, and employee empowerment (Galbraith, 1973). These traits influence talent management and organizational design, with models like Spotify's agile framework offering insights into their application in project-driven industries akin to construction (Kniberg & Ivarsson, 2012).

The digital transformation of the construction sector was a focal point, with technologies such as Building Information Modeling (BIM), artificial intelligence (AI), and the Internet of Things (IoT) driving efficiency and innovation (McKinsey & Company, 2020). However, these advancements also exacerbate skills shortages and cultural resistance, posing significant talent management challenges (Autor, 2015). The review then delved into digital talent management, encompassing talent acquisition and retention (Cappelli, 2008), agile methodologies for distributed teams (Beck, 2001), psychological safety as a driver of innovation , employer branding to attract digital talent (Ambler & Barrow, 1996), and leadership styles suited to digital contexts (Bass, 1985). Lastly, legal limitations, including employment regulations and data privacy laws, were assessed for their impact on decentralized talent management (European Union, 2016).

2.7.2. Identification of Research Gaps

The literature reveals several underexplored areas pertinent to HCM in decentralized, digitally transforming construction firms. This thesis will address these gaps, tailoring its strategic framework to the Swiss construction industry's unique context. The identified gaps are detailed below; each linked explicitly to the thesis's objectives (Globoforce, 2018).

i) HCM in Decentralized Construction Firms

Existing HCM frameworks predominantly cater to centralized or traditional industries, with scant attention to decentralized construction organizations. These firms face distinct challenges, such as coordinating dispersed project teams and integrating digital tools across autonomous units. This thesis will develop an HCM framework customized for decentralized Swiss construction firms, addressing how digital talent can be strategically managed in a fragmented, project-based environment (Alavi & Leidner, 2001).

ii) Agile Methodologies in Construction

Agile methodologies, widely adopted in software development, remain underexplored in construction despite their potential to enhance flexibility and collaboration in decentralized teams (Beck, 2001). Given the industry's increasing reliance on digital tools like BIM, this thesis will investigate how agile

practices can be adapted to optimize talent management, enabling Swiss construction firms to respond effectively to digital transformation demands.

iii) Psychological Safety in Distributed Construction Teams

Research on psychological safety—critical for fostering innovation and risk-taking—has largely focused on corporate or tech settings, overlooking construction's unique high-stakes, site-specific dynamics (Edmondson, 1999). This thesis will explore strategies to cultivate psychological safety within decentralized Swiss construction teams, ensuring digital talent can innovate amidst the industry's traditionally risk-averse culture.

iv) Employer Branding for Digital Talent in Construction

Employer branding strategies are often generic, lacking customization for construction's image as a conventional, low-tech sector (Ambler & Barrow, 1996). This thesis will examine how Swiss construction firms can develop targeted employer brands to attract digital natives, addressing perceptions that hinder recruitment of tech-savvy talent essential for digital transformation.

v) Leadership in Decentralized, Digital Construction Environments

Leadership studies in decentralized contexts rarely consider construction's hierarchical legacy and project-driven nature (Gronn, 2002). This thesis will identify leadership styles that empower digital talent in decentralized Swiss construction firms, proposing a shift from traditional top-down models to distributed approaches that align with digital economy needs.

vi) Legal Frameworks for Decentralized Talent Management

Legal analyses of decentralized organizations often neglect sector-specific challenges, such as construction's reliance on temporary, site-based labor (International Labour Organization, 2019). This thesis will analyze how Swiss construction firms can navigate employment laws and data privacy regulations (e.g., GDPR) while managing a decentralized, digitally skilled workforce, ensuring compliance without stifling innovation.

This thesis will fill in these gaps by creating a new, sector-specific HCM system that helps decentralized Swiss construction companies deal with digital talent issues. The framework will include useful methods for managing talent, being a good leader, and following the law. This will improve both classroom knowledge and business practice in the digital economy.

3. Chapter III: Methodology

An integrative mixed-techniques approach is used for this study, which combines a systematic literature review with qualitative and quantitative research methods. The goal is to learn everything there is to know about human capital management (HCM) in decentralized organizational systems. The Swiss construction industry will be studied in particular as it moves toward a digital economy. By combining different types of data, this study aims to give construction companies useful, fact-based information that will help them handle their digital workers in a way that adapts to changing needs in the industry. This chapter describes the research plan, goes over the quantitative and qualitative methods, talks about ethical issues, and points out the limitations of the methods used. It does all of this while building a strong foundation for reaching the study's goals.

3.1. Research Design

To look into the complicated parts of HCM in decentralized companies, the study uses a mixed-methods research paradigm that combines qualitative and quantitative methods. Because the study problem is so complicated, this method is used. It needs both empirical, measurable data (like metrics for keeping employees) and contextual insights from stakeholder experience. This two-pronged approach lets us look closely at how digital talent management works in the Swiss construction industry. It also sets the stage for a strategic human capital management system that is specifically designed to meet the needs of the sector.

By using both structured surveys and semi-structured interviews to cross-validate data, methodological triangulation makes the results more reliable. By not relying too much on a single method, this approach lowers bias and boosts confidence in the results. Because operational and talent management practices vary a lot between decentralized Swiss building firms, triangulation makes sure that the view is complete and fair.

- **Justification for Mixed-Methods Approach**: This design addresses the need for measurable HCM trends (quantitative) and subjective, contextual factors (qualitative), enhancing explanatory power and practical relevance.
- **Methodological Triangulation**: Surveys and interviews substantiate findings across data streams, reinforcing validity in decentralized organizational contexts.

3.2. Quantitative Research

The quantitative component utilizes structured surveys to collect measurable data on key HCM variables, providing empirical evidence to support the study’s objectives.

3.2.1. Survey Design

A five-point Likert scale, from "strongly disagree" to "strongly agree," was carefully used to carefully build the survey instrument and collect quantitative data on respondents' opinions and beliefs about HCM practices. The factors being looked at include how well recruitment strategies are seen to work, how well employees stay with the company (such as turnover rates and job satisfaction), and how flexible the company is (such as its ability to adapt to digital transformation efforts). The survey questions were carefully created by reading important HCM literature and were then tweaked to fit the decentralized working environment of Swiss building companies. This guarantees that the tool is based on sound theory and is relevant to the situation at hand, with clear, unambiguous language to help people understand and give accurate answers.

- **Likert Scale Application**: The use of a Likert scale enables the standardized measurement of subjective constructs, facilitating statistical analysis and comparison across respondents.

- **Key Variables**: Talent acquisition, retention, and agility are selected as focal variables due to their centrality to HCM efficacy in digitally transforming industries.

3.2.2. Sampling and Data Collection

The quantitative part aims to get 30 to 50 people from Swiss building companies with decentralized organizational models to take part in the study. HR managers, project managers, and digital experts like Building Information Modeling (BIM) professionals are among the participants. A purposeful sampling method is used to make sure that different roles, company sizes (like small, medium, and large businesses), and geographical areas in Switzerland (like German-, French-, and Italian-speaking cantons) are adequately represented. Established industry networks, professional associations, and direct outreach to eligible firms will all be used to help with recruitment. Data collection will be made easier by using secure online survey tools to make the process more accessible, convenient, and get more responses.

- **Sample Size Rationale**: A range of 30-50 participants balances statistical reliability with the practical constraints of accessing specialized respondents in a niche industry segment.
- **Participant Demographics**: The inclusion of varied roles and regional representation ensures that the sample mirrors the heterogeneity of the Swiss construction sector.

3.2.3. Data Analysis

For the quantitative part, 30 to 50 people from Swiss building companies with decentralized organizational models will be chosen at random. There are HR managers, project managers, and digital experts like Building Information Modeling (BIM) professionals in the group of participants. Purposive sampling is used to make sure that different roles, company sizes (like small, medium, and large businesses), and geographic areas in Switzerland (like German-, French-, and Italian-speaking cantons) are adequately represented. Recruitment will use established industry networks, professional groups, and direct outreach to qualified firms. Data collection will be made easier by using secure online survey platforms to make the surveys more accessible, convenient, and likely to get responses.

- **Descriptive Statistics**: These metrics provide a foundational overview of HCM practices, highlighting areas of strength and concern.
- **Regression Analysis**: This technique elucidates causal relationships, offering predictive insights into the factors driving HCM outcomes.

3.3. Qualitative Research

The qualitative component complements quantitative findings by exploring experiential nuances of HCM through semi-structured interviews.

3.3.1. Semi-Structured Interviews

Ten to twenty carefully chosen stakeholders, such as HR managers, digital talent (such as BIM experts), and key informants in talent management and digital transformation, will be interviewed. The semi-structured format makes sure that everyone answers the same questions, but it also gives people the freedom to talk more about topics that come up, which leads to a rich discussion of HCM challenges and possibilities.

- **Interview Themes**: Include organizational agility, psychological safety, and HCM barriers, critical to digital talent management.
- **Sample Size**: 10-20 participants ensure depth within the study's scope.

3.3.2. Data Collection

Interviews follow standardized protocols with question guides, are audio-recorded with consent, and transcribed verbatim. Field notes capturing non-verbal cues and reflections enhance the dataset's depth.

- **Protocol Standardization**: Guides maintain consistency while allowing organic discussion.
- **Recording and Transcription**: Ensure accuracy and authenticity of data.

3.3.3. Data Analysis

Thematic analysis will systematically identify patterns in transcripts through open coding, axial coding, and theme refinement (e.g., talent retention barriers, agility enablers). Themes align with research objectives, enhancing trustworthiness and integration with quantitative results.

- **Thematic Analysis Process**: Iterative coding captures anticipated and emergent patterns.
- **Alignment with Objectives**: Themes address HCM strategy focus.

3.4. Ethical Considerations

Ethical integrity is paramount. Informed consent will be obtained via detailed documentation outlining the study's purpose, procedures, and voluntary nature. Anonymity will be protected with pseudonyms and removal of identifying information, with data secured under the Swiss Federal Act on Data Protection (FADP) using encryption. Compliance with academic and industry ethical guidelines ensures participant rights and research conduct (Swiss Federal Council, 2020).

- **Informed Consent Process**: Provides comprehensive information for autonomous participation.
- **Data Protection Measures**: Legal and ethical compliance safeguards trust and security.

3.5. Limitations of the Methodology

Limitations include self-reporting bias in surveys, potentially skewing results, and the study's focus on Swiss firms, limiting generalizability. Triangulation with qualitative data mitigates bias, while targeted recruitment addresses sample diversity (Bracken, Rose, & Church, 2016). The modest sample size is offset by analysis depth and contextual specificity.

- **Self-Reporting Bias**: Cross-verification with qualitative data enhances validity.
- **Sample Diversity Mitigation**: Recruitment broadens representation within scope.

This study gives us useful information, but it is important to be aware of its flaws. Self-reported survey data could be biased, and the fact that the study only looked at Swiss construction companies means that the results cannot be applied to other businesses or countries. It is important to be careful when analyzing statistical results because the sample size is not very big. Even so, these problems were lessened by using three types of data: quantitative data, targeted recruitment methods, and in-depth analysis.

4. Chapter IV: Integration of Traditional HRM Concepts

The evolution of decentralized organizations—characterized by geographically dispersed teams, remote work, and digital tools—has transformed Human Resource Management (HRM). Traditional HRM practices, originally designed for centralized, co-located workforces, now must adapt to meet the demands of this digital-first, distributed paradigm. **Therefore, this chapter serves to build the analytical lens through which the empirical results in Chapter V will be interpreted.** It explores how foundational HRM concepts integrate into four digital talent management pillars for decentralized organizations: Digital Talent Acquisition & Integration, Digital Capability & Leadership Development, Agile Performance & Contribution Management, and Fostering Virtual Collaboration & Community. Each pillar is examined through traditional HRM concepts, their digital framework integration, and key adaptations needed for decentralization challenges, including cross-time zone management, cultural diversity, and virtual presence (Schein E. H., 2010). Drawing from academic literature and industry insights, this chapter offers a robust framework for HRM professionals navigating the digital transformation of talent management.

4.1. Digital Talent Acquisition & Integration

In the digital economy, it is important to find and hire digital talent, and this is especially true for businesses like construction that are becoming more digital. Companies have to come up with new ways to find and keep skilled workers because there is a lot of competition and a high demand for them. A key piece of advice for companies managing this field is to come up with ways to find and keep the best employees.

4.1.1. Global Talent Sourcing and Recruitment

The digital economy involves global trends in digital talent, including the global expansion and structural shifts in digital jobs. Recruiting skilled professionals is a challenge due to fierce competition and high demand. Digital hiring can involve the use of advanced technologies such as AI chatbots and blockchain for tasks like job posting, candidate profile screening, interviewing, and hiring. Traditional Human Resource Management (HRM) domains, including the recruitment procedure, have been profoundly impacted by the digital economy. Online learning strategies are also seen as a means to attract digital talent (Kotter, 2012).

Global talent sourcing and recruitment are foundational to acquiring digital talent in decentralized organizations. Traditional HRM concepts of recruitment, which historically involved localized job postings and in-person networking, are expanded through digital platforms and AI-driven tools. For instance, platforms like LinkedIn and Indeed use machine learning to analyze vast datasets, identifying candidates worldwide based on skills, experience, and cultural alignment (Tambe, Hitt, & Brynjolfsson, 2019). In the Swiss construction industry, this is particularly relevant as firms seek professionals skilled in technologies like BIM, AI, and IoT, facing fierce competition and high demand for top-tier talent. The "Digital Next Gen" initiative by Bauen Digital Schweiz exemplifies this, fostering networks of digital talents and promoting collaboration across the industry, leveraging online learning strategies to attract talent (Bauen Digital Schweiz, 2023). Additionally, decentralized platforms like "Expert on Demand" connect firms with specialized digital talent on a project-by-project basis, addressing the industry's talent shortage by using advanced technologies such as AI chatbots and blockchain for tasks like job posting, candidate profile screening, interviewing, and hiring (Genova, 2023). These strategies ensure that recruitment is not only global but also tailored to the specific needs of decentralized, project-based environments, aligning with the thesis's aim to develop a strategic HCM framework.

4.1.2. Virtual Interviewing and Assessment

As part of digital hiring, technologies can be used for candidate profile screening and interviewing. Online learning strategies can potentially play a role in assessing talent, alongside their primary function in attraction and retention.

Virtual interviewing and assessment leverage digital tools to evaluate candidates remotely, a critical adaptation for decentralized organizations. Traditional face-to-face interviews are replaced by video conferencing platforms like Zoom and Microsoft Teams, paired with online assessment tools such as Hacker Rank for technical evaluations (Maurer, 2020). This shift not only reduces geographical barriers but also aligns with the remote work culture prevalent in digital talent pools. For example, construction firms can use virtual reality (VR) simulations to assess candidates' ability to work with BIM or other digital tools, ensuring they are equipped for the industry's digital transformation (Gibbs, Sivunen, & Boyraz, 2017). Online learning strategies can potentially play a role in assessing talent, alongside their primary function in attraction and retention, by evaluating candidates' adaptability to digital environments. This approach enhances efficiency and inclusiveness, enabling organizations to select the best talent regardless of location, addressing the thesis's focus on talent acquisition in decentralized settings.

4.1.3. Digital Onboarding and Integration

While the sources do not explicitly detail "digital onboarding," the broader theme of integrating digital talent into the workforce is central. This involves equipping employees with the necessary skills and fostering a sense of belonging and identification with the company culture.

Digital onboarding and integration ensure new hires are effectively integrated into decentralized organizations. Traditional onboarding, which relied on in-person orientations, is transformed through virtual programs that include interactive training modules, digital mentorship, and remote team introductions (Bauer, 2010). For instance, construction firms can use VR to simulate project sites, helping new employees understand their roles in a digital-first environment (Deloitte, 2024). Additionally, platforms like Slack or Microsoft Teams facilitate early connections with distributed teams, fostering a sense of belonging despite physical distance. While the sources do not explicitly detail "digital onboarding," the broader theme of integrating digital talent into the workforce is central, involving equipping employees with necessary skills and fostering identification with the company culture. This adaptation is crucial for retaining digital talent, who often prioritize autonomy and flexibility in their work environments, aligning with the thesis's objective to enhance retention strategies in decentralized organizations.

4.1.4. Employer Branding in a Digital Age

Employer branding is a key concept in the context of Human Capital Management (HCM) within decentralized organizations. It is considered a strategic dimension in literature reviews focusing on HCM and digital transformation. Employer branding strategies are explored for their effectiveness in attracting digital talent.

