



Unlocking Strategic Insights: Elevating Business Intelligence through Advanced Big Data Analytics Services

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Abstract. Technology is witness to the achievement of new heights in society. Big data services play an important role in the business intelligence process. The data analytics and innovation performance increase the branding of the product. Consumers' purchase intention increases when they know real-time information about a product. This study focuses on how big data services are important in the business intelligence process, innovation performance, and increasing purchase intention of consumers. The study is based on primary data. Data was collected from industry experts within the Indian region. A total of 475 samples were collected from experts. The study finds that big data service increases innovation performance. The business intelligence link between big data and innovation performance. Consumer purchase intention increased when the innovation performance increased in the organization with the help of big data services. The study finds that consumer purchase intention is a moderator construct between big data service and innovation performance.

Keywords: Big data services, Innovation, consumer, business intelligence, Technology, dataset

1 Introduction

Data is an invaluable resource in today's corporate environment, particularly as companies shift to digital platforms. But it is meaningless if you can't extract massive amounts of data for useful insights. Managers who are knowledgeable about their data can utilize it to create new goods or services, save expenses, speed up production, and set company-wide standards. Large-scale predictive analytics on data will be essential to the supply chain's ongoing digitization. To obtain a competitive edge, businesses are investing in technologies such as artificial intelligence (AI), machine learning, and big data analytics [1]. The research highlights the importance of computing models in processing and analyzing vast datasets for gaining actionable insights. By integrating advanced models, businesses can use predictive analytics to anticipate customer behavior and tailor services to individual preferences. Big Data technology has a transformative impact on customer relationships, enabling targeted marketing strategies

and personalized offerings. AI models and techniques are pivotal in enhancing customer loyalty, satisfaction, engagement, and relationship management. Blockchain technology, in conjunction with AI and IoT applications, can revolutionize customer relationships through enhanced security, transparency, and trust. This research explores the transformative potential of data-driven technologies in enhancing customer loyalty, satisfaction, engagement, and overall experience [2]. Predictive analytics is a game-changing tool that foretells future trends and occurrences to provide decision-makers with useful information. With the help of this technology, one can gain insights into past trends and patterns that go beyond typical data analysis. It helps businesses to be proactive, lower risks, optimize workflows, and customize consumer experiences. Numerous industries, including healthcare, banking, marketing, and government, rely heavily on predictive analytics. It aids in risk assessment, illness outbreak detection, hospital operational simplification, patient care improvement, and the creation of focused campaigns. The great importance of real-world case studies and predictive analytics is examined in this publication [3].

2. Literature Review

Businesses are concentrating more and more on artificial intelligence (AI), which is based on analytics and statistics. This article describes three phases of analytical emphasis and presents AI as the fourth. It concentrates on how to move from analytics to AI. Since AI relies on statistics, it and business analytics have similar goals in mind: using big data, utilizing cutting-edge technology and analytical tools, and exploring cutting-edge statistical techniques to find new sources of value. Using pre-existing analytical skills to position AI as a logical evolutionary step from analytics offers most businesses the greatest route to effective AI adoption [6]. unstructured data, to enhance decision-making. Predictive analytics is used in data-driven marketing to foresee client demands, target users based on past purchases, and tracks user activity and engagement. It significantly influences decision-making by offering perceptions of how successful marketing campaigns are. The ability to engage the right individuals, provide an omnichannel experience, choose the most effective channels for promotion, and comprehend customer behavior are some of the main advantages [9]. One of the main tactics in today's marketing plans is data-driven marketing, which gives customers hyper-personalized experiences. Five stages of development have been experienced by it: creativity, relevance, analytics power, accountability, and technology. Table 1 shows important literature reviews.

