External Factors affecting the Influence of the Big Data Technological Revolution in Local Corporations

Adams[*],Jayasekara[†]

Abstract:
Big Data technology has radically transformed the operational frameworks of organizations in virtually all sectors at the local level, with the impact varying with different external contexts. This study empirically examines the factors that impact the effective implementation and absorption of Big Data technologies at the local level of the business environment. A systematic literature review methodology was employed to analyze a collection of 95 articles published from 2010 to 2023. The findings indicate that Big Data's influence on local enterprises depends on a variety of factors, which include government policies, regulatory structures, infrastructure, privacy concerns, market competition, and employee willingness. The study also indicates that, with the tremendous potential to enhance decision-making processes and operational efficacy, the full benefits of Big Data have not yet been realized due to issues accounting for this lack of realization, such as insufficient infrastructure, lack of skilled personnel-planning, and regulatory limitations. To maximize the utility of Big Data technology, it is imperative to bring resources into infrastructure, support by the government, and capacity-building within data governance methods. The research results are of significance to policy makers, business executives, and stakeholders intending to use Big Data for competitive advantage and sustainable standing.

Keywords: Big Data, technological revolution, local corporations, external influences, government regulations, infrastructure advancement, data privacy, market competition

Introduction:

The phrase 'Big data' is a necessary area of stimulation for innovation, competitive advantage, and business transformation in many industries within the present-day technology environment. Big data's impact on local establishments is variable, depending on quite a number of external factors.

The extant literature on big data suggests a revolutionary transformation in areas like operational efficiency, predictive analytics,

[*]L.M.F, Enrolled in the DBA program at Lincoln University and College, Malaysia.
[†] B.E.A., Senior Lecturer, Department of Science for Technology, Faculty of Technology, University of Sri Jayewardenepura

and customer insights. Mostly, while a plethora of studies span applicability of big data, their inclination is often towards a generalist perspective. These create a wide gap between understanding how external factors affect the adoption and implementation of big-data technologies in the localized ecosystem of business. Legislative frameworks, cultural nuances, technical infrastructure, and economic stability are some external factors that fall short of getting recognition or form a lesser primary concern in saving such investment gains.

This gap provides demands for the in-depth study of the external factors so as to bring forward a more edge to the possible effects. Identified under such stratification adds the social context variables to local firms' aspirations and investments meaningfully. This study aims to facilitate the discussion on hitherto neglected aspects and subsist in reaffirming the exploration concerning the localized effects of big-data technology.

Research Gap

Even though Big Data is globally recognized as a force for change, significant research gaps exist in understanding its adoption and impact on developing countries, especially in contexts like Sri Lanka. While previous research has elaborately presented the merits of Big Data in developed countries boasting strong technological and regulatory spines, the empirical evidence for external factors that specifically restrict its adoption in emerging markets is deficient. Such, for example, while Manyika et al. have based their studies on the needs for solid infrastructures that will facilitate Big Data use in developed countries while, in this context, such would be lesser applicable, where the digital infrastructure and skilled human capital are still in infancy.

The interrelationship of economic instability, the transformative regulatory regime, and cultural resistance within the context of Sri Lanka is unique, which remains relatively less explored. For example, the lack of research dealing with such specific external barriers as regulatory ambiguity (Perera et al., 2022), economic restrictions (Wijesundara & Perera, 2020), and shortage of skillset on the part of workers (Ranasinghe, 2019), illustrates a major gap. In addition, while more emphasis is placed on issues related to general technological adoption in most global studies, they afford less attention to the complex socio-economic and cultural influences surrounding local businesses in emerging nations (Wickramasinghe & Gunawardena, 2021).

This is made worse by the lack of targeted research into how these external influences jointly impact the strategic decision-making process and operational efficiency of indigenous enterprises in Sri Lanka. Existing research mostly centers on organizational or technical academic issues

while ignoring the effect of external environmental factors on the possibly predicted impact of Big Data (Jayasinghe & Wickramasinghe, 2021). Filling this gap will provide practical evidence deemed necessary for local corporations to tackle the singular hurdles of their business environment and to meadow its full strength with the full scope of Big Data technology.

