

How and when do marketing analytics pay off in the travel and tourism industry? The role of marketing agility and fit perspective

Abstract

Expanding upon the dynamic capabilities view, our research discusses how the usage of marketing analytics affects marketing agility and hotel performance. Our study used objective data on hotel performance and subjective data on marketing analysis usage from 866 hotel managers in the UK hospitality industry. We utilised structural equation modelling and regression to analyse the collected data. Findings indicate that marketing analytics significantly impact both financial and market performance. It also shows that marketing agility mediated the link between marketing analytics use and financial performance. Moreover, fit facets (i.e., data-tools fit, employees-tools fit, and task-tools fit) and market turbulence moderated the above relationship.

Keywords

marketing analytics use; marketing agility; hotel performance; dynamic capabilities view; fit facets; market turbulence.

Introduction

Tourism and hospitality are major factors behind nations' economic expansion and development worldwide (Kar et al., 2023). With revenue expected to grow at a rate of 3.47% annually to reach US\$927.30 billion by 2024, the market is predicted to reach US\$1,063.00 billion in 2028 (Statista, 2024). By 2024 end, it is predicted that global tourism will have fully recovered to pre-pandemic levels; preliminary estimates suggest a 2% increase above 2019 levels. In this dynamic sector, marketers take a proactive and forward-thinking approach with a noticeable increase in the use of marketing analytics in this industry [to develop marketing capabilities](#) (Samara, Magnisalis, & Peristeras, 2020).

Marketing capabilities are widely acknowledged as important determinants of business performance (Moorman & Day, 2016) and refer to firm-level expertise and knowledge embedded within organisational processes to perform marketing functions (Morgan et al., 2018). An organisation's marketing capabilities are measured by how well it uses its resources to promote itself and achieve its goals (Day, 2011; Kalaignanam et al., 2021; Melián-Alzola et al., 2020). According to previous research, firm performance is greatly impacted by these firm-related capabilities, [including capabilities to deploy marketing analytics](#) (Wegner et al., 2023; Abdelmoety et al., 2022; Akter et al., 2021). To keep up with "deep alterations in practice facilitated by the digitization of marketing activities", enterprises are compelled to build "marketing analytics capabilities" (Verhoef & Bijmolt, 2019, p. 4). Marketers use marketing analytics to improve an organization's performance and assist informed decision-making (Liang et al., 2022; Abdelmoety et al., 2022; Akter et al., 2021).

Despite growing recognition of the usefulness of marketing analytics in strategic operational domains, marketing analytics has not performed as per expectations (Hossain et al., 2022). Recently, Agag et al. (2024) argued that [according to Gartner](#), more than half of senior

managers are dissatisfied with the results of their analytics, resulting in a reluctance to use analytics for crucial decisions, despite continuous investment in marketing data. While managers' interest in analytics has produced a wealth of literature (see Appendix A1), which has greatly advanced the field of marketing (see Ashrafi et al., 2019; Hossain et al., 2022), the mechanism through which such analytics affect firm performance is not well understood, especially in the hospitality sector (Stylos, Zwiendelaar, & Buhalis, 2021; Verhoef & Bijmolt, 2019). The investigation to clarify this effect is relevant to managers since analytics capabilities coexist within firms, often intertwined, yet many firms struggle to exploit the complementarity potential of their multiple analytics capabilities (Feng et al., 2015; Sridhar & Fang, 2019). Thus, researchers have called for a deeper analysis of the relationship between marketing analytics and its outcome variables (Liang et al., 2022; Agag et al., 2023).

One of the outcomes of analytics that may be instrumental in generating firm performance is marketing agility, as evident in Appendix A1. In other words, it is important to explore how deploying marketing analytics leads to business performance through marketing agility. Research suggests that utilizing marketing analytics can enhance both marketing agility and firm performance at the same time (Giacosa et al., 2022). There is still a considerable gap in the research describing the mechanism by which marketing analytics affect firm (hotel) performance (Cao & Tian, 2020; Vollrath and Villegas, 2022; Tarn & Wang, 2023).

Further, the fit between outcomes enablers, the task, people and the data, and the deployed technology has an important effect on how much business (here hotel) performance can be realized from the application of marketing analytics (Junglas et al., 2008). However, with the focus of recent works on only task-technology fit, this is a crucial area of exploration to analyse the intervening effect of fit more comprehensively, specifically in the hospitality domain (e.g., Muchenje & Seppänen, 2023). Finally, firms operating in highly variable environments tend to benefit more from the favourable outcomes of dynamic capabilities

(Weritz et al., 2024). In other words, frequent environment sensing and promptly responding to changes by quickly accessing new market information are crucial in a volatile environment, due to the higher potential for increased dynamic marketing capability (Cadden et al., 2022; Liang et al., 2022). Such capabilities to align with external turbulence through timely and relevant information, a measure of marketing agility, are expected to have a profound impact on hotel performance (Alghamdi & Agag, 2024). Based on this, the following research questions are therefore the focus of our study:

RQ1: What impact does marketing analytics have on hotel performance?

RQ2: Does marketing agility play a role in mediating the relationship between marketing analytics use and hotel performance?

RQ3: Do fit factors moderate the relationship between marketing analytics use and financial performance?

RQ4: Does the usage of marketing analytics and financial performance get moderated by market turbulence?

Our study provides significant contributions. This work assimilates the dynamic capability framework into marketing analytics to add value to the mechanisms by which marketing analytics impact firm performance in the context of hospitality (Liang et al., 2022). Additionally, this work leverages the fit perspective to enhance the proposed model to explore the circumstances in which dynamic IT capabilities, including the deployment of marketing analytics, can enhance marketing agility. Through the findings of this work, researchers can provide valuable insights that inform strategic decision-making while also contributing to the advancement of theory and practice. This endeavour has the potential to open up new avenues for competitive advantage and long-term growth in an industry defined by its reliance on effective marketing strategies and responsiveness to changing consumer preferences.

Theoretical background

Dynamic capability theory

Dynamic capabilities encompass a company's capacity to effectively integrate, construct, and adapt internal and external resources and competencies to navigate and potentially shape swiftly evolving business landscapes (Teece, 2012, p. 1395). This concept is founded on three fundamental components: sensing, seizing, and reconfiguring. Success in a dynamic and tumultuous business environment, like travel and tourism, hinges on a firm's ability to swiftly and accurately identify market opportunities (sensing), efficiently pursue these opportunities (seizing), and revitalize its concerns by enhancing and rejuvenating its existing resources. Within this framework, organizations engage in the process of restructuring their existing resources while concurrently generating novel ones (Elsharnouby and Elbanna, 2021; Helfat and Peteraf, 2003; Schilke, 2014).

In the tourism and hospitality sector, dynamic capabilities have been measured from a general perspective with no special focus on the nuances of the sector. In the limited literature that exists, according to Ali et al. (2020), “integration, reconfiguration, and renewal/recreation” capabilities enable hospitality services to be dynamic. Hotel capabilities are proposed by Eşitti and Kasap (2020) through the dynamic capabilities of “converting, perceiving, and seizing”. On the other hand, Nieves et al. (2016) offer a four-pronged capacities framework that includes the “ability to sense, learn, integrate, and coordinate”. Additional studies in this field, such as those by Anning-Dorson and Nyamekye (2020) and Seo et al. (2021), take into account a hotel's degree of “asset-lightness, flexibility, and inventiveness” as additional dynamic capacities. Moliner et al. (2021) have examined “human resource management (HRM), quality management (QM), and sustainability” as distinct hotel dynamic capacities. They argue that such capabilities can enable hotels to quickly adapt to variable environments. As per Moliner

et al. (2021), human-resource management provides operational capabilities to manage crises, quality management enables protocols for hotels to make the hotels safe for stay, and sustainability provides an accelerated rethinking capability to ensure quick recovery from a crisis. All three capabilities provide the hospitality service with the agility to overcome dynamic environments effectively.

Marketing agility

Due to its critical importance to company performance, marketing agility has drawn significant attention from scholars in a variety of business domains (Homburg et al., 2020; Kalaignanam et al., 2021; Khan, 2020). It is generally acknowledged as a higher-order capability that evolves progressively with time (Akter et al., 2022) and includes attributes like speed, adaptability, and market sensing (Zhou et al., 2019). These attributes allow firms to quickly identify opportunities and modify their marketing strategies in response to changing conditions. Marketing agility, in essence, empowers various organizations to acquire, integrate, and adapt resources, enabling them to position themselves dynamically and competitively in the marketplace (Day, 2011; Vickery et al., 2010).

Many studies in the travel and tourism context indicate that marketing agility improves businesses' competitiveness and the ability to survive (Melián-Alzola et al., 2020). Marketing agility is mandatory for allowing the tourism industry to adapt to and recover from environmental shocks and evolving customer demands (Melián-Alzola et al., 2020). The importance of marketing agility in the travel and tourism sector amid crises, like as the COVID-19 pandemic, is widely recognized (Hadjielias et al., 2022).

Marketing Analytics Use

Marketing analytics capability reflects an organization's proficiency in effectively deploying resources related to data analytics, in conjunction with marketing resources (Cao,

Duan, & El Banna, 2019; Shuradze, Bogodistov, & Wager, 2018). It encompasses the comprehensive process of gathering, storing, processing, and analyzing diverse data sources, including app and weblogs, surveys, transactions, sales and revenue data, and social data. The goal is to derive valuable insights into marketing effectiveness using descriptive, diagnostic, predictive, and prescriptive tools (Chang et al., 2020; Akter, Hani, Dwivedi, and Sharma, 2022). Marketing analytics is primarily concerned with the "sell-side" of an organization, where it integrates marketing-relevant data and emphasizes the flow of knowledge between information technology and marketing functions, as well as the relationships that evolve between them (Akter, Hani, Dwivedi, & Sharma 2022; Ravichandran, 2018; Park et al., 2020). Within the travel and tourism industry, companies harness an abundance of data and analytics to gain insights into customer behaviour (Stylos, Zwiegelaar, & Buhalis, 2021; Melián-Alzola, Fernández-Monroy, & Hidalgo-Peñate, 2020; Zhang, Wang, and Olya, 2022).

