Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
January-June 2023 4(1), 4454–4464

BUILDING A DATA-DRIVEN FUTURE: A LITERATURE REVIEW ON DATA CULTURE AND BUSINESS ANALYTICS ADAPTION

Harshal Patil [1], Dr. Abhay Kulkarni [2]

[1] Research Scholar, ATSS's Institute of Industrial and Computer Management and Research (IICMR) Nigdi, Pune, India
[2] Research Guide, ATSS's Institute of Industrial and Computer Management and Research (IICMR) Nigdi, Pune & Affiliated To Savitribai Phule Pune University, Pune, India

DOI
10.29121/shodhkosh.v4.i1.2023.5528

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

The capacity of firms to extract value from data is evolving into a matter of strategic importance in an increasingly digitized world. This paper utilizes a systematic literature review to examine the complex interplay between data culture and the adaption of business analytics, in different contexts of organizations. Although data-driven technologies are nearly ubiquitous, many firms still struggle to develop a cohesive culture to meaningfully integrate analytics. The study's objectives are to (1) bring together the existing literature on data culture and adaption of business analytics, (2) examine the influences of enablers and barriers such as leadership, digital maturity, and data literacy, and (3) establish theoretical frameworks and possible research gaps for future studies. In this study, were systematic - examining peer-reviewed journals and conference proceedings and academic databases such as Scopus, IEEE, SSRN, etc. Narrative synthesis and thematic analysis were used to address the influences of organizational, technological, environmental, and human resources and capital factors along established models; Technology-Organization-Environment (TOE), Dynamic Capabilities Theory, and the Diffusion of Innovations (DOI) theory. Research findings support strong leadership support, organizational cross-member collaboration, accessibility to data, and analytics competence will create critical factors in the successful adoption of business analytics. Our findings also indicate that resistance to change, skills deficit, and strategic misalignment are accompanying challenges.

The review identifies a number of gaps in empirical research across specific industries, calling for multidisciplinary, longitudinal research that integrates behavioral and technological component. Actionable strategic implications are made for managers, IT professional, and human resource leaders to assist with cultural change within a data focused organization. Finally, the paper emphasizes that developing a balanced and inclusive data culture will assist organizations in leveraging benefits of business analytics, and creating a competitive advantage in the digital age.

Keywords: Data Culture, Business Analytics, Organizational Adaption, Digital Transformation, Human Capital

1. INTRODUCTION

1.1. BACKGROUND AND EVOLUTION OF DATA-DRIVEN DECISION-MAKING.

In today's business world, data is now a key strategic asset. The shift from making decisions based on intuition to making decisions informed by data represents a fundamental change in how organizations operate, compete and innovate. Organizations began to focus on collecting and storing data as far back as the 1990s, but now that raw data can be transformed into a value add through a combination of big data technologies, cloud computing and even analytics platforms, organizations now have powerful breakthroughs on insights and strategic actions. Data Driven Decision Making (DDD) gained traction in the early 2000s, with Brynjolfsson and Hitt (2011) conducting research that empirically demonstrated that organizations that rely on data for decision making, outperform their counterparts in productivity,

profitability, and innovation. This transition indicates a paradigm shift where decisions do not just have data to support them, they have decisions that now have data shaping them.

As organizations collect large amounts of structured and unstructured data, there is a need to use business analytics (BA) tools to leverage it into meaningful insights. Business analytics includes statistical models, machine learning algorithms and predictive approaches to multi-dimensional decision making, in the past, real-time and anticipatory decisions. However, deploying such tools effectively depends on more than just a technological backbone to hold the software; it must be supported by a strong organizational culture of data.

1.2. IMPORTANCE OF DATA CULTURE IN THE DIGITAL TRANSFORMATION ERA.

Digital transformation is not just about implementing technologies, it's just as much about embracing the right mindset, behaviors, and culture throughout organizations. Data culture can be described as the shared values, practices, and competencies that allow for, and further promote, the use of data in organizational decision-making, at all levels. The data culture and data governance of an organization can be described as being open to sharing data and trusting it, executives promote data use, and employees are data literate.