Background to the Study

This is also referred to as extensive knowledge-based organizational environment. Open-source initiatives such as Open Development in Latin America, OSM-Open Street Map and OGD-Open Government Data in the past few years have been embraced across various economic sectors around the globe. Data explosion or abundance of data across the length and breadth of the economy, owing to various developments in digital technologies and increased connected devices, signifies such a transition (Laney, 2018). Essentially, its role in enhancing decision-making, process efficiency and innovation is well established, specifically in developed economies with robust technical infrastructure and enabling legal frameworks to support the use of such data extensively (Chen et al., 2012; McAfee and Brynjolfsson, 2012).

Developing countries like Sri Lanka will find the Big Data revolution both a boon and bane. However, the business sector in the region faces some challenges due to increasingly recognized strategic importance of data-led decision making in the business. Inadequate technical infrastructure, shifting legislation, and absence of competent human resources is a terrible challenge (Fernando and Perera, 2020). Grasping the external forces affecting the effective implementations of Big Data technologies in local contexts is fundamental for enabling local corporations to exploit its potential beneficially.

The Global Impact of Big Data Technologies

Big Data has been a changing force for many sectors around the globe, including banking, healthcare, manufacturing, and retail. Organizations predominantly utilize data analytics in order to acquire insight concerning customer behavior, augment operational efficiency, and subsequently, provide customized experiences (Davenport et al., 2020). Industrialized countries now rapidly implementing Big Data technologies are backed up by powerful digital infrastructure, established legal frameworks and culture that rests on data-driven innovation (Manyika et al., 2011). However, the scenario is somewhat different within the developing countries. Adoption of Big Data technologies in these regions is stunted by varied factors that include lack of internet

penetration, high cost of technology deployment, and legislative ambiguity (Kshetri, 2014).

Although there is an increasing interest in Big Data in Sri Lanka, the technology and its regulatory landscape remain underdeveloped; thereby affecting the overall impact of the new technologies on local businesses (Jayasinghe & Wickramasinghe, 2021).

Objectives of the Research

The main aim of this research is to identify and examine the external variables that affect the effective deployment and use of Big Data technologies in local companies. The study is particularly designed to:

- Conduct a critical assessment of the current literature about Big Data adoption and its external difficulties.
- Identify the key external barriers hindering the effective utilization of Big Data in local markets.
- Recommend strategic measures for local corporations to address external difficulties and amplify the
- effectiveness of Big Data technology.
- Assess the relationship between exogenous factors and the overall effectiveness of Big Data projects within local Corporations

Methodology of Research

A systematic literature review methodology is applied herein, based on a thorough analysis of 95 relevant papers published between 2010 and 2023. Inclusion and exclusion criteria were specified to ensure that only high-quality and contextually relevant literature was selected. The inclusion criteria for articles reviewed considered those that explicitly examined the external variables impacting Big Data adoption in business settings, were peer-reviewed, and presented either empirical or qualitative findings. Eliminated from the study were those that focused exclusively on the technical aspects without considering the external impact or those that did not clearly present a business context.

The chosen papers were thoroughly evaluated and integrated to get qualitative insights into external variables affecting Big Data adoption in local corporations. Furthermore, actual data from case studies of local firms that have incorporated Big Data into their operations were examined to provide practical insights. The analytical approach focused on discovering repeating themes and patterns that clarify the external barriers and facilitators in the Big Data technology revolution. The selection of the 95 publications was conducted by keyword searches in prominent academic databases, including Scopus, Web of Science, and Google

Scholar, to improve transparency. Keywords included "Big Data adoption," "external factors," "local corporations," and "regulatory and cultural influences." The demographics of the local corporations analyzed in the empirical data included industry type, organizational size, and years in operation. The elements were analyzed to enhance comprehension of the many settings in which Big Data technologies are used and the external effects involved.

Third-party commercial Software Packages (3rd Party commercial SP)

Commercial software often refers to third-party packages developed by concerned third parties who have made software that generally caters to multiple general-purpose functions for many customers. An example would be the software that enhances the original features of standard word processors. These sometimes develop features that do not respond to multiple other systems and that are used for only one purpose, which can cause contention among the existing systems.

The creation of standards has now enabled several applications to hold significant commercial positions, but the rapid movements in the whole arena have opened things more than ever. Module availability, joint development, and many other aspects have been potential growth areas linked to servicing one application with dozens of third-party SPs. The trend has increased the commercial burden associated with client specialization.

