

Data Usage in Talent Management – Challenges for SMEs in the Craft Industry

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George Thomas, ORCID: <https://orcid.org/0000-0002-6866-2970>

PhD Candidate, Head of Research & Development, Faculty of Economic Sciences, Kaposvár University, Kaposvár, Hungary

Abstract

The main purpose of this study is to analyze the main challenges and opportunities in the context of the use of innovative technologies in the management of talent in small and medium-sized craft enterprises. The systematization of literary sources and approaches has shown that the complexities of talent management processes in the personnel management system are related to the consequences of socio-economic, demographic and climatic changes in society, the activation of globalization processes, and the rapid development of information technologies. The article analyzes the impact of digitization on the talent management process, as well as identifies the main factors that impede the transition of small and medium-sized enterprises to the use of HR software solutions. The study used methods of bibliometric analysis and predictive analytics and selected the activity of small and medium-sized craft enterprises in Germany. Literature research has shown that in most small and medium-sized craft enterprises, the decision to use innovative technology approaches to the process of talent management in small and medium-sized enterprises is the sole responsibility of the company owner. The results of data analysis using software products play an important role in reducing the risk of making wrong decisions, especially in the talent management process. In the course of the research it is established that the use of information technologies of data processing allows to determine the level of qualification of employees, their psychophysiological parameters, as well as to monitor the dynamics of changes of certain professional characteristics. The main threats and challenges arising from the use of information systems with elements of artificial intelligence of data processing, when managing talents, are highlighted in the work. The results presented in this article may be useful for small and medium-sized business leaders to promote the practice of using innovative technology approaches in the enterprise talent management process.

Keywords: skilled labor; digitization; human resources management; small and medium enterprises, talent management.

JEL Classification: J11, J24, M51, M54, L1, L22.



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1 Introduction and Research Problem

Challenges such as sociodemographic change, climate change, globalization, and digitalization or digital transformation impact the modern society and business landscape. Just like other sectors of the economy and society as a whole, handicraft businesses must face up to these challenges. To successfully cope with this, many companies have already made fundamental changes in various business functions and have thus made a significant contribution to solving important socio-political problems (Friedl & Glasl, 2017).

The digital transformation is often discussed in the light of multinational enterprises or IT companies, who are portrayed to be the direct beneficiaries of these developments. However, digital approaches can and do shape business models and strategies of companies regardless of size or field, as Fredriksen and Runst (2016) point out, based on their assessment of the field of skilled crafts. The authors even argue that especially for small companies in this field – who are typically under high competitive pressure, the digital transformation might

open up new chances to compete in this volatile business environment. The field of skilled craft is an exciting industry for the topic of digitization, Bertram and Schaarschmidt (2019) argue, as the technologies used are already heavily imbued with digitization (e.g. smart metering), but communication with employees and customers is largely non-digital.

1.1 Research Problem

The switch from the analogue to the digital world is playing an increasingly important role, especially for tradespeople who are traditionally organized in small and medium-sized companies, Bertram and Schaarschmidt (2019) further explain. This applies to the technologies used (for example, sensors or means of energy-efficient heat generation) as well as the interaction with customers. Craft businesses nowadays typically operate websites and social media accounts to address customers and generate new orders. They mostly use electronic trading platforms for the procurement of their operating materials and goods, and they exchange accounting data with their tax advisors and tax offices via electronic interfaces, the authors further explain. Although a quarter of German craft businesses already consistently use digital technologies such as sensor technology for maintenance, 3D printers or Internet clouds for data storage and more than half use special software to maintain customer data and employee absences, Bertram and Schaarschmidt (2019) still report that there are great reservations, especially in the craft sector when it comes to digitization. For example, in a study commissioned by Bitkom and cited by Bertram and Schaarschmidt (2019), more than half of the respondents stated that digitization is a major challenge for their company. Around a quarter even state that they see the existence of their own company at risk from developments in digitalization.

The present work aims to foster an understanding of how digital approaches in talent management can help small and medium enterprises (SME) in the field of skilled crafts overcome possible problems and which challenges are hindering the implementation of such approaches.

