Data Analytics Platforms

Value Propositions and Adoption Challenges for Small Hospitality Businesses

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Data Analytics Platforms: Value Propositions and Adoption Challenges for Small Hospitality Businesses

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Abstract

Managers increasingly seek ways to explore insights from data for business improvements and innovation. Data Analytics (DA) platforms hold promise for businesses, especially small businesses that cannot afford tailor-made proprietary analytics services. DA platforms offer generic analytics features to a pool of businesses, saving costs and enabling benchmarking. This paper explores value propositions and adoption challenges for small businesses regarding DA. The paper offers practical insights from designing and launching a DA platform targeting small businesses in the hospitality sector. The findings of our paper show that data analytics is potentially valuable for small businesses through insights into market and customer trends. Small businesses can leverage such insights to refine their offerings. Trust and privacy concerns in sharing data are key challenges holding back adoption. We proposed measures, especially privacy-preserving technologies, to mitigate the risk of tracing a specific enterprise's data shared on the DA platform. These measures assure businesses that data shared or analyzed through the DA platform is not used to harm their competitive advantage.

Keywords: Data insights, Small businesses, value propositions, adoption, data analytics.

1 Introduction

Data Analytics (DA) is becoming increasingly mainstream thanks to digitalization and big data (Trieu, 2017; Watson, 2014). While, especially larger firms, implement more encompassing DA platforms within their premises, smaller businesses struggle to do so. As a cost-effective solution, DA platforms are emerging in the market. DA platforms provide a wide range of generic DA features, such as basic visualization, self-service predictive analytics, advanced analytics algorithms, big data processing, and real-time analytics on connected devices (Naous et al., 2017). DA platforms can create additional value by providing benchmarking between the firms using them. Such benchmarking is especially relevant for DA solutions that target firms within the same industry (e.g., McKinsey, 2016). Firms' aggregated data can offer valuable insights to other stakeholders, such as suppliers, consultancy firms, and government agencies. Such aggregated data can be monetized to reduce the costs for small firms using the platform.

Most empirical studies on DA focus on the value for large and established businesses (Akter & Wamba, 2016) in domains such as auditing (Earley, 2015) and transport systems (Ghofrani et al., 2018). Relatively limited literature explores data analytics adoption in small and medium-sized enterprises (Maroufkhani et al., 2020). Large firms are likely to require an extensive data pool to sustain their large-scale operations, thus requiring DA platforms that can process and analyze data. For example, DA is essential for precision in healthcare delivery (Ward et al., 2014), maintenance and operational safety in transport networks (Ghofrani et al., 2018), fraud detection in auditing firms (Earley, 2015), and demand prediction in supply chains (Souza, 2014). Large firms with high product variety use DA to gain better insights into products (Song et al., 2018). In addition, most large firms equally have financial resources. As such, they can probably invest in DA with relatively little impact on their bottom line. Thus, justifications for DA in large firms are well-grounded and attract scholarly interest.

However, insights from these studies are not representative of the vast majority of businesses: small businesses. Small businesses and startups often suffer from the challenge of newness. For example, they have to face an unfamiliar terrain of uncertainties and

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competing interests of stakeholders as they negotiate their value propositions (Ofe & Sandberg, 2022). Further, small businesses must ensure immediate survival while meeting long-term challenges. This is contrary to established firms with resources that can simultaneously commit to exploiting existing and exploring new business opportunities (March, 1991). Accordingly, faced with limited resources, small businesses must navigate a delicate balance in committing resources for long-term growth and short-term investment for immediate survival (Adner & Levinthal, 2008).

Recent research indicates that small businesses will likely benefit from DA use since fewer integration efforts are required to incorporate DA insights into their existing operations (Dong & Yang, 2020). However, research is yet to provide more detailed insight into small business perspectives. The objectives of this paper are (1) to understand the value propositions of data analytics for small businesses and (2) to identify challenges small businesses encounter in adopting DA platforms. This paper is guided by the overarching research question: what are the value propositions and challenges in adopting DA for small businesses? Using a case study approach, we focus on the Dutch hospitality industry. Our specific case is a DA platform offered by a startup called Checkmetrix, targeting small businesses. We conducted interviews with small bars, hotels, and restaurants. Most of the interviewed businesses have less than twenty employees.