Intervening factors

Recent works show that marketing firms that focus on structured adoption of analytics and data can secure performance gains (Gupta & George, 2016; Mikalef et al., 2019). Such studies support the notion that analytics resources are not only cultivated based on dynamic capabilities (Bouncken et al., 2018) but also on the contextual factors of the environment and the organisation (Zelt et al., 2019). Such findings advocate that a holistic perspective to explore the effective allocation of analytics capabilities is needed (Mikalef & Krogstie, 2018).

For organizational factors, leveraging existing research, we argue that three types of resource-fits are crucial to the success of marketing analytics investments: tangible, human, and intangible (Gupta & George, 2016). For tangible resources, data fit with the technology is an important pillar for success in the context of data analytics deployments (Gupta & George, 2016). Such fit would include the quality and availability of the data (Janssen et al., 2017), or

the necessary capacities for storing and analysing data, or the right analytic methods used to turn data into knowledge (Mikalef & Krogstie, 2018). For the human factor, Wamba et al. (2017) argue that the technical skills of employees are important to deriving business performance from data analytics investments. Within technical skills, Davenport and Patil (2012) exhort the importance of employees understanding the data value, and the process of cleaning, processing, and analysing the said data to derive actionable insights. Finally, for intangible resources, a marketing analytics-driven culture to ensure the constant alignment of organizational tasks with the technology available is critical for the effective deployment of data initiatives (Abbasi et al., 2016). Such projects based on an analytics-driven culture with an in-built orientation with organizational tasks are key factors in determining the overall fulfilment of organisational strategy (Grover et al., 2018). Based on this discussion, this work proposes data-tool fit, employee-tool fit, and task-tool fit as intervening variables in this work.

Another important contextual factor determining the success of marketing analytics deployment is the external environment of the firm. The dynamic nature of the environment, including its heterogeneity and hostility, is critical to examine as under such conditions, the organisation needs to reconfigure the way they emphasise data analytical capabilities (Mikalef & Krogstie, 2018). The level of competition, technological change, and resource paucity in the environment significantly affect the success of projects involving marketing analytics capabilities (Vom Brocke & Mendling, 2018). Hence, this work proposes market turbulence as an environmental moderator affecting the primary process.

Proposed framework and hypotheses development

Figure 1 presents the proposed model.

INSERT FIGURE 1 HERE

Marketing Analytics Use and Hotel Performance

Firms can improve operational efficiency and profitability by optimizing marketing strategies, gaining deeper insights into customer behaviour, and making data-driven decisions through the efficient application of marketing analytics (Erevelles et al., 2016). Research has indicated that marketing analytics improves company performance in the travel and tourism industry. According to Wamba et al. (2017), the tourism sector may enhance its overall performance, customer service, and operational efficiency by implementing big data analytics. Leonidou et al. (2017), with a particular focus on the hotel sector, presented evidence that dynamic marketing capabilities, such as the use of analytical tools, allow hotels to improve their market performance, gain a competitive edge, and respond to changes in the environment. The effective deployment of marketing analytics can enable hotels to better sense changes in customer preferences, seize new market opportunities, and reconfigure their marketing strategies accordingly (Nguyen et al., 2022; Carneiro et al., 2023). Hence, we hypothesize:

H1: Marketing analytics use has a positive impact on financial performance.

Marketing analytics use and marketing agility

Marketing analytics and marketing agility are crucial for businesses operating in the travel, tourism, and hospitality industries. Marketing analytics capabilities can act as a precursor to marketing agility, providing such businesses with insights and tools required to quickly respond to changes in the market (Agag et al., 2024). The detection of consumer behaviour patterns for personalization and relationship management, real-time decision-making for resource allocation to marketing factors, and data governance (protecting privacy and security) are important areas of focus for marketing analytics (De Luca et al., 2021). However, the mere possession of marketing analytics tools is insufficient for necessary

marketing-enabled data analytics capabilities. To generate marketing agility, these tools must be seamlessly integrated into an organization's business processes. Hence, we propose:

H2: Marketing analytics use has a positive impact on marketing agility.

Marketing Agility and Firm Performance

Zhou et al. (2019) perceive firm performance as an evaluative and analytical framework for appraising work outputs. If an organization excels in its capacity to sense opportunities and adapt, it increases the likelihood of effectively and promptly adjusting to unforeseen changes and leveraging opportunities. Consequently, marketing agility is recognized as a significant driver of firm performance (Tarn & Wang, 2023; Zhou et al., 2019), at times even viewed as a performance outcome rather than merely a structural or operational attribute. Many studies have shown how agility and associated attributes affect firm performance (Wagner, Beimborn, & Weitzel, 2014). Marketing agility is centred on the capacity to react quickly to unforeseen events and circumstances at the tactical level, providing organizations with the tools to deal with new scenarios as they arise and enhance performance (Khan, 2020). We therefore posit:

H3: Marketing agility has a positive impact on financial performance.

Marketing Agility as a mediator between marketing analytics use and firm performance

To understand customer behaviour, tastes, and market trends and to support focused strategies and well-informed decision-making, hotels are finding it essential to use marketing analytics (Liang et al., 2022). Chaudhuri et al. (2021) suggest that a data-driven culture in firms, supported by marketing analytics capabilities, can enable such businesses to quickly respond to market opportunities and challenges, and in turn, take appropriate marketing action to secure firm performance, both financial and market. Duan et al. (2020) and Mikalef et al. (2021) indicate that marketing analytics implementations help develop an organizational culture of data-driven decision-making, which allows firms to effectively acknowledge environmental

opportunities and threats, and take appropriate responses. We argue that the success of marketing analytics depends not just on how data is used, but also on how quickly the company can turn insights into action as reflected by marketing agility (Hajli et al., 2020; Ashrafi et al., 2019). Hence, we hypothesize:

H4: Marketing agility mediates the relationship between marketing analytics use and financial performance.

Moderating variables

Data-tool fit

The effective utilization of marketing analytics relies heavily on the alignment between the data sources and the analytical tools employed by organizations, commonly referred to as the data-tool fit (Ghasemaghaei, Hassanein, & Turel, 2017), which has emerged as a critical factor in determining the success of marketing analytics initiatives and their impact on firm performance (Akter et al., 2016; Wamba et al., 2017). The data-tool fit ensures that the analytical tools are capable of processing and extracting valuable insights from the available data sources, enabling organizations to make informed decisions and optimize their marketing strategies (McAfee, 2012; Sharma et al., 2010). In the context of hotels, the data-tool fit has become increasingly important due to the vast amount of data generated from various sources, such as online booking platforms, social media presence, and customer feedback channels (Carneiro et al., 2023; Ghasemaghaei et al., 2017; Nguyen et al., 2022). Higher data-tool fit makes it easier to integrate data from many sources, including transactional data, customer reviews, and social media data. This gives hotels a more comprehensive understanding of consumer behaviour and improves operational and marketing effectiveness (Erevelles et al., 2016). Hence, we hypothesize:

H5a: Data-tool fit positively moderates the relationship between marketing analytics use and financial performance.

Employees-tool fit

The effective utilization of marketing analytics tools requires employees to possess the necessary skills, knowledge, and capabilities to leverage these tools effectively (Edwards, 1991). The employee-tool fit perspective extends this concept, asserting that there should be a good match between the capabilities of technology users and the technologies they employ (Ghasemaghaei, Hassanein, & Turel, 2017). When there is a high/low degree of alignment between the analytical tools and employee capabilities, firms are better/not-adequately positioned to extract valuable insights from their data sources and make informed/informed decisions to optimize their marketing strategies (Boley, 2020; Ayyagari, Grover, & Purvis, 2011), leading to improved/reduced financial outcomes. With this synergy, hotels may better understand market trends, customer preferences, and competitive dynamics, which in turn helps them customize their offers, manage pricing, and improve the overall guest experience (Ayyagari, Grover, & Purvis, 2011; Hollander, 2024; Ghasemaghaei, Hassanein, & Turel, 2017). Hence, we propose:

H5b: Employee-tool fit positively moderates the relationship between marketing analytics use and financial performance.

Task-tool fit

Task-tool fit is the degree to which analytics tools are appropriate for marketing tasks (Muchenje & Seppänen, 2023). This fit can also be expressed in terms of a technology, depicting a tool, matching with the task requirements. In other words, there can be a unilateral dependence of a task on a tool, that is, the task must conform to the tool in use (Baskerville et al., 2020; Fernandez-Vidal et al., 2022). A firm's task requirements and the mechanisms used

to enable the execution of these tasks should be strongly aligned, according to the fit perspective (Howard & Rose, 2019). The lack of fit between the task and tool is a task-tool misfit (Howard & Rose, 2019). This implies that the tool has too few or too many attributes required for the task. Inefficient or ineffective use of analytics may occur if the tools do not align with the specific marketing tasks being performed, hindering marketing agility (Ghasemaghaei, Hassanein, & Turel, 2017). A high fit enhances the firm's capacity to act swiftly and improve overall outcomes (Yang et al., 2013; Trieu, 2017), which eventually improves financial performance. Hence, we propose:

H5c: Task-tools fit positively moderates the relationship between marketing analytics use and financial performance.

