

TOWARDS THE SPORTS ENTREPRENEURSHIP IN THE ERA OF BIG DATA ANALYTICS: A SERIAL MEDIATION

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Abstract

A corporation must be able to utilize big data analytics to better understand its consumers' desires and how they act in today's highly competitive industry. Entrepreneurial orientation "may summarize the style, choices, and actions of a company's business strategy." The study argues that organizations can improve their SME performance with the assistance of Entrepreneurial orientation and BDA-enabled dynamic capabilities by developing new products or services, enhancing the quality of existing products or services, reducing costs, and minimizing the market risk associated with developing new products or services. The study has examined a series of mediations of big data analytics (predictive and prescriptive) and big data knowledge management in the relationship between entrepreneurial orientation and SME performance. The respondents of the study were employees working in sports firms. A total of 654 questionnaires were distributed among the respondents through an online survey via social networking sites and Google forms. For further analysis, 407 filled questionnaires were received which indicated the response rate of 62.23%. The data analysis for the study was conducted through smart PLS 3 and SPSS. The results of the study are in line with the hypothesis. As anticipated, the study demonstrates that predictive and prescriptive BDA leads to the development of new products and processes in small and medium-sized firms (SMBs). The study will be helpful for policymakers, practitioners, and researchers.

Keywords: big data analytics, entrepreneurial orientation, knowledge management, sports SMEs, China

Introduction

In view of the severe competition that exists in the modern business world, companies need to find ways to differentiate themselves from their rivals (Jacobides & Lianos, 2021). Employees need to conduct themselves in a way that fosters fundamental process change and makes room for new ideas in order for a company to function effectively (Guinan et al., 2019). The entrepreneurial orientation, sometimes known as EO, is a mindset that tries to increase the market competitiveness of a firm (Penco et al., 2022). According to Engku Md Azmi (2022), the fundamental goal of EO is to build a new internal drive that enables organizational structure transformation and ensures the continued existence of the firm. This inner drive may give birth to new businesses and products, whether they are inside or external to the existing company. Alternatively, the functional and operational divisions of an organization may be totally rebuilt to raise their level of performance (Schmitt et al., 2021). Previous research has shown a variety of contradictory connections between

EO and performance. Some studies (Asemokha et al., 2019; Khedhaouria et al., 2020; Hernández-Linares et al., 2018) have found links that are either negative or weak, while others maintain that there is no correlation (Alici Davutoglu et al., 2020). This scenario appears to be governed by a multitude of different variables that are all connected to one another, which is consistent with the notions that Stawarczyk et al. had previously presented (2021). This highlights how important it is to take into account the connections between EO and other elements in order to have a more nuanced understanding of how they interact with one another. By Santos-Vijande and colleagues (2022), the EO of businesses may be evaluated according to how inventive they are, and information exchange could drive even more innovation if done correctly. Because they lack the resources essential for continued expansion, small and medium-sized businesses (also known as SMEs) find it difficult to communicate information with one another. As a result, it is challenging to provide a reliable basis for one's expertise (Lin & Lai, 2021).

A company needs to acquire new information by using its structural infrastructure's capabilities to enhance performance (Abualoush et al., 2018). It is vital to comprehend the significance of structural infrastructure capabilities in the link between EO and performance. The use of EO in small- and medium-sized enterprises (SMEs) is seen differently by various stakeholders (Singh et al., 2022). However, recent research indicates that SMB assessments of EO are accurate (Violette et al., 2020). Small and medium-sized enterprises (SMEs) now contribute considerably to the expansion of industrialized economies and the creation of new employment (Razak et al., 2018). They need a plan for making strategic decisions, building the personality of the leader, and reorganizing internal processes so that they can benefit from both internal and external markets (Sklyar et al., 2019). In a constantly changing corporate environment, managers must generate fresh ideas to better comprehend what their clients want and what is their actual need (Bansal et al., 2018). Thereby it is important to understand the role of EO, BDA, and KM on the performance of SMEs. And it is vital to emphasize the impact of EO on SMEs' performance since entrepreneurial activities are seen as an SME's internal capabilities, which might potentially boost the firm's success despite challenging market circumstances (Laukkanen et al., 2013). Numerous studies have shown that EO significantly affects an organization's success. (Laukkanen et al., 2013). Buli (2017) reveals that the significance of EO, as well as its contribution, has been understudied in developing countries. This is despite the fact that it may help commercial firms in poor nations perform better and endure longer. Moreover, paying attention to each of the EO's dimensions can be required to comprehend how the contextual link changes in response to a certain circumstance (Lumpkin & Dess, 1996). Additionally, it will instruct in performing research to determine whether or not the hypotheses mentioned in the earlier study would stand up in a new cultural situation and corroborate the earlier findings that have been demonstrated to be accurate. Thus the first research objective is to investigate the extent to which EO contributes to the success of small and medium-sized enterprises (SMEs), the authors of this study analyzed data collected from proprietors of sports SMEs in China.

The ever-increasing volumes of information that are growing more and more diverse are referred to as "big data," and the phrase "big data" alludes to this phenomenon. Data mining is one of the most prevalent sources of big data, and the resulting information may come in several different formats. Organizations must be competitive and adaptable to succeed in the modern global economy. E-commerce businesses generate vast quantities of data that may be leveraged to enhance technology, business processes, and the overall efficacy of the organization. Big data has been a driver of productivity and new possibilities during the last couple of decades. This is a

difficulty for companies in this industry. Because of how big data is evaluated, corporate practices have evolved (Grover et al., 2018). In recent years, BDA (predictive and prescriptive) as a method for measuring productivity has gained popularity. Leaders must continuously manage, process, and analyze vast quantities of information (Bag et al., 2021). In this era of big data management, both BDA and IT are crucial to the successful operation of a firm (Rialti et al., 2020). In contrast to the past, the BDA can now gather and retain vast quantities of data for less money. Because product innovation boosts worker productivity and the development of SMEs, firms in developing countries have turned to technology to change their product and process landscapes (Jayashree et al., 2021). The performance of SMEs improves when they use innovative approaches and initiatives (Das & Rangarajan 2020). SMEs may be able to enhance their products and procedures via BDA.

Big data provides contemporary firms an advantage over their rivals. Consequently, organizations are becoming more digital, and the quantity of data associated with supply chains is increasing. Typically, management and data professionals are responsible for developing an organization's standards (Fountain et al., 2019). Big data and predictive analytics might save costs, accelerate product development, and generate new goods or services to satisfy the expanding demands of consumers (Sheng et al., 2021). Future digitization of supply chains will be facilitated by AI and big data-driven predictive analytics. Companies are spending rapidly in the domains of big data analytics, due to the growing interest of management in these areas (Li et al., 2022). Thus, the study has planned to examine the impact of BDA on the performance of sports SMEs in China.

Large firms are placing a significant focus on data management to maintain a competitive advantage in the future (Grover et al., 2018). BD has been referred to as the "next frontier for innovation, competitiveness, and manufacturing". With the support of customer-generated business development, businesses may find it simpler to integrate user-centered and user-driven innovations (Kaasinen et al., 2010). Customer analytics is the study of how people behave, think, and want online for businesses to provide superior goods (Javadi et al., 2012). When consumers drive innovation, firms must collaborate with consumers to develop new goods. BD's strategic value derives from its capacity to assure an iterative engagement process, which is the foundation of a long-term cycle of producing value for both organizations and customers. This procedure benefits both parties. An entrepreneurial attitude and resource-based perspective serve as the foundation of the theoretical framework. EO has been a significant component of organizational theory for the last three decades (Kropp et al., 2006). EO skills and dynamic abilities are necessary for success at work in unpredictable, ambiguous, and confusing situations (Baker et al., 2022). In line with the argument broached, the study has planned to examine the mediating role of BDA in the relationship between EO and the performance of sports SMEs in China.

