

Digitalisation and temporary agencies: Impact on the business model and internal organisation

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ABSTRACT: This study investigated the potential impact of upcoming technologies on the business model of temporary agencies, as well as the required organisational changes to effectively digitalise. Although this research does not focus on temporary agencies in hospitality specifically, the outcomes underline previous research undertaken by others on the future of hospitality jobs, in which for example artificial intelligence-driven technology is identified as a disruptor in the labour market. For this research, semi-structured interviews were conducted with industry experts and digitalisation experts. The main findings of this study are that technologies like artificial intelligence (AI), the Internet of Things and blockchain will have a large impact on temporary agencies – mostly on back-office processes, which will be made more efficient and less labour intensive. To effectively digitalise, cultural elements are of importance, such as a strong customer centricity and well-defined change management trajectories. Additionally, C-level executives (e.g. CEO, CFO, COO, etc.) diversity, digital savvy and willingness to invest are key elements. The positive effects of digitalisation should be clearly communicated: it will make work more fun, easier, and it will free up time to spend on human contact and teamwork. The key to success is adopting the opportunities that digitalisation brings, but making a difference by building true human connections.

KEYWORDS: artificial intelligence, company culture, digital developments, digital transition, flexible workers, new technologies

Introduction

Temporary agencies

This study underlines previous research undertaken by others on the future of hospitality jobs. In this research, for example, AI-driven technology is identified as a disruptor of the labour market (El Hajal & Rowson, 2020). In the Netherlands, agency work has grown rapidly in the past decades (Koene et al., 2006). There is a clear difference between "standard" employment contracts (which can be either open-ended or limited-duration) and the construct of temporary agency work. Bergström and Storrie (2003) call this "contingent employment", meaning that an employment relationship can be terminated within a set period of time, at minimal costs.

In the case of temporary agencies, there is a formal contract between an employee and a temporary agency, and between a temporary agency and an end user, but not directly between the end user and the employee. It allows workers easy access to different work experiences and allows them to combine work with other life choices and responsibilities. By using agency work, businesses can quickly find new workers and easily expand human resources when needed (World Employment Confederation [WEC], n.d.).

"Variable frequency" is an important driver for temporary

work (Koene et al., 2006). Working with agencies can be appropriate for jobs that are temporary, with unexpected peaks, high seasonality or economic cycles.

Digitalisation and temporary agencies

There are some examples of (platform) companies active in temporary staffing that use digitalisation to their advantage. Syft (based in the United Kingdom) uses algorithms to connect hospitality employers to flexible workers. Workers are employed by Syft, and through an online platform they choose when they want to work and at which location (Syft, 2020). Dutch company Temper takes it even further, making their workers self-employed freelancers and only providing the platform to match freelancers to employers for temporary jobs. Employers pay a fee per hour worked through Temper, in addition to the payment of the freelancer (Temper, 2019).

The rise of companies like Syft and Temper left traditional temporary agencies with concerns. The Dutch association of temporary agencies sounded the alarm in 2019, pointing out that platforms operate like agencies, but are barely regulated and do not pay social security contributions. Additionally, they mentioned how platform workers are not insured and do not build up a pension entitlement. Platform companies, on the other hand, see their role merely as a "bulletin board" (Leupen, 2018).

In 2018, ING banking group released a publication which stated that temporary agencies, employment agencies and payrolling companies could lose 20% to 70% of their market to digital platforms within the next decade (ING, 2018b). Whether this number will be closer to 20% or to 70% depends on two factors: the speed of technological development and the flexibility of labour law. ING state that they see (large) players in the temporary sector developing their own platforms, but they question whether traditional companies will be able to compete with the platforms.

The main aim of this study is to investigate the potential impact of digitalisation on the business model of temporary agencies, as well as the required organisational changes to effectively digitalise.

By investigating the impact of digitalisation on the business model of temporary agencies, depth is added to existing research on digitalisation and its impact on organisations. This study provides a more tailored approach for temporary agencies, looking beyond platform business models and exploring the impact of specific technologies on the business model.

Literature review

The business model of temporary agencies

To provide an accurate overview of the current business model of temporary agencies, the business model canvas as determined by Osterwalder and Pigneur (2010) was used as starting point. Key elements of the business model in the context of this study are outlined below.