Employer branding in a digital age involves leveraging online platforms to attract digital talent by showcasing the organization's digital capabilities and remote work culture. Traditional HRM concepts of employer branding are enhanced through social media, company websites, and digital marketing strategies that emphasize innovation, flexibility, and sustainability (Ambler & Barrow, 1996). For Swiss construction firms, this means highlighting their adoption of digital tools like BIM and AI, as well as their commitment to sustainability, which aligns with the values of digital natives. Employer branding is considered a strategic dimension in literature reviews focusing on HCM and digital transformation, explored for its effectiveness in attracting digital talent. By positioning themselves as forward-thinking employers, these firms can differentiate themselves in a competitive talent market, where digital

professionals are often drawn to tech-driven industries or startups, supporting the thesis's aim to develop employer branding strategies for decentralized settings.

4.2. Digital Capability & Leadership Development

Building digital capabilities within the workforce and developing appropriate leadership styles are essential for successful digital transformation. This involves continuous learning and adaptation to the evolving digital landscape.

4.2.1. Digital Skills Training and Upskilling

A comprehensive taxonomy of digital skills required for the digitalization of the construction industry has been developed, identifying thirty-five skills categorized under themes such as automation and robotics, coding and programming, design, drafting and engineering, digital data acquisition and integration, digital literacy, digitization and virtualization, modelling and simulation, and planning and estimation (Bridges, 2009). This taxonomy is intended to help stakeholders plan strategically for providing digital skills to new graduates and to guide academia and industry in focusing on currently demanded skills. Training and upskilling the workforce are crucial for future needs, and dedicating resources to education and training initiatives is vital to propel industries into the digital age. Providing ongoing training and development programs to equip the workforce with skills regarding emerging technologies is recommended. Online learning programs are highlighted for their role in bridging the skills gap and offering flexible, personalized, and engaging educational experiences that ensure continuous skill development (Zigurs, 2003). Digital training can utilize advanced technologies like Artificial Intelligence (AI) and potentially the metaverse. Employee training and motivation are identified as operational and procedural context factors influencing digital transformation. Modernizing human potential in the economy's digitalization should be based on a competency-based approach, prioritizing digital competencies.

4.2.2. Leadership Development for Virtual Teams

Leadership styles are an important idea in human resource management (HRM), and they are especially important for diverse organizations and virtual teams. One area of interest is coming up with leadership styles that work well in digital, decentralized settings. In this age of digital intelligence, leadership styles should focus on motivating, empowering, and supporting employees, putting them first. The leadership skills needed for digital change are also talked about.

Leadership development for virtual teams focuses on equipping leaders with the skills to manage and motivate distributed, technology-driven workforces. Traditional leadership programs are adapted to emphasize virtual team management, digital communication, and fostering trust in remote settings (Hertel, Geister, & Konradt, 2005). For example, transformational and distributed leadership styles are particularly effective in decentralized organizations, as they empower teams and encourage innovation (Gronn, 2002). In the construction industry, leaders must also navigate the complexities of project-based work, where agility and adaptability are critical. Training programs can include simulations of virtual team scenarios, helping leaders develop the competencies needed to guide digital talent effectively, aligning with the thesis's focus on leadership approaches suited for decentralized, digital environments.

4.2.3. Mentorship and Coaching in a Digital Environment

Coaching and mentorship are considered practical strategies for managing digital talent, especially within a decentralized context in the construction industry.

Mentorship and coaching in a digital environment adapt traditional one-on-one guidance to virtual formats. Digital tools like video conferencing and collaborative platforms enable mentors to provide real-time support and feedback, regardless of location (Alavi & Leidner, 2001). In decentralized

construction firms, this can involve pairing experienced professionals with digital talent to bridge the gap between traditional practices and new technologies. For instance, mentors can guide new hires in using BIM or AI tools, while coaches help leaders develop strategies for managing remote teams. Coaching and mentorship are considered practical strategies for managing digital talent, especially within a decentralized context in the construction industry, supporting the thesis's aim to foster continuous learning and development.

4.2.4. Fostering a Culture of Continuous Learning

Ensuring continuous skill development is a benefit of innovative learning solutions. It is important to dedicate resources to education and training initiatives and provide ongoing training and development. In the digital intelligence era, cultivating a spirit of innovation and kindling employee potential through a more democratic, humanistic approach and cultural development is emphasized. Instilling a culture of transformation is a strategic imperative for businesses facing industrial evolution and technological innovation (Hofstede, Hoftstede, & Minkov, 2010).

Fostering a culture of continuous learning ensures that employees remain adaptable and skilled in the face of rapid technological change. Traditional HRM concepts of employee development are expanded through policies that encourage lifelong learning, supported by digital resources and flexible training opportunities (Aguinis & Kraiger, 2009). In the Swiss construction industry, this includes providing access to online courses, workshops, and certifications in emerging technologies. Additionally, recognizing and rewarding employees who engage in self-directed learning can motivate them to stay current with digital trends. Ensuring continuous skill development is a benefit of innovative learning solutions, emphasizing the importance of dedicating resources to education and training initiatives, aligning with the thesis's objective to cultivate a learning-oriented culture in decentralized organizations.

4.3. Agile Performance & Contribution Management

In the digital age, traditional approaches to performance management are evolving to become more dynamic and aligned with strategic goals and employee development.

4.3.1. Agile Goal Setting and OKRs

There is a noted transition from Key Performance Indicator (KPI)-centered performance management to Objectives and Key Results (OKR) management in the digital intelligence era. This shift aims to encourage employees to become "all-around active participants" and fosters self-management and individual initiative in value creation.

Agile goal setting and OKRs (Objectives and Key Results) replace traditional, rigid performance goals with flexible, outcome-focused frameworks. This shift aligns with the dynamic nature of decentralized organizations, where priorities can change rapidly (Doerr, 2018). In construction, OKRs can be used to set project-specific objectives, such as improving BIM adoption or reducing project timelines through AI-driven scheduling. This approach encourages employees to take ownership of their contributions while ensuring alignment with organizational goals. The transition from Key Performance Indicator (KPI)-centered performance management to OKR management in the digital intelligence era aims to encourage employees to become "all-around active participants," fostering self-management and individual initiative in value creation, supporting the thesis's focus on agile performance management.

4.3.2. Continuous Feedback and Performance Conversations

Performance management methods should underscore alignment with organizational strategy and culture, emphasizing the improvement of employees' perspective and competence. The approach to guiding employees is shifting from external institutional restrictions to internalized identification and

guidance embedded within the company's culture, mission, and values (Gartner, 2020). Performance management in the digital intelligence era needs to change from a top-down, directive approach to a bottom-up, commitment-driven approach. Digital technology has impacted job assessment and performance measurement. Performance management is also listed as a key concept within HCM in the context of decentralized organizations.

Continuous feedback and performance conversations replace annual reviews with ongoing, real-time dialogues. Digital tools like 15Five or Lattice enable regular check-ins, ensuring that feedback is timely and actionable (Cappelli & Tavis, 2016). In decentralized teams, this approach helps maintain alignment and address issues promptly, regardless of geographical dispersion. For instance, project managers can use these tools to provide feedback on digital tool usage or remote collaboration, fostering a culture of improvement and transparency. Performance management methods should underscore alignment with organizational strategy and culture, emphasizing the improvement of employees' perspective and competence, aligning with the thesis's objective to enhance performance in decentralized settings.

4.3.3. Data-Driven Performance Analytics

Learning analytics is seen as an important part of online learning methods because it shows how to improve learning outcomes. As HRM goes digital, it needs to become more data-driven and automatic. It is important to find, use, and grow employees' creativity and potential, which suggests using data, even though the word "analytics" is not used directly.

Data-driven performance analytics leverage HR analytics and performance metrics to monitor and improve employee contributions. Traditional performance appraisal methods are enhanced through digital tools that track key indicators like project completion rates, tool adoption, and skill development (Davenport, Harris, & Shapiro, 2010). In the construction industry, this can include analyzing BIM usage data or AI-driven project outcomes to identify areas for improvement. By focusing on outcomes rather than hours worked, organizations can better align performance management with the autonomy and flexibility of decentralized teams. Digital HRM transformation involves becoming data-driven and automated, supporting the thesis's aim to use analytics for performance insights.

4.3.4. Recognition and Rewards in a Virtual Environment

Digital technology has impacted compensation and rewards. Modern reward systems for digital talent are a key concept in the context of HCM. Analyzing customized benefits packages is important for digital talent retention and investigating performance-based and equity compensation in decentralized teams is relevant. The value of human capital is underscored as the cornerstone of innovative incentive strategies (OpenAsset, 2024). A system of incentives and remuneration is a methodological aspect of human resource management.

Recognition and rewards in a virtual environment motivate remote workers by celebrating their achievements digitally. Traditional reward systems are adapted through platforms like Bonusly, which enable peer-to-peer recognition and virtual rewards (Globoforce, 2018). In construction, this can include recognizing teams that successfully integrate new digital tools or complete projects ahead of schedule. Additionally, flexible rewards, such as additional time off or virtual gift cards, cater to the diverse preferences of digital talent, enhancing retention and engagement. Modern reward systems for digital talent are a key concept in HCM, with analyzing customized benefits packages and investigating performance-based and equity compensation in decentralized teams being relevant, aligning with the thesis's focus on retention strategies.

4.4. Fostering Virtual Collaboration & Community

Building strong virtual teams requires focusing on psychological safety, effective collaboration tools, cultivating a shared culture, and promoting inclusive communication.

4.4.1. Virtual Team Building and Social Connection

Psychological safety in virtual teams is a key concept relevant to HCM in decentralized organizations. Investigating trust-building strategies in remote work is important. The importance of psychological safety and its effect on team performance is highlighted.

Virtual team building and social connection address the challenge of maintaining relationships in distributed teams. Traditional team-building activities are replaced by virtual events like online games, trivia, or coffee chats, fostering camaraderie and reducing isolation (Hinds & Mortensen, 2005). In the construction industry, this can include virtual site tours or collaborative design sessions using VR, helping teams' bond over shared experiences. These initiatives are crucial for building trust and psychological safety, especially in decentralized settings where physical interactions are limited. Psychological safety in virtual teams is a key concept relevant to HCM in decentralized organizations, with investigating trust-building strategies in remote work being important, supporting the thesis's objective to foster collaboration.

4.4.2. Collaboration Tools and Technologies

Examining digital tools for remote collaboration and innovation is relevant. The application of a digital workplace is an important task of digital transformation of HRM, helping to improve employee performance and organizational effectiveness (Drucker, 1999). In the digital intelligence age, organizational systems evolved to become more open, interconnected, flexible, and adaptive. Human resource allocation diversifies, emphasizing collaborative synergy among team members. Connectivity and accessibility are identified as technological context factors for digital transformation, while communication and information are operational/procedural factors.

Collaboration tools and technologies are the backbone of virtual teamwork. Platforms like Slack, Microsoft Teams, and Asana enable seamless communication and task coordination, regardless of location (Dennis, Fuller, & Valacich, 2008). In construction, these tools facilitate real-time collaboration on BIM models or project updates, ensuring that distributed teams remain aligned. Additionally, cloud-based storage and project management software like Autodesk Construction Cloud provide centralized access to documents and data, enhancing efficiency and transparency. Examining digital tools for remote collaboration and innovation is relevant, with the application of a digital workplace being an important task of digital transformation of HRM, improving employee performance and organizational effectiveness, aligning with the thesis's focus on virtual collaboration.

4.4.3. Building a Strong Virtual Culture

Instilling a culture of transformation is urged for businesses facing evolving challenges. In the digital intelligence era, guiding employee's transitions from relying on external restrictions to internalized identification and guidance embedded within the company's culture, mission, and values (Pappas, 2019). The HRM model is shifting to also encompass value concepts and cultural development, moving from relying solely on rules and regulations to adopting a more democratic and humanistic approach. An organizational culture that is pro-digital transformation is identified as a major driver of this change.

Building a strong virtual culture involves cultivating shared values and norms in a digital environment. Traditional HRM concepts of organizational culture are adapted through virtual rituals, such as all-hands meetings or digital storytelling, which reinforce the organization's mission and values (Schein E. , 2010). In the Swiss construction industry, this can include celebrating digital milestones, like the successful implementation of a new AI tool, through virtual events. A strong virtual culture not only unites distributed teams but also attracts digital talent who value innovative and inclusive workplaces. Instilling a culture of transformation is urged for businesses facing evolving challenges, with the HRM model shifting to encompass value concepts and cultural development, aligning with the thesis's objective to foster a pro-digital transformation culture.

4.4.4. Inclusive Communication and Decision-Making

The internet and the spread of information have made it easier for people to communicate openly, decentralize power, and make decisions together, which gives each person in a company more power. Part of the change in performance management is giving frontline workers who have real-time knowledge the power to make decisions and act. People think that communication and knowledge are important operational and procedural context factors.

Inclusive communication and decision-making ensure that all team members, regardless of location, have a voice in organizational processes. Traditional top-down communication is replaced by digital platforms that facilitate open dialogue and participation (Edmondson, 1999). In construction, this can involve using collaborative tools for project planning or decision-making, ensuring that remote workers are not excluded. Additionally, fostering psychological safety through transparent communication and trust-building initiatives is critical for encouraging innovation and engagement in virtual teams. The widespread reach of the internet and information dissemination has fostered transparent communication, decentralized authority, and participative decision-making, empowering individuals within an organization, supporting the thesis's focus on inclusive practices in decentralized settings.

5. Chapter V: Results

The real-world results from the mixed-methods study design described in Chapter III are shown in this chapter. The main goal is to answer the study question, "How can decentralized organizations in the Swiss construction industry manage digital talent to meet the challenges of the digital economy?" The chapter is divided into three main parts: the first part presents the quantitative results from the survey; the second part analyzes the qualitative data from interviews by theme; and the third part combines both sets of data to create a complete picture that guides the strategic HCM framework created in Chapter VI.

5.1. Quantitative Findings

- Presentation of survey results (e.g., charts, tables).
- Key trends and correlations related to talent management in decentralized organizations.

The quantitative phase of this research involved a structured survey administered to 45 professionals across the Swiss construction industry, including HR Managers, Project Managers, and Digital Talent. The statistical analysis of the responses reveals several key trends and correlations that illuminate the current state of decentralization, digitalization, and talent management in the sector.

i) Insight 1A - The State of Transition

The empirical data indicates that the Swiss construction industry is not yet fully decentralized but is in a significant state of transition.

- A majority of respondents characterize their organization's structure as "Somewhat decentralized" (51%) or "Hybrid" (27%).
- Only a small fraction (13%) identifies their organizations as "Highly decentralized".

Organization`s Current Level of Decentralization

The data confirms the Swiss construction industry is in a transitional "hybrid" state, not yet fully decentralized. A combined 78% of organizations are identified as "Somewhat" or "Highly" decentralized, indicating a clear directional shift.

Despite not being fully decentralized, the industry shows strong belief in the strategic benefits, viewing digital transformation as a key driver for improving operational efficiency (Avg. Rating: 4.24/5). This validates the thesis' premise that firms are actively pursuing these models, making research into their management critical.

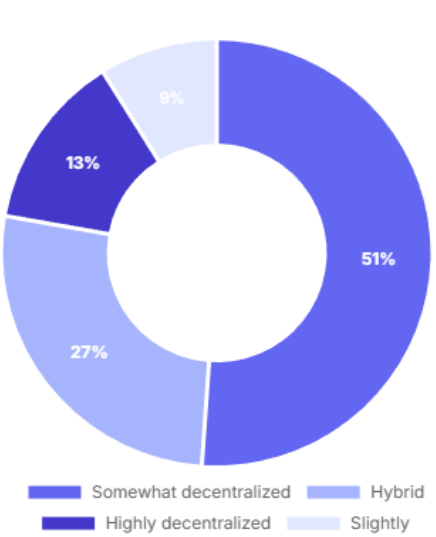

Figure 1: Organization`s Current Level of Decentralization (Insight 1A)

Despite this transitional state, there is a strong conviction in the benefits of these new models. Respondents overwhelmingly agree that **decentralization improves innovation**, yielding an average rating of 3.96 out of 5. Similarly, the adoption of **digital transformation is seen as a key driver of**

operational efficiency, with a high average rating of 4.24 out of 5. This finding is significant as it validates the thesis's core premise: the industry is proactively pursuing these models due to their perceived strategic benefits, underscoring the timeliness of research into their effective management.

ii) Insight 1B - The Digital Talent Paradox

The survey highlights a critical paradox in the management of digital talent. While organizations face immense external pressure in recruitment, their internal retention strategies are misaligned with the primary motivators of their digital workforce.

- **Recruitment Challenges:** The most significant barriers to acquiring digital talent are external market forces. "Skills shortage" was cited by 84% of participants, and "Competition from other industries" was cited by 71%.
- **Retention Ineffectiveness:** Current retention strategies are perceived as mediocre, with a mean effectiveness rating of only 3.22 out of 5.
- **Core Motivators:** Contrary to a focus on pure financial incentives, the top motivators for digital talent to remain with their employer are "Innovative projects" (73%), "Work-life balance" (64%), and "Organizational culture" (53%).