Market Turbulence

Firms must navigate through volatile market conditions, sometimes known as "market turbulence," in today's quickly changing and extremely turbulent business landscape, which is marked by fierce rivalry, fluctuating client preferences, and technology upheavals (Tarn & Wang, 2023). Dynamic capabilities have a stronger favourable impact on regular capabilities for organizations in extremely turbulent situations (Elazhary et al., 2023; Liang et al., 2022). Hajli et al. (2020) found similar results, showing that the benefits of dynamic capabilities on conventional capabilities are greater for businesses that operate in extremely volatile situations. According to Tarn and Wang (2023), businesses need prompt access to pertinent information to match regular capabilities with external settings in the face of uncertainty. Based on the dynamic capabilities theory, marketing analytics play an even more crucial role in the travel and tourism sector, which is extremely vulnerable to market turbulence brought on by things like shifting consumer tastes, geopolitical events, and economic fluctuations (Li et al., 2021; Saputra et al., 2022). Hence, we propose:

H6. Market turbulence positively moderates the relationship between marketing analytics use and financial performance.

Research method

Measures

Primary variables

We designed the study questionnaire in line with previous studies on marketing analytics and marketing agility. In line with prior research in the hospitality and tourism industry (e.g., Boo & Kim, 2010; Sharma et al., 2022), financial performance was measured using revenue per available room (RevPart), which was calculated using the revenue divided by the number of available rooms in period t . RevPart represents the revenue generated per room, computed as the total room revenue divided by the sum of company-owned and franchised/managed rooms available. Marketing analytics is a domain of business analytics and involves the collection, management, analysis, and usage of marketing data to obtain insights for decision-making and performance optimization (Germann et al., 2013). In line with previous research, our study operationalised marketing analytics use as “the extent to which insights gained from marketing analytics guide and support marketing decision-making within the firm (Germann et al., 2013, P.115). Respondents were asked to indicate to what extent their hotels used marketing analytics in various key decision areas (e.g., “pricing, segmentation, and targeting”) on a 5-point Likert scale (1 = to a small extent, 5 = to a large extent). Following Germann et al. (2013), we aggregated the 12 questions about applying marketing analytics to strategic decision-making areas and used the aggregated item as the third item for marketing analytics (see Appendix A2).

In line with Zhou et al. (2019), this study considers agility from a marketing perspective and defines marketing agility as a hotel's ability to proactively anticipate and sense marketing

opportunities and to respond quickly and flexibly to these opportunities to better satisfy customer needs. Marketing agility was operationalised as a multidimensional factor that comprised proactiveness (four items), speed (four items), responsiveness (four items), and flexibility (three items) taken from Zhou et al. (2019) (see Appendix A2). Regarding market turbulence, our study measured market turbulence using an established scale from previous research (Peters et al., 2019). Fit was defined as the “congruence, match, agreement, or similarity between two conceptually distinct constructs” (Ghasemaghaei et al., 2017, p. 93). In our context, we focus on the extent of congruence between marketing analytics tools and other relevant organizational elements (people, data, tasks). We measured “perceived data-tools fit, people-tools fit, and tasks-tools fit” utilising a three-item reflective scale from Vogel and Feldman (2009). The participants were requested to express the degree to which their hotels employed marketing analytics in different crucial decision domains using a 5-point Likert scale (“1 = to a small extent, 5 = to a large extent”).

We tested the hypothesis with a combination of cross-sectional survey data and objective secondary data and thereby followed the recommendations of Maier et al. (2023) to ensure a high level of quality in this multimethod research. To ensure the quality of cross-sectional data, we enriched the self-reported survey data with objective data (Maier et al., 2023). Hence, firm performance was measured with secondary data. This is consistent with prior research on business analytics context (e.g., Weritz et al., 2024; Wielgos et al., 2021).

Control variables

To confirm that the conceptual framework was robust, our study included several control factors that were commonly recognized in prior studies to influence agility and performance (e.g., Rutz & Watson, 2019). At the firm level, firm size and age were included in our proposed model. Firm size was measured as the number of firm employees, while firm age was evaluated

as “the number of years since establishment” (Liang et al., 2022). Prior year performance was assessed as “Operationalized as industry-adjusted ROA at t-1” (Connelly et al., 2016). At the industry level, we included various control factors, such as industry stability which was assessed as the two-digit SIC industry’s lagged three-year standard deviation of the median sales growth (t - 2, t - 1, t)” and industry growth which was operationalised as “the two-digit SIC industry’s lagged three-year average of the median sales growth” (t - 2, t -1, t) (Connelly et al., 2016).

We used a sample of 20 hotel managers to carry out a pilot test. To improve the relevance and accuracy of the surveys, a few modest changes were made to some items based on their recommendations. In addition, we requested the participants to indicate their levels of confidence about the information they supplied. The mean score obtained was 3.62 out of 5, with a standard deviation of 0.79. This suggests a significant level of confidence.

Sample and data collection

To assess the study hypotheses, primary managerial data and secondary performance data from an objective database are considered highly appropriate. It is acknowledged that using a key informant technique is a useful way to evaluate marketing capabilities (Homburg & Wielgos, 2022). The methodology above has been extensively utilised in the field of marketing (Hossain et al., 2022; Morgan et al., 2018). In this study, financial performance, market performance, and control variables were evaluated using secondary data, while primary data on marketing analytics use, marketing agility, and fit aspects were gathered from managers.

We gathered information from hotel marketing managers using a reliable market research company. These managers were actively involved in marketing campaigns and have used marketing analytics to develop strategies for their hotels in the UK. [Companies in the U.K. have focused on optimising marketing and consumer data, placing significant emphasis on](#)

enhancing business analytics skills. Consequently, the U.K. was considered a suitable environment to investigate how companies may optimise the advantages of utilising marketing analytics. Before data collection, we conducted a pre-test of our survey with ten academic experts and ten practitioners to ascertain its face validity. We requested the pilot test participants to complete the survey and offer feedback on its design. By their recommendations, we implemented slight modifications to several survey questions to enhance their accuracy and relevance to the U.K. environment.

The U.K. database of this research firm comprises more than 2,905 hotels. The random sample method was used to send the questionnaire link to the research firm's database. A screening question aimed at identifying managers with experience in marketing analytics and marketing agility was included. In August 2023, the necessary data were gathered. We reached out to 1,200 managers who met the requirements. A total of 903 answers were obtained with 866 usable responses. To assess the sample size adequacy for PLS analysis, our study performed a post hoc power analysis utilising G*Power 3.1 (Faul et al. 2007). The results ($\alpha = 0.05$, $\beta = 0.60$) revealed that the sample ($n = 866$) was adequate for the final analysis.

Table 1 shows the study sample. Most hotels had more than 50 employees, accounting for 72.4% of the sample. Additionally, a significant proportion of these hotels, specifically 86%, had been in operation for a period exceeding three years. This demonstrates that they possess a level of expertise in addressing challenges related to marketing analytics. Most hotels are 5-star hotels, accounting for 49% of the total sample.

INSERT TABLE 1 HERE

Analysis and results

Common method variance (CMV)

Following the guidelines of Hulland et al. (2018), this research included both a-priori and post-hoc procedures. By the a-priori technique, the survey questionnaire items for each variable (i.e., marketing analytics use and marketing agility) were segregated into distinct sections. The study employed distinct response scales for both the independent and dependent variables. Additionally, a paired t-test was conducted on two randomly divided sets of data, which confirmed that there was no presence of non-response bias. The study additionally examined the post-hoc approach. The research included two inquiries within the marker variable. The correlation between the marker variable and the research factors is found to be statistically insignificant. Therefore, common method bias was not a major concern.

Measurement model

PLS-SEM was employed to assess the proposed model because of its flexible distributional assumptions and reliable prediction capabilities (Hair et al., 2021a). We choose to use PLS-SEM to evaluate the measurement and structural aspects of the hierarchical model since it offers algorithmic advantages in determining latent factor scores, identifying variables, and making accurate predictions (Hair et al., 2021a; b). Therefore, we utilised a path weighting approach to approximate the inner values and employed non-parametric bootstrapping with 5000 replications. Subsequently, we utilised SmartPLS V3 to estimate both the measurement and structural models (Ringle et al., 2015).

Tables 2 and 3 show the results of our analysis. Our results revealed a composite reliability between 0.70 and 0.96, demonstrating a satisfactory level of internal consistency (Nunnally & Bernstein, 1994). The outer loadings of measuring indicators are statistically significant ($p < 0.05$) and are more than 0.70. Additionally, the average variance extracted (AVE) estimate is at least 0.50, showing that the concept captures at least 50% of the difference in its indicators.

This provides evidence of convergent validity. The cross-loadings of all study items on their respective variables are above 0.70 (Hair et al., 2021a). In addition, the Heterotrait-Monotrait Ratio (HTMT) of indicators associations was utilised in this research as a more cautious approach to evaluate the discriminant validity.

INSERT TABLES 2 & 3 HERE

Table 3 indicates that all HTMT estimated values were less than 0.90, demonstrating support for discriminant validity (Henseler, Ringle, and Sarstedt, 2015). The results provided evidence for the utilisation of the measures to assess their corresponding variables and assess the proposed models.

Structural model

The analysis reveals that marketing analytics use has a significant effect on financial performance ($\beta = 0.23$, $p < 0.001$). Marketing analytics use was found to have a significant effect on marketing agility ($\beta = 0.63$, $p < 0.001$), implying that H1 and H2 are supported. The results also show that marketing agility has no impact on financial performance ($\beta = 0.05$, $p < 0.16$). Therefore, H3 is not supported.