Value proposition

The value proposition of temporary agencies can be summarised as delivering staffing solutions to various types of customers. Their services vary: temporary staffing, payrolling, training, recruitment and selection, career transition, project-based workforce solutions and talent management, among others (Manpower Group, 2019; Randstad, 2019; The Adecco Group, 2019). In the case of temporary staffing, the focus of this study, companies provide staff to clients on a temporary basis. This provides flexibility, as the focus is on "helping clients to structure and manage their workforce for flexibility, productivity and growth" (The Adecco Group, 2019, p. 41).

Customer segments

According to Koene et al. (2006), "variable frequency" is an important driver for temporary work. In their opinion, working with agencies can be appropriate for jobs that are temporary, with unexpected peaks, high seasonality or economic cycles. Large temporary agencies have developed dedicated labels for specific industries like health care, IT, transport, hospitality or logistics. There are also niche players that focus on one specific customer segment.

Key resources

The key resource for any temporary agency is people. This is a challenge in today's world, with an ageing population. Across Europe, there is a projected decline in the working-age population of 10% by 2020 (WEC, 2016), and in the Netherlands over 50% of temporary agencies consider the lack of workers a challenge (ING, 2019). Temporary agencies are therefore increasing their activities to recruit and retain workers.

Key activities

The key activities of temporary agencies entail finding workers (supply), finding clients (demand) and matching them through a planning process. This leads to invoicing the client and paying the worker. At the heart of the process lies matching: finding the right candidate for the client. Randstad (2019) provides a detailed overview of its matching process in the company's annual report.

Triggers for change

In May 2018, ING bank in the Netherlands released a report on platform companies in the staffing business. It mentions three competitive advantages of platforms: (1) they lower transaction costs; (2) they provide insight into quality by using a rating system; and (3) they make pricing dynamic (ING, 2018a). The report outlines how platforms can potentially perform better on recruitment and selection (through algorithms), as well as on relieving customers of time-consuming tasks when it comes to administrative matters (contracting, payments and hour registration).

These platform companies are key examples of companies working in the "gig economy", "using digital platforms to connect customers and freelancers, to provide short-term services or asset-sharing" (Charlton, 2021).

The World Employment Confederation states how "rapidly growing online platforms have created a new marketplace for work by unbundling a job into discrete tasks and directly connecting individual sellers with consumers" (WEC, 2016, p. 26). They identify a "hyper-connected workforce" as a key trend, with new technologies allowing much more flexibility in terms of work. The WEC encourages a level playing field between new business models and traditional business models, to "ensure that the dynamic potential of the sharing and collaborative economy is not hindered by strict and outdated rules", but also to "ensure a level playing field between labour market intermediaries" (WEC, 2016, p. 27). Their message for temporary agencies is clear: there is an urgent need for digitalisation, which goes beyond simply adopting "platform thinking". To truly remain competitive, companies need to think ahead and be willing to embrace how digitalisation can aid them in running their business efficiently and effectively.

Digitalisation

"Digitalisation is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business" (Gartner, n.d.). It was named as one of the "key trends for the future of work" by the WEC (2016).

For this study, the "essential eight" emerging technologies determined by PricewaterhouseCoopers (PwC) (n.d.) are used. Researchers analysed over 250 emerging technologies for their business impact, potential to become mainstream, growth potential and commercial viability. This resulted in eight core technologies being expected to have the most impact on business. These are artificial intelligence (AI), augmented reality (AR), blockchain, drones, the internet of things (IoT), robotics, virtual reality (VR) and 3-D printing.

Organisational impact of digitalisation

Organisational culture

Duerr et al. (2018) stress the impact of organisational culture

on digitalisation efforts in a company, even speaking of organisational culture as an obstacle in adopting digitalisation. They define five artifacts of effective organisational culture in digitalising firms: (1) cross-functional teams, ensuring transparency and collaborative decision-making; (2) physical and virtual collaboration (allowing to collaborate regardless of business unit); (3) "dual structures" (parallel development of breakthrough innovations and improvements of existing business); (4) external collaboration (collaborating more extensively with start-ups, with partners and even with competitors); and (5) a strong focus on customers, "integrating customers into the innovation chain and external collaboration" (Duerr et al., 2018, p. 5130). Besides these five visible products of organisational culture, Duerr et al. (2018) also identify a set of beliefs and values of successful digitalising firms: a start-up mentality; a culture where failure is accepted; employees that embrace digital skills; and mutual decision-making (at lower levels in the firm).

