

## Article

# Harnessing Big Data Analytics to Accelerate Innovation: An Empirical Study on Sport-Based Entrepreneurs

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**Abstract:** The emergence of advanced technologies brings various opportunities for all kinds of business organizations. This topic was selected for research and discussion to figure out the possible impacts of using the ever-increasing development of digitalization, big data analytic capabilities (BDACs) and innovation in the field of sport-based entrepreneurship, which is the main pillar for the economic wellbeing, development and growth of sport activities. This study highlights the function of the BDAC of entrepreneurs in the acceleration of their readiness and innovation activities. Beyond the direct association of BDAC with an entrepreneur's readiness and innovation performance (IP), we also tested the mediation of entrepreneurial readiness between the BDAC and IP of sport-based entrepreneurs. Moreover, the moderation of entrepreneurial orientation (EO) was also considered for the readiness and IP link. In this study, data were collected from 562 sport-based entrepreneurs. Online questionnaires were used for data collection, and various statistical techniques, including correlation, regression and structural equation modeling (AMOS 7.0), were applied for the analyses of the collected data. The outcomes of this study disclosed that BDAC and entrepreneur readiness positively predicted the IP. The results revealed that entrepreneurial readiness mediated between BDAC and IP. The findings suggested that sport-based entrepreneurs should enhance their BDAC for the execution of sport-related innovative activities. In spite of its valuable findings and suggestions, the current study is subject to some limitations. Firstly, this study is limited to sport-based entrepreneurs only. Secondly, AIT theory was used here, so for future considerations, other pillars of the economy such as the manufacturing sector should also be considered and the many other theories available should be employed.

**Keywords:** innovation performance; big data analytic capability; entrepreneurial readiness; entrepreneurial orientation



**Citation:** Binsaeed, R.H.; Grigorescu, A.; Yousaf, Z.; Radu, F.; Nassani, A.A.; Tabirca, A.I. Harnessing Big Data Analytics to Accelerate Innovation: An Empirical Study on Sport-Based Entrepreneurs. *Sustainability* **2023**, *15*, 10090. <https://doi.org/10.3390/su151310090>

Academic Editor: Fabrizio D'Ascenzo

Received: 25 May 2023

Revised: 18 June 2023

Accepted: 19 June 2023

Published: 26 June 2023



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## 1. Introduction

Information technology has revolutionized almost every aspect of our life and gained strategic importance for both researchers and management [1]. The advancement in information technology offers various opportunities and has become the lifeblood of the economy in today's world [2]. Nowadays, the use of technology is very common in every field of life, and the sport sector has not been left behind. No doubt, information technology

has been used in the sport sector for many years, but it gained huge importance after the emergence of new sport events, in which technology has reached new heights [3]. In today's world, one cannot imagine a world without technology; it is crucial in every walk of life [1]. Sports is an important element for the growth of an economy and plays a crucial role in boosting economic growth thanks to highly skilled, knowledgeable and creative sport-based entrepreneurs [4]. With the use of technology in the sport sector, the process of serving sport activities becomes more efficient and effective. We know from the existing literature that the adoption of advanced technologies alone is not sufficient for the superior performance of business organizations [5]; there is also a need to develop capabilities that provide a synergistic effect along with advanced technologies [3]. Therefore, the current study aims to highlight the role of the BDAC of sport-based entrepreneurs for the creation of innovative ideas in sport-related activities.

In the recent decade, due to digitalization, the management of big data has become a challenge for almost all kinds of commercial landscapes, and these concerns have gained strategic importance [2,3]. Researchers in the field of information technologies have already highlighted the critical role of BDAC in their empirical findings. The adoption of big data techniques enables realistic decision-making based on facts instead of intuition [6]. BDAC is concerned with the process through which one can easily manage the huge amount of raw data for business decisions [7]. Existing studies have already justified the important role of an entrepreneur's various capabilities for gaining a competitive advantage over their rivals. However, there is a lack of discussion about the BDAC of entrepreneurs regarding the successful implementation of new ideas, particularly in the context of sport-based entrepreneurs. Therefore, the core idea of this study was to explore the role of the BDACs of sport-based entrepreneurs, which are important for the management of the huge amount of data accumulated through various technologies.