In line with prior research (e.g., Hayes, 2017; Preacher & Hayes, 2008), our study tested the mediating role of marketing agility by utilising the PROCESS method (Ahsan et al., 2023). Table 4 shows the indirect path estimates and the corresponding 95% “upper limit confidence interval” (ULCI) and “lower limit confidence interval” (LLCI). Our analysis indicates that marketing analytics use has an indirect effect on financial performance ($\beta = 0.06$, 95% CI = 0.01, 0.16). Therefore, H4 is supported.

INSERT TABLE 4 HERE

Our analysis indicates that fit facets (i.e., data, people, and tasks) have a significant impact on the links between marketing analytics use and hotel financial performance ($\beta = 0.42, 0.39, 0.61, p < 0.001, t\text{-value} = 6.290, 4.823, 23.187$), respectively. These results support H5a, H5b, and H5c. Our analysis also reveals that market turbulence moderates the links between marketing analytics use and hotel's financial performance ($\beta = 0.26, p < 0.001, t\text{-value} = 3.120$). Therefore, H6 was also supported.

Additional analysis and robustness checks

The significance of the study results is substantial. Thus, we conducted further analysis to thoroughly examine this link. First, we conducted an ordinary least squares regression analysis, incorporating a quadratic component to examine the potential non-linear impacts of marketing analytics implementation. The coefficient for the squared term did not reach statistical significance, indicating that there is no evidence of a curvilinear relationship. Second, at the firm level, firm size and age were included in our proposed model. At the industry level, we included industry stability and industry growth (Connelly et al., 2016). Our analysis reveals that none of these variables had a main nor a moderating effect.

Third, hotels with high performance may have greater flexibility and, therefore, more resources to utilise marketing analytics compared to hotels with low performance. This suggests that the use of marketing analytics may be influenced by firm performance, rather than the other way around. To evaluate the possibility of reverse causality, we gathered supplementary objective performance data for the year after our survey. We replicated the previously described process to get the objective performance data and subsequently computed the 2-year mean revenue per available room (RevPart) utilising both the recently acquired data and the data from the year before our main data collection. Subsequently, we utilised the recently acquired objective performance data to conduct a fresh analysis of our proposed model.

We utilised SEM to estimate the direct impacts in our suggested model without any moderation. Additionally, we employed OLS regression to investigate the relationship between marketing analytics use and performance. The SEM findings and the regression findings for Model 2 can be found in Table 5. The analysis indicates that there were no significant changes in the results.

INSERT TABLE 5 HERE

Fourth, we employed a mixed regression model (DeSarbo and Cron, 1988) to investigate the potential presence of unobserved variations between hotels. The “one-class model” yielded the lowest Bayesian Information Criterion, indicating that unobserved heterogeneity was not significant for our model. Therefore, our findings can be applied to all types of hotels. Table 6 demonstrates our robustness checks of the link between marketing analytics use and firm performance.

INSERT TABLE 6 HERE

Discussion and conclusion

This research aimed to examine the relationship between marketing analytics use, marketing agility, and firm (hotel) performance in UK-based hotels. We postulated that the application of marketing analytics use is a crucial driver of marketing agility, with firm performance emerging as a result. Furthermore, we investigate how external factors such as fit facets (data-tools fit, employee-tools fit, and task-tools fit) and market turbulence factors (customer turbulence, technological turbulence, and competitor turbulence) may moderate the relationships between digital marketing capabilities, marketing agility, and firm performance.

The results demonstrate a favourable relationship between a company's marketing analytics use and marketing agility. This finding is especially significant considering the limited investigation of the specific relationship between marketing analytics use and marketing agility in prior studies. Prior research (e.g., Shuradze, Bogodistov, and Wagner, 2018) have shown a lack of empirical data on the link between marketing analytics use and other kinds of agility, such as organizational agility or supply-chain agility. This finding highlights the strategic advantage for companies with strong marketing analytics use to effectively address challenges in the constantly changing marketing environment (Akter et al., 2022; Kalaighnam et al., 2021). It also validates the positive influence of marketing analytics use on marketing agility. Our results provide empirical support to the notion that companies can strategically develop and leverage their use of marketing analytics to improve their marketing agility, in addition to validating these theoretical relationships.

Next, we found that marketing agility has a significant influence on the financial performance of hotels. The results of our investigation provide insight into the complex interplay between the application of marketing analytics and marketing agility, as well as the effects of agility on financial performance, but not the market. It's interesting to note that, despite having a significant impact on financial performance, the use of marketing analytics does not appear to directly affect market performance. This implies that businesses using marketing analytics could see improvements in their financial results, possibly because of increased productivity, more focused resource allocation, or improved decision-making procedures. Our study highlights the necessity for firms to take a balanced approach that incorporates both marketing analytics capabilities and agility initiatives to achieve comprehensive gains in performance across financial and market domains.

Next, according to our analysis, marketing agility acts as a mediating factor and has an indirect effect on market performance and financial performance when marketing analytics are

used. This indicates that while there are direct effects, the organization's capacity to quickly adjust and react to market dynamics is likely to mediate a sizable amount of the relationship between marketing analytics use and hotel performance. This finding highlights the crucial function of marketing agility as a mediator, suggesting that enterprises adept at utilizing marketing analytics are more capable of promptly modifying their marketing tactics, which in turn results in improved financial and market outcomes. This finding improves our understanding of the connections between marketing analytics use, marketing agility, and firm performance within businesses and adds a great deal of value to the body of knowledge currently available (Bhatti et al., 2022).

Next, our analysis highlights the considerable impact of fit facets, including data, people, and tasks, on the link between marketing analytics use and marketing agility. These findings suggest that the alignment of the organization's data architecture, staff skill sets, and nature of tasks completed is critical in determining the extent to which marketing analytics adoption improves marketing agility (Akter et al., 2022; Ashrafi et al., 2019). A better fit between these features corresponds to a stronger positive relationship between marketing analytics utilization and marketing agility (Kalaighnam et al., 2021). The significant impact of fit facets on this connection highlights the multiple characteristics of marketing agility, underlining the need for a comprehensive approach that takes into account various organizational dimensions to fulfil its full potential in response to market dynamics (Tarn & Wang, 2023). Our analysis also showed that market turbulence, including consumer, technological, and competitor turbulence, plays a crucial role in the association between marketing agility and financial and market performance. The fact that marketing agility's benefit is amplified under larger levels of market turbulence shows that agility is not just important in stable market conditions, but even more so in turbulent environments.

Theoretical implications

From the theoretical perspective, our study offers meaningful insights into the link between marketing analytics use, marketing agility, and firm performance in the hospitality context. First, our research integrates the dynamic capability view into marketing analytics studies to enhance our comprehension of the mechanisms by which marketing analytics impact hotel performance, which represents a novel application of the theory in the hospitality domain (Germann et al., 2013; Liang et al., 2022). Prior research, in a general context, has confirmed the direct impact of analytics on competitive advantage (Cadden et al., 2022) and on business performance (Cao & Tian, 2020), without specific insights into the mechanism that creates these effects. In other words, these examinations have failed to consider the indirect impacts relating analytics to business performance. Therefore, this research adds to the comprehension by focusing on developing dynamic capabilities as an outcome of deploying marketing analytics to generate firm performance. This research uncovers a significant ability to adapt and respond quickly in marketing, known as marketing agility, and its crucial role in mediating the linkages between analytics and performance (Liang et al., 2022; Schilke et al., 2014).

Second, our research aligns with the growing demand for improving the effectiveness of marketing analytics use in varying environments, especially turbulent ones (Liang et al., 2022). Our analysis reveals that market rivalry has a positive moderating influence on the link between marketing analytics and business performance. Additionally, our research pointed out that market turbulence might further amplify the favourable influence of marketing analytics on hotel performance. These findings imply that implementing marketing analytics results in more favourable results for hotels operating in volatile marketplaces (Abrokwah-Larbi, 2024). This is a novel finding from the perspective of the turbulence of the environment in which a hotel is operating and helps expand the application of the dynamic capability view in an external environmental volatility context (Cadden et al., 2022). This knowledge implies that

hotels need to align themselves to their environmental conditions to effectively implement their marketing analytics activities for market agility and resultant business performance.

Third, our study utilised the fit perspective to create and test a model that examines the data/employee/task fit to the technological tool that enables dynamic IT capabilities, such as the use of marketing analytics, to enhance marketing agility and firm performance. The fit view in information system studies is exemplified by the influential task technology fit perspective (Goodhue and Thompson, 1995). While the “data-technology fit and people-technology fit” are both discussed in this perspective, previous studies in IS have solely concentrated on the “task-technology fit”. Additionally, previous studies have examined the direct influence of task-technology fit on firm performance without considering the potential moderating effects it may have in the process (e.g., Lu and Yang, 2014; Zhou et al., 2019). Our study expands the fundamental essence of the “task-technology fit perspective” by integrating data-tool fit and employee-tool fit into the framework. The data-tool fit is crucial due to the diverse range of marketing analytics tools and the varieties of data formats and sizes in contemporary organisations, which pose a challenge in finding solutions that are well suited for analysing such data. This more comprehensive fit view adds knowledge to the existing task-technology fit perspective and can also be extended to other information systems (e.g. Muchenje & Seppänen, 2023).

Managerial implications

Our research has meaningful implications for managers. It suggests that they can use their marketing analytical endeavours to establish a dynamic capability (i.e., marketing agility) and enhance hotel performance. Although certain hotels may hesitate to make investments in marketing analytics due to their inability to showcase the value of such analytics, this research provides compelling evidence that marketing analytics indeed yields positive results. This

research demonstrates that using timely environmental scanning enables hotels to enhance their marketing agility, leading to higher performance results, specifically improved financial performance and market performance. Specifically, the use of marketing analytics has been shown to produce more favourable results for hotels that operate in a highly volatile market. Therefore, hotels that desire to remain flexible in competitive markets can utilise marketing analytics to guide their strategies in adapting to shifts in client preferences and competitive environments.