1.2 Methodological Approach

The present paper follows a literature-driven approach. Scientific literature on the topic is reviewed in a critical way, comparing results from various sources and various scientific fields. While the main focus is on articles from the field of human resource (as talent management stems from this field), necessary sources from the fields of leadership, IT and big data, and the social and economic situation of skilled crafts are taken into consideration as well. While chapters 2, 3 and 4 describe the various approaches, the final chapter 5 critically discussed and compares the findings from the literature review. From this, conclusions and recommendations for practitioners are deducted.

2 Big Data & Predictive Analytics

Chen, Chiang, and Storey (2012 p. 1165) highlight the relevance of data usage in contemporary business settings in the headline of their article: “From Big Data to Big Impact”. In this article, the authors point out how the closely related fields of business intelligence and (predictive) analytics were able to shape the business models of not only IT companies but of companies across most fields and business areas. This heavy influence the field of Big Data and its related applications have on the business world leads to Chen, Chiang, and Storey (2012) labelling it to be one of the major technology trends of the 2010s.

Among the typical use cases of big data applications are – among others – the use in business intelligence solutions or as an input for self-learning systems, such as artificial intelligence. The prediction of customer behavior, process optimization, and predictive maintenance are other notable use cases of big data, as Najafabadi, Villanustre, Khoshgoftaar, Seliya, Wald, and Muharemagic (2015) point out. HR management – while less debated than *typical* big data applications are also among the relevant fields, LaValle, Lesser, Shockley, Hopkins, and Kruschwitz (2011) point out.

LaValle et al. (2011) showcase that companies who actively use data and predictions derived from there tend to be more successful than those who don't. The distinction becomes especially clear in the area of HR management – while successful companies tend to trust predictive analytics in this area as well, less successful ones tend to overlook the possibilities that big data has to offer for HR management and trust their experience instead. Thums and Müller (2019) however, argue in a recent work how valuable the usage of predictive analytics can be, especially for the field of talent management as a sub-section of HRM. Predictive analytics, so the authors, can be used to not only evaluate selection- and promotion-procedures but also to guide them.

These analytics can help to select and identify top talents, as which the authors describe the most valuable employees of a company – those high in knowledge, know-how and motivation. Identifying, recruiting and retaining these talents is considered to be one of the core goals for contemporary companies, as Weinert (2017) argues: „Getting the right people with the right skills into the right jobs“ (Weinert, 2017, S. 7)

What Weinert (2017) also points out within this quote is not only to identify top employees but especially those who offer a good match to the demands of the job. Talent management, therefore, has – as the author points out – many aspects rooted in various sectors of HRM. Companies have to identify and attract these highly-talented and valuable individuals (employer branding and recruitment) and retain them within the company. Also, their commitment has to be strengthened, and their development has to be fostered. Talent management, therefore, involves these different aspects and has to aim at developing a holistic strategy for this process. Data-based approaches can strongly help thereby, as Thums and Müller (2019) explain. Data-based talent analyses are based on evidence and therefore tend to be more accurate and efficient, as the authors point out. This goes in alignment with the findings of LaValle et al. (2012) who concludingly remark that data-based approaches tend to lead to more accurate decisions in a more time- and cost-efficient manner.

3 Talent Management

The efficient use of so-called human capital is named one of the biggest and most important challenges of the contemporary economic competition (Gronau & Uslar, 2004). Gronau and Uslar (2004) especially point out the relevance of employees' knowledge and know-how as a critical success factor for companies. This, the authors argue, is especially true as in the year 2004 already more than 40% of all employees in the western world were considered to be *knowledge workers*. Creation and sharing of knowledge are, therefore, among the main goals of companies, Gronau and Uslar (2004) point out. As there is no way to influence employees thinking processes or capabilities actively, the authors argue, companies have to rely on creating a corporate culture and corporate environment that allows for faster and more efficient knowledge transfer to achieve their goals.

Competence or skill management is, therefore, an important task. According to Gronau and Uslar (2004), this is more than a pure database in which the competencies of employees are recorded, but can be viewed as a combination of approaches from knowledge management and HR management. The basis for this is to document the individual skills, competencies, and know-how of all employees, which should be an ongoing process and not a one-off procedure (Gronau & Uslar, 2004).

