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Leveraging Business Analytics Capabilities for SMEs' Competitiveness: A Conceptual Framework

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Abstract

This research develops and empirically tests an integrated framework to explain how business analytics capabilities enhance the competitiveness of small and medium-sized enterprises (SMEs) through strategic agility. Business analytics capabilities are defined as a multidimensional construct encompassing tangible resources, intangible resources, and human skills, while strategic agility is delineated as customer, partner, and operational agility. Drawing on the Resource-Based View and dynamic capabilities theory, the study posits that competitive advantage arises not only from the possession of analytics-related resources but also from their transformation into agile strategic responses. Human skills facilitate the effective deployment of analytics assets, and strategic agility enables firms to translate analytical insights into improvements oriented toward customers, partners, and operations. A quantitative research design was employed, utilizing cross-sectional survey data from 1,031 Jordanian industrial SMEs. The proposed framework was evaluated using Smart PLS 3.3.3 structural equation modeling. The results provide a theoretical foundation for understanding variations in SME competitiveness and offer actionable recommendations for enhancing resilience, responsiveness, and sustained competitiveness in dynamic environments. The study offers guidance to SME owners, managers, and policymakers on strengthening analytics capabilities, improving decision-making, and fostering strategic adaptability to support competitiveness.

Keywords: Business Analytics Capabilities, Strategic Agility, Competitiveness, Industrial SMEs in Jordan, Conceptual Framework

Introduction

Small and medium-sized enterprises (SMEs) are considered as a key pillar of economic growth as they contribute to job creation, value generation and dynamism in the private sector. Despite this, their capacity to compete is still hindered in Jordan due to continuous resource scarcity, insufficient readiness for digitization, and inadequate connectivity of decision making processes, as well as environmental uncertainty. They are not just operational challenges but also reflect a structural competitiveness issue, which is growing more

apparent in the context of Jordan's position in the IMD World Competitiveness Ranking 2025 (WCR-Rankings - IMD Business School for Management and Leadership Courses, 2025), which places Jordan 47th overall among 69 economies, and 65th in the economic performance category, indicating ongoing problems with business efficiency and infrastructure.

Figure 1. Jordan’s competitiveness trend and structural challenges, 2021–2025
Jordan’s competitiveness profile shows modest improvement over time, but important weaknesses remain in business efficiency, infrastructure, and broader economic conditions, which continue to constrain SME competitiveness.

In addition to cost and productivity pressures, Jordanian SMEs' competitiveness is affected by their speed and accuracy in reacting to market changes. The business analytics capability is perceived as a strategic resource in this context, as businesses are capable of converting data into insight, enhancing managerial decision-making, and increasing responsiveness to competition through the use of these capabilities (Chen et al., 2012; Gandomi & Haider, 2015; Gupta & George, 2016). Recent studies have demonstrated that the capabilities of analytics have a significant impact on the firm performance, firm agility, firm innovation, and operational improvement, especially in volatile and uncertain environments (Akter et al., 2016; Ashrafi et al., 2019; Aydiner et al., 2019; Khan et al., 2024). However, the contribution of these capacities to the competitiveness of Jordanian SMEs is not well understood.

The resource-based perspective offers an interesting perspective on the potential importance of business analytics capabilities for SMEs. Based on this view, competitiveness occurs when companies own resources, resources that are valuable, rare and hard to imitate (Barney, 1991). When backed by tangible resources, intangible resources, and human skills, business analytics can become a valuable asset to help a firm collect, interpret, and strategically use data (Barney, 1991; Ferraris et al., 2019; Chatterjee et al., 2024). The data systems and digital infrastructure, the knowledge and routines, and a culture of data are intangible resources; the analytical and interpretive capabilities of managers and employees are human skills. If these factors are combined, they enable SMEs to gain an edge with analytics. But capabilities in business analytics don't necessarily lead to competitiveness. The value of their lies in how well they enable a company to sense opportunity, capture it, and reconfigure its resources to adapt to variable environments (Eisenhardt & Martin, 2017; Teece, 2009). This is especially

true for Jordanian SMEs, which are frequently forced to manage rapid shifts in the marketplace, customer needs, and operational disruptions, and must respond quickly and to the point. Business analytics capabilities can help achieve strategic agility in several ways, such as improving flow of information that is faster and more accurate, reducing uncertainty, and enhancing the quality of managerial decisions (Ashrafi et al., 2019; Ghasemaghaei et al., 2017; Lowry & Wilson, 2016).

