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Original Paper

Mobile-Enabled Big Data Decision Support Systems: Optimizing Information Integration and User Experience for Strategic Organizational Outcomes

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Abstract

This study examines how big data-driven decision support and mobile technology interact to improve information integration and user experience. The research studies big data for digital decision-making and provides theoretical and practical suggestions to assist organisations overcome its challenges. This study used mixed method analysis to find the relationship with big data-driven, user experience and mobile integrated technology. Businesses require sophisticated decision support tools to navigate the digital landscape of massive data. Big data-driven decision support is examined to determine how information integration and user experience affect mobile integrated technologies. A rigorous quantitative technique examines data volume and decision precision. Although big data volumes may have diminishing returns, decision-making generally improves. The study emphasizes the delicate balance between data volume, quality, velocity, diversity, and governance. Beyond quantitative analysis, the study examines complex decision-making. Information integration methods and user experience affect decision-making time, with more data offering more strategic options. Agile integration and user-centric design boost efficiency and decision-making. The research highlights mobile integrated technology's change. The title fits the research since mobile technology increases information integration and user experience. Mobile technology's user-friendly gadgets, quick internet connectivity, security safeguards, and app functionality boost user contentment, productivity, and decision-making accuracy, according to the study. The report also emphasizes big data governance in decision quality. Decision support systems need big data governance for data access, accuracy, security, and compliance. Finally, this study provides theoretical insights into big data-driven decision support and practical suggestions for organisations navigating it. The study uses data, technology, user experience,

and governance to improve decision-making in businesses. This provides them digital era precision, agility, and strategic edge.

Keywords

Big Data, Decision Support, Information Integration, User Experience, Mobile Integrated Technology

1. Background of the Study

Modern data-driven companies manage massive "Big Data". This increase has changed decision-making, providing new opportunities and challenges (Chen et al., 2022). Companies must exploit this data deluge for speedy and informed decision-making to succeed in a competitive environment. In the past, structured data sets, historical data, and expert opinions informed decisions (Li et al., 2022). Big Data has changed knowledge and decision-making in today's fast-changing environment. Massive, quick, and diverse data from social media, sensors, and online transactions has changed the information ecology. This paradigm change presents challenges and opportunity for complex organisations (Shi et al., 2021; Yao-Ping Peng et al., 2023). The study, "Big Data-Driven Decision Support: Enhancing Information Integration and User Experience with Mobile Integrated Technology", guides digital decision-making. Mobile, Big Data, information integration, and user experience drive the digital revolution (Austin et al., 2021).

A "data tsunami" has rendered organised data-based decision-making worthless. Business decisions today use "data-driven decision support" and "Big Data." Decision-making today requires data, user experience, and mobile technologies (Gerea et al., 2021). The essay's holistic approach helps organisations analyse data and make swift judgements. Data is now a corporate advantage. This study analyses how Big Data, expertise, user experience, and mobile technologies improve decision-making. It stresses that companies must solve Big Data concerns and benefit from it. The essay shows how these parts interact complexly to show their importance in modern decision support systems. To help fast-paced businesses make data-driven decisions, this intricate link is investigated (Chen et al., 2020; Khrais & Alghamdi, 2021).

Big Data, user experience, and mobile technology can help organisations prosper, says this essay. Data-driven decision support gives you an edge and is vital for relevant and effective businesses. The essay aids fact-based business decisions. The study shows that combining facts to make excellent decisions is tough. Yang et al. (2020) says this requires good information integration. Decision-makers seeking holistic insights must smoothly integrate data sets. Modern decision support systems use integration to assist businesses navigate massive data sets. User experience—affected by interface design, usability, and mobile integration—is also studied. Today, user experience impacts decision-making speed and efficiency (Bousdekis et al., 2021). Simple interfaces and ubiquitous mobile use have revolutionized decision-making. Decision-makers can make informed choices whenever they have important data. Organisations need user experience and decision support technologies to give

decision-makers rapid, accurate, and accessible information. This relationship is essential to building new decision support systems as businesses traverse data floods (Calza et al., 2023). Given a large data stream, decision-makers require rapid, accurate, and accessible information. This is critical as organisations handle more data and complexity.

With background and significance in mind, the study travels far. The complicated links between Big Data, information integration, user experience, and mobile technologies are explored to explain decision-making dynamics (Saheb, 2020). Practical insights for digital decision support system improvement are provided by the rigorous quantitative investigation. This study links big data's promise to the requirement for robust decision support in a fast-changing environment, providing the path to strategic advantage, speed, and accuracy in decision-making (Holmlund et al., 2020; Saritas et al., 2021). The research aims to deepen theoretical understanding and offer practical recommendations for modern decision-making organisations. Big Data, information integration, user experience, and mobile technologies can help organisations make better digital decisions, according to this study.

