

Impact of Organization Changes on the Significance of Critical Success Factors of Business Intelligence Delivery – Challenges and Opportunities

Badr HARFOUSH

Dakota State University
Madison, SD 57042, USA

Dr. David ZENG

Dakota State University
Madison, SD 57042, USA

Dr. Noura MANSOURA

Tishreen University
Latakia, Syria

ABSTRACT

While business intelligence (BI) systems are widely adopted due to the increased need for information, both external and internal factors compel businesses to adapt to dynamic changes that affect the successful delivery of BI systems. This systematic literature review (SLR) looks into how different organizational changes affect the critical success factors (CSFs) in implementing and delivering BI systems. The results of the review show that organizational strategy, structural, people-centric, and remedial changes have an impact on the significance of CSFs. Furthermore, it establishes the existence of a knowledge gap on the impact of organizational changes in the implementation and delivery of BI systems. Finally, it identifies the current challenges and opportunities and the need for further research in delivering and implementing BI systems and related CSFs.

Keywords: Business Intelligence, Organizational change, Organization restructure, BI success factors, BI projects, BI capability, BI effectiveness, and BI Implementation.

1. INTRODUCTION

Successful implementation of BI systems enables organizations to transform their available data into actionable insights for strategic and tactical business decisions [1]. Business success resulting from adopting a BI system lies in how well the system is thought-out and implemented [3]. Researchers have recognized that the implementation of BI systems is affected by myriad critical success factors (CSFs). The CSFs, alongside organizational changes, are thus important in BI systems implementation [2]. More interestingly, an organization's competitive growth and the ability to implement such technological systems like BI are highly dependent on organizational changes, thus affecting the significance of related CSFs [4]. A CSF is an essential element that is key to successfully implementing a project, goal, or operation [5].

On the other hand, organizational change is the significant alteration made by an organization in its culture, operation procedures, Customer Relationship Management, corporate social responsibility technologies, management, and others to improve business performances based on research and business trends [6][13]. Organizational changes constitute structural, workforce, strategic, technological, and growth changes in an

organization [7][8][9]. Understanding how the change relates to CSF is vital for the successful implementation of the BI system.

Organizational changes are grouped into four types: strategy change, people-centric change, structural change, and remedial change [9]. Strategy change targets the transformation of organizational operations through changes to existing tools, policies, and resources [10] [11]. Therefore, reviewing strategy-related CSFs is necessary to prevent BI system implementation from strategy change-led disruptions [12]. Thus, understanding how the change reviewing them is therefore vital for successfully implementing the BI system.

People-centric changes encompass changes in human capital and customer relationships. Human capital changes affect the hiring, training, retention, motivation, and rewarding of employees. Given that one goal of implementing a BI system is to improve the delivery of services to customers, people-centric changes affect the BI system implementation CSFs. It encompasses the need to maintain excellent employees' expertise in order to manage the customer relationships in people-centric businesses. Therefore, businesses must evaluate, analyze and review people-centric related CSFs to successfully implement a BI system [14].

Structural changes shift the hierarchy in management and merge existing or create new departments, team organizations, and responsibilities for a given department, employee, or team [5]. The structural changes impact BI implementation and delivery CSFs by aligning structural related CSFs with the implementation for its success [15].

Lastly, Remedial changes are the reactionary changes driven by such external factors as new competition, high cost of raw materials, or such unprecedented occurrences as a pandemics or hurricanes. Like the others, remedial changes influence the successful implementation and delivery of BI systems [16]. Proper analysis of the identification of BI systems implementation and delivery of CSFs is impacted by remedial change. Thus, various organization changes types impact and correlate with distinct CSFs of BI implementation and delivery. In summary, this review discusses its significance, background, theoretical and conceptual frameworks. It further furnish the results, conducts a discussion of the analysis, and grounds for further research, challenges, and opportunities.

2. SIGNIFICANCE OF THE REVIEW

This SLR aims to examine the impact of organizational changes on the BI system implementation and delivery CSFs and to categories these CSFs based on the organizational change types. It dives deep into BI implementation and the underlying successful implementation. For successful implementation of BI systems, it is important to understand the different components, steps, and procedures involved and whether an organization is ready for the shifts that might come from the different organizational changes [17]. It identifies the previously mentioned four major types of organizational changes, and in-depth research on them provides a critical component to this study. By understanding the depth of research, organizations gain competitiveness that can improve their productivity [18].

The organizational changes are considered the mediating factor between BI implementation and the CSFs [19], and understanding them is thus helpful in the implementation. In consideration of BI as an underlying but invaluable source of competitive advantage, this SLR categorizes the CSFs based on the four identified types of organizational changes. In doing so, it provided scholars and researchers with a profound basis for the interrogation of past literature on BI implementation, thus the capacity to identify research gaps in the reviewed literature [11].