Motivators vs Recruitment Challenges

A critical disconnect exists between recruitment challenges and talent motivators. The top external hurdles are Skills Shortage (84%) and Competition (71%).

However, the primary internal motivators for talent to stay are Innovative Projects (73%) and Work-Life Balance (64%), ranking above salary. With retention strategies rated as mediocre (Avg: 3.22/5), this highlights that the solution lies in cultivating a culture of meaningful work, not just competing on compensation.

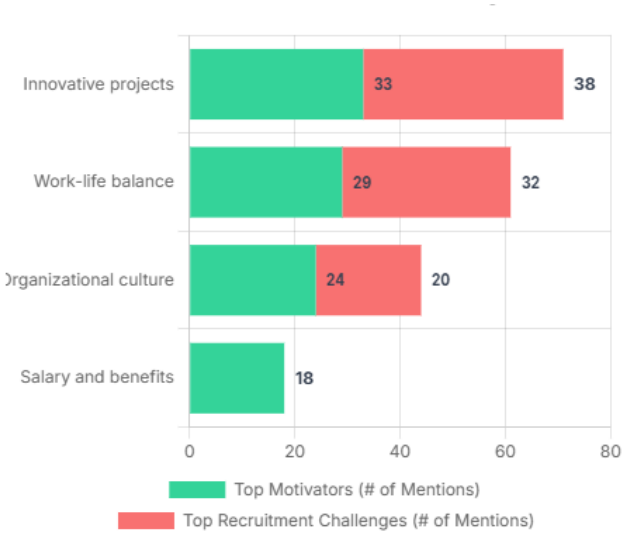

Figure 2: A Comparison of Digital Talent Motivators and Recruitment Challenges

This data reveals a fundamental disconnect. While the talent war is fought externally, the solution may lie internally—in cultivating an organizational culture that provides meaningful work and flexibility. This directly addresses the research objective concerning talent retention and suggests that a robust HCM framework must prioritize cultural and project-based incentives over purely compensatory ones.

iii) Insight 1C - The Operational-Human Capital Divide

A central finding is the contradictory effect of decentralization on operational efficiency versus its impact on human capital management. The data reveals that what is good for projects may be challenging for people.

As illustrated in Figure 3, there is a statistical tension:

- Respondents agree that **decentralization improves project management efficiency**, with a strong average rating of 3.84 out of 5.
- Simultaneously, they report that **decentralization complicates talent management**, with a near-identical average rating of 3.82 out of 5.

Perception of Decentralization

The survey reveals a stark paradox: decentralization is perceived as beneficial for projects but detrimental to people management.

There is a statistical tie between the belief that decentralization improves project efficiency (Avg. Rating: 3.84) and that it simultaneously complicates talent management (Avg. Rating: 3.82). This friction point underscores the urgent need for an HCM framework designed to align human-centric systems with new operational realities.

Figure 3: The Perceived Impact of Decentralization on Project Efficiency vs. Talent Management

The perceived weak link appears to be **communication within decentralized teams**, which was rated as only moderately effective (average of 3.49 out of 5). This paradox is a crucial finding, as it pinpoints the exact friction point that the proposed HCM framework must address aligning human-centric systems with the industry's evolving operational structures.

iv) Insight 1D - The Opportunity Gap: Tools vs. Processes

The survey identifies a significant opportunity gap between the provision of digital tools and the implementation of the methodologies and leadership required to leverage them effectively.

- Organizations are perceived as having the requisite **digital infrastructure** (average rating of 4.02) and a **workforce that is prepared to adapt** (average rating of 3.82).
- However, confidence drops significantly when assessing the **effective use of agile methodologies** (average of 3.16) and the **investment in leadership development** for decentralized contexts (average of 3.13).

Gap: Infrastructure vs. Process

A significant gap exists between having the right technology and implementing the right processes. Organizations feel they have the necessary digital infrastructure (Avg: 4.02) and a prepared workforce (Avg: 3.82).

However, confidence plummets when assessing the effective use of agile methodologies (Avg: 3.16). This is a massive opportunity: the technological foundation is in place, but firms must now invest in management frameworks that unlock their value.

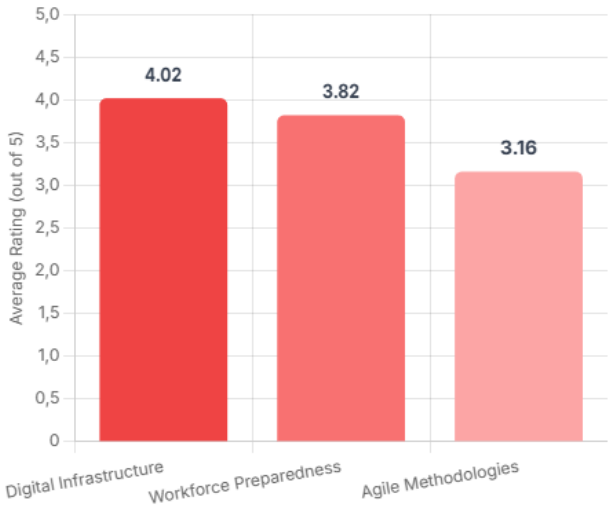

Figure 4: Gap: Infrastructure vs. Process (Insight 1D)

This result directly supports a major study gap that was pointed out in the literature review. Companies are good at technology (they make tools), but not so good at processing and people (they do not train leaders in agile techniques or use them). The suggested HCM framework can make targeted leadership training and adopting agile as main ways to close this gap and fully utilize the benefits of digital transformation.

v) Insight 1E – The Leadership and Culture Equation

The final key trend relates to organizational leadership and culture. The findings suggest a solid cultural foundation exists, but leadership capabilities require specific enhancement for the decentralized context.

- The prevalent leadership styles are reported as **Democratic** (47%) and **Transformational** (31%), both of which are well-suited to managing modern, knowledge-based teams.
- Encouragingly, there is a strong sense of **psychological safety** within teams, with a high average rating of 3.82 out of 5.

Gap: Culture vs. Leadership Investment

The data shows a strong cultural foundation but a lag in targeted leadership training. Organizations are perceived as fostering psychological safety effectively (Avg: 3.84), with dominant leadership styles being Democratic (47%) and Transformational (31%).

Yet, this is not matched by a corresponding investment in leadership development for decentralized contexts (Avg: 3.13). This suggests that while a positive culture exists, leaders are not being specifically equipped with the skills to manage in a digital-first environment.

Figure 5: Gap: Culture vs. Leadership Investment (Insight 1E)

But this cultural strength is not fully backed up by focused leadership action yet. It is only scored "good" (3.67 out of 5) how well leadership helps decentralized teams (not "great"). This means that leaders may have the right personality in general, but they may not have the special skills needed to manage remote teams, build trust online, and motivate employees to do their best work without being directly supervised. This fits perfectly with the goal of the study, which is to find the best ways to lead in digital environments that are not centralized.

5.2. Qualitative Findings

In this part, the qualitative insights from interviews with top Swiss construction industry experts are brought together to give a more complete picture of digital talent management in decentralized organizational structures. The results are organized based on the four pillars of the suggested framework, which are: Getting Digital Talent and Integrating Them, Developing Digital Skills and Leadership, Managing Performance and Contribution in an Agile Way, and Promoting Virtual Community and Collaboration.

5.2.1. General Experiences with Decentralization and Digital Talent Management

A lot of the time, decentralization means working from home. It has completely changed how work is organized and how managers think about it. For many, this change has made daily chores easier, given them more freedom, and made them more entrepreneurial and motivated on their own. New, more flexible management methods, like daily stand-ups and sprint-based workflows, have had to be put in place because of the change. Performance evaluation has also changed from focusing on physical presence to focusing on real output.

The main benefit of this model is that it gives companies more access to a global talent pool. This means that they can hire specialized workers from anywhere in the world and keep them by giving them flexibility. This setup also increases productivity by cutting down on travel time that is not needed and speeding up the allocation of project resources. However, big problems still exist. Loss of human connections and casual, unplanned exchanges that are important for building teamwork and "social calibration" are the most important one. It is especially hard to bring in new talent in remote areas because people do not get to talk to each other as much. Getting the best digital workers to work in more traditional fields is also still hard because these workers tend to go to big tech companies.

The following posts show what professionals think about how decentralization has changed their workplaces and the pros and cons they have faced while using decentralized methods.

i) Impact of Decentralization on Work

- **Anna Somieski** primarily defines decentralization as **remote work**, which she views as "positive" for her daily tasks. Remote work has led to **more frequent communication**, as the ease of quick calls or inquiries reduces the barrier compared to in-person meetings. She believes this **fosters rather than hinders communication**, especially with colleagues in different locations, due to readily available digital tools. Remote work also enhances **flexibility and efficiency**. Tuesdays are fixed office days for onsite meetings that are more effective for deep discussions.
- **Giulio Angelini** states he began working in a decentralized manner as a Planner **after the COVID pandemic started but has done so even more intensively** since joining his current project management company, where he is very rarely at the same client or colleague location for multiple days in a row. This setup allows him flexibility to choose **his work location freely**, based on project and client needs, in order to maximize success when managing multiple complexes, fast-paced projects.

- **Jimeno Fonseca** transition to decentralized work began around **2016**, notably when leading a team in Singapore with employees in Zurich, which he initially found challenging. Decentralization necessitated the rapid adoption of **agile management practices**, including **two-week sprints and daily stand-ups**, utilizing **digital boards** for workflow visibility. He introduced **intensive, physical meetings every two months** to build personal relationships and optimize subsequent digital communication.
- **Jörg Meyer**: He notes that for him personally, decentralization, particularly remote work and digital documentation, **has simplified many aspects and has been a long-standing practice**. He observed that **close, decentralized collaboration doesn't feel natural and still requires considerable effort**.
- **Lukas Künzel**: He notes that for him personally, decentralization has **not greatly changed his work or responsibilities**, primarily because he started his professional experience shortly before the COVID-19 pandemic, leading to a rapid shift to this work form. He observes that **teams with more conventional thinking encounter difficulties** related to soft skills, employee perception in digital meetings, and controlling work performance.
- **Lupo Stoilov**: Decentralization has brought a **massive and welcome push toward the remote work culture** he had previously experienced in software development. The biggest change is in work and coordination, now heavily reliant on streaming platforms and visual communication tools. This shift has accelerated **dramatically** in recent years. The ability to coordinate effectively without being physically present has **fundamentally changed his project management and team communication**.
- **Manuel Frey**: His experience with decentralization began with his supervisors **delegating significant decision-making and operational responsibilities to him**, particularly concerning digital BIM questions. He personally adopted a flexible work approach, working from various global locations ("wherever [he] was and where [his] laptop was").
- **Miguel Castro**: Decentralization has been **significant for his global role**, enabling him to manage large projects worldwide and gain insights from local counterparts. A **strategic decision made two and a half years prior** led to increased decentralization with the establishment of local engineering centers and centers of expertise globally.
- **Stephan Siegwart**: Decentralization has **not brought a drastic change for him personally**, as he has been working in decentralized environments since the 1990s. He observed that the primary change decentralization brings is that individuals act **"like entrepreneurs,"** having the **freedom to make certain decisions** and develop **intrinsic motivation**.
- **Urs Wiederkehr**: He allows his employees a **considerable amount of home office, a practice he's maintained since 2011**. This has necessitated a shift in assessment, where **employee performance is prioritized over their physical presence or working hours**.
- **Yoshinobu Adachi**: Decentralization at Kajima Corporation was **accelerated by the COVID-19 pandemic**, leading to **remote monitoring using internet-connected cameras**. This shift led to **increased budget allocation for digitalization tools** and a **change in mindset among workers, inspectors, and management**.

ii) Benefits and Challenges of Decentralization

- **Anna Somieski** finds that decentralization, particularly remote work, positively impacts her daily tasks by **promoting more frequent communication** (as the threshold for quick calls decreases), **flexibility, and efficiency**. However, she notes challenges in **measuring performance and overseeing employees' work**, emphasizing the **need for trust** and acknowledging difficulties in controlling work methods. She advocates for a **hybrid model with designated office days**, believing full remote work would be ineffective, and stresses that

in-person meetings remain essential for social interactions and efficiently discussing complex topics.

- **Evelyne Jost** notes that decentralization can **paradoxically simplify talent integration** by allowing digital specialists to operate somewhat independently while still contributing effectively, though project management can become **more fragmented** as a result.
- **Giulio Angelini** highlights both benefits and challenges of decentralization: **Benefits** include the **flexibility to choose his work location freely** and the ability to **manage more projects** ("juggling more balls"); **Challenges** primarily involve **human aspects**, particularly client and colleague support, while technical problems are often easier to solve with AI models acting as "experienced colleagues", though decentralization **requires more structure through tools** despite necessary skills development not keeping pace.
- **Jimeno Fonseca** highlights that decentralization primarily benefits organizations by **enabling access to a broader talent pool** of specialized digital professionals regardless of location, while posing significant challenges in **maintaining team motivation and ensuring shared understanding** across distributed teams. He emphasizes that decentralization doesn't automatically improve communication but rather creates obstacles requiring **proactive strategies**, noting that his initial neglect of regular in-person interactions led to extended periods without seeing team members. His solution of implementing **bi-monthly intensive physical meetings** proved highly effective for enhancing communication and fostering crucial "social calibration" among team members.
- **Jörg Meyer** identifies increased agility as a key advantage of decentralization in construction, allowing teams to make on-site adjustments without delays while expanding geographic reach, but notes significant challenges including the absence of spontaneous "coffee break" discussions that hamper remote collaboration, particularly difficult integration of junior digital talents due to limited personal exchange opportunities, and a "relatively dry" market for professionals possessing both emerging technology knowledge and industry expertise.
- **Lukas Künzel** notes that decentralization offers **faster access to the right project resources**, **utilization of talent from multiple countries** (Switzerland, France, Belgium, Germany), and **flexible freelancer engagement** during capacity shortages, while presenting challenges in **developing a common mindset, maintaining uniform quality standards, and building team cohesion and motivation** in primarily digital environments.
- **Lupo Stoilov** identifies both advantages and challenges of decentralization: it delivers **efficiency gains** by eliminating unproductive travel time and shifts focus on qualities like **self-discipline** for aligning talent with project needs, but the **lack of physical presence can weaken team cohesion** and sense of duty, while the construction industry's centralized nature and need for **"strong connection with physical reality"** creates inherent limitations to decentralization possibilities.
- **Manuel Frey** highlighted that decentralization primarily benefited his organization by **retaining specialized talents** through location flexibility, but the key challenge wasn't with digital talents themselves—rather, it stemmed from **traditional leadership structures unprepared for this freedom**, causing him **more difficulties with peers and superiors than with his actual employees**.
- **Miguel Castro** experienced significant benefits from decentralization, including **direct market feedback, exposure to diverse processes, tools, and cultures**, and valuable learning opportunities from global colleagues. However, challenges emerged with **adapting to different cultural work styles** and talent acquisition, specifically **finding candidates adaptable to the niche vertical transport industry**. The construction industry faces difficulties attracting digital talent who are often **drawn to tech giants**, and the increasing requirement for engineers to **possess coding skills** further complicates talent attraction.

- **Stephan Siegwart** finds **digital talents who master specialized content and are intrinsically motivated to be "easy to lead,"** as they need only an **interesting work environment** rather than special motivation - a **"huge difference"** compared to centrally managed companies. Decentralization enables them to act **"like an entrepreneur,"** with **decision-making freedom** and **intrinsic motivation**. However, he emphasized that **specialized technical content is almost more important than digital skills themselves**, viewing digital tools as secondary once mastered.
- **Urs Wiederkehr** says decentralization offers significant benefits through enhanced flexibility and the ability to evaluate employees based on actual performance rather than office presence. However, he faces notable challenges including resistance from traditional colleagues and managers who struggle with remote work arrangements, often expressed as envy when talents are promoted. Additionally, he finds it difficult to communicate the importance and concept of "digital talent" to superiors who frequently lack understanding of this concept. He sees a **necessity for the construction industry to better utilize and analyze data**.
- **Yoshinobu Adachi** emphasized that a key benefit was employees realizing that digital tools and remote methods were effective in real construction projects, fostering greater acceptance and making it much easier to secure digitalization budgets from headquarters. The company updated internal guidelines and allocated budgets to support remote working environments, though this shift likely required overcoming initial resistance to remote methods.

5.2.2. Digital Talent Acquisition & Integration

There are more ways to find digital talent now than just using standard HR channels. Network-based recruitment and practical skill validation are now very important. Companies are finding more and more people through personal connections, partnerships with universities, industry conferences, and the personal brand of their leaders. This can be a big draw for top talent.

