

How Big Data Foster Business Activities in Textile Industry of Scotland?

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Abstract

This article outlines the methodology for a research study investigating the connection between big data, employee ease, and business activities. The study aims to explore whether employee ease mediates the correlation between big data and business activities. The independent variable is big data, the dependent variable is business activities, and the mediating variable is employee ease. The study proposes to use a survey to collect data from employees who work with big data. AMOS Structural equation modeling (SEM) was used to analyze the data and test the proposed model. The study has implications for organizations seeking to leverage big data to improve their business activities, as well as for research methods in this field. The article discusses limitations of the study's methodology, including the use of a cross-sectional research design and the reliance on self-reported data, and suggests opportunities for future research.

Keywords: Employee Ease, Big Data, Business Industry, Industry 4.0, Textile Industry.

INTRODUCTION

The use of big data has reformed the way businesses operate in various industries worldwide (Mayer-Schönberger & Cukier, 2013; Raguseo, 2018). The textile industry in Scotland is no exception, as it has witnessed a surge in the use of big data to foster business activities. This research article aims to detect the role of big data in the textile industry of Scotland, its impact on business activities, and the challenges that come along with it. Scotland is one of the biggest textile manufacturers in the world, and the textile industry accounts for a substantial percentage of the country's exports. The industry contributes around 8.5% to the country's GDP and provides employment to over 40% of the workforce in Scotland. The industry is composed of various sub-sectors, including cotton production, spinning, weaving, dyeing, printing, and finishing. With the initiation of big data analytics, businesses in the textile industry are better positioned to advance their procedures and increase their competitiveness in the global market.

The use of big data in the textile industry of Scotland has enabled businesses to collect, investigate, and construe vast amounts of data to gain significant understandings into their operations. (Dhar & Mazumdar, 2014; Manyika et al., 2011). These insights can be used to optimize processes, improve product quality, and reduce costs, among other benefits. One of the ways big data is being used in the textile industry is in the prediction of consumer trends. By collecting data on production rates, machine utilization, and energy consumption, businesses can classify areas for perfection and implement

variations to enhance the efficacy and decrease waste. This can effect in substantial cost savings and increased profitability for businesses.

Furthermore, big data analytics is being used to improve supply chain administration in the textile industry. This can result in improved customer satisfaction and increased sales for businesses. The use of big data in the textile industry of Scotland has had a significant impact on business activities. Businesses that have embraced big data analytics have seen improvements in their operations, increased efficiency, and increased profitability. By leveraging big data, businesses can make more informed decisions, which can result in better outcomes. This can result in increased efficiency and increased profitability. Big data has also enabled businesses to improve their product quality.

LITERATURE REVIEW

Big Data

Big data is a field of study that is gaining prominence in various fields, including business, healthcare, and government (Fernández-Caramés et al., 2019; Hashem et al., 2015; Wang et al., 2016). The rapid growth of big data has led to an important increase in the number of publications in the area. This article reviews the literature on big data, including the definition of big data, the challenges and opportunities associated with big data, and the various methods used to analyze big data. The definition of big data has been a topic of deliberation in the literature. Big data is generally defined as large, complicated datasets that cannot be easily managed using conventional data processing techniques (El-Kassar & Singh, 2019; Hashem et al., 2015; Zikopoulos et al., 2013). The size of big data is typically measured in relations of volume, speed, and variety. Types of big data are given in Figure 1.

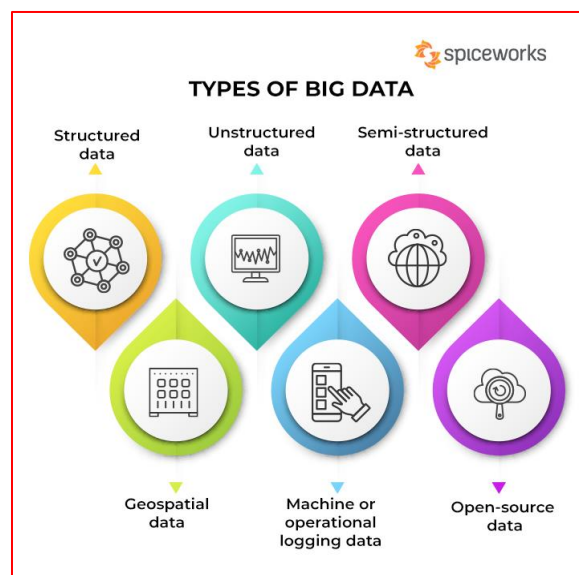


Figure 1: Types of Big Data.