Market competition will not only keep yourself alert, but it will also offer both chances and hindrances toward the adoption of Big Data technologies. The argument goes like this - the local firms would upgrade their technology as a compulsion-to keep pace with emerging innovations in the industry, whereas competition intensifies focusing on shorter-term profits than on future expenses that would yield in successful Big Data initiatives. It's not just cash that's required but also culture, trained employees for any application, and technology. In Sri Lanka, where firms exist in a very competitive environment, the necessity to get quick results may outweigh the strategic importance of investment in big data technology. Organizations should balance competition with continuous technical funding to maximize the benefits from Big Data.

Big Data technology revolutionizes potentially the local firms thanks to their increasing tendencies to make their decisions data-driven, streamline their operations, and innovate product features. The externalities that affect the effectiveness of application and impact of Big Data technologies include legal environment, overall economic context, technological infrastructure, competencies of workers, cultural resistance,

and competitiveness. These externalities need to be addressed by local companies for optimum benefits from Big Data.

To mitigate regulatory limits, preemptive compliance strategies must be adopted with flexible data management procedures. Economic robustness and effective financial planning could guarantee continued investment in Big Data technology amidst economic uncertainties. Improving technological infrastructure and investing in employee development are very instrumental in developing competencies that would allow organizations to employ Big Data efficiently. Moreover, cultivating a culture where data-driven diversity may be...

Limitations of the Study

A major weakness of this research is its focus on local corporations in selected geographical regions, which may not generalize the findings to be applied in other contexts. This research relies mainly on secondary sources of data, which may poorly capture the specific challenges faced by specific companies. A rapidly evolving environment concerning Big Data technologies is a constraint that new developments and outside factors can emerge within which this specific study may not fit. Additionally, there definitional and boundary differences implied by SMEs in different countries might affect the general applicability of the findings.

Small and Medium-sized Enterprises (SMEs):

Small and Medium Enterprises (SMEs) are a vital part of most economies, as they provide employment, contribute to GDP growth, foster innovation, and induce further economic activity (Sheppard, 1995). Despite its significance, the SME sector is often unable to reach expected levels of contribution and is plagued by high failure rates globally. Common causes of SME failures include inadequate availability of resources, mismanagement, limited access to finance, unfavorable liquidity positions, adverse market conditions, intense competition, isolation, a lack of skilled labor, incorrect pricing, lack of institutional support, and lack of entrepreneurial competencies (Moore, 1997; Rathnasiri, 2015; Sutton, 1997; Stewart & Raphael, 2003; Pennings et al., 1998; Lussier et al., 2016; Drucker, 2007; Richard et al., 2006). Definitions of SMEs vary widely across countries, usually based on criteria such as the number of staff, revenues, and capital investment (Economic and Social Commission for Asia and the Pacific, 2009). In Sri Lanka, SMEs are defined under the National Policy Framework for SME

Development (2015) as businesses with less than 300 employees and annual sales not exceeding Rs. 750.0 million.

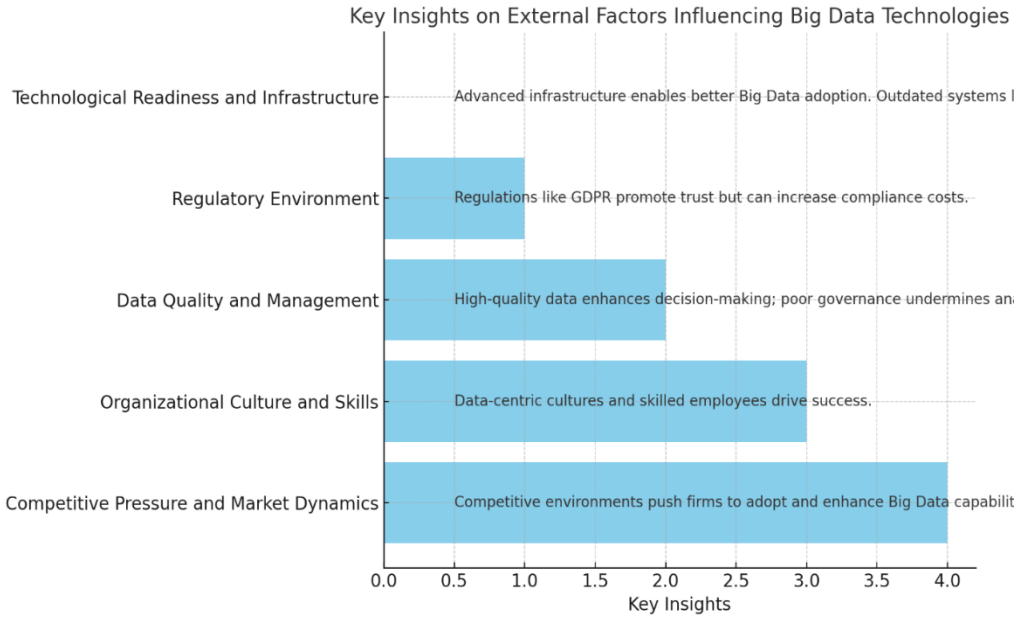
External Influences on Big Data Adoption