Big data is changing how many businesses work, which has led to the creation of new business strategies (Urbinati, et al., 2019). Many researchers argue that it is crucial to look at how new business models will be impacted by digitalization (Ritter & Pedersen, 2020). BD is now accessible to businesses on a national and international level. Business development can be used to create innovative value propositions where data supports or is central to the proposition, improve relationships with customers and other stakeholders, and change how they capture value, such as by introducing new revenue streams or organizing cost-cutting interventions. Instead of only modifying their goods, services, or production processes, more and more companies, and industrial networks are rethinking their business models to meet the needs of digital technology (Di Vaio et al., 2020). Many businesses have made large investments in new infrastructures, technologies,

staff, and business practices to fulfill the rising need for a variety of data kinds that can be created fast and utilized to guide decisions. Although Big Data Analytics (BDA; A (predictive and prescriptive) and other tools for data analysis and visualization are necessary, they are insufficient to create a company that is data-driven and capable of turning data into useful information. A company must use its different technological and human resources (BD) to find useful information in its big data to get a competitive edge. Thus the study has envisaged examining Sports Entrepreneurship in big data analytics.

Theoretical Review

The resource-based view (RBV) theory is the conceptual framework around which this study is constructed. RBV emphasizes the significance of having sufficient resources as a means of enhancing performance and gaining an advantage over other businesses (Olajide et al., 2019). People have the misconception that the resources of an organization are the single most essential element in deciding whether or not it will continue to exist over time. The concept that an organization may achieve a competitive advantage by using its many resources, particularly those that are precious, uncommon, and distinctive as well as those that cannot be replaced is the central tenet of the theory (Craighead et al., 2020). Academicians claim that a company's ability to stay ahead of the competition is directly proportional to how well it makes use of the resources at its disposal (Raza et al., 2020). RBV is particularly beneficial for small and medium-sized organizations since it demonstrates how crucial internal capabilities are for improved performance and an advantage over other businesses in the market.

The principle of resource allocation affirms that resources include items like cash, land, people, and institutions (Malik et al., 2020). Utilizing these resources to create one-of-a-kind assets that will assist companies in being competitive in the market without the need to worry about adjusting to an environment that is always changing is the best use of these resources.

This theory is used in this research to investigate the connection between EO, the structural BDA, and the performance of small and medium-sized firms. The performance of SMEs may improve if they can make greater use of the resources at their disposal, demonstrate initiative, and accept some degree of risk (assuming that the structural capabilities are built along with this). It is feasible for small and medium-sized businesses (SMEs) to become more entrepreneurial when BDA is there. This, in turn, leads to the invention of new ideas that are valuable, unusual, distinctive, and hard to imitate. This results in improved performance and competitive advantage, which in turn enables smaller businesses to make significant contributions to the expansion of their industry as a whole. One other objective of this study is to define the concept of resource-based competitive advantage and describe its operation. The framework of the study is shown in figure 1.



Figure 1: Conceptual Framework

Hypothesis Development

EO and BDA

Entrepreneurial Orientation (EO) is the tendency of a business to look for new market opportunities through innovation and taking risks. EO needs to be taken seriously by the whole organization, and EO activities need to be given enough resources (Gupta & Pandit, 2012). It shows that the company is looking for new business opportunities in related fields. Uit Beijerse, (2000) asserts that entrepreneurial organizations are very good at coming up with new ways to organize and do business. Lackéus et al. (2020) found that entrepreneurial organizations are more willing to take risks and actively look for new business opportunities. George and Marino (2011) think that the idea of entrepreneurial organizations (EO) came from their research. Wales et al. (2020) claim that entrepreneurial orientation is a complex idea that includes taking risks, thinking creatively, and acting proactively. Miller affirms that a company is "not entrepreneurial" if it "doesn't come up with many new ideas, is afraid to take risks, and copies competitors instead of setting the pace". Zaidi (2021) noticed that the company tended to make new products and be aggressive in the product market unit they had chosen. It doesn't cover taking risks. Innovation just means the introduction of a new product or service. It has nothing to do with a company's overall strategic position. Lumpkin and Pidduck (2021) built on Miller's original EO idea from 1983 by adding five more characteristics. In competitive situations, the ideas of independence, creativity, taking risks, taking the lead, and being aggressive are talked about. Lumpkin and Dess (2015) proclaim that an EO is a set of new admission procedures and practices. Anwar and Shah (2021) assert that a company with a high EO is willing to take risks and look for unique solutions to problems in modern markets to get an edge over other companies. Because of this, Anwar and Shah's idea of an EO might not work for them. The previous writing about EO seemed confusing

and didn't make sense to a great extent. The current research might be able to use what Walters et al. (2018) found in their research.

When beginning a business, entrepreneurs must consider the risk that they may end up with something different than what they intended. Cantillon is credited with coining the phrase "entrepreneurship" in the 1980s, and the term has been associated with the aforementioned concept ever since. Entrepreneurship requires the ability to accept present uncertainty in exchange for a bright future. The risk-taking ability of an entrepreneur determines a person's propensity to invest resources in endeavors that involve a high risk of both success and failure, such as venture capital (Gupta & Pandit, 2012). Companies that have a high predilection for taking risks have a better chance of achieving sustainable development and profitability in the long run (Gupta & Pandit, 2012).

In the process of innovation, a person's cerebral prowess, as well as their natural curiosity, are used to discover something new. If there is no uniqueness, then it is difficult to be inventive. Therefore, originality is a byproduct of creative endeavors. A firm that does not innovate will eventually fail to compete in the market and go out of business. Innovation as a component of EO is connected to greater business performance and leads to a particular firm's moving ahead of its competitors by its practice in any sort of organization, including small and medium-sized enterprises (SMEs). The readiness of a corporation to participate in creative processes, experimentation, and support for new ideas is one of the most popular methods to evaluate an organization's potential for innovation. However, there are many more ways to do this as well (Runyan et al., 2006). Lumpkin and Pidduck (2021) assert that the proprietor of a small business may benefit from using inventive techniques to boost the performance of their organization.

The term "proactive behavior" refers to an individual's way of living their life in a manner that is anticipatory of new possibilities or problems that may arise in the future. Rauch et al. (2021) claim that proactivity in business is a forward-looking, opportunity-seeking attitude that is characterized by the introduction of new products and services in advance of the competition and by predicting future demand. This attitude is exemplified by the introduction of new products and services in advance of the competition. The proactive attitude that a firm adopts to gain an advantage over its competitors may be shown in how well it anticipates future market needs and how thoroughly it investigates potential new business opportunities (Mariani & Nambisan, 2021). Carnevale and Hatak (2020) proclaim that a proactive firm has a better chance of controlling market distribution channels and benefiting from the benefits that come with being the first mover in a market (1995).

In today's fast-paced market, a company needs to be able to use BDA to better understand what its customers want and how they behave (Mariani & Nambisan, 2021). "EO may sum up a company's performance in style, decisions, and action in its business strategy." The business-mindedness that was shown in SME performance and EO is often repeated by the organization. However, the EO focuses on how the organization does business. Carnevale and Hatak (2020) also affirm that entrepreneurial resources are one of the most important organizational resources that help organizations adapt to new situations. This is because entrepreneurial resources let businesses take risks and come up with new ideas. EO also includes activities like coming up with new ideas, looking into new possibilities, and making the best use of what's already there (Linton, 2019). Wales et al. (2020) determine that entrepreneurially oriented organizations have three main traits: they are innovative, take initiative, and are willing to take risks. Because of these traits, these organizations can manage innovation, new technologies, and new client trends strategically. So,

the working hypothesis states that the above qualities of organizations with an entrepreneurial focus may have a direct effect on whether or not those organizations decide to invest in creating organizational resources that help advance BDA (predictive and prescriptive) capabilities. Therefore, we postulate:

H1a: Risk-taking has a significant impact on the PBDA of sports-based SMEs in China.

H1b: Risk taking has a significant impact on the PSBDA of sports-based SMEs in China.

H2a: Innovativeness has a significant impact on the PBDA of sports-based SMEs in China.