C-level executive

The Chief Information Officer (CIO) plays a vital role in the board of the future, as they are expected to lead the digital business strategy in formulation and execution. According to Gottlieb and Willmott (2014, p. 2), "CEOs and other C-level executives – CIOs in particular – are devoting more of their personal attention and are more directly involved in digital initiatives now than ever before".

Furthermore, research by Cortellazzo et al. (2019) defines multiple skills that characterise leaders in the digital era, including high-speed decision-making, managing disruptive change and managing connectivity. Scott et al. (2017, p. 5) give further insight into changes of the roles and requirements of leaders. They state that "the vast majority of leaders identified agility (91%), authenticity (openness and transparency) (87%), emotional intelligence (86%), and the ability to embrace diversity (84%) as the most important capabilities for leaders in the future".

Employee competences and capabilities

In their study on the implications of digitalisation for job descriptions, competencies and quality of working life, Rintala and Suolanen (2005, p. 55) define competence requirements as "skill demands that the employee needs to obtain in order to successfully perform the job description". PwC (2018) elaborates on the required competences and capabilities for digitalisation, emphasising how digitalisation results in a greater need for social and creative intelligence, as well as innovative capacity, cooperation and problem-solving capacity. Although the need for specific knowledge remains, it seems to be surpassed by the need for social and creative intelligence. Interestingly, STEM skills (science, technology, engineering and mathematics) are not in the top five of important future skills mentioned by the respondents (although they form the basis of most technological innovations, according to PwC).

Quality of working life

Rintala and Suolanen (2005, p. 55) define quality of working life as "the employee's subjective psychological experience of all aspects of work, which is determined by the proportion and relevance of work-related stress and well-being". Their research shows that people in certain roles (particularly specialised roles

whose job descriptions changed as a result of digitalisation) experienced "a heavier workload, feelings of isolation and decreased job security" due to digitalisation (Rintala & Suolanen, 2005, p. 54). They state that learning to use new technologies is also related to employees experiencing stress. In particular, insecurity and fear were brought on as a result of having to learn and meet new competence requirements (Rintala & Suolanen, 2005).

The PwC Global Digital IQ Survey (PwC, 2017, p. 17) shares this conclusion and states how digital work is taking a toll on employees, "from burnout related to constant connectivity to the fear (and reality) of losing jobs to disruptive new competitors and automation". The advice is clear: organisations that combine the adoption of technological changes with a personal approach to their employees will win.

Methodology

This study follows an exploratory approach, linking findings of a literature review and field research to answer the research questions. A qualitative study was conducted in the form of semi-structured interviews, covering three themes: the business model of temporary agencies, upcoming technologies and their potential impact on the business model of temporary agencies and the organisational requirements related to digitalisation. These three themes link back to the main research question: "What is the impact of digitalisation on the business model and internal organisation of temporary agencies?".

The sample universe consisted of two types of respondents: industry experts from temporary agencies and experts in the field of digitalisation. The industry experts had at least 10 years of work experience at a director or senior management level and represented a mix of companies and segments. The digitalisation experts had at least 10 years' experience with digitalisation, either as an independent expert or in a corporate role.

The intended sample size was 16 respondents: eight industry experts and eight digitalisation experts. A combination of two sampling techniques was used: purposive sampling and snowball sampling. The final sample consisted of 15 respondents, seven digitalisation experts and eight industry experts, who were interviewed between November 2019 and February 2020. It is important to note that this study took place pre-COVID, and that the pandemic has had quite a large impact on temporary agencies, particularly those active in hospitality.