Regulatory Framework

The legislative framework for data protection, privacy, and cybersecurity has quite an influence towards how local corporations will be able to make use of Big Data technology. In Sri Lanka, this same framework is still evolving and hence brings about opportunities as well as issues for the enterprise. In conforming to data protection standards, including those related to privacy and cybersecurity, great insistence is put on this for avoiding legal implications and for upholding customer trust (Perera et al., 2022). An instance with respect to Sri Lanka is one where uncertainties with no explicit and detailed rules might make companies hesitant to involve in Big Data allow. Globally these mandates brought on issues for enterprises, such as the General Data Protection Regulation (GDPR) in the European Union requiring firms to put painstaking consideration into evidence with what the law demands before using their supplementing data (Anderson & Tushman, 2001). Companies thus will have to be agile and constantly adapt themselves to regulatory framework changes in Sri Lanka to be able to reap the economic benefits of Big Data technology.

Economic Circumstances

In providing for the local firms to make investments in Big Data technology, economic stability and access to financial resources are very critical. Sri Lanka faces severe challenges to its ability to provide business with such an economic environment and reasonably access to financial resources. Given the constraints of the economy, there is reason to believe that Big Data implementation will now slow down, along with related projects (Wijesundara & Perera, 2020). During downturns in the economy, competing managers will concentrate on conserving cash and not developing systems that could delay attaining Big Data solutions (Rathnasiri, 2015). General economics and availability of funds have a direct bearing upon the ability of an organization to divert resources towards Big Data projects, thus representing how economic stability influences technological innovation.



Technological Framework

The success of Big Data projects expresses a good deal of their reliance on the technological infrastructure of good quality, speed, and effective internet connection, cloud computing, and storage alternatives. The technology framework is underdeveloped in Sri Lanka and poses challenges to any entity attempting to inculcate sophisticated data analytical systems (Ranasinghe, 2019). Local firms operating in the techno-sparsely located regions will encounter considerable barriers for effective Big Data application. The lapse is worsened by the evidence that locations benefitting tremendously from an upright technological infrastructure, primarily in the developed world, harness the blessings of Big Data discoveries better (Sheppard, 1995). Sri Lanka should arouse these deficiencies in the light of technology infrastructure development at its pace for the right adoption and penetration of any impact from Big Data technologies.

Competencies and Proficiencies of the Workforce

Skilled workforces with awareness of Big Data Technologies are very important external factors. Sri Lanka formally faces a 650 million deficit of qualified data skeptics, analyzers, and IT operationalists with competent criteria designed to properly manage and search Big Data

(Lussier et al., 2016). This sort of brain drain could slow down the adoption cycle, which could, in turn, be detrimental to the total productivity of Big Data projects in local enterprises. Lack of specialized training opportunity and limited educational facilities in data analysis becomes another burden by limiting firms from easily acquiring the necessary in-house competencies. To address the challenge of becoming a low-skilled environment, development of a workforce skilled in Big Data technology is of paramount importance.

Cultural and Societal Perspectives

Societal perceptions of data privacy and security, together with company culture, greatly influence the adoption of Big Data technology. Data privacy concerns have recently become more aware in Sri Lanka, and it could affect the organization's strategy regarding data collection and analysis (Wickramasinghe & Gunawardena, 2021). Cultural variables, such as unwillingness to change and a preference for old business processes, might influence firms' readiness to adopt data-driven tactics. Organizational culture and aversion to change may act as strong barriers to the successful utilization of Big Data (Mellahi et al., 2002). In some cases, corporate culture might resist shifting toward data-driven decision-making and may prefer to stick to conventional techniques. Overcoming these cultural and sociological barriers is an important step toward creating an environment that allows for the complete adoption of Big Data within organizational processes.