The strategic agility in this context is manifested in customer agility, partner agility, and operational agility, each of which plays a different part in the way that SMEs respond to the competitive pressures.In a world with volatile customer needs, customer agility helps businesses better recognize and accommodate those needs. The agility of the partners enhances coordination with suppliers, distributors and other business partners, which enables a more synchronized value chain. Operational agility enables companies to make swift changes to their processes and resource usage, ensuring that they continue to be efficient in the face of challenges. These dimensions provide insights into the conversion of analytics into actionable, competitive responses (Dubey et al., 2019; Mandal, 2019; Wamba et al., 2020). The pathway is particularly critical for Jordanian SMEs as it is necessary to not only have the information but also to be quick and strategic in using it in order to be competitive.

Based on the foregoing discussion four major gaps in the literature. First, existing studies have tended to be conducted on large companies, or on overall company performance, in which the competitiveness performance of SMEs has been under-researched. Second, it is unclear how BA capabilities are applied in the structural constraints of Jordanian SMEs, such as resource constraints, digital readiness limitations, and institutional weaknesses, especially when these constraints are linked to the competitiveness pressures in Jordanian SMEs (Khawaldeh & Alzghoul, 2024; Khan et al., 2024). Third, many studies do not consider BA as a single construct and only distinguish between tangible and intangible resources, not between tangible and intangible resources and human skills, which can enable different dimensions of competitiveness. Third, the current literature has predominantly focused on the direct relationship between the role of BA and SME competitiveness, and few studies have investigated the role of strategic agility as a mediator between BA capabilities and SME competitiveness. In light of the above, the present study aims to propose an integrated model to explain the role and impact of multidimensional BA capabilities on improving the competitiveness of SMEs in Jordan.

Therefore, the following conceptual framework is put forward in this paper, where business analytics capabilities act as an independent variable, strategic agility as a mediating variable, and SMEs' competitiveness as a dependent variable. The framework is based on the resource-based view and dynamic capability theory, which together helps to describe how strategic resources create value, and how firms leverage their resources in a dynamic environment (Barney, 1991; Eisenhardt & Martin, 2017; Teece, 2009). The research has been designed keeping Jordan in mind, thereby solving the real competitiveness problem in Jordan and giving a context-specific explanation of how SMEs can enhance their position using agility through analytics. The study also advances theory by shedding light on the process by which business analytics capabilities translate into competitiveness, and practice by offering insights for SME managers and policymakers on creating more data-based strategies to build

competitiveness (Khawaldeh & Alzghoul, 2024).This study makes three contributions: This paper adds to the business analytics literature by exploring SMEs competitiveness in Jordan as a means to enriching the utilization of business analytics beyond the mere performance enhancing benefit. Second, it adds to the strategic agility literature by introducing agility as a mediator and connects agility directly with competitiveness. Third, it enriches the resource-based and dynamic capability perspectives by adding the role of tangible resources, intangible resources and human skills in supporting business analytics capabilities (Barney, 1991; Ashrafi et al., 2019; Chatterjee et al., 2024).

