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Faculty of Business Economics

Master of Management

Master's thesis

Automated recruitment in the labour market: a study on the impact of datafication technologies on SME's

Jeroen Segers

Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization Strategy and Innovation Management

SUPERVISOR :

Prof. dr. Patrizia ZANONI

MENTOR :

De heer Jannes ZWAENEPOEL



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Preface

This thesis presents my work on the topic of Datafication Technologies in the Labour Market, which is a qualitative study targeting the smaller players in the region of Flanders, Belgium. In line with my interest in innovation and strategy, this study was written to conclude my Master of Management Program at the University of Hasselt (UHasselt). My research and writing were realised during the first half of 2022, from January until August.

I chose this topic specifically to explore how more traditional and especially smaller organisations are responding to new innovations driven by artificial intelligence and machine learning. Such technologies have the promise of radically reshaping the way that companies function and can be either perceived as an opportunity or a threat. I have a strong belief that any company can benefit from such technologies if this is paired with an appropriate strategy.

The research was challenging and required hard work. Still, together with the guidance of my supervisor and mentor, I was able to complete my data analysis and answer the identified research question. I want to thank my mentor, Jannes Zwaenepoel, and my supervisor, Patrizia Zaroni, for their availability and ongoing support. I also wish to thank the participants of my research who have allowed me to use their insights to conduct my data analysis.

Finally, a last word to my friends and family, who always managed to encourage me during difficult times and helped me regain motivation when it was required. I appreciate you very much and wish you all the best. Special thanks to my parents for their unconditional support and kind words.

Summary

This study investigates the impact of datafication technologies on small and medium-sized labour market intermediaries (LMIs) in Flanders, defined as companies with less than 250 employees. LMIs are becoming increasingly more exposed to new datafication technologies threatening to affect their core business. While larger companies have been heavily investing in the further exploration of datafication technologies, the limited resources of smaller LMIs are forcing them to react in different ways. Based on 14 interviews with managers of smaller LMIs, this study shows that most companies are responding deliberately through sustained practices (improving existing products) by investing in the automation of basic time-consuming administrative processes and the further development of their current services. Only a few are opting for disruptive practices (adopting the new technology into their processes) by pro-actively looking for datafication technologies through external parties that can automate their matchmaking process and change their internal structure towards innovation. Small LMIs targeting low-skill profiles are more willing to engage with datafication technologies due to the threat of digital offices. The other LMIs focusing on higher profiles, incorporating minimal automation into their processes, are confident that this new form of competition will be unable to meet the degree of quality that is required by these segments. This study advances the literature on new technologies in the labour market by highlighting how smaller companies adjust to the changing environment.

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Introduction

Since the 90s, the development of statistical profiling models has been growing and is now becoming increasingly more apparent in the labour market due to increased investments of larger companies and the appearance of smaller HR tech companies (Desiere et al., 2019; Mańkowska & Kamińska, 2021). Recently, digital platforms such as Indeed and LinkedIn that offer labour market services have become increasingly more common and are threatening the profitability of the traditional labour market actors (Kothawala, 2018). These developments are challenging Labour Market Intermediaries (LMI), which are organisations that broker the relationship between candidates and clients to support the job transition of non-standard workers and provide the client with a service for filling their vacancies (Benner, 2003; Lorquet et al., 2018). An LMI's primary source of revenue depends on the quality of the matchmaking and receiving payments from the clients they are providing for. Most LMIs focus their services on a particular type of job profile. More specialised profiles often demand a more personal approach and require higher quality services, while the vacancies for lower profiles demand efficiency and speedy processes (Zeng et al., 2020). An efficient and steady process of allocating the most suited workers to a specific company is crucial for these organisations to maximise profits (Schmitt, 2013). Historically, this work has been done by consultants who spend most of their time interacting with customers and performing matchmaking based on their own data (Benner, 2003). LMIs are, to date, heavily dependent on the work of their consultants, which often requires a lot of time and manpower, which is expensive and results in most of their costs (Johansson & Herranen, 2019).

In order to remain competitive in the market, it is crucial for LMIs to differentiate themselves from platforms that perform matchmaking entirely in an algorithmic manner. An LMI's strengths build upon the human factor by focusing on the relationship between the consultant and the actors on both sides of the matchmaking (Lorquet et al., 2018). The customers are provided with a transparent service allowing them to effortlessly grasp the results of the process and communicate preferences and complaints through the consultant. This is where datafication technologies can further strengthen LMIs. LMIs can use datafication technologies to reduce the workload of their consultants through the automation of many tasks in recruitment services. The co-existence of human consultants and profiling models will lead to a higher quality of matchmakings and will allow consultants to allocate more time towards the maintenance of their interpersonal contacts. Some research on the technology believes that datafication technologies can perform tasks such as matchmaking significantly faster than a human worker while providing a similar or even higher level of quality (Desiere & Struyven, 2021). While there is the initial investment of adopting new technologies into the firm, over time, the automation of these processes will lead to significant cost savings due to the reduction of the workload (Aguirre & Rodriguez, 2017). Another potential benefit of datafication technologies is that automated matchmaking can result in objectively based decision-making (if the data is of high quality), leading to less discrimination (Prince & Schwarcz, 2019). Those

more pessimistic see datafication technologies as a risk in LMIs since the automatically produced results can be based on and reproduce discrimination (Bolukbasi et al., 2016). This discrimination can lead to the misclassification of specific candidates based on factors unrelated to the requirements of a vacancy. Currently, these systems also lack transparency, making it increasingly challenging for LMIs to determine the validity of an automated suggestion (Desiere & Struyven, 2021).

Yet even though the literature on the use of such technologies in the labour market is growing, there has been a lack of literature focusing more specifically on the impact these will have on small LMIs - organisations with a staff headcount of less than 250 (The European Commission, 2022). How datafication technologies are used by small LMIs is not well understood due to limited empirical evidence (Chamorro-Premuzic et al., 2017). Whereas large, prominent players in the labour market have been investing abundantly in the discovery of datafication technologies, smaller players are forced to play catch up. In a continuously digitising world, the resources available to a specific LMI will determine how effectively this organisation will be able to respond to new technologies. This thesis will address this gap in the literature by answering the following research question: How are small labour market intermediaries in Flanders responding to the increased use of datafication technology within the labour market?

Empirically, I will investigate this topic by analysing 14 semi-structured in-depth interviews with managers of small LMIs in Flanders. Recently, the region of Flanders has approved a policy plan targeting specifically smaller businesses with the aim to promote the introduction of new technologies containing artificial intelligence (Vlaamse Regering, 2019). This study examines different smaller players in the labour market with the goal of getting a better understanding of how such firms are responding to the appearance of a new form of digital competition in their domestic market. More specifically, these small LMIs will include staffing and recruiting firms targeting low to medium profiles and also headhunting firms targeting higher profiles. I will be analysing how these organisations focusing on different profiles are utilising sustained and disruptive practices to react to the disruption of datafication technologies. My analysis is based on data collected through qualitative methods and by developing a thematic framework based on the insights found in the literature.

With this study, I contribute to the emergent literature on datafication technologies in the labour market by showing how smaller actors in this industry with limited resources and capabilities are adapting their business models and using external knowledge to remain competitive in a digitalising market.