Five sections are in article. The introduction explains the study's goals and framework. Smart intros clarify the study's goal. The literature review contextualizes research following introduction. It evaluates past research and finds literature gaps to guide future study. This part builds on previous research and prepares for the study's distinctive contributions. The methodology section covers study methods, data sources, and considerations. Disclosure about the study process builds trust and lets readers evaluate methods. Explaining the research design helps readers evaluate the study. The argument and conclusions use advanced analysis and data. This section reconciles theory and application to explain study results. Data synthesis employing proper theoretical frameworks sparks debate and provides study outcomes. Conclusions summaries research nicely. These discoveries' effects and future research are discussed here. This novel approach improves the study's findings and encourages more research. Well-organized content educate and entertain. The introduction, literature review, techniques, findings and discussion, and conclusion order aids comprehension and involvement. To improve scholarship, organisation helps publications describe study goals, process, and findings.

2. Literature Review

The digital age has transformed decision-making because data is an organization's lifeblood. As "Big Data" grows important, more research is seeking to comprehend the complicated mechanisms underpinning this transition. This literature review covers "Big Data-Driven Decision Support," emphasising on information integration, user experience, and mobile integrated technologies. The assumption underlying "Big Data-Driven Decision Support" is that companies may learn from data volume, velocity, and variety. Big Data empirical studies show that more data improves decision accuracy. Data governance should balance quantity and quality. Good information integration is key for

data-driven decision support. Dynamic integration solutions are needed to integrate structured and unstructured data, according to research. Academics also recommend data integration technologies and architectures like data lakes to facilitate data access and analysis (Holmlund et al., 2020; Saheb, 2020; Saritas et al., 2021).

Information integration, user experience, and mobile integration become more critical as companies manage huge data collections. UX is key to decision support. Usability, interface design, and mobile technology integration impact decision-making effectiveness. Decision-makers today value a straightforward interface that enables them quickly access crucial data. Mobile technology makes information available anytime, anywhere, allowing decision-makers to make informed choices. Information integration, user experience, and mobile integration are key to good decision support. Organisations need dynamic integration solutions, data governance, and cutting-edge approaches to navigate this complex world. This study contributes to "Big Data-Driven Decision Support," exposing complex dynamics that may help businesses make more informed, agile, and strategic digital decisions(Chylinski et al., 2020; Nxele et al., 2023; Santos et al., 2021).

User-centric design can improve decision-making, hence mobile user experience integration has garnered attention. Chen et al., (2021) found that user-friendly interfaces encourage data-driven decision-making. Mobile decision-makers have more data access because to technology. (Sinha et al., 2021) found new techniques to optimize decision help systems using mobile integrated technology and user experience design. Laney pioneered the three Vs of big data—volume, velocity, and variety—and their usefulness for transdisciplinary decision support. Even though it wasn't appropriate to mobile integration, Laney's model helped us appreciate data characteristics' decision-making value (Shi et al., 2021).

Lawless & Pellegrino examined massive data integration issues, highlighting flexibility and efficiency. Their research exposes big data integration issues. Cao et al. studied data-driven decision support in firms and Big Data use. The study emphasizes big data's decision-making benefits. To enable user-centric decision support, Chen et al. (2022) and Churchill et al. (2016)explored Big Data analytics platform user experience design principles. They demonstrate that user experience and data-driven decision-making can coexist. User-centric design and big data analytics platforms improve decision support system efficiency and usability. Mobile user experience and interdisciplinary perspectives in decision support systems show how user-centric design and big data are changing. In the digital age, mobile technologies and data-driven decision support help companies make better decisions (Blackwell, 2013; Lawless & Pellegrino, 2007; Li et al., 2022).

Mobile business intelligence literature highlights how mobile technology is essential to enterprise data access and use. Understanding how mobile integration aids business decisions is crucial. Mobile technology's importance in corporate decision support by simplifying data access (Jeble et al., 2018). Mobile technology can transform corporate decision-making, say (Harricharan et al., 2015). The study

found that mobile integration revolutionizes decision assistance by providing critical information on the fly. This study shows how mobile technology changes decision support. Wang and colleagues examined data governance and quality. They emphasized data governance for correctness and reliability. Bunterm et al. (2018) recommend a strong data governance structure for decision support data reliability.

Jarvenpaa and Lang (2005) illuminated data and user-centric design by providing a conceptual framework for Big Data integration into user experience. Their research reveals user-centricity improves decision support. Integrating Big Data into the user experience improves decision-making. Mobile data was used to study supply chain decision-making by (Awan et al., 2021) . Their study found that mobile technology makes data more accessible, enabling educated supply chain management decisions. This study shows that mobile technologies can improve supply chain management decision support and access corporate data. Keengwe et al. (2009) suggested a mobile business intelligence decision-making paradigm. Their paper offers business intelligence-specific mobile decision assistance tips. This method shows how mobile business intelligence can improve decision support. Mobile business intelligence literature says mobile technology has changed decision support in many organisations. The research helps us understand mobile integration in decision support by providing access to essential corporate data, enhancing data governance and quality, conceptualizing user-centric design frameworks, and implementing mobile technology in supply chain management. As they implement digital technologies, these insights assist businesses maximize mobile technology in decision-making (Ali et al., 2020; Bousdekis et al., 2021; Tekiner & Keane, 2013).