H2b: Innovativeness has a significant impact on the PSBDA of sports-based SMEs in China.

H3a: Proactiveness has a significant impact on the PBDA of sports-based SMEs in China.

H3B: Proactiveness has a significant impact on the PSBDA of sports-based SMEs in China.

Mediating role of BDA

Since it was initially proposed more than 40 years ago, the idea of an entrepreneurial mindset has seen many changes. Since Covin and Slevin (1989, 1991) created the idea, it has been used in a variety of industries, including management, marketing, and the healthcare sector. It is the strategy used by the key corporate decision-makers to achieve their organization's objectives, remains loyal to their mission, and acquire a competitive advantage. Dess and Lumpkin (2005) claim that these are the characteristics of entrepreneurial behavior that one pursues opportunities with. These qualities include initiative, creativity, competitive aggression, independence, and a willingness to take risks. The notion is made up of the following three traits, according to the conclusions of many academics: inventiveness, proactivity, and risk-taking, all of which are important to the study of business (Real et al.,2014). However, Linton (2019) increased the total number of dimensions to five by including two more dimensions, namely competitive aggression and autonomy.

The previous studies show that EO enhances business performance. Despite the fact that EO's impact on the performance growth of short-term organizations declines with time, it is linked to both short- and long-term firm performance growth. Through EO, a company's capacity to enhance its learning orientation may be strengthened. Wales et al. (2020) affirm that the breadth and depth of managerial links significantly affect a company's success (FP). The EO-practicing firms, which often experience extraordinary levels of success, are those that take the lead in conceptualizing and presenting new projects, technologies, or innovativeness. During the fierce competition in the business world, organizations employ EO as a way to improve their performance. The characteristics of EO were described by Lumpkin and Dess (2015), who also evaluated an alternate model that included assessments of mediating, interacting, moderating, and independent effects. Lumpkin and Dess's (2015) results indicate that aggressive organizations do much better than competitive and aggressive enterprises in dynamic contexts characterized by fast change and uncertainty. Businesses that can adapt and compete effectively in circumstances with little resources and fierce competition often do better. The effectiveness of a company's 2 Mobile Information Systems strategy plan is often reliant on the environment in which the organization works as well as the operation of the organization itself since the element of EO is independent. Although EO helps to increase performance in any situation, it does not always guarantee success in a short period. Wiklund and Shepherd's research of Mariani and Nambisan,(2021) indicates that EO has the potential to enhance the part that knowledge resources play in enhancing organizational performance. Rezaei and Ortt discovered that organizations must develop their logical framework

for design, sales, and manufacturing and that this framework helps enhance organizational performance. It was established that for companies, the order of design, sales, and production was essential. Anwar and Shah, (2021) claim that there is evidence that having an entrepreneurial mindset can make an individual better at the job and set him apart from others.

Jacobides et al. (2021) assert that a company's success is contingent on its ability to manufacture and sell new items before customers and rivals to catch the attention of its target market. Gunawan et al. (2016) affirm that initiative improves performance. Lumpkin and Dess (2015) claim that proactiveness and work performance have a close relationship. Guinan et al. (2019) found in Istanbul that being proactive affects your financial well-being. Although client preferences and expectations are liable to change at any moment, a company's ability to anticipate and satisfy future demands may be a critical success element. Despite the lack of evidence, it does not seem that being proactive increases one's chances of success (e.g. Penco et al., 2022).

Academics agree that the innovation component of EO is vital for achieving higher levels of performance and that a variety of factors may foster creativity within an organization. Engku Md Azmi (2022) investigated technology-based SMEs in Malaysia and concluded that innovation had a significant impact on the success of SMEs. Ajayi's 2016 comment that innovation is the way to enhance performance is supported by the study. Engku Md Azmi (2022) conducted a study examining the impacts of the market, entrepreneurial, and technology orientation on the performance of a sample of Turkish SMEs. They discovered that innovation has a substantial impact on the development of small and medium-sized enterprises (SMEs) in Turkey. The results of the study indicated that EO practices have an effect on innovation and the success of a business. The research by Schmitt et al. (2021) examined how EO influences the marketing methods used by American companies seeking to do business in Cuba. The emphasis was on the creative nature of enterprises that entered newly accessible markets such as Cuba. As a marketing strategy, developing new goods has been shown to have a significant impact on the success of new businesses. This indicates the amount of energy utilized. The research claims that, for a corporation to succeed in a new market, it must generate unique ideas or new items. Consequently, it recommends the following:

Big data analytics (BDA; predictive and prescriptive) is the process of managing, processing, and analyzing enormous volumes of data to enhance the performance of an organization. BDA has been a popular issue among academics and professionals in recent years (Asemokha et al., 2019). BDA differs from other data warehouses in that it contains both organized and unorganized (e.g., semi-structured) data and has a capacity of Exabytes. Google, YouTube, and Facebook are the top resources for this kind of data. For instance, Khedhaouria et al. (2020) utilized the 5 V characteristics to discuss large data sets (volume, verity, velocity, veracity, and value). Similarly, Hernández-Linares et al. (2018) described big data as a massive volume of organized and unstructured data that is difficult or practically impossible to evaluate using conventional techniques and tools. Alici Davutoglu et al. (2021) demonstrated that a new generation of architectures and algorithms are utilized to rapidly monitor and analyze vast quantities of organized and unstructured data. Technology advancements have enabled a plethora of new applications for big data in the workplace. Currently, managers and decision-makers are focused on BDA to get a competitive advantage since it may increase productivity by 4–6%. Stawarczyk et al. (2021) assert that between 85 and 91% of firms have used big data analytics in recent years. Santos-Vijande et al. (2022) categorize BDA as either predictive or prescriptive. Both forms of BDA are essential for BDA adoption. Using analytics for big data, they discovered that corporate

processes functioned more effectively. By analyzing data, predictive BDA may provide information such as "This will occur, why it will occur, and what will occur". An analytical model is also used in predictive BDA to identify issue causes. In contrast, prescriptive BDA refers to data analysis that focuses on issue solutions, such as: I what we should do next, II why we should do it, and III what a good conclusion would be given our existing circumstances. Lin and Lai (2021) believe that big data predictive analysis can help a company become more efficient and productive. Other studies indicate that predictive analysis may increase an organization's total performance by as much as 76%. (For instance, through boosting sales and revenue, ensuring customer satisfaction, expanding the market, and developing new items). Another research revealed that predictive analysis of large data sets might provide businesses with a competitive advantage by allowing them to design a strategy to enhance their performance and get ahead of the competition. The adoption of prescriptive BDA is a significant predictor of BDA adoption in a company, which increases the effectiveness of business processes. BDA talents such as human talent, information technology, mathematics, and statistical tools should be coupled with these abilities to get a comprehensive understanding of what is occurring with current data Abualoush et al. (2018). Using predictive and prescriptive analysis of big data, managers may determine which aspects of an organization have the most influence on its overall success. Both academics and business people have thus devoted a great deal of attention to BDA (predictive and prescriptive) Singh et al. (2022). In the study, the use of big data analytics and new technologies try to predict how well Chinese small and medium-sized businesses will do in the future.

Even though there is more and more interest in new technologies like artificial intelligence and big data analytics, there is still a lot of uncertainty about how the use of business analytics affects how well a company does. Gavahian et al. (2022) looked into how the use of business analytics might affect the SME performance of a company's business operations. Using the idea of dynamic capabilities as a guide, it is proposed that using BDA powered by AI can help businesses improve their ability to process information. It makes it easier for them to analyze and combine complicated information from many different sources. Managers use this skill to reduce uncertainty about needs, capabilities, and the availability of suppliers. If a company doesn't have these skills, it will have to keep a lot of stock on hand or take part in responsive supply chain design. Both of these choices will affect how much money the company makes. Similarly, it points out that the insights gleaned from BDA give businesses the chance to reorganize their resources in a way that makes it easier for them to adapt to changing situations and work better with their partners (Razak, et al., 2018). If all of these effects of implementing BDA add up, SME performance may get better.