The main steps for hiring may look like the old ways of doing things, but the testing of digital ability has become more thorough. Evaluations of electronic profiles and demonstrated skills are taking the place of standard paper-based applications. Intensive workshops, live demonstrations, and case studies are being used more and more to check a candidate's actual knowledge. The focus is on moving from knowing how to use specific software to how open a candidate is to technology in general and how creatively they can use tools.

Everyone agrees that in-person training is very important, even for jobs that are done from home. Many people think that an entirely virtual onboarding process is not enough to help new employees make the personal connections they need and fit in with the business culture. For remote workers, the onboarding process needs to be very planned and organized. It needs to include both technical training and teamwork activities to make up for the lack of casual, unplanned interactions that happen in an office.

Experts reveal that top digital talent isn't found through traditional HR funnels. Instead, they are sourced through a dynamic, informal network of personal contacts, university engagements, and industry events. The leader's reputation often matters more than the company's brand.

"Digital talents are often not recruited through conventional HR channels but rather through personal contacts... they typically gravitate towards a specific leader rather than a company."
- Manuel Frey

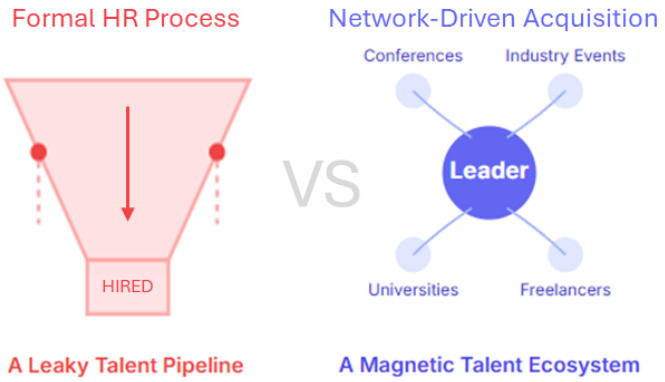

Figure 6: Talent Acquisition: The Network Effect

Below you'll see experts' insights on how recruitment processes have evolved for digital talent and the approaches they've found most effective for successfully integrating new digital talent in decentralized work environments, along with their recommendations for effective onboarding practices.

i) Recruitment Process Adaptations

- **Anna Eve Somieski** noted that while the recruitment process for digital talents remains "relatively classic," initial digital interviews are common, and in-depth knowledge is verified through intensive workshops.
- **Jimeno Fonseca** observed minimal changes in the recruitment process over the last decade, emphasizing the criticality of technical tests, particularly live demos, regardless of location. He highlights that a key advantage of decentralization is the ability to **attract talent regardless of their geographical location**.
- **Lupo Stoilov**: Recruitment continues to occur through **personal networks**.
- **Manuel Frey** underscored that digital talents are often **not recruited through conventional HR channels** but rather through personal contacts at conferences and industry events. He stressed that **leaders must maintain an active presence in the market**, as these talents typically gravitate towards a specific leader rather than a company.
- **Stephan Siegwart** corroborated this, indicating that recruitment focuses on electronic communication and online visibility rather than traditional paper dossiers. He also highlighted that **openness** in technology and **holistic thinking** is more crucial than expertise in specific software, as "the technology is interchangeable".
- **Lukas Künzel** similarly stated that recruitment primarily occurs through networks, including university engagements, personal contacts, and known freelancers, often culminating in a single formal interview after prior informal engagements.
- **Urs Wiederkehr** pointed out that traditional HR processes can be static, advocating for practical case studies in second interviews to assess candidate capabilities more effectively.
- **Yoshinobu Adachi** noted that their traditional construction company integrates digital skills by developing new training frameworks, linking BIM development with licensed skill training, and collaborating with IT firms. They also leverage individual certification frameworks like BIM professional certifications for hiring and onboarding.

ii) Onboarding in Decentralized Settings

- **Anna Eve Somieski** discussed her company's standard onboarding process, which includes a "getting to know" meeting where each team member introduces specific topics to help new digital talents integrate quickly.
- **Jimeno Fonseca** asserted that onboarding for digital employees requires **a more structured approach with daily tasks and close interaction**, contrasting it with the often-unplanned interactions in co-located environments. He warned that ignoring these differences can lead to significant communication problems.
- **Manuel Frey** emphasized that onboarding for "High Potentials" (a broader category he defines that includes digital talents) extends beyond mere job tasks to incorporate personal and employer branding early on, aiming to transform employees into valuable company representatives.
- **Urs Wiederkehr** strongly prefers **in-person onboarding, especially during the initial three-month probation period**, to foster personal connections and accustom new hires to the company culture. He observed difficulties in team integration for employees hired purely virtually during the COVID-19 pandemic.
- **Jost Evelyne** also affirmed that human onboarding is recommended to be done on-site.
- **Lupo Stoilov's** approach is fundamentally **personal, even in a digital context**. Onboarding requires **high self-discipline from new hires**. Micromanagement is energy-consuming and a sign the relationship won't succeed. A **virtual onboarding process has contributed significantly to efficiency and integration** but **does not replace the need for a personal touch**.

5.2.3. Digital Capability & Leadership Development

A **hybrid approach** is the preferred model for training and upskilling digital talent, effectively blending the flexibility of digital learning platforms with the irreplaceable value of in-person interaction. While e-learning modules and webinars are standard for delivering scalable content, a **50-50 balance** between remote and on-site training is often recommended to foster a shared understanding and facilitate deep learning. Training content must be dynamic and often personalized, with a focus on a mix of **hard and soft skills** and a strong emphasis on **mentorship** and on-the-job training to connect digital expertise with specific industry contexts. A significant challenge remains the rapid pace of technological change, which can render internal training materials obsolete quickly.

Effective **digital leadership** requires a sophisticated blend of technical acumen, superior communication skills, and the ability to cultivate trust within a virtual environment. Leaders must not only maintain a clear technical overview to guide their teams but also "lead by example" with a solid understanding of the subject matter. Communication in a decentralized setup must be more **intensive and deliberate** to maintain team motivation and alignment. Building **trust and psychological safety** is paramount and is achieved by empowering teams, fostering self-organization, and distributing responsibility. A notable obstacle is the frequent lack of fundamental IT literacy among senior management, which can impede digital transformation initiatives.

Digital leadership is not about command, but about cultivation. Experts advocate for a "lead by example" approach where leaders act as facilitators, mentors, and role models. They create the environment for success by communicating a clear vision, monitoring motivation, and empowering teams with autonomy to self-organize.

"Leaders must clearly communicate vision... while also distributing responsibility for this vision to foster self-organization, a core agile principle."
- Jimeno Fonseca

Figure 7: Leadership: The Empowering Core

Below you'll see what experts are thinking about training programs for digital talent and the leadership skills required to manage decentralized teams effectively.

i) Training and Upskilling Programs

- **Anna Eve Somieski** indicated that many training programs are already digitally structured, expecting new talents to engage in self-directed learning through research and existing tools.
- **Jimeno Fonseca** stated that training programs for both on-site and remote staff are consistent, utilizing e-learning and workshops, with specific in-house training delivered during physical meetings or extended on-site stays.
- **Lukas Künzel** mentioned extensive internal e-learning systems and competence workshops for upskilling.
- **Miguel Castro** outlined two primary approaches: on-the-job training for existing engineers transitioning to digital processes and online introductions for remote teams, supplemented by in-person support trips. He also mentioned an annual certification program to ensure adherence to new processes.
- **Stephan Siegwart** discussed upskilling programs that appeal to employees' intrinsic motivation, offering a wide array of courses on digitalization and innovation management.
- **Urs Wiederkehr** noted that their organization provides free courses to members and encourages external training with shared costs, but a significant challenge is **conveying the importance of "digital talent" to superiors who may find the concept unfamiliar**.
- **Yoshinobu Adachi** detailed hybrid training programs that combine face-to-face workshops with recorded content and virtual meetings.
- **Lupo Stoilov** says upskilling is highly personalized and based on mentorship, assigning **"small, targeted tasks" to bridge knowledge gaps** (e.g., teaching digital talent construction site processes). The goal is to **balance their digital expertise with industry-specific knowledge**.

ii) Digital Leadership Skills

- **Anna Eve Somieski** stressed that **digital leaders require an absolute overview of all ongoing projects and innovations**, moving beyond a purely managerial role. Innovation management meetings are crucial for bundling information and ensuring project relevance.
- **Jimeno Fonseca** highlighted the importance of language skills, general leadership qualities, and a technical background for leaders to "lead by example" in decentralized tech teams. He emphasized continuously monitoring employee motivation and prioritizing team-building activities. He also suggested that **leaders must clearly communicate vision and ensure the team's relevance**, while also distributing responsibility for this vision to foster self-organization, a core agile principle.
- **Jörg Meyer** reiterated that digital leadership necessitates proficiency with collaboration tools like Teams and Miro to facilitate engaging exchanges. He emphasized that the company's vision and mission should be consistent across both digital and analog contexts.
- **Manuel Frey** expressed skepticism about formal training programs, preferring a "Management by Running Around" style characterized by high presence, frequent one-on-one discussions, and coaching/mentoring interactions. He believes the best way to transfer skills is by being a role model and sharing knowledge through direct, one-on-one engagement, especially with juniors.
- **Miguel Castro** pointed to **discipline as crucial for digital leadership**, advocating for continuous learning through webinars and annual certification programs to ensure sustained adherence to new processes. His company also maps "human capital readiness" to tailor development plans to individual digital skills.
- **Stephan Siegwart** underscored that **leadership should be demonstrated by example**, emphasizing the need to identify employees with a proactive desire to lead.
- **Lupo Stoilov**: The most crucial skill for a virtual leader is understanding the **psychology of how people function differently** in digital versus in-person settings. Leaders must promote **direct contact through video and voice calls**. The ability to be **constantly connected via video and voice (even if muted)** is important for spontaneous communication and teambuilding. He emphasizes the importance of **constant willingness to develop**.

5.2.4. Agile Performance & Contribution Management

Performance management for digital talent that is spread out has changed from formal reviews that happen once in a while to a model of regular, integrated feedback. The focus is on ongoing conversations and debates about performances in real time. To give quick and useful feedback, methods such as regular project-based meetings, clear digital dashboards, and live demos every two weeks are used.

Digital tools are useful for regular check-ins, but most people agree that important or emotionally charged talks are better when they happen in person. Digital methods are great for sharing facts, but they do not always work for conveying the emotional undertones that are needed for full feedback. Digital professionals, on the other hand, are often more open to virtual input and use direct and flexible channels like WhatsApp to stay in touch. The main goal is to keep the conversation "at eye level" and free of any restrictions based on rank.

Strategies for reward and praise go far beyond giving money. For digital talent, what drives them is a strong sense of responsibility, trust, and professional growth possibilities. Supporting more education, going to conferences, and giving away a lot of responsibility are often more successful than just raising salaries.

Public recognition of achievements is another powerful motivator, leveraging team meetings and company-wide announcements to highlight valuable contributions. There is, however, widespread

skepticism towards gamified reward systems like digital badges, which are often seen as potentially divisive or arbitrary.

Performance management has shifted from rigid annual reviews to a continuous, agile loop. Feedback is informal, frequent, and project based. For digital talent, recognition from peers and the satisfaction of creating value are far more powerful motivators than traditional monetary bonuses.

"Money is a lesser motivator than recognition within the group. Celebrate successes collectively while highlighting significant individual contributions."
- Stephan Siegwart

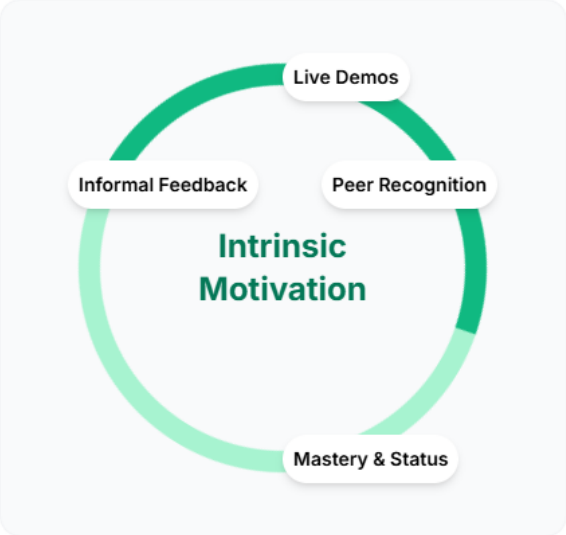

Figure 8: Performance: The Agile Flywheel

Below you'll see what experts are thinking about effective feedback mechanisms and reward strategies that motivate digital talent in decentralized environments.

i) Feedback Mechanisms

- **Anna Eve Somieski** stated that **regular meetings and consistent communication reduce barriers to feedback**, advocating for frequent, project-based, and leaner feedback discussions over less frequent annual reviews.
- **Jimeno Fonseca** highlighted **live demos and bi-weekly reviews/retrospectives as crucial for feedback** in decentralized tech teams, enabling direct feedback and transparent progress tracking.
- **Miguel Castro** prefers face-to-face feedback when feasible, but utilizes virtual meetings via Microsoft Teams for remote teams, with advance notice given for transparency.
- **Stephan Siegwart** emphasized **regular, open, and "eye-level" conversations** as essential for feedback in decentralized settings, fostering transparency and honesty from both sides rather than a hierarchical command structure.
- **Lukas Künzel** mentioned feedback reviews conducted within teams and one-on-one project performance tracking, utilizing dashboards and weekly check-ins.
- **Urs Wiederkehr** delivers feedback openly and flexibly, often via WhatsApp, finding this approach highly valued by employees.

ii) Reward and Recognition Strategies

- **Anna Eve Somieski** noted that **interest in employee performance and regular feedback requests is intrinsically motivating**. She suggested that opportunities for further education or conference visits are more effective than mere salary increases. Delegating responsibility and trust also significantly boost motivation.
- **Jimeno Fonseca** posited that **true recognition stems from customer satisfaction and value creation**. He tries to directly relay positive third-party feedback to individuals and emphasized

that consistent, direct feedback during demos and reviews is more effective than "digital badges" or gamification. He stressed that effective feedback and recognition depend on a coherent system of sprints, stand-ups, and Kanban boards that promote work transparency.

- **Manuel Frey** utilizes a quantitative method for performance measurement based on payroll, offers generated, and invoices. He highlighted that **digital talents remain motivated when their ideas for continuous learning, such as further education or conference attendance, are supported**, as this enhances their personal branding and aligns with company objectives. He also stated that employees must be proud of their work and the company to go **"the extra mile"**.
- **Miguel Castro** emphasized recognition through **colleagues presenting their successful work to the wider team**, fostering appreciation and knowledge sharing over material incentives. Exceptional contributions are celebrated during quarterly town halls.
- **Stephan Siegwart** argued that **money is a lesser motivator than recognition within the group**. He suggested celebrating successes collectively while highlighting significant individual contributions. He was skeptical of virtual awards and gamification, believing they could demotivate some while encouraging others to "perform" for recognition.
- **Urs Wiederkehr** observed that his organization struggled to sustain employee development and recognition programs. He stated that **digital talents value recognition in a large group**, akin to social media acknowledgment, more than monetary bonuses.

5.2.5. Fostering Virtual Collaboration & Community

A diverse suite of digital tools, with **Microsoft Teams** being the most prevalent, underpins virtual collaboration for tasks ranging from project coordination to informal communication. Digital whiteboards like **Miro** have become standard for virtual brainstorming, while platforms such as **WhatsApp** are often used for more immediate and less formal interactions to foster a relaxed atmosphere. However, the effectiveness of any tool is not inherent in its features but in its application; **good preparation and moderation** are critical to its success. There's also a recognition that tool adoption is often driven more by package inclusion and user acceptance than by superior functionality.

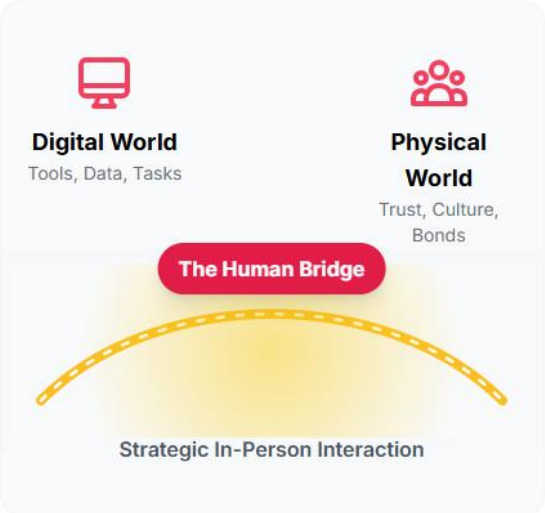

Figure 9: Collaboration: The Human Bridge

The most powerful finding is the consensus on the limits of virtual collaboration. While digital tools are excellent for exchanging information, they fail at building deep emotional connections. Experts unanimously agree that effective decentralized work is impossible without periodic, strategic in-person meetings.