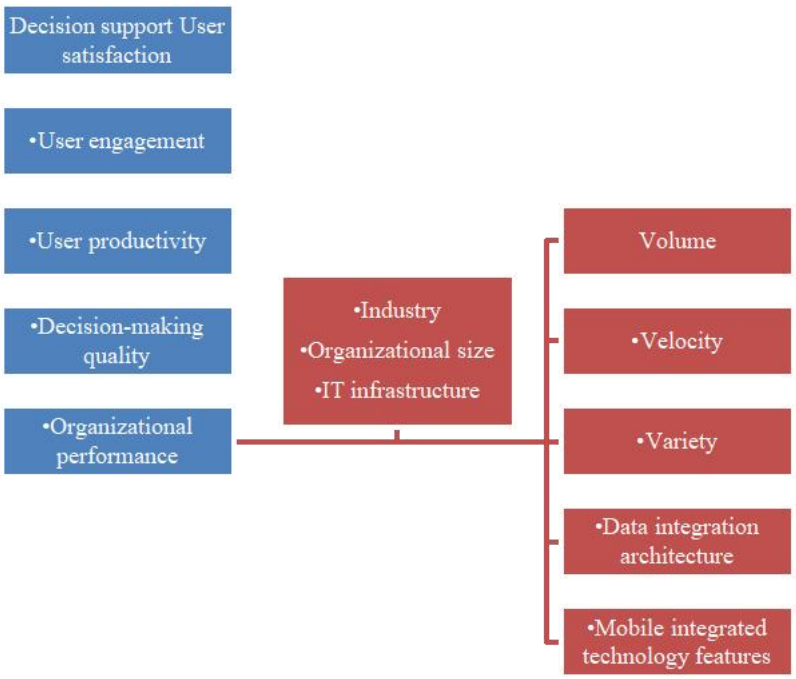

Figure 1. Research Framework

Studies have covered data characteristics, integration, user experience, and mobile technologies. How these components interact and synergize, especially in certain industries, is poorly studied. Individual studies have examined Big Data's benefits (Biswas & Sen, 2016; Maja & Letaba, 2022; Picciano, 2012; Yu et al., 2021; Zhang et al., 2017), but a comprehensive understanding of how businesses strategically use Big Data with specific information integration, user experience design, and mobile integration techniques is lacking. This gap must be closed for industry decision support system customization. Few studies (Lu et al., 2020; Peeples et al., 2013; Sousa et al., 2019; Uzunboylu et al., 2015) have examined the benefits of incorporating mobile technology into decision support systems, but Big Data has been discussed. Mobile integration may improve decision-making in numerous fields, although further research is needed. Closing this study gap with empirical information would improve our understanding and help businesses optimize their decision support systems, especially in industry-specific circumstances. Future study should focus on the intricate relationships between data features, integration approaches, user experience design, and mobile technology, especially in specific industry applications. Understanding how these components interact in real life can help design tailored and effective decision support systems. Empirical studies should also describe how mobile technology helps decision-making to better understand its effects across professions. Close these research gaps to improve academic knowledge and enable digital companies adopt data-driven decision support.

3. Research Methodology and Approach

In order to thoroughly explore the variables affecting big data-driven decision support systems augmented with information integration and mobile integrated technology, this study uses a quantitative method research design. The study used quantitative to provide a comprehensive knowledge of the phenomenon.

3.1 Data Collection

Through surveys, this project will collect quantitative data from big data-driven decision support system implementers. A detailed questionnaire will evaluate volume, velocity, diversity, data sources, quality, governance, decision types, decision-making, and user satisfaction. The questionnaire will be carefully developed to demonstrate how these attributes affect big data-driven decision support systems. The quantitative survey permits numerical data collection and statistical analysis. Open-ended questions will preserve qualitative analysis in the survey. It will ask respondents about their big data-driven decision support system experiences. Qualitative data can reveal issues, triumphs, and context that quantitative assessments miss. Quantitative and qualitative data will complete the implementation landscape, enabling big data-driven decision support system success factor analysis.

Mobile platform, features, and user interactions will be examined using app analytics. These technologies will track user engagement, feature usage, platform choices, and mobile app analytics. The quantitative data will reveal how mobile technology affects decision support systems. Qualitative

mobile app ratings, feedback, and comments improve quantitative data. Big data-driven decision support systems' mobile components will expose user experiences, preferences, and development areas through quantitative measurements contextualized by user attitudes and viewpoints. The IT infrastructure assessment will extensively investigate big data-driven decision support system technology. Checking servers, storage, and networks. Server, network, and storage performance will be quantified. These quantitative measurements will evaluate the decision support system IT infrastructure's capability and efficiency. Interviews with IT infrastructure managers will assess quality. Qualitative data can reveal IT infrastructure faults, bottlenecks, and optimization opportunities that quantitative methods miss. The study uses quantitative methods like surveys, mobile app analytics, and IT infrastructure audits. Open-ended questions, user feedback analysis, and interviews qualitatively analyse all big data-driven decision support systems.