Bag et al. (2021) also pointed out that BDA is a new generation of architectures and techniques that can quickly measure and analyze a large amount of structured and unstructured data. Both structured and unstructured data can be measured and analyzed with BDA. As a direct result of the rise of new technologies, the value of the large amounts of data that companies hold has gone up by a lot. Because BDA can boost productivity by 4 to 6%, managers and people in charge of making decisions are paying attention to it right now. This is done to get a leg up on the competition. Rialti et al. (2020) study of 1,000 companies found that 85–91 percent of companies have invested in big data analytics projects in the last few years. A recent study by Jayashree et al. (2022) puts BDA into two groups: predictive BDA and prescriptive BDA. They say that both types of BDA are important in deciding whether or not to use BDA.

Moreover, they found that business processes ran better when big data analytics were used. Data is used in predictive business data analysis to figure out things like what will happen in the future,

and why it will happen. Also, predictive BDA uses an analytical model to figure out where problems come from. Prescriptive BDA is a type of data analysis that looks at problem solutions like "what we should do," "why we should do it," and "what should be a productive conclusion given the current situation." It is different from descriptive BDA because it focuses on "what we should do". Das and Rangarajan concluded in 2020 that big data predictive analysis is a strategic tool that could make a company more efficient and effective based on what they found in their study. Other research has shown that predictive analysis has the potential to improve an organization's overall performance by as much as 76%. . Similarly, Fountaine et al. (2019) found a link between big data predictive analysis and the performance of an organization. They went on to say that this good relationship helps businesses come up with a good plan to get a competitive edge and improve their performance. Sheng et al. (2021) did research on the link between using big data analytics and how well business processes work. They found that prescriptive BDA is a strong predictor of BDA adoption in an organization, which improves the performance of business processes. The Asia Pacific Business Review put out this research (APBR). Li et al. (2022) indicate that the basics of business data analysis are descriptive, predictive, and prescriptive. The idea put out by Grover et al (2018) is that managers may be able to figure out the factors that affect their business overall performance by using predictive and prescriptive analysis of big data. So, both academics and professionals in the business world have shown a lot of interest in BD. The main goal of our research is to find out how well Chinese SMEs will do when they use big data analytics and new technologies. Therefore, we postulate:

H4a: PBDA mediates the relationship between innovativeness and SME performance.

H4b: PSBDA mediates the relationship between innovativeness and SME performance.

H5a: PBDA mediates the relationship between risk-taking and SME performance.

H5b: PSBDA mediates the relationship between risk-taking and SME performance.

H6a: PBDA mediates the relationship between proactiveness and SME performance.

H6b: PBDA mediates the relationship between proactiveness and SME performance.

Mediating role of BDKNM

Big data analytics refers to the process of analyzing a substantial amount of data that may be semi-structured, unstructured, or structured and that comes from several different sources using a variety of analytical methods. In a research study, the terms "volume," "velocity," and "variety" were used to characterize "big data." On the other hand, knowledge may be categorized as tacit, explicit (information that can be expressed and written down as words, numbers, codes, equations, and musical notation), implicit (knowledge that is learned via everyday experiences), difficult, and simple. Several different sources affirm that the most important facet of BD is the possibility that it will help uncover hidden information and generate new knowledge. This new information and knowledge can then be used to improve knowledge management (the process of acquiring knowledge, converting knowledge, and applying knowledge) using data analytics. If the data obtained from a variety of sources and in structured, semi-structured, and unstructured forms are adequately analyzed by the organization, the organization may get useful information that may aid it in making decisions that are better informed (Kaasinen et al.,2010). Big data analytics provide managers with a useful picture of their company's operations, and implementing the information gathered via BDA may assist an organization in making decisions based on what is most

advantageous for the business. Big data analytics also helps organizations save money. The generation of knowledge that is both effective and efficient may be achieved via the use of knowledge management practices that make use of vast data and analytical tools.

Several researchers suggest that processing and analyzing massive data sets may be able to aid organizations in realizing their full potential in terms of their knowledge management. It is vital to have a more in-depth understanding of this "big data" to be able to determine how it is turned into knowledge. It is necessary to use, analyze, and make efficient use of data and information to succeed. There are two different varieties of knowledge: tacit and explicit (Javadi et al.,2012). BD can help companies boost the value of any facet of their operations that they want. If a company wishes to get analytical insights from huge amounts of data, it might consider using ABD technology, which may be able to use the business skills extracted from the data to improve the company's overall performance. Apps that analyze big data organize and arrange data in a way that makes it easier for businesses to see patterns and trends in their operations. This sort of data can be translated into actionable information after being fed into business intelligence systems and then analyzed by data analysts. These similarities shed light on the connection between large amounts of data and knowledge management. This highlights the connection between KMP and BDKNM since the knowledge collected via big data analytics leads to decision-making that is both more effective and more efficient.

It is not enough to simply make effective use of the available natural resources and physical assets to improve performance. Additionally, it is essential to have good knowledge management practices. The documents are credited as the authors of the documents (Kropp et al.,2006). Knowledge is an asset that has been shown to have a direct correlation to the overall performance of an organization. Information management is a process that consists of ways for gathering and generating knowledge, either from the outside or from inside the organization, as well as strategies for sharing and making use of the information that has been kept (Baker et al.,2022). Organizations are applying the KMP and knowledge-driven systems to increase their competitiveness and value. Urbinati, et al. (2019) center their discussion on the application of knowledge as well as its management within an organization. It must initially comprehend how knowledge functions to accomplish this. Knowledge may be either tacit or explicit. These are the two major types of knowledge. Ritter and Pedersen (2020) state that tacit information is difficult to both understand and pass on. The natural skills, experiences, and worldviews of an individual are the primary factors that determine it. Di Vaio et al. (2020) went on to say that it is difficult to convey this kind of information because one of the ways to do so is through the sharing of experience, practice, sentiments, and attitudes with other members of the organization. This makes it difficult to convey the information because it requires sharing with other members of the organization. On the other hand, explicit knowledge may be stated in words, numbers, codes, equations, and symbols, making it easy to interpret and communicate. The transmission of covert information via the use of established protocols and languages. It is easily transportable and easily disseminable. In contrast, tacit knowledge is a person's internalized but undocumented wisdom. Human resource professionals pay continual attention to tacit knowledge in organizations that are still emerging yet heavily dependent on information. These types of organizations are known as "knowledge-intensive organizations." Efficacy and efficiency have traditionally been the means through which organizations have attained their goals. The investigation and comprehension of how knowledge is transmitted is a necessary step for businesses to take to effectively manage information (Olajide et al., 2019). The importance of information sharing and how well an organization performs in this

area is often emphasized in the research that has been conducted on the subject of knowledge management. One of the most important goals of knowledge management is to encourage information exchange. This is one of the most critical reasons for knowledge management. This is because information sharing is an essential component in the production of new knowledge and the generation of new ideas, which helps people to utilize the knowledge they already possess more efficiently. Both professionals in the field and academics have given a significant amount of thought to the investigation of how information is conveyed and transferred and how the management of knowledge influences the performance of organizations Craighead et al. (2020). In a separate piece of research, Raza et al. (2020) observed that the link between KMP and OP has a great deal to do with an organization's ability to determine how effectively knowledge management functions to achieve a market position. This observation was made because KMP and OP are both measures of organizational performance. Therefore, effective use of information leads to increased operational performance. Moreover, many feel that KMP might lead to an improvement in OP as well as much-required new ideas. Therefore, based on this evidence, our next hypothesis is

H7a: PBDA has a significant impact on the BDKNM of sports-based SMEs in China.

H7b: PSBDA has a significant impact on the performance of sports-based SMEs in China.

H8: BDKNM has a significant impact on the performance of sports-based SMEs in China.

H9a: BDKNM mediates the relationship between the PBDA and SME performance.