The paper is structured as follows. Section 2 provides a background on DA and reviews DA literature on value propositions and challenges. Section 3 describes the research context, approach to data collection, and analysis. Section 4 presents the results. Section 5 focuses on the discussion. Section 6 provides implications, limitations, suggestions for future studies, and the conclusion of our study.

2 Background

2.1 Data Analytics

DA is the "holistic process that involves the collection, analysis, use, and interpretation of data for various functional divisions to gain actionable insights, create business value, and to establish a competitive advantage" (Akter & Wamba, 2016, p. 178). DA can be descriptive, predictive, and prescriptive (Saggi & Jain, 2018). Descriptive DA is concerned with exploratory questions (e.g., what happened to a business?). Predictive DA is concerned with insights into likely future scenarios. Prescriptive analytics prescribes feasible courses of action based on data insights (Saggi & Jain, 2018). As DA goes mainstream, skepticism remains on whether it is much different from the data analyses companies regularly perform (Chen et al., 2015; Ross et al., 2013). Organizations utilize surveys or data on customers' purchasing habits to refine operational plans. Organizations leverage internal operations or remote sensor data to predict equipment maintenance (Jonsson et al., 2009). However, the novelty of DA arguably stems from technical and business developments.

Technically speaking, the sheer scale of structured and unstructured data generated is increasing. For example, as of 2018, the global data volume was approximately 33 Zettabytes; by 2025, it is estimated to grow to 175 Zettabytes (European Commission, 2020). These data vary in volume, velocity, and variety (Chen & Zhang, 2014; Chen et al., 2012; Kitchin, 2013; Kitchin & McArdle, 2016; Laney, 2001). Volume means the data is enormous, requiring advanced tools to process and analyze (Kitchin, 2013). Velocity means the data is not solely static; it is continuously generated in real-time (Kitchin, 2013). Variety means the data is structured, semi-structured, or entirely unstructured (Kitchin & McArdle, 2016; Laney, 2001). Structured data are from business processes (e.g., sales, manufacturing) or business transactions. Unstructured data include text documents, images, video files, audio, and sensors (Grover et al., 2018). Unstructured data is generally difficult to store in relational databases. Most valuable insights are generated from unstructured data, estimated to be approximately 95% of data generated (Grover et al., 2018; Molaro, 2013). DA can play a role in processing and analyzing unstructured data for business insights.

Digital technologies are increasingly affordable, with capabilities for capturing and processing data at relatively little cost. For example, as of 2018, approximately 80% of data was processed in centralized computing facilities. By 2025, approximately 80% of data will be processed by smart connected devices (European Commission, 2020). Thus, as devices and digital technologies become accessible and affordable, distinctive use and application of technologies are critical for competitive edge (Carr, 2003). For instance, customers increasingly rely on feedback from review platforms such as TripAdvisor, Zomato, and Yelp to choose venues, restaurants, or hotels. Data collected and processed across such platforms could be combined with internal business data to refine customer offerings or enhance sales. For example, approximately a third of Amazon's sales were reportedly attributed to data insights from its recommendation system (The Economist, 2011).

Despite its strategic importance, extracting valuable insights from data involves undertaking

specific steps described in the data value chain (Curry, 2016). The data value chain describes "steps needed to generate value and insights from data" (Curry, 2016,p. 31). Five steps discussed in the data value chain include; data acquisition, analysis, curation, storage, and data usage (Curry, 2016). Data acquisition entails collecting data (structured or unstructured) from different sources. Data analysis involves extracting relevant data from collected data. Data analysis is vital because acquired data can be messy (Bottles et al., 2014). Data analysis entails aggregating, assembling, and applying machine learning and analysis to discover patterns from the data (Curry, 2016). Data curation involves ensuring requirements are met for the proper use of data. Data curation extends to cleaning to enhance data quality, classifying, and interaction with the data (Curry, 2016). Data storage involves managing the curated data in ways suitable for use and applications. Data usage involves using data insights to support decision-making or enhance customer offerings.