In the current study, we also examined how the BDAC of entrepreneurs plays a role in enhancing their readiness and IP mechanism with reference to sports events [7,8]. To achieve this study's objectives, we considered the socio-materialism perspective and conceptualized the BDAC of entrepreneurs based on the administration, technology and human resources dimensions of BDAC that bring high-level efficiency in operation to gain IP [2]. Existing studies have documented the role of BDAC in the higher performance of business organizations [2,7]. Limited studies considered the importance of BDAC for the enhancement of the innovation-related activities of individuals and organizations [7]. BDACs generally reflect a way to modernize the routine operations through which organizations conduct business [8,9]. Therefore, this study examines the capabilities that an entrepreneur needs to improve their IP. The existing literature documents evidence regarding the connection between a firm's ability to manage the required information and its IP [10–12].

The IP of sport-based entrepreneurs is largely based on the intensity of their creative ideas relating to sport-related ventures [13,14]. Sport entrepreneurship creates economic value and assumes risk in the execution of sport events [4]. Innovation in the field of sport-related ventures requires a variety of information that enables the entrepreneurs to create novel ideas [5]. In this regard, the big data analytic capabilities of sport-based entrepreneurs play a critical role in the successful execution of sport-related events [14]. The BDAC of an entrepreneur ensures the successful uncovering of trends and correlations relating to the huge amounts of raw data that facilitate data-informed decisions [15,16]. BDAC increases the chance of the effective utilization of collected data for the development of new ventures [17,18]. The management aspect of BDAC provides guidelines to the entrepreneur to organize the available resources in a significant manner [19,20]. On the other hand, the technological aspect of BDAC is related to the technological knowledge that enables the entrepreneur to promote the new product and services [21]. Finally, the talent dimension refers to the entrepreneur's ability to best utilize human resources effectively and their talent to implement change according to market changes [19]. Simply put, BDACs enable

entrepreneurs to create new ideas based on a variety of raw data, take on the risk of new ventures and be involved in innovation-related activities based on data-informed decisions.

In the current study, we also argue that BDAC is not the sole factor that stimulates the entrepreneur to assume the risk of a new venture and take innovative decisions. There are various factors involved in this relationship and entrepreneurial readiness is a critical factor that encourages the entrepreneur to become innovative and create new ventures for the creation of economic value for the community. Entrepreneurial readiness is concerned with the abilities, skills and knowledge of an individual that enable them to respond to business, market and product changes [22]. BDAC improves the awareness of an entrepreneur regarding the market conditions, which enhances their readiness to accept the changes [21]. Therefore, in this study, we assume that entrepreneurial readiness plays a mediating role in the relationship between BDAC and IP.

## 2. Literature Review and Study Hypotheses

### 2.1. Big Data Analytic Capability and Innovation Performance

The BDAC of an entrepreneur reflects their ability to manage the raw data collected through various technological tools that enable data-informed business decision-making [5]. Existing studies have documented that big data analytics has a consistent role in successful decision-making at the individual and organizational levels [2,15]. The big data mechanism provides a superior opportunity to use statistics that contain raw data to facilitate timely and data-informed decision-making [23,24] BDAC enables entrepreneurs to select appropriate alternative opportunities based on big data [8,25]. Manyika et al. [15] empirically found the impact of big data on the productivity, innovation and competitiveness of business organizations in a volatile business environment. The BDAC of entrepreneurs plays a critical role in the generation of innovative ideas that enable innovative business activities, which in turn increase the IP [26,27].

**H1.** *BDAC is a positive predictor of IP.*

### 2.2. Big Data Analytic Capability and Entrepreneurial Readiness

Entrepreneurial readiness is defined as the willingness of an individual to assume risk-taking activities based on their acquired knowledge, skills and abilities [28]. The readiness of an entrepreneur enables them to assume innovation-related risks based on the knowledge skills and abilities they possess [29,30]. The mechanism of big data plays a foundational role in the improvement of entrepreneurial readiness; the entrepreneurial abilities and expertise increase the willingness that enhances the readiness regarding potential changes in the business environment [31]. The big data analytics management capability of sport-based entrepreneurs enables them to manage data flow, which indicates their entrepreneurial readiness [32].

Sport-based entrepreneurs use different tactics to handle big data analytics, such as warehouses and database centers, which can improve the readiness of the entrepreneurs [33,34]. Researchers have documented that an entrepreneur's BDAC plays an important role in increasing the readiness of the entrepreneur through awareness, knowledge and skills relating to new technology and creativity [32,35,36]. Therefore, BDAC enables the best utilization of big data and latest technologies for the management of huge raw data that heighten the willingness for the selection of innovative business decisions [37,38]. Big data provide a variety of business-related information that plays a foundational role in the development of entrepreneurial readiness [39].