Literature Review

Business Analytics Capabilities

The business analytics capabilities are the systems that an organization can use to capture, consolidate, analyze and use data to enhance decision making, coordination and strategic response. In the modern literature, it is not considered as merely being a technical function but rather as being a strategic organizational ability that involves technology, managerial interpretation and in-built routines for using data effectively (Chen et al., 2012; Gandomi & Haider, 2015; Gupta & George, 2016). Business Analytics capabilities can be considered to provide an advantage within the resource-based view if they are valuable, rare, hard to imitate and backed by complementary organizational resources (Barney, 1991; Grant, 1991). This is particularly relevant for SMEs operating under constraints of resources and uncertainty of the environment.There are multiple dimensions to a robust conceptualisation of Business Analytics capabilities. The vision you shared is congruent with a higher order perspective that encompasses tangible resources, intangible resources and human skills. Tangible resources are considered to be the data infrastructure, software, platforms, and digital systems used to capture and process data (Chen et al., 2012; Cosic et al., 2015). Some of the intangible resources are data-driven culture, organizational learning, analytic routines, and managerial commitment to evidence-based decision making (Cosic et al., 2015; Ferraris et al., 2019). Human skills are the ability of employees and managers to understand the outputs of analytics, translate insights into action and share them within the organization (Carillo et al., 2019; Abubakar et al., 2025). These are the reasons why some SMEs can harness the strategic value of data, and others can only get simple reporting.

Recent research indicates that business analytics capabilities are linked to innovation, information quality, performance and agility. Ashrafi et al. (2019) illustrate how business analytics capabilities help to enhance the agility and performance of the firm, while Khan et al (2024) reveal that the use of the capabilities enhances firm performance, agility, information quality and innovation, particularly in dynamic industries. Likewise, (Aydiner et al., 2019; Mikalef et al., 2020) found that analytics capability can be linked to performance via intermediate organizational mechanisms like business process performance and dynamic capabilities. In SMEs such effects are relevant because analytics can overcome the scale problem by generating faster, better and more coordinated results. Thus, the business analytics capabilities have to be situated in this study as a basic capability that facilitates adaptive strategic behavior.

Strategic Agility

Strategic agility is defined as an organization’s capacity to identify environmental changes, respond rapidly, and realign operations to maintain alignment with market demands. The

concept of strategic agility derives from dynamic capabilities theory, suggesting that companies derive their competitive edge not only through resource possession but also from constant resource renewal in a constantly evolving environment (Eisenhardt & Martin, 2017; Teece, 2009; Teece, 2014). The agility concept associates strategic agility with adaptability, responsiveness, and quick strategy realignment (Sambamurthy et al., 2003; Doz & Kosonen, 2010). Strategic agility is especially crucial for SMEs since insufficient slack resources render delays in reaction costly and sometimes impossible to undo.

Strategic agility is often viewed in the literature as an aggregate concept manifesting through different operational dimensions. For you, those dimensions include customer, partner, and operational. Customer agility refers to detecting changes in customer needs and adapting to the new reality. Partner agility means coordinating and adapting to other parties, such as suppliers and distributors, from the value chain perspective. Operational agility stands for internal changes in processes and resources deployed to support the company's operations efficiently and timely. Hence, it can be argued that strategic agility is not an abstract concept but rather a complex response system connecting information to actions. Substantial empirical evidence demonstrates the importance of strategic agility in enhancing organizational performance and competitiveness. It has been found that agility improves performance and competitive advantages of companies in both developed and emerging settings (Shin et al., 2015; Zastempowski & Cyfert, 2023; Tufan & Mert, 2023). Several studies in the Jordanian setting have also pointed at the importance of strategic agility for the development of capabilities related to competitiveness (Abu-Salma, 2019; Al-Shawabkeh, 2024; Mohammad, 2022). The common rationale underlying all these research works is that agility helps organizations adapt faster compared to their competitors. Thus, strategic agility would be an ideal mediator for translating the business analytic abilities of SMEs into their competitive edge.

SMEs' Competitiveness in Jordan

This concept can be defined as the firm's capacity to sustain its market position, improve performance, and address challenges from local and regional competitors. Jordanian SMEs exist in an environment characterized by structural factors such as lack of resources, market instability, stiff competition, and low competitiveness performance at the national level. Competitiveness in this environment is less influenced by size and more by skills development, adaptability, and efficient management of information. Contemporary research on Jordanian SMEs highlights the importance of analysis and agility as critical determinants of performance and competitiveness among firms in the SME and high-tech sectors in Jordan (Khawaldeh & Alzghoul, 2024; Al-Majali et al., 2024; Alzoubi et al., 2024).