"Personal relationships built in the physical world form the bedrock for effective virtual collaboration... regular physical social events are deemed essential."
- Manuel Frey

There is a near-unanimous consensus that **in-person events are indispensable** for building a strong sense of community and team cohesion. Virtual substitutes like online coffee chats are often considered "flimsy" and unable to replicate the depth of authentic, face-to-face interactions. The concept of «**social calibration**» the need for periodic physical meetings to correctly interpret social cues in a virtual context—is highlighted as essential for effective long-term collaboration.

Most people think that hybrid formats for community-building events are bad because they separate people who are there and people who are not there, instead of bringing them together. If a hybrid meeting is necessary, it is recommended that a "hybrid manager" be hired to help the two groups work together. For the most part, creating a strong online group is a long-term project that needs a lot of work and must come from within the team.

Below you'll see what experts are thinking about the most effective tools for virtual collaboration and the strategies they've found most successful for building community and maintaining social connections in decentralized work environments.

i) Tools for Collaboration

- **Anna Eve Somieski** reported mixed experiences with virtual tools, finding avatar-based platforms ineffective but virtual coffee chats via Teams during the more successful pandemic. She noted a decline in the need for such virtual social interactions post-pandemic, with current usage mostly confined to project-related discussions.
- **Evelyne Jost** discussed the use of WhatsApp for informal team interactions and one-on-one communication, and Microsoft Teams for more structured task management and formal communications.
- **Jimeno Fonseca** lauded Slack for instant messaging and recommended Kanban boards (e.g., Trello, Microsoft Planner) for project management, stating that video calls, instant messaging, and a board are largely sufficient.
- **Jörg Meyer** expressed ongoing challenges in finding truly effective virtual collaboration tools, noting that digital communication excels at information exchange but struggles with emotional exchange.
- **Lukas Künzel** contributed ideas such as virtual town hall meetings with breakout rooms for coffee talks and other team-building activities, emphasizing the need for innovative formats (e.g., TV-show style production) for large virtual events to maintain engagement.
- **Miguel Castro** confirmed Microsoft Teams as their primary tool for monthly or bi-weekly calls and chats, facilitating support and quick responses. He also highlighted the importance of the **Common Data Environment (CDE) in construction projects as key to improving communication and performance in distributed settings**.
- **Lupo Stoilov**: **Microsoft Teams (for coordination), Miroboards (for workshops), and Zoom** have proven very positive, but their success depends on **good preparation and moderation**. Technologies were initially underdeveloped but have massively improved to enable visual communication and screen sharing.
- **Stephan Siegwart** affirmed that technical tools like video conferencing are helpful but **personal, face-to-face meetings remain indispensable for truly understanding and assessing individuals**. He also suggested using WhatsApp groups to foster a relaxed and open atmosphere, with clear topic classification to prevent mixing personal and professional content.
- **Urs Wiederkehr** noted that tool selection often prioritizes integration within existing software suites (e.g., Microsoft Office) over optimal functionality.

ii) Community Building and Social Connection

- **Anna Eve Somieski** expressed a preference for personal, live social interaction over virtual activities, believing it to be more effective for community building. She highlighted the importance of personal contact for social interactions and complex discussions, suggesting that a hybrid model with dedicated in-office days is necessary.
- **Jimeno Fonseca** was critical of virtual coffee breaks, arguing that they are ineffective due to digital distractions and cannot replace genuine personal connection. He strongly advocated **intensive physical meetings and workshops every two to three months** to foster exchange and strengthen personal relationships. He emphasized that **in-person meetings are crucial for building trust** and establishing "social calibration" that enhances remote work effectiveness.
- **Jörg Meyer** observed that decentralized work inherently lacks spontaneous, unplanned interactions like "coffee breaks," identifying this as a significant handicap in remote collaboration. He suggested that community building in decentralized teams likely requires in-person events.
- **Manuel Frey** underscored that **personal relationships built in the physical world form the bedrock for effective virtual collaboration**, as individuals are more inclined to assist those they like and who demonstrate performance. He concurred that a virtual community necessitates "social calibration" to accurately interpret non-verbal cues and words. Consequently, **regular physical social events are deemed essential for reinforcing a sense of belonging and maintaining momentum** in a decentralized environment.
- **Miguel Castro** highlighted that long-term relationships among team members, some spanning 20 years, naturally foster strong communication and mutual support. His company previously organized "surprise lunches" via a platform to encourage connections during remote work.
- **Stephan Siegwart** explained that community building demands significant time and engagement, ideally initiated from within the group. While virtual coffee breaks and informal chats can address social needs, the impetus must come from the participants themselves, as social needs are fundamental human requirements.
- **Urs Wiederkehr** noted the inherent difficulty in building a strong community feeling in decentralized settings, suggesting that **hybrid meetings pose particular challenges for moderators**, who must manage both in-person and online participants simultaneously. He proposed the role of a "hybrid manager" to bridge these two worlds.
- **Lupo Stoilov**: Personal meetings at team events are essential for people to get to know and assess each other. Regular physical meetings help develop a human feeling in virtual communities. Community building requires **time and commitment and should be organized from within** the group. **Virtual coffee breaks and informal chats can help satisfy social needs**, but the initiative must come from the participants themselves.

In essence, the qualitative findings reveal that while digital tools enhance efficiency in decentralized environments, the human element—trust, motivation, and a sense of belonging—often necessitates strategic in-person interactions and a nuanced, empathetic leadership approach that prioritizes clear communication and individual recognition.

5.3. Integration of Quantitative and Qualitative Data

The integration of quantitative and qualitative data provides a comprehensive understanding of digital talent management within decentralized organizations in the Swiss construction industry. This section triangulates the findings from both research phases to directly address the central research question and to identify the foundational patterns that inform the strategic Human Capital Management (HCM) framework developed in the subsequent chapter.

5.3.1. Triangulation of Findings to Answer the Research Question

The synthesis of quantitative trends and qualitative narratives provides a multi-dimensional view of the evolving landscape, answering the core research question by highlighting the specific areas where current HCM practices fall short in decentralized, digital environments.

i) The Evolving Landscape of Decentralization

- **Quantitative data** establishes that the industry is in a transitional "Hybrid" or "Somewhat decentralized" state, not a fully remote one. This structure is pursued because of a strong belief that decentralization **improves innovation (rated 3.96/5)** and digital transformation **drives operational efficiency (rated 4.24/5)**.
- **Qualitative findings** strongly corroborate with this. Experts describe an accelerated shift to decentralized models, praising the access to a wider talent pool and increased flexibility. However, they consistently voice concerns about the loss of a central community and the difficulty of performance measurement in remote settings. This leads to a near-universal consensus among interviewees for a **strategic hybrid model** that combines the benefits of remote work with essential in-person interactions to address these human-centric challenges.

ii) Digital Talent Acquisition and Integration

- **Quantitative data** reveals that attracting and retaining digital talent is a significant challenge, with current retention strategies rated as **mediocre (3.22/5)**. Key motivators are not primarily financial but are linked to **innovative projects, work-life balance, and organizational culture**.
- **Qualitative findings** explain *why* these challenges exist. Experts confirm that top digital talents, those with both technical and deep industry expertise, are seldom recruited through conventional HR channels. Instead, leaders must proactively source them through **personal networks, conferences, and industry events**. Onboarding is another critical point; experts emphasize that while initial interviews can be digital, building foundational trust requires a **structured process with an initial in-person phase** before transitioning to fully virtual collaboration.

iii) Digital Capabilities and Leadership Development

- **Quantitative data** identifies a critical "opportunity gap": while organizations have the necessary digital infrastructure, there is a significant lag in **investing in leadership development (rated 3.13/5)** for decentralized contexts and in the **effective use of agile methodologies (rated 3.16/5)**.
- **Qualitative findings** detail the required competencies. Experts state that digital leaders must move beyond a pure management role to one of deep technical understanding and strategic oversight. The emphasis is on **leading by example, communicating a clear vision, and fostering self-organization** core agile principle. This confirms the quantitative finding that while general leadership styles may be modern (e.g., democratic), the specific skills for managing distributed, tech-driven teams are underdeveloped.

iv) Agile Performance and Contribution Management

- **Quantitative data** highlights the central paradox: decentralization **improves project management efficiency (rated 3.84/5)** but **complicates talent management (rated 3.82/5)**, with communication being a key weakness.
- **Qualitative findings** provide the solution to this paradox. Experts advocate for replacing annual reviews with **agile, project-based feedback** through mechanisms like live demos and frequent

check-ins. For recognition, they emphasize intrinsic motivators such as **trust, responsibility, and growth opportunities** (e.g., conference visits) over purely financial rewards, noting that public recognition within the team is highly valued.

v) Fostering Virtual Collaboration and Community

- **Quantitative data** shows a solid cultural foundation, with high ratings for **psychological safety (3.84/5)** and the prevalence of **transformational leadership styles**. However, the data also hints that virtual tools alone are not enough for community building.
- **Qualitative findings** make this explicit. There is a powerful consensus among experts that digital tools are effective for structured communication but fail to foster deep emotional connection and trust. They argue that **personal, in-person meetings are indispensable for building the "social calibration"** required for effective virtual collaboration. Virtual coffee chats are largely seen as ineffective, reinforcing the need for intentional, strategic physical gatherings to build and maintain a strong organizational culture.

5.3.2. Patterns Informing the Strategic HCM Framework

The triangulation of these findings reveals clear, actionable patterns that serve as the foundation for the proposed HCM framework:

- **The Integration of Human-Centric Practices and Operational Workflows:** The framework must be built on a deliberately integrated model. Acknowledging that decentralization benefits operations but strains human capital, the framework must integrate strategic in-person interactions into the standard workflow. This is not an add-on, but a core component designed to build the trust and social cohesion that enable effective virtual work.
- **The Integration of Leadership into the Talent Acquisition Lifecycle:** The framework must shift talent acquisition from a siloed, HR-led process to a proactive ecosystem where leadership is fully integrated. This involves leveraging leaders' personal networks and industry presence. Critically, it must mandate a structured, integrated onboarding process that prioritizes initial face-to-face contact to seamlessly blend new hires into the company culture.
- **Evolved Digital Leadership as an Integrated Competency Model:** The framework must outline a new, integrated leadership competency model. This model moves beyond general styles to focus on integrating specific skills needed for decentralized contexts: technical credibility, fostering psychological safety, empowering self-organization, and communicating vision with clarity.
- **The Integration of Performance Management into Daily Operations:** The framework must replace traditional, periodic performance reviews with agile, continuous feedback loops that are integrated into the daily and weekly rhythm of work. It should advocate for outcome-based metrics supported by transparent digital dashboards and an incentive structure that prioritizes intrinsic motivators like mastery, autonomy, and peer recognition.
- **The Strategic Integration of Technology and Community:** The framework must advocate an integrated investment in technology and community. While promoting essential tools like Common Data Environments (CDEs), it must stress that these tools are only effective when strategically integrated with planned, in-person social events designed to maintain cultural cohesion and bridge the gap between digital efficiency and human connection.

6. Chapter VI: Discussion and Framework Development

This chapter synthesizes and interprets the empirical findings presented in Chapter V, positioning them within the broader academic discourse on human capital management, organizational design, and digital transformation. The primary objective is to move from data to meaning by analyzing the underlying dynamics of talent management within **Digital Decentralized Organizations (DDOs)**. This interpretation forms the logical basis for the development of **The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF),** which is subsequently presented. The chapter concludes by discussing the theoretical and practical implications of the research for both academia and the Swiss construction industry.

6.1. Interpretation of Key Research Findings

The triangulated findings reveal a complex interplay between organizational structure, technological adoption, and human capital dynamics. The Swiss construction industry's transition towards becoming a DDO is not merely a structural shift but a profound cultural and operational evolution that challenges long-standing talent management paradigms.

i) Decentralization's Dual Impact on Talent Acquisition and Retention

These results show that independence is both good and bad for managing talent. On the one hand, experts agree that it has clear benefits. For example, it greatly increases the pool of ability by removing geographical barriers. This fits with what modern workers want, which is flexibility and the ability to work from home. This could make building firms more appealing. However, the data strongly shows that the parts of talent management that focus on people are under pressure. The main problem is shown by the fact that retention tactics are not very good (rated 3.22/5) and people are worried about losing their sense of community. Decentralization makes it harder for people to have casual conversations and learn about other cultures that are necessary to keep good employees. Also, the fact that digital talent tends to follow certain leaders rather than companies suggests that a scattered structure might cause talent sibling or more staff turnover if a key leader leaves. So, division makes it easier to find talented people, but it also requires a much more planned and organized way to keep them by building communities strategically and making sure leaders are stable.

ii) The Untapped Potential of Agile Methodologies

One important interpretation is that the industry has not fully used agile methods as a systemic tool for managing people. Companies have bought digital tools to help workers work together, but not the "operating system" that makes them work well. The big difference between how well the industry uses agile methods (rated 3.16/5) and how ready its digital infrastructure is (rated 4.02/5) is telling. Qualitative research backs this up, showing that performance management has naturally moved toward agile ideas such as live demos and frequent, informal feedback. But it looks like this uptake is more ad hoc than systemic. Agile methods are not just for managing projects; they are also a way to encourage independence, openness, and work with a clear goal, all of which are highly motivating for digital talent, as shown by numeric data. The low acceptance rate means that a huge chance to improve communication (rated only 3.49/5), get people more involved in projects, and end the paradox where project efficiency gains are cancelled out by problems with managing talent has not been taken advantage of.

iii) Psychological Safety as a Foundational Enabler

It is very important that the strong quantitative grade for psychological safety (3.82/5) was found. It shows that there is a culture of trust within teams, even though the structure has changed. This is an important part of success in any setting, but it is especially important in a decentralized setting where direct supervision is limited. It is psychological safety that encourages taking risks, open

communication, and new ideas, all of which are things that autonomy aims to do. The qualitative data adds to this, and experts stress how important it is for leaders to make sure that open, "eye-level" talks are common. More advanced leadership and agile practices can be built on top of this current cultural asset.

iv) The Evolution of Employer Branding from Corporate to Leader-Led

The study strongly suggests that traditional corporate employer branding is losing its power to attract top digital talent. A paradigm change can be seen in the fact that this talent is found through networks and is loyal to certain leaders. The "employer brand" is breaking up into smaller pieces, and now each top leader's reputation and market presence make up the "employer brand." This sees the numeric problem with hiring people (named as a top challenge) not as a problem with HR, but with the way the strategy is being used. So, the best way to draw people is to put money into the personal brands of key leaders by supporting their attendance at conferences, writing for publications, and working with other academics.

v) Optimal Leadership: The Facilitative, Tech-Fluent Mentor

Finally, the results come together to make a clear picture of the best boss for digital, decentralized settings. The numbers show that we need more than just "Democratic" or "Transformational" styles of leadership. They show that we need specific skills for handling remote teams. According to the qualitative data, these skills are described as follows: the ideal leader is a tech-savvy mentor who can "lead by example" and encourage creativity. They need to be great at sharing their vision and changing their mindset from one of control to one of empowerment. This will help decentralized models thrive by encouraging self-organization and intrinsic drive. The found gap in investing in leadership development (rated only 3.13 out of 5) is the most important leverage point for businesses that want to succeed in this new paradigm.

6.2. Development of the Strategic HCM Framework

This part talks about The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF), which is based on three sets of study results and how they were interpreted. This framework is meant to work with decentralized organizations in the Swiss construction business. It goes beyond the traditional separation of HR tasks into a unified system that focuses on trust, culture, and intrinsic motivation. This creates a complete and useful model for managing digital talent.

The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF) comprises four interconnected and mutually reinforcing pillars, each detailed below with its operational definition:

- **Leader-Led Talent Ecosystem:** Shifting talent acquisition from a reactive HR process to a proactive, network-driven ecosystem curated by industry-active leaders.
- **Agile Performance & Capability Development:** Integrating agile methodologies into performance management and fostering a culture of continuous, self-directed learning.
- **Strategic Community & Culture:** Intentionally designing a hybrid model that combines digital collaboration with essential in-person interactions to build and maintain a cohesive organizational culture.
- **Facilitative Digital Leadership:** Cultivating a new model of leadership focused on technical fluency, empowerment, and mentorship rather than traditional command-and-control.

6.2.1. How the Framework Addresses Identified Challenges

i) Pillar 1: Leader-Led Talent Ecosystem

This pillar directly addresses the talent acquisition challenge. By empowering leaders to leverage their personal networks, it bypasses ineffective traditional channels and taps into the informal markets where top digital talent resides. Its emphasis on a blended, in-person onboarding process directly mitigates the risk of poor integration and early turnover in remote hires.