**H2.** *BDAC has a positive connection with entrepreneurial readiness.*

### 2.3. Mediation of Entrepreneurial Readiness

Entrepreneurial readiness refers to the capability and willingness of individuals toward entrepreneurship [28]. A higher level of confidence and willingness has a positive consequence on an entrepreneur's innovative and creative behavior [40]. Sport-based en-

entrepreneurs who have the appropriate analytical skills are more likely to exhibit willingness and a positive attitude toward innovative ideas and new tasks due to the availability of raw data and the required information [14,41]. Manyika et al. [15] documented in his study that BDAC is considered a vital factor in using huge raw data and that it boosts the skills, abilities and expertise of entrepreneurs and also increases their aptitude for the successful execution of big data analytics. Motwani et al. [42] highlighted that BDAC increases the willingness and confidence of the entrepreneur to approve and accept new changes in the business environment. Shahrasbi and Pare [43] argued that entrepreneurs with a higher level of readiness are enthusiastic to generate creative ideas to expand their innovation. Furthermore, Hussain et al. [41] documented that the availability of big data increases the knowledge and skills necessary for the performance of innovative activities.

Entrepreneurial readiness that is a result of big data availability plays a mediating role between BDAC and IP links. Entrepreneurial readiness makes the formulation and execution of new business-related ideas easy [44–46]. IP is positively influenced by readiness as a reaction of BDAC [47,48]. However, readiness in the form of entrepreneur willingness, knowledge and abilities is essential for improving the IP. BDAC supports entrepreneurial readiness by making it possible to organize the huge amount of raw data, which then enables the generation of new ideas, which in turn enhances the IP. The findings of the existing studies revealed that BDAC extensively forecasts IP via entrepreneurial readiness. IP is connected with a higher level of entrepreneurial willingness to be involved in creativity through both big data availability and BDAC [47].

**H3.** *Entrepreneurial readiness has a positive relation with IP.*

**H4.** *Entrepreneurial readiness has a mediation role in the link between BDAC and IP.*

#### 2.4. Moderating Role of EO

EO is concerned with knowledge and awareness about the business conditions that are important for entrepreneurs to take business decisions and achieve entry into a new market [49]. EO is defined as the one's attitude toward risk-taking, proactivity and innovativeness that enables effective and data-informed decision-making [50]. EO contributes significantly to business decisions in a creative manner as compared to the lack of EO [51–53]. The strong EO of an entrepreneur makes it possible for them to generate new business ideas and engage in innovative business activities [54]. Entrepreneurs with a higher level of confidence and willingness toward innovation and creativity are more excited to be involved in creativity and innovation activities, which are the foundational elements for improving IP [55,56]. The current study assumes that entrepreneurs who have a higher willingness to generate novel ideas along with a strong orientation toward innovative activities are in a better position to enhance the IP.

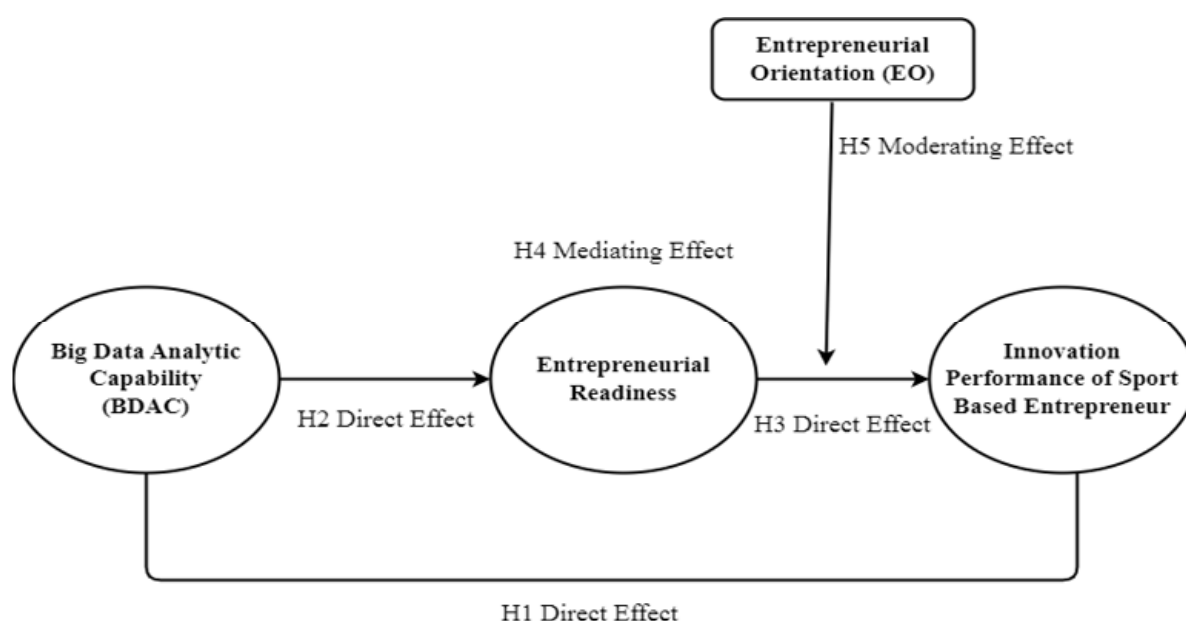
**H5.** *EO moderates the connection between entrepreneurial readiness and IP.*