2.2 Value and Adoption Challenges

Literature on DA suggests a range of benefits, albeit largely focused on large businesses. Data are a crucial source of knowledge that, if appropriately explored, can be helpful for innovation, marketing, and business development (Sorescu, 2017). DA use increases organizational agility (Côrte-Real et al., 2017; Rialti et al., 2018). DA use (e.g., information processing capabilities) positively influences asset productivity and business growth through delivery patterns optimization (Chen et al., 2015). Firms can leverage insights from external data sources and customer data for predictive analysis on how to build long-term customer relationships (Thomas, 2012). By using DA, firms can provide customer offerings in real-time, thereby adapting to changes in their business environment. Insights into business trends based on analyzing internal and external data sources are critical for decision-making or utilized to avert business failure (Amankwah-Amoah & Adomako, 2019). In addition, businesses can develop appropriate actions to enhance customer interaction and design marketing plans through customer data insights (Jernigan et al., 2016). The use of analytics is of strategic value through the market signal it conveys about a company's innovativeness (Grover et al., 2018).

Although DA is potentially valuable for organizations, skepticism about its business value remains (Dong & Yang, 2020; Grover et al., 2018). Many companies struggle to extract valuable insights from DA, with declining benefits from DA investments (Ransbotham et al., 2016).

Key challenges hindering DA adoption include the inertia to adapt to a data-driven decision-making culture (Barton & Court, 2012; Mikalef et al., 2021). For example, in a study of the deployment of DA across 27 firms, Mikalef et al. (2021) identify inertia related to the unwillingness to change existing processes, top management resistance, lack of technical skills, and financial resources. Barton and Court (2012) point to the "mismatch between the organization's existing culture and capabilities" required for DA (p. 82). This mismatch makes insights from data less understandable and trustworthy for employees (Barton & Court, 2012). Other challenges include the lack of knowledge in analyzing information(Ross et al., 2013) and capabilities to fully exploit value from data (Ajimoko, 2018; Wamba et al., 2017). Similarly, Ajimoko (2018) found that top management support is critical for adopting DA platforms. At the same time, small business executives find it challenging to relate investment in IT to business value (Riemenschneider et al., 2003).

Another key challenge relates to data quality and reluctance to share data due to privacy concerns (McKinsey, 2016). Ward et al. (2014) point to a lack of data standards, quality, and skills relevant to exploiting insights from DA. Many small businesses cannot afford tailor-made DA platforms and often fail in their DA implementation initiatives owing to limited resources (Ogbuokiri et al., 2015). Generating value from data is particularly challenging because insight from data and value for businesses arises when combined with other resources (Dong & Yang, 2020).

3 Methodology

We adopted a case study approach to explore value propositions and adoption challenges for small businesses. A case study is an "empirical inquiry which focuses on a contemporary phenomenon within its real-life context" (Yin (2011). A case study is useful for our study for at least three key reasons. (1) Myriad of DA solutions exists, offering all kinds of features. To understand the value proposition and challenges, we need to zoom in on a specific DA solution. (2) We expect a wide range of value propositions and challenges to arise from DA solutions. (3) The value and problems of using DA can only be understood in the context in which they are used. Therefore, we use a case study approach, which allows (1) focusing on one specific type of DA solution, (2) studying a multitude of value propositions and challenges, (3) and emphasizing the context.

A case study can be based on a qualitative approach to data collection (Yin, 2003). Accordingly,

we relied on semi-structured interviews to collect data. Interviews are an essential data source to "access the interpretation that participants have regarding the actions and events which have or are taking place." (Walsham, 1995, p. 78). Interviews with small businesses provide a valuable way to gain insights into the value propositions and challenges faced in deploying the DA platform.

3.1 Research Context: The Dutch Hospitality Industry

We use a case study on a DA platform in the hospitality industry. Our specific case is a DA platform for small hospitality businesses launched by a startup called Checkmetrix. The Dutch hospitality industry comprises small enterprises, which makes it suitable for our research question. The Dutch hospitality industry is relatively mature and stable, comprising around 25,000 hospitality firms, most of which have less than ten employees. The conditions for using DA are favorable, as virtually all hospitality businesses have a digital point of sales systems, and most Dutch consumers use debit cards.

Yet, most of the small businesses in the Dutch Hospitality industry lag in adopting DA platforms. A primary reason is the fragmentation of point of sales (POS) systems that hospitality businesses use for handling transactions. For example, over 130 suppliers of POS systems in the Dutch market offer over 250 different systems. Most of these POS systems do not have open interfaces for accessing sales data. While new platforms are being introduced that are open and interoperable, replacing legacy POS systems is often too costly for small hospitality businesses. These issues make the Dutch hospitality industry relevant to understanding the value propositions and challenges that prevent adoption.