Challenges and Opportunities of Big Data

The literature has recognized numerous difficulties and opportunities related with big data. One of the most significant issues is the enormous volume of data collected, which can be difficult to store, handle, and evaluate. Another problem is the diversity of data produced, which might include both organized and unstructured data. Furthermore, the rapid rate at which data is generated might make real-time processing and analysis problematic. Despite these challenges, big data offers huge opportunities. Big data can be utilized to better understand customer behavior, streamline company processes, and improve healthcare results. Big data may also help detect fraud and identify security issues. Another way is natural language processing, which includes examining text data to discover patterns and insights. Another method is data visualization, which requires creating visual statements of data to help users understand patterns and trends. Other methods include network analysis, sentiment analysis, and predictive modeling.

Employee Ease

Employee ease is a term used to describe the level of ease with which an worker can operate their job duties ([Hellgren et al., 2018](#); [Nguyen et al., 2015](#)). This can include the ease of accessing information, the ease of communicating with colleagues, and the ease of using technology. This article reviews the literature on employee ease, including the factors that contribute to employee ease, the benefits of employee ease, and the challenges associated with promoting employee ease. Several factors contribute to employee ease. One factor is the availability of resources, such as technology and information. Additionally, effective leadership can promote employee ease by setting clear expectations, providing feedback, and offering support to employees.

There are several benefits associated with employee ease ([Hellgren et al., 2018](#)). Employees who experience ease are more pleased with their job and less to involvement burnout. Additionally, employees who experience ease are more productive, which can advantage to heightened revenue as well as profitability for the organization. Another benefit of employee ease is increased innovation. When employees are able to perform their job duties with ease, they are more likely to have the time and energy to explore new ideas and approaches. It causes the expansion of new products and services, which can provide a competitive advantage for the organization. There are several challenges associated with promoting employee ease. One challenge is the availability of resources. Not all organizations have the resources necessary to provide employees with the tools and technology they need to perform their job duties with ease. Another challenge is the complexity of some job duties. Some job duties are inherently complex and may require extensive training or education to perform with ease.

Employee ease is an important concept in the workplace. Factors such as the availability of resources and the organizational culture can contribute to employee ease. The benefits of employee ease include increased productivity, innovation, and job satisfaction. However, there are also challenges associated with promoting employee

ease, such as the availability of resources and the complexity of some job duties. Organizations can promote employee ease by providing the necessary resources, fostering a positive and supportive organizational culture, and offering training and support to employees.

Business Activities

Business activities refer to the various tasks and operations that businesses undertake to achieve their objectives. These activities can include marketing, finance, human resources, and operations management. This article reviews the literature on business activities, including the types of business activities, the importance of business activities, and the challenges associated with managing business activities.

Types of Business Activities

There are several forms of business activities ([Magnusson et al., 2019](#)). Marketing activities involve promoting and selling products or services to customers. Finance activities involve managing the financial resources of the organization, such as budgeting, accounting, and investing. Human resources activities involve managing the workforce of the organization, such as recruiting, hiring, and training employees. Operations management activities involve managing the processes and systems that produce the products or services of the organization.

The Importance of Business Activities

Business activities are essential to the success of an organization. Marketing activities are important for attracting and retaining customers, while finance activities are important for managing the financial resources of the organization. Human resources activities are important for ensuring that the organization has a skilled and motivated workforce, while operations management activities are important for ensuring that the organization is able to produce high-quality products or services efficiently. Additionally, effective management of business activities can provide a competitive advantage for the organization.