H9b: BDKNM mediates the relationship between the PSBDA and SME performance.

Serial mediation of PBDA, and BDKNM

EO is a mode of behavior that enables a business to be more innovative and proactive, hence enhancing its performance (Malik et al., 2020). Internal processes are driven in small organizations, and managers may be inventive to obtain a competitive advantage. It is vital to highlight that SMEs may do EO activities alone or for other businesses. Outward activities include mergers, joint ventures, and acquisitions, while inward activities involve changes to processes and management at various organizational levels. EO and performance in SME, these actions, whether official or informal, are intended to generate new business prospects and propel the firm ahead, regardless of whether they are conducted inside or outside the organization. It is essential to ensure that its management practices and objectives are congruent to enhance an organization's entrepreneurial behavior and level of activity. Decentralization, employee engagement in decision-making, cooperation, less bureaucracy, and a mentality that encourages taking chances and being innovative are necessary for maintaining a successful EO. Wang (2019) agrees that entrepreneurial orientation is acquired through seeking possibilities in the environment that result from market orientation and technology innovation. Using these opportunities might provide large organizations with a competitive advantage Wang (2019). In contrast, Daniela (2014) discovered that the operational conditions of a company might influence its entrepreneurialism in certain climates. Because EO is a firm-based activity, it cannot be applied to the whole industry. EO has been created to function in a variety of ways. But the emphasis of this study is on Miller's (1983) concepts about creativity, risk-taking, and leadership. How well a corporation can alter its whole business model is a solid sign of its innovativeness. It demonstrates a drive for novel approaches to promote products and services (Gupta & Pandit, 2012). When a business is innovative, it fosters originality, creativity, and experimentation. A company needs to be innovative to meet the

demands of each market, as well as be able to adjust to the changing tastes and preferences of its clients. The overall direction of an organization is a significant factor in determining how entrepreneurial its operations and management are (Uit Beijerse, 2000).

Any group's long-term viability relies on how effectively it operates. The organization's activities throughout time reveal the likelihood of its achieving its stated objectives (Richard et al., 2009). Lackeus et al. (2020) affirm that the many characteristics and levels of organizational performance make it difficult to operationalize. A survey of the relevant literature revealed that there are two important performance indicators: financial metrics and non-financial measures. These are used to determine if a company's efforts throughout time have resulted in outcomes that are consistent with its aims and objectives. (Wales et al., 2020). These metrics rely on how knowledgeable individuals are about a company's profit margins over time and how they perceive the strengths and shortcomings of competing businesses. Even though they cannot be quantified, they have a significant impact on the organization's overall success. Various levels of support have been shown for each of the performance measures. Numerous academic research Lumpkin and Pidduck (2021) assert that objective metrics are the most trustworthy since they cannot be perceived differently by various individuals. Others argue that the researcher and the objective of the study should choose which measurements to employ, particularly when it is difficult to get consistent and comparable data for financial measures due to disparate accounting and registration systems. Wales et al. (2020) have shown that subjective evaluations may be utilized to evaluate firms that lack public reports or refuse to provide information.

When big data sets are processed and disseminated through a KM solution, it is much easier for stakeholders to rapidly obtain information that is relevant to their interests. It gives you the ability to find and share ideas that might improve practically every facet of your business, from customer service and R & D to marketing, sales, and finance. People have easy access to insights that empower them to make decisions that are driven by data about price, packaging, and other aspects of a product, as well as which new products and features should be developed. Even while big data analytics is important and researchers are interested in it, only a small number of empirical studies have investigated how it affects the performance of organizations. There is enough evidence to suggest that big data has been used in academic settings. However, not much has been done to connect this use to knowledge management practices (KMP) (Anwar & Shah 2021). There have not been a lot of studies done on a broad scale or with a lot of rigor on how the BDKNM can improve OP. Additionally, to assess the importance of this study gap, research on the link between the BDKNM and the KMP that is conducted in the real world is required. A model built on the principles of the resource-based theory was created to close this research gap. This model demonstrates how the link between different parts of an organization, such as data, analytical tools, and knowledge management practices, creates value for the organization, increases the organization's efficiency, and affects the organization's long-term performance. It has been suggested that organizations might achieve a competitive edge by making efficient use of their resources Walters et al. (2018). However, not all resources have the same value. In actual practice, it may be challenging to ascertain the nature of the connection that exists between advantageous approaches and sources of benefit. It needs to be able to recognize, grasp, and organize the most important talents to get a competitive edge. As a result, this study aims to investigate how BDKNM, KMP, and OP interact with one another in SMEs. Therefore, we postulate:

H10a: Risk-taking will be positively related to SME performance through the mediating influence of PBDA and, in turn, BDKNM.

H10b: Risk-taking will be positively related to SME performance through the mediating influence of PSBDA and, in turn, BDKNM.

H11a: Innovativeness will be positively related to SME performance through the mediating influence of PBDA and, in turn, BDKNM.

H11b: Innovativeness will be positively related to SME performance through the mediating influence of PSBDA and, in turn, BDKNM.

H12a: Proactiveness will be positively related to SME performance through the mediating influence of PBDA and, in turn, BDKNM.

H12b: Proactiveness will be positively related to SME performance through the mediating influence of PSBDA and, in turn, BDKNM.

Methodology

This study used a survey questionnaire approach to collect data from respondents and achieve the objectives of the study. The questionnaire of the present study adapts a closed-ended questionnaire having two sections. 1st section contained the general information regarding the respondents. Whereas, the second section contained the items of the variables of the study. The items of the study were adapted from the past study such as items of big data knowledge management and innovativeness were adapted from Upadhyay and Kumar (2020), the items of risk-taking were adapted from Upadhyay and Kumar (2020), items of reactiveness were adapted from Zhang et al. (2016); the items of predictive big data analytics were adapted from Shahbaz et al. (2020) items of prescriptive big data analytics were adapted from AlNuaimi, et al. (2021); and items of performance were adapted from Qalati et al., (2020). These questions were designed using a five-point Likert scale ranging from 1 to 5. On this scale 5 shows strongly agreed, and 1 shows strongly disagreed. To ensure the validity of content and instrument face, the opinions of experts were gathered. The questionnaire was written in English. The pilot study was further conducted in which data was collected from 55 respondents. Based on values of Cronbach Alpha, the results were reliable.

Later, This study adopted snowball sampling for the data collection purpose. The respondents of the study were employees working in sports firms. A total of 654 questionnaires were distributed among the respondents through an online survey via social networking sites and google forms. 407 usable questionnaires were received for further analysis. It indicated a usable response rate of 62.23%. This study used social media sites as well for the data collection because it is very easy to collect data by using technology Shahbaz et al. (2020). The data analysis of the study was conducted through smart PLS 3 and SPSS. The version of the SEM-PLS approach used in this study was 3.2.9 which was based on 2 steps. The first step of the analysis was based on two steps namely the structural model and measurement model. The first step of analysis is the measurement model. That is used to examine the validity and reliability of constructs. On the other hand structural model of the study is used to examine the direct and indirect relationship among variables of the study (Ramayah et al., 2018). For the analysis of the proposed hypothesis 500 bootstrapping procedure was used.

Before analyzing the study through PLS, we examined the demographics of the respondents and examine any missing value in data by using SPSS. Missing value or missing data refers to the presence of any observation which is characterized by the absence of response or incomplete information (Hair, 2010). The respondents of the study comprised 68.4% of males and 31.6% of females. In terms of age classification of respondents, 34.6% of the respondents belonged to the age between 18 years to 30 years, 22.7% of the respondents belonged to the age group of 21-30 years, 21.7% of the respondents had the age between 31-40 years and remaining respondents had the age more than 40 years. Additionally, 9% of the respondents had the experience of less than 1 year, 17% of the respondents had working experience of 1-5 years, 67% had working experience of more than 5-10 years where as the remaining had the experience of more than 10 years.

