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1 Introduction

The COVID-19 pandemic in 2020 significantly accelerated the integration of digital technologies into society and business, compelling firms to adapt rapidly to new demands (Magaz-Gonzalez et al., 2023). Digital technologies have become essential in daily business operations, fostering development and transformation opportunities (Breidbach et al., 2018). Digital transformation (DT) is vital across industries, aiming to revolutionize organizations through contemporary technologies and reconfigure business processes to meet evolving needs (Hanelt et al., 2021; Verhoef et al., 2021 & Vial, 2019).

The sports industry, with its high level of societal integration and cultural prominence, is no exception to the sweeping tide of digital immersion (Schmidt, 2020; Ströbel et al., 2021). However, to fully leverage the opportunities of digitalization, DT processes must penetrate all aspects of the sports business sector in order to unlock the full potential (Magaz-Gonzalez et al. 2023). Sports managers are challenged to serve both the internal and external environment, hereby holistically integrating digital technologies across people, processes, and infrastructure, and engaging the extensive set of stakeholders (Ratten, 2020) in order to achieve transformative changes (Verina & Titko, 2019). Existing research recognizes the multidimensional nature of DT which certainly does not function on a “one size fits all” level. Each sport and organization has unique sets of individual demands requiring sophisticated and specifically tailored processes to undergo digital change. In order to serve these individual requirements, a dynamic set of skills and knowledge are required. These are often referred to as digital, organizational, or dynamic capabilities. According to Breznik & Lahovnik (2016),

by leveraging digital capabilities, organizations can enhance their competitiveness, innovation and foster sustainable growth in today's digital landscape.

Across the sports industry, there is limited research on digital capabilities and their implementation (Merten et al., 2022). Therefore, it is essential to explore the specific implications of DT on organizations. This empirical study focuses exclusively on the German sports market, providing insights into strategies and best practices for implementing digital capabilities effectively to drive transformation. This knowledge can help organizations navigate challenges and opportunities, enhancing the sporting experience and utilizing technology for growth and operational excellence.

1.1 Digital Transformation Frameworks

A large body of research strives to summarize and conceptualize the DT process into one model (Merten et al., 2022), however, to this date there is no universally accepted framework across literature which guides and assists sports businesses in undergoing DT (van Tonder et al. 2020). By examining existing frameworks from various authors and industries (Capgemini Consulting, 2011; van Tonder et al., 2019; Verina and Titko, 2019) the collective consensus is that frameworks aim to capture the elements needed to digitally transform a business model. They suggest various multi-level structures to visualize "what" inputs are needed and "how" to implement them for successful outcomes. Despite differences in detail and structure, all frameworks highlight digital capabilities as essential for DT. Their common goal is to assist businesses and managers in creating value on a digital scale. Across all frameworks, people are identified as the core of transformation and the levers to driving and accepting change.

1.2 Digital Capabilities as Building Blocks to Drive Transformation

Summarizing studies by a multitude of authors (Konopik et al., 2022; Pihir et al., 2019) allows to identify the six most commonly mentioned digital capabilities. Despite industry differences, the following capabilities are defined to be at the core of DT 1.) digitally skilled workforce 2.) organizational culture 3.) digital leadership 4.) customer-centricity 5.) digital infrastructure 6.) innovation (-thinking). These

insights lay the groundwork for the subsequent research aimed at investigating the applicability and implementation of digital capabilities within the German sports industry.

2 Methodology

In order to test the relevance of the theoretical underpinnings extracted from existing literature and to assess the current state of DT within the field of sport, this investigation focused on extracting information from real-life industry representatives. Semi-structured expert interviews served to uncover strategies, patterns, and meanings by analyzing language and verbal interactions (Gephart, 2004). Nine experts from various areas of the sports industry across Germany were selected to offer insights into the implementation of digital capabilities and tools in the context of different sports institutions across Germany. Criteria for expert selection included their digital expertise and active engagement in transformation processes. Experts were chosen from two domains: clubs and organizations at professional and semi-professional level. These were classified by their participation in national and international competitions, offering a diverse set of insights and perspectives. Experts included: five Bundesliga football club DT managers, one Yacht Club manager, one Ice Hockey Club manager, one German Gymnastics Federation (DTB) vice president and one German Olympic Sports Confederation (DOSB) manager.

The final interview guideline comprised 11 questions based on pre-established main themes derived from insights of existing literature on DT strategies. The main thematic subdivisions were: 1) identifying the current state of DT across German sports clubs and organizations, 2) central challenges and barriers to digital change, 3) addressing individual digital capabilities and their implementation strategies (workforce, leadership, organizational culture, customer-centricity, digital infrastructure, innovation thinking), and 4) future predictions and digital trends in the German sports industry. Additional supplementary questions served to tailor the conversation to the interviewees area of expertise and nurture individual responses while staying within the scope of the study.