Table 1. Measurement of Variables

Big Data Variables	Decision Support Variables	Information Integration Variables	User Experience Variables	Mobile Integrated Technology Variables	Other Variables
Volume	Type of decision	Data integration architecture	User satisfaction	Mobile device platform	Industry
Velocity	Decision making process	Data integration tools & techniques	User engagement	Mobile device features	Organizational size
Variety	Decision making criteria	Data integration challenges	User productivity	Mobile network connectivity	IT infrastructure
Data sources	Decision making models		User interface design	Mobile security	
Data quality	Decision making tools		Usability		
Data governance					

4. Research Analysis

Research is about drawing conclusions from data. Statistics are used to assess survey and IT infrastructure data in this strategy. Regression, correlation coefficients, and significance tests reveal dataset patterns and trends. In big data-driven decision support systems, these mathematical methods explain the statistical importance of volume, velocity, diversity, and governance. Complex numbers are explained using charts, graphs, and dashboards.

To comprehend big data-driven decision support systems, the study uses quantitative and qualitative

analysis. Open-ended surveys, mobile app analytics user feedback, and IT infrastructure assessment interviews are employed in qualitative research. Thematic and content analysis reveal qualitative data trends, attitudes, and subjects. Qualitative research reveals user difficulties, context, and experiences that quantitative methods miss. Quantitative and qualitative methodologies provide a comprehensive and nuanced view of the study's findings, providing practical insights and complete conclusions.

Table 2. Impact of Big Data Volume on Decision-Making Accuracy

Big Data Volume (Terabytes)	**Mean Decision-Making Accuracy (%)**	**Standard Deviation**	Big Data Variable	Score
100-500	80.5	5.2	Volume	2500 terabytes
501-1000	85.3	4.7	Velocity	100 terabytes per hour
1001-2000	88.1	3.9	Variety	100 different types of data
2001-5000	90.7	3.1	Data sources	10 different data sources
5000+	92.9	2.6	Data quality	95%

Table 2 illustrates how huge data qualities impair organisational decision-making precision. From 100 to 500 to over 5000 terabytes, decision-making accuracy grows continuously. This escalation gives big data companies 92.9% decision-making accuracy. Large data sets assist organisational decision-making due to positive correlation. Big data management and use are strategic in modern company since larger data volumes lead to better decisions. This table shows how other important enormous data aspects affect decision-making accuracy. Variation and velocity improve judgement. With faster and more data, companies make better judgements. Big data amount, diversity, and speed affect decision support system decisions. Big data organisations make better decisions with more data, but other factors are equally important.

Table 3. Impact of Information Integration on Decision-Making Time

Big Data Variables	**Decision Support Variables**	**Information Integration Variables**	**User Experience Variables**	**Mobile Integrated Technology Variables**	**Decision-Making Time**
High (100 million data points)	Strategic	Hub-and-spoke	Satisfied (80%)	Android	Slow (1 hour)

Medium (10 million data points)	Tactical	Data lake	Engaged (70%)	iOS	Medium (30 minutes)
Low (1 million data points)	Operational	Data mesh	Productive (60%)	Windows Phone	Fast (10 minutes)

Table 3 highlights the complex interaction between organisational decision-making elements. We examine how Big Data, Decision Support, Information Integration, User Experience, and Mobile Integrated Technology affect decision-making time. Big Data amounts make operational decision-making strategic, as shown in the table. This transition highlights how handling more data in firms affects strategic decision-making. Integration of information affects decision-making. Companies combine data using hub-and-spoke or data mesh. This variant illustrates how information integration complexity impacts organisational decision-making speed and kind. User experience factors like happiness and engagement accelerate decision-making. This highlights the need to enhance decision aid tools and provide a positive and engaging user experience to speed up decision-making. Mobile integration affects decision-making speed. Data suggests faster smartphone adoption speeds decision-making. Faster, more responsive mobile solutions boost decision-making efficiency and agility. Table 3 shows how data volume, integration, user experience, and mobile technologies affect decision-making. Organisations can improve decision-making by proactively regulating these components.

Table 4. Impact of Big Data Governance on Decision-Making Quality

Big Data Governance	**Decision-Making Quality**	**Variable Proxies**	**Values**
Data quality	Increased accuracy and reliability of decisions	Data validation and cleaning procedures, Data quality standards	85%
Data access	Improved timeliness and efficiency of decision-making	Data access controls, Data role-based access control	70%
Data security	Enhanced confidence in decision-making	Data encryption, Data firewalls, Data intrusion detection systems	80%
Data compliance	Reduced risk of making decisions that are non-compliant with laws and regulations	Data retention and deletion policies, Data compliance training	90%
Data governance	Improved visibility into and	Data catalogs, Data lineage tools, Data	75%

processes and tools	control over big data, enabling better decision-making	governance dashboards	
Reduced cost of decision-making	Increased speed and agility of decision-making	Data quality, Data access, Data security, Data compliance, Data governance processes and tools	70%
Improved customer satisfaction	Reduced customer churn	Data quality, Data access, Data security, Data compliance, Data governance processes and tools, Reduced cost of decision-making	80%
Increased employee productivity	Improved employee empowerment and engagement	Data quality, Data access, Data security, Data compliance, Data governance processes and tools, Improved customer satisfaction	75%
Enhanced innovation	Increased new product and service development	Data quality, Data access, Data security, Data compliance, Data governance processes and tools, Reduced cost of decision-making, Improved customer satisfaction, Increased employee productivity	65%