There is now increasing evidence from Jordanian studies to support that competitiveness is a result of capability creation and development, not only based on resource acquisition. Multiple studies have demonstrated a significant positive relationship between competitiveness and both strategic and organizational agility across Jordanian hospitals, insurance companies, telecommunications organizations, and small and medium-sized enterprises (Abu-Radi, 2013; Abu-Salma, 2019; Al Halalmeh, 2021; Mohammad, 2022; Al Shawabkeh, 2024). Furthermore, there are several other studies from Jordan which discuss the impact of business analytics capabilities in relation to competitiveness, entrepreneurial success, and agility (Al-Majali et al., 2024; Alzoubi et al., 2024; Khawaldeh & Alzghoul, 2024).

This clearly indicates that capability combinations are required among Jordanian SMEs more than ever before. Business analytics abilities may help Jordanian SMEs to make good decisions, yet it is strategic agility that enables SMEs to implement them. Or, more specifically, competitiveness among SMEs in Jordan is not determined solely by the business analytics abilities since it involves a fast interpretation and reaction, much quicker than that of competitors, to the market conditions. In this respect, your model suggesting that business analytics abilities affect strategic agility that positively influences competitiveness makes perfect sense.

Hypothesis Development

Based on the above literature, the proposed model can be formulated based on the aforementioned literature in terms of four key hypotheses. First, Business analytics capabilities are hypothesized to positively influence strategic agility because they provide high-quality, timely, and actionable information that supports effective decision-making (Ashrafi et al., 2019; Khan et al., 2024). Second, a higher level of strategic agility is expected to enhance the competitiveness of small and medium-sized enterprises (SMEs), as agile organizations are more capable of responding to market changes, adapting operations, and meeting the needs of consumers and partners (Tufan & Mert, 2023; Zastempowski & Cyfert, 2023). Third, the business analytics capabilities could directly affect the competitiveness of SMEs since analytics can help to make better decisions and achieve improved organizational performance even without being fully mediated by strategic agility (Aydiner et al., 2019; Mikalef et al., 2020). Fourth, it is hypothesized that strategic agility mediates the relationship between business analytics capabilities and SME competitiveness

Hypotheses

H1: Business analytics capabilities positively influence strategic agility

Business analytics capabilities are important strategic resources because they help firms turn data into insight and adapt more quickly to change (Barney, 1991; Teece, 2009, 2014; Eisenhardt & Martin, 2017). Prior studies show that analytics improves agility, innovation, and decision quality, especially when it is embedded in routines, systems, and human expertise (Ashrafi et al., 2019; Dubey et al., 2019; Mikalef et al., 2020; Khawaldeh & Alzghoul, 2024). In SMEs, this matters because strategic agility depends on fast sensing, interpretation, and response (Gupta & George, 2016; Alghamdi & Agag, 2023).

Existing literature indicates that the impact of analytics on organizational agility is not inherent. While tangible resources, intangible resources, and human skills are all important, intangible resources and human skills typically exert the greatest influence by transforming data into coordinated actions and adaptive decision-making (Gupta & George, 2016; Akter et al., 2016; Ferraris et al., 2019; Carillo et al., 2019; Kusbianto & Darmawan, 2024). Overall, stronger business analytics capabilities are expected to improve strategic agility through customer, partner, and operational responsiveness (Wamba et al., 2017, 2020; Xie et al., 2022). Accordingly, the study proposes the following hypotheses:

H1A, a, b,c: tangible resources positively influence (customer, partner, and operational agility)
H1B, a, b, c : intangible resources positively influence (customer , partner , and operational agility)

H1C, a, b, c: human skills positively influence (customer, partner, and operational agility)
H2: Strategic agility positively influence SMEs' competitiveness.

Strategic agility is widely viewed as a key driver of SME competitiveness because it helps firms sense change, seize opportunities, and reconfigure resources in turbulent environments (Barney, 1991; Eisenhardt & Martin, 2017). Prior studies generally show a positive link between strategic agility and performance across sectors and countries, including emerging markets (Zastempowski & Cyfert, 2023; Mohammad, 2022; Al Shawabkeh, 2024; Abuanzeh et al., 2022).