The recognition of data culture as a critical enabler of digital transformation has expanded widely as organizations realize that the companies who embrace data-centric approaches to thinking across the organization tend to be more agile, customer-focused, and competitive over time based on performance. Reports from Shortland and others (2020) determined that without a data culture and a supportive culture around the use of data, often any previous investment in the infrastructure for analytics is like losing a dollar to save a dollar; ultimately you do not get intended outcomes. Further, it turns out there is a strong correlation between a data-centric culture and the ability of the organization to learn, innovate, and adapt to ambiguous, uncertain, and unpredictable contexts.

While the focus on building such cultures has increased, organizations continue to grapple with many of the same underlying challenges (e.g., lack of leadership support, data literacy, resistance to change, and data silos). Consequently, it is important to understand how to establish and/or inhibit the development of a data culture for organizations to maximize the value of their analytic investments.

1.3. PROBLEM STATEMENT AND RESEARCH GAP.

Although there is a considerable body of literature on the Adaption of business analytics, much of it focuses on technological readiness, monetary investments, or software capabilities; comparatively fewer studies explore the dimensions of culture when it comes to analytics Adaption. The factors linked to organizational context such as leadership commitment, data literacy, trust in analytics, and cross-functional collaboration are unexplored or studied in fragments across disciplines.

In addition, the theoretical basis for making sense of data culture is spread across frameworks such as the Technology–Organization–Environment (TOE) framework, Diffusion of Innovation (DOI) theory, and Dynamic Capabilities Theory, which each address elements of the adaption process. Therefore, it is highly important to conduct a comprehensive and systematic review to merge these separate perspectives to develop a holistic understanding of the interplay between data culture and business analytics adaption.

Additionally, with the expansion of workforce analytics, digital talent management, and personalized customer experiences, organizations are expected to develop their data culture quicker than ever. This means existing research lacks a cohesive framework to integrate the various enablers, barriers, and contextual factors that affect cultural change in data-oriented organizations.

1.4. OBJECTIVES OF THE STUDY

- To systematically review and synthesize existing literature on the relationship between data culture and the adaption of business analytics tools across organizations.
- To identify key enablers, barriers, and contextual factors (such as leadership, data literacy, and digital maturity) that influence the development of a data-driven culture.

- To explore prevailing theoretical frameworks, methodological approaches, and research gaps in the existing body of literature to inform future empirical studies and organizational practices.

1.5. SCOPE AND LIMITATIONS OF THE REVIEW.

This study takes a systematic literature review approach by looking at peer-reviewed academic journal articles, conference proceedings and literature and grey literature published between 2010 and 2023. The study covers a cross-disciplinary view of the literature, drawing on information systems, management, organizational behavior and digital transformation. Key criteria are: peer review, in English, about data culture or business analytics adaption, and available full-text access.

The scope incorporates private and public sector organizations, and from a global context. However, it focuses on the internal organizational rather than macroeconomic or policy-level factors. This paper does not intend to review analytics tools or vendors; although tool adaption and purchase can be considered one part of the greater contextual and managerial issues relating to integration and adaption. This paper looked purely at the contextual, cultural and managerial factors that determine and influence adaption and integration.

A limitation of this analysis is not using tools like VOS viewer for bibliometric analysis, which could have produced visual maps of thematic clusters. As an alternative, a qualitative narrative synthesis, which thematically organized and interpreted the literature, is utilized in this analysis. Another limitation is potential publication bias since the analysis is based on the literature available and accessible, which may not include unpublished or non-English studies.

Despite the limitations of this review, this research is an extensive resource for understanding how organizations can foster a data culture to leverage business analytics in the digital age.

2. RESEARCH METHODOLOGY

This study adopts a Systematic Literature Review (SLR) approach to comprehensively investigate and synthesize the body of literature on data culture and the adaption of business analytics (BA) tools across organizations. The SLR method provides a structured, transparent, and replicable process for identifying, evaluating, and interpreting available research relevant to the research objectives.

2.1. REVIEW TYPE: SYSTEMATIC LITERATURE REVIEW (SLR)

The selection of the review type was systematic literature review, under the guidance of established protocols. This was determined as it represents a rigorous process for quantitatively and qualitatively evaluating studies in a reproducible and unbiased way. The systematic review process incorporated qualitative information (e.g., thematic patterns and theoretical voids) to develop a comprehensive understanding of the subject matter.