Furthermore, this study suggests that the evaluation of the business impact of marketing analytics should encompass a wider range of factors, as marketing analytics may result in intermediate outcomes such as marketing agility, rather than directly influencing hotel performance. In addition, our study suggests that hotels should provide educational seminars and training to equip workers in all units with essential abilities, such as data integration, analysis, presentation, and distribution. By doing this, hotels may not only decrease potential psychological obstacles and put staff at ease with data analytics tasks but also facilitate more seamless collaboration and coordination between different departments.

The results of our study demonstrate that the alignment among marketing analytics tools and key aspects of the hotels, such as data, tasks, and people, has an equal and significant effect on the link between the use of marketing analytics and the financial performance of hotels. Therefore, hotel managers should prioritise ensuring a strong fit between marketing analytics tools and these relevant hotel aspects to enhance the financial performance of hotels when utilising marketing analytics. To achieve this objective, hotels should use rigorous selection procedures when procuring marketing analytics technologies to guarantee that the chosen tools will closely align with their data, personnel, and tasks. Additionally, they have the option to modify their assignments to optimise the utilisation of the existing analytical tools. Furthermore, in cases when the fit is inadequate, managers may find it more advantageous to refrain from

utilising marketing analytics. This is because employing them under situations of low fit may prove to be more burdensome than advantageous. Furthermore, managers have the option to implement training programmes or engage in targeted recruitment efforts to enhance the alignment between customers and the products they use. Enhanced job performance is achieved when people possess the necessary skills to meet their job requirements. Enhancing the alignment between employees and analytical tools enables employees to fully leverage these technologies for a more comprehensive and expedited comprehension of the organisational landscape.

Limitations and Directions for Future Research

Our research is subject to various constraints, which may present potential avenues for future studies. First, our paper employed a cross-sectional approach to gather data to assess the utilisation of marketing analytics as an independent variable. Further examinations should utilise real-world data [on a longitudinal basis concerning](#) marketing analytics usage to further substantiate the stated relationships between marketing analytics use and hotel performance.

Second, like other research endeavours carried out inside the U.K. setting, our data collection was limited to hotel managers exclusively in the U.K. It would be beneficial for further studies to gather data from different countries. Conducting cross-cultural comparisons is necessary to enhance the applicability of our findings and offer a comprehensive perspective in other settings. [Further, the market turbulence conditions may vary across types of countries to evoke a second-order moderation check adding greater value to this work.](#) The same would apply to the variation of the levels of data-tool, employee-tool, and task-tool fit across the various countries.

Third, our study focuses on exploring the outcomes of marketing analytics deployment by examining its impact on marketing agility and hotel performance, but not on the drivers of

such deployment. In the domain of the sharing economy, marketing analytics on a cloud-sharing platform is a dominant point of discussion (Sheth, 2023). The deployment of marketing analytics is primarily driven by the need to analyse incoming consumer data to build, test and implement models in the customer relationship management field, and for service customization and automation in real time (Wedel & Kannan, 2016). Future works could analyse the effect of such needs on the extent of marketing analytics implementation in hotel services for a more comprehensive model.

Fourth, the measurements of the three forms of fit exhibited a consistent and unchanging nature, especially given the study is cross-sectional. Given that fit can vary over time and that too in divergent ways (e.g., the data-tool fit may worsen as data size becomes larger over time to overwhelm the analytics technology while employee-tool fit may improve as employees get more and more adept with the analytics technology overtime), future studies could employ longitudinal methods to capture the dynamics of such evolving fits. Additionally, the interaction of the three fits can be empirically analysed to explore their joint effects on the process.

Finally, marketing agility can be influenced by variables other than marketing analytics and fit facets. For example, a firm can build marketing agility by integrating marketing strategies in the decision-making process, developing a network community with other businesses for co-innovation, and enabling employees who understand and contribute to the company's innovative culture and growth (Škare & Soriano, 2021). Therefore, further investigation is needed to determine the influence of such additional elements on the creation of marketing agility, along with the deployment of marketing analytics.

References

- Abbasi, A., Sarker, S., & Chiang, R. H. (2016). Big data research in information systems: Toward an inclusive research agenda. *Journal of the association for information systems*, 17(2), 3.
- Abdelmoety, Z. H., Aboul-Dahab, S., & Agag, G. (2022). A cross cultural investigation of retailers commitment to CSR and customer citizenship behaviour: The role of ethical standard and value relevance. *Journal of Retailing and Consumer Services*, 64, 102796.
- Abrokwah-Larbi, K., & Awuku-Larbi, Y. (2024). The impact of artificial intelligence in marketing on the performance of business organizations: evidence from SMEs in an emerging economy. *Journal of Entrepreneurship in Emerging Economies*, 16(4), 1090-1117.
- Agag, G., Durrani, B. A., Shehawy, Y. M., Alharthi, M., Alamoudi, H., El-Halaby, S., ... & Abdelmoety, Z. H. (2023). Understanding the link between customer feedback metrics and firm performance. *Journal of Retailing and Consumer Services*, 73, 103301.
- Agag, G., Shehawy, Y. M., Almoraish, A., Eid, R., Lababdi, H. C., Labben, T. G., & Abdo, S. S. (2024). Understanding the relationship between marketing analytics, customer agility, and customer satisfaction: A longitudinal perspective. *Journal of Retailing and Consumer Services*, 77, 103663.
- Ahsan, M., Adomako, S., Donbesuur, F., & Mole, K. F. (2023). Entrepreneurial passion and product innovation intensity in new ventures: mediating effects of exploration and exploitation activities. *British Journal of Management*, 34(2), 849-872.
- Akter, S., Bandara, R. J., & Sajib, S. (2021). How to empower analytics capability to tackle emergency situations?. *International Journal of Operations & Production Management*, 41(9), 1469-1494.
- Akter, S., Hani, U., Dwivedi, Y. K., & Sharma, A. (2022). The future of marketing analytics in the sharing economy. *Industrial Marketing Management*, 104, 85–100.
- Akter, S., Wamba, S. F., Gunasekaran, A., Dubey, R., & Childe, S. J. (2016). How to improve firm performance using big data analytics capability and business strategy alignment?. *International Journal of Production Economics*, 182, 113-131.

- Alghamdi, O., & Agag, G. (2024). Competitive advantage: A longitudinal analysis of the roles of data-driven innovation capabilities, marketing agility, and market turbulence. *Journal of Retailing and Consumer Services*, 76, 103547.
- Ali, S., Peters, L. D., Khan, I. U., Ali, W., & Saif, N. (2020). Organizational learning and hotel performance: the role of capabilities' hierarchy. *International Journal of Hospitality Management*, 85, 102349.
- Anning-Dorson, T., & Nyamekye, M. B. (2020). Be flexible: turning innovativeness into competitive advantage in hospitality firms. *International Journal of Contemporary Hospitality Management*, 32(2), 605-624.
- Ashrafi, A., Ravasan, A. Z., Trkman, P., & Afshari, S. (2019). The role of business analytics capabilities in bolstering firms' agility and performance. *International Journal of Information Management*, 47, 1–15.
- Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological antecedents and implications. *MIS quarterly*, 35(4), 831-858.
- Baskerville, R. L., Myers, M. D., & Yoo, Y. (2019). Digital first: The ontological reversal and new challenges for information systems research. *MIS Quarterly*, 44(2), 509-523.
- Bhatti, S. H., Hussain, W. M. H. W., Khan, J., Sultan, S., & Ferraris, A. (2022). Exploring data-driven innovation: What's missing in the relationship between big data analytics capabilities and supply chain innovation? *Annals of Operations Research*, 1–26.
- Boley, M. (2020). 27 Must-Have Hotel Marketing Tools. Retrieved on 13th March, 2024. Available at: <https://www.cvent.com/en/blog/hospitality/hotel-marketing-tools>
- Boo, S. & Kim, M. (2010). The influence of convention center performance on hotel room nights. *Journal of Travel Research*, 49(3), 297-309.
- Cadden, T., Weerawardena, J., Cao, G., Duan, Y., & McIvor, R. (2023). Examining the role of big data and marketing analytics in SMEs innovation and competitive advantage: A knowledge integration perspective. *Journal of Business Research*, 168, 114225.
- Cao, G., & Tian, N. (2020). Enhancing customer-linking marketing capabilities using marketing analytics. *Journal of Business & Industrial Marketing*, 35(7), 1289-1299.

- Cao, G., Duan, Y. & El Banna, A. (2019). A dynamic capability view of marketing analytics: Evidence from UK firms. *Industrial Marketing Management*, 76, 72-83.
- Carneiro, T., Picoto, W. N., & Pinto, I. (2023). Big Data Analytics and Firm Performance in the Hotel Sector. *Tourism and Hospitality*, 4(2), 244-256.
- Chang, Y.C., Ku, C.H. & Chen, C.H. (2020). Using deep learning and visual analytics to explore hotel reviews and responses. *Tourism Management*, 80, p.104129.
- Chaudhuri, R., Chatterjee, S., Vrontis, D., & Thrassou, A. (2021). Adoption of robust business analytics for product innovation and organizational performance: the mediating role of organizational data-driven culture. *Annals of Operations Research*, 1-35.
- Connelly, B. L., Haynes, K. T., Tihanyi, L., Gamache, D. L., & Devers, C. E. (2016). Minding the gap: Antecedents and consequences of top management-to-worker pay dispersion. *Journal of Management*, 42, 862-885.
- Davenport, T. H., & Patil, D. J. (2012). Data scientist. *Harvard business review*, 90(5), 70-76.
- Day, G. S. (2011). Closing the marketing capabilities gap. *Journal of Marketing*, 75(4), 183–195.
- De Luca, L. M., Herhausen, D., Troilo, G., & Rossi, A. (2021). How and when do big data investments pay off? The role of marketing affordances and service innovation. *Journal of the Academy of Marketing Science*, 49, 790–810.
- DeSarbo, W. S., & Cron, W. L. (1988). A maximum likelihood methodology for clusterwise linear regression. *Journal of classification*, 5, 249-282.
- Duan, Y., Cao, G., & Edwards, J. S. (2020). Understanding the impact of business analytics on innovation. *European Journal of Operational Research*, 281(3), 673-686.
- Edwards, J. R. (1991). *Person-job fit: A conceptual integration, literature review, and methodological critique*. John Wiley & Sons.
- Elazhary, M., Popovič, A., Henrique de Souza Bermejo, P., & Oliveira, T. (2023). How information technology governance influences organizational agility: the role of market turbulence. *Information Systems Management*, 40(2), 148-168.