In this study, SME competitiveness is defined as a firm's capacity to provide high-quality products and services, rapidly identify market changes, and respond efficiently to emerging opportunities and demand (Jiang et al., 2016). Strategic agility is expected to strengthen these outcomes through three dimensions: customer, partner , and operational agility. Customer agility is likely to have the strongest effect because it improves market sensing and responsiveness (Sambamurthy et al., 2003; Roberts & Grover, 2012; Qosasi et al., 2019; Putra et al., 2025). Partner agility and operational agility also matter, as they support coordination, flexibility, and fast internal adjustment under changing conditions (Jiang et al., 2016; Blome et al., 2013; Shin et al., 2015; Felipe et al., 2020).Accordingly, the study proposes the following hypotheses:
H2A, B, C :(customer, partner, and operational) positively influence SMEs' competitiveness
H3: Business analytics capabilities positively influence SMEs' competitiveness.

Business analytics capabilities are increasingly recognized as a strategic capability that helps firms turn data into actionable insights and respond more effectively to change (Chen et al., 2012; Gandomi & Haider, 2015; Gupta & George, 2016; Mikalef et al., 2020). From the resource-based view, such capabilities can support competitive advantage when they combine valuable, rare, and hard-to-imitate resources and expertise [Barney, 1991; Grant, 1991]. Prior studies show that analytics improves performance, agility, innovation, and competitiveness, including in Jordanian SMEs (Akter et al., 2016; Ashrafi et al., 2019; Aydiner et al., 2019; Al-Majali et al., 2024; Khawaldeh & Alzghoul, 2024).In this study, business analytics capability is viewed through three dimensions: tangible, intangible, and human skills (Cosic et al., 2015; Gupta & George, 2016). Tangible resources provide the technical infrastructure, intangible resources create a data-driven culture and learning environment, and human skills ensure that insights are interpreted and applied effectively (Carillo et al., 2019; Ferraris et al., 2019). However, analytics creates competitiveness only when these resources are integrated into routines and decision-making processes rather than used as isolated technical assets (Duan et al., 2020; Wamba et al., 2017; Mikalef et al., 2020). each of these dimensions is expected to contribute positively to SME competitiveness. Accordingly, the study proposes the following hypotheses:
H3A, B, C :(tangible, intangible, and human skills) positively influence SMEs' competitiveness**.**

Mediating Relations

H4: The mediating role of strategic agility in the relationship between business analytics capabilities and the competitiveness of small and medium-sized enterprises

Strategic agility is anticipated to mediate the relationship between business analytics capabilities and the competitiveness of small and medium-sized enterprises (SMEs), as analytics enables organizations to detect changes, improve decision-making, and respond more rapidly to uncertainty (Eisenhardt & Martin, 2017; Teece, 2009, 2018; Chen et al., 2012; Gupta & George, 2016). From the resource-based view, these capabilities create advantage when they are valuable and difficult to imitate, while dynamic capabilities theory explains how firms convert them into competitive outcomes through sensing, seizing, and reconfiguring resources (Barney, 1991; Grant, 1991; Teece, 2018).

Strategic agility is the key mechanism in this process because it improves customer, operational, and partner responsiveness (Ashrafi et al., 2019; Cheng et al., 2020; Wamba et al., 2017; Mikalef et al., 2020). Business analytics strengthens agility through tangible capability, intangible capability, and human skills, which help SMEs improve information quality, coordination, and adaptive decision-making (Lowry & Wilson, 2016; Carillo et al., 2019; Dubey et al., 2022; Khawaldeh & Alzghoul, 2024).

Accordingly, this study argues that business analytics capabilities influence SME competitiveness both directly and indirectly through strategic agility, especially in Jordanian SMEs operating under uncertainty and resource constraints (Al-Majali et al., 2024; Al-Ghattas & Marjanovic, 2021). Based on the foregoing theoretical arguments, the following hypotheses are proposed:

H4A.a,b,c*: Customer , Operational , and Partner agility mediate the relationship between tangible capability and SMEs' competitiveness.*

H4B.a,b,c*: Customer , Operational , and Partner agility mediate the relationship between intangible capability and SMEs' competitiveness.*

H4C.a,b,c*: Customer , Operational ,and Partner agility mediates the relationship between human skills and SMEs' competitiveness.*