The chosen data analysis strategy for this study was template analysis. This entails thematically organising and analysing textual data, resulting in a list of codes (King, 2004). One of the reasons that template analysis was chosen is that it works well when comparing the data and perspectives of two or more groups in a specific context (King, 2004; King & Horrocks, 2010). A priori themes were used as a starting point for this research. The interview questions were based on the themes and sub-themes of this model as defined via literature research. To start the template analysis process, an initial template was defined, entailing a first overview of the codes that were used in the coding process. Waring and Wainwright (2008, p. 2) mention three approaches to start template analysis: "using predefined codes based on the theoretical position, developing codes after exploration of the data, and taking a half-way position by using some initial codes and refining them". For this research, the last approach was chosen. Themes that were

mentioned by a minimum of 25% of the respondents were included in the final template (Butterfield et al., 2009). In some cases, themes were mentioned by over 25% of the respondents in one of the two groups of respondents, but the theme was not mentioned by over 25% of all respondents. Some of these themes have still been included in the final template because they were considered of added value to this research (Butterfield et al., 2009).

Results and discussion

Business model

To describe the business model, the literature research used the business model canvas by Osterwalder et al. (2010) as a starting point. All respondents were asked to discuss the current business model, after which industry experts were asked how they expect the business model to change in the future.

With regard to the value proposition, respondents identified a need for temporary agencies to have specific knowledge and to act proactively as a result of increased competition in the temporary staffing market. Although the majority of industry experts believes that the core of the value proposition will remain unchanged (matching supply and demand), the scope of temporary agencies is expected to change. The industry is expected to become more solution focused by including more services around labour and thus unburdening clients. This might result in a rise of contract types, such as self-employment, besides fixed and flexible contracts.

A potential rise in self-employment also stems from the shortage in the labour market, which is expected to increase as a result of the shrinking labour force. Respondents indicate a loyalty issue with staff and a challenge to recruit and retain flexible workers. The new generation is aware of the fact that they are in demand and want to work on their own terms, focusing on money and convenience. Although the triangular employment relationship will continue to exist, employers are expected to shift their focus from clients to workers, including training and educating them.

Participants mention how revenues are closely related to the economic cycle, leading to increasing or decreasing demand. Some participants mention how it was "too easy" to make money in the past, resulting in a lack of innovation. As a result of the rise of payroll and platform companies, there is now pressure on the margins. This is also the case for large players, who are battling for volume and losing profit margins as a result of it. It is considered increasingly difficult to become a large player as a temporary agency.

Growing is incredibly hard. The 10 million turnover mark is difficult, but 50 million turnover is extremely difficult. Reaching that in a profitable way, with satisfied clients, workers and own employees, is almost undoable. We have around 14 000 temporary agencies in the Netherlands and the top 100 represents over half of the market. So there are 100 companies that have a combined revenue of 18 billion, and then there are 14 000 that also do 18 billion turnover. (Respondent IE6)

When exploring the future of the business model, respondents state how technology and digitalisation will make key activities and processes run more efficiently. Linking this to revenue streams, some respondents proposed that temporary agencies should either charge higher prices or work more efficiently, while

other respondents argued prices should be lowered as a result of digitalisation. Generally, respondents believe that dynamic pricing is part of the future business model as a result of varying wages and potentially varying service models.

Although some respondents saw platforms as a threat (how much value will a temporary agency still have?), most doubted the future of these business models. The main reason for this is the fact that governments will likely undertake action, as platforms are unfair competition, sometimes undercut prices and might not follow safety regulations. Additionally, governments might take action to protect self-employed workers (as has already happened in the UK with Uber drivers). Several respondents state how temporary agencies could support self-employed workers more or better than platform companies do, as platforms merely want to match supply and demand.

So what we need to do going forward, if we want to compete with these people, is create a process that is similar to the process that they have, which is the digitalisation process, but have the ability for us to add our magic. – Respondent IE3

Respondents also underline the importance of human connection in the future business model. They stress that if digitalisation is done well, it can enable more human connection: "high tech strengthening high touch". The less that temporary agencies show the added value of this high touch and human connection, the more disruptive digitalisation can be. A temporary agency acting as "agent" for a temporary worker, supporting them in building a portfolio and helping them transition between different types of jobs, can become a truly unique selling point (USP) for temporary agencies.

Industry experts seem very focused on the value proposition (delivering staffing solutions), key activities undertaken to deliver that value (the matching process) and the key resources that are needed (people). When describing the future, they take the customer into consideration. They expect an increased need for strategic partners and niche players. Major influencing factors on the future business model are described by the literature as well as by industry experts. These factors are the shortage in the labour market and the rise of the gig economy. Both literature and field research show how work is becoming increasingly flexible, how workers have changing demands, and how technology allows for more flexibility. The rise of the gig economy can therefore be seen as both a threat and an opportunity. Most industry experts believe that the true added value of temporary agencies remains on the people side. They see an opportunity for temporary agencies, because they expect them to be able to support self-employed workers much better than platforms can (who do not want the hassle).