- Elsharnouby, T.H. & Elbanna, S. (2021). Change or perish: Examining the role of human capital and dynamic marketing capabilities in the hospitality sector. *Tourism Management*, 82, p.104184.
- Erevelles, S., Fukawa, N., & Swayne, L. (2016). Big Data consumer analytics and the transformation of marketing. *Journal of business research*, 69(2), 897-904.
- Eşitti, B., & Kasap, M. (2020). The impact of leader–member exchange on lodging employees' dynamic capacities: The mediating role of job satisfaction. *Tourism and Hospitality Research*, 20(2), 237-244.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods*, 41(4), 1149-1160.
- Feng, H., Morgan, N. A., & Rego, L. L. (2015). Marketing department power and firm performance. *Journal of Marketing*, 79, 1-20.
- Fernandez-Vidal, J., Perotti, F. A., Gonzalez, R., & Gasco, J. (2022). Managing digital transformation: The view from the top. *Journal of Business Research*, 152, 29-41.
- Germann, F., Lilien, G. L., & Rangaswamy, A. (2013). Performance implications of deploying marketing analytics. *International Journal of Research in Marketing*, 30(2), 114-128.
- Ghasemaghaei, M., Hassanein, K., & Turel, O. (2017). Increasing firm agility through the use of data analytics: The role of fit. *Decision Support Systems*, 101, 95-105.
- Giacosa, E., Culasso, F., & Crocco, E. (2022). Customer agility in the modern automotive sector: how lead management shapes agile digital companies. *Technological Forecasting and Social Change*, 175, 121362.
- Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS quarterly*, 213-236.
- Grover, V., Chiang, R. H., Liang, T. P., & Zhang, D. (2018). Creating strategic business value from big data analytics: A research framework. *Journal of management information systems*, 35(2), 388-423.
- Gupta, M., & George, J. F. (2016). Toward the development of a big data analytics capability. *Information & Management*, 53(8), 1049-1064.

- Hadjielias, E., Christofi, M., Christou, P., & Drotarova, M. H. (2022). Digitalization, agility, and customer value in tourism. *Technological Forecasting and Social Change*, 175, 121334.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021b). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (p. 197). Springer Nature.
- Hair, J.F., Astrachan, C.B., Moisescu, O.I., Radomir, L., Sarstedt, M., Vaithilingam, S., & Ringle, C.M. (2021a). Executing and interpreting applications of PLS-SEM: Updates for family business researchers. *Journal of Family Business Strategy*, 12(3), p. 100392.
- Hajli, N., Tajvidi, M., Gbadamosi, A., & Nadeem, W. (2020). Understanding market agility for new product success with big data analytics. *Industrial Marketing Management*, 86, 135–143.
- Hayes, A.F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.
- Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24, 997–1010.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115-135.
- Hollander, J. (2024). *AI in the Hospitality Industry: Here's What You Need to Know*. Retrieved on 17th March, 2024. Available at: <https://hoteltechreport.com/news/ai-in-hospitality>
- Homburg, C. and Wielgos, D.M., 2022. The value relevance of digital marketing capabilities to firm performance. *Journal of the Academy of Marketing Science*, 50(4), pp. 666–688.
- Homburg, C., Theel, M., & Hohenberg, S. 2020. Marketing excellence: Nature, measurement, and investor valuations. *Journal of Marketing*, 84(4), 1–22.
- Hossain, M. A., Agnihotri, R., Rushan, M. R. I., Rahman, M. S., & Sumi, S. F. (2022). Marketing analytics capability, artificial intelligence adoption, and firms' competitive advantage: Evidence from the manufacturing industry. *Industrial Marketing Management*, 106, 240-255.

- Howard, M. C., & Rose, J. C. (2019). Refining and extending task–technology fit theory: Creation of two task–technology fit scales and empirical clarification of the construct. *Information & Management*, 56(6), 103134.
- Hulland, J. and Miller, J., 2018. “Keep on turkin”?. *Journal of the Academy of Marketing Science*, 46, 789–794.
- Janssen, M., Van Der Voort, H., & Wahyudi, A. (2017). Factors influencing big data decision-making quality. *Journal of business research*, 70, 338-345.
- Junglas, I., Abraham, C., & Watson, R. T. (2008). Task-technology fit for mobile locatable information systems. *Decision support systems*, 45(4), 1046-1057.
- Kalaigianam, K., Tuli, K., Kushwaha, T., Lee, L., & Gal, G. (2021). Marketing Agility: The Concept, Antecedents, and a Research Agenda. *Journal of Marketing*, 85, 35–58.
- Kar, A. K., Choudhary, S. K., & Ilavarasan, P. V. (2023). How can we improve tourism service experiences: insights from multi-stakeholders’ interaction. *Decision*, 50(1), 73-89.
- Khan, H. (2020). Is marketing agility important for emerging market firms in advanced markets?. *International Business Review*, 29(5), 101733.
- Leonidou, L. C., Christodoulides, P., Kyrgidou, L. P., & Palihawadana, D. (2017). Internal drivers and performance consequences of small firm green business strategy: The moderating role of external forces. *Journal of business ethics*, 140, 585-606.
- Li, H., Wu, Y., Cao, D., & Wang, Y. (2021). Organizational mindfulness towards digital transformation as a prerequisite of information processing capability to achieve market agility. *Journal of Business research*, 122, 700–712.
- Liang, X., Li, G., Zhang, H., Nolan, E., & Chen, F. (2022). Firm performance and marketing analytics in the Chinese context: A contingency model. *Journal of Business Research*, 141, 589-599.
- Lu, H. P., & Yang, Y. W. (2014). Toward an understanding of the behavioral intention to use a social networking site: An extension of task-technology fit to social-technology fit. *Computers in Human Behavior*, 34, 323-332.

- Maier, C., Thatcher, J. B., Grover, V., & Dwivedi, Y. K. (2023). Cross-sectional research: A critical perspective, use cases, and recommendations for is research. *International Journal of Information Management*, 70, p.102625.
- McAfee, A., Brynjolfsson, E., Davenport, T. H., Patil, D. J., & Barton, D. (2012). Big data: the management revolution. *Harvard Business Review*, 90(10), 60-68.
- Melián-Alzola, L., Fernández-Monroy, M., & Hidalgo-Peñate, M. (2020). Information technology capability and organisational agility: A study in the Canary Islands hotel industry. *Tourism Management Perspectives*, 33, 100606.
- Mendling, J., & Brocke, J. V. (2018). *Business process management cases: digital innovation and business transformation in practice*. Springer International Publishing AG.
- Mikalef, P., & Krogstie, J. (2020). Examining the interplay between big data analytics and contextual factors in driving process innovation capabilities. *European Journal of Information Systems*, 29(3), 260-287.
- Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of business research*, 98, 261-276.
- Mikalef, P., Conboy, K., & Krogstie, J. (2021). Artificial intelligence as an enabler of B2B marketing: A dynamic capabilities micro-foundations approach. *Industrial Marketing Management*, 98, 80-92.
- Moliner, J. P., Molina-Azorín, J. F., Tarí, J. J., López-Gamero, M. D., & Pertursa-Ortega, E. M. (2021). How do dynamic capabilities explain hotel performance?. *International Journal of Hospitality Management*, 98, 103023.
- Moorman, C., & Day, G. S. (2016). Organizing for marketing excellence. *Journal of Marketing*, 80(6), 6-35.
- Morgan, N. A., Feng, H., & Whitler, K. A. (2018). Marketing capabilities in international marketing. *Journal of International Marketing*, 26(1), 61–95.
- Muchenje, G., & Seppänen, M. (2023). Unpacking task-technology fit to explore the business value of big data analytics. *International Journal of Information Management*, 69, 102619.

- Nguyen, H. T., Pham, H. S. T., & Freeman, S. (2023). Dynamic capabilities in tourism businesses: antecedents and outcomes. *Review of Managerial Science*, 17(5), 1645-1680.
- Nieves, J., Quintana, A., & Osorio, J. (2016). Organizational knowledge, dynamic capabilities and innovation in the hotel industry. *Tourism and Hospitality Research*, 16(2), 158-171.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill
- Park, S.B., Kim, J., Lee, Y.K. & Ok, C.M. (2020). Visualizing theme park visitors' emotions using social media analytics and geospatial analytics. *Tourism Management*, 80, p.104127.
- Peters, M. D., Gudergan, S., & Booth, P. (2019). Interactive profit-planning systems and market turbulence: A dynamic capabilities perspective. *Long Range Planning*, 52(3), 386-405.
- Plaza, B. (2011). Google Analytics for measuring website performance. *Tourism Management*, 32(3), 477-481.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, 40(3), 879-891.
- Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *The journal of strategic information systems*, 27(1), 22-42.
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3. SmartPLS GmbH, Boenningstedt. *Journal of Service Science and Management*, 10(3), 32-49.
- Rutz, O. J., & Watson, G. F. (2019). Endogeneity and marketing strategy research: An overview. *Journal of the Academy of Marketing Science*, 47, 479-498.
- Samara, D., Magnisalis, I., & Peristeras, V. (2020). Artificial intelligence and big data in tourism: a systematic literature review. *Journal of Hospitality and Tourism Technology*, 11(2), 343-367.
- Saputra, N., Sasanti, N., Alamsjah, F., & Sadeli, F. (2022). Strategic role of digital capability on business agility during COVID-19 era. *Procedia Computer Science*, 197, 326-335.