Data processing involved the transcription and manual editing of the interviews. For analysis, the study utilized qualitative content analysis (QCA) methods as outlined by Mayring (2010) and Kuckartz (2012). This process included developing a categorical code system to identify common themes and patterns across interviews. Deductive codes (C 1-8) were based on existing theory and pre-established interview questions, while inductive sub-codes (C1.1-8.3) emerged from the interview content helping to capture novel insights (Table 1). The computer software MAXQDA24 was used to categorize transcribed text passages systematically into categories. The approach by Rädiker and Kuckartz (2019a) stresses the dynamic nature of the coding system, allowing continuous adjustments and adaptations throughout the process. This involves dynamically categorizing codes and altering the coding system based on the inductively derived contents found in the interviews. Table 1 outlines the established code system:

Deductively Formed Codes	Inductively Formed Sub-Codes	Count
C1 Current State of DT in the German sports industry	C1.1 General consensus	9
	C1.2 Rooted Mentalities & German Tradition	4
	C1.3 COVID-19 as driver	6
	C1.4 Differentiation professional & amateur sport	10
	C1.5 Football as industry frontrunner	9
C2 Challenges and barriers hindering the smooth adoption of DT	C2.1 The lack of knowledge and skills	7
	C2.2 Outdated resources	9
	C2.3 Resistance to change	7
	C2.4 High costs	11
	C2.5 Time	5
C3 Developing a digitally skilled workforce & fostering an organizational culture	C3.1 Holistically integrating all members	11
	C3.2 Importance of communication, education & training	15
	C3.3 Offering flexible & modern work formats	4
C4 Leadership & management approaches to steer organizations towards successful DT	C4.1 Holistic Change Management & cross functional collaboration	13
	C4.2 Flat hierarchies	8
	C4.3 Process Optimization & creating business value	7
	C4.4 Leaders as enablers (exemplary decision makers, motivators & goal setters)	16

	C5.1 Importance of data-driven analysis	11
C5 The role of customer centricity in digital initiatives	C5.2 Understanding the needs of different target groups	11
	C5.3 User-experience and fan engagement touchpoints	9
	C5.4 Effective communication strategies & channels	15
	C6.1 Digital infrastructure for end-users	9
C6 Digital infrastructure & investments made to facilitate DT	C6.2 Digital infrastructure for athletes & training	5
	C6.3 Digital infrastructure for facilities & equipment	6
	C6.4 Digital infrastructure for business	17
	C7.1 Advancing technologies for facilities & systems	7
C7 Future digital trends & innovations within the German sports landscape	C7.2 Metaverse & E-Sports	6
	C7.3 Artificial Intelligence	11
	C8.1 Automation & moving from analog to digital services	6
C8 Crucial steps to undertake to stay competitive and foster strategic advantage	C8.2 Serving the changing demands of new generations without deviating from the core product	9
	C8.3 Investing in data analytics tools & expertise	7
	Total	284

Table 1: Code System: deductively and inductively formed codes

3 Results & Discussion

The first stage of the interviews played a crucial role in identifying the current state, also referred to as the status quo, of DT across different clubs and organizations within the German sports industry. In alignment with findings from Breuer et al. (2018), this investigation revealed that the current state of DT is not yet developed to its full potential. The COVID-19 pandemic emerged as a pivotal catalyst for DT, prompting digital investments and accelerating the adoption of remote work formats (Matz et al., 2022; Ratten & Thompson, 2021). However, the level of DT cannot be assessed equally across the whole industry. The interviews underscored the

importance of distinguishing between professional and amateur sports, highlighting disparities between sports leagues and types. Financial resources were outlined as crucial, with football identified as a frontrunner in DT (Yiapanas et al., 2023), showcasing substantial advancements both financially and digitally compared to other sports. According to the interviews, German Bundesliga football clubs are examples with a high degree of digital advancement.

In the next stage, interviewees identified the complexities, challenges, and barriers in the DT journey. Experts highlighted the time-consuming nature of digital change, echoing Caza (2000). Also, a lack of resources, such as insufficient digital infrastructure, data analytics tools as well as knowledge and skills to implement DT measures effectively were other major obstacles in line with research outlined by Wemmer et al. (2016). Resistance to change was prevalent among employees, fans, and customers, especially in traditional football clubs with older demographics. Lastly, the high costs associated with digital initiatives and limited budgets were mentioned as significant barriers, affecting organizations (Breuer et al., 2018). Interviewees emphasized the interrelated nature of all challenges, highlighting the complexity of facilitating DT within existing organizational structures.