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The creation of standards has now enabled several applications to hold significant commercial positions, but the rapid movements in the whole arena have opened things more than ever. Module availability, joint development, and many other aspects have been potential growth areas linked to servicing one application with dozens of third-party SPs. The trend has increased the commercial burden associated with client specialization.

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Competitive dynamics may act as both an incentive and an obstacle to Big Data adoption. The need to remain competitive in a swiftly changing industry may compel local corporations to invest in Big Data technology. On the flip side tough competition might push companies to focus on quick profits rather than spend money on Big Data projects that pay off later (Pennings et al. 1998). In Sri Lanka where businesses operate in a cutthroat market, the push for fast results could overshadow the long-term value of putting money into Big Data tech. Companies need to balance competitive pressure with the need to invest in tech over time to get the most out of Big Data. The Big Data tech boom has the power to transform local companies. It helps them make choices based on data, work more, and come up with new ideas. But how well companies use Big Data and how much it helps depends a lot on outside factors. These include laws, the state of the economy, tech infrastructure, worker skills cultural pushback, and how rivals behave. Local companies must tackle these external challenges to reap the full benefits of Big Data.

To work around regulatory limits, companies need to plan ahead for compliance and be flexible in how they handle data. Making sure finances are strong and well-planned can help keep money flowing into Big Data tech even when the economy is shaky. Upgrading tech systems and helping staff grow their skills are key to build the know-how needed to use Big Data well. Also, creating a workplace that values data-based

choices and easing competitive pressures through smart team ups can boost how well Big Data projects perform.

Review of Literature

Big data technologies are seen to be a transformative influence on the world enterprises. However, several inputs have shaped the magnitude and effect of this technology revolution on local corporations. The deployment and utility of big data depends on factors like the economic environment, legal framework, the market climate and corporate culture. It's necessary to understand these elements in order to extract the power of big data technologies in local business environments.

Data on Large Scale and Corporate Achievement: We have seen the revolutionary potential of Big Data in local corporations in the global literature, but studies specific to Sri Lanka bring out a number of issues and opportunities that are relevant to local environment. The adoption of Big Data technologies in developing economies, however, has been limited by external factors, and recent studies highlight that although Big Data technologies can theoretically provide the business performance benefits from enhanced decision making, operational efficiencies, and superior customer experiences, this potential according to has not been fully realized (Jayasinghe & Wickramasinghe, 2021; Fernando & Perera, 2020). However, these limits need a comprehensive knowledge of the way these elements affect each other to produce local enterprises results.

A case for Economic Context and Adoption of Big Data

Sri Lanka's economic situation has severe bearing on whether and how Big Data technology will be adopted and integrated. Together with restricted financial access economic instability inhibits technology investments especially for Small and Medium Enterprises (SMEs) which are the backbone of Sri Lankan Development (Wijesundara & Perera, 2020). Recent empirical studies have shown that companies to prioritize cost saving over innovation to adopt big data during economic recessions (Ranasinghe 2019). On the contrary, in case of stable or enlarging economic situations enterprises have a tendency to use data driven technology to increase the competitiveness (Kodituhwakku & Rosa, 2002).

Regulatory Frameworks and Technological Advancements

In Sri Lanka the use of Big Data faces a dual challenge in its legislative landscape. Data collecting and analysis may be allowed by lack of clear data privacy legislation such as the GDPR in Europe. Uncertainty about what data the business sends and the information the suppliers send

back, and uncertainties about how the information is protected, leads to uncertainties about what investments the business is going to make in Big Data efforts (Perera et al., 2022). Currently, recent studies underline that much more than before is required from legislators to address issues of data security, privacy and ethical application of AI in Big Data in Sri Lanka (Jayasinghe & Wickramasinghe, 2021).

Market Dynamics and Competitive Forces: Technology adoption in Sri Lanka's corporate climate is highly influenced by the competitive dynamics of corporate climate. Data institutions have rushed a big data technology investment to get insight into customer behavior and supply chains in the fields of retail and telecoms and since commodity prices increase, there is huge intensified rivalry that further enhances data investments (Wickramasinghe & Gunawardena, 2021). Where there are fewer competitive sectors, in which there is a perceived lack of rapid benefit from Big Data spending, adoption rates often fall. The efficient use of these technologies is hampered by the interplay between competitiveness and organizational preparedness (Fernando & Perera, 2020).