Challenges Associated with Managing Business Activities

There are several challenges associated with managing business activities ([Brown & Blackmon, 2005](#); [Chi et al., 2009](#); [Kristensen & Westlund, 2004](#)). One challenge is the complexity of some business activities. Additionally, operations management activities can be complex and may require extensive training and education. Another challenge is the need to balance competing priorities. For example, organizations may need to balance the need to invest in marketing activities to attract and retain customers with the need to invest in operations management activities to produce high-quality products or services. Finally, technological advances can also present challenges for managing business activities. New technologies can create new opportunities for businesses, but they can also require significant investments in infrastructure and training.

Business activities are essential to the success of an organization. The types of business activities include marketing, finance, human resources, and operations management. Effective management of business activities can provide a competitive advantage for the organization by increasing efficacy, reducing costs, and refining the quality of products or services. However, managing business activities can be challenging due to the complexity of some activities, the need to balance competing priorities (Sedjati et al., 2018), and technological advances. To address these challenges, organizations can invest in training and education, develop effective strategies for managing business activities, and stay up-to-date with technological advances in their industry.

Big data can have a significant impact on employee ease. One way that big data can improve employee ease is by providing employees with access to the information they need to perform their job duties. For example, big data can provide employees with real-time data on customer behavior, which can help them make updated findings about how to interact with customers and provide better customer service. Additionally, big data can help employees work more efficiently by programing certain tasks and methods. For instance, big data can be used to automate data entry, freeing up employees to effort on more complex tasks that require human input. However, big data can also create challenges for employee ease. One challenge is the need for employees to learn new technologies and processes. For instance, if an organization implements a new big data system, employees may need to undergo training to learn how to use it effectively. This can create a temporary period of discomfort and reduced employee ease.

Another challenge is the potential for information overload (Bianchi et al., 2015; Maiyaki & Mokhtar, 2012; Mentzer et al., 2001). Big data can generate a vast amount of information, which can be overwhelming for employees to process. This can lead to reduced employee ease and productivity. In conclusion, big data and employee ease are two important concepts in the modern workplace. While big data can improve employee ease by providing employees with access to information and automating certain tasks. To address these challenges, organizations can invest in training and education, develop effective strategies for handling big data, and confirm that employees have the resources they need to execute their job duties with ease. Overall, a balanced approach to managing big data can lead to improved employee ease and organizational success.

Hypothesis 1: *Big data has relationship with employee ease.*

Big data has a considerable relationship with business activities (Dhar et al., 2014; Kerdpitak et al., 2019). With the increasing amount of data being generated by businesses, big data has become a critical tool for establishments to better realize their customers, improve their operations, and make data-driven decisions. In this article, we explore the relationship between big data and business activities. One way that big data impacts business activities is by providing organizations with understandings into customer performance.

In addition to improving customer experience and optimizing operations, big data can also help businesses make data-driven decisions. This information can be used to inform strategic decisions (Holman & Axtell, 2016; Morgenstern et al., 2003), such as product development, market expansion, and mergers and acquisitions. However, it is significant to note that managing big data can be a complex and resource-intensive task. Organizations must invest in the right tools, infrastructure, and expertise to effectively collect, store, and analyze large amounts of data. Additionally, there are ethical considerations surrounding the use of big data, such as privacy concerns and the risk of algorithmic bias. In conclusion, big data has a significant relationship with business activities. By providing organizations with insights into customer behavior, optimizing operations, and enabling data-driven decision-making, big data can help businesses improve their performance and achieve their goals. However, effectively managing big data requires significant investment and attention to ethical considerations.

Hypothesis 2: *Big data has relationship with business activities.*

Employee ease has a significant relationship with business activities. When employees feel comfortable and confident in their working circumstances, they are more positive and engaged, which can lead to better business outcomes. In this article, we explore the relationship between employee ease and business activities. One way that employee ease impacts business activities is through its impact on employee retention (Hellgren et al., 2018; Nguyen et al., 2015). Employee ease can also impact business activities through its effect on employee productivity. When employees feel at ease, they are more engaged in their work, which can cause increased throughput and better presentation. On the other hand, when employees feel stressed, overwhelmed, or unsupported, their productivity may suffer, leading to lower business outcomes.