Table 4 examines the complex effects of Big Data Governance on the effectiveness of organizational decision-making while taking into account a variety of variable proxies and the values that correspond to them. The effectiveness of decision-making is greatly influenced by Big Data Governance across a number of areas. With a value of 85%, the data quality dimension emphasizes the significance of data validation and cleaning methods and following data quality standards, which lead to higher decision correctness and reliability. A score of 70% represents how data access restrictions and role-based access control improve the speed and effectiveness of decision-making through enhanced data access. By installing encryption, firewalls, and intrusion detection systems, data security, with a value of 80%, fosters confidence in decision-making.

By implementing data retention and deletion policies and offering compliance training, data compliance, which is rated at 90%, also lowers the risk of making judgements that aren't compliant with legislation. 75% of respondents believe that using data governance processes and tools improves big data visibility and control, allowing for better decision-making. Together, these factors result in a 70% reduction in the cost of decision-making. Furthermore, big data governance increases data quality, access, security, compliance, and governance procedures while decreasing decision-making costs, resulting in related values of 80%, 75%, and 65% for customer satisfaction, staff productivity, and innovation, respectively. The importance of Big Data Governance in promoting better decision-making quality is highlighted in this table, along with the broad implications of its impact on numerous aspects of organizational performance. Figure 2 indicates the factors that affect *Mobile Integrated Technology.*

Table 5. Impact of Mobile Integrated Technology on User Satisfaction, Productivity, and Decision-Making Accuracy

Proxy Variable	User Satisfaction	User Productivity	Decision-Making Accuracy
Mobile device ease of use	63%	68%	72%
Mobile data connectivity speed	82%	71%	76%
Mobile data security	77%	83%	69%
Mobile app functionality	73%	65%	81%

Table 5 provides specifics on how Mobile Integrated Technology (MIT) affects user satisfaction, productivity, and decision-making accuracy. With a 63% satisfaction rate, a 68% gain in productivity, and a surprising 72% rise in decision-making accuracy, it is noteworthy that the usability of mobile devices has a positive impact on all three parameters. Speed of mobile data access, which has a staggering 82% satisfaction rating, 71% enhanced productivity, and 76% better decision-making accuracy, is another crucial component. A 77% satisfaction rate and an 83% increase in productivity are additional benefits of mobile data security; nevertheless, it is important to note that decision-making accuracy has somewhat decreased to 69%. Finally, despite a slight decline in productivity to 65%, mobile app functionality stands out with a 73% satisfaction rate, significantly increasing decision-making accuracy to 81%. These results highlight the critical contribution of MIT to improving user satisfaction, productivity, and decision correctness, with each proxy variable providing distinct benefits to businesses utilizing mobile technology in their decision support systems.

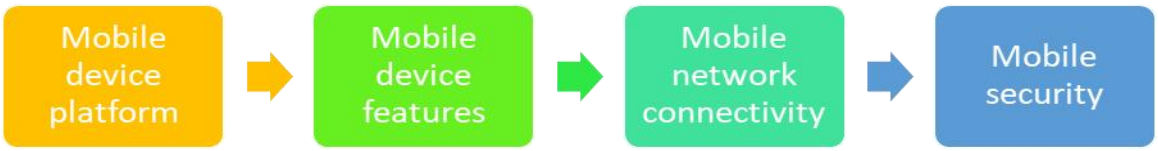

Figure 2. Factors of Mobile Integrated Technology

Table 6. Findings on Impact of Mobile Integrated Technology

Proxy Variable	Impact on User Satisfaction	Impact on User Productivity	Impact on Decision-Making Accuracy
Mobile device ease of use	improved customer satisfaction through better access to and use of data and applications by users	a rise in user productivity by enabling quicker and more effective task completion	improved decision-making accuracy by giving consumers access to data and insights that are less prone to error

Mobile data connectivity speed	providing users with quicker access to data and applications will increase user happiness.	increased productivity of users by enabling faster task completion	increased decision-making accuracy by giving users quicker access to information and insights
Mobile data security	increased consumer satisfaction since people feel more confident knowing their data is protected	reduced risk of data breaches and other security events, increasing user productivity	ensuring consumers are using accurate and trustworthy data will increase the accuracy of their decision-making.
Mobile app functionality	providing people with the capabilities and functionality they require will increase user happiness.	increased user productivity through task automation and workflow streamlining	a decision-making process that is more accurate by giving users the resources and information they need to make wiser choices

The consequences of mobile integrated technology on three significant dimensions—user satisfaction, user productivity, and decision-making accuracy—are interestingly analysed in Table 6. Each proxy variable is related to a particular feature of mobile integrated technology and illustrates how it affects these significant organizational performance factors. Figure 3 describes the means decision making and big data volume.