#### 2.5. Anchored Instruction Theory and Study Framework

The current study employed Anchored Instruction Theory to explain the role of BDAC in the improvement of entrepreneur readiness and IP. AIT was developed by the Cognition and Technology Group at Vanderbilt under the supervision of John Bransford who was the leader of that theory [57]. The AIT theory is based on the concept of learning through technology and focuses on the significance of placing learning within a relevant and problem-solving situation [58]. The main focus of this theory is to learn and teach by using various technologies. Learners unearth problems through the use of technology and then try to find solutions in a real world. This theory is ideal for the adoption of big data technology in the innovation process. Big data enable the entrepreneur to gain valuable information about the industry and business regarding prevailing opportunities [57]. On the other hand, IP is concerned with the generation of innovative ideas by entrepreneurs to bring innovation in procedures and products [59]. Popovic et al. [60] documented that

innovative ideas relating to the execution of a new venture or business activities were largely based on the availability of the required data and information.

The purpose of any kind of research is to further broaden the scope of that study and to add something new and important that was not defined before. The use of theories in any research work makes the findings more significant, valid and trustworthy for future consideration [61]. There are several theories related to the adoption of technology; however, AIT best explains the association between the BDAC and IP of a sport-based entrepreneur. On the basis of AIT, it is obvious that innovation and the generation of new ideas without using modern technological tools is baseless and the resulting workforce will be left behind in the era of digitalization. Technology brings innovation in entrepreneurship as it enables entrepreneurs not only from a specific geographical area but from all around the world to have virtual access to a variety of raw data. Theoretical framework is presented in Figure 1.



**Figure 1.** Theoretical framework.

## 2.6. Methodology

A cross-sectional design of executing the research activities was applied by the present study. In this kind of research, design data are collected from respondents at one point in time using survey methods. The respondents were selected using sampling techniques from this study's sample frame. The selected respondents were approached and provided with questionnaires for the responses of each respondent regarding this study's constructs.

To collect the data for the present research, the General Administration of Sport of China was contacted, and we received a list of 2240 sports entrepreneurs including their contact information. Using a systematic random sampling method, 448 respondents were selected; they were informed of the confidentiality regulations about their identity and the responses collected.

One of the tools of online surveys, the form, was used here in this research. We used an online software tool to create the forms and online surveys. Through this tool, an online form was created and sent to the respondent using an email. In order to avoid bias and other such issues, survey forms were created in both English and Urdu language, and the survey process was divided into 2 spans of time, that is, S1 and S2. Between August 2022 and December 2022, the survey forms were sent to the participants. In the first span, survey forms were sent to a sample of 420 individuals, out of which only 341 valid responses were obtained. In the second span of time, which started after an interval of 17 days, survey

forms were sent to 380 individuals, out of which 311 valid responses were considered. Thus, at last, 652 well-filled forms were collected.

### 2.7. Study Measures

Measurement items are presented in Appendix A. The construct of BDAC was formulated by Mikalef et al. [62] with three sub-dimensions. Most of the existing studies used BDAC as a first-order construct and adapted and modified the items according to this study's requirement. For the current study, we also used BDAC as a first-order construct and selected 10 items for the measurement of the BDAC of sport-based entrepreneurs, and these items were adapted from the research of Binsaeed et al. [63], Kim et al. [64] and Karimi et al. [65]. The predictor BDAC was measured with 10 items using five-point Likert scales. The items used for BDAC measurement recorded the responses of respondents regarding their capabilities in the adoption of big data analytics. Entrepreneurial readiness was measured with a 6-item scale formulated by Claiborne et al. [66]. These items we reused to record the responses regarding the willingness of the entrepreneurs toward new startups or the generation of new ideas. Respondents recorded their responses regarding the innovation-related activities of their businesses on an 11-item scale adapted from the study of Alegre and Chiva [67]. EO was measured with a 9-item scale formulated by Rank [68]. Table 1 presents the internal consistency of measurement items. The internal consistency was established as the coefficient of alpha values met the acceptance criteria for all the constructs.