The above review indicates four gaps in the literature. Firstly, most previous research has focused on the big firms or on overall dimensions of the outcome (SME/outcome gap), with fewer studies examining the specific outcome of competitiveness of the SMEs. Secondly, there is a lack of empirical studies related to the working of business analytics capabilities in the unique structural stresses of Jordanian SMEs that suffer from chronic resource constraints, limited digital readiness and institutional weaknesses (contextual gap). Third, many studies view business analytics as a capability without distinguishing between the tangible resources, intangible resources and human skills that can be leveraged, and which can contribute to competitiveness in different ways (conceptual gap). The first is the limited consideration of mediation processes – specifically strategic agility – by which the impact of business analytics on SME performance is realised (mediation gap); the second is that previous research predominantly focused on the direct impact of business analytics on performance, leaving out processes through which the impact of business analytics is realised into sustained SME competitiveness (mediation gap); and the third is that previous research does not adequately address the processes by which business analytics is translated into sustained SME competitiveness (mediation gap). The gaps highlight the need for an

integrated model that can explain how multidimensional BA capabilities contribute to the competitiveness of SME in the context of industrial SME in Jordan, by applying strategic agility.

Research Method

Overview of the Suggested Research Model

To formalize the hypothesis, the researchers reviewed prior relevant literature. The constructs and their interrelationships within the research model for this study are outlined below. Figure 2 illustrates the proposed model:

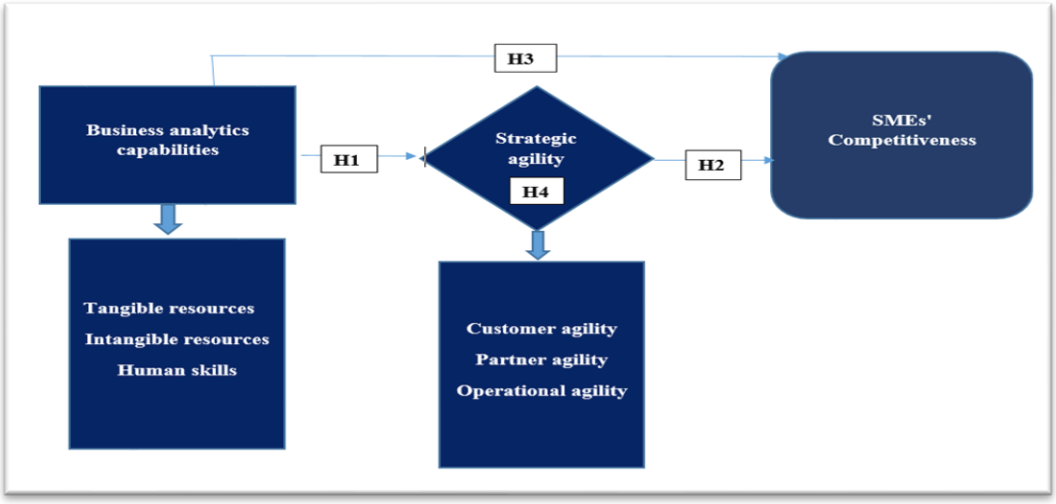

Figure 2: Research model

Development of the Instrument

In this study, a questionnaire served as a self-report instrument to collect data from managers on all study variables. It is cost-effective and saves the researchers a lot of time compared to other means of data collection. To maximize utilization of the whole scale such as 1–5 and 1–7, the items have been formulated at different levels of endorsement, ensuring that the whole range will be used (Nemoto & Beglar, 2013). Utilizing both 5-point and 7-point Likert-type scales also assists in decreasing common method bias (Jordan & Troth, 2019). Besides, the questionnaire contains positively and negatively worded items to minimize response bias and increase validity of the measurements (Podsakoff et al., 2003).Translation accuracy has been achieved using the back-translation technique that entails translation of the original scale into the target language and then its back translation into the original language (Brislin, 1970; Shigenobu, 2007). Validated measures that have been used in past related studies have been adopted for the measurement of study constructs. In addition, Seven managers from Jordanian industrial SMEs assessed the questionnaire during the pre-test phase to ensure that all phrases and expressions were appropriate for the local context and to account for cultural influences on item clarity. They were requested to provide their feedback and suggestions regarding the questionnaire to identify any potential problems prior to its ultimate usage.