This thesis will be structured into five parts. First of all, the theoretical framework where the existing relevant literature will be discussed on datafication technologies and their impact on LMIs and smaller companies. Secondly, the methodology of this research will be presented, including the context, data collection and data analysis. Afterwards, the findings of this study will be given where the relevant data will be presented and structured according to the coding tree. Subsequently, the discussion will connect the results to the literature in order to answer

the research question and recommendations for possible further research will be given. Finally, the conclusion will present a brief summary of the goal and contribution of this study.

Theoretical framework

Datafication and new technologies in the labour market

Recruitment companies often follow one of two business models: high volume or high touch. This means either interacting with a high quantity of clients or working more intensely with a small group of clients, providing them with personalised solutions (Zeng et al., 2020). Clients' payments are the primary income source for LMIs, so it is essential to maximise the value that is being given. Datafication technologies allow for the transformation of large streams of social information into quantitative data based on machine learning (ML) and artificial intelligence (AI) in order to create new forms of value for a firm (Cukier & Mayer-Schoenberger, 2013). An example of this is statistical profiling models in the labour market that allow companies to automatically perform matchmaking between clients and candidates without the interference of a human actor (O'Connor & Kelly, 2017). Due to datafication technologies, recruitment agencies can now both pursue a high volume and a high touch strategy at the same time which can result in a long-term engagement with clients. By gathering and analysing increasingly complex client behaviour data, datafication technologies allow firms to create and sustain relationships with a considerably larger number of clients in a more effective way (Sestino et al., 2020). With the increasing investments in new datafication technologies, AI is looking to become an integral part of the recruitment process (Upadhyay & Khandelwal, 2018). LMIs may use datafication technologies to streamline the traditional recruitment process by increasing both the speed and quality of their activities (Johansson & Herranen, 2019). It can even lead to the overtaking of routine tasks that were originally being conducted by human recruiters (Upadhyay & Khandelwal, 2018). Recruiters can use this technology to process large amounts of data in order to locate acceptable applicants (Sestino et al., 2020). Data related to an individual's digital footprint may be used by datafication technologies to analyse a candidate's values, beliefs, and attitudes (Lambiotte & Kosinski, 2014). This allows LMIs to learn more about a candidate's personality qualities and compatibility with the client, making the process more attractive for LMIs due to the wider scope of data being analysed. The use of machine-learning algorithms to translate a person's digital records, i.e., the transformation of one's social media track record into a psychological profile, is one of the most promising advances for measuring talent in a corporate environment (Chamorro-Premuzic et al., 2017). Machine learning algorithms can even use inputs such as digital interviews to make predictions on a person's employability (Winsborough & Chamorro-Premuzic, 2016). These results will be translated into a psychological profile or an estimate of how well this person would fit for a specific role in a company. Digital records provide a company with the benefits of scale, making them a faster and less expensive option than the traditional selection methods. This is due to an increase in efficiency resulting in time savings and production enhancements. Firstly, the automated translation of a person's digital records saves time by not requiring candidates to complete an assessment that may or may not be objectively valid. Secondly, even if this method of datafication did not lead to more accurate results than those of the traditional system, it still

allows the processing of a much higher volume of candidates, which can compensate for their potential lack of having a predictive advantage.

The most recent generation of digital-recruiting tools includes algorithms that aim to synthesise all available data on a prospect (Chamorro-Premuzic & Steinmetz, 2013). In addition to analysing data from every social media platform, these algorithms will process information from news articles, blog posts, e-mails, and anything else that is available online. This will allow companies to locate their ideal candidates before they even apply, focusing exclusively on those with the talents and personality traits needed to do well within their organisation. The implementation of datafication technologies improving talent recognition processes can, conversely, assist more people in finding their ideal working environment. Nevertheless, humans have the advantage of being versatile and capable of capturing many subconscious signals that datafication technologies are not yet able to (Youyou et al., 2015). A human consultant is trained to identify and analyse the behaviour of a candidate throughout the entire process of recruitment. By combining the strengths of both their consultants and new datafication technologies, LMIs can maximise the quality of services that they provide to their clients.

A major argument for the use of AI technologies in recruitment is the fact that it performs its processes in an unbiased manner by objectively analysing the data at hand (Upadhyay & Khandelwal, 2018). A study revealed that such models are, in fact, much more accurate compared to humans when it comes to personality judgments (Youyou et al., 2015). The accuracy of datafication technologies is, however, determined by the quantity of relevant behavioural information that is available (Desiere et al., 2019), leading to the importance of having high-quality data (input) in order to generate the desired results (Geiger et al., 2021). LMIs working with multiple customer profiles are required to have different models of collecting reliable data most suited for a specific type of client. In order to successfully engage with datafication technologies, LMIs are required to spend sufficient resources to adopt these into their organisations but also have the required expertise to evaluate the data that is being processed and make changes where and when necessary (Hartung, 2016). While datafication technologies promote unbiased decision-making, there are many studies that mention how AI systems can reproduce discrimination based on the type of data they collect (Buolamwini & Gebu, 2018; Caliskan et al., 2017; Zuiderveen Borgesius, 2018). Even data that is defined as high quality can reflect existing discriminations and can lead to the automatic imitation of such practices by datafication technologies (Barocas & Selbst, 2018). This demonstrates the importance of transparency of such models and having sufficient resources and expertise available as a company to identify discriminatory data. Research shows that larger LMIs have been investing heavily into exploring and engaging with datafication technologies (Van Landgehem et al., 2021). Still, it remains unclear how small LMIs are finding opportunities to engage with these technologies.

Adopting datafication technologies in SMEs

Small LMIs which are active in an evolving labour market are being faced with technologies that are threatening to change the standardised practices that these organisations have grown accustomed to. Datafication technologies can provide clear benefits to an LMI, but it comes with an expensive price tag requiring sufficient resources and expertise (Zeng et al., 2020). Small LMIs are characterised by a relatively low employee count and have limited resources available for exploring new technologies (Coleman et al., 2016). To get a better understanding of how small LMIs would be responding, this part will look at how SMEs in different markets have been responding to datafication technologies.

While the number of enterprises implementing datafication technologies has grown by 270% in the past four years (Howard & Roswell-Jones, 2019), scholars noticed that there is a substantial disparity in the size of the businesses between those that utilise and do not utilise machine learning (Bauer & van Dinther, 2020). Accordingly, companies with fewer than 500 employees are four times less likely to use machine learning than businesses with a substantial number of employees (Bauer & van Dinther, 2020). Datafication technologies carry the potential of providing SMEs with solutions to reduce their workload and costs significantly, but currently, there is an apparent adoption discrepancy between large and small organisations. It shows that our current understanding of datafication technologies lacks the perspective of SMEs and the adverse effects these can bring to the competitiveness of a market (Robu, 2013). This finding reflects the main challenge that SMEs are facing. They are a lot less likely to adopt new technologies compared to larger organisations due to a lack of resources and capabilities. Most SMEs do not have the necessary human capital available that is required for the identification and implementation of datafication technologies into their processes (Skarpova & Grosova, 2015).

In order for small and medium-sized enterprises to remain competitive, they must be at the forefront of adopting new technologies (Hansen & Bøgh, 2021). The successful adoption of new technologies by SMEs requires an organisational shift towards innovation in terms of their internal structures, managerial strategies, and allocation of resources (Coleman et al., 2016). They should be open to new business models and cover their lack of knowledge by working on their network and performing open innovation (Hossain & Kauranen, 2016). External collaborations, as well as employee initiative, were seen as essential success factors in overcoming this challenge (Bauer & van Dinther, 2020). By reaching out for external solutions, SMEs will be able to improve their overall innovation performance and have access to sources with the required knowledge for adopting datafication technologies.