Chen (2016) describes the process itself as a multi-stage process, which includes the identification, analysis, and design of skills based on job or job descriptions. Building on this, a corresponding learning or further training program is to be created as a further part of skill management, which should then be used throughout the company. According to Chen (2016), successful skill management not only serves the company itself, but also the employees. This enables them to develop a better understanding of what skills and knowledge they need for their activities, how they can acquire them, and how they can subsequently prove them.

It becomes clear in the approach described by Chen (2016) that skill and competence management always have to look at two sides: that of the job and that of the employees, that is, a connection must be made between the job requirements and the employee skills, which is one of the fundamental goals skill management should focus on.

This approach is also described by Ley and Albert (2006), who explain that the identification of necessary competencies and the comparison with the existing competencies of the employees is one of the main tasks of modern HR management systems. This is accompanied by the - even more complex - task of anticipating future developments in this area in order to consider not only those skills that are necessary for current jobs or activities but also future ones. Skill and competence management systems may be able to support these tasks, according to Ley and Albert (2003).

Successful talent management – or even broader: HR management – is identified to be of special relevance to the field of skilled crafts, as Hammermann and Stettes (2016) explain. Overall, around 61 percent of the handicraft companies surveyed by the authors say that the ability to plan and organize as well as independence is a very important qualification for the majority of employees. Companies are particularly often of the opinion that the majority of employees should be able to plan, organize, and act independently (Hammermann & Stettes, 2016). If machines, systems, workpieces, tools, and products are networked with one another in the

course of the digitization process and the data exchange and processing of the information within such a network also take place (partially) automatically, it according to the authors is not surprising that companies under such conditions also do so estimate the importance of technical knowledge relatively high. At the same time, as the authors further point out, only a comparatively small number of companies actively invest in HR activities such as talent management, implying a discrepancy between the identified need for talent and the actions taken, to identify, recruit and retain such talent.

4 Challenges for SMEs

While authors such as Li, Su, Zhang and Mao (2017) argue that the digital transformation of SMEs is comparatively little researched so far, Chen, Jaw, and Wu (2016) point out that especially for SMEs the opportunities opening up through digital transformation and digitalized approaches to business can strongly influence their success. Li et al. (2017) point out in these regards that especially the skills needed for implementing new, innovative, and digital solutions are a crucial factor. Both the leadership team and the employees need to bring the relevant skills and the necessary know-how to foster processes that lead to a digital transformation of companies. While those SMEs stemming from the field of IT typically already have this know-how (Greif, Kühnis & Warnking, 2016), for other companies, this can pose a major challenge that needs to be overcome.

In these regards, Li et al. (2017) also point out the important role the business owner typically takes in when it comes to innovating the company. As there is typically no established position (such as a Chief Digital Officer) for driving innovation and digitization, the responsibility for guiding the company towards the future rests with the owner himself.

However, as Chen, Jaw, and Wu (2016) point out, overcoming these challenges can directly benefit company success. This is further pointed out by Pelletier and Cloutier (2019) who argue, that SMEs need to focus on implementing digital approaches to compete for both on a regional and an international level. The authors explain that modern technologies such as cloud computing offer several advantages here for companies, as they allow for easier implementation of digital concepts. Pelletier and Cloutier (2019) name here the availability of open-source software, secure payment solutions, or various tools for virtual collaboration as major contributors on the way to digital maturity. A wide variety of such tools, the authors argue, can be accessed easily and without major financial burdens, thus allowing for faster and more efficient digitalization.

The actual challenges SMEs are facing in terms of digitization despite the availability of such tools are also pointed out by a study conducted by PwC (Greif, Kühnis & Warnking, 2016) analyzing the situation in Switzerland. The authors of the study found that there is a consistent positive correlation between company size and the degree of digitization. Also, company age correlates negatively with digitization. Summarizing, PwC's findings imply that younger companies are more advanced in regards to digitization, independent of their size. They also often stem from the field of IT or telecommunication themselves, which the authors argue to be one of the reasons for this correlation. However, the growing size of a company also allows for higher levels of digitization throughout the whole business – especially small companies (that do not stem from the field of IT) struggle according to the study by PwC (Greif, Kühnis & Warnking, 2016) with digital implementation principles in their business.