We focus on one instance of a DA platform to gain insights into its deployment and potential adoption in small businesses. The DA platform is designed to solve a systemic problem that many small bars and restaurants face: gaining insights into their own sales volumes. The core of the DA platform comprises several modules to collect, clean, store, categorize and analyze data from any POS system (see Figure 1). The analytics platform comprises a physical device that can be connected to any POS system. In this way, even legacy POS systems without open interfaces can be connected to the platform. The physical device sends data to a web server. Products are tagged into a standardized categorization system that allows specific brands, food categories, etcetera. The categorization system is first trained through manual categorization to assign valid tags to the products. After categorization, data is stored in a relational database. Next, data is cleaned and prepared for analysis. After that, an employee of the platform provider creates dashboards. The dashboards display information such as the revenue distribution per product group throughout the week for one of the restaurants or the revenue distribution per table. Hospitality businesses can log on to a portal to view benchmarks and conduct analyses. The offering fits within the more basic versions of DA platforms, as they mainly offer visualization and dashboard functionality (Naous et al., 2017).

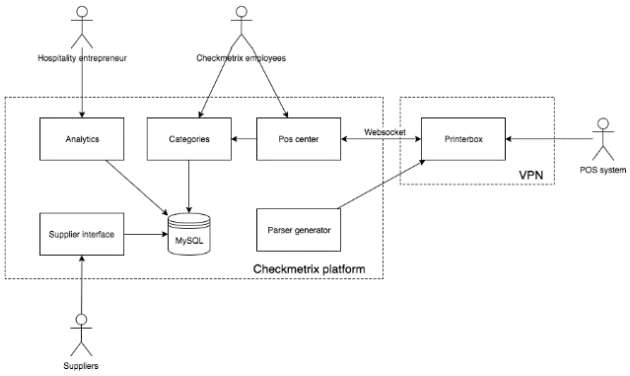

Figure 1: Technical architecture of the DA Platform

3.2 Data Collection and Analysis

Interviews were conducted in two rounds to enrich the overall data collection process. The goal of the first round was to evaluate whether and why potential users, i.e., small firms, would adopt the DA platform. Eight interviews were done with small hospitality businesses, ranging from single-venue businesses to multiple venues. Interviews were conducted mainly at the premise of the small businesses. The respondents were purposefully selected from the network of the second author. We aimed for diversity in size (i.e., single-venue or multiple venues) and type of hospitality firm (i.e., bar, restaurant/beach club, or hotel). Our sample includes four bars/restaurants, two beach clubs, one beach pavilion, and one restaurant/beach club. Respondents were mainly managers of small businesses. We focused on interviewing managers since the small businesses had very few employees, with the managers actively involved in the business's day-to-day activities.

The interviews were open-ended to understand the general expectations and interests of small businesses in the DA platform. The initial DA platform design described in Figure 1 is presented to hospitality businesses to facilitate the interview process.

The second round of interviews used mock-up dashboards as a probe to further explore the DA

platform and challenges in its adoption. The dashboard shows weekly sales related to a different product. The respondents were presented with mock-ups of the platform, as presented in Figure 2. After that, questions were asked on intention to use, willingness to pay, and willingness to share data over the platform. For an overview of the findings and results, see Tables 1 and 2 (supplementary Attachment).

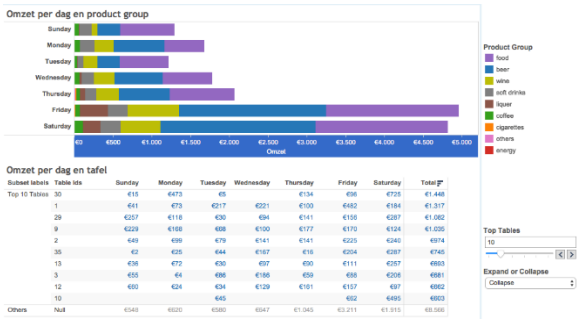

Figure 2: Mock-up of the platform used in second round interviews

4 Results

4.1 Value Proposition of DA for Small Businesses

When asked about what insights would be helpful or required from a DA service, almost all were interested in some form of insights. Small businesses are particularly interested in insights from the DA platform that could strengthen market research and spot market trends. One other interviewee expressed only a minor interest in automatic ordering to save a bit of time. Three out of eight respondents were interested in benchmarking or market-level data. One interviewee indicated no interest in such information as trends `do not influence the business.' Interestingly, all three respondents interested in benchmarking or market-level data are single-venue businesses.