**Table 1.** Reliability and validity.

|                             | Items | Alpha | FL        | CR   | AVE  |
|-----------------------------|-------|-------|-----------|------|------|
| BDAC                        | 10    | 0.80  | 0.73–0.94 | 0.81 | 0.68 |
| Entrepreneurial readiness   | 07    | 0.81  | 0.76–0.90 | 0.83 | 0.74 |
| Innovation performance      | 04    | 0.86  | 0.71–0.95 | 0.85 | 0.71 |
| Entrepreneurial orientation | 06    | 0.79  | 0.74–0.92 | 0.80 | 0.69 |

## 3. Data Analysis and Results

In order to analyze the above data and to test the developed hypotheses, various statistical tools were used. The collected data were transformed and used for various analyses with the help of statistical techniques in order to test the proposed study hypotheses. The study hypotheses were tested using partial least-squares structural equation modeling (PLS-AMOS 7.0), which enables the determination and estimation of various associations among several endogenous and exogenous constructs in a single model [5,67]. In addition, hierarchical regression with three steps was performed to test the moderation effect.

### 3.1. Constructs' Reliability and Validity

Internal consistency and validity were established by performing the Cronbach's alpha test with the command of reliability in SPSS version 25.0. The statistics of Cronbach's alpha support the reliability of all constructs. Table 1 shows the coefficients of alpha. We also tested the questionnaire for validity using confirmatory factor analysis (CFA). Table 1 also presents the coefficients of the various measures of validity. The calculated statistics confirmed that validity was established of each construct's questionnaire.

### 3.2. Correlation Statistics

Table 2 contains the statistics of the correlation analysis performed in SPSS. The generated coefficients of correlation confirmed that BDAC had an acceptable and positive direction toward entrepreneurial readiness, EO and IP (0.37 \*\*; 0.26 \*; 0.31 \*\*), respectively. In addition, entrepreneurial readiness also presented a positive direction toward EO and IP (0.30 \*\*; 0.29 \*), respectively. Finally, EO, which moderates the connection of entrepreneurial readiness and IP, also positively correlated with IP (0.22 \*).

**Table 2.** Correlation.

|                             | Mean | SD   | 1    | 2      | 3    | 4    | 5       | 6       | 7       | 8 |
|-----------------------------|------|------|------|--------|------|------|---------|---------|---------|---|
| Gender                      | 0.91 | 0.83 | 1    |        |      |      |         |         |         |   |
| Respondent age              | 31   | ---  | 0.08 | 1      |      |      |         |         |         |   |
| Work experience             | 2.5  | 0.82 | 0.05 | 0.01   | 1    |      |         |         |         |   |
| Education level             | 2.6  | 0.90 | 0.08 | 0.04   | 0.02 | 1    |         |         |         |   |
| BDAC                        | 3.5  | 0.91 | 0.07 | 0.10 * | 0.06 | 0.03 | 1       |         |         |   |
| Entrepreneurial readiness   | 3.7  | 0.94 | 0.03 | 0.07   | 0.01 | 0.07 | 0.37 ** | 1       |         |   |
| Entrepreneurial orientation | 3.9  | 0.95 | 0.03 | 0.07   | 0.06 | 0.09 | 0.26 ** | 0.30 ** | 1       |   |
| Innovation performance      | 3.7  | 0.90 | 0.08 | 0.03   | 0.04 | 0.09 | 0.31 ** | 0.29 ** | 0.22 ** | 1 |

Note: SD (standard deviation), \*  $p < 0.05$ , \*\*  $p < 0.01$  two tailed.