Figure 10: Framework Solution for the Talent Acquisition Challenge

These visuals contrast the rigid, linear failure of a "Leaky Talent Pipeline" with the dynamic success of a "Magnetic Talent Ecosystem." The latter visualizes a central leader acting as a magnet, using their network to attract talent from sources like conferences and universities, effectively solving the acquisition challenge.

ii) Pillar 2: Agile Performance & Capability Development

This pillar tackles the "opportunity gap" between having tools and using them effectively. It provides a structure for implementing agile methodologies not just for projects, but for performance feedback and recognition. This pillar directly addresses digital talent's need for autonomy and purpose by focusing on outcome-based metrics and intrinsic motivators like mastery and peer acknowledgment.

Figure 11: Framework Solution for the Process Opportunity Gap

This illustration addresses the critical "opportunity gap" identified in the research by visually contrasting the current, inefficient "Rigid, Waterfall Processes" with the framework's proposed "Dynamic, Agile Engine." It demonstrates how implementing agile methodologies for performance feedback and

recognition can transform disjointed, linear workflows into a fluid and productive system, thereby closing the gap between an organization possessing digital tools and its ability to effectively use them to create value.

iii) Pillar 3: Strategic Community & Culture

This pillar is the solution to the operational-human capital divide. It acknowledges the limitations of virtual tools and institutionalizes the need for strategic in-person events. This pillar provides a blueprint for maintaining a strong, cohesive culture—a key motivator for talent retention—even when the workforce is physically distributed.

Figure 12: Framework Solution for the Operational-Human Capital Divide

This illustration addresses "Digital Isolation" by showing how the "Hybrid Community Bridge» representing strategic in-person events—connects disparate individuals to create a unified team culture that spans virtual and physical spaces.

iv) Pillar 4: Facilitative Digital Leadership

This pillar addresses the identified gap in leadership competencies. It moves beyond generic "transformational" styles to define the specific, required skills: technical fluency, the ability to foster psychological safety, and the capacity to empower self-organizing teams. This pillar provides a roadmap for the targeted investment in leadership development that the data shows is currently lacking.

Figure 13: Framework Solution for the Leadership Competency Gap

This graphic shows the evolution from a "Traditional Command & Control" pyramid to a "Supportive Leadership Scaffold." This new model represents the leader as a foundational support system that enables and empowers the team to succeed, rather than directing from the top down.

6.2.2. The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF)

The proposed framework, titled the "**The Integrated Human-Centric Digital Talent Framework (IHC-DTF)"** is designed to bridge the identified gap between operational efficiency and human capital needs in a decentralized context. An Integrated Strategic Model for Managing Digital Talent in Decentralized Organizations. It moves beyond traditional, siloed HR functions to an integrated system that places human factors—trust, culture, and intrinsic motivation—at its core. The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF) is designed to bridge the identified gap between operational efficiency and human capital needs in a decentralized context. It moves beyond traditional, siloed HR functions to an integrated system that places human factors—trust, culture, and intrinsic motivation—at the core of the organizational strategy. The framework is built upon four interconnected pillars, each addressing the critical challenges identified in empirical research.

Figure 14: The Integrated Human-Centric Digital Talent Framework (IHC-DTF)

6.3. A Strategic Business Case for Framework Adoption

This section presents the quantitative business case for adopting the Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF). Rather than viewing the framework as an operational expense, we position it as a strategic capital investment that yields measurable returns and creates sustainable competitive advantage. Grounded in Human Capital Theory, our analysis applies the Human Capital Return on Investment (HCROI) model to financially justify the framework's initiatives by measuring the economic value of employee performance (Fitz-enz, 2009).

Our business case begins by quantifying the significant financial liabilities of maintaining the status quo—the "Cost of Inaction." We then model the positive financial returns generated by implementing the framework, demonstrating a clear Return on Investment (ROI) by directly linking the framework's pillars to both cost reduction and value creation.

6.3.1. The Cost of Inaction: Quantifying the Negative Impacts

Legacy HCM practices in a decentralized, digital-first environment generate significant hidden costs. These financial liabilities, including talent turnover, project inefficiency, and missed innovation, directly erode profitability and competitive advantage. This analysis offers a quantitative framework to measure the true financial impact of inaction

i) Increased Digital Talent Turnover and Recruitment Costs

The Swiss construction industry, like many sectors undergoing digital transformation, faces a pronounced scarcity of qualified digital professionals. High turnover rates for this talent segment are not just a managerial inconvenience; they are a significant financial drain. The academic and professional literature on turnover provides robust models for its calculation, categorizing expenses into distinct phases: separation, recruitment, training, and lost productivity (G&A Partners, 2024).

The cost is particularly acute for the highly skilled digital talent central to this thesis. Research from organizations like the Center for American Progress has shown that the replacement cost for highly skilled or senior roles can be as high as 213% of their annual salary, a figure far exceeding that for entry-level positions (Boushey & Glynn, 2012). This asymmetrical cost structure means that the financial penalty for losing a single BIM specialist or data scientist is disproportionately high, elevating the strategic importance of retention.

A comprehensive formula for calculating the total cost of turnover for one employee can be expressed as:

$$TotalTurnoverCost = C_{separation} + C_{recruitment} + C_{training} + C_{productivity\_loss}$$

Where each component includes direct and indirect costs (G&A Partners, 2024):

- **$C_{separation}$:** Administrative costs of processing the departure, exit interview time, and any severance pay.
- **$C_{recruitment}$:** Advertising fees, recruiter and hiring manager time spent screening and interviewing, background check costs, and agency fees.
- **$C_{training}$:** Formal training program costs, materials, and the time of managers and mentors dedicated to onboarding the new hire.
- **$C_{productivity\_loss}$:** The cost of the vacancy (work not being done or covered by others, often at overtime rates) plus the cost of the new hire's ramp-up period to reach full productivity, which can take several months.

Sample Calculation of Total Annual Turnover Cost: Consider a hypothetical Swiss construction firm losing a Senior Digital Construction Specialist with an annual salary of CHF 120,000. Using a conservative but research-backed multiplier of 150% of annual salary for a technical role, the calculation is as follows (G&A Partners, 2024):

Position: Senior Digital Construction Specialist

Annual Salary: CHF 120,000

Turnover Cost Multiplier: 50% (or 0.5) to 150% (or 1.5)

Cost per Employee Turnover = CHF 120,000×1.5=CHF 180,000

If a firm with 100 such digital talent positions experiences a modest 15% annual turnover rate, the total annual cost becomes staggering:

Number of Departures: 100×0.15=15 employees

Total Annual Turnover Cost = 15 employees × CHF 120,000 × 1.5 multiplier = ***CHF 2,700,000***

This calculation reveals a critical reality: the financial penalty for losing the very individuals needed to drive digital transformation is immense, underscoring that retention is financially essential.

ii) Reduced Project Efficiency and Delays

A direct causal link exists between ineffective HCM practices, particularly poor communication and collaboration within decentralized teams—and negative project outcomes. Research from the Project Management Institute (PMI) consistently demonstrates that a significant percentage of project failures and budget overruns are directly attributable to communication breakdowns (Project Management Institute, 2013). The concept of Cost of Delay (CoD) provides a formal metric for quantifying the economic impact of time on a project's value (Ries, 2011)

A formula to estimate the financial impact of inefficiency can be modeled as:

$$Cost of Inefficiency = (Total Annual Project Value \times \% Inefficiency Rate)$$

Sample Calculation to Cost of Inefficiency: Consider a firm with an annual digital consulting project portfolio valued at CHF 20,000,000. Industry data suggests that poor communication can lead to budget overruns and direct costs equivalent to 2% of total project value (Project Management Institute, 2013)

Annual Project Portfolio Value: CHF 20,000,000

Inefficiency Rate (as % of Portfolio): 2%

Total Annual Cost of Inefficiency=CHF20,000,000×0.02=CHF400,000

This analysis shows that inefficiency erodes project profitability and damages the firm's reputation for on-time delivery, a primary driver of future contracts.

iii) Lost Innovation and Missed Market Opportunities

A disengaged, high-turnover workforce is an infertile ground for innovation. The concept of Innovation Accounting, popularized by Eric Ries, provides a framework for valuing activities that drive future growth (Ries, 2011). Firms that fail to foster the psychological safety and autonomy necessary for experimentation risk stifling the very innovation needed to remain competitive.

A model to illustrate the potential cost is:

$$Cost of Missed Opportunity = (\text{Value per New Contract}) \times (\text{Number of Missed Contracts Annually})$$

Sample Calculation: Cost of a Missed Innovation Opportunity: Assume a firm fails to retain the key digital talents (e.g., robotics engineers, AI specialists) needed to develop a proprietary "Construction Robotics & AI Integration Framework." This framework would serve as the foundation for a new, high-margin consulting service. Without this proprietary offering, the firm is unable to compete for and win advanced digital transformation contracts.

Estimated Value per Consulting Contract: CHF 200,000

Number of Missed Contracts Annually: 3

Value of Missed Innovation = 3 contracts × CHF 200,000/contract = CHF 600,000 annually

This demonstrates that the cost of missed innovation is an opportunity cost that directly impacts a firm's long-term strategic positioning and creates an escalating competitive disadvantage.

6.3.2. Modeling the ROI of HCM Framework Implementation

Implementing the Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF) requires a strategic investment in leadership training, process redesign, and cultural initiatives. This section demonstrates that these investments are justified by quantifiable financial returns, which are modeled by directly mitigating the costs of inaction identified previously. The analysis is structured around the academically recognized Human Capital ROI (HCROI) formula, which provides a credible method for evaluating HR initiatives (Singla, 2024).

i) Reduced Turnover and Recruitment Costs

The framework's Leader-Led Talent Ecosystem and Strategic Community & Culture pillars are designed to significantly improve the retention of high-value digital talent. By ensuring better cultural fit through leader-led sourcing and building loyalty through a structured hybrid onboarding process and strategic in-person events, the framework directly addresses the primary drivers of turnover.

$$Annual Savings = (\text{Number of Retained Employees}) \times (\text{Cost per Employee Turnover})$$

Sample Calculation for Annual Savings of Turnover and Recruitment Costs: Using the turnover cost of CHF 2,700,000 calculated in 6.3.1 for a 15% turnover rate, we can reduce the savings from reducing this rate to a more stable 8%.

Turnover Reduction: 15%−8%=7%

Number of Retained Employees: 100×0.07=7 employees

Cost per Employee: CHF 180,000

Annual Savings = 7 × CHF 180,000 = CHF 1,260,000

ii) Improved Project Efficiency

The Agile Performance & Capability Development pillar addresses the critical gap between possessing digital tools and using them effectively. By systematizing agile feedback loops, enhancing collaboration,

and fostering intrinsic motivation, teams become more aligned and efficient, directly reducing the rework and delays that inflate project costs.

Sample Calculation for Annual Savings of Improved Project Efficiency: Assuming a 2% improvement in project budget adherence across the firm's CHF 20 million annual project portfolio:

Total Annual Project Value: CHF 20,000,000

Efficiency Gain: 2%

Annual Savings = CHF 20,000,000 × 0.02 = CHF 400,000

iii) Revenue Growth Through Innovation

The Facilitative Digital Leadership pillar is designed to cultivate psychological safety and empowerment essential for innovation. By developing tech-fluent leaders who enable rather than control, the framework unlocks the creative potential of digital talent to develop new solutions and capture market opportunities. This value can be modeled as:

$$AnnualRevenueGain = \text{Value of New Opportunities Captured}$$

Sample Calculation for Annual Revenue Gain through Innovation: By fostering an innovative-focused culture, the organization can develop its proprietary Robotics & AI framework and secure at least two new strategic consulting contracts annually. This professional environment positions the firm to attract high-value client engagements that drive revenue growth.

Value of New Opportunities Captured: 2 contracts x CHF 200,000/contract

Annual Revenue Gain = CHF 400,000

iv) Synthesis and Projected Return on Investment

The preceding analysis culminates in a clear financial justification for adopting the framework. The following table synthesizes these calculations to provide a strategic overview. Assume a total annual investment of CHF 500,000 for framework implementation (covering leadership training, process redesign, and community-building events). The projected ROI is calculated as follows:

$$HCROI = \frac{(\text{Financial Gains from Initiative} - \text{Cost of Initiative})}{\text{Cost of Initiative}}$$

For this analysis, "Financial Gains" are the direct savings and new revenue generated.

Table 1: Synthesis and Projected Human Capital Return on Investment

Category	Cost of Inaction (Annual)	Benefit of Framework (Annual)	Net Financial Impact
Cost Reduction			
Digital Talent Turnover	(CHF 2,700,000)	+ CHF 1,260,000	+ CHF 1,260,000
Project Inefficiency	(CHF 400,000)	+ CHF 400,000	+ CHF 400,000
Value Creation			
Missed Innovation	(CHF 600,000)	+ CHF 400,000	+ CHF 400,000

Total Annual Benefit	**(CHF 3,700,000)**	**+ CHF 2,060,000**	**+ CHF 2,060,000**

ROI = CHF 500,000 (CHF 2,060,000 − CHF 500,000) = 3.12

This yields a ROI of 312%, or a ratio of 3.12:1. For every franc invested, the organization can expect a return of CHF 3.12. This powerful outcome frames the Integrated HCM Framework not as a discretionary cost, but as a high-yield strategic investment essential for enhancing profitability, driving innovation, and securing.

The following tables first detail the optimized assumptions used to create a credible spectrum of business outcomes, then provide a granular calculation of the ROI across three realistic, multi-variable scenarios.

Table 2: Core Assumptions and Ranges for Financial Modeling

Parameter/Assumption	Projected Value	Assumed Range
Turnover Cost Multiplier	150%	125% - 175%
Baseline Annual Turnover Rate	15%	10% - 20%
Projected Turnover Reduction	7%	5% - 9%
Inefficiency Rate (Cost of Inaction)	2%	1% - 3%
Projected Efficiency Gain	2%	1.5% - 2.5%
Value per Innovation Contract	CHF 200,000	150k - 250k
New Contracts Captured Annually	2	1 - 3

To provide a comprehensive stress test, this analysis models three distinct scenarios. Each scenario combines a realistic set of assumptions for benefits while holding the investment cost stable at CHF 500,000 to clearly illustrate the potential range of returns (Schrader, 2025).

Table 3: Multi-Variable Scenario Analysis and HC-ROI Calculation

Financial Metric	Worst-Case (Conservative)	Most-Likely (Projected)	Best-Case (Optimistic)
Annual Savings from Turnover Reduction			
Cost per Employee (Multiplier)	*CHF 210,000 (175%)*	*CHF* 180,000 *(150%)*	*CHF 150,000 (125%)*
Turnover Reduction	*5% (5 Employees)*	*7% (7 Employees)*	*9% (9 Employees)*
Calculation	*5 x CHF 210,000*	*7 x CHF 180,000*	*9 x CHF 150,000*
Subtotal	**CHF 1,050,000**	**CHF 1,260,000**	**CHF 1,350,000**
Annual Savings from Efficiency Gain			
Efficiency Gain	*1.5%*	*2.0%*	*2.5%*
Calculation	*CHF 20M x 0.015*	*CHF 20M x 0.02*	*CHF 20M x 0.025*
Subtotal	**CHF 300,000**	**CHF 400,000**	**CHF 500,000**
Annual Revenue from Innovation			
New Contracts Won	*1*	*2*	*3*
Value per Contract	*CHF 150,000*	*CHF 200,000*	*CHF 250,000*
Calculation	*1 x CHF 150,000*	*2 x CHF 200,000*	*3 x CHF 250,000*
Subtotal	**CHF 150,000**	**CHF 400,000**	**CHF 750,000**

Financial Metric	Worst-Case (Conservative)	Most-Likely (Projected)	Best-Case (Optimistic)
Total Annual Benefit	CHF 1,500,000	CHF 2,060,000	CHF 2,600,000
Annual Investment Cost	(CHF 500,000)	(CHF 500,000)	(CHF 500,000)
Net Annual Benefit	**CHF 1,000,000**	**CHF 1,560,000**	**CHF 2,100,000**
Projected ROI (Ratio)	**2.00: 1**	**3.12: 1**	**4.20: 1**

The comprehensive, multi-variable financial analysis clearly demonstrates that the Integrated HCM Framework represents a strategically sound investment that delivers substantial returns across all scenarios. Even in the most conservative case, the framework doubles the initial investment with an ROI of 2.00:1, while the most likely scenario projects a compelling 3.12:1 return. With potential upside reaching 4.20:1 in favorable conditions, this framework not only addresses critical challenges in digital talent management but does so while creating measurable financial value for the organization. This analysis confirms that implementing the framework is not merely a cost of doing business but a strategic advantage that directly enhances profitability, operational efficiency, and innovation capacity.