Technological integration and organizational culture

However, the corporate adoption of Big Data in Sri Lankan corporates is influenced by the organizational culture. More effectively, organizations use Big Data technology because they are better inclined to foster innovation and adopt data driven decision making (Mellahi et al., 2002). However, change is still met with opposition and a liking to conventional business methods that stubbornly inhibit advancement in some areas (Wickramasinghe & Gunawardena, 2021). What is more promising is recent studies which indicate that such surmounting of these obstacles depends on developing a culture that fosters the digital literacy and adaptability that businesses need (Jayasinghe & Wickramasinghe, 2021).

External Assist and Technological Framework

Big Data cannot be used in Sri Lanka due to the underdevelopment of the technology infrastructure of Sri Lanka. Local enterprises' (Ranasinghe, 2019) reliance on inconsistent access to high-speed internet, lack of cloud computing resources and data storage solutions technically hampers these ventures. However, the ecosystem is growing only with efforts by governmental and corporate entities to improve digital infrastructure and technical training. To address these difficulties suggested solutions are to collaborate with international technology

suppliers and foster of local innovation ecosystems (Fernando & Perera, 2021).

External Variables as Interconnected

Economic, legislative, technical and cultural aspects of interaction give a complicated environment for Big Data adoption in Sri Lanka. Technological disparities tend to be further exacerbated by economic restrictions, but legal ambiguity can induce cultural resistance to change (Wickramasinghe & Gunawardene 2021). Further on, those shorfalls in workers' skills and infrastructures fall into a cycle relendence where the lack of one factor magnifies defecits in other (Ranasinghe, 2019). To tackle these interdependencies, we need comprehensive strategy that entails legislative changes, economic incentives and capacity building activities.

Inclusion and Exclusion of Articles Criteria

Methodological rigour was ensured by using systematic criteria for the selection of articles for this literature study. Big Data use in Sri Lanka and other emerging environments was studied from 2010 to 2023 and the inclusion criteria included peer reviewed journal publications, conference proceedings and government reports. Articles that were relevant to external issues, showed empirical evidence and had methodological rigor were selected. Published from 2010 to the present, with an emphasis on context specific; were not eligible for exclusion criteria, if fundamental, published before to 2010, or if no methodological information. This methodical methodology makes sure repeatability, and, by design, provides results with more dependability.

Findings

External Factor	Key Insights	References
Technological Readiness and Infrastructure	Advanced infrastructure enables better Big Data adoption. Outdated systems limit potential benefits.	Katal, Wazid, & Goudar (2013); Chen, Mao, & Liu (2014); Elgendy & Elragal (2014)
Regulatory Environment	Regulations like GDPR promote trust but can increase compliance costs.	Voigt & Von dem Bussche (2017); Zhang et al. (2018)
Data Quality and Management	High-quality data enhances decision-making; poor governance undermines analytics.	Batini et al. (2016); Khu, Khan, & Fekete (2019); Wang et al. (2016)

Organizational Culture and Skills	Data-centric cultures and skilled employees drive success.	Davenport (2013); Sivathanu & Pillai (2018); Mayer-Schönberger & Cukier (2013)
Competitive Pressure and Market Dynamics	Competitive environments push firms to adopt and enhance Big Data capabilities.	McAfee et al. (2012); Seddon et al. (2016); Delen & Demirkan (2013)

External Factors Influencing the Impact of Big Data Technological Revolution

One. Technological Preparedness and Infrastructure

A crucial external factor to consider in how Big Data technologies can influence small firms is technical readiness and/or infrastructure. There is evidence that organizations that have a strong technical infrastructure are better equipped to appropriately leverage Big Data (Katal, Wazid, Goudar, 2013). Firms that have made capital investments in high-performance computer systems and scalable storage devices enjoy the resulting greatest benefits from Big Data analysis (Chen, Mao, Liu, 2014). On the other hand, the organizations that have outdated infrastructure mainly suffer from less efficient exploitation of Big Data potentials and hence they are getting worse returns (Elgendy Elragal, 2014).

Two. Regulatory Framework

The legislative environment has a major impact on the extent to which companies can adopt and apply Big Data technology. Empirical evidence suggests that strict data protection law can enhance and suppress the application of Big Data. Regulation of, for example, the GDPR in Europe not only safeguards privacy and security, but also fosters trust and encourages data applications (Voigt Von dem Bussche, 2017). In contrast, excessively restrictive legislation may increase compliance costs and limit the amount of freedom that is required to successfully perform data analytics (Zhang et al., 2018).