There are three paradoxes that SMEs must overcome when planning to implement new digital technologies (Pedersen et al., 2021). Firstly, an increasing quantity of data does not necessarily result in a greater quality for the firm. Small and medium enterprises are struggling with using this data in meaningful ways to improve their business practices (O'Connor & Kelly, 2017). There might be data available on almost everything, but not enough data is available to

ensure the success of data-driven projects. These solutions are often company-specific, and imitating a competitor's profitable processes does not guarantee the same results. Implementing datafication technologies requires the necessary knowledge of both the internal processes of a firm and also an understanding of the available solutions on the market (Hossain & Kauranen, 2016). SMEs that lack the resources and capabilities to hire experts will be unable to use the benefits that these systems have to offer. Companies will be required to hire data scientists and machine learning experts to overcome the challenges of increasing complexity (Divkovic, 2021). Even if an SME decides to use its resources to hire such expertise, it will take a long time for those experts to compile the data and select the most effective model properly. The second paradox is that digitisation and datafication technologies are becoming increasingly common in the market, and smaller firms are looking for ways to engage effectively with these. Having a digitised strategy is important, but in order for such strategies to succeed, the solutions have to be created from the bottom (Park et al., 2021). The tacit knowledge and years of experience from employees when it comes to the internal processes of a firm and its limitations, these are the people that can provide crucial insights when adopting new technologies. The third paradox involves the increasing use of data by companies that has resulted in many privacy issues and negative reactions from the customers that these companies are trying to reach. Firms have a lot of information about their clients, thanks to the various data they collect. By utilising such data, businesses can become closer to their customers, allowing for knowledge that results in a more targeted approach to increasing customer value. Getting so close to your customers by using their personal data may scare and drive them to restrict access to their data in the future. SMEs will have to be aware of data protection and privacy laws when exercising analytics on consumers' data (Iqbal et al., 2018). These rules have complicated legal implications, forcing SMEs to surround themselves with a minimum amount of legal knowledge, often done through third-party legal assistance (Coleman et al., 2016). However, as mentioned by previous scholars, this requires resources and capabilities that SMEs often lack.

How small LMIs react to new technologies introduced by competition remains undiscovered primarily due to a lack of research. Yet, in general terms of strategic innovation, smaller companies can use two types of practices to innovate their business: sustained and disruptive innovation. Sustained practices are defined as the act of improving existing products (Christensen et al., 2013). Usually, it is described as a risk-averse strategy where a company focuses on its core competencies and improves these to increase customer utility. Disruptive practices in the literature are processes where smaller companies with fewer resources are able to challenge established companies (Christensen et al., 2013). SMEs can remain competitive by using the advantage of being small and more agile, allowing them to adapt a lot quicker to change and new technologies (Heilmann et al., 2020). It is important to note that these practices are not mutually exclusive. One company could prefer sustained practices but still perform a minimum number of disruptive practices and vice versa. The introduction of datafication technologies in the labour market can be seen as a disruptive innovation. How a small LMI

should respond to this disruption depends on both its motivation and ability to do so (Charitou & Markides, 2003).

Despite the attention in the literature that has been given to how datafication technologies may affect the labour market and how SMEs may struggle to adopt these technologies, there is no evidence on how smaller LMIs are being affected by the use of datafication technologies in the broader labour market. In order to address the gap in the literature, this study asks: how are small labour market intermediaries in Flanders responding to the increased use of datafication technology within the labour market?

Methodology

The context

In recent years the region of Flanders has shown significant advancements towards the promotion and usage of datafication technologies. More specifically, a policy plan for artificial intelligence was recently approved, with one of its aims being to help smaller businesses with overcoming the challenges of new technologies (Vlaamse Regering, 2019). Due to ease of access to resources and the conditions of the environment being aligned with the requirement for this study, this research is limited to companies situated in Flanders. I focused my data collection on a diverse set of labour market intermediaries in the region who play the role of a broker positioning themselves between clients and candidates. These companies are increasingly exposed to datafication technologies introduced by external players in the HR technology market. Over the last few years, Flanders has seen a significant increase in the number of startups that focus primarily on the development of HR technologies. These smaller players receive ongoing funding from both the government and large corporations with the purpose of introducing datafication technologies into the Flemish labour market (Vlaamse Regering, 2019).

In Flanders, there are many small LMIs that all share the same purpose of providing services for jobseekers within the labour market. While they all share a similar goal, these companies often have different approaches and are connected to a personalised network of clients. The processes and matchmaking differ depending on the type of profiles (low, middle or high) that are required by the clients and whether the LMI focuses on a high volume or high touch strategy (Zeng et al., 2020). Importantly for this study is the focus on smaller companies and analysing specifically the impact of datafication technologies on such players. Following the definition of Europe for an SME, I chose only to include companies that have up to 250 employees (The European Commission, 2022). The main driving force in these companies is the consultants who are expected, through sufficient training and experience, to perform accurate matchmaking between clients and candidates. Most of the emphasis is placed on personal connections and the instinct of the consultant, the so-called gut feeling.

Data collection

Between February 2022 and June 2022, I spent four months actively engaging with managers of different Flemish labour market intermediaries. The study is based on a total of 14 in-depth semi-structured interviews with managers of LMIs with up to 250 employees. The companies were selected through purposive sampling with a focus on having a diversity of different LMI types in the sample group (Jupp, 2006). This includes staffing and recruiting firms focusing on different types of low to middle-level profiles but also more niche headhunting firms that target C-level candidates exclusively (see Table 1). This way, the results reflect a much greater representation of the population but have the drawback that some of the findings might not be applicable to a specific type of LMI. Nevertheless, the aim of this research is to analyse the response of smaller firms in the labour market to newer technologies, so this will inherently always include a multitude of different smaller actors.

Table 1. Interviews with small LMI managers

Interviews	Gender	Employees	Type	Profiles
<i>Manager 1</i>	Male	200	Staffing and recruiting	Low
<i>Manager 2</i>	Female	135	Staffing and recruiting	Low
<i>Manager 3</i>	Male	118	Staffing and recruiting	Low to medium
<i>Manager 4</i>	Female	4	Headhunting	High
<i>Manager 5</i>	Male	18	Headhunting	High
<i>Manager 6</i>	Male	68	Staffing and recruiting	Low to medium
<i>Manager 7</i>	Female	240	Staffing and recruiting	Medium
<i>Manager 8</i>	Male	150	Staffing and recruiting	Low to medium
<i>Manager 9</i>	Male	15	Headhunting	High
<i>Manager 10</i>	Male	29	Headhunting	High
<i>Manager 11</i>	Male	157	Staffing and recruiting	Medium
<i>Manager 12</i>	Male	9	Headhunting	High
<i>Manager 13</i>	Male	180	Staffing and recruiting	Medium
<i>Manager 14</i>	Male	27	Headhunting	High

After having contacted the companies and coming to an agreement with a select few, I was put into contact with the manager for the interview. After having explained the objectives and methodology of the study, we agreed on a date to either have an online meeting through Google Meet or a physical interview at their location of choice. On the date itself, common ethical guidelines concerning informed consent were followed, and the interviewees were guaranteed full anonymity throughout the entirety of this study (Creswell, 2012). Any names used in this study will therefore be pseudonyms. The participants ranged from CEOs of recruiting companies to managers responsible for a specific region. Overall, there were 11 male and three female participants that covered a broad age range and had varying backgrounds.