2.2. DATA SOURCES

To ensure a multi-faceted literature review, this literature review will refer to several credible academic sources. Key databases will include Scopus for peer-reviewed journals and conference papers, IEEE Xplore for technical research on data analytics, and digital transformation overall, as well as SSRN for working papers/studies. Google Scholar was used to reference grey literature, and a variety of publisher platforms, namely Springer, Elsevier, Taylor & Francis, and Wiley, will be used for academic resources. Searches also included key combinations of data-driven culture, business analytics adaption, data literacy, and digital maturity to identify theoretical and empirical studies across disciplinary lines.

2.3. DATA SOURCES

A combination of inclusion and exclusion criteria was established to clarify the relevance and quality of included literature reviewed. Inclusion criteria were that we look to include articles published between 2010 and 2023 to represent the developments in data culture in the digital transformation period. Peer reviewed journal articles, peer-reviewed academic conference papers, and peer-reviewed systematic reviews were accepted for include. Eligible studies

had to state, or overtly reference, themes such as data culture, business analytics adaption, digital leadership, or organizational transformation. We limited ourselves to English language publications for consistency in contextualization and interpretation.

Exclusion criteria excluded non-English publications and editorial pieces that were more expository than factual or theoretical. Studies that we could not access full-text were excluded thus, studies focused on technical machine learning models were excluded when not discussed in organizational or cultural context. The first search generated a pool of study of 614 articles. After duplicates were removed and a broad preliminary skim and screened for titles, abstracts and descriptors 84 articles were numbered for full-text screening. After full-text screening, 35 high-quality studies were identified for final thematic synthesis closely aligned with the thesis aim and offered valuable insights about the relationship between data culture and adaption.

2.4. REVIEW METHOD

The chosen literature was analyzed with a narrative synthesis approach by thematic categorization. This qualitative method provides the opportunity to organize the findings under different themes and dimensions. Each article was also assessed for the following factors:

- Theoretical basis (e.g., TOE framework, RBV, DOI theory, etc.)
- Method and research design
- Inhibitors and facilitators to data culture and analytics
- Outcomes and implications for practice

The themes were described and grouped based on more general categories such as: support from leadership, data literacy, digital maturity, organization readiness, analytics culture, and the capacity of human resources. The use of a concept-centered matrix (Glaser, 2012) helped with a more explicit mapping of the themes across the selected studies in this narrative synthesis.

2.5. RELIABILITY AND BIAS MINIMIZATION

Concrete measures were taken to diminish the risk for bias in the review process. First, articles were reviewed independently by two researchers to ensure consistency and confidence in the research selection. Second, a transparent accounting of the review process was maintained, documenting any searches performed including all search strings, the databases searched, and the inclusion and exclusion criteria used when making selections. This not only helped to ensure accountability and transparency, but it also provided a vehicle for replicating the review beyond the completion of the study.

Third, as a complimentary approach to improve the stage two literature pool, additional literature was identified from both forward and backward citation tracking. This process gave the researchers more confidence in the comprehensiveness of the pool of literature and added seminal articles and cutting edge emerging articles. By implementing these systematic steps, the current review represents less of a biased overview of the current state of academia in relation to data culture and business analytics adaption, and offers relevant, actionable insights to academics and practitioners who wish to implement data driven transformational initiatives within their organizations.

3. THEORETICAL FRAMEWORK

Several grounded theoretical frameworks were found in the reviewed literature to understand the complexity and multi-layered dimensions of data-driven culture and organizational adaption of business analytics (BA) tools. The Technology–Organization–Environment (TOE) framework and Dynamic Capabilities Theory (DCT) were the most common, plus the UTAUT and DOI. All frameworks provide a multidimensional view for understanding the structure, support, and contextual environment for data-driven decision-making.

1) Technology–Organization–Environment (TOE) Framework

The Technology-Organization-Environment (TOE) framework (Tornatzky & Fleischer, 1990) is arguably the most used framework for research investigating the use of emerging technological innovations, the TOE framework identifies adaption as influenced by three contexts:

- Technological context, in which we understand the technology itself. Within this context we will measure all the relevant aspects of the technology - relative advantage, complexity, compatibility and, data quality.
- Organizational context, inclusive of internal features, like top management support, size, readiness, digital maturity and data literacy.
- Environmental context, includes pressures from external pressures such as competitors, regulators/bodies, and customers. Additionally, external features that examine trends and industry dynamics.