Many researchers find the PLS-SEM approach to be particularly intriguing since it gives them the ability to estimate complicated models with a great deal of constructs, indicator variables, and structural routes without having to impose distributional assumptions on the data.

Results

The first step of analysis through Smart PLS 3.3.9 is called the measurement model (see figure 2). It is used for the assessment of the validity and reliability of the data. The validity of the constructs was examined using two ways namely discriminant validity and convergent validity (Hair et al., 2013). Table 1 below shows the convergent validity of the data in which the factor loading of all the items is more than 0.70 as suggested by Hair et al., (2017). Moreover, hair et al., (2017) also proposed the values of AVE to be more than 0.50. Values of Table 2 show that a threshold value of 0.50 is achieved for AVE. Thus the values of AVE of every variable in table 2 are on a satisfactory level as $AVE > 0.50$.

Table 1: Factor Loading

	BDKM	INN	PBDA	PSBDA	REV	RT	SPE
BDKM1	0.944						
BDKM2	0.928						
BDKM3	0.936						
INN1		0.941					
INN2		0.915					
INN3		0.936					
INN4		0.926					
PBDA1			0.911				
PBDA2			0.918				
PBDA3			0.935				
PSBDA1				0.942			

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PSBDA2	0.930	
PSBDA3	0.912	
REV1	0.938	
REV2	0.913	
REV3	0.899	
REV4	0.935	
REV5	0.849	
RT1		0.940
RT2		0.936
RT3		0.938
SPE1		0.929
SPE2		0.898
SPE3		0.916
SPE4		0.935
SPE5		0.840

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

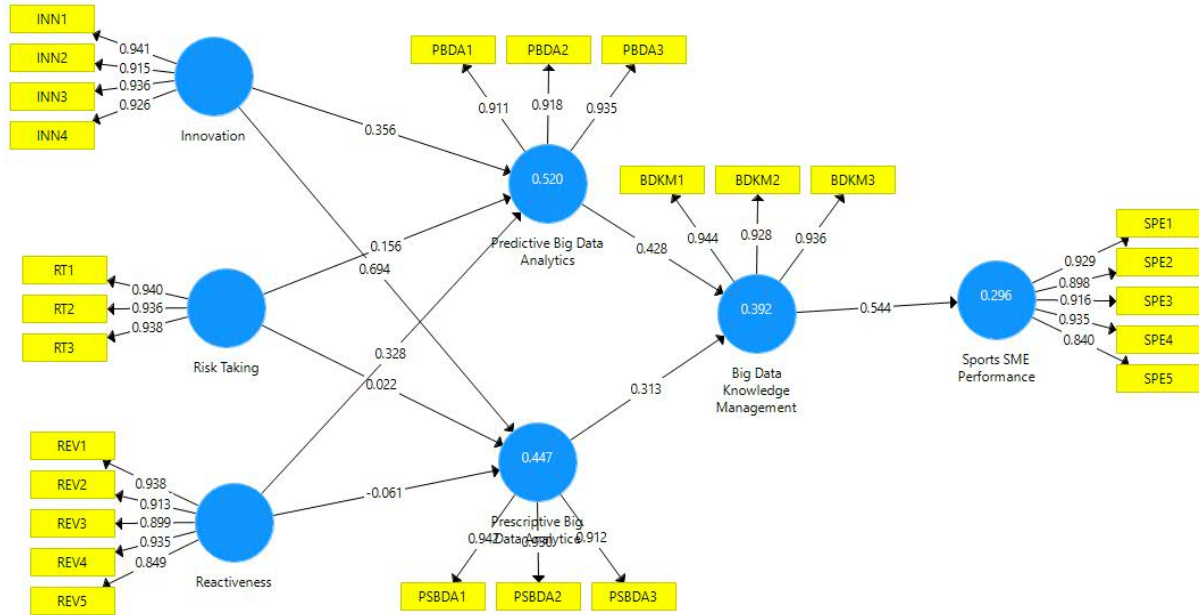


Figure 2: Measurement Model

Note: INN=innovation; RT= risk taking; REV= reactivity; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

For further confirmation of the validity, this study assessed the composite reliability of the variables. It is evident from the values of table 2, that the CR of all constructs is more than 0.70. In this regard hair et al., (2017) proposed 0.70 as the threshold level of CR. Thus, this level is achieved as per the results of CR mentioned in table 2.

Table 2: Reliability and Validity

	Composite Reliability	Average Variance Extracted (AVE)
BDKM	0.955	0.876
INN	0.962	0.864
PBDA	0.944	0.849
PSBDA	0.949	0.861
REV	0.959	0.823
RT	0.957	0.880
SPE	0.957	0.818

Note: INN=innovation; RT= risk taking; REV= reactivity; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

The next step under the measurement model is to establish the discriminant validity of the data. For this purpose, the criteria of Fornell and Larker were used. As mentioned in Table 3, the square root of the AVE of each construct was examined which is more than the maximum correlation of all other variables. In other words, the values of the matrix at the diagonal must be more than other values (Fornell and Larker, 1981). These criteria are fulfilled in table 3 establishing the discriminant validity of the study.

Table 3: Discriminant validity

	BDKM	INN	PBDA	PSBDA	REV	RT	SPE
BDKM	0.936						
INN	0.603	0.930					
PBDA	0.558	0.652	0.921				
PSBDA	0.490	0.667	0.414	0.928			
REV	0.549	0.642	0.634	0.396	0.907		
RT	0.480	0.542	0.511	0.368	0.494	0.938	
SPE	0.544	0.654	0.676	0.435	0.548	0.662	0.904

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

This study uses another method for the assessment of discriminant validity called the Heterotrait-Monotrait ratio of correlations (HTMT). The researchers proposed values of the matrix to be less than 0.85 to establish discriminant validity through HTMT (Henseler et al., 2016). It is evident from table 4 below that all values of the matrix are less than 0.85.

Table 4: HTMT

	BDKM	INN	PBDA	PSBDA	REV	RT	SPE
BDKM							
INN	0.641						
PBDA	0.602	0.699					
PSBDA	0.531	0.715	0.449				
REV	0.584	0.678	0.681	0.423			

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RT	0.514	0.574	0.552	0.395	0.524	
SPE	0.578	0.690	0.729	0.467	0.579	0.703

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

Thus, this study established both the reliability and validity of the data. In this way, the measurement model of the study is successfully established.

Moving towards the testing of structural model (see figure 3). For the estimation of the structural model, the bootstrapping procedure was adopted using samples of 5000. Moreover, the level of significance was 5%. The structural model was examined to examine the relationship between direct and indirect hypotheses. Moreover, to assess the value of R square. The first stage of structural model assessment of hypothesis testing. Beta values and t- values of the results were considered for the significance and insignificance of the relationship. The values mentioned in table 5 below reveal the statistical results of the direct hypothesis.

Table 5: Direct Results

HYP	Path	Beta	SD	T value	P Values	Decision
H1a	RT -> PBDA	0.156	0.083	1.877	0.031	Significant
H1b	RT -> PSBDA	0.022	0.092	0.238	0.406	Insignificant
H2a	INN -> PBDA	0.356	0.092	3.880	0.000	Significant
H2b	INN -> PSBDA	0.694	0.086	8.074	0.000	Significant
H3a	REV -> PBDA	0.328	0.097	3.377	0.000	Significant
H3b	REV -> PSBDA	0.061	0.102	0.593	0.277	Insignificant
H8	BDKM -> SPE	0.544	0.063	8.574	0.000	Significant
H7a	PBDA -> BDKM	0.428	0.093	4.606	0.000	Significant
H7b	PSBDA -> BDKM	0.313	0.087	3.605	0.000	Significant

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

The findings of the study reveal that H8 of the study is accepted and BDKM positively affects SPE (Beta=0.544, t=8,674). Moreover, the results of the study also support that INN has a significant relationship with PDMA (Beta=0.356, t=3.880). Thus, H2a,b of the study is supported. The

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relationship between INN and PSBDA is also statistically significant with Beta= 0.694, t=8.074 accepting hypothesis.