Interviews were divided into four parts: job description, datafication technologies, change management and impact on SMEs. The questionnaire was based on the information found in the literature. The interviews lasted between thirty to ninety minutes, depending on the interviewee's time and amount of information shared. After having received permission, the

interviews were audio-recorded and transcribed verbatim. The conversations with the candidates and the transcript were all in Dutch, but the analysis of the data was done entirely in English. The parts of the transcript that will be used in the findings section will be translated.

Data Analysis

All qualitative data were analysed in NVivo 12. The data analysis identified strategies and methods that managers of smaller labour market intermediaries are undertaking to remain competitive in the increasingly growing data-driven market. A summary of the different categories and subcategories of the data analysis and the coding tree is provided in Figure 1.

In the first stage, I focused on identifying fragments related to how these companies are responding to datafication technologies and how extensively they have already been engaging with them. I also included data that shows how existing practices have evolved due to datafication technologies and in what manner smaller companies are interacting with external sources. The way the codes were named and used was based on the literature and conversations with the candidates, eventually to be structured into a thematic tree. As to be expected, it was apparent to me after going over all the datasets that the management of these companies reacted noticeably differently to this new revolution in ways of engagement. After having gone through all the datasets, 185 fragments were found relating to strategies and methods that had direct and indirect relevance.

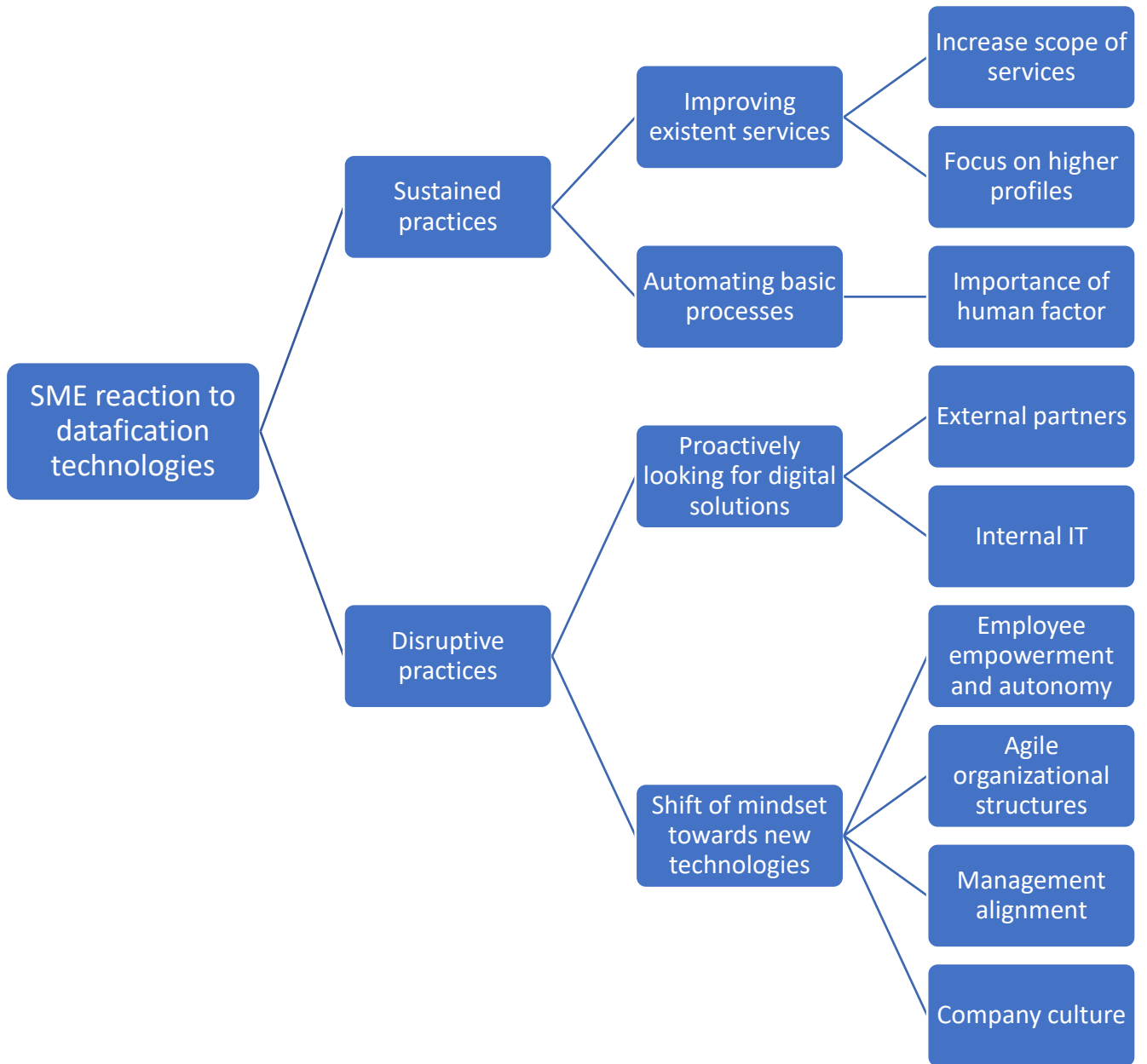
In the second stage, an iterative process of analysis was performed on the fragments with the purpose of breaking down the collection of fragments into core themes (Wicks, 2010). The identified fragments were categorised along two approaches advanced in the literature. These were being used by the participants and are directly related to the amount of risk one was willing to take. The first approach involves sustained practices (97 fragments) where companies value their existing business highly and focus on their core competencies. The other approach is the disruptive practices (88) that are characterised by embracing change and aiming to be ahead of the market (Christensen et al. 2013).

In the third stage, these two main approaches were further dissected into subcategories following a similar approach to the previous stage. The first 97 fragments focused on either: 1) improvement of existing services within the companies (36) and 2) the automation of basic processes. Following this, the second set of fragments (88) got subdivided: 1) proactively looking for digital solutions (58) and 2) a shift of mindset toward new technologies (30). These are the four main subcategories that could be found for this data analysis. I then returned to my dataset in NVivo and used this to perform a final analysis based on the found subcategories and the literature. This led to the emergence of third-level codes relating directly to specific factors that these managers have focused on when responding to the new environment (e.g. increase scope of services, focus on higher profiles).

Finally, when looking at the different practices that are being used, it is apparent that all companies are adopting sustained practices in some form—both by automating basic processes and focusing on the improvement of existent services. While all companies are trying

to look for digital solutions proactively through external partners, this is mostly done without a shift of mindset. Only four of the fourteen companies focused on a shift of mindset when engaging with new digital solutions.

Figure 1: The coding tree



Findings

Respondents indicate that external triggers in the labour market have forced them to rethink their business models and revolutionise their traditional practices. They observe that the Flemish labour market has grown accustomed to years of stagnation in terms of their core business processes, and this has led to risk-averse management. Regardless of the type of LMI, every player has felt the impact that new technologies such as datafication bring to traditional markets. While there is a unanimous agreement that the introduction of artificial intelligence and machine learning into the labour market will require adjustments, the way in which small labour market intermediaries respond varies. Smaller LMIs have been opting for different strategies that can be defined as either sustained or disruptive practices. The findings will be divided into two sub-sections covering both types separately.