Three participants were interested in automatic ordering or other inventory management systems. Four single-venue companies saw no need for automatic ordering, but perhaps only when they would be growing in the future. Regarding management reports and other forms of insights, two participants expressed a need for data integration and automated management report creation. One of these participants would like automatic notifications of outliers or inconsistencies in the data to spot problems. Two single-venue companies indicated no need for such insights because the owners were still in the business daily, giving them sufficient insights into what was happening. Overall, small single-venue companies are mainly interested in benchmarking and market-level data. Inventory management, automatic ordering, and management reports are desirable mainly to multi-venue businesses, with only a few single-venue businesses interested in these features.

Regarding intention to use, all interviewed businesses would like to use the system after evaluating the dashboards. The frequency of use differs between monthly and even daily basis. Most respondents are satisfied with the insights offered by the dashboards. Some provide ideas for additional functionality without a clear pattern across the interviews. Seemingly, six out of eight respondents would like personnel planning to be included (i.e., schedules and costs). Arguments include that automating personnel scheduling would save time. The personnel schedules can be better balanced with the actual visitors. For instance, one of them commented: `Managers always find it hard to make decisions on sending employees home because there is a risk that it might become busier later. From an organizational perspective, we find it hard to pinpoint when and why managers make this decision. A chart like a dashboard would be handy in identifying these issues. However, respondents said they were willing to use the dashboards even without additional functionality. Most respondents expect little or even no time savings from using the platform.

4.2 Challenges Hindering DA Adoption

Overall, the interviews with hospitality enterprises confirm that they face challenges in employing DA platforms. It was confirmed that most do not currently use DA platforms and are unwilling to replace their POS systems. Especially when bars and restaurants are growing and opening up multiple venues, owners struggle to keep an overview of what is happening in each venue. In addition, we found they especially struggle to integrate and analyze data from different information systems. Therefore, a DA platform would be valuable if it integrates data from different information systems (e.g., accounting software, POS system, personnel scheduling, inventory management) combined with simple-to-use data insights (e.g., graphs or overviews).

We also evaluated willingness to share data. The willingness to share data is mixed among the respondents. Some respondents have no strong opinion, for instance, feeling that their data is not valuable anyway or commenting that they 'would like to think it through or talk to somebody about it'. Two respondents are concerned that sharing data might affect their negotiation power towards suppliers. Two respondents are unwilling to share data: one because he does not trust

the technology, and the large hotel/restaurant chain manager because the data is perceived as a source of their competitive advantage. An essential condition is that data is aggregated and not traced back to their specific enterprise.

When asked about compensation for sharing data, only one participant indicated he expects no compensation, as his data has no value for anyone. Two respondents expressed that they do not care about it, and one of them stated, `I do not think someone can really use our bar's data. Especially not when it is anonymous.' The other six participants would like some form of compensation when asked explicitly. Two of them suggest monetary compensation. On top of that, various compensation mechanisms are suggested: additional DA functionality, data from the supplier itself, or a connection to an automatic ordering system from the supplier. Two interviewees would like compensation but have no idea in which form.

Most small businesses expect little or no time savings from using the platform. As one respondent commented: `I think you have to spend a basic amount of time on management activities anyway, but the result is just better now.' Overall, the willingness to pay is low. Some are not willing to pay or are not sure what to pay. Others want to spend no more than around 20 or 30 euros a month. Regarding willingness to pay, respondents were willing to pay between 20 and 100 euros per month for the basic dashboard functionality. Once more functionalities are added, such as personnel schedules, they would be willing to pay more.

4.3 Facilitating DA Adoption

Dashboards were developed to communicate a coherent vision that showcases the platform's functionality. The functionality can be further demonstrated by conducting pilots with a few small hospitality firms. Another way to establish trust in the platform is to build credibility by partnering with a reputable player (i.e., Salesforce.com) and collaborating proactively with wholesale suppliers. The involvement of POS providers may also help to establish the trust of hospitality businesses. Technically, such collaboration is not needed since the platform can function without the involvement of POS providers. At the same time, collaborating with POS providers is challenging since the analytics platform's functionality is sometimes perceived as a platform that relegates the POS system to merely a commodity. Facilitating DA platform adoption requires that data aggregated is anonymized, reducing the possibility of tracing a specific enterprise's data. This might help assure businesses that data shared or analyzed through the platform is not used to harm their competitive advantage.