After identifying the status quo and the primary challenges that German clubs and organizations are facing, six foundational capabilities (having a digitally skilled workforce, organizational culture, digital leadership, customer centricity, digital infrastructure, innovation-thinking) across the German sport industry were analyzed. This allowed to uncover how sports clubs and organizations utilize digital capabilities to holistically transform on a digital level. Each of the capabilities was further broken down into inductively formed sub-categories to extend the findings beyond existing knowledge, opening room for the collection of novel insights tailored to the specific requirements of driving DT in the sports sector.

Developing a digitally skilled workforce and fostering an organizational culture are essential elements of DT. These capabilities overlap and can go hand in hand. A fundamental aspect is the holistic integration of all stakeholders into the digital change process. Interviewees emphasized the importance of collaborative involvement and engaging everyone in the DT journey. This approach ensures a

comprehensive adaptation and an inclusive work environment. Interview findings echo the literature, underscoring the need for a "digital mindset" and a clear vision across the organization to create long-term value (Smith & Green, 2020).

Interviewees also stressed aligning with current trends, suggesting recruiting younger generations with innate digital proficiency. Diversity in age and gender among employees is crucial for a well-rounded and innovative workforce. Communication, education, and training are vital for cultivating a digitally skilled workforce (Laundon et al., 2023). This involves comprehensive educational development, transparent communication about organizational initiatives, and hands-on training. Flexible work formats, including home office practices and reducing mandatory in-person office presence, should become standard practices (Ratten, 2020). However, a balanced hybrid approach is essential for maintaining a robust company culture.

Confirming research by Cortellazzo et al. (2019), this study reveals that digital leadership and management approaches are critical in steering sports clubs towards successful DT. Terms such as "change management" and "cross-functional collaboration" are key leadership practices. Flat hierarchies are emphasized as essential for robust leadership. Focus is placed on collaborative approaches, integrating representatives from various departments into decision-making processes to facilitate mutual exchange of ideas (Stana, 2017). Leaders in sports clubs must act as decision-makers, motivators, and goal-setters (Pihir et al., 2019). Interviewees highlighted the importance of a positive and open-minded attitude, embracing new ideas, and focusing on team success. Leaders should aim to optimize processes and create business value by aligning activities with the overall digitalization strategy.

Customer centricity in digital initiatives is crucial for the success of sports clubs. Data-driven analysis enhances services, generates targeted insights, and provides tailored experiences across digital platforms (Fried & Mumcu, 2016). Creating club-owned platforms can control valuable data and track user journeys comprehensively (Konopik et al., 2022). Understanding the needs of different target groups is essential. Therefore, strategic market research approaches, including

targeted surveys and focus group discussions, uncover fan preferences related to shopping experiences, ticketing, and digital tools. Effective data analysis tools are vital for achieving the best user experience. The exploration of communication within the sports sector highlights multichannel marketing as an effective strategy. Communicating across social media, website, and email channels caters to different audience segments, enhancing engagement and ensuring efficient distribution of relevant information.

Digital infrastructure for DT in sports clubs and organizations has multifaceted dimensions, enhancing overall productivity and delivering value. Customized apps and optimized stadium connectivity are critical points, enabling effective fan engagement during events. Digital infrastructure also includes communication platforms, cloud functionalities, business administration tools, and CRM systems. This holistic implementation of digital methods simplifies workflows, facilitates processes, and enhances operational efficiency (Strusani & Hounghonon, 2020). Advancements in sports science and technology improve training regimes and advance engagement with end-users. Innovative monitoring technology in sports is increasingly relevant, utilizing data-driven analysis for understanding sports performance and behavior. A well-rounded infrastructure contributes to the successful implementation of DT initiatives across all domains of an organization.

Lastly, innovation and future-oriented thinking are necessary for clubs and organizations striving to transform on a digital level. Therefore, in line with research by Kramer et al. (2021), exploring digital trends such as the Metaverse and E-Sports is crucial. Active participation in E-sports presents modern ways of expanding business and tapping into state-of-the-art technologies (Cunningham et al., 2018). Similarly, AI is a dominant future digital trend, transforming business processes, sports performance analysis, and beyond (Naraine & Wanless, 2020). Embracing AI in fan-related processes enhances operational efficiency and positions sports businesses at the forefront of the industry. Digital technologies for facilities, systems, and operations, including strategic investments in Metaverses, AI, and digital platforms, reflect a forward-looking commitment to enhancing overall transformation, streamlining service processes, improving efficiency, and driving

forward fan experience. Both literature and interviewees emphasize the urgent need for automation and digitization to enhance operational efficiency and adapt to the evolving digital landscape (Płóciennik, 2021). Balancing the engagement of younger demographics on digital platforms and maintaining the core purpose of live events is a strategic challenge. DT must be prioritized at all levels of a business to maintain competitiveness, adapt to evolving fan dynamics, and capitalize on the benefits of innovations.