Furthermore, the findings of the study also show that PDBA significantly affects BDKM, supporting H7 (Beta=0.428, t=4.606). The statistical findings also prove that PSDMA has a positive effect on BDKM with beta=0.313, t=3.605 supporting H7. Additionally, the findings accept the relationship between REV and PBDA with Beta=0.328 and t=3.377. Thus H3a of the study is supported.

On the other hand, H3b of the study is not statistically supported among REV and PSDBA (Beta= 0.061, t=0.593). Same are the results with H9 as RT and PSDBA are not statistically significant as well (Beta=0.022, t=0.238). But the relationship between RT and PBDA is statistically significant supporting H8 with Beta=0.156, t=1.877).

Table 6: Indirect Results

Hyp,	Path	Beta	SD	T value	P Values	Results
H4a	INN -> PBDA -> BDKM	0.152	0.055	2.793	0.003	Support
H4b	INN -> PSBDA -> BDKM	0.217	0.061	3.554	0.000	Support
H5a	RT -> PBDA -> BDKM	0.067	0.039	1.695	0.045	Support
H5b	RT -> PSBDA -> BDKM	0.067	0.039	1.695	0.045	Support
H6a	REV -> PBDA -> BDKM	0.140	0.051	2.780	0.003	Support
H6b	REV -> PSBDA -> BDKM	0.140	0.051	2.780	0.003	Support
H9	PBDA -> BDKM -> SPE	0.233	0.070	3.341	0.000	Support
H10a	RT -> PBDA -> BDKM -> SPE	0.036	0.024	1.545	0.062	Not Support
H10b	RT -> PSBDA -> BDKM -> SPE	0.004	0.016	0.229	0.409	Not Support
H11a	INN -> PBDA -> BDKM -> SPE	0.083	0.035	2.365	0.009	Support
H11b	INN -> PSBDA -> BDKM -> SPE	0.118	0.033	3.612	0.000	Support
H12a	REV -> PSBDA -> BDKM -> SPE	0.010	0.018	0.588	0.278	Not Support
H12b	REV -> PBDA -> BDKM -> SPE	0.076	0.032	2.380	0.009	Support

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

The statistical findings of indirect results are mentioned in Table 5. These results show that PSBDA and BDKM do not sequentially mediate among RT and SPE (Beta=0.004, t=0.229). Thus, the hypothesis is rejected. Similarly, H10a and H10b are rejected as well because PSDBA does not mediate among RT and BDKM along with REV and BDKM. On the other hand, H13 is supported in the present study with Beta=0.076, and t=2.380 showing PBDA and BDKM sequentially mediate among REV and SPE. Also, PDMA mediates among INN and BDKM supporting H14 with Beta= 0.152 and t=2.793. Similarly, the statistical findings support hypothesis showing BDKM mediates the relationship between PDMA and SPE with beta= 0.233 and t=3.341. Also, the findings show that PBDA and BDKM sequentially mediate among INN and SPE supporting H16 (Beta=0.083, t=2.365). Additionally, the hypothesis is also supported in terms of sequential mediation showing PSBDA and BDKM mediate sequentially among INN and SPE (Beta=0.118, t=3.612). The results also support the hypothesis revealing that BDKM mediates among PSBDA and SPE (Beta=0.170, t= 3.769).

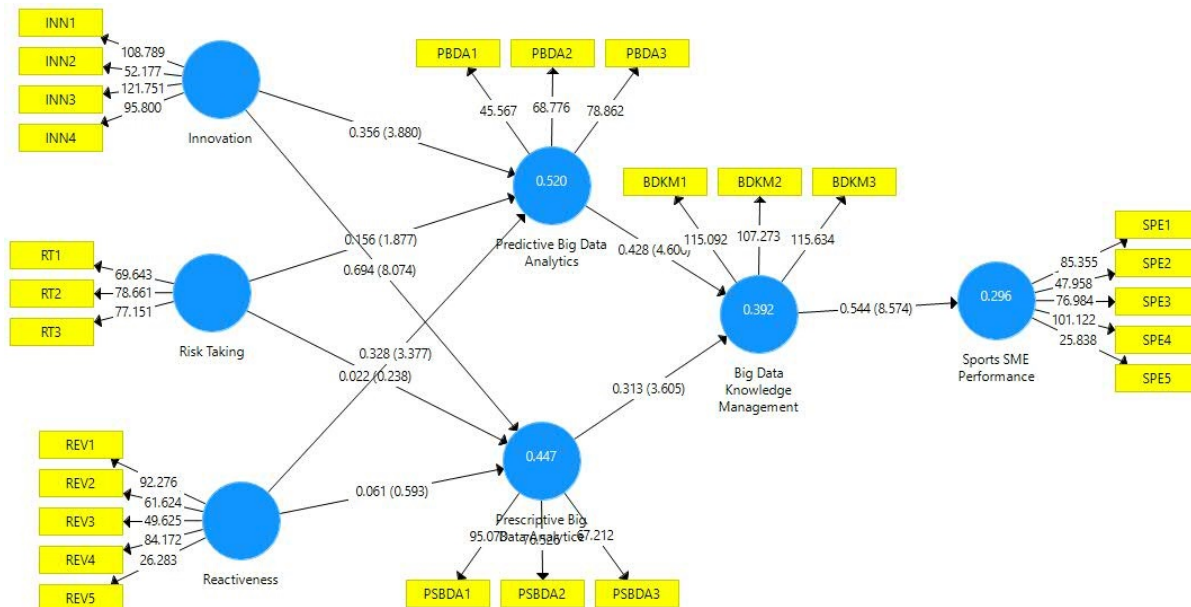


Figure 3: Structural Model

Note: INN=innovation; RT= risk taking; REV= reactivity; PBDA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

But the statistical findings show that the hypothesis is not supported as PSBDA and BDKM do not sequentially mediate among REV and SPE (Beta=0.010, t=0.588). On the other hand, the hypothesis of the study is supported as PBDA mediates significantly among REV and BDKM (Beta=0.140, t=2.780). The hypothesis of the research is also supported in which PBDA is significantly (Beta=0.067, t=1.695) mediating among RT and BDKM. Whereas H22 of the study is not supported PBDA and BDKM do not mediate sequentially among RT and SPE (Beta=0.036, t=1.545). In the end, PSBDA mediates the relationship between INN and BDKM supporting the hypothesis (Beta=0.217, t=3.554) (See table 7)

Table 7: R square

	Original Sample (O)
BDKM	0.392
PBDA	0.520
PSBDA	0.447
SPE	0.296

Note: INN=innovation; RT= risk taking; REV= reactiveness; PDBA= Predictive big data analytics; PSDBA= prescriptive big data analytics; BDKM= big data knowledge management; SPE= sports SME management

At the end of the analysis through the structural model, this study examined the value of R square. Table 6 and Figure 1 also show the R square of the study. These results reveal that the value of R square is acceptable as proposed by Cohen (1988).

Discussion and Implications

This study aimed to forecast the performance of small and medium-sized enterprises (SMEs) using BDA (both predictive and prescriptive) and technical innovation. The theoretical cornerstone of this study was the resource-based approach (product and process). Additionally, it investigated the role of big data knowledge management in the link between BDA (both predictive and prescriptive) and the performance of SMEs, as well as the technological innovation mediation mechanism underlying technical innovation. As anticipated, the study demonstrates that predictive and prescriptive BDA leads to the development of new products and processes in small and medium-sized firms (SMBs). The findings provide the notion broached by the resource-based view that BDA as an internal resource increases the firm performance. Following the RBV theory and in line with the prior findings, the results of the study indicate the performance of small and medium-sized businesses and ways to analyze large amounts of data. Big data analytics, or BDA, is the process of managing, processing, and analyzing large amounts of data to improve the operational efficiency of an organization. Since the beginning of the last decade, BDA has become a more popular and important topic in both academia and business (Sklyar et al. 2019). In the past, different researchers, like Bansal et al. (2018), Stated that BDA is a mixture of unstructured, semi-structured, and structured data and its size is measured in exabytes. This makes BDA different from other data warehouses, which usually measure their size in terabytes. Sites like Google and YouTube, as well as social networking sites like Facebook, are some of the best places to find this kind of information. For example, Grover et al. (2018), used volume, verity, velocity, veracity, and value as ways to describe big data. There are five Vs: volume, verity, speed, and veracity. Similarly, Grover et al. (2018), defined "big data" as a huge amount of both structured and unstructured data that is hard or nearly impossible to evaluate with the usual methods and tools.