6.3.3 Linking the Framework to Competitive Advantage

Beyond immediate financial gains, this framework fosters sustainable competitiveness. Implementing the framework can lead to e.g. a 15% increase in successful project bids, a 10% decrease in project completion times, and a boost to employee net promoter scores by +1.5. By becoming an organization known for its innovative culture, meaningful work, and human-centric leadership, a firm transforms into a **"talent magnet"**. This reputation allows it to attract and retain the industry's best digital professionals at a lower relative cost, creating a virtuous cycle of innovation and superior project delivery. In an industry where digital expertise is the key differentiator, the ability to consistently field the best talent is the ultimate competitive moat. This framework, therefore, is not merely a talent management strategy but a core business strategy for leading the digital transformation of the Swiss construction industry.

6.4. Implementation and Risk Management

This section outlines a phased roadmap for implementing the **Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF).** It also identifies potential risks associated with this transformation and provides corresponding mitigation strategies to ensure successful adoption.

6.4.1. Phased Implementation Roadmap

Successful implementation of the framework requires a structured, phased approach that allows for organizational learning, adaptation, and continuous improvement.

Phase 1: Assessment and Leadership Alignment (Months 1-3)

This initial phase focuses on a comprehensive evaluation of the organization's current state. An HCM audit, employing diagnostic surveys and interviews with key personnel, benchmarks existing practices. Furthermore, leadership commitment is garnered through a series of workshops presenting a robust business case, aligning stakeholders on the strategic importance of human-centric talent management. This phase concludes with the definition of SMART KPIs and the selection of suitable pilot teams.

- **HCM Audit:** Conduct diagnostic surveys and interviews with HR staff, IT leaders, project managers, and digital talent to benchmark existing processes. Assess talent acquisition channels, analyze retention drivers, map current leadership styles, and gauge the adoption of agile practices.

- **Leadership Workshop Series:** Present the business case for the framework (developed in section 6.3) to senior leadership. Facilitate workshops to align on the strategic importance of human-centric talent management for achieving a competitive advantage in the digital economy.
- **KPI Definition Workshop:** Engage key stakeholders to define specific, measurable, achievable, relevant, and time-bound (SMART) KPIs for each of the framework's four pillars. Examples include time-to-hire for digital roles, employee engagement scores in remote teams, and project cycle times.
- **Pilot Team Selection:** Identify 2-3 project teams to act as pilots. Selection criteria should include a supportive manager, a mix of digital and traditional roles, and involvement in a project critical to the firm's digital transformation.

Phase 2: Pilot Implementation (Months 4-9)

The second phase involves the deployment of the framework's four pillars within selected pilot teams. Rigorous testing and refinement of implementation strategies are conducted based on real-world feedback. Data is collected against pre-defined KPIs, aiming to demonstrate the framework's effectiveness. It's during this phase that initiatives such as network-based recruitment, agile training, and off-site events will be tested.

- **Pillar 1 (Leader-Led Talent Ecosystem):** Empower pilot team leaders to actively engage in network-based recruitment. Implement the structured, hybrid onboarding process for any new hires joining these teams.
- **Pillar 2 (Agile Performance):** Train pilot teams on agile methodologies. Formally replace annual reviews within these teams with continuous feedback loops, bi-weekly project demos, and a peer-to-peer recognition system.
- **Pillar 3 (Strategic Community):** Schedule and execute at least one purposeful in-person, off-site event for each pilot team, focusing on team building and strategic alignment rather than routine work.
- **Pillar 4 (Facilitative Leadership):** Provide targeted coaching and training to pilot team leaders on the specific competencies of facilitative digital leadership, such as managing remote teams and fostering psychological safety.

Phase 3: Scaled Rollout and Systematization (Months 10-18)

Building upon the insights gained from the pilot implementation, this phase focuses on scaling successful components across the organization. New HCM practices are embedded into the official operating model, accompanied by a dedicated digital leadership program and a robust communication plan. A governance committee is established to monitor KPIs, gather feedback, and continuously improve the HCM framework.

- **Codify HCM Practices:** Revise and formalize official HR policies to reflect the new practices in talent acquisition, onboarding, performance management, and hybrid work.
- **Launch Digital Leadership Program:** Establish an ongoing leadership development program based on the "Facilitative Digital Leadership" pillar, making it accessible to all current and aspiring managers.
- **Develop Communication Plan:** Implement a company-wide communication plan to share success stories from the pilot, articulate the long-term vision, and provide resources to support the transition.
- **Measure and Improve:** Form a governance committee to review organizational KPIs quarterly, gather feedback, and make data-driven adjustments to the HCM framework.

6.4.2. Risk Assessment and Mitigation Strategies

Proactively managing risks is crucial for the framework's successful implementation. The table below outlines key risks and their corresponding mitigation strategies.

Table 1: Risk Assessment and Mitigation Strategies

Risk	Potential Impact	Likelihood	Mitigation Strategies
Cultural Resistance	Low adoption of new practices; active pushbacks from managers accustomed to traditional hierarchies; decreased morale and productivity.	High	**1. Executive Sponsorship:** Ensure senior leaders visibly and consistently champion the change. **2. Communication:** Develop a clear narrative explaining the strategic necessity ("the why") behind the transformation. **3. Change Champions:** Identify and empower influential employees from the pilot phase to advocate for the new model. **4. Early Wins:** Widely publicize successes from the pilot teams to build momentum and demonstrate value.
Leadership Gaps	Ineffective management of decentralized teams; failure to foster psychological safety; decreased team performance, innovation, and engagement.	Medium to High	**1. Competency Assessment:** Use the "Facilitative Digital Leadership" pillar as a benchmark to assess current leadership capabilities early on. **2. Targeted Training:** Implement the mandatory leadership development program with ongoing coaching and 360-degree feedback. **3. Mentorship:** Pair emerging leaders with experienced mentors who exemplify the desired leadership style.
Resource Misallocation	Insufficient budget for crucial initiatives like community-building events or leadership training; over-investment in technology without a corresponding investment in people.	Medium	**1. Secure Dedicated Budget:** Use the business case (Section 6.3) to secure a protected budget for the entire implementation roadmap. **2. Earmark Funds:** Specifically allocate funds for non-technical aspects like in-person events and external coaching. **3. Phased Release:** Tie budget allocation for the scaled rollout (Phase 3) to the successful achievement of KPIs in the pilot phase (Phase 2).
Inability to Measure Impact	Failure to demonstrate the framework's ROI, leading to a loss of executive support and a potential rollback of the initiative.	Medium	**1. Define KPIs Early:** Establish clear, measurable success metrics during Phase 1. **2. Implement Tracking Tools:** Use tools like pulse surveys, project management analytics, and HR dashboards to track KPIs from the start. **3. Assign Ownership:** Make a specific person or team responsible for data collection and regular reporting to stakeholders.

6.5. Implications for Theory

This research contributes to the academic literature at the intersection of Human Capital Management (HCM), organizational design, and digital transformation within traditional industries.

- **Expansion of Human Capital Theory:** This study expands on foundational theories by illuminating the specific blend of technical expertise and deep industry knowledge most

valuable during a sector-wide digital transformation. It also highlights the importance of social capital (networks) and cultural capital (psychological safety) in retaining high-value human capital in decentralized structures.

- **Contribution to Organizational Design:** This thesis provides a rare, empirically grounded case study of decentralized and agile principles within the construction industry, a departure from the commonly studied tech sector. The proposed framework offers a new, industry-specific model that argues for a strategically blended, hybrid approach over a purely virtual one.
- **Advancement of Digital Talent Management:** This work expands the nascent field of Digital Talent Management by moving beyond a generic definition of "digital talent" to a more nuanced understanding of professionals who act as bridges between technology and industry. The framework provides a structured approach to managing this specific talent pool, offering insights into their unique motivators and the leadership styles they respond to.

6.6. Implications for Practice

The findings and the resulting framework hold significant practical implications for leaders, HR professionals, and policymakers within the Swiss construction industry.

6.6.1. Core Fundamentals for Swiss Construction Firms

Figure 15: Core Fundamentals for Swiss Construction Firms

- **Shift Talent Acquisition from HR to Leadership:** CEOs and department heads must view talent scouting as a core leadership responsibility. Firms should actively invest in the public profiles of their leaders, funding their participation in conferences and industry events to build the networks necessary to attract top talent.
- **Mandate a Hybrid Onboarding Process:** All new digital talent, regardless of their long-term work location, should undergo a structured onboarding process that includes a mandatory in-person component within the first month. This initial investment is critical for building long-term cultural cohesion and trust.
- **Invest in Targeted Leadership Training:** Firms must move beyond generic leadership programs. Investment should be directed towards developing the specific competencies outlined in the framework: managing remote teams, fostering virtual trust, understanding core digital technologies, and facilitating agile processes.
- **Systematize Agile Practices Beyond IT:** Implement agile ceremonies like bi-weekly check-ins and project demos across all digital project teams. Frame this not as a project management tool, but as the core of the performance feedback and communication strategy.
- **Budget for Community, Not Just Collaboration:** Leadership must treat in-person gatherings as a strategic necessity, not a discretionary expense. Firms should budget for and schedule regular (e.g., quarterly) co-location weeks or events designed specifically for team building, strategic alignment, and cultural reinforcement.

While these fundamentals are broadly applicable, SMEs may need to adapt certain aspects to their specific resource constraints. For example, instead of hiring a dedicated 'hybrid manager,' SMEs could assign this responsibility to an existing team member with strong communication skills and provide them with additional training.

6.6.2. Universal Fundamentals for Digital Decentralized Organizations

The principles derived from this research are broadly applicable to any organization navigating the complexities of a distributed, digital-first workforce.

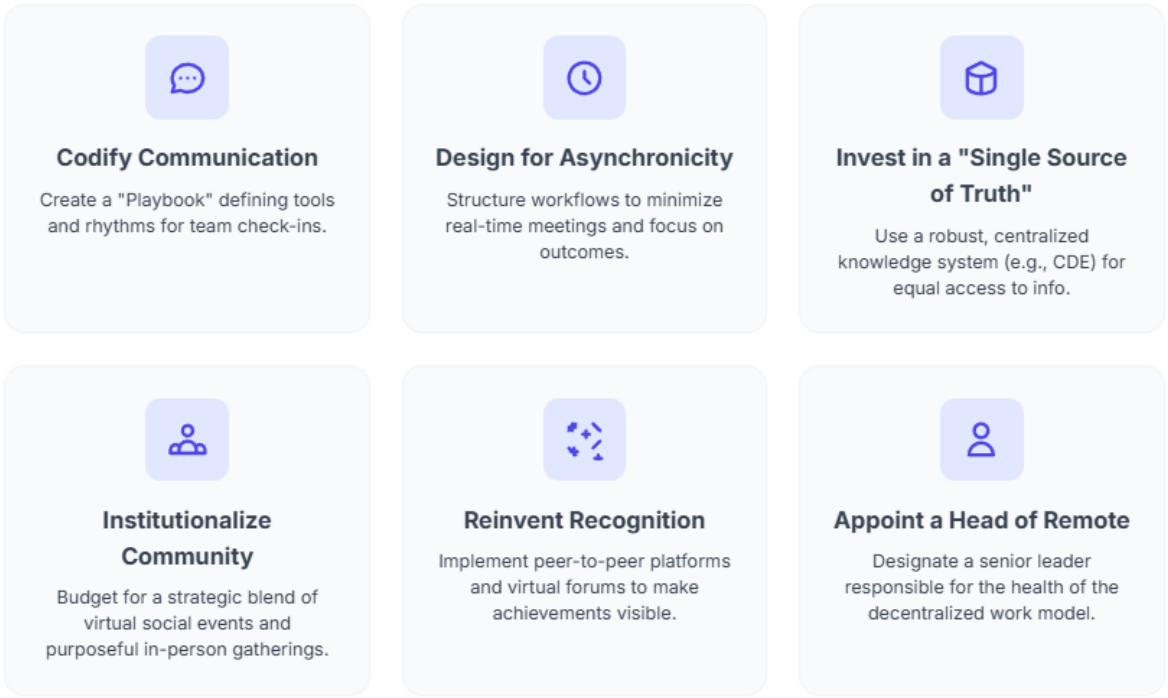

Figure 16: Universal Fundamentals for Digital Decentralized Organizations

- **Codify Your Communication Cadence:** Decentralized work thrives on intentional communication. Organizations should create a clear "Communication Playbook" that defines which tools are used for which purposes (e.g., Slack for asynchronous updates, video calls for decision-making) and establishes a rhythm for team check-ins and feedback sessions.
- **Design for Asynchronous Work:** Structure projects and workflows to minimize the need for real-time meetings. This empowers a global workforce by focusing on outcomes rather than shared office hours and fosters the autonomy that top digital talent craves.
- **Invest in a "Single Source of Truth":** To combat information silos, invest in a robust, centralized knowledge management system or Common Data Environment (CDE). This ensures all team members, regardless of location or time zone, have equal access to the information needed to perform their roles effectively.
- **Institutionalize Community and Social Connection:** Actively combat digital isolation by budgeting for and scheduling activities designed to foster a sense of belonging. This must be a strategic blend of virtual and physical events:
    - **Virtual Social Events:** Move beyond simple "virtual coffee chats." Implement more engaging activities like team-based online games, interest-based clubs (e.g., a book club or coding guild), or structured "virtual lunches" where the company provides a meal stipend.

  - **Purposeful In-Person Gatherings:** Treat periodic, in-person offsites as a core strategic investment. These events should be focused primarily on building personal relationships, reinforcing shared values, and celebrating collective successes, rather than on routine project work.

- **Reinvent Recognition for a Digital Context:** Traditional recognition methods often fail in remote settings. Implement peer-to-peer recognition platforms and create virtual forums (e.g., a dedicated Slack channel) to publicly celebrate successes. This makes achievements visible across the organization and reinforces a culture of appreciation.
- **Appointing a Head of Remote or Hybrid Work:** Designate a senior leader to be explicitly responsible for the health and effectiveness of the decentralized work model. This role ensures that the human-centric aspects of remote work—culture, community, and communication—are given the same strategic importance as the technological infrastructure.

7. Chapter VII: Conclusion and Future Outlook

This master's thesis set out to address a critical challenge at the intersection of digital transformation, organizational design, and human capital management: **How can decentralized organizations in the Swiss construction industry effectively manage digital talent?** Through a mixed-methods research approach, this study has analyzed the complex dynamics of this new industrial paradigm and, in response, has developed **The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF)**. This concluding chapter summarizes the key findings that answer the central research question, provides actionable recommendations derived from the framework, suggests avenues for future research, and offers a final reflection on the broader significance of this work.

7.1. Summary of Key Findings

The research objectives were fully addressed, culminating in a data-driven understanding of the industry's primary friction points and confirming the central hypothesis that **traditional HCM models are insufficient for decentralized, digital-first environments**.

The findings reveal an industry in a transitional **"hybrid" state**, embracing decentralization for its proven benefits in innovation but struggling with its human-centric consequences. A core paradox was uncovered: decentralization is perceived to **improve project efficiency** while simultaneously **complicating talent management**, revealing a critical divide between operational and human systems. This research concludes that talent acquisition has evolved beyond formal HR to rely on **leader-led networks**, while retention hinges on intrinsic motivators like **innovative projects and a strong culture**, not primarily on financial incentives.

Furthermore, a significant **"opportunity gap"** exists between the industry's investment in digital tools and its underinvestment in the **agile methodologies and leadership competencies** required to leverage them effectively. Finally, the research overwhelmingly concludes that while digital tools are sufficient for collaboration, they are inadequate for community building; **strategic in-person interaction is indispensable** for fostering the trust and cohesion necessary for effective virtual teamwork.