Sustained practices of small LMIs

Automating basic processes

The narratives of the managers showed that there is a strong restraint of the small LMIs and often ignorance about automation resulting from artificial intelligence and machine learning. This is despite the fact that SMEs have already actively been automating many of their processes in the recruitment of candidates. This was stated clearly by most of the participants:

"I think we've automated everything we can automate right now. Actually, if we're in doubt based on the resume, I think that the screening really doesn't last long (non-automated screening). That's a matter of 5 or 10 seconds. I think you may have heard that from other people too, that is. We don't sit and stare at a resume for 10 minutes. No, really, in 5 or 5 to 10 seconds, we can say whether it will work or not." – Manager 3 targeting low to medium profiles

"Especially if you look at our sector, eh. All the tasks that we actually let technology take over, everyone is unanimously very satisfied with that because it concerns repetitive things that nobody really likes to do. Yes, they have much more time for the qualitative tasks. I believe that is a win" – Manager 6 targeting low to medium profiles

In these quotes, it is clear that the automation of basic processes is allowing SMEs to transfer their (often limited) resources toward more important tasks. The introduction of new technologies is allowing even smaller players to upgrade their existing administrative and basic recruitment processes. Although the tasks of employees are being overtaken by computer systems, in these cases, automation actually has a positive effect on the employees. The benefits of new technologies are certainly being recognised by these SMEs, but most remain reluctant to make the transition towards datafication technologies:

"Partly a fan of it, but then it's about the real basic use of new technologies. So, related to the basic processes. So, I am talking about searching for CVs and delivering them to the consultant perfectly fine, but the real recruiting work is actually done by the consultant because matching is all about sensing the cultures of companies that candidates could fit into" – Manager 13 targeting medium profiles

"I will give you an example. Last year I brought in two new customers here, who said to me: 'Okay, our current partner has automated most of its services, to the point that we no longer speak to a job adviser but to a recorded telephone tape. We are being redirected seven times by this automated system, and there is no more personal contact.' Those people don't want that." – Manager 8 targeting low to medium profiles

The managers emphasised the distinction that has to be made between automating basic processes with the aim to reduce the time spent on repetitive, tedious tasks and the overtaking of the recruiting work by artificial intelligence. The uses of datafication technologies for recruitment are still limited, and as larger firms started experimenting with these, it became apparent that the majority of clients and candidates in the labour market are dissatisfied with being redirected to a machine instead of being connected to a consultant directly. According to the managers, this is because the recruitment business has always been characterised by the relationship between the consultants and the customers (clients and candidates).

Importance of human factor

Playing the role of a broker and being a consultant comes with a significant number of responsibilities. Poor judgement and a lack of experience can lead to poor quality matches and will have a direct effect on the profitability of an SME. Recruitment offices are aware of this and value the quality of their consultants highly. When asking several managers about their reservations towards datafication technologies and the importance of the human factor, they gave the following answers:

"And it is especially the change that people have to go through that is a very difficult one. You need to have faith in the system, that the system has done what is right, but you can't control what the system has done at all. That's what it comes down to, and you notice that suspicion, especially with us, so also that matching, for example. Yes, if the system says this is a match. You should actually assume that that is a match, while as a human, you actually want to look at yes, but why did the system see that there is a match? And if you then start looking at machine learning and AI, yes, you will never figure out the why. And that's a very difficult one. I think that is a very serious change that you have to go through as a person." – Manager 1 targeting low profiles

"It's all about those soft skills. I think that with technology, you can match a lot on the

basis of experiences, knowledge, the hard skills, but contrary to these, the soft skills. Just to give you an example, when you make a physical appointment here with a candidate at the office. And he arrives 5 or 10 minutes late. Then that is an indication. The way someone enters is an indication, and you miss all that if you automate it and those small nuances, they make the difference in the end.” – Manager 8 targeting low to medium profiles

A major reluctance towards artificial intelligence is the lack of transparency that it is currently bringing to a recruitment office. While a manager can thoroughly evaluate the decision-making of a consultant through conversation, unless they have a background in machine learning or robotics, it will be impossible to comprehend the underlying algorithm used for that specific match. Currently, matchmaking done by consultants allows for much more transparency, especially for SMEs lacking the resources to hire internal experts. Secondly, while an essential part of matchmaking is based on evaluating past experiences and achievements, the managers clearly expressed the significance of soft skills. The act of having a physical interview with a candidate can carry a lot of weight for the consultant when figuring out the profile. Reading the candidate in front of you by analysing their behaviour is something that is difficult to make tangible and transform into data without the interference of a human being.

Improving existent services

Another competitive reaction of SMEs is the focus on improving existing services. In terms of innovation, this is perfectly in line with the term sustained innovation. This strategy aims to react to disruptive innovation, in this case, datafication technologies. The SMEs are hoping to overcome this new disruption by improving their own businesses. A few managers clearly expressed the importance of enhancing their existing services:

“A significant amount of my time goes to screening each business unit and focusing on what they have accomplished in the past week and what they should focus on in the coming weeks. Where should they make improvements, how do they position, what goes wrong, what goes right? Where can we help them further? This is something that gets reported weekly to the management for all entities” – Manager 2 targeting low profiles

“It is occurring increasingly often that we don't have a vacancy yet, but we do have a candidate. And that is a very important way of working for us, in which we also distinguish ourselves from many of our competitors. If we come across a candidate who is looking for work, but we don't really have a vacancy that fits, we proactively look for a vacancy. I think that is a really important improvement that we made.” – Manager 6 targeting low to medium profiles

Even though the managers are aware of new technologies that could automate their core businesses, they still are constantly looking to improve their own current services. This is done in a structural yet traditional manner where the manager collects and analyses data him- or herself. According to the manager, this usually leads to incremental improvements, which is one of the main aims of this SME that focuses heavily on marginal gains. The Flemish labour market is becoming increasingly competitive, so the managers are looking for opportunities to differentiate their services. There were multiple occasions where the managers shared that candidates switch jobs increasingly faster and that it is becoming more challenging for recruitment offices to keep a high customer retention rate. This resulted in an increasing focus of these SMEs on additional services for candidates. Instead of simply keeping the profile of a candidate in the database and waiting for a vacancy to open up, some recruitment companies now proactively look for external vacancies that are not in the system yet.

Increase the scope of services

These new services are not only targeted toward the candidates. Managers of SMEs are using different strategies to attract both clients and candidates:

"I think there is a very big opportunity there and we have the advantage from our business that we are also involved in training. In fact, recruitment is only one-fourth or one third in some periods of our business. The other part is focused on training. This way, we can also show our clients that training people, no matter how experienced they are, always has benefits. And this way you can often convince candidates to choose you, not another company. So yes, that is something we will continue to focus on." – Manager 3 targeting low to medium profiles

"Today, many customers have certain expectations that no longer correspond to reality or the current market. It is very difficult to find good people, so we are going to coach those companies in that, too. We will also do job coaching. That is, the job advisor assigned to that company who is going to handle a file. They go on-site and will pretend to be working there for a few hours. This way, we can analyse the context from that position. What are the nuances here? What is the behaviour of colleagues, what is the atmosphere on the work floor? This is a great benefit for our clients and candidates." – Manager 10 targeting high profiles

By increasing the scope of services offered and not exclusively focusing on the recruitment processes, these businesses are able to increase the value of their services for both the candidate and the client. Regardless of new technologies that could disrupt the existing business, being able to provide candidates with additional training or proactively engaging with clients to create a more accurate cultural profile are excellent practices to sustain your business further. The value of such services carries a lot more weight for the medium to high profiles,

where each transaction has a higher return, and interpersonal relationships are of greater importance.