Digitalisation

Digitalisation was extensively discussed with the industry and digitalisation experts, resulting in a concise overview of impacting technologies for temporary agencies, as well as risks associated with digitalisation. In the analysis below, only the most impactful technologies are included.

Impacting technologies

Artificial intelligence is considered the most impactful technology on the business model of temporary agencies. It encompasses multiple technologies, among which are machine learning, natural language processing and voice recognition.

The main impact of AI will be supporting staff in carrying out their activities more efficiently, optimising matching of supply and demand and supporting (career) development of temporary workers in a more personalised manner. Potential applications mentioned were using AI in interviewing processes, using voice recognition (speech to text) to operate planning systems and having AI take over part of the initial application process. Not only can AI optimise the match between supply and demand, it can also identify profiles and determine which types of workers are a match for a specific agency. Metrics like reliability (will someone show up) and expertise (is someone suitable for this job) can also help determine the perfect match.

During template analysis, augmented reality (AR) and virtual reality (VR) were combined in one theme. Respondents mostly see added value in the training environment, where AR and VR can help prepare workers for assignments (giving a realistic view of the job, location and activities), train them for certain technical or people skills and decrease errors as a result of that. AR and VR are not expected to significantly change or disrupt the business model of temporary agencies, but the technology might enable the industry to distribute knowledge better by applying AR and VR for training purposes.

With regard to blockchain – “[a] shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network” (IBM, n.d.) – respondents see potential applications in three main areas: the financial side of the business (less human intervention might be needed), the candidate side of the business (candidates can take ownership of their data, authorisation of resumes and data is made easier) and the matching side of the business (through blockchain, skills can be validated and matching can be optimised). The fact that data in the blockchain is always correct is the main enabler of these potential applications. Several participants doubt the (speed of) development of blockchain. They are also clear about implementation. All respondents that mentioned blockchain stated how companies should adopt existing technology and not invest in developing it themselves.

The potential impact of robotics was mentioned by the majority of respondents, who expect robotics to have a great influence on the labour market, and therefore on temporary agencies as well. Activities that robots could take over from humans include lower-skilled, physically heavy and repetitive types of work. Robotic process automation is also expected to play a role in this, through which back-office processes can be taken over by robots.

Uneducated workers, for example, will disappear from the labour market. So for temporary work as well, it will be only premium employees. Temporary agencies will need to either deliver work that is tough to have robots do, so work where a social element is important, or deliver work that requires a higher level of thinking and knowledge. (Respondent DE2)

The theme of big data was included in the final template because it is of importance, according to industry executives. There are many potential applications for big data at temporary agencies, for example, to improve the matching process and to feed the AI systems that might be implemented. Data can also be used to predict career paths for temporary agency workers, to add value to the development potential of employees and to optimise the matching process. Respondents stress the importance of being able to collect relevant data, to manage

the data and to put it to use. This requires specific skills of employees and a certain “data savviness” throughout a company. Temporary agencies do not seem to be ready for that, according to the respondents.

Risks

The sub-theme “Risks” was added to the final template, as it was frequently mentioned by both groups of respondents. Privacy risks were mentioned by respondents, in particular in relation to artificial intelligence and blockchain. In the case of AI, there are many uncertainties around regulations, for example, general data protection regulation (GDPR). Blockchain is seen as a more positive influence on privacy. The technology is said to provide data ownership to anyone – enabling people to control their data and fitting in well with the European GDPR.

The risk of bias was mentioned by various industry executives and was therefore included in the final template. Temporary agencies are susceptible to bias, being in a people’s business. Respondents link this to AI, stating how important it is to ensure that AI systems are not biased. There might be a need for a “code” about non-biased artificial intelligence at temporary agencies.

Organisational impact

Organisational culture

By asking about the required organisational culture to effectively digitalise, field research uncovered four main topics. The first topic is “dual structures” (parallel development), which emphasises the importance of placing innovation outside of core activities to avoid the company culture limiting innovation. Secondly, there is “failure acceptance” which the respondents linked to a culture where learning by doing is key. Encouraging people to share failures fosters adaptability and learning.