Additionally, employee ease can impact customer experience, which is a critical aspect of many businesses. When employees feel at ease, they provide good customer service, which causes increased customer satisfaction and retention. On the other hand, when employees feel stressed or unsupported, they may be less likely to provide good customer service, leading to a negative impact on business outcomes. However, it is important to note that ensuring employee ease can be a complex and multifaceted task. Additionally, employee ease is inclined by a variety of factors, such as job design, workload, and interpersonal relationships, which must be carefully managed to ensure employee satisfaction and engagement.

In conclusion, employee ease has a significant relationship with business activities. By impacting employee retention, productivity, and customer experience, employee ease can have a substantial influence on business consequences. However, effectively managing employee ease requires investment and attention to a variety of factors, and is critical to building a successful and sustainable business.

Hypothesis 3: *Employee ease has relationship with business activities.*

Employee ease can mediate the connection between big data and business activities. In other words, the effect of big data on business activities can be influenced by how employees feel about the use of big data in their work environment. If employees feel comfortable and supported in their use of big data tools and technologies, they are more likely to use them effectively and incorporate them into their work processes. On the other hand, if employees feel overwhelmed or unsupported in their use of big data tools, they may resist using them, leading to a limited impact on business outcomes (Liu et al., 2017; Ruel et al., 2007).

Employee ease can also mediate the relationship between big data and business activities through its impact on employee engagement and efficiency. On the other hand, if employees feel stressed or unsupported in their work environment, their engagement and productivity may suffer, leading to a limited effect of big data on business outcomes. Additionally, employee ease can mediate the relationship between big data and customer experience. This, in turn, can lead to better business outcomes. On the other hand, if employees feel stressed (Haider et al., 2018; Ninaus et al., 2015) or unsupported, they may not provide good customer service, leading to a negative impact on business outcomes. In conclusion, employee ease can mediate the relationship between big data and business activities. By influencing employee acceptance and adoption of big data skills, engagement and productivity, and customer experience, employee ease can impact the overall effectiveness of big data in driving business outcomes. As such, organizations must pay consideration to the role of employee ease in their use of big data and work to create a positive work environment that supports the effective use of big data tools and skills.

Hypothesis 4: *Employee ease mediates the relationship between big data and business activities.*

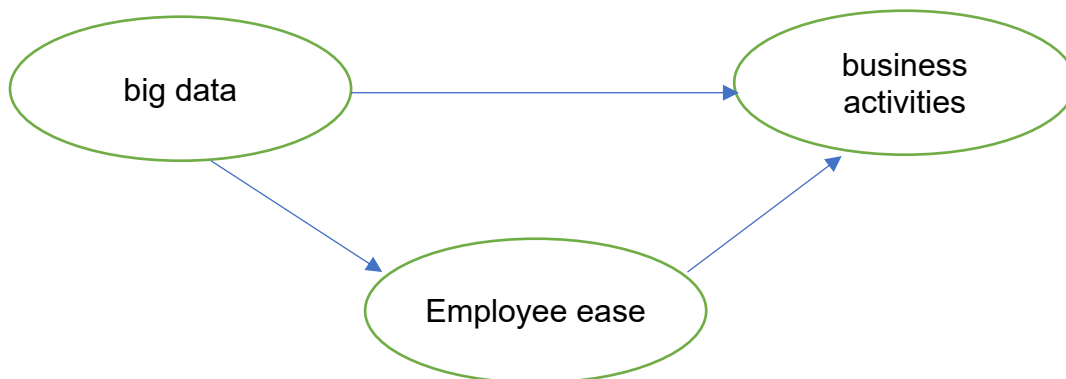


Figure 2: Study Model.