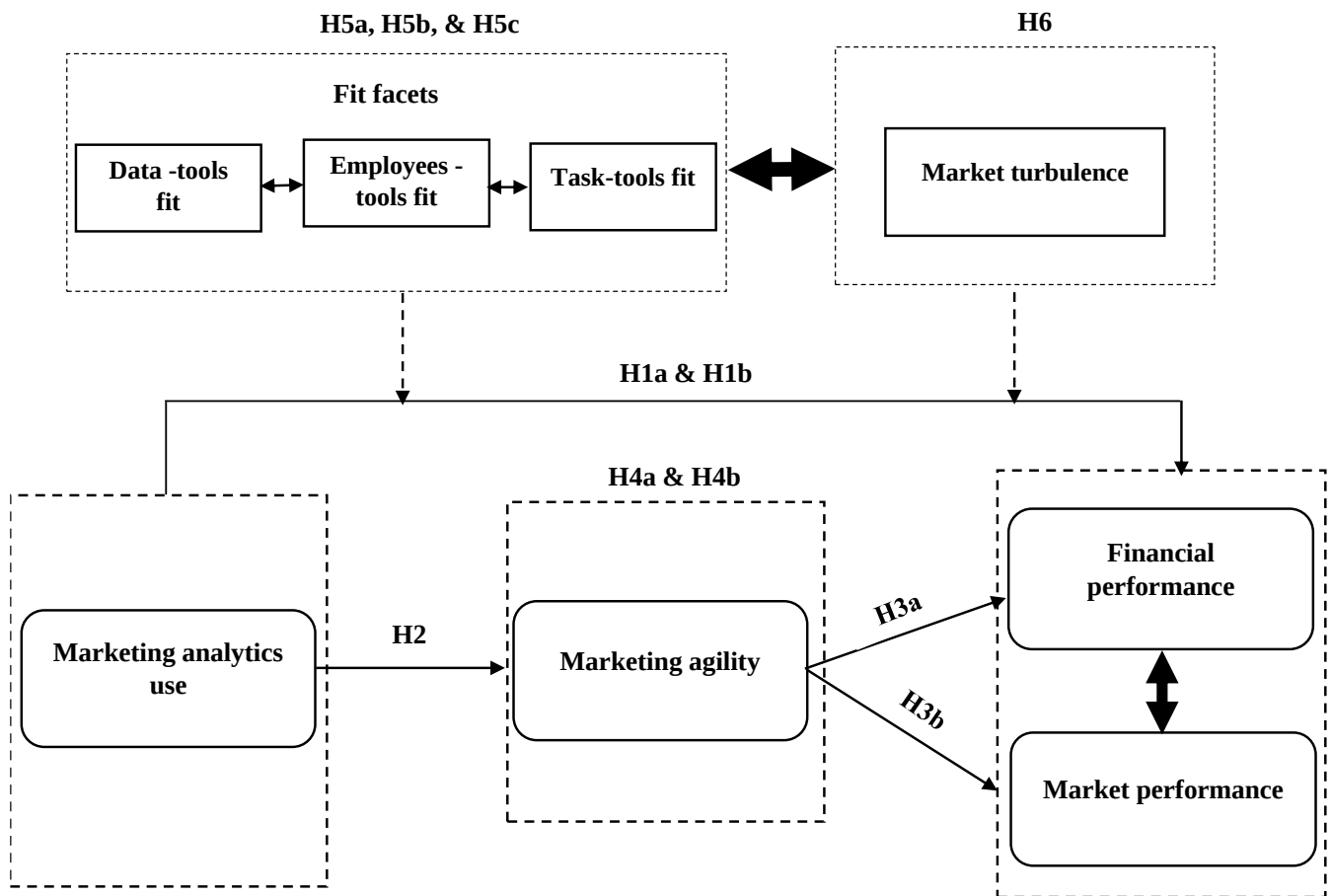
- Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, 35, 179–203.
- Seo, K., Woo, L., Mun, S. G., & Soh, J. (2021). The asset-light business model and firm performance in complex and dynamic environments: The dynamic capabilities view. *Tourism Management*, 85, 104311.
- Sharma A, Perdue RR, & Nicolau JL. (2022). The effect of lodging taxes on the performance of US hotels. *Journal of Travel Research*.61(1),108-19.
- Sharma, R., Reynolds, P., Scheepers, R., Seddon, P. B., & Shanks, G. G. (2010). Business Analytics and Competitive Advantage: A Review and a Research Agenda. *Decision Support System*, 187-198.
- Sheth, D. (2023). Emerging marketing trends in 2023: A comprehensive analysis and forecast of strategies. *International Journal of Research in Management*, 5(1), 85-89.
- Shuradze, G., Bogodistov, Y., & Wagner, H. T. (2018). The role of marketing-enabled data analytics capability and organisational agility for innovation: Empirical evidence from German firms. *International Journal of Innovation Management*, 22(4), 1850037.
- Škare, M., & Soriano, D. R. (2021). A dynamic panel study on digitalization and firm's agility: What drives agility in advanced economies 2009–2018. *Technological Forecasting and Social Change*, 163, 120418.
- Sridhar, S., & Fang, E. (2019). New vistas for marketing strategy: Digital, data-rich, and developing market (D3) environments. *Journal of the Academy of Marketing Science*, 47(6), 977–985.
- Statista (2024). *Travel & Tourism – Worldwide, Revenues worldwide*. Retrieved on 13th March, 2024 from <https://www.statista.com/outlook/mmo/travel-tourism/worldwide>
- Stylos, N., Zwiagelaar, J., & Buhalis, D. (2021). Big data empowered agility for dynamic, volatile, and time-sensitive service industries: the case of tourism sector. *International Journal of Contemporary Hospitality Management*, 33(3), 1015-1036.
- Tarn, D., & Wang, J. (2023). Can data analytics raise marketing agility? A sense-and-respond perspective. *Information and Management*, 60, art. 103743.

- Teece, D. J. (2012). Dynamic capabilities: Routines versus entrepreneurial action. *Journal of Management Studies*, 49, 1395–1401.
- Trieu, V. H. (2017). Getting value from Business Intelligence systems: A review and research agenda. *Decision Support Systems*, 93, 111-124.
- Verhoef, P. C., & Bijmolt, T. H. A. (2019). Marketing perspectives on digital business models: A framework and overview of the special issue. *International Journal of Research in Marketing*, 36(3), 341–349.
- Vickery, S. K., Droge, C., Setia, P., & Sambamurthy, V. (2010). Supply chain information technologies and organisational initiatives: complementary versus independent effects on agility and firm performance. *International Journal of Production Research*, 48(23), 7025–7042.
- Vogel, R. M., & Feldman, D. C. (2009). Integrating the levels of person-environment fit: The roles of vocational fit and group fit. *Journal of vocational behavior*, 75(1), 68-81.
- Vollrath, M. D., & Villegas, S. G. (2022). Avoiding digital marketing analytics myopia: revisiting the customer decision journey as a strategic marketing framework. *Journal of Marketing Analytics*, 10, 1-8.
- Wagner, H. T., Beimborn, D., & Weitzel, T. (2014). How social capital among information technology and business units drives operational alignment and IT business value. *Journal of Management Information Systems*, 31(1), 241-272.
- Wamba, S. F., Gunasekaran, A., Akter, S., Ren, S. J. F., Dubey, R., & Childe, S. J. (2017). Big data analytics and firm performance: Effects of dynamic capabilities. *Journal of business research*, 70, 356-365.
- Wedel, M., & Kannan, P. K. (2016). Marketing analytics for data-rich environments. *Journal of marketing*, 80(6), 97-121.
- Wegner, D., Foguesatto, C. R., & Zuliani, A. L. (2023). Firm performance in uncertain times: the importance of networking capabilities. *Journal of Small Business and Enterprise Development*, 30(2), 369-389.
- Weritz, P., Braojos, J., Matute, J. & Benitez, J. (2024). Impact of strategic capabilities on digital transformation success and firm performance: theory and empirical evidence. *European Journal of Information Systems*, 1-21.

- Wielgos, D.M., Homburg, C. & Kuehnl, C. (2021). Digital business capability: its impact on firm and customer performance. *Journal of the Academy of Marketing Science*, 49(4), 762-789.
- Yang, H., Kang, S., Oh, W., & Kim, M.S. (2013). Are All Fits Created Equal? A Nonlinear Perspective on Task-Technology Fit. *Journal of the Association for Information Systems*, 14(12), 694-721.
- Zelt, S., Recker, J., Schmiedel, T., & vom Brocke, J. (2019). A theory of contingent business process management. *Business Process Management Journal*, 25(6), 1291-1316.
- Zhang, M., Wang, Y. & Olya, H. (2022). Shaping social media analytics in the pursuit of organisational agility: a real options theory perspective. *Tourism Management*, 88, p.104415.
- Zhou, J., Mavondo, F. T., & Saunders, S. G. (2019). The relationship between marketing agility and financial performance under different levels of market turbulence. *Industrial Marketing Management*, 83, 31-41.