“Low hierarchy” was mostly mentioned by digitalisation experts, focusing on placing decision-making authority as low in the organisation as possible. Low hierarchy also means organising teams and collaboration in a different way: small, project-based teams that do not require hierarchy. This fosters agility and adaptability. The fourth factor for effective digitalisation from an organisational culture perspective is “change management”. Respondents mentioned how companies that have been successful at digitalisation have had well-established change management trajectories, combined with a certain capacity to change (which should live among all employees).

C-level executives

The required changes at the company executive level to successfully digitalise can be summarised in four capabilities. Firstly, there is the ability and willingness to manage disruptive change, which entails “having an eye for the possibilities of technology” combined with “great insight into industry trends and developments” and “placing digitalisation high on the board agenda”. Secondly, embracing diversity (in terms of age, digital savviness, gender and/or viewpoints) at executive level and ensuring that decisions are made by a diverse and representative group is important. Formulating a clear vision is the third factor. Not just the ability to look ahead, but having ambition and creating clarity about where you are heading. Furthermore, C-level executives should possess solid digital knowledge. The final capability is a willingness to invest.

McKinsey's Three Horizons Model can be used as a guideline for investing in digitalisation.

I do think it's important for senior executives of staffing firms to be thinking about digital strategy, innovation... And not just thinking about it and talking about it, but actually taking money and resources and allocating them. Because your strategy is where you spend. If you're not spending in technology, it's not a part of your strategy. (Respondent IE5)

Employee competences and capabilities

With regard to employee competences and capabilities, four main factors were mentioned by respondents. Firstly, social and creative intelligence was described by respondents as creativity, social skills and a growth mindset. Secondly, the importance of STEM skills like engineering and programming was referred to, although this was only by digitalisation experts. Thirdly, the capability of "willingness to change" was mentioned. This includes the ability of a generation as a whole to embrace change, to dare and to execute. To do so, constant, incremental change is important. Lastly, structured thinking was mentioned. This competence was linked to "logical thinking", which is a prerequisite for anyone working on business process engineering or process flows. Knowledge about processes, the ability to describe them in detail and to understand what they mean is a key element of structured thinking.

Quality of working life

When asked about the impact of digitalisation on the quality of working life, industry experts mentioned a heavier workload as an important topic. They mentioned three main developments: decreasing productivity (which negatively influences work-life balance); clients requiring instant attention (which leads to feelings of anxiety); and how digitalisation can be perceived as adding to the workload of employees. Secondly, decreased job security was mentioned. This was described as an ethical dilemma. Jobs will be lost due to digitalisation, but new jobs will also be created. Thirdly, the perception of constant connectivity was mentioned, which is seen as a source of new stress. In general, there is a sense of "blurred lines" between work and private life. This has positive sides, such as being able to work anywhere and anytime, but also negative sides, such as not being able to disconnect due to perceived pressure. Fourthly, respondents mentioned positive effects of digitalisation, the most important one being the fact that digitalisation will make work more fun, or easier, because mundane tasks can be digitalised. This can increase productivity of employees and decrease the sense of pressure. The fact that digitalisation enables flexibility in when, where and how to work was also stated as a positive factor. Finally, respondents mentioned how the time saved by digitalising or automating manual labour could be spent on more teamwork and human contact. There would be more room for personal connection as a result of digitalisation.

Conclusions

In this segment, the conclusions of the research are summarised and linked to the three research questions determined previously.

What are the characteristics of the current business model of

temporary agencies and how is the business model expected to change in the future?

The current business model has a focus on key resources (people), key activities (matching them to clients) and revenue streams (which are closely related to economic cycles). This leads to the value proposition: finding and recruiting talent, sending them to work on short-term projects and providing clients with flexibility regarding resource planning. The industry does not appear to have enough focus on the customer side of the business model, which is dangerous in a digitalising world. A combination of a recruitment challenge (as a result of the shortage on the labour market), the rise of digitalisation and an increase in contract types (such as self-employment) is pressuring the industry to change.