5 Discussion

5.1 Value Proposition of DA for Small Businesses

Our case study shows that DA platforms for SMEs mainly add value by improving awareness of market trends. For example, interviewees appreciated DA insights into market position through benchmarking and trend analysis. More operation benefits like automatic ordering, which could be supported by DA, are less appreciated. An explanation might be that these kinds of functionality might be provided by operational management and Enterprise Resources Planning (ERP) systems that already contain some basic DA functionalities. These results are consistent with prior studies, which point to DA's insights as valuable in enhancing customer interaction, designing marketing plans, and enhancing services (Jernigan et al., 2016). Small businesses could identify market trends overlooked by other businesses that are beneficial for business growth and refining market offerings (Tang et al., 2012). The value proposition of DA strongly depends on the size of the business, which confirms the premise of our study.

Managers of small, single-venue businesses have a strong sense of their sales, as they are at the workplace daily. For them, the value of market insights from DA is limited, and DA might not bring any additional insights. If at all, they are interested in comparing their performance to others (i.e., benchmarking and market-level data). For multi-venue businesses, insights into descriptive DA are more important, for instance, in sales patterns. Larger businesses also appreciate more advanced predictive and prescriptive DA. These findings validate our study's premise: the smaller the business, the less value that DA creates.

A special case can be made for new entrepreneurs entering the market and growing businesses. The first might have no market knowledge, whereas, for the latter, the value proposition of DA is twofold. First, DA helps growing businesses understand their performance and supports decision-making on personnel planning and inventory management. Second, as businesses grow, owners and managers lose their gut feeling of what goes on in their business; they may want to look to dashboard statistics and trends on the broader business environment. In this regard, DA platforms help analyze large-scale data relevant for scanning opportunities in the business environment.

5.2 Adoption Challenges

Our research identifies challenges that hinder the adoption of DA platforms. In particular, we found that, although most interviewees expected to derive value from benchmarking, they were concerned about sharing their data. Sharing data might affect bargaining positions towards suppliers or competitiveness. Others are reluctant to share data as they do not trust the DA platform or the security of data handling. This is in line with studies on concerns over data sharing for benchmarking purposes in businesses(De Prieëlle et al., 2020). We contend that concerns about unwillingness to share data for analytics are likely to extend to other industries for at least one reason. First, businesses increasingly rely on data as a strategic asset. Accordingly, much attention will likely be placed on protecting the data since it is critical for their operations. Privacy-preserving technologies that anonymize sensitive data could thus potentially help in enhancing data sharing (Agahari et al., 2022).

By sharing data among many companies, more insight into the market can be created. If the right conditions are met, the discussion is raised about who is going to pay for the use of their data. There is no consensus about the revenue models for the DA platforms. Some interviewees do not see a need for compensation for the use of data, whereas others do see an opportunity. The desire or expectation for monetary or other forms of compensation seems to be related to the perception of value. Suppose more value of the platforms for others is perceived that they want compensation for the use of data by others. Overall, the willingness to pay is low.

Adoption and potential value propositions are related to each other. Some interviewees think using DA platforms in their daily operations might consume more time without providing any time savings. As such, a low threshold to use and limited expertise to be able to use the DA platforms is important. In particular, for smaller companies, this is important as they might lack resources and expertise.

Another challenge we identify is that small businesses launching DA platforms face an uphill task in convincing the market that this will be a winning platform. This challenge mainly arises because of the lack of an installed base for the DA platform.

6 Implications

Our study has implications for the literature on technology adoption. First, although new technology adoption is generally based on their added value for businesses, the technology's specific nature and risk must be considered. Small businesses were not particularly hesitant about incorporating DA into their processes. Yet, they find the platform more trustworthy if their POS provider would, for instance, assure them that their POS system will not malfunction because of the DA platform. Small businesses raise concerns about trusting that their data is not accessible or shared with other organizations. More broadly, these findings imply that risk, trust, and the specific character of technology are inseparable in technology adoption decisions. Researchers can gain significant insights by examining how risk, trust, and expected benefits are balanced in technology adoption decisions. For example, as businesses rely on data generated across other organizations, we expect trust among organizations to be critical in data sharing.