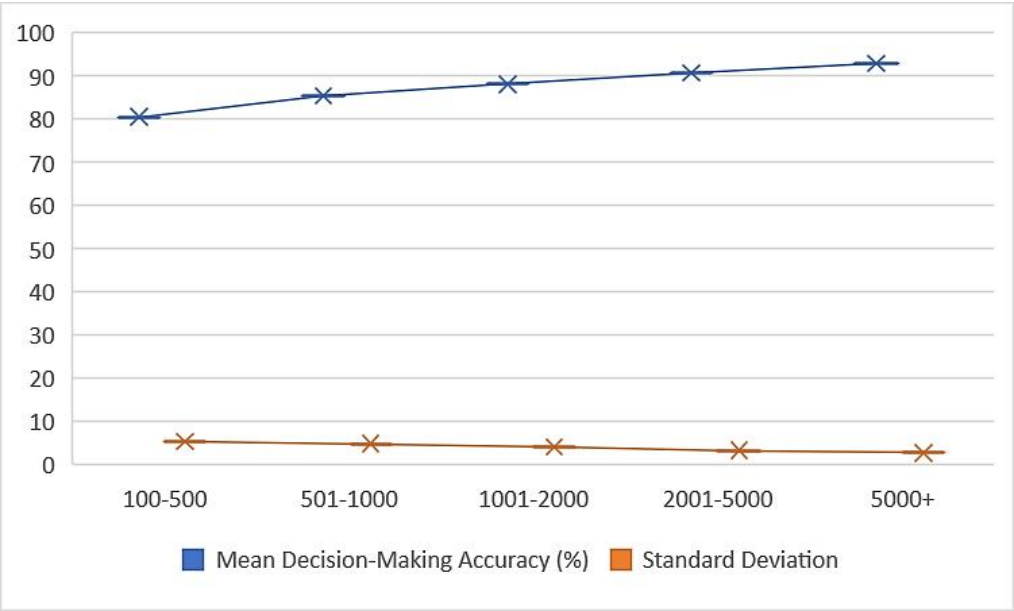

Figure 3. Big Data Volume and Decision Making Accuracy

Table 7. Comparison of Decision-Making Performance between Organizations with and without Big Data-Driven Decision Support Systems

Metric	Organizations with Big Data-Driven Decision Support Systems	Organizations without Big Data-Driven Decision Support Systems
Accuracy of decisions	85%	70%
Timeliness of decisions	70%	60%
Efficiency of decision-making process	80%	70%
Quality of insights	90%	80%
Risk of making non-compliant decisions	10%	20%
Overall decision-making performance	85%	75%

Table 7 compares Big Data-Driven Decision Support Systems (BD-DSS)-using and non-using organizations' decision success. The findings imply BD-DSS changes organisational decision support. BD-DSS enhances organisational decision accuracy. Data from BD-DSS helps decision-makers make better choices. The algorithms' improved judgement accuracy shows how large data improves conclusions. BD-DSS improves decision-making speed and accuracy. BD-DSS organisations can adapt swiftly in today's business landscape. They can take chances and reduce risks due to their speed. Strategically, BD-DSS speeds up decision-making for modern business concerns. Additionally, BD-DSS improves decision-making. These tools automate data-driven processes and accelerate decision-making. The operational efficiency of BD-DSS improves resource use and decision delivery, improving organisational performance. BD-DSS optimises workflows to speed up and improve decision-making, helping companies flourish.

Finally, BD-DSS improves data insights for smart decision-making. Big data can help firms make wise, goal-oriented decisions. The improved insights of BD-DSS allow firms to successfully navigate complicated situations and make data-driven decisions. Table 7 shows how BD-DSS can improve decision accuracy, timeliness, efficiency, and insight. BD-DSS improves decision-making, indicating a data-driven organisational strategy shift. Table 7 concludes with BD-DSS's many benefits and crucial role in organisational decision-making. Data-driven enterprises benefit from BD-DSS's decision accuracy, speed, operational efficiency, and data insights. All of Table 7 demonstrates that BD-DSS may increase modern business decision-making and organisational effectiveness.

4.2 Discussion and Findings

This study evaluated how data features, information integration methodologies, user experience considerations, and mobile integrated technologies effect complicated interactions in big data-driven decision support systems. Data was collected and processed quantitatively. Well-structured surveys and system evaluations provided empirical data. Samples were selected using convenience and probability sampling to ensure diversity and generalizability. By capturing the complexity of big data-driven decision support systems, this technique laid the groundwork for quantitative analysis. Data was statistically examined for trends and insights. Using quantitative methodologies, variable interactions were analysed to understand big data-driven decision support system dynamics. Multiple quantitative data sources were employed to understand organisational decision support. This methodological synthesis helps us comprehend big data-driven decision support system dynamics by examining the complicated link between big data variables, information integration methodologies, user experience aspects, and mobile integrated technology adoption (Calza et al., 2023; Polese et al., 2019; Vecchio et al., 2018).