Three. Data Quality and Governance It plays a critical role to determine the quality and management of data to actualize the Big Data work. The study concludes that better quality, well-managed data give a better analytic value and decision-making (Batini et al., 2016). When the information given is wrong or in case the processing of data is done inappropriately it results in wrong conclusions and hence lose one of the strengths of applying Big Data technology (Khu, Khan, Fekete, 2019).

Good practices include data cleansing, data validation, and data integration are important to boost the effectiveness of Big Data (Wang et al., 2016).

Four. Culture and Competency of the Business Organization The baseline factors that account for Big Data success include organizational culture and human competency. Mar 2013 also reveals that organizations with key strategic orientations that include data analysis for decision-making and staff training are most likely to gain from Big Data technology. Several organizations that are not endowed with data first analysis culture or a deep staff will encounter challenges in the right exploitation of Big Data (Sivathanu Pillai, 2018). The coordination of the data methods and the purposes of the organization is hence important in order to get good results (Mayer-Schönberger Cukier, 2013).

Five. Industry Forces and Market Trends Market forces and competition also put pressures that force local businesses to adopt and use Big Data technology. McAfee et al., (2012) established that competition within industries is an essential driver to the adoption of Big Data as firms seek to enhance competitiveness. Market demands on the one hand and technological trends on the other, require enterprises to update their Big Data capability continuously (Seddon et al., 2016). Academic research by Delen and Demirkan (2013) shows that organizations aligning with current and emerging market demands and leveraging Big Data in its strategic value proposition deliver a higher performance than their industry counterparts.

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Discussion

Current research shows the intricate factors influencing the impact of Big Data technology on local enterprises. Technological readiness and infrastructure are also critical because they directly impact how businesses can "go big data" and succeed with solutions powered by Big Data. The observed findings are in line with the Technology Adoption Model (TAM), that highlights the importance of perceived usefulness and ease of use in predicting technology adoption. Organizations that have robust IT, and a history of technography are better likely to view Big Data technologies as positive and practical for adoption.

Regulatory landscapes are both a blessing and a curse - they can either support or inhibit efforts in Big Data depending on the strength (and fit) and their alignment with business realities. Anomic examples demonstrate how strict data privacy laws enacted in some countries have limited data exchange and expertise, while regulatory prompts in other countries have encouraged faster adoption. An industrial business association in the locality faced delays with a Big Data project through unclear compliance standards based on state and federal data protection regulations, etc. However, in contrast, tax subsidies for digital innovation in another country encouraged the investment in the field of analytics technology.

Cultural pushback and workforce mobility are major challenges because companies rarely succeed in harmonizing their internal culture with the data-analytic approach required for effective Big Data deployment. A retail company highlighted the difficulty of moving from "gut feeling" towards analytics-driven approaches, and the need to invest in big change management and training programs.

Data quality and management play a critical role in guaranteeing highly accurate and useful Big Data analytics. A case study of a financial services firm revealed that inadequate data governance policies resulted in contradictory analytical results, emphasizing the need of standardized data management systems. The role of a data-centric organizational culture and an expert workforce is critical as they are the critical factor in leveraging the benefits of Big Data investments.

Competitive pressures and market forces lead to the application and development of Big Data technology, highlighting the need for firms to be agile and responsive to external changes. A technology company quickly scaled Big Data resources to address the growing demands of clients during a market boom, leveraging partnerships outside the company as well as agile techniques.

This shows that local companies need to navigate a complex interplay of technical, regulatory, and operational factors in order to effectively deploy Big Data. Overcoming these barriers with targeted investments, sound data management practices, and an enabling business environment will further amplify the utility of Big Data technologies. This debate seeks to connect these results to wider theoretical frameworks, such as the Technology Adoption Model, and to provide concrete instances, so generating practical insights for stakeholders.

Conclusion and Recommendations

Final Assessment

This empirical examination of external factors that influence the impact of the Big Data technology revolution on local businesses has yielded a number of important findings. It highlights the essential importance of technology readiness and infrastructure. It is companies that have a technologically robust base that are best placed to take advantage of the benefits of Big Data, but companies that have poor infrastructure are faced with significant challenges (Chen, Mao, Liu, 2014; Elgendy Elragal, 2014).