The results of the study indicate that the BDA significantly mediates the EO and SME performance. The results of the study provide support to the argument broached by the authors that BDA is among the resources that better explain the impact of EO on SME performance. The results of the study indicate that the BDA (both predictive and prescriptive) significantly mediates the relationship between EOP and SME performance. The results are also in line with previous studies

such as Li et al. (2017), Carnevale and Hatak (2020), and Chen et al. (2017), which have shown that predictive BDA has a significant and favorable link with product and process innovation (2019). Dess and Lumpkin suggest that using consumer blog data analytics may improve the decision-making of company operations. Real et al. (2014), who published their results in the same year, discovered that data-driven decision-making has the potential to increase corporate productivity by up to 5% more than other organizational elements (e.g. firm culture). The results of Chen, Wang, and Huang's (2019) study show that open innovation (OI) has a direct impact on the success of enterprises (FP). The research indicates that BDA has a significant and favorable impact on SME performance. The results of the study are also consistent with the prior studies of Wales (2020), and Walters et al. (2018), who have discovered that BDA had a direct influence on performance.

Finally, the results of the serial mediation are shown in table 5. The results indicate that Risk Taking -> predictive BDA -> big data knowledge management -> SME performance, and Risk Taking -> prescriptive BDA -> big data knowledge management -> SME performance, are insignificant which indicates that the impact of the relationship between risk taking and SME performance through mediating influence of PBDA, PSBDA and BDKNM is insignificant. Similarly, proactiveness -> predictive BDA -> big data knowledge management -> SME performance is insignificant. On the other hand, the results in table 5 reveals the fact that innovativeness -> predictive BDA -> big data knowledge management -> SME performance, and innovativeness -> prescriptive BDA -> big data knowledge management -> SME performance, and proactiveness -> predictive BDA -> big data knowledge management -> SME performance.

Theoretical implications

Big Data Analytics (BDA) is used to anticipate the success of small and medium-sized businesses (SMEs) and technical innovation (product and process) fills a gap in the disciplines of big data and performance management (SMEs). Big data analytics may have a significant influence on both technological innovation and the performance of smaller enterprises. This study suggests that using BDA (predictive and prescriptive) may improve an organization's performance. Additionally, it believes that to meet their day-to-day operational business needs, small and medium-sized businesses can benefit greatly from the use of BDA (predictive and prescriptive) as a significant information resource, as well technological innovation (product and process) as a significant technological resource. This study demonstrates how previous research on data management may aid in learning about BDA and SMEs. This paradigm allows getting a better understanding of how major businesses (such as those involved in the analysis of big data and the development of new technical applications) might assist small and medium-sized businesses (SMEs). Moreover, it investigated how technical innovation affects the relationship influencing the connection between big data analytics and the success of SMEs (SMEs). This is a significant advance. Product and process innovation are linked to the success of small and medium-sized businesses (SMEs) and predictive and prescriptive BDA. Craighead et al. (2020) determine that innovation performance acts as a conduit for the relationship that exists between enabling excellence and firm performance. This kind of mediation has never before been used by anybody in the process of evaluating SMEs. The results of the study show that one of the most important relationships between predictive and prescriptive BDA and the success of SMEs is technological innovation.

The quantity of information that companies have acquired over the past several years has increased exponentially, and experts anticipate that this pattern will continue. The term "big data" refers to

these massive data sets that are so complicated that standard software solutions are unable to efficiently obtain and analyze them. The process of information gathering, storage, management, and dissemination inside an organization is referred to as "knowledge management" (KM). The objective of knowledge management, often known as KM, is to reduce the complexity of gaining access to and making use of information to enable people and organizations to improve their level of productivity and the quality of their decisions. What does number one have in common with number two? The process of using enormous amounts of data to develop meaningful insights from this valuable "raw material" may be facilitated by organizations via the use of a strategy and set of tools known as knowledge management. A KM solution makes it possible for your organization to share information, giving workers access to all relevant data whenever they may need it. In other words, it helps to turn large amounts of data from a rough diamond into a shining gem, which the team can then use to enhance the performance of the firm. This is made possible by the use of artificial intelligence.

Practical implications

The results imply that small and medium-sized businesses should include big data analysis into their overall strategy when developing organizational goals to reach the required degree of company performance. It is crucial in today's digital economy to employ data predictive and prescriptive analytics to build a sound strategy, produce novel ideas, and assess optimum organizational performance. BDA may also be useful for small and medium-sized businesses since it helps them to update their product and process management systems and enhance their performance. Using data-based information, for instance, the company's higher management and politicians might decide whether or not to sell new or more environmentally friendly products. The study discovered that big data predictive analytics might aid SME leaders in forecasting, generating new products and processes, and streamlining business operations. It is also essential to note that big data prescriptive analytics is a strong predictor of innovation-related problem-solving (e.g., product and process). Using data-driven decision making, small and medium-sized enterprises (SMEs) may reduce the risk and time necessary to implement changes in product and process management. Additionally, it will assist in lowering production costs throughout the manufacturing process. Utilizing new technologies may enable SMEs to compete more successfully on the global market (both in product and process). As a consequence of the quick rate of change in today's business climate, customers are continually seeking durable and creative products to meet their needs.

Conclusions

Entrepreneurial activities are considered to be part of the internal capabilities of a small-to-medium-sized enterprise (SME), and also because they have the potential to boost the company's success despite unfavorable market conditions. It is crucial to emphasize the effect that entrepreneurial activities have on the performance of SMEs. The authors of this paper performed research to determine the degree to which EO contributes to the success of small and medium-sized firms (SMEs) in the Chinese sports sector. Based on this supposition, there is reason to believe that BDA powered by AI might help enterprises improve their information processing capabilities. Streamlining the analysis and integration of complex data derived from several sources managers use this ability to reduce the level of ambiguity around demands, capabilities, and supplier availability. A corporation must possess these abilities to avoid the need to have a large inventory on hand and to participate in the development of a responsive supply chain.

Regardless of the company's decision, the quantity of money it brings in will be influenced in some manner. A similar argument can be made about how firms might better adapt to their surroundings and connect with business partners using the information gained from the BDA's research and analysis. Businesses must be able to use BDA to get a better understanding of their customer's expectations and behavior if they want to succeed in today's highly competitive sector. The "style, judgments, and actions" of an executive officer (EO) may be used to summarise a corporation's business strategy. Firms may enhance their small and medium enterprise (SME) performance by generating new products and services, boosting the quality of current ones, decreasing costs, and minimizing the market risk associated with the introduction of a new one using EO and BDA-enabled dynamic capabilities. Multiple mediations, including predictive and prescriptive analytics, as well as big data knowledge management, link the entrepreneurial attitude with the success of small and medium-sized organizations (BDM). Participants of the current research were employees of a variety of sporting organizations. In the course of an online poll conducted by using social networking sites and Google forms, 654 questionnaires were sent. A total of 407 valid questionnaires were collected to conduct more studies. It had a response rate of 62.23 percent, which is useful in a variety of situations. Due to their accessibility, both technology and social media channels were used to gather data for this research. For the study's data analysis, both Smart PLS 3 and SPSS were used. The findings show that the research's outcomes are consistent with the theory (Illustration). The research reveals that predictive and prescriptive BDA might aid small and medium-sized businesses in developing new products and processes.

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