Second, as found in our study, DA value propositions for small businesses were typically described in terms of their usefulness in generating insights utilized to predict market trends. Some small businesses expressed willingness to use the DA platform even with the basic functionality of sales dashboards. One might ask whether adopting basic functionalities (e.g., sales dashboards) translates into any direct benefits for small businesses. These findings imply that adopting new technologies might not necessarily be limited to the substantial benefits they provide for organizations. We believe researchers examining small business adoption of technologies can gain insights into technology adoption decisions long beyond the direct benefits organizations provide for adopting technology. Although the interviewed small businesses did not explicitly attribute symbolic reasons for considering adopting the DA platform, such cannot be excluded. For example, Grover et al. (2018) point out that businesses might adopt data analytics for symbolic reasons intended to convey innovativeness to the market. Startups might also adopt IT features or technologies merely as a façade without using them (Tumbas et al., 2015).

Third, it is important for scholars to recognize that DA creates the most value for very specific sub-groups of small businesses. A significant proportion of small businesses have a single venue and do not have any ambition to grow. For those businesses, DA provides relatively little value except for occasional benchmarking against competitors and the market. For businesses that are a little bit larger, descriptive DA is useful to understand performance and sales, and predictive and prescriptive DA can help with planning. For businesses looking to grow, the benefits of DA are also relevant. In other words: scholars should take into account size and growth ambition as contextual factors when studying the value and adoption of DA.

6.1 Limitations and Suggestions for Future Studies

This paper identifies the value propositions and challenges of DA platforms for small businesses. DA is widely presumed essential for businesses as data becomes a key asset in the data economy. The underlying assumption is that data collected, processed, aggregated, and analyzed provide valuable business insights. If this is true, one may argue that all businesses should adopt DA platforms to gain a competitive edge. However, investing in DA entails committing resources (e.g., financial) that are not uniformly available to businesses. Extensive research has examined DA value for large-scale businesses. Less research has explored DA's value propositions and adoption challenges for small businesses. Our study provides at least two avenues for future studies on technology adoption in small businesses.

First, we focused on the hospitality industry. Thus, readers should exercise caution in generalizing our findings. Small businesses vary in their capabilities and resources. A comparative study could further explore the value propositions and challenges of DA for small businesses in other industries. Second, our study provides a snapshot of the relatively early phase of deploying a DA platform within small businesses. Technology adoption and benefits, and challenges are not static. A longitudinal study could provide insights into other relevant insights or challenges as DA is incorporated into the processes and routines of businesses over time.

Furthermore, we found that small businesses were willing to adopt data analytics platforms, despite the basic functionality. This suggests that DA might be adopted not just for monetary benefits but also for the appeal or branding of businesses. Thus future studies could explore theoretical insights into DA adoption. For example, signaling theory (Spence, 2002) posits that organizations might adopt technology to convey information about their intention to a market.

Finally, our case focuses on a DA platform that offers benchmarking and market-level insights. This specific focus may explain the value propositions identified. Future studies should focus on different types of DA platforms to replicate the findings. In addition, we focused on the hospitality industry. Thus future studies could also test the value proposition we identified in other industries.

6.2 Conclusion

Generating insights from data is a subject of scholarly and practitioner attention. New platforms and business models are emerging that focus on integrating and packaging insights for businesses. Aspiring to understand the value proposition and challenges in adopting DA platforms for small businesses, we delved into the Dutch hospitality industry, an industry dominated by small businesses. We find small businesses consider data insights into market awareness and trends offered by DA platforms as particularly valuable. Small businesses have trust concerns about the outcomes or possible use of data shared on DA platforms. It is hard for small businesses to convince others, especially big businesses, to join DA platforms. Thus whether these value propositions are sufficient to entice businesses to adopt DA platforms is yet to be fully understood. Unless the value of DA is demonstrated more concretely to small businesses, wide-scale adoption of DA platforms is likely to be limited. Small business managers must balance immediate needs for business survival and the long-term needs for DA platforms as they expand their customer base and operations. DA platforms may not necessarily provide immediate benefits but are potentially valuable as small businesses grow.

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