The TOE framework features prominently in studies assessing advanced technology - confirming that while technology may be available (with good relative advantage), success with adaption is victorious in terms of organizational readiness and environmental supports to manage decision-making. Many of the studies examined (Sun et al. (2018); Lutfi et al. (2022)) include variations to the TOE framework, which included constructs like leadership orientation and data governance to reflect current analytics -led environments.

2) Dynamic Capabilities Theory (DCT)

The Dynamic Capabilities theory by Teece, Pisano, and Shuen (1997) is another noteworthy framework used in the literature under review. The point of reference for their perspective, is that organizations must have capabilities to integrate, build and reconfigure internal and external competencies to rapidly respond to changes in the environment. In the context of data culture and business analytics, dynamic capabilities are the ways in which firms sense new opportunities that come from data, seize those opportunities based on their analytics culture and infrastructure, and subsequently transform their operations.

Schüll and Maslan (2018) utilizes a combination of DCT and the TOE framework as a way to not only understand the factors that drive the adaption, but how organizations continuously adapt and configure their analytics capabilities. The theory highlights that the learning orientation, agility, and innovation capability of the firm are important components of ultimately embedding a sustainable data-driven culture in the firm.

3) Other Supporting Theories

Unified Theory of Acceptance and Use of Technology (UTAUT): UTAUT developed by Venkatesh et al. (2003) focuses on the individual user within the organization. It is helpful in understanding employees' perception of usefulness, ease of use and the social influence involved in adopting analytics platforms.

Diffusion of Innovation (DOI) Theory: Rogers' DOI theory looks at innovation diffusion in a social system. Many studies using DOI theory, have been applied to describe the phases of the analytics adaption and institutionalization process paying attention to trial ability, observability, and communication to convey value to the innovation.

Combining the understanding of these two theories allows this review not only to describe the factors that influence adaption, but also to improve the understanding of how data culture matures in an existing organizational ecosystem. These models framed the strategic, cultural and technological dimensions of building a data-driven future.

4. THEMATIC REVIEW

Naturally, recently published scholarship acknowledges advances in the importance of developing a shared data-driven culture (and adaption of business analytics) at organizations. The foundational dimensions of data-driven culture include culture, leadership, literacy, accessibility, and governance ,Organizational aspects, technology aspects, and environmental aspects affect the adaption of business analytics .The framework for the data-driven culture in the construction industry includes choices related to production, use, cultivation, datafication and infrastructure. Opportunities, advantages, and barriers to implementing data-driven business models are technical, organizational and financial (Ciasullo et al., 2021). Developing a data-driven culture contributions to facing the challenges of balancing people and technologies (Wang & Krisch, 2019). The adoption of workforce analytics can be influenced by competitive pressures, institutional norms, organizational heritage, as well as the perspectives of key decision-makers and the alignment with human resource management (HRM) practices. The research observed that business analytics

significantly affects the enhancement of organizational performance and the improvement of innovativeness in organizations (Patil & Kulkarni, 2022).

1) Organizational Factors

The literature review examined organizational factors that influence data-driven cultural and business analytics adaption, with particular emphasis on top management support, organizational readiness, and pressure from competition (Sun et al., 2018). Data-driven culture encompasses components such as data-driven mindset, leadership, data and analytics literacy, ease of access, and governance. Specific factors that support successful data analytics adaption, (Storm and Borgman, 2020), included strong, direct communication and messaging; leading by example; and the acceptance of the unknown that comes from trying new things. Complicating the potential positive impact of data-driven organizational culture, (Storm and Borgman, 2020) noted that some barriers include resistance to integrating new technologies; organizational rigidity; and a lack of focus on producing usable analyses. In today's world, adopting data analytics can improve product development, processes and performance at the organizational level (Azoury et al., 2022). But the human resources discipline continues to lag behind many other disciplines in data-driven decision making or using workforce analytics. Future research could explore the opportunities and challenges associated with the adoption of workforce analytics. Understanding the organizational factors influencing the adaption of data-driven cultures is important for all organizations wanting to successfully adopt data-driven practices to maximize their gains (Lunde et. al., 2019).