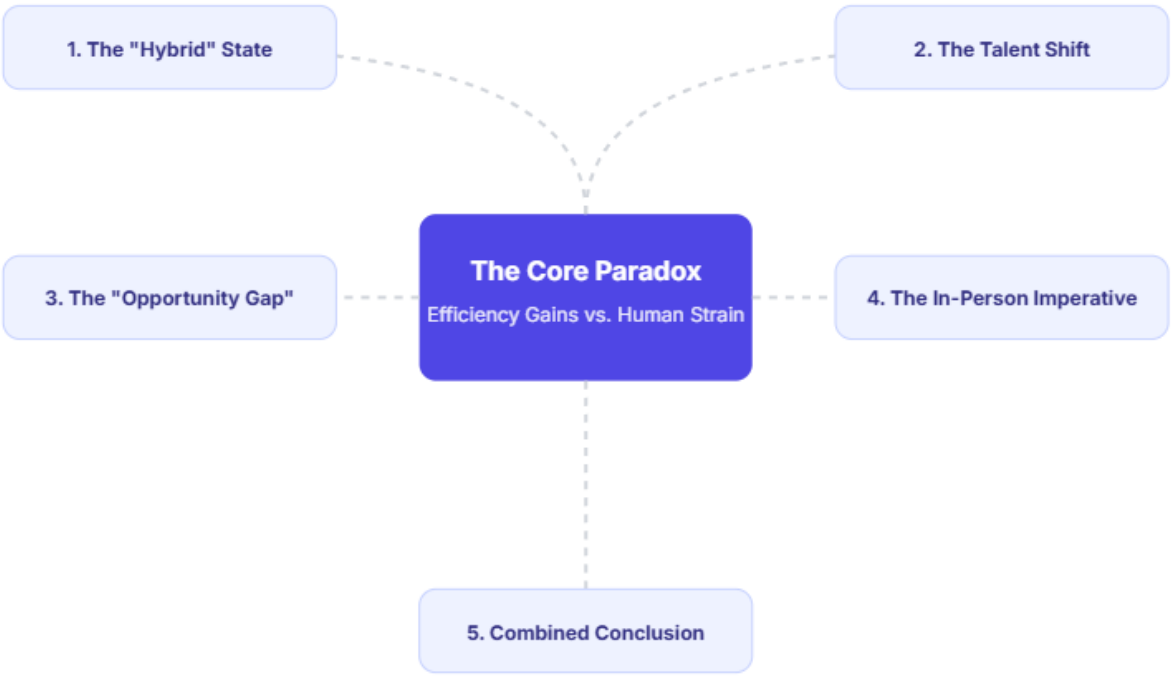

Figure 17: A Visual Summary of Key Research Findings

7.2. Recommendations for the Swiss Construction Industry

To translate this research into a competitive advantage, organizations are advised to adopt **The Integrated HCM Framework for Human-Centric Digital Talent Management (IHC-DTF)**. This requires moving beyond incremental changes to a strategic and systemic implementation of the following actionable recommendations:

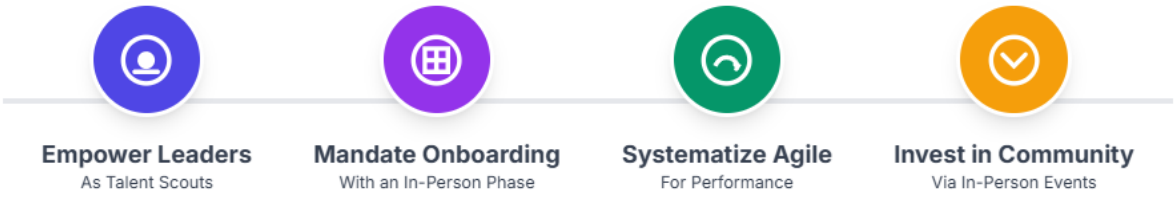

Figure 18: A Strategic Roadmap for Swiss Construction Firms

- **Empower Leaders as Talent Scouts:** This recommendation directly addresses the finding that top digital talent is sourced through informal, leader-led networks. The primary responsibility for talent acquisition must shift from a siloed HR function to an integrated leadership responsibility. CEOs and department heads should be incentivized to view talent scouting as a core competency. Firms must actively invest in the public profiles of their leaders by funding their participation in conferences, industry panels, and academic collaborations. This transforms leaders into "talent magnets" who can tap into the passive candidate market, bypassing the ineffective traditional channels where the competition is highest.
- **Mandate an Integrated Onboarding Process:** To combat the high risk of poor integration and early turnover for remote hires, all new digital talent—regardless of their long-term work location—must undergo a structured onboarding process that includes a mandatory in-person component within the first month. This initial investment is not a social nicety but a critical business process for building long-term cultural cohesion and the foundational trust necessary for effective virtual collaboration. This directly answers the challenge of maintaining a cohesive culture in a decentralized environment.
- **Systematize Agile Performance Management:** To close the "opportunity gap" between having digital tools and using them effectively, firms must formally adopt agile principles for performance and feedback. This means replacing outdated annual reviews with a continuous feedback loop built around agile ceremonies like bi-weekly check-ins, project demos, and retrospectives. This system should be supported by transparent, outcome-based metrics that align directly with the intrinsic motivators of digital talent: mastery, autonomy, and purpose.
- **Treat Community as a Strategic Investment:** To solve the operational-human capital divide, leadership must treat in-person gatherings as a strategic necessity, not a discretionary expense. Firms should budget for and schedule regular (e.g., quarterly) co-location weeks or events. Crucially, these events should be designed specifically for team building, strategic alignment, and cultural reinforcement, rather than routine project work. This is a non-negotiable component for maintaining social cohesion that underpins the entire decentralized model.

7.3. The Future of Talent in Digital Construction

The landscape of talent management in digital construction is poised for significant transformation, influenced by emerging trends that demand proactive consideration. The future will be shaped by three pivotal forces: the integration of generative AI into workflows, the rise of decentralized and project-based talent models like DAOs, and a move towards the hyper-personalization of the employee experience.

7.3.1. The Impact of Generative AI on Skillsets

Generative AI is set to fundamentally reshape, rather than simply automate, the competencies required within the construction workforce. Research from the McKinsey Global Institute suggests that this technology could automate tasks that currently consume 60 to 70 percent of employees' time, adding trillions of dollars in value to the global economy by shifting the focus of automation from manual to cognitive labor (Manyika, et al., 2023). This creates a new paradigm where human professionals act as "co-pilots," working alongside AI to augment their capabilities (Purdy & Daugherty, 2023).

An OpenAI study estimates that approximately 80% of the U.S. workforce could see at least 10% of their tasks affected by Large Language Models (LLMs), underscoring the pervasive nature of this shift (Eloundou, Manning, Mishkin, & Rock, 2023). Consequently, the premium will move to skills that complement AI, such as critical thinking, complex problem-solving, and creativity. This evolution will also spawn entirely new roles, including **prompt engineers** who specialize in communicating with AI, **AI model trainers** who fine-tune systems for specific industry needs, and **AI ethics consultants** who ensure responsible implementation. Organizations must therefore prioritize robust, continuous training programs to equip their workforce for this AI-augmented environment.

7.3.2. The Rise of DAOs and Project-Based Talent

Decentralized Autonomous Organizations (DAOs) are emerging as a potentially disruptive force, offering novel models for governance, project management, and talent acquisition. First conceptualized in the early days of blockchain development (Buterin, 2014), DAO operates on blockchain-based smart contracts that automate rules and decision-making, creating a transparent and trustless environment for collaboration without central authority. This structure functions as a new form of "institutional technology" that redefines how governance and coordination are managed in distributed networks (Davidson, De Filippi, & Potts, 2018).

As blockchain technology and its related organizational forms continue to grow (Hileman & Rauchs, 2017), the construction industry can leverage this model to assemble agile, specialized, and global teams for specific projects. A firm could, for instance, bring together a BIM specialist from one country, a sustainability consultant from another, and a structural engineer from a third for a single project, all governed by the transparent rules of the DAO. This promotes unparalleled flexibility and efficiency but requires a fundamental shift away from traditional employment paradigms. Organizations must develop new strategies to engage with these fluid, project-based talent pools and navigate the novel legal and operational complexities associated with DAO participation.

7.3.3. Hyper-Personalization of Work and Talent Portfolios

The future of work is increasingly centered on individualization, moving away from one-size-fits-all career paths. This trend is a response to fundamental changes in career structures, where the traditional three-stage life (learn, work, retirement) is being replaced by a multi-stage life that demands continuous, lifelong learning (Gratton, 2018). In this new model, individuals curate "talent portfolios" of adaptable skills rather than following a linear career.

To attract and retain top talent, organizations must adopt strategies that facilitate the **hyper-personalization** of work experience. This is a core component of frameworks like Josh Bersin's "Irresistible Organization," which emphasizes creating an environment centered on meaningful work, supportive management, and employee well-being (Bersin, 2019) . Similarly, recent research highlights a necessary shift from a "survive" to a "thrive" mindset, where work is designed around human needs and "**superteams**" of people and technology collaborate effectively (Schwartz, Hatfield, Jones, & Anderson, 2020). This necessitates offering flexible work arrangements, personalized learning opportunities, and customized benefits packages that align individual employee goals with long-term organizational performance.

7.4. Suggestions for Future Research

This study, while comprehensive, opens several critical avenues for further academic and industry inquiry that would build upon its findings:

- **Longitudinal Impact Analysis:** A long-term quantitative study is needed to validate the efficacy of the proposed framework. Tracking firms that adopt the "Integrated HCM Framework" over a 3–5-year period would allow for the measurement of its impact on key performance indicators such as talent retention rates, project profitability, innovation output, and employee engagement scores. This would provide empirical evidence needed to confirm its long-term business value.
- **Cross-Industry Comparative Studies:** The challenges of decentralization are not unique to construction. Future research should conduct comparative studies with other traditional, project-based industries like manufacturing, engineering, or logistics. This would help to identify universal principles of digital talent management and could lead to the development of a more universal framework applicable to any non-tech sector undergoing digital transformation.
- **The Role of Emerging Immersive Technologies:** As technologies like the Metaverse and advanced virtual reality mature, they may offer new ways to foster community and psychological safety without physical presence. Future studies should investigate the potential of these immersive technologies to mitigate the need for in-person interaction. Research questions could explore whether virtual team-building activities in a rich, immersive environment can replicate the trust-building benefits of physical co-location.
- **SME-Specific Frameworks and Adaptations:** This research focused on the industry more broadly. However, Small and Medium-sized Enterprises (SMEs) face unique resource constraints and cultural dynamics. Future research is needed to adapt the proposed framework specifically for SMEs. This would involve identifying low-cost, high-impact strategies for talent acquisition, leadership development, and community building that are feasible for smaller organizations.

7.5. Final Reflections

The transition to decentralized, digital models is not merely a technological challenge—**it is a fundamentally human one**. This thesis has demonstrated that the Swiss construction industry's ability to remain competitive and innovative in the digital economy hinges on its capacity to evolve its approach to human capital. The proposed **Integrated HCM Framework for Human-Centric Digital Talent Management** is more than a set of processes; it is a strategic imperative for building organizational **resilience** and fostering sustainable **innovation**.

By answering the central research question, this work provides a clear roadmap. The conclusion is unequivocal: success in a decentralized future is not achieved by simply investing in better technology, but by investing in a better understanding of the people who use it. By placing the human element at the core of its strategy—by integrating the needs for trust, community, and purpose into its digital workflows—the industry can bridge the critical gap between operational efficiency and cultural cohesion. This ensures it not only builds innovative structures but, more importantly, cultivates the talent and community required to thrive in the future of work.

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    - Qualitative Research Survey Report- Manuel Frey
    - Qualitative Research Survey Report- Miguel Castro
    - Qualitative Research Survey Report- Stephan Siegwart
    - Qualitative Research Survey Report- Urs Wiederkehr
    - Qualitative Research Survey Report- Yoshinobu Adachi

Appendix A: Survey Questionnaire

Section 1: Demographic and Firmographic Information

1. What is your role in the organization?
    - HR Manager
    - Project Manager
    - Digital Talent (e.g., BIM Specialist)
2. How many years of experience do you have in the construction industry?
    - Less than 5 years
    - 5-10 years
    - 11-15 years
    - More than 15 years
3. What is the size of your organization (number of employees)?
    - Fewer than 50
    - 50-200
    - 201-500
    - More than 500
4. In which region of Switzerland is your organization primarily based?
    - German-speaking region
    - French-speaking region
    - Italian-speaking region

Section 2: Organizational Structure and Decentralization

1. How would you describe your organization's structure?
    - Highly centralized
    - Somewhat centralized
    - Hybrid
    - Somewhat decentralized
    - Highly decentralized
2. To what extent do you agree that decentralization has improved your organization's ability to innovate?
    - 1 = Strongly Disagree, 5 = Strongly Agree
3. How effective is communication within your decentralized teams?
    - 1 = Very Ineffective, 5 = Very Effective

Section 3: Digital Transformation and Technology Adoption

1. How advanced is your organization in adopting digital technologies?
    - 1 = Not at all advanced, 5 = Very advanced
2. To what extent do you agree that digital transformation has improved your organization's operational efficiency?
    - 1 = Strongly Disagree, 5 = Strongly Agree

Section 4: Digital Talent Management Questions

1. What are the top three challenges in recruiting digital talent in the construction industry? (Select up to three)
    - Skills shortage
    - Competition from other industries
    - Salary expectations
    - Lack of attractive employer branding
    - Limited career development opportunities
    - Other (specify)
2. How effective are your current retention strategies for digital talent?
    - 1 = Very Ineffective, 5 = Very Effective
3. To what extent do you agree that decentralization complicates talent management?
    - 1 = Strongly Disagree, 5 = Strongly Agree
4. How has decentralization affected your ability to manage projects efficiently?
    - 1 = Significantly Hindered, 5 = Significantly Improved
5. Which digital tools do you use most frequently in your project management? (Select all that apply)
    - Building Information Modeling (BIM)
    - Project management software (e.g., MS Project, Asana)
    - Collaboration platforms (e.g., Slack, Teams)
    - IoT-based monitoring tools
    - AI-driven analytics
    - Other (specify)
6. To what extent do you agree that agile methodologies are effectively used in your projects?
    - 1 = Strongly Disagree, 5 = Strongly Agree
7. How satisfied are you with the opportunities for professional development in your current role?
    - 1 = Very Dissatisfied, 5 = Very Satisfied
8. What motivates you most to stay with your current employer? (Select up to three)
    - Salary and benefits

- Work-life balance
- Innovative projects
- Career progression opportunities
- Organizational culture
- Other (specify)

9. To what extent do you feel that your organization supports your use of digital tools?
   - 1 = Not at All, 5 = To a Great Extent

Section 5: Psychological Safety, Leadership, and Innovation

1. To what extent do you feel that your team encourages psychological safety (e.g., open communication, idea sharing)?
   - 1 = Not at All, 5 = To a Great Extent
2. How would you describe the leadership style in your organization?
   - Autocratic
   - Democratic
   - Transformational
   - Laissez-faire
   - Other (specify)
3. To what extent do you agree that your organization's leadership effectively supports decentralized teams?
   - 1 = Strongly Disagree, 5 = Strongly Agree
4. To what extent do you believe that your organization's decentralized structure fosters innovation?
   - 1 = Strongly Disagree, 5 = Strongly Agree

Appendix B: Qualitative Research Survey: Semi-Structured Interviews

Section 1: General Experiences with Decentralization and Digital Talent Management
1. How has decentralization changed how you work and manage your responsibilities? Please describe specific examples of changes in how you handle project management, communication, or team collaboration. o *Follow Up Question*: "Did decentralization push you to rethink how you align digital talent with project needs?" 2. What key benefits and challenges have you experienced when managing digital talent in a decentralized construction environment? Could you share a specific example of how decentralization has either enhanced or hindered your efforts? o *Follow Up Question*: "Did remote collaboration unlock new talent pools, or complicate retention?"
Section 2: Digital Talent Acquisition & Integration
1. How does your organization recruit digital talent compared to traditional hiring approaches? What challenges have you faced in attracting candidates to decentralized positions? o *Follow Up Question*: "Which specific recruitment methods were effective in attracting digital talent?" 2. What's your approach to onboarding digital talent for decentralized work? Can you highlight a success story or a lesson learned from a tough onboarding experience? o *Follow Up Question*: "Did a virtual onboarding process accelerate integration or miss the mark?"
Section 3: Digital Capability & Leadership Development
1. What training or upskilling programs do you offer digital talent in decentralized teams? How do you make these work for remote employees? o *Follow Up Question*: "Are you using e-learning platforms, tailored workshops, or mentorship programs to bridge the digital skills gap? What other upskilling methods are effective in your opinion?" 2. How do you build leaders who excel at managing virtual, tech-driven teams? What skills do you prioritize, and can you share an initiative that hit the mark—or didn't? o *Follow Up Question*: "Did your leadership program enhance virtual team morale or expose gaps in digital literacy? How effectively do your development offerings support the leadership of virtual digital talent teams?"

Section 4: Agile Performance & Contribution Management
1. How do you deliver ongoing feedback and performance discussions in a decentralized environment? What ensures it's timely and useful for remote staff? o *Follow Up Question*: "Do you rely on digital dashboards, scheduled check-ins, or peer feedback systems?" 2. What rewards or recognition strategies keep digital talent motivated virtually? How do they differ from traditional approaches, and what's the payoff for engagement? o *Follow Up Question*: "Have digital badges, peer shout-outs, or virtual award ceremonies made a difference?"
Section 5: Fostering Virtual Collaboration & Community
1. Which tools power collaboration in your decentralized teams? How do they help—or hinder—communication across locations? o *Follow Up Question*: "Has Microsoft Teams, Slack, or project management software streamlined workflows or created silos?" 2. How do you cultivate a strong virtual culture across distributed teams? What role do values, rituals, or digital spaces play, and how do you gauge success? o *Follow Up Question*: "Do virtual coffee chats, shared goals, or digital town halls keep teams connected?"