Sampling Frame and Size

The sampling frame for this study will consist of small and medium enterprises in the manufacturing sector that are registered with the Amman Chamber of Industry in the Hashemite Kingdom of Jordan. The Amman Chamber of Industry is one of the main branches

of the Jordan Chamber of Industry, and besides the Zarqa and Irbid chambers, it has the highest membership as Amman is the capital of the country.The sample size of the study was decided based on the fact that the sample size directly affects the statistical reliability of the analysis, whereby a small sample cannot accurately represent the relationship among the variables, while a large sample will minimize any biases (Memon et al., 2020; Johnson & Gill, 2010). While various approaches are available to determine the sample size, existing literature indicates that the fraction of the population does not affect the sampling adequacy and therefore, a power analysis is more appropriate in this case (Fowler Jr, 2013; Faul et al., 2009). As such, the researcher used the G*Power software tool to estimate the minimum sample size required, which is commonly utilized to conduct power analyses in social, behavioral, and biomedical sciences (Faul et al., 2009). With a total of three independent variables, significance level of 5%, an effect size of 0.15, and power of 95%, the minimum sample size is estimated at 107. An alternative approach for determining the sample size entails the application of the Krejcie & Morgan (1970) table to estimate the sample size for a given population size. For the Amman Chamber of Industry, which comprises 1,031 organizations, the minimum sample size is estimated at 285.

Data Collection Method

The current research uses cross-sectional design and obtains one-time data based on standardized questionnaires to provide answers to research questions. The researcher applies the technique of descriptive survey, measuring all study variables at once (Sekaran & Bougie, 2013). In its structure, the questionnaire has five parts containing 34 measurement items. However, even though according to the recommendations of scientists, questionnaires should not exceed 25-30 items in order to be done in 30 minutes and remain interesting for participants (Sharma, 2022), the proposed questionnaire has been developed accordingly.

Common Method Variance CMV

Common method variance (CMV) is a significant concern in self-administered questionnaires, as it can artificially inflate relationships among variables and compromise the validity of findings. To mitigate this issue, Harman's single-factor test was applied, following the recommendation of Podsakoff et al. (2003). An exploratory factor analysis was performed by including all study variables simultaneously to determine whether a single factor accounted for the majority of the variance.

Data Analysis and Results

Partial Least Squares Structural Equation Modelling (PLS-SEM) technique was applied in this research using the software Smart PLS 4.2.7, whereas preliminary data analysis was done using SPSS version 27.0. The data analysis process included the computation of descriptive statistics, checking reliability, performing common method bias testing, outlier identification, normality testing, and addressing missing values. PLS-SEM technique was selected since it enables researchers to test several relationships between latent variables at once, making it suitable for complicated prediction studies (Hair et al., 2014; Chin, 1998; Ullman & Bentler, 2012). The first stage consisted of evaluating the measurement model to determine indicator reliability, internal consistency, convergent validity, and discriminant validity (Hair et al., 2021). After confirming the adequacy of the measurement model, the structural model was evaluated to test the proposed hypotheses concerning the relationships among the constructs(Hair et al., 2021).

Contributions of Study

This study offers both theoretical and practical contributions to the existing research on business analytics capabilities, strategic agility, and the competitiveness of small and medium-sized enterprises (SMEs). Theoretically, the study combines resource-based view and dynamic capability theories in order to understand the transformation of business analytics capabilities into competitive advantage via strategic agility. Moreover, the current study is a theoretical advancement due to its conception of business analytics capability as a multidimensional concept composed of tangible resources, intangible resources, and human skills. This would enable the researcher to better understand the contribution of each dimension to competitiveness. From a practical perspective, this study offers valuable insights for SME managers and policymakers seeking to enhance competitiveness under resource constraints. Competitiveness is associated with the level of investments in digital technology, however, the present research also proves the importance of having proper analytical skills and organizational learning that contribute to making agile decisions. These factors are especially vital for the analysis of Jordanian SMEs since the business environment of SMEs is often associated with high uncertainty and low availability of resources.