### 3.3. Hypotheses Testing

The study hypotheses were tested using path analysis because it examines and tests connections among a set of observed constructs. H1 was formulated to predict the direct effect of BDAC on IP. The outcomes of the path analysis are presented in Table 3. The coefficients generated through path analysis confirmed that the independent variable BDAC predicted the outcome variable IP (0.27 \*). H2 of this study was formulated to directly predict the effect of BDAC on entrepreneurial readiness. Table 3 documents that coefficients establishing that the independent variable BDAC also predicted the outcome variable entrepreneurial readiness in the second path (0.39 \*). Finally, this study's H3 was formulated to determine the direct effect of entrepreneurial readiness on IP. Table 3 also contains the outcomes of the path from entrepreneurial readiness to IP. The findings revealed that the independent variable entrepreneurial readiness predicted the outcome variable IP at a significant level (0.32 \*). Based on the statistics generated with the help of path analysis of AMOS, we accepted H1, H2 and H3 of the current study.

**Table 3.** Results of path analysis.

| Specification                    | Estimate | LL   | UP   |
|----------------------------------|----------|------|------|
| Direct impact                    |          |      |      |
| BDAC → IP                        | 0.27 *   | 0.13 | 0.18 |
| BDAC → Entrepreneurial readiness | 0.39 *   | 0.22 | 0.34 |
| Entrepreneurial readiness → IP   | 0.32 *   | 0.25 | 0.40 |

Note: \*  $p < 0.05$ , two tailed.

The mediation of entrepreneurial readiness was measured using the path model of mediation following the techniques of Preacher and Hayes [69]. Table 4 contains the statistics of the standardized indirect effect of entrepreneurial readiness between BDAC and IP. The results presented in Table 4 confirmed the mediation of entrepreneurial readiness (0.21 \*).

**Table 4.** Results for indirect effect of entrepreneurial readiness.

| Specification                         | Estimate | LL    | UP   |
|---------------------------------------|----------|-------|------|
| Standardized direct impact            |          |       |      |
| BDAC → IP                             | 0.14     | −0.05 | 0.27 |
| BDAC → Entrepreneurial readiness      | 0.39 *   | 0.39  | 0.58 |
| Entrepreneurial readiness → IP        | 0.32 *   | 0.19  | 0.50 |
| Standardized indirect effects         |          |       |      |
| BDAC → Entrepreneurial readiness → IP | 0.21 *   | 0.07  | 0.27 |

Note: \*  $p < 0.05$ , two tailed.

### 3.4. Moderation Analysis

Study H4 was formulated to determine the moderating effect of EO on the connection between entrepreneurial readiness and IP. To test the moderation effect, we utilized a

hierarchical regression analysis. The analysis was conducted using three steps of regression. In step one, we entered the control variables and regressed the dependent variable, i.e., IP. The findings from step one are presented in Table 5. In step 2, we regressed both the independent and the moderating variable on IP along with control variables. Step 2 of Table 5 shows the findings from step 2. Finally, in step 3, the interaction term, i.e., entrepreneurial readiness  $\times$  EO was regressed on IP along with the control, independent and moderating variables. The result shows the moderation of EO between entrepreneurial readiness and IP (0.25 \*\*).

**Table 5.** Outcomes of hierarchical regressions.

|                                                                   | Step 1 | Step 2  | Step 3  |
|-------------------------------------------------------------------|--------|---------|---------|
| Moderation of EO                                                  |        |         |         |
| Entrepreneurial readiness                                         |        | 0.30 ** | 0.34 ** |
| Entrepreneurial orientation                                       |        | 0.27 ** | 0.32 ** |
| Entrepreneurial readiness $\times$<br>Entrepreneurial orientation |        |         | 0.25 ** |
| R <sup>2</sup>                                                    | 0.009  | 0.191   | 0.198   |
| Adjusted R <sup>2</sup>                                           | 0.003  | 0.159   | 0.175   |
| $\Delta R^2$                                                      | 0.007  | 0.163   | 0.028   |
| $\Delta F$                                                        | 4.172  | 79.63   | 17.13   |

Note: \*\*  $p < 0.01$ , two tailed.

#### 4. Discussion

The main objective of the study of this topic is to evaluate the role of technological tools such as big data analytics for sport-based entrepreneurs and to find out to what extent it aids in improving the IP of sport-based entrepreneurs. This study presented five hypotheses that describe the connections among BDAC, entrepreneurial readiness, EO and IP. The results or findings explained the positive relationship of all variables and that the entire hypotheses were acceptable. The study in hand observed the predictive role of BDAC for outcome variables including IP and entrepreneurial readiness. The current study proposed that an entrepreneur's capability regarding the management of huge raw data collected with the help of big data analytics positively predicted their entrepreneurial readiness and IP.