Table 1. Important Literature Review

Ref	Description	Critical Review
[4]	This study investigates supply chain management applications of blockchain technology in Industry 4.0 from a Big Data standpoint. Two global logistics cases were examined in the study using the Action Research method and Case Study research. Case B experi-	The study advances our understanding of blockchain technology and large data.

	enced a 25% rise in revenue along with a decrease in paperwork and carbon emissions, while Case An experienced unsuccessful big data interaction due to disconnected systems.	
[5]	This research uses firm agility as a mediator and data-driven culture as a moderating variable to investigate the relationship between big data analytics (BDA) and innovation performance. To test theories, survey data from 185 businesses was utilized.	The relationship between BDA use and innovation performance is considerably mediated by firm agility, according to the results, whereas the relationship between sensing agility and decision-making agility is moderated by data-driven culture
[6]	This study investigates how operations management in the manufacturing industry is affected by big data analytics, or BDA. The research shows that BDA capacity, organizational preparedness, and design characteristics promote greater application of BDA in manufacturing decision-making, improving high-value company performance through a comparative case study of three organizations.	The study also highlights how BDA may be integrated into firms to improve managerial competencies and how important it is for employee empowerment. The understanding of BDA consumption in operations and production management is enhanced by this research.
[7]	The study suggests a BDAC paradigm that emphasizes management, technology, and talent capability. It is based on resource-based theory and socio materialism. The model, which comprises eleven sub-dimensions, significantly affects how well a corporation performs.	The significance of analytics capability-business strategy alignment in the relationship between BDAC and FPER is further highlighted by the study.
[8]	This study looks at the impact of control variables and the relationship between better organizational performance and big data predictive analytics. It makes use of cross-sectional data from 209 answers to a single-informant questionnaire that was pre-tested.	The findings demonstrate the importance of human elements in creating dynamic analytical skills that provide superior performance, emphasizing the necessity for businesses to make the most of the resources they have invested in and create resource-based capabilities that yield higher success.

Big data analytic service significant impact on business Innovation.

The industrial landscape is being revolutionized by Industry 4.0, which means that businesses need to adopt new strategies and utilize ICT tools. HR analytics are becoming more and more dependent on Business Intelligence (BI) solutions, which are essential for Human Resource Management. Using automation and digital technology can improve worker performance. The evolution of Industry 4.0, management 4.0, and business intelligence is covered in this article, with an emphasis on real-world uses of BI software for HR analytics [10].

Big data services have a significant impact on business intelligence process applications.

Large and complicated datasets that are challenging to handle with conventional database administration tools or data processing software are referred to as "big data." Petabytes and larger versions of these datasets are accessible in structured, semi-structured, and unstructured formats. Processing data with high volume, velocity, diversity, and veracity through a combination of conventional and computationally sophisticated techniques is the main goal of big data analysis. By 2015, big data growth is predicted to reach 25 billion, propelling the next wave of information technology firms that will primarily focus on big data, cloud computing, the Internet of Things, and social business. Large datasets are frequently managed by data warehouses, but precisely obtaining knowledge from them is a difficult task [11].

Business intelligence process application through big data link between big data and innovation.

To achieve quality targets, healthcare organizations are spending a lot of money on computer systems, diagnostic tools, and preventive care initiatives, but these advancements are not cheap. Currently, healthcare expenses account for around 18% of the US GDP, and payers have trouble paying providers for expensive procedures. With variables including privacy laws, information security, practice regulations, patient records, staff management, training, financial stability, facilities, and equipment management impacting the comprehensive view of quality healthcare, the healthcare sector is under greater scrutiny and complexity than any other single industry in modern history. The industry's capacity to lower costs and improve care management is also being impacted by the Patient Protection and Affordable Care Act (PPACA) [12].

Business intelligence application processes have a significant impact on innovation in business processes.

Decision-makers and managers are becoming more interested in big data analytics (BDA) because of its capacity to produce useful insights from vast amounts of unstructured data. The necessity for constant innovation is highlighted in dynamic and unstable corporate situations, where this data-generated insight is especially pertinent. Investments in BDA have been positively correlated with business productivity, according to recent studies, particularly in highly competitive industries.