LIST OF FIGURE

Figure 1: Proposed model



LIST OF TABLES

Table 1. Participant demographics (n=866)

Demographics		Frequency	Percentage %
<u>Gender</u>	Male	461	53
	Female	405	47
<u>Age (in years)</u>	<30	79	9
	30-40	194	22
	41-50	307	35
	51-60	182	21
	>61	104	12
	< 200 employees	123	14
	200-500 employees	407	47
<u>Firm size</u>	500-1000 employees	219	25
	>1000 employees	117	14

Table 2: Measurement statistics of construct scale

Construct/ Indicators	Standard Loading	CR	VIF	Cronbach's α	AVE	Mean	SD	t-statistic	Skewness	Kurtosis
Marketing analytics use (MAU)		0.95	1.430	0.93	0.591					
	0.95					2.63	0.82	23.120	-1.81	2.37
MAU1	0.92					2.89	0.88	11.920	-1.43	2.19
MAU2	0.98					2.51	0.85	14.278	-1.289	2.21
MAU3										
Proactiveness (PRO)		0.96	1.077	0.94	0.610					
	0.92					2.63	0.96	22.19	-1.27	2.12
PRO1	0.94					2.21	0.90	16.27	-1.23	2.90
PRO2	0.90					2.46	0.88	19.02	-1.52	2.56
PRO3	0.94					2.18	0.92	15.18	-1.20	1.32
PRO4										
Responsiveness (RSP)		0.93	1.198	0.91	0.682					
	0.90					2.62	0.82	22.19	-2.12	1.43
RSP1	0.93					2.98	0.87	17.02	-1.15	2.61
RSP2	0.96					2.05	0.85	10.67	-2.71	1.09
RSP3	0.92					3.10	0.89	22.15	-1.45	2.45
RSP4										
Flexibility (FLX)		0.94	1.339	0.92	0.617					
	0.92					3.16	0.88	22.19	-2.44	2.21
FLX1	0.97					2.99	0.81	20.71	-1.21	1.78
FLX2	0.98					3.21	0.82	17.63	-1.92	1.42
FLX3										
Speed (SPD)		0.92	2.671	0.90	0.701					
	0.94					2.12	0.87	21.20	-2.67	1.02
SPD1	0.93					2.19	0.89	23.10	-2.21	2.34
SPD2	0.96					2.07	0.86	21.20	-1.98	1.93
SPD3	0.92					3.17	2.12	23.29	-1.29	2.04
SPD4										
Data-fit tools (DFT)		0.95	1.432	0.94	0.640					
	0.94					3.12	0.88	27.50	-2.19	1.50
DFT1	0.96					2.75	0.89	21.23	-1.56	1.76
DFT2	0.93					2.32	0.83	14.34	-1.21	1.82
DFT3										
Employees-tool-fit (ETF)		0.97	1.930	0.95	0.538					
	0.90					2.19	0.80	26.02	-2.10	2.09
ETF1	0.91					2.43	0.79	21.29	-1.89	1.28
ETF2	0.92					2.09	0.84	24.38	-1.72	1.30
ETF3										

Task-tools-fit (TTF)		0.94	1.824	0.93	0.620					
	0.89					2.38	0.89	10.29	-2.83	2.78
TTF1	0.95					2.03	0.87	23.38	-1.28	2.19
TTF2	0.93					3.19	0.85	28.10	-2.83	1.74
TTF3										
Market turbulence (MAT)		0.95	1.327	0.93	0.679					
	0.93					2.12	0.90	12.39	-1.28	2.10
MAT1	0.90					2.56	0.87	18.02	-2.17	2.18
MAT2	0.89					2.89	0.83	16.35	-1.05	1.82
MAT3										

Table 3: Correlations matrix

Variables	MAU	PRO	RSP	FLX	SPD	DFT	ETF	TTF	MAT
MAU	0.769								
PRO	0.309	0.781							
RSP	0.317	0.258	0.826						
FLX	0.414	0.220	0.276	0.785					
SPD	0.321	0.176	0.109	0.299	0.837				
DFT	0.448	0.215	0.216	0.185	0.527	0.801			
ETF	0.510	0.213	0.428	0.366	0.194	0.377	0.733		
TTF	0.217	0.271	0.106	0.209	0.228	0.518	0.269	0.787	
MAT	0.226	0.236	0.251	0.462	0.512	0.290	0.255	0.237	0.824

* The diagonal is the square root of the AVE of the latent variables and indicates the highest in any column or row

Table 4: Mediation testing

Indirect effects on	Point estimate	Percentile bootstrap 95% confidence interval		
		Lower	Upper	p-value
<i>Financial performance</i>				
MAU - MAG - FPR	0.23***	0.11	0.21	0.002

*Note: n = 4428, CI = 95% confidence interval. Unstandardized regression coefficients were reported. Bootstrap samples = 5000. One tail t-test was used for interaction terms. *** p < .001*

Table 5: The effect of marketing analytics use on financial performance

Predictor variables	Model 1: RevPart (Time 1)		Model 2: RevPart (Time 2)	
	Parameter	t-Value	Parameter	t-Value
	estimate		estimate	
Main effects				
Marketing analytics use	0.471**	3.619	0.304**	3.120
Market turbulence	0.102	1.073	0.048	0.101
Data-tools fit	0.108	1.210	0.107	1.207
Employees-tools fit	0.115	1.327	0.102	1.051
Task-tools fit	0.061	0.105	0.054	0.103
Interactions				
Marketing analytics use ×	0.129*	2.104	0.136*	2.177
Market turbulence	0.160*	2.510	0.172*	2.910
Marketing analytics use × Data-	0.132*	2.249	0.120*	2.016
tools fit	0.206**	3.071	0.201**	3.015
Marketing analytics use ×				
Employees-tools fit	6.00	31.294	7.25	28.315
Marketing analytics use × Task-	59.16%		62.47%	
tools fit	46.60%		51.19%	
Other	5.293		5.047	
Constant	<0.001		<0.001	
R ²				
Adjusted R ²				
F-value (6,24)				
F-probability				

Note: For ease of interpretation, we mean-centered the focal variables (i.e., marketing analytics use, market turbulence, data-tools fit, employees-tools fit, task-tools fit) before creating the interaction terms (Echambadi and Hess, 2007).

** $t \geq 4.319$, $p < 0.01$; * $t \geq 2.208$, $p < 0.05$; ** $t \geq 7.416$, $p < 0.01$; * $t \geq 1.830$, $p < 0.05$.

Table 6: Robustness of the link between marketing analytics and firm performance.

Model	Parameter estimates and significance levels (two-sided)	Conclusion				
		Marketing analytics has a positive impact on financial performance e (p<0.05)	The interaction between marketing analytics and market turbulence is significant (p<0.05)	The interaction between marketing analytics and data-tools fit is significant (p<0.05)	The interaction between marketing analytics and employees-tools fit is significant (p<0.05)	The interaction between marketing analytics and task-tools fit is significant (p<0.05)
1. OLS regression	β Marketing analytics use = 0.390; p=0.001					
using objective performance measure at Time 1	β Marketing analytics use $\times$ market turbulence =0.183; p=0.051 β Marketing analytics use $\times$ data-tools fit =0.206; p=0.032 β Marketing analytics use $\times$ employees-tools fit =0.219; p=0.014 β Marketing analytics use $\times$ task-tools fit =0.143; p=0.041	✓	✓	✓	✓	✓
2. SEM in which we averaged the responses of multiple respondents of each firm	β Marketing analytics use = 0.215; p=0.001 β Marketing analytics use $\times$ market turbulence =0.201; p=0.001 β Marketing analytics use $\times$ data-tools fit =0.190; p=0.025 β Marketing analytics use $\times$ employees-tools fit =0.201; p=0.012 β Marketing analytics use $\times$ task-tools fit =0.128; p=0.031	✓	✓	✓	✓	✓

3. OLS regression	β Marketing analytics use = 0.193; p=0.027	✓	✓	✓	✓	✓
using objective	β Marketing analytics use ² = 0.056; p=0.151					
performance	β Marketing analytics use $\times$ market turbulence =0.120; p=0.043					
measure at Time 1	β Marketing analytics use $\times$ data-tools fit =0.105; p=0.036					
and including	β Marketing analytics use $\times$ employees-tools fit =0.137; p=0.028					
quadratic term of	β Marketing analytics use $\times$ task-tools fit =0.109; p=0.040					
analytics use						
4. OLS regression	β Marketing analytics use = 0.4117; p=0.001					
using objective	β Marketing analytics use $\times$ market turbulence =0.195; p=0.021	✓	✓	✓	✓	✓
performance	β Marketing analytics use $\times$ data-tools fit =0.201; p=0.026					
measure at Time 1	β Marketing analytics use $\times$ employees-tools fit =0.218; p=0.012					
and including	β Marketing analytics use $\times$ task-tools fit =0.161; p=0.040					
control variables						
5. OLS regression	β Marketing analytics use = 0.313; p=0.001	✓	✓	✓	✓	✓
using objective	β Marketing analytics use $\times$ market turbulence =0.120; p=0.024					
performance	β Marketing analytics use $\times$ data-tools fit =0.199; p=0.021					
	β Marketing analytics use $\times$ employees-tools fit =0.189; p=0.017					

measure (ROA) at	β Marketing analytics use $\times$ task-tools fit =0.132; p=0.039				
Time 2		✓	✓	✓	✓
	β Marketing analytics use = 0.329; p=0.001				
6. Mixture	β Marketing analytics use $\times$ market turbulence =0.105; p=0.042				
regression model	β Marketing analytics use $\times$ data-tools fit =0.174; p=0.028				
(one-class model)	β Marketing analytics use $\times$ employees-tools fit =0.190; p=0.013				
	β Marketing analytics use $\times$ task-tools fit =0.155; p=0.039				