In terms of the research's contribution, the paper successfully addresses the following gaps. First, the literature review showed that most researchers pay their attention to analyzing larger enterprises, thus, small firms need to receive more consideration. Second, there is insufficient evidence on business analytics capability in countries like Jordan. Third, many previous papers viewed business analytics capability as an abstract notion and did not consider different components separately. Fourth, previous papers concentrated their focus on the direct effects of the phenomenon; however, this paper focuses on explaining the mechanism of achieving these effects by proving that strategic agility acts as an intermediary factor. Moreover, this paper presents several recommendations for businesses and contributes to the body of literature through providing an empirical record of industrial SMEs in Jordan. The paper presents some significant obstacles that these enterprises meet while attempting to utilize their business analytics capabilities to increase competitiveness. In addition, the research offers recommendations for government officials and policymakers on reviewing their current policies and creating new mechanisms that would stimulate SMEs to make better use of analytics capabilities and improve digital readiness as well as agility of decisions. The research will be useful for the organizations like Jordan Chamber of Industry, Amman Chamber of Industry, Irbid Chamber of Industry, Zarqa Chamber of Industry, and JEDCO.

Limitations and Recommendations for Future Research

Several limitations of this study should be considered when interpreting the results. The first limitation relates to the empirical setting of this study, as it was focused on industrial SMEs based in Jordan only. This may limit the potential for generalization since some factors associated with other industries and national contexts were not included in this study. Another critical limitation stems from the cross-sectional design that makes it impossible to trace any changes in the business analytics capabilities, strategic agility, and SME competitiveness. Thus, the findings of this paper should be seen as a snapshot reflecting the reality in one specific period but not long-term dynamics. Further, the study relied on perceptual data obtained through surveys. Thus, there might be some bias affecting the responses of managerial respondents. At the same time, this study did not consider many

other factors such as organizational culture, leadership style, or environmental turbulence, which may influence both the level of business analytics capabilities and their effects on other outcomes. Future research may move in several interesting directions building upon this study. First, it would be useful to conduct similar studies for other industries and national contexts to analyze the generality of the proposed relationships. Another promising direction would be longitudinal research that could be used to investigate the development and change in the impact of business analytics capabilities and strategic agility over time. Also, future studies may adopt a mixed-method approach to explore the phenomenon in question deeper. Moreover, researchers may add new dimensions to this model, including, for example, digital transformation readiness, innovation orientation, organizational learning, and environmental uncertainty. Finally, moderation analysis would also be relevant in further investigations since firm size, export orientation, etc. may moderate the proposed relationships.

Conclusion

This study has several contributions to the literature on business analytics capabilities and strategic agility and SME competitiveness. In theory it connects the Resource Based View and Dynamic Capabilities Theory by demonstrating that competitiveness is not created just because they own analytics-related resources, but also as a result of their conversion into the agile strategic responses. Beyond that, the study further develops the concept of business analytics capabilities, which is defined as a three-dimensional construct consisting of tangible resources, intangible resources and human skills, not as a monodimensional capability. This helps to get a clearer idea of how different resources used for analytics can affect competitiveness in a resource limited arena.On a practical level, the study provides useful suggestions for SME owners and managers in Jordan. It argues that investment in analytics infrastructure is not the only method to increase competitiveness, but also creating the ability to build analytics skills and fostering a culture of learning around data that enables quicker and more-effective decision making. The results are particularly relevant to Jordanian industrial SMEs operating within limited resources and financial constraints, as they demonstrate the ability to enhance effectiveness of business analytics in terms of responsiveness, resilience, and future competitiveness.The study offers some insights for organizations like the Jordan Chamber of Industry, Amman, Zarqa, and Irbid Chambers of Industry, and JEDCO at the policy level. The findings indicate that they can contribute to the competitiveness of SMEs by creating support programmes, training programmes, and incentive measures to boost digital readiness, increase the adoption of analytics, and promote agile reactions to market change. This study not only adds to academic knowledge but also to the policy debate on enhancing SME competitiveness in Jordan.

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