The regulatory environment has shown a dual function. On the one hand, strict data protection requirements foster trust and lead to the use of Big Data, by ensuring security of data (Voigt Von dem Bussche, 2017). Conversely, excessively stringent rules incur compliance expenses and restrict data use flexibility, thereby obstructing innovation and uptake (Zhang et al., 2018).

Data quality and management play an essential role in the success of Big Data endeavors. Accurate analytics and enlightened decision-making use superior, well-managed data. On the other hand, poor data management can lead to inaccurate conclusions and lower performance of Big Data efforts (Batini et al., 2016; Khu, Khan, Fekete, 2019).

The study reinforces the key role that corporate culture and employee skills play in determining the uptake of Big Data. [Organizations that cultivate a data-obsessed culture and focus on the development of people] are better positioned to manage the activities of their Big Data projects (Davenport, 2013; Sivathanu Pillai, 2018).

After all, competitive pressure and market exigencies make it a necessity for local companies to keep improving and extending their capabilities in Big Data over and over again. Firms in competitive markets exploit Big Data and firms that rapidly respond to those changes in market dynamics generally outperform their competitors (Delen Demirkan, 2013; McAfee et al., 2012).

Constraints of the Study and Prospective Avenues

This work offers significant insights; however, it has limitations. The research largely emphasizes external factors and does not thoroughly examine internal organizational characteristics, such as leadership styles and particular IT governance processes, that may affect Big Data adoption. Further research may further examine these internal processes to better understand the context in which Big Data success is determined (Chandani et al., 2021).

This study is based on secondary data and on qualitative observations, which, although valuable, may not be completely representative of the complex functions of the system elements due to the nature of the real-world phenomena. Subsequent research may use longitudinal methodologies and gather primary data from local corporations to corroborate and enhance the conclusions presented above (Ranasinghe, 2019).

Third, although the study contains information specific to the Sri Lankan context, comparison with other emerging countries should be made with the aim of increasing the generalizability of the findings. Considering the role of cultural, economic and legal factors in Big Data adoption around the world may lead to an overall understanding and suggest appropriate solutions to deal with the challenges which are frequently encountered (Fernando Perera, 2020).

This study does not sufficiently test the impact of emerging technologies (i.e., artificial intelligence (AI) and the Internet of Things (IoT) on adoption of Big Data. Subsequent study may investigate the synergies among these technologies to formulate practical strategies for local corporations seeking to maintain competitiveness in a swiftly changing technology environment (Jayasinghe Wickramasinghe, 2021).

As a consequence of overcoming these limitations and investigating the suggested study options, future research could contribute to broadening the insights and practical application of Big Data adoption in developing nations.

Suggestions

The findings of this study offer several recommendations for local enterprises who want to leverage the technology of Big Data more effectively.

- Prioritize Investment in Technological Infrastructure: Local corporations should concentrate on the investment in state of the art technological platforms - high-performance computing and scalable storage options. Such spendings are also critical to enable

effective Big Data analytics and competitive advantage (Chen, Mao, Liu, 2014).

- Proactively Navigate Regulatory Frameworks: Organizations need to be informed about regulatory changes and adopt a proactive mitigation approach. Data security stipulations and operational flexibility can be used to mitigate potential constraints and foster a data-centric view (Voigt Von dem Bussche, 2017; Zhang et al., 2018).
- Improve Data Quality and Management: Strict data policies for enforcement of good data quality and integrity are essential. Corporations are required to put resources into data cleansing, validation, and integration processes ensuring accuracy and consistency of analytics (Batini et al., 2016; Khu, Khan, Fekete, 2019).
- Cultivate a Data-Centric Culture: Implementing a culture where data-driven decision making is the norm and staff are trained continuously will enable the proper adoption of Big Data technology. Adoption of a data-centric corporate culture is a key requirement for the effective exploitation of Big Data (Davenport, 2013; Sivathanu Pillai, 2018).
- Adjust to Market Dynamics: In order to stay competitive, companies need to continuously analyze and adapt their Big Data strategy in response to changing market conditions and competitive pressures. Adopting agility and innovation to Big Data methods will allow companies to keep a competitive edge (Delen Demirkan, 2013; McAfee et al., 2012).

Once these recommendations are followed, local corporations can better exploit the exciting potential of Big Data technologies and achieve sustainable success in a more and more data-driven business world.

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