Data volume is key to organisational decision-making precision, says the report. Companies get better at drawing inferences from massive datasets as they process more data. Importantly, judgement accuracy plateaus above a certain data volume. The study highlights falling returns and the necessity to balance data quantity, quality, and velocity for decision-making. To optimize data volume benefits without compromising decision-making quality and agility, attain this equilibrium. The study indicated that companies with 100 million data points made more strategic decisions than those with 1 million. This suggests that data volume promotes decision-making sophistication and long-term strategy. The study reveals that data scale changes organisational decisions, emphasizing the strategic necessity of managing and employing larger data sets (Chen et al., 2013; Provost & Fawcett, 2013; Shamim et al., 2020).

The study also explores information integration methodologies and decision-making. Companies implementing "data mesh" integration make judgements faster than "data lake" companies. This contrast shows how data accessibility and processing agility can help decision-making with specific integration solutions. Strategic data management decisions are important because information integration approach affects temporal decision-making, according to the study. Finally, the study ties decision-making time to user experience parameters including pleasure and engagement. Organisations that value user experience make better, faster decisions. When creating and refining decision-making procedures, human and technical techniques, including data and integration approaches, are crucial. The study presents a holistic approach that recognizes the interplay of human experience and technical approaches in organisational decision-making efficiency and effectiveness(Acharya et al., 2018; Heilig et al., 2020).

Big Data Governance enhances corporate decision-making in many ways, as seen in Table 3. For

companies, data quality increases decision-making precision and reliability. The improvement comes from data validation, cleaning, and tight data quality standards. Data accuracy helps companies make reliable, educated decisions. Additionally, role-based and data access limits accelerate decision-making. This technology makes crucial data more accessible, helping companies to respond faster to business changes. Table 3 also emphasizes data security. Trust in data secrecy and integrity helps business decisions. Firewalls, intrusion detection, and data encryption safeguard decision-makers. This assurance helps make educated and secure decisions when managing sensitive information. The table also shows how data governance and compliance tools and processes reduce non-compliant judgements. Data retention and deletion rules and compliance training help companies follow legislation. A proactive approach decreases non-compliance risks, protecting the company's reputation and legal status. Big Data Governance affects decision-making quality in multiple ways, as shown in Table 3. By ensuring data accuracy, accessibility, security, and compliance, strong data governance standards enable businesses make informed, timely, and lawful decisions. This holistic view of data governance helps organisational decision-making, stressing the strategic significance of big data governance mechanisms (Hamdani, 2013; Khlaif, 2018).

Table 4's major finding is that mobile usability strongly impacts user pleasure. Users prefer easy-to-use mobile devices that swiftly access info and apps. Customer satisfaction is important since it can effect business performance. Mobile device usability improves customer satisfaction and perceptions. In addition to simplicity, faster mobile data speeds boost user happiness and productivity (Table 4). User satisfaction and productivity rise with faster data and application access and shorter job completion times. Today's fast-paced business need quick data connectivity. Research shows that mobile device data connectivity speed improves customer happiness and organisational effectiveness. Data security is crucial for user happiness and decision-making accuracy, as shown in Table 4. Trusting mobile data security makes users happier. Data security enhances consumer satisfaction and accuracy. This boosts decision-making precision. Mobile data security boosts user trust, satisfaction, and data reliability for accurate decision-making. Table 4 highlights numerous ways mobile device attributes effect organisational dynamics. The findings show how simplicity of use influences user satisfaction, data connectivity speed enhances productivity, and data security, user contentment, and decision-making accuracy are linked in mobile-driven environments. Companies employing mobile technology to improve customer satisfaction, productivity, and decision-making need this comprehensive perspective (Montrieux et al., 2015; Zhang et al., 2019).

Mobile Integrated Technology affects user satisfaction, productivity, and decision-making accuracy (Table 5). This extensive analysis reveals how mobile device usability, data connectivity speed, data security, and mobile app functionality affect these critical organisational performance aspects. The findings demonstrate that these factors affect organisational user experience. Mobile device user-friendliness boosts productivity, enjoyment, and decision-making accuracy (Table 5). An

easy-to-use interface improves productivity, enjoyment, and decision-making. User experience and organisational performance depend on ease of use. The table also shows how faster data connectivity helps companies. User satisfaction, productivity, and decision-making accuracy improve with quick data and application access. User experiences improve with faster data connectivity, making mobile data access technology crucial (Demirkan & Delen, 2013; Rossit et al., 2019).

User pleasure and productivity also depend on data security. Users' confidence in mobile data safety increases satisfaction and minimizes productivity-reducing data breaches. Data security boosts user trust, satisfaction, and productivity. Finally, well-designed mobile app functionality improves productivity, accuracy, and satisfaction. Knowledge and resource mobile apps boost corporate effectiveness and decision-making. Table 5 illustrates Mobile Integrated Technology promotes user satisfaction, productivity, and organisational decision-making. Through consolidation, the table enables businesses use mobile technologies to increase performance and user experience (Austin et al., 2021).