Consumer purchase intention is a moderate relationship between big data services and the business intelligence process.

BDA to improve its capacity for process innovation has spurred interest in the possible economic benefits of BDA. Nevertheless, by 2020, 80% of BDA projects won't produce a profit, according to a Gartner analysis. The most crucial BDA resources to create are still up for dispute. Finding the business value-creating processes is necessary before using BDA to support business process innovation.

Consumer purchase intention is a moderate relationship between business intelligence process and innovation. A detailed research structure is mentioned in Fig. 1.

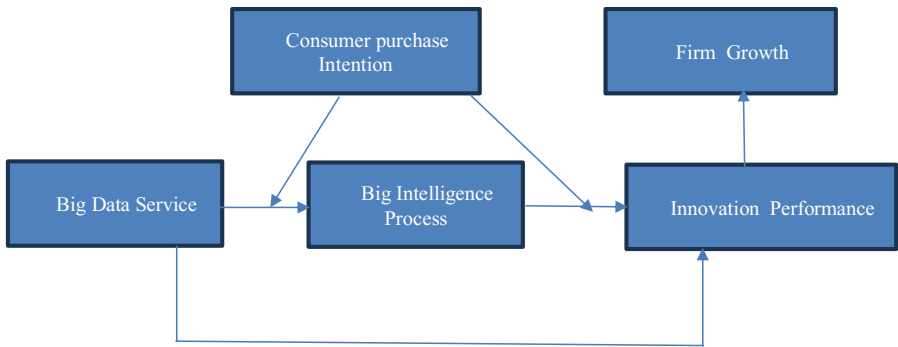


Fig. 1: Research Structure

3. Research Methodology

The information was gathered from Indian businesses in the Indian region. The respondent chose people who work in the organization's business intelligence and data analytics departments. These professionals are the organization's general manager, senior manager, manager, and joiner manager. Data is gathered using a five-point Likert scale. Over 675 data analysis experts participated in an online survey. A total of 475 respondents provided answers. The demographic profile of the responders is shown in table 2. There were 203 general managers, 127 senior managers, 85 managers, and 60 junior managers. Within the experience category, 119 respondents had more than 20 years of experience, 192 had between 10 and 20 years, and 164 had less than 10 years. The industries were classified as firms, service companies, and manufacturing companies. The dependent construct of innovation performance describes how a product would expand in the market. This indicates fresh plans, ideas, strategies, etc. for the product. Big data services are a separate concept that refers to new informational techniques and new strategy management skills. A mediator concept that links big data services with innovation is the business intelligence process. One moderator aspect that influences big data service and innovation performance is consumer purchasing intention.

Table 2. Demographic Profile

Detail	Category	Frequency
Level	General Manager	203
	Senior Manager	127
	Manager	85
	Junior Manager	60
Experience in data analytics	More Than 20 Years	119
	10-20 Years	192
	Up to 10 years	164
Industry	Manufacturing Company	125
	Service Company	190
	Firm	160

4. Result

SPSS 26.0 and AMOS 26.0 were used for the data analysis. The structure equation model gets ready for the analysis of the results. Confirmatory factor analysis (CFA) was done in the first stage using SPSS 26.0, and a structure equation model was created in the second stage using AMOS 26.0. For confirmatory factor analysis, tests for means, standard deviation, Cronbach's alpha, and factor loading are used. investigation of hypotheses with the use of AMOS 26.0. The results of the data analysis are displayed in Tables III, IV, and V. All constructs supported the hypothesis which indicated that big data services support innovation performance, business intelligence process and increase consumer purchase intention in the market.

4.1 Measurement model

The measuring model is displayed in Table 3. The factor loading result is greater than 80, which is suitable for the model. The Cronbach Alpha value should be more than .700. The result's Cronbach alpha is more than .800. The AVE number is greater than .500, indicating that the value is greater than 50%. Standard deviation and means value are under acceptable results.