Focus on higher profiles

During the conversations with the managers, occasionally, the topic of profile differentiation emerged. There is the potential that especially the matchmaking for lower profile segments has a high probability of becoming fully automated in the near future:

"It is a threat to a very large part of our industry as well. For those who are still working in a more traditional way, it is a threat because there are certain types of recruitment that could easily be completely taken over by technology. I always refer to the low value as compared to the high-value recruitment. Yes, there's going to be a certain part of the market that disappears, and those companies that aren't looking for new opportunities, they're going to see the consequences very quickly, yes." - Manager 6 targeting low to medium profiles

Recruitment firms focusing on lower profiles of candidates are facing a risk that the further growth of artificial intelligence in the HR market can lead to a new form of digital competition. Vacancies that require limited hard skills and neglectable soft skills will require little to no human interaction. The automation of such services will lead to increasingly smaller margins that companies will be able to earn. Proactive SMEs have already been preparing for this upcoming revolution by changing their target audience:

"Other profiles, the higher profiles, will always require a more personal approach. That's my feeling because there are also larger investments involved. And there you will always want to have that quality check of your candidate, but also on the vacancies you work with and so on. Managing clients will always remain something human. The sales process and account management which is essential in our business. Keeping the relationship with the customer as short as possible. You will never have that with a full digital offering." - Manager 9 targeting high profiles

"The second part of our digital strategy is indeed that we are going to focus on the more, not on the very low-skilled but on the medium-high-skilled or medium-skilled profiles, and that is something we are actually looking into a lot more at this very moment." - Manager 2 targeting low profiles

In these quotes, the managers are elaborating on the importance of having consultants involved when working with higher profiles. As the requirements increase for a specific vacancy, so does the expected quality of assessment from the clients towards the recruitment firms. In order to keep attracting higher-profile candidates and clients, managers of SMEs are confident

that the human factor is crucial and will never get entirely replaced. SMEs currently focusing on lower profiles are actively looking to adjust their customer portfolio in the future. A transition towards more niche and specific profiles will be necessary for companies lacking the resources to compete in a digital market.

Disruptive practices of small LMIs

A shift of mindset towards new technologies

Several managers targeting middle to high profiles are feeling confident that datafication technologies will be unable to disrupt their market due to the requirements of strong customer relationships. On the other hand, managers who work with clients searching for lower-profile candidates are feeling significantly more pressured to respond proactively to this transformation. Some smaller companies are differentiating themselves and using this new technological wave to their advantage. One of the managers explained how it is, in fact, the smaller companies and not the large corporations that are becoming increasingly more competitive in current times:

"Now, without being too pretentious, our main competitors in terms of recruitment technologies are really not among the big players. Many of those big players have really fallen asleep in recent years, and our competition there comes mainly from the small and medium-sized segments (...) She (CEO of a large HR firm) is also a very strong believer in technologies, so she buys any startup she believes in and takes a majority share. So that is, of course, also a strategy that we cannot follow as a small player. But if you then see, well, she does not succeed in introducing those new technologies into her own employment agency, and that also simply has to do with the way of working in those companies." – Manager 6 targeting low to medium profiles

Larger firms within the labour market have been investing heavily into internal research over the last few years in order to adopt artificial intelligence and machine learning practices into their own processes. While new technologies are slowly entering the market, it is apparent that these larger firms are struggling with the actual implementation of datafication technologies into their existing systems. Managers often mentioned that it is difficult for small players to keep up with the new trends. Another manager of a small LMI shared that artificial intelligence is a core component of their business model, and despite the heavy investment of larger companies, their SME managed to be one of the first to incorporate datafication technologies in the Flemish recruitment sector.

Management alignment and company culture

It seems that an important factor that is currently holding back many smaller players is a mindset shift towards wanting to engage with new technologies and the willingness to take risks:

"Before this shift, we were, what can I say? More restrained, and that was due to the fact that the CEO was also not that interested in new technologies. Hey, that man is 58 years old and do note we are still a family business. He made two of his family members co-CEO. These are younger people who are interested in the evolution of technology. And partly because of that, we did make that shift, yes." – Manager 7 targeting medium profiles

Many smaller labour market intermediaries were established before a time when digitalisation was dominating, and traditional practices were still the norm. The struggle that these SMEs are now facing is that they are too accustomed to old habits and are often reliant on an older generation of management. The quotation above talks about the importance of shaking up the system and involving younger generations in the management to align the c-level executives of a firm in terms of new technologies so this can stream downwards into the rest of the firm. This can be directly related to the importance of a technology-driven company culture within small LMIs as a disruptive practice:

"But I guess it also has a lot to do with culture. We have a bit of a Silicon Valley culture in our company. In a sense, people who sit with us are people who love change. Those are not people who are afraid of: "Ah no, there is another new system coming up". We really embrace that, and that is super important, yes." – Manager 6 targeting low to medium profiles

"Yes, folks out here, I told you before. People who start to work at our company know that too. They also know that's a big part of our company culture, so we're always very motivated and excited when new technologies are introduced." – Manager 1 targeting low profiles

Managers targeting low to medium profiles are using the benefit of being small and agile to adjust their company culture towards innovation. This allows them to attract young and talented employees that are motivated to work in such an environment. An important reason for this is that it is much easier to diffuse new technologies throughout a small firm than it is for a large established corporation:

"I dare say when we started in 2015, that we were one of the first to work with AI and ML in this way consciously. Naturally, there are many large players, such as Randstad worldwide, who have set up their own academies to work with HR tech. The big advantage that we have had as a small organisation was that it was much easier to introduce, and that was also in the DNA of everyone who started with us." – Manager 6 targeting low to medium profiles

The technological vision of the company, in this case, is already apparent before a possible employee applies for the job. Managers want to be as transparent as possible with their goals and vision of the company. This allows them to attract people who share the same values and are hungry for change.

Employee empowerment and autonomy

Management is responsible for making the company culture apparent, but this requires a team below them that is compatible with these ideas. The next step that managers are undertaking is the empowerment and autonomy of their employees. Recruitment firms are no longer only targeting consultants that have sufficient recruiting experience but are looking for profiles that can make autonomous decisions related to digital solutions. The following quotes are illustrative:

"When we bring in new employees into the company, one of the requirements, we are no longer looking for the classic recruiter profile that only makes matchmaking between candidates and vacancies. We are really looking for people who also have the capabilities and digital skills to interact with those systems." – Manager 10 targeting high profiles

"It is our recruiters who decide whether we bring in a particular technology or not. That has been a big advantage for us. A problem for many in the sector is that a lot of technologies get adopted by a firm, but they end up removing these after a year or two years. In my opinion, this is simply due to not involving the employees in the decision-making. These are the people who have to use it every day. I think that's a very important part of our strategy." – Manager 6 targeting low to medium profiles

In these cases, the managers highly value the input they receive from their employees. A common issue that emerged from the fragments is that some SMEs do, in fact, adopt a high number of new technologies into their systems but end up removing most of them due to a lack of added value. This leads to the problem that managers become hesitant to adopt new technologies in their companies. Managers that have known a high success rate in terms of implementing datafication technologies emphasise the importance of a decision-making process involving all relevant actors related to the process that is looking to be automated. These actors can give crucial input that the management is overlooking simply by being constantly engaged with the business processes.