Although the core of the business model (matching supply and demand in the labour market) is not expected to change, temporary agencies will be forced to take a more customer-centric approach. This includes a larger focus on unburdening clients by offering solutions that might include multiple contract types, various supporting technologies and potentially digital platforms. The future business model is expected to include niche players that act as a proactive, strategic partner for staffing conversations in an increasingly complex labour market.

Besides a customer focus, temporary agencies need to increase the focus on their key resource, i.e. people. A shrinking labour force and new generations entering the workforce are factors to consider. The gig economy and the rise of self-employment are an opportunity for temporary agencies to make a difference in one of their core strengths: being people-oriented. By ensuring this people focus, temporary agencies will be able to remain competitive despite the rise of platform companies. The key is in adopting the opportunities of digitalisation, but making a difference by building human connections. Counterintuitively, if digitalisation is done well, it can actually enable more human connection. Taking up an "agent" role for flexible workers, supporting them in building their portfolio and helping them transition between jobs is likely to become a differentiating USP.

Which digital developments are relevant to the business model of temporary agencies, and what is their potential impact?

Various technologies are expected to impact the business model of temporary agencies at different levels and with either a primary or a secondary impact. AI, blockchain and AR/VR will have a primary impact on the business model and are mostly expected to impact back-office processes. AI is the most impactful technology and will be able to optimise multiple core processes as a result of potential applications in recruitment, matching and personalised support. Dynamic pricing can also be implemented as a result of AI. Furthermore, AR/VR will enable temporary agencies to recruit, select, train and prepare their workers better. This will not only help temporary agencies attract more, better qualified or better functioning workers, it will also improve client satisfaction. Blockchain will have a dual impact. It is expected that the technology will improve back-office processes (in particular financial processes) and, in combination with AI, it can also improve matching (because it enables skill validation). There will also be an impact related to data ownership. If blockchain is to develop in the direction of an HR network in which all data of workers is stored, temporary agencies will greatly benefit. How long it will take before blockchain applications for temporary agencies exist is

questionable though. Temporary agencies are advised to not develop their own blockchain applications, but to "jump on the bandwagon" when third parties start offering blockchain solutions.

The technologies that will have a secondary effect on the business model are AI and robotics. With regard to robotics, the impact will be on the demand side. Temporary agencies that are active in niche areas like production or warehousing could be affected as a result of changing labour market dynamics. If clients of temporary agencies in those niche areas adopt these technologies, this will negatively affect the demand for temporary workers. With regard to AI, the secondary effect relates to both workers and clients, as it can be used to optimise the interaction with them. By implementing AI in core processes and freeing up time for human connections, AI can become a reason for a worker or client to choose a specific company. This can be a key advantage in the current shortage in the labour market.

Temporary agencies should also focus on big data, as otherwise, for example, AI systems cannot be implemented. Although temporary agencies might be aware of its importance, the question is whether they are prepared to start working on it and whether they have the required knowledge and skills available.

Finally, there are risks associated with digitalisation. These include privacy aspects and bias and are particularly related to AI and blockchain. Whether temporary agencies are allowed to collect and analyse data is important – in particular because they handle a considerable amount of confidential data. Additionally, the way that, for example, AI handles and analyses this data should be free of bias. Temporary agencies should emphasise this and perhaps even develop industry guidelines on the implementation of AI to avoid sensitive situations as a result of biased AI.

What are the requirements for the internal organisation of temporary agencies to effectively digitalise?

The most important factor in organisational culture is a strong customer focus, i.e. user-centricity and the ability to quickly respond to customer needs. In addition, agility is important. This is the ability to adapt quickly and continuously pivot. Furthermore, having well-defined change management trajectories, combined with a capacity to change, will drive effective digitalisation. Other factors related to organisational culture include a focus on dual structures (placing digitalisation outside of the core activities of a company – either by acquiring start-ups/scale-ups, or by setting them up separately) and failure acceptance (the ability to fail fast and often). Finally, a culture of low hierarchy is required, which includes delegating decision-making authority to low levels in the organisation.

C-level executives should have a sense of authenticity. They should practise what they preach. An ability to embrace diversity is particularly important, mainly with regard to the composition of the board. This relates to factors like gender, age, digital savviness and viewpoints. Having a clear vision is another necessity to commit younger generations to the company, but also to create clarity for employees. Finally, C-level executives should be able to manage disruptive change (recognising possibilities and placing digitalisation high on the board's agenda) and be willing to invest in digitalisation, both from a financial and a time perspective.