3.1 Managerial Implications

This paper fills a gap in literature by utilizing the groundworks of existing DT literature in order to inductively derive new insights and strategies, exclusively tailored to the sports industry. Hence, the findings outlined across the interviews by the respective experts can be utilized to provide managerial recommendations and suggest implications specifically for sports businesses aiming to transform on a digital level. In line with the existing DT frameworks outlined across literature, Figure 1 aims to visualize a structured approach recommending a process that managers of sports clubs and organizations can implement in order to effectively enhance digital change processes. The relevance and applicability of each step within the process model is described below:

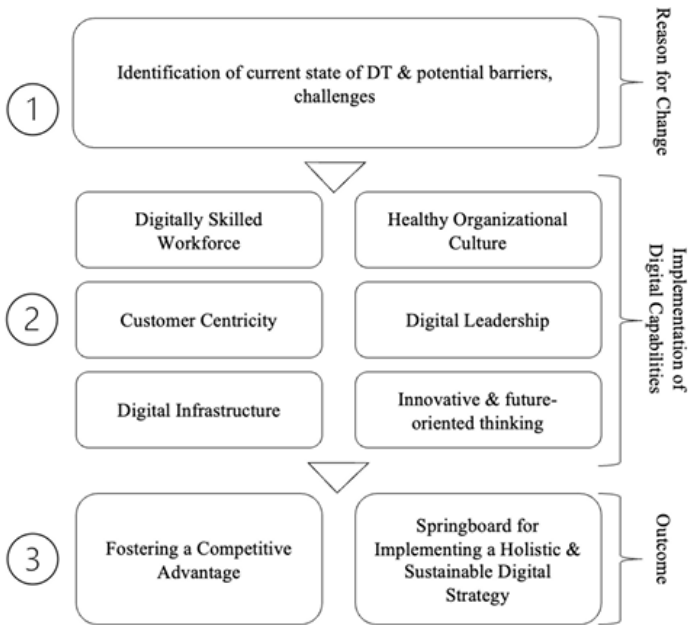


Figure 1: Recommended process for DT in the sports industry

In the first stage, it is crucial for each institution to assess their current state of DT, identify potential barriers that may hinder the implementation, and strategically allocate resources and funds. This initial assessment of the status-quo, coupled with a clearly defined vision and goal setting, enables managers to develop overarching strategies and tailor the implementation of the six digital capabilities specifically to the unique needs and demands of their institution. As a result, knowing how to leverage digital capabilities effectively serves as origin for innovation, enabling sports organizations to adapt to evolving market dynamics and sport-specific consumer preferences, sustainably fostering success and competitiveness in the dynamic sports industry.

3.2 Limitations & Future Research

While the study provides valuable insights into DT in the German sports industry, it has limitations. The nine expert interviews may not fully capture the entire ecosystem, and increasing the number and diversity of interviewees, including stakeholders like customers or fan representatives, would enhance credibility. Additionally, differentiating between experts from various sports can provide insights tailored to the unique demands of specific sports. For example, insights from one sport type may not apply to another. Thus, refining participant selection criteria would allow for more specialized data collection, enabling the creation of strategies to address each sport's specific digital needs and developmental stage.

4 Conclusion

The novel insights derived from the interviews with German industry experts serve as an interesting foundation that can be adopted by sports enterprises or international sports markets. Looking into the future, it becomes evident that the proactive engagement and holistic integration of digital capabilities, along with the exploration of emerging digital technology trends such as AI and metaverses, are imperative for sports clubs and organizations. By staying ahead of the curve, sports entities demonstrate their commitment to fostering innovation, establishing a forward-thinking reputation, and positioning themselves as pioneers in the digital era. Ultimately, the overarching goal of DT is longevity, underscoring the necessity to invest in harnessing digital capabilities to effectively navigate evolving business standards and cater to the demands of new generations, all while preserving the intrinsic athletic, emotional, and communal essence of sport as core product.

Acknowledgement

To maintain anonymity and comply with data protection regulations, the names of interviewees, along with their respective clubs and organizations, as well as any associated quotes, numbers, facts, and detailed corporate insights, are not disclosed in this paper. This study summarizes all relevant findings and experimental outcomes of the original investigation. The original paper contains an extensive list of transcribed interviews and refers to names and quotes of interviewees providing detailed findings. These can be accessed upon request.

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