3. BACKGROUND, THEORETICAL AND CONCEPTUAL FRAMEWORK

In the words of the Greek philosopher Heraclitus, nothing is permanent except change [20]. In the contemporary world, it is common for organizations to make such changes as operation scaling and restructuring, leadership change, mergers and acquisitions, and others. Businesses must remain innovative and competitive while making these changes to keep their market share. Many organizations undertake BI projects during change due to BI's excellence in providing competitive advantage [21]. However, it is not an easy task to implement these projects as it is often affected by technology and business process shifts.

In predicting the future, businesses have to collect, generate, and transform data into actionable insights. The data prompts the organization to adopt systems for its exploitation,

improvement of analytical capabilities, and enhance information agility. Analysis of the implementation CSFs provides a clear evaluation of the system's adoption [22], and businesses must use the critical success factor theory to assess and understand the CSFs. Based on the theory, the CSFs are the limited number of areas in which satisfactory outcomes provide successful competitive performance in an organization [23]. While an implementation strategy is founded on CSFs, the environment of a BI system has basic opportunities, requirements, limitations, and threats that dictate its success [24].

Moreover, the CSFs need to be aligned with any organizational changes to understand how the change impacts the CSFs in BI implementation. Fig.1 illustrates the conceptual framework and shows the impact of organizational change on the CSFs collected from the reviewed articles and their relation to BI system implementation and delivery. Through the categorization of organizational change types, the classification of CSFs is achieved, while BI system implementation and delivery analysis lead to the identification and classification of CSFs. The implementation and delivery of BI systems are refined by identifying the CSFs in the information system (IS) research. Fig.1 also indicates that CSFs relate to research implications, while CSF identification leads to IS research.

The analysis diagram flow is shown in Fig.2. The collected CSFs were grouped based on common categories from which 76 organizational change-related CSFs were identified (S1). In R1, the organizational change literature was reviewed, and four organizational change types, strategy change, people-centric change, structural change, and remedial change, were identified. In C1, CSFs were classified based on organizational change types. Finally, in I/D1, the impact of organizational change on the CSFs was understood based on the four CSF categories.

4. RESEARCH METHODOLOGY

This study was guided by Kitchenham & Charters SLR framework [25]. The article screening process is shown in Fig.3. Considering technological milestones in the last two decades and the need to focus on BI systems and their related research, this SLR included articles relevant to BI implementation projects