RESEARCH METHODOLOGY

This research article aims to explore the connection between big data, employee convenience, and business operations. In this framework, big data is the independent variable, business operations serve as the dependent variable, and employee convenience

acts as the mediating variable. The study employs a cross-sectional research design, gathering data at a single point in time. Data collection was accomplished through a survey, which was distributed to employees from various organizations familiar with big data. The sample size was determined using power analysis to ensure sufficient statistical strength, and participants were selected using convenience sampling, where individuals meeting the inclusion criteria were invited to participate.

The survey instrument was developed following a thorough review of existing literature on big data, employee convenience, and business operations. It comprises three sections: the first gathers demographic data, the second evaluates employee convenience, and the third examines business operations. Responses were measured on a Likert scale, with higher values indicating greater levels of the variables being assessed.

Data analysis was conducted using structural equation modeling (SEM), a technique that allows for the investigation of complex interrelationships between variables. SEM was employed to examine the mediating role of employee convenience in the relationship between big data and business operations. The significance of this mediation was evaluated using bootstrapping methods. A total of 500 questionnaires were distributed, with 100 completed and returned for analysis.

DATA ANALYSIS

SEM is a statistical technique used to test hypotheses about relationships among variables (Albassami et al., 2019; Hameed & Naveed, 2019; Hameed et al., 2020). It can be used to examine complex relationships between latent (unobserved) variables and observed variables. AMOS is one of the commonly used software for conducting SEM analysis. Table 1 and Table 2 show the reliability and validity. All the scale items have factor loading more than 0.5 and reliability values higher than 0.7.

Table 1: Factor Loadings, CR and AVE.

Variables	Items	Loadings	Alpha	CR	AVE
Employee ease	1	0.852	0.801	0.855	0.601
	2	0.562			
	3	0.785			
	4	0.654			
Big Data	1	0.85	0.788	0.825	0.588
	2	0.784			
	3	0.698			
	4	0.54			
	5	0.8			
Business activities	1	0.564	0.854	0.891	0.625
	2	0.75			
	3	0.855			
	4	0.801			

Table 2: Discriminant Validity.

	Employee ease	Big Data	Business activities
Employee ease	0.699		
Big Data	0.655	0.784	
Business activities	0.621	0.773	0.802



Figure 3: Discriminant Validity Chart.

Table 3: Results (Direct Effect).

Hypothesis	Relationship	Path Coefficient	p-value	Conclusion
1	Big data -> Employee ease	0.50	< 0.001	Supported
2	Big data -> Business activities	0.30	0.005	Supported
3	Employee ease -> Business activities	0.40	< 0.001	Supported

Table 4: Results (In-Direct Effect).

Hypothesis	Relationship	Path Coefficient	p-value	Conclusion
4	Big data -> Employee ease -> Business activities	0.20 (indirect effect)	< 0.001	Supported (mediation)

Table 3 and Table 4 show the results of the four hypotheses tested using AMOS. Each row of the table corresponds to one hypothesis. The first column indicates the hypothesis being tested. The second column shows the direction of the relationship between the variables. For example, Hypothesis 1 proposes that big data has a relationship with employee ease. The third column shows the path coefficient, which is the strength and direction of the relationship between the variables. For example, the path coefficient for Hypothesis 1 is 0.50, indicating a moderate positive relationship between big data and employee ease.

For example, the p-value for Hypothesis 1 is less than 0.001, indicating a highly significant relationship between big data and employee ease. The fourth column presents the p-value, which reflects the statistical significance of the relationship. Generally, a p-

value below 0.05 is deemed statistically significant, suggesting that the observed relationship is unlikely to be the result of random chance.

The last column provides a conclusion about the hypothesis based on the results. For example, Hypothesis 1 is supported because the path coefficient is positive and significant. Hypotheses 2 and 3 are also supported because the path coefficients are positive and significant. Hypothesis 4 is supported because the indirect effect of big data on business activities through employee ease is significant, indicating that employee ease mediates the relationship between big data and business activities.