Agile organisational structures

In order to maximise efficiency, the manager said that it is crucial that the organisational structures also allow this type of cooperation:

"When we want to launch a new tool, it is actually pushed downwards. With us, if we

identify certain matters and we see an opportunity that could be interesting, then we always start a working group, a project group with the people who work with it on a daily basis and who ultimately also make the final decision: do we go with this? Continue to work or not.” – Manager 6 targeting low to medium profiles

Another point of importance is the introduction of dynamic organisational structures allowing smaller LMIs to be proactive in a changing environment and hereby have a higher probability of introducing beneficial technologies. In this situation, whenever the company identifies a new opportunity for the firm, a project group is created consisting of all the employees related to the process that this technology is looking to support. In an agile manner, this group will be able to identify the value-added of this technology and decide whether or not to implement it. Afterwards, this project group will be dissolved.

Proactively looking for digital solutions

One way that companies are identifying new opportunity areas is through organising focused workshops, namely hackathons. The strategy of such events is to involve external parties that can bring in new technologies and look for ways to incorporate these into an LMI's business. Reaching out to external partners for expertise is crucial for smaller LMIs who lack the resources and experts to create solutions in-house. Nevertheless, even larger players have been transitioning from an in-house approach to an open innovation strategy where they use external players to bring in the new technologies:

“We have been organising hackathons. This is a contest where we define specific challenges and then organise an event in which all startups and smaller players can make their contributions to possible digitisation. We want to continue doing this with as a goal to improve our existent processes but also to see how we could incorporate new technologies such as AI and machine learning into our business and hopefully find new business opportunities.” – Manager 8 targeting low to medium profiles

“It is important right now that you invest your time and resources in new technologies in order to become successful. In Belgium, there are few companies that really realise scale-ups. I think in order to be successful in the future, we will have to be proactive and look for ways to implement datafication technologies into our business.” – Manager 11 targeting medium profiles

Here, both managers value the exploration of new technologies highly. The manner in which SMEs are allocating their resources is becoming increasingly important for their survival. According to them, the current labour market in Belgium is focusing too much on short-term gains, while the current market state requires companies to have long-term strategies prepared in order to deal with the new forms of competition.

External partners

When asking managers for their reasons for working with external players, respondents indicated that these are crucial for the competitiveness of a small LMI:

"SMEs will have to enter into partnerships. We don't have to have all that knowledge internally. We also tell our customers, look, our core business is recruiting, and that is not yours. Well, regarding our partners, it is the same. IT is not our core business. We are simply forced to work with experts for this reason." – Manager 1 targeting low profiles

"We were the first in Belgium to start working with this partner back in 2016. Meanwhile, there are a lot of our competitors who have switched because they have seen how successful this system is. Currently, this partner has more than 2000 international developers working. We receive weekly product updates from that partner. Yes, that's not our core business, so that market is changing so quickly, and today we have a head start on the market. But if we don't do anything in the next two years, we will be middle of the pack within two years, or we may be lagging behind. We simply cannot finance these things ourselves in-house." – Manager 6 targeting low to medium profiles

The managers of these SMEs are aware of their own limitations and are compensating by engaging with external players. From the data, it was shown that all respondents are reaching out to external solutions in some way. The difference among them is the frequency and the scope of services that they are outsourcing. While some are dependent on external players for basic IT and recruitment software, others have already been engaging with specialised HR tech providers that focus on artificial intelligence and machine learning in specific areas of recruitment. In terms of competition, recruitment firms are forced to cooperate with external players. Time is of the essence, and designing technologies right now as a small LMI will most likely put you even further behind on the market. On top of that, external parties often have access to an extensive portfolio of experts who can be responsible for multiple SMEs at once:

"On the other hand, we had a vacancy open for a year looking to hire an internal BI expert, and you just don't find those people, and the wages at these HR tech firms are so high compared to the wages we can offer. And, yes, that is the reality at the moment. You can probably get lucky and hire one of them, but you can't keep them either. They are gone after 6-7 months." – Manager 13 targeting medium profiles

Even when a company is willing to hire an internal expert, it is often unrealistic to find a qualified person for the job. The successful HR tech firms have been receiving investments from the larger players, and this allows them to attract young talent through a higher budget and growth

opportunities.

Internal IT

While it is apparent that engaging with external players is currently a core strategy of most SMEs, the due diligence of doing extensive field research and finding technologies that are compatible with the current systems is crucial. A few of the managers emphasised the importance of investing enough resources into their internal IT:

"There should always be a combination of both sides. It's not just the partner or just us. In my philosophy as an IT manager, it is mainly the fact that the business's added value must come from IT. The commodities must come from the partner, such as installing that technology and ensuring that it continues to run. The added value happening, thinking about the reports and what we can do with them should be done internally. Implementation should then again be the partner, for example, so I make a very clear distinction between yes, what time do we have to invest in it from our internal resources and what do we actually get out of it." – Manager 1 targeting low profiles

"On the other hand, it is also important to invest internally in IT so that we have a clear channel for our partners. We hired someone for that role. Currently, he focuses on graphic design and creates training material for us. He also has a technical perspective and keeps an eye on everything and is now also working on the renewal of our server infrastructure, for example." – Manager 3 targeting low to medium profiles

In the excerpts, managers mention the importance of an internal IT department. When adopting datafication technologies into their businesses, the technology does, in fact, come from an external player, but they also invest sufficient resources into their internal IT department to make sure that these employees are sufficiently trained to be able to analyse the results and understand the applications. These managers are strategically limiting the influence that external partners have in the process of implementing new technologies to ensure that their internal IT have opportunities to strengthen their expertise and be able to recognise new innovative solutions ahead of time.

Datafication technologies have had a clear impact on the decision-making within many small LMIs. While most organisations, especially those targeting the middle to higher profiles, have been opting for sustained approaches by improving their existing products and automating basic processes, there are a few that have been shifting their internal organisation towards innovation through disruptive practices. The threat of automated matchmaking has shifted the mindset towards datafication technologies in small LMIs targeting lower profiles to survive this upcoming disruption. These firms are becoming increasingly dependent on their external network to provide them with technological solutions.

Discussion

This research investigated how smaller labour market intermediaries are responding to the increased use of datafication technologies within the Flemish labour market. This was done by questioning managers of smaller LMIs on their decision-making process related to the presence of datafication technologies and analysing how their business has changed and to what extent they are still planning to evolve in the future. The purpose of this study is to get a better understanding of how smaller players are reacting to disruptions in a market, in this case, the introduction of datafication technologies, which are being primarily driven by larger players in the industry and smaller tech companies that have a clear advantage in terms of resources and knowledge.