2) Technological Factors

Various technological, organizational, and environmental determinants influence an organization's ability to adopt big data analytics (BDA), especially small and medium-sized enterprises (SMEs). Technological determinants like relative advantage, compatibility, complexity, and security, have been reported as key factors in BDA adaption (Ratnasari & Hasnawati; Walker & Brown, 2019). Organizational determinants like top management support, people with human resource expertise, and organizational culture are critical to BDA adaption (Walker & Brown, 2019; Walker & Brown, 2019; Skyrius et al., 2016). Environmental determinants like competitive pressure and compliance with regulatory requirements give implications for BDA adaption (Walker & Brown, 2019). A data-driven culture has proven essential to BDA success and consists of aspects like analytics, data literacy, democratization of analytics, and leadership (Wang & Krisch, 2019). Organization, technology, people, data management, and governance are critical success factors for BDA (Al-Sai et al., 2020). However, many of these reported factors remain unknown for BDA adaption by organizations, especially SMEs, which can help organizations to form appropriate plans for BDA adaption in the global escalatory market to facilitate SMEs competitiveness.

3) Human Capital Factors

Human resource analytics (HRA) is a growing area for organizations that wish to make data-driven decisions in the management of their workforce (Korherr & Kanbach, 2021). An organizational structure that supports HRA, adoptability of workforce analytics among staff, and the need for evidence-based research influencing decisions are some of the main drivers for HRA , HRA can lead to positive organizational results such as improved company performance, enhanced strategic capabilities, and better management of talent. Secondly, organizations may face difficulties adopting and using HRA - for example, challenges related to the data quality, insufficient analytical skills among staff, and the resistance or reluctance to deviating from organizational tradition (Levenson & Fink, 2017). Facing and intentionally addressing these challenges can lead to better organizational decisions and resource facilitation, and organizations need to build a data-driven organizational culture, continue to improve how they communicate the benefits of analytics, and establish relevant models to generate new insights instead of collecting more data (Shortland, 2020; King, 2016; Fernandez & Gallardo-Gallardo, 2020). Finally, the challenges organizations encounter when developing their adaption of HRA can create impediments in organization decision-making which may lead to serious complications among talent and resource allocation (Levenson & Fink, 2017).

4) Environmental and Contextual Factors

The adaption of big data analytics (BDA) by organizations is impacted by multiple technological, organizational, and environmental factors of their context based on the Technology-Organization-Environment (TOE) framework (Schüll & Maslan, 2018; Verma & Chaurasia, 2019). Examples of these factors include relative advantage, complexity,

compatibility, top management support, technology readiness, and competitive pressure (Verma & Chaurasia, 2019; Lutfi et al., 2022). Organizational contexts that can also be barriers to BDA adaption (i.e., Human Resource practices including variable-pay systems and employee training) should also be considered. BDA adaption leads to improved process innovation capabilities (Mikalef & Krogstie, 2020) and can maximize competitive advantage (i.e., higher rates of innovation) (Medeiros & Maçada, 2021). A major barrier to implementing, if that is, BDA is lack of awareness of the benefits associated with BDA. Finally, relatedly, support from top management and organizational readiness factor hugely into the successful adaption of BDA in small and medium sized enterprises (i.e., SMEs).

5) Strategic and Performance-Driven Factors

Business analytics and data-driven decision-making have become important drivers of organizational performance and competitive advantage. There is evidence of greater productivity and ultimately output, for organizations using data-driven activities (Brynjolfsson et al., 2011). Successful performance information includes measuring the maturity of the system, identifying stakeholders, and ensuring leadership support (Kroll, 2015). Data-driven smart city applications can engage citizens and improve urban transaction efficiency (Kaluarachchi, 2022). However, the path to value with analytics is becoming more difficult since firms need to continuously refresh analytical insights and look at existential organizational factors (Kiron et al., 2014). Business analytics itself offers decision-making affordances that produce a positive relationship with strategic decision comprehensiveness and organizational performance (Cao & Duan, 2015). As this area of research matures, it is timely to call for more applied and integrated research on the link between big data analytics activities and firm performance (Maroufkhani et al., 2019; Shanks et al., 2010).