5 Discussion and Conclusion

Bertram and Schaarschmidt (2019) argue that one of the reasons small crafts companies are partially lacking in the area of digital transformation is a lack of available funds. In a highly competitive business field that has a strong focus on the price of the products and solutions offered, investments are typically hard to make. In a similar vein, authors such as Deshpande and Gollar (1994) argue that HR departments are typically underfunded and suffer from a lack of financial resources. This especially influences HR departments' success in digital transformation. As Petry and Jäger (2018) point out, HR departments are typically the least digitally transformed departments in companies.

The present work tried to foster an understanding of the digitization of HR functions in small crafts companies in Germany. Especially the usage of talent management systems was in the focus of the research. This followed the notion of Hogeфорster (2001) and Thomas (2020) that especially in this field, the challenge to find such talents and to retain them is especially prominent. The field is typically not very attractive to

employees, which – as Thomas (2020) was able to show – is partially due to the leadership approaches taken in these fields. But, as Hogeferster (2001) argues, the field of skilled crafts urgently needs motivated and skilled employees, especially in the lights of digitalization and globalization. These two developments add further pressure on small companies, and lead to a heightened need for skilled employees, as Hammermann and Stettes (2016) also point out.

Identifying, recruiting, and hiring such employees is, therefore, one of the core challenges for contemporary challenges, as the findings presented in section 3 show. Digital approaches to the necessary talent management can have long-term benefits for employers, as they do not only allow for better decision making but also more cost-efficient. However, digital approaches seem to be very hard to achieve for this very specific use-case. As both the field (skilled crafts) and the function (HR management) typically suffer from a lack of financial resources, innovative approaches are rather seldom found, Thomas (2020) concluded in regards to HR management and leadership.

This goes in alignment with the findings presented in section 4 of the current work. A study conducted by PwC (Greif, Kühnis & Warnking, 2016) showed that small enterprises often suffer from problems in the field of digitization. Only with growing company size are usually enough resources available to be allocated to innovation in this field. As Bertram and Schaarschmidt (2019) point out, even if digital approaches are undertaken, they typically focus on the development of (digital or digitally supported) products and services and on the interaction with customers. Internal communication processes and typical *back-office* activities such as HR managements that do not offer a measurable financial success often get overlooked. However, as findings from Ley and Albert (2003) or Gronau and Uslar (2004) clearly show, successful HR management is considered to be one of the strongest long-term success factors for companies, regardless of their size. As Hogeferster (2001) points out, this is especially true for the field of skilled crafts, where talent is generally rare. Thus, the major conclusion from the present research is, that small enterprises in the field of skilled crafts need to find ways to make use of the opportunities the digital transformation offers not only when dealing with their customers but also when dealing with their own and potential employees – they are the main resource companies have. Solutions possibly can be found with a gaze towards business process outsourcing that allows companies to outsource important but often time-consuming and expensive activities such as HR management (Willcocks, Hindle, Feeny & Lacity, 2004). While this does, of course, not eliminate the cost, it usually allows for easier planning and avoids the initial and up-front cost of implementing mechanisms in the companies' departments.

However, as discussed in section 4, for small and medium enterprises – such as most in the field of skilled crafts – the push towards innovation and digitization has to be fostered by the owner. Due to the lack of other driving forces such as Chief Digital Officers or strong HR department heads, the decision to innovate and to do so not only in product development but also in leadership and HR management has to be made by the owner, who is seen to be the main force behind innovation in small and medium enterprises. External help, however, external help in the form of consultation can be used to support owners on their way to a successful implementation of modern HR management principles. As Kreuzhof and Rohrlack (2012) point out, that chambers of commerce, for example, can be helpful supporters in these regards. Additionally, Pelletier and Cloutier (2019) highlight the comparatively cheap and easy implementation of various digital solutions due to their availability in the form of open source software or cloud solutions, that do not (anymore) require the implementation of costly infrastructure and rather allow for a focus on strategy.

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