Table 3. Details of Dependent, Independent, Mediator and Moderator Factors

Factor/variable	Factor Loading Result	Cronbach Alpha	AVE	Means	SD
Big Data Services	0.97			2.56	
BDS1	0.80			2.52	0.820
BDS2	0.85	.878		3.56	0.725
BDS3	0.96			3.54	0.730
BDS4	0.95			3.55	0.780

BDS5	0.89		3.23	0.850
Innovation Performance			2.56	
IF1	.95		2.52	0.752
IF2	0.96	.956	3.56	0.852
IF3	0.96		3.23	0.740
IF4	0.95		3.20	0.720
IF5	0.86		3.75	0.855
Business Intelligence				
process			2.56	
BIP1	0.85	.965	3.55	0.825
BIP2	0.88		3.65	0.730
BIP3	0.95		3.60	0.735
BIP4	0.95		2.55	0.725
Consumer Purchase				
intention			2.60	0.850
CIP1	0.98	.998	2.52	0.758
CIP2	0.95		3.56	0.823
CIP3	0.96		2.72	0.740
CIP4	0.97		3.20	0.720

Structure Model and Testing Of Hypothesis

The hypothesis supported the study's findings, as seen in Table 4. The outcome indicates that the p-value is 0.00, which is less than 0.05. Every theory backs up the research. Big data services boost innovation and aid in the process of corporate intelligence. Innovation performance and big data services are linked by business intelligence processes. Customer purchasing intention rose in tandem with innovation performance and big data services.

Table 4: Hypothesis Result

Effect	B	T	P value	Support
BDS-IP	.62	25.46	0.000	Yes
BDS-BIP	.43	19.26	0.000	Yes
BIP-IP	.59	12.56	0.000	Yes
CIP-IP	.52	13.51	0.000	Yes
NFI= .97. CFI= .95				

5. Finding

This study's objective is to analyse big data services for overall organisational growth. Big data services, business intelligence process, innovation performance, and customer buy intention are the four constructs chosen for the study. Data gathered

from a variety of industry experts was connected to data analytics. Data analysis for the study was conducted using AMOS 26.0 and SPSS 26.0. The structure equation model is analyzed to determine the outcome. According to the research, big data services are a crucial component of business. According to the study, company innovation performance is significantly impacted by big data services. It has to do with improving organizational skills, raising product costs, and cutting down on time spent producing high-quality products. The invention produces precise outcomes in the business process. The organization's total growth and market worth are increased through innovation. The study concludes that there is a relationship between big data and innovation performance and that big data services alter business strategy and business intelligence processes. With the use of actual data collection via big data services, the business intelligence process aids in the creation of top-level strategies. The research indicates that consumers' purchase intentions are a crucial business component that acts as a mediator between big data service and innovation performance. Information about the product and creative methods of delivering it to customers influence their intention to buy. The innovation performance increases the process of the consumer.

6. Futures Scope and Challenges

Big data services are a basic requirement of every organization. This innovatively provides real-time information. Big data services increase innovation performance, which increases marketing for products. The business intelligence process links big data service and innovation performance. The business strategy depends upon exact information about product marketing and organization. The business intelligence process provided all this information through big data services. There are some challenges in big data services from organizations. Robust infrastructure is required, which is costly and requires skilled people. Data stealing is an important challenge for the organization. Data accuracy is dependent on accurate programming, which is a different requirement of different organizations.

7. Conclusion

This study finds big data services in organizations. There is a requirement of real-time information at the top management level where strategic decisions are taken. The big data service supports innovation [performance in organization]. The innovation performance is related to product information. Fast processing of the product. Reducing the overall cost of the product. The business intelligence process links big data services and innovation perforation. The organisation aims to increase overall product, which can be possible through innovation performance in the organization. The big data service provides a more innovative strategy in organisation. marketing information, consumer feedback. Product feedback is important information in the organization. All this information is provided through big data services. The business intelligence process is supported through big data services that support more innovation in organisations.

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