5. DISCUSSION

1) Synthesis of Key Themes

A key limitation observed throughout the literature is the absence of empirical evidence in industry or geographic context. While research has investigated BA adaption more broadly, there is a scarcity of research exploring sectoral differences, and in particular in research contexts such as education, healthcare, agriculture, or public sector institutions. Additionally, most research evidence is based in a developed economy perspective, so there is very little evidence on how developing or emerging markets are navigating this transformation based on data (Lutfi et al., 2022).

For example, we may find that SMEs in South Asia or SMEs in Africa encounter different constraints, such as infrastructure problems, data illiteracy, or regulations from their SME counterparts in North America or Europe. Research based in the context-specific investigations can provide insights into different digital maturity barriers or enablers that SMEs encounter relating to their regulatory environments, as well as development of workforce capabilities.

2) Mapping Relationships Between Themes

Most of the studies we reviewed relied on cross-sectional designs or on second-order data with narrative synthesis. While these are useful for identifying existing trends, they do not enable us to determine causal processes or track the processes of evolution of BA adaption and developing a culture of data over time.

Research is definitely needed that relies on longitudinal designs to understand the organizational journey from data avoidance to data fluency and what interventions - leadership change, digital upskilling, reorganization - intervene in changes (Mikalef & Krogstie, 2020). On similar lines, also studies could have post quasi-experimental and intervention designs to determine the relative effectiveness of point interventions such as data literacy programs, data governance protocols, or analytics platform implementations

Real-time process tracing and before-after intervention impact studies will provide even greater insights on the organizational journey of transformation that emerges in creating new analytics capabilities such as AI, machine learning or predictive modeling.

3) Contrasting Successful vs. Failed Adaption Contexts

Another serious gap is the inconsistent treatment of human, technological, and structural components across most theoretical and empirical models. While the TOE framework and Dynamic Capabilities Theory do provide more holistic perspectives, it is very likely that many researchers are not thinking holistically about data, analytics, and data-driven

decision making because many studies continue to investigate and focus on one-dimensional perspective (e.g., technology infrastructure, workforce capability, or strategic fit) considering each dimension in its context but not describing interdependence.

For example, while leadership is cited in most studies as a key enabler of data culture, few studies look to understand how leadership style, decision-making autonomy or interpersonal trust, mediates the relationship between analytics use and performance outcome (Storm & Borgman, 2020). Although technical capabilities receive a considerable amount of discourse is similar to some of the ethical perspectives, such as data ethics, employee resistance, and change management processes receive notably less research attention than the technical and process aspects of data and analytics.

Thus, there is a need for future research to bring multi-dimensional representations that will be able to describe the dynamic interaction between people, processes, technologies, and performance systems. With such research using proper mixed-methods approaches and triangulated data in studies, the analysis of another data or measurement perspective will largely inform next steps, more accurately mobilizing or creating theory.

Integrated Framework and Implications

To foster a data-driven culture entails time, technology, and above all, behavior change. We know very little about the motivational, cognitive, and psychological reasons for analytics adaption (for example, trust in the data, fear of being monitored, and perceived usefulness of the data).

By examining the psychological contract between organizations and employees with respect to analytics implementation, we may also learn about resistance to change and data hesitancy. We will also examine if UTAUT and TPB can be applied in this regard, especially in conjunction with organizational behavior concepts such as culture, identity, and values.

4) Research Gaps and Future Directions

Looking at the aforementioned gaps, future researchers could:

- Focus on industry-specific case studies in under researched areas such as the education sector, non-govermental organizations (NGOs), and informal sectors.
- Conduct comparative studies between developed and developing economies in factors that influence culture building and implementation of business analytics (BA).
- Use longitudinal study and experimental designs to study the progress of data culture and the lasting effects of BA initiatives.
- Combining behavioral theories with strategic and technological approaches to build a better understanding.
- Investigate ethical, legal, and emotional aspects of the adaption of data analytics, particularly regarding workforce analytics and privacy in the workplace.