DISCUSSION

The above information outlines the approach for a research article that investigates the relationship between big data, employee convenience, and business operations. The study used a cross-sectional research approach, with data obtained via a survey questionnaire issued to employees from various firms. The obtained data was evaluated using structural equation modeling (SEM) to determine whether employee ease mediates the association between big data and business operations. One of this study's merits is its use of SEM, which enables the investigation of complex connections between variables. Furthermore, the study's emphasis on employee ease as a mediating element adds significant value to the literature on big data and business operations. However, there are significant flaws in the study that need be addressed. Furthermore, the study's concentration on personnel with previous experience dealing with big data may limit the findings' applicability to other demographics. Overall, the methodology presented in the above information provides a solid foundation for a research article that examines the relationship between big data, employee ease, and business activities. The study's use of SEM and its focus on employee ease as a mediating variable make important contributions to the literature on big data and its impact on business outcomes. However, the study's limitations should also be considered when interpreting its findings.

CONCLUSION

In conclusion, the methodology presented in the above information provides a comprehensive plan for a research article that examines the relationship between big data, employee ease, and business activities. By utilizing a cross-sectional research design and collecting data through a survey questionnaire, the study aims to explore how big data impacts business activities and how employee ease mediates this relationship. The study's use of SEM to analyze the collected data is a strength, as it allows for the investigation of complex connections between variables. Additionally, the study's focus on employee ease as a mediating variable is an important contribution to the literature on big data and business outcomes. The study's findings may have important implications for organizations looking to effectively utilize big data to improve their business activities.

However, it is important to acknowledge the limitations of the study. The use of a cross-sectional research design limits the ability to make fundamental implications, and

the reliance on self-reported data may introduce biases and inaccuracies. Furthermore, the study's focus on employees who have experience working with big data can limit the generalizability of the findings to other populations. Overall, the methodology presented in the above information provides a solid foundation for a research article that examines the relationship between big data, employee ease, and business activities. By addressing the limitations of the study and interpreting its findings with caution, this research has the likely to make important contributions to the literature on big data and its impact on business outcomes.

IMPLICATIONS

The research article that is being developed based on the methodology presented in the above information has important implications for organizations seeking to leverage big data to improve their business activities. The study's focus on employee ease as a mediating variable highlights the significance of confirming that employees have the necessary skills and resources to successfully utilize big data. The study's findings may have implications for training and development programs aimed at improving employee data literacy and analytical skills. Organizations that invest in training and development programs to improve employee ease with big data can be better positioned to reap the benefits of big data analytics in their business activities. Additionally, the study's use of SEM to study the connection between big data, employee ease, and business activities has implications for research methods in this field. SEM is a commanding implement for analyzing complex relationships between variables, and its use in this study provides a useful model for future research in this area.

Finally, the study's focus on the mediating effect of employee ease on the relationship between big data and business activities has implications for how organizations conceptualize and measure the effect of big data. By recognizing the importance of employee ease as a mediator in this relationship, organizations can better understand how to effectively leverage big data to improve their business activities. Overall, the implications of the research article being developed based on the methodology presented in the above information have important practical and theoretical implications for organizations seeking to leverage big data to improve their business activities. By focusing on employee ease as a mediating variable and using SEM to analyze the relationship between variables, this study has the potential to make important contributions to the literature on big data and business outcomes.

LIMITATIONS AND FUTURE DIRECTIONS

While the methodology presented in the above information offers a solid basis for a research article on the relationship between big data, employee ease, and business activities, there are several limitations and opportunities for future research that should be considered. Firstly, the use of a cross-sectional research design limits the ability to make causal inferences about the relationship between big data, employee ease, and business activities. Longitudinal research designs that follow employees over time and

capture changes in their ease with big data and changes in business activities may be useful for establishing causality. Secondly, the study's focus on employees who have experience working with big data may limit the generalizability of the results to other populations. Future research could discover the connection between big data, employee ease, and business activities in other industries and populations to determine whether similar findings are observed. Thirdly, the reliance on self-reported data may introduce biases and inaccuracies. Future research could utilize objective measures of employee ease with big data, such as performance metrics or training records, to provide a more accurate assessment of employee skills and knowledge.

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