H1 proposed that BDAC is one the foundational factors that enable the entrepreneurs to engage in the creation of innovative solutions for existing business and provides direction for the start-up of new ventures. Deliberation on the foundational role of BDAC in improving the IP and innovative behavior of entrepreneurs existed in the relevant literature. Most of the existing researchers empirically documented the predictive role of BDAC for the IP of entrepreneurs in various contexts [2,25]. The current study proposed this relationship for sport-based entrepreneurs who want to create novel ways to execute sport-related ventures. In line with previous studies, we also proved that BDAC fuels innovative ideas in sport-based entrepreneurs.

This study's H2 was formulated for the positive prediction of BDAC on the outcome variable entrepreneurial readiness. The BDAC possessed by sport-based entrepreneurs increases their know-how regarding the prevailing unpredicted conditions, which is valuable for the willingness of an entrepreneur to assume the risk and create new value in order to boost entrepreneurship. In line with previous studies such as [31,33,34], our empirical findings suggested positive prediction of BDAC on outcomes such as entrepreneurial readiness. In addition, Goss and Veeramuthu [39] documented in their research findings regarding the role of the BDAC of organizations in the improvement of organizational readiness. This study's H3 was formulated for the positive prediction of entrepreneurial readiness on the enhancement of IP. In this study, we argued that an entrepreneur's capability to organize a huge amount of raw data increases the likelihood of enhancing their abilities and skills that ensure the readiness for creativity. The outcomes revealed that entrepreneurial readiness significantly influenced the IP of sport-based entrepreneurs.

The findings revealed that BDAC had a positive role on the development of the readiness and IP of an entrepreneur. On the other hand, the positive effect of entrepreneurial readiness on IP encouraged testing of the mediation of entrepreneurial readiness between BDAC and IP. Based on these assumptions, we proposed H4 for the intervening role of entrepreneurial readiness between the BDAC and IP link. The mediating effect of entrepreneurial readiness was accepted as the statistic calculated for indirect effect showed a reduction in the prediction capacity of BDAC for IP when entrepreneurial readiness intervened in this connection in the mediation path model of the current study. Finally, this study's H5 draws a conclusion regarding the strengthening role of EO on the connection between entrepreneurial readiness and IP. The moderation of EO was tested and confirmed with the use of an interaction term such as entrepreneurial readiness  $\times$  EO in the hierarchical regression analysis.

#### *Theoretical and Practical Implications*

The current study adds to the existing literature on AIT, socio-materialism and the perspective of information technology. The creative thinking of sport-based entrepreneurs can be expanded when they possess knowledge of big data analytics and capabilities for the management and utilization of the huge amount of raw data generated through various technologies. The current study formulates a BDAC–IP model for sport-based entrepreneurs based on the assumptions of AIT, socio-materialism and information technology. There is a lack of existing literature on this specific model; therefore, it is a unique contribution to the existing body of knowledge. The theoretical importance of the current research lies in the assessment of the BDAC of entrepreneurs in bringing entrepreneurial readiness. Entrepreneurial readiness for the generation of new ideas and changes has gained strategic importance, and it enhances the entrepreneur's stance regarding innovative behavior [30].

The current study offers valuable practice implications. The outcomes of the above study have many practical implications. Firstly, it proposes that sport-based entrepreneurs should adopt various technological tools, including the use of digital platforms, CBT, big data analytics, etc., for the acquisition and exchange of required information and for implementing innovative data-informed strategies. When there is a positive stance of sport-based entrepreneurs toward the adoption of advanced technologies and big data techniques, the process of moving toward the creation of new ideas and innovation activities will be facilitated.

Secondly, it focuses on the process of the adoption of technology for the smooth flow of learning activities and suggests that sport-based entrepreneurship take serious actions for developing infrastructure that will facilitate the adoption of technology in the learning process and enable them to obtain valuable information necessary for the generation of new ideas. Thus, the outcomes of this study are expected to provide many valuable inputs to sport-based entrepreneurs for modifying their existing learning methods to innovative ones, i.e., converting from traditional methods of acquiring business data to the electronic learning processes by making use of all the technological tools possible.

#### **5. Conclusions**

Thus, this study highlighted the importance of the capabilities of entrepreneurs regarding the management of big data and technological adoption in sport-based entrepreneurship and its possible outcomes. Technology has become a strategic part of planning in every sector due to the growing challenges and rapidly increasing competition among economies. Thus, the present study focused on the role of BDAC as a vital technological tool in the sport sector.

Furthermore, this study also focused on the importance of the entrepreneurial readiness and orientation of sport-based entrepreneurs. Readiness is the basic source for the adoption of technology, which in turn acts as a behavioral tool for willingness to be involved in innovative ideas for the solution of business problems and the start-up of new ventures.