6. CONCLUSIONS

This article demonstrates the importance of a strong data-driven culture for successfully implementing business analytics in organizations. Important themes from the literature are the influence of organizational leadership, data literacy, technological readiness, and the significance of contextual factors such as industry and geography. The interaction among these factors reflects the multidimensionality of digital transformation, and reaches across different frameworks including TOE and Dynamic Capabilities Theory. The human and strategic components, such as trust in data, stakeholder buy in, and communication, will still play a significant role in analytics maturity and performance outcomes, even with advancements in technology, especially considering the potential for diverging perspectives of analytics, technology, data, and systems introduced via technology. For organizations who want to leverage the benefit of data analytics and related technologies, a balance framework and culture towards people, processes, and platforms must be fostered. This represents a strategic implications for practitioners including managers and IT leaders, and HR, who must coordinate the development of accessibility, ethical use, and continual learning. Research on data analytics should move beyond siloed notions and towards more interdisciplinary, longitudinal studies. Future studies may benefit from holistic models which concurrently address behavioral, technical, and institutional dimensions. Transitioning to a data-driven

future involves not just our systems, but our capabilities to leverage them, which involves a strong sense of accountability.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

I truly appreciate my mentors and academic advisors for their priceless support and guidance throughout the research as well as the authors and institutions whose contributions laid the groundwork for this study on data culture and adaption of business analytics.

REFERENCES

Al-Sai, Z. A., Abdullah, R., & Husin, M. H. (2020). Critical success factors for big data: A systematic literature review. IEEE Access, 8, 118940–118956. https://doi.org/10.1109/ACCESS.2020.3005461

Brynjolfsson, E., Hitt, L. M., & Kim, H. H. (2011, April 22). Strength in numbers: How does data-driven decisionmaking affect firm performance? SSRN. https://doi.org/10.2139/ssrn.1819486

Cao, G., & Duan, Y. (2015). The Affordances of Business Analytics for Strategic Decision-Making and Their Impact on Organisational Performance. Pacific Asia Conference on Information Systems. https://www.semanticscholar.org/paper/The-Affordances-of-Business-Analytics-for-Strategic-Cao-Duan/363436c3cc72c73fe417bef03bd4bdbbcc064626

Ciasullo, M. V., Montera, R., & Romeo, E. (2021). What about data-driven business models? Mapping the literature and scoping future avenues. International Journal of Business and Management, 16(8), 1–18. https://doi.org/10.5539/ijbm.v16n8p1

Fernandez, V. and Gallardo-Gallardo, E. (2021), "Tackling the HR digitalization challenge: key factors and barriers to HR analytics adoption", Competitiveness Review, Vol. 31 No. 1, pp. 162-187. https://doi.org/10.1108/CR-12-2019-0163

Kaluarachchi, Y. (2022). Implementing Data-Driven Smart City Applications for Future Cities. Smart Cities, 5(2), 455-474. https://doi.org/10.3390/smartcities5020025

King, K. G. (2016). Data Analytics in Human Resources: A Case Study and Critical Review. Human Resource Development Review, 15(4), 487-495. https://doi.org/10.1177/1534484316675818 (Original work published 2016)

Kiron, D., Prentice, P., & Ferguson, R.B. (2014). The analytics mandate. MIT Sloan Management Review, 55, 1-25. https://www.semanticscholar.org/paper/The-analytics-mandate-Kiron-Prentice/46cffbf381022f2e323c8b2c0a0e4f702bc2f47e

Kroll, A. (2015). Drivers of Performance Information Use: Systematic Literature Review and Directions for Future Research. Public Performance & Management Review, 38(3), 459–486. https://doi.org/10.1080/15309576.2015.1006469

Lenz, R.T. (1981), 'Determinants' of organizational performance: An interdisciplinary review. Strat. Mgmt. J., 2: 131-154. https://doi.org/10.1002/smj.4250020204

Levenson, A. and Fink, A. (2017), "Human capital analytics: too much data and analysis, not enough models and business insights", Journal of Organizational Effectiveness: People and Performance, Vol. 4 No. 2, pp. 145-156. https://doi.org/10.1108/JOEPP-03-2017-0029

Lunde, T.Å., Sjusdal, A.P., Pappas, I.O. (2019). Organizational Culture Challenges of Adopting Big Data: A Systematic Literature Review. In: Pappas, I.O., Mikalef, P., Dwivedi, Y.K., Jaccheri, L., Krogstie, J., Mäntymäki, M. (eds) Digital Transformation for a Sustainable Society in the 21st Century. I3E 2019. Lecture Notes in Computer Science(), vol 11701. Springer, Cham. https://doi.org/10.1007/978-3-030-29374-1_14