Multiple employee competences and capabilities are required

for effective digitalisation. Social and creative intelligence, i.e. creativity, interpersonal skills and a growth mind set are main factors. Employees should also be willing to change, approaching it as constant and incremental. The skill of structured thinking is also required, in particular related to business process engineering, with knowledge about processes, the ability to describe them in detail and to understand what they actually mean as important aspects. Lastly, they should possess STEM (science, technology, engineering and mathematics) skills. A need for certain hard skills is required for a solid foundation for digitalisation, but soft skills are necessary to drive effective digitalisation.

Temporary agencies should take the impact of digitalisation on the quality of working life into consideration. With productivity decreasing and negatively affecting the work-life balance, as well as clients and workers requiring constant attention, a perception of digitalisation adding to the workload of employees can exist. Employees might also have a decreased sense of job security. The fact that constant connectivity can be perceived as having a negative influence on the quality of working life should not be ignored, despite the fact that blurring boundaries between work and private life also has advantages. The key is in effective communication about the positive effects of digitalisation. It will make work more fun, easier, and will decrease the sense of pressure. The time saved through digitalisation will create more room for personal connection, which can be a key competitive advantage for temporary agencies in the digitalising world.

What is the impact of digitalisation on the business model and internal organisation of temporary agencies?

Digitalisation will primarily impact back-office processes like recruitment, selection, matching and administration, which will be made more efficient and less labour intensive. It will also affect the demand side of the business, both negatively (through technologies replacing workers at client companies) and positively (effective digitalisation can create a competitive advantage).

As a result of digitalisation, the shortage in the labour market and an increase in the variety of contract types, the business model of temporary agencies will change, not at its core (the matching of supply and demand), but in the way temporary agencies undertake their activities. As digitalisation can enable efficiency in core processes, temporary agencies will be able to increase their people focus and human connection. This people centricity towards customers as well as workers will help them evolve into a strategic partner for staffing in an increasingly complex labour market. The key is in adopting the opportunities that digitalisation brings, but making a difference by building true human connections.

Executives at digitalising companies are advised to build a culture with a strong focus on customers as well as flexible workers, the ability to respond to customer needs in an agile way and well-defined change management trajectories. Diversity is an important theme, in particular at executive-level (where diversity in age, gender, digital savviness and viewpoints is required). On an employee level, a basis of hard skills is needed for a solid foundation, but soft skills are required to drive digitalisation in the most effective way. Social and creative intelligence are key. Placing digitalisation high on the board's agenda, in combination with solid digital knowledge at the executive-level and a clear vision (and authenticity) regarding digitalisation, is of great importance.

Finally, the positive effects of digitalisation should be clearly communicated. Digitalisation will make work more fun, easier and will free up time to spend on human contact and teamwork. In particular, the fact that digitalisation will create room for more human connection should be clearly communicated, as the ability to connect on a human level is a key differentiating factor in this digitalising world.

Limitations and future research

The completeness of knowledge extraction is a potential limitation of this study, as it is possible that not all relevant themes were mentioned by the respondents. This might be a result of the fact that certain topics are "common sense" to respondents. Additionally, respondents sometimes struggled to separate themes like temporary agencies and generic employment agencies (focused on permanent placement). The topics of automation and digitalisation were sometimes used interchangeably.

A suggestion for future research would be to follow a quantitative approach, to validate the findings from this qualitative study with a larger sample size. With regard to organisational requirements, for example, depth could be added by broadening the focus of the field research. This could be done by including employees, as opposed to only interviewing industry and digitalisation experts. Furthermore, it would be interesting to target the research on either niche players or large international players to make the results more suitable for specific types of companies. A narrower approach, but with a larger sample size and a quantitative method, might result in additional findings for a specific segment.

Additional research on specific technologies and their impact and potential applications on temporary agencies is also advised. This is particularly true regarding AI, IoT and blockchain, as these technologies are still developing and new knowledge and applications are constantly evolving. It was not the purpose of this study to explore the in-depth applicability of these technologies, but it would definitely be of added value to industry executives to explore this in future research.

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