Big data analytics makes the learning process not only easy and simple but also scientific, objective and interesting. The results of this study, thus, disclosed the positive relationship among the research variables. The data collected from the sport-based entrepreneurs indicated the use of BDAC for the enhancement of readiness and IP.

## 6. Limitations and Future Studies

The current is not free from limitations, and these limitations could be the recommendations for future research or studies. Before going further, it should be clearly mentioned that the current study has a limitation due to lack of its generalization because this study only focused just on sport-based entrepreneurs. In future studies, this issue can be resolved by considering other sectors. Another limitation of this study was its cross-sectional design for testing the formulated hypotheses; in future, a longitudinal research design can be performed for better insight into the study constructs. Finally, beyond path analysis mediation, other mediation techniques, i.e., the decomposition of paths, can be utilized in order to eliminate this deficiency.

**Author Contributions:** Conceptualization, R.H.B. and A.G.; methodology, A.A.N. and F.R.; software, Z.Y.; validation, A.G. and A.A.N.; formal analysis, Z.Y. and F.R.; investigation, R.H.B. and A.I.T.; resources, F.R. and Z.Y.; data curation, A.I.T.; writing—original draft preparation, R.H.B. and A.A.N.; writing—review and editing, A.G. and Z.Y.; visualization, A.I.T.; supervision, A.G. and R.H.B.; project administration, Z.Y.; funding acquisition, A.A.N. All authors have read and agreed to the published version of the manuscript.

**Funding:** Researchers Supporting Project number (RSP2023R203), King Saud University, Riyadh, Saudi Arabia.

**Institutional Review Board Statement:** This study was conducted following the guidelines of the Declaration of Helsinki. It was approved by the Ethics Committee of HU. Ref: HUD No. 547-098.

**Informed Consent Statement:** Informed consent was obtained from the participants involved in this research.

**Data Availability Statement:** Data will be provided on request.

**Acknowledgments:** Researchers Supporting Project number (RSP2023R203), King Saud University, Riyadh, Saudi Arabia.

**Conflicts of Interest:** No conflict of interest.

## Appendix A

### Entrepreneurial Readiness (ER)—Six items

1. I understand that specific changes may improve outcomes.
2. I am willing to try new ideas, and it is easy to change procedures to meet new conditions.
3. I express my concerns about changes.
4. When changes are necessary, I have a clear plan for implementing these changes.
5. I always explore evidence-based practice techniques.
6. I adapt quickly when there is a need to shift focus to accommodate program changes.

### Innovation Performance (IP)—11 items

1. I try to provide products and services that focus on core functionality rather than on additional functionality.
2. I try to regularly search for new solutions that offer ease of use of products/services.
3. I try to regularly improve the durability of the products/services.
4. I try to introduce new solutions that offer good and cheap products/services.
5. I try to significantly reduce cost in the operational process.
6. I try to significantly reduce the final price of the products/services.
7. I try to open new domestic target groups.
8. I try for innovation in project development.

9. I try to work on innovation projects.
10. I try for average cost per innovation project.
11. I try for a global degree of satisfaction with innovation project efficiency.

#### Entrepreneurial Orientation (EO)—Nine items

1. I have a strong emphasis on technological leadership and innovation.
2. In the last three years, I marketed various new product lines or services.
3. In my business, changes in product or service lines have been quite dramatic.
4. I initiated actions to respond to the competitors.
5. I am the first to introduce new product or services.
6. I preferred a competitive ‘undo-the-competitors’ posture.
7. I had a strong proclivity for high-risk projects.
8. I believed that owing to the nature of the environment, wide-ranging acts are necessary.
9. I adopted a bold, aggressive posture to maximize the innovation activities.

#### Big Data Analytic Capabilities (BDACs)—10 items

I am able to

1. Access very large, unstructured or fast-moving data for analysis.
2. Integrate data from multiple internal sources into a data warehouse or mart for easy access.
3. Integrate external data with internal to facilitate high-value analysis of our business environment.
4. Explore or adopt parallel computing approaches (e.g., Hadoop) to big data processing.
5. Explore or adopt different data visualization tools.
6. Explore or adopted cloud-based services for processing data and performing analytics.
7. Explore or adopt open-source software for big data analytics.
8. Explore or adopt new forms of databases for storing data.
9. Base my decisions on data rather than on instinct.
10. Override my own intuition when data contradict my viewpoints.

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