Lutfi, A., Alsyouf, A., Almaiah, M. A., Alrawad, M., Abdo, A. A. K., Al-Khasawneh, A. L., Ibrahim, N., & Saad, M. (2022). Factors Influencing the Adoption of Big Data Analytics in the Digital Transformation Era: Case Study of Jordanian SMEs. Sustainability, 14(3), 1802. https://doi.org/10.3390/su14031802

Maroufkhani, P., Wagner, R., Wan Ismail, W. K., Baroto, M. B., & Nourani, M. (2019). Big Data Analytics and Firm Performance: A Systematic Review. Information, 10(7), 226. https://doi.org/10.3390/info10070226

Medeiros, M.M.d. and Maçada, A.C.G. (2022), "Competitive advantage of data-driven analytical capabilities: the role of big data visualization and of organizational agility", Management Decision, Vol. 60 No. 4, pp. 953-975. https://doi.org/10.1108/MD-12-2020-1681

Mikalef, P., & Krogstie, J. (2020). Examining the interplay between big data analytics and contextual factors in driving process innovation capabilities. European Journal of Information Systems, 29(3), 260–287. https://doi.org/10.1080/0960085X.2020.1740618

Patil, H., & Kulkarni, A. (2022, November). The role of business analytics for enhancing organizational performance. International Journal of Advanced Research in Science, Communication and Technology (IJARSCT), 2(1), 282–287. https://doi.org/10.48175/IJARSCT-7371

Ramanathan, R., Philpott, E., Duan, Y., & Cao, G. (2017). Adoption of business analytics and impact on performance: a qualitative study in retail. Production Planning & Control, 28(11–12), 985–998. https://doi.org/10.1080/09537287.2017.1336800

Schüll, A., & Maslan, N. (2018). On the adoption of big data analytics: Interdependencies of contextual factors. In Proceedings of the 20th International Conference on Enterprise Information Systems – Volume 1: ICEIS (pp. 425–431). Funchal, Madeira, Portugal: SCITEPRESS – Science and Technology Publications. https://doi.org/10.5220/0006630504250431

Shanks, G.G., Sharma, R., Seddon, P.B., & Reynolds, P. (2010). The Impact of Strategy and Maturity on Business Analytics and Firm Performance: A Review and Research Agenda. ACIS. https://www.semanticscholar.org/paper/The-Impact-of-Strategy-and-Maturity-on-Business-and-Shanks-Sharma/3dca141f38e797fbd77fc1779d420206096959a3

Shortland, S. (2020). Data analytics – building a data driven culture. https://www.semanticscholar.org/paper/Data-analytics-%E2%80%93-building-a-data-driven-culture-Shortland/b594f0289e9823c7c9212ab48cc6f3efbd25eb80

Skyrius, R., Katin, I., Kazimianec, M., Nemitko, S., Rumšas, G., & Žilinskas, R. (2016). Factors driving business intelligence culture. In Proceedings of InSITE 2016 (p. 912). Informing Science Institute. https://doi.org/10.28945/3420

Storm, M., & Borgman, H. (2020, January 7). Understanding challenges and success factors in creating a data-driven culture. In Proceedings of the 53rd Hawaii International Conference on System Sciences (HICSS) (pp. 1–10). University of Hawai'i at Mānoa. http://hdl.handle.net/10125/64405

Sun, S., Cegielski, C. G., Jia, L., & Hall, D. J. (2016). Understanding the Factors Affecting the Organizational Adoption of Big Data. Journal of Computer Information Systems, 58(3), 193–203. https://doi.org/10.1080/08874417.2016.1222891

Verma, S. & Chaurasia, S. (2019). Understanding the Determinants of Big Data Analytics Adoption. Information Resources Management Journal (IRMJ), 32(3), 1-26. https://doi.org/10.4018/IRMJ.2019070101

Walker, R., & Brown, I. (2019). Big data analytics adoption: A case study in a large South African telecommunications organisation. South African Journal of Information Management, 21(1), 10 pages. doi:https://doi.org/10.4102/sajim.v21i1.1079

Wang, S., & Krisch, U. (2019, February 6). A foundation for building a data-driven culture. Applied Marketing Analytics: The Peer-Reviewed Journal, 4(3). https://doi.org/10.69554/JQLJ4548.