Our research shows that there is currently a strong resistance amongst a majority of the smaller LMIs towards the adoption of datafication technologies and therefore have limited to no AI incorporated into their business processes. These firms are confident that the importance of the human factor will remain to be a vital part of the recruitment process (Youyou et al., 2015). While there is significant evidence that digital-recruiting tools are becoming increasingly more complex and will be able to mimic a large part of a human consultant's practices, the scepticism of users towards new technologies remains to be strong, and the lack of transparency from AI-based decision-making is resulting in slow adoption of datafication processes by the smaller players in the labour market (Caliskan et al., 2017). The findings show that most organisations are opting for a risk-averse strategy as a response to digital offices that have been making their appearance in the market (Chamorro-Premuzic & Steinmetz, 2013; Schmitt, 2013; Youyou et al., 2015). These digital offices are threatening the existence of smaller LMIs by excluding the role of a consultant and hereby being able to drive down the price to an unsustainable level for the physical offices. Risk-averse companies are responding to this new competition by investing resources into practices that focus on increasing the benefits for the client and widening the scope of their services (Johansson & Herranen, 2019).

Our findings show that the introduction of these new technologies resulted in noticeable changes to the strategies that these mostly traditional companies have been opting for. Most small LMIs are responding by sustaining their ongoing business practices and differentiating from the competition by automating existing basic processes and changing their focus to practices that require humans because they build relations with parties (and thus will be less impacted by datafication technologies) (Christensen et al., 2013). Others attempt to react to the disruption by introducing datafication technologies into their own recruitment processes (disruptive practices). The small LMIs active in the Flemish labour market can be classified according to the type of profiles that these organisations are targeting. The SMEs engaging with low-profile vacancies are feeling substantially more vulnerable to the appearance of digital offices due to the decreased importance of interpersonal relationships required by such clients. My findings show that the lower profile segment of companies is engaging with datafication technologies ahead of time as a reaction to the competitive threat that these innovations are

posing to them (Hartung, 2016; Zeng et al., 2020). These companies have been adopting a mix of sustained and disruptive practices. On the other hand, the smaller LMIs targeting the medium to high profiles, where relationships with clients and candidates are more central, are currently investing limited resources into new innovations and are confident in their present recruitment processes.

While previous research has focused on the competitive advantages of datafication technologies in the labour market, allowing companies to both perform high volume and high touch strategies (Schmitt, 2013; Winsborough & Chamorro-Premuzic, 2016; Zeng et al., 2020), my results demonstrate that smaller LMIs focusing on a niche market, more specifically the higher-profile segments, are feeling significantly less vulnerable to the appearance of datafication technologies. Incorporating limited automation into their processes, these smaller LMIs are confident that AI-driven matchmaking will be unable to provide the quality of services that their clients are expecting in terms of recruitment. Consultants of such SMEs are proactively engaging with clients on a personal level integrating into the company and using their expertise to construct an extensive assessment providing additional quality to the matchmaking process that, without a human consultant, would require the client to do their own assessments to reach the same level of quality. Risk-averse LMIs are currently mainly focusing on the adoption of technological solutions that aim to overtake the routine and time-consuming tasks of the consultants (Upadhyay & Khandelwal, 2018). This digitalisation, mostly consisting of robotic process automation, has recently been receiving basic layers of artificial intelligence and machine learning. Currently, the appearance of datafication technologies in these risk-averse LMIs is limited and remains mostly unused.

The intensity at which an SME is able to adopt new technologies depends on the company culture and internal structures. My research shows that only a very limited number of companies are seeing the emergence of datafication technologies as an opportunity to move ahead of the competition. They are adapting their internal structures and broadening their external network to react to the disruption ahead of time (Heilmann et al., 2020). This illustrates the importance of studies on corporate governance and the impact it has on innovative performance (Jia et al., 2019; Shapiro et al., 2015). My findings show that smaller LMIs who have been actively promoting a technology-driven company culture and attracting autonomous, innovative employees are more likely to have productive experiences with datafication technologies. My findings show that smaller players who adapted their internal structure are progressively finding new opportunities to identify solutions and engage with datafication technologies. An increasing number of external players on the market has allowed smaller companies to much easier allocate their resources through reduction of the workload and providing them with much-needed technological expertise. Smaller LMIs are aware of their limitations in developing in-house datafication technologies and are dependent on specialised partners to provide them with these solutions. On the other hand, collaborating with these actors has required smaller LMIs to redirect a significant part of their budget towards innovation. This

has allowed these organisations to build up an extensive portfolio of external players and use the benefits of being small and agile to much quicker diffuse new strategies and technologies throughout their business (Leten & Van Dyck, 2012). My findings show that in the current labour market, small players can, in fact, become disruptive through an open innovation approach and are able to take a competitive position in the market (Martincevic & Kozina, 2018). The smaller LMIs engaging with datafication technologies emphasised the importance of investing adequate resources into their internal IT. External partners should be responsible for the provision of technologies, but it is important that the added value of the innovations is being established inhouse (Christensen et al., 2013; Heilmann et al., 2020). Consultants, whose focus has always been on the relationship with client and candidate, are now required to make a shift towards a new way of working, carrying additional responsibilities. Identifying compatible AI solutions requires the involvement of a multidisciplinary team involving relevant actors to receive all the necessary input (Bauer & van Dinther, 2020; Hansen & Bøgh, 2021).

It is beyond the scope of this explorative study to give a full-fledged strategy for SMEs on how to engage with datafication technologies successfully, nor does it provide statistically representative results of how the whole SME market is responding to them. The purpose of this study was rather to form a better understanding of how smaller players accustomed to traditional practices are responding to datafication technologies. The importance of these findings is that even in a market as traditional as the Flemish labour market, small players are discovering new opportunities to engage with datafication technologies without needing to be supported by larger players. While it is too early to say how severe the impact of these technologies will be on the market as a whole, the importance of smaller players as a driving factor for the spread of new technologies is growing (Müller et al., 2017; Abosede et al., 2016).

The Flemish labour market is a market reluctant to adopt new technologies and therefore has a slow diffusion process (Gollakota & Doshi, 2011; Long et al., 2016). Currently, it is unclear how extensively these technologies will push the market forward, but as more LMIs are starting to invest in digital solutions, customers will grow increasingly accustomed to these practices (Martincevic & Kozina, 2018; O'Connor & Kelly, 2017). Over time this presence is likely to grow, and further research should be done on the impact of datafication technologies on smaller organisations, especially those targeting medium to high profiles. Also, as an increasing amount of small LMIs is exploring the benefits of new technologies, a more focused sampling approach could be used, including exclusively companies that are actively engaging in disruptive practices. In the future, as datafication technologies become more standardised in HR practices, it could be interesting to perform further research on the success factors of small LMIs and study the intensity in which these players have adapted their practices to function more effectively in the evolved market. While the importance of the human factor in these practices is up for debate (Caliskan et al., 2017; Jarrahi, 2018; Youyou et al., 2015), it is still unknown how extensively these technologies will be able to penetrate the core business of recruitment offices. Where

exactly the balance will be situated in terms of the involvement of a human consultant in the automation process has yet to be identified.

Conclusion

This research set out to better understand how small labour market intermediaries who have been active in the labour market for years and grew accustomed to traditional practices of personalised relationships with candidates and clients are responding to a new disruption of datafication technologies introduced by digital work platforms and larger, well-established corporations. I found that many small players within the labour market have already started engaging with these new technologies on a fundamental level. The intensity at which these small LMIs identify and adopt datafication technologies highly depends on the type of profiles they target and the willingness to change ahead of the market. While the true potential of these technologies remains generally unexplored, it is only a matter of time before the benefits of such systems become more transparent and the scepticism of the userbase vanishes in favour of automation.

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