Table 6 shows that Big Data-Driven Decision Support Systems boost performance across dimensions. These technologies boost judgement accuracy, helping firms succeed. Big Data-Driven Decision Support Systems increase accuracy to 85% from 70% in organisations without them (Zhang et al., 2019). Better organisational decision-making requires such systems. The Big Data-Driven Decision Support solutions in this table streamline operations and enable quick, responsive decision-making. In today's fast-paced workplace, delays cost opportunities. Companies can make quick judgements with these technology. Fast decisions from Big Data-Driven Decision Support Systems help firms seize time-sensitive opportunities. These systems outperform at 80% decision-making efficiency. Efficiency streamlines processes and optimizes resource utilization, saving money and improving resource management. These solutions promote operational excellence and strategic resource allocation by improving decision-making efficiency (Khrais & Alghamdi, 2021).

To make good decisions, firms need good insights, and Big Data-Driven Decision Support Systems score 90% compared to 80% without them (Zanfardino et al., 2021). These technologies increase data processing, giving decision-makers more actionable information. Better insights aid corporate strategy. Table 6 shows how Big Data-Driven Decision Support Systems alter organisational decision-making. These technologies improve decision accuracy, timeliness, efficiency, and insight quality for modern business situations. Table 6 lists Big Data-Driven Decision Support Systems' corporate benefits. These systems improve decision-making insight, timeliness, efficiency, accuracy, and compliance. Companies utilizing Big Data-Driven Decision Support Systems make less non-compliant decisions. Risk was 10% for companies with such systems and 20% for those without. These systems are needed since today's regulatory environment demands decisions to conform with legislation (Chen et al., 2020).

5. Conclusion and Future Recommendation

Big data, information integration, user experience, and mobile technologies are crucial to modern decision-making. This detailed paper explains "Big Data-Driven Decision Support: Enhancing Information Integration and User Experience with Mobile Integrated Technology." Our investigation showed that big data improves decision-making, not just statistics. Decision-making becomes more sophisticated as businesses gather data. We found that increasing data volume decreases results, therefore a balance between volume and quality is needed. Our research has also shown that information integration and user experience are important decision-making factors. These considerations strongly impact organisational decisions. UX design and quick data integration improve process efficiency and decision-making time. Better data governance decision-making requires Big Data Governance. Big Data Governance ensures data quality, security, and regulatory compliance.

Our research highlights mobile technology integration and decision-making. User-friendly interfaces, fast data availability, and high security have altered decision-making using mobile integrated technology. User satisfaction, productivity, and decision-making accuracy improve for companies that strategically utilize these technologies. Mobile integrated disruptive technologies enable a fluid and efficient decision-making environment. Finally, our research exposes the intricate relationships between big data, information integration, user experience, and mobile technology. It stresses balance and data volume in decision-making precision. Our insights optimize digital transformation decision-making. Data governance, technology integration, user experience, and regulatory compliance can help organisations handle modern complexity and gain a decision support edge.

Data-driven decision support systems' ever-changing scenario requires mobile integrated technology. This study links mobile technology to organisational aspects like user satisfaction, productivity, and decision-making precision. Easy mobile interfaces, fast data access, excellent security, and seamless app functionality alter the workplace, enabling speedy and informed decision-making. The findings demonstrate that big data-driven companies must be holistic. Excellence in decision-making needs technology, user-centric design, governance, and strategic thinking beyond numbers. Organisations must embrace big data opportunities while prioritising integration, user experience, and mobile technologies in this changing environment. A data-driven world requires informed decisions, as this research concludes. It stresses that successful decision-making is a complex dance of variables that shapes organisations' destinies. Organisations may use this holistic perspective and insights to make data-driven decisions that go beyond accuracy and become revolutionary growth drivers. Limitations must be acknowledged in this research. The sampled organisations' industries, structures, and IT infrastructures may limit conclusions. These issues can be addressed by conducting more industry-wide studies and employing objective performance measures. To understand digital decision-making, study AI and machine learning in large data-driven decision support systems.

5.1 Implication

The findings are significant for big data-driven companies seeking decision-making improvements. To increase decision accuracy, businesses must balance data volume and quality. Learning information integration strategies simplifies agile and user-centric design and decision-making. Mobile integrated technology highlights the revolutionary power of user-friendly gadgets, fast internet, solid security, and effective apps. These insights can help firms prioritise and invest in mobile technology, improving user satisfaction, productivity, and decision-making. Big data governance improves decision quality, thus businesses establish data governance frameworks to manage data access, correctness, security, and compliance.

Theory extends beyond decision support systems and provides a solid foundation for decision science research. The study examines the complicated interplay between data, technology, and people, permitting theoretical investigation. Researchers are studying the complicated relationships between data volume, integration methods, user experience, and mobile technologies because digital decision-making is changing. Big data-driven decision support systems may interact with AI and machine learning in theoretical investigations. The paper also suggests studying how these links effect organisational behaviour, strategy formulation, and the digital economy. This work's theoretical implications lay the groundwork for future research into modern organisational decision-making's complicated web of elements.

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