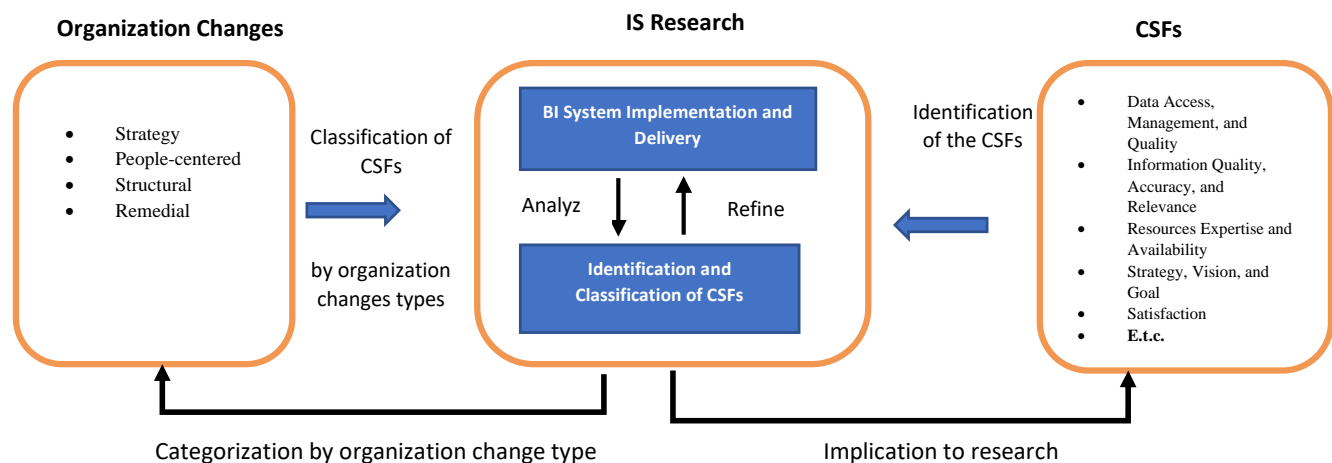


Figure 1: Conceptual Framework

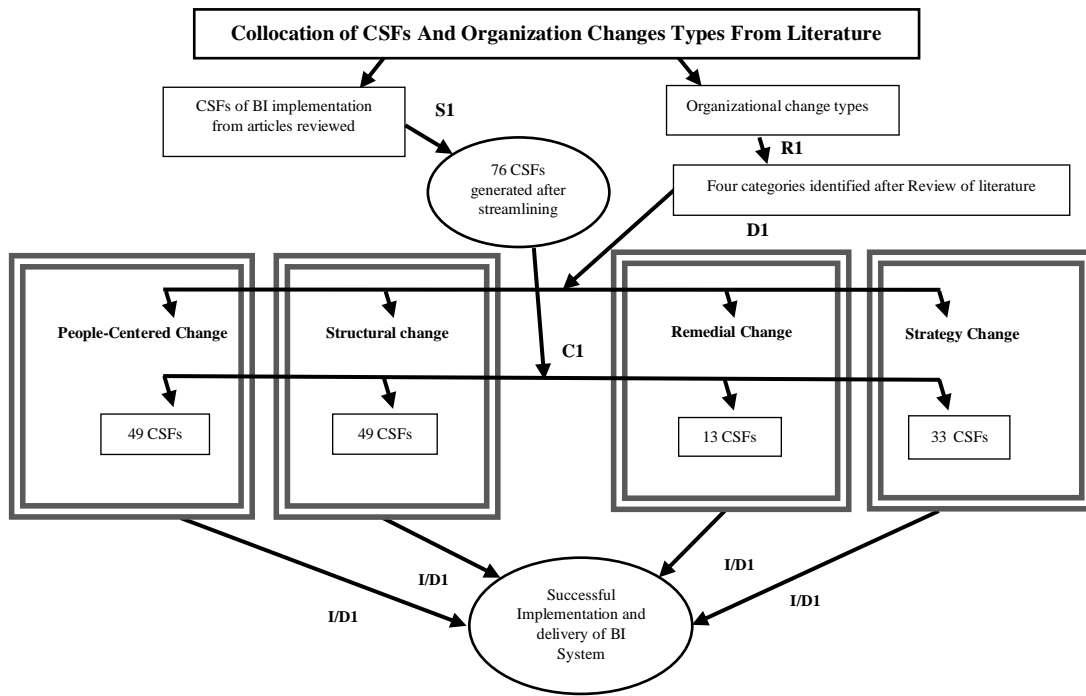


Fig.2. Analysis Diagram Flow

Based on the purpose of the SLR, the inclusion and exclusion criteria for selected articles were based on the acceptance of only peer-reviewed articles discussing BI implementation and delivery CSFs affected by organizational changes. After articles collection, screening and review, the selected articles had been reviewed individually with the sole purpose of identifying the CSFs. To achieve a successful review of the articles, the structural coding method is used to establish the factors affecting the implementation and delivery of BI systems, their influence on the successful implementation and delivery of BI systems, and the category in which the factors fall into based on the identifiable categories. 109 articles were collected, and after removing duplicates and abstract and title screening, 11 duplicates and 28 research purpose unrelated articles were excluded.

Seventy articles relevant to the study were downloaded and analyzed based on BI CSFs affected by organizational changes. Thirty articles were excluded after the entire paper review as they did not relate to the purpose of this study. In total, 40 articles were included based on the research restriction to the selection of articles exploring organizational changes, BI implementation, and their correlation.

Table 1: Accepted Papers Distribution by Year

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Frequency	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

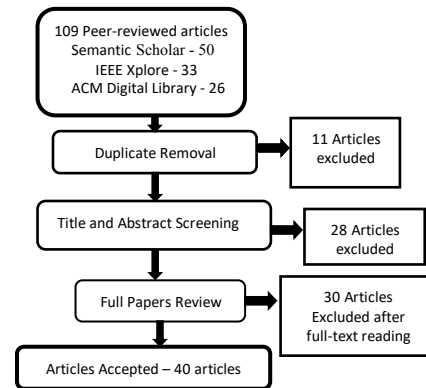


Fig.3. Article Screening Process

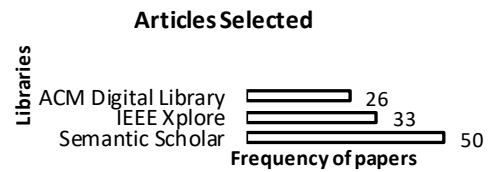


Fig.4. Collected Article distribution

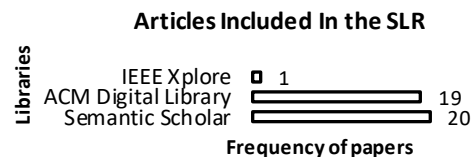


Fig.5. Accepted Papers distribution by Libraries

5. RESULTS

From the reviewed literature, it is clear that BI system implementation CSFs correlate with four distinct organization changes categories, strategy change (33), structural change (49), people-centric change (49), and remedial change (13). (Fig.6).

As detailed on the discussion section, multiple findings can be deduced. For instance, the reviewed literature is broad and does not provide adequate and specific focus on particular dynamics in which the change types affect the BI system implementation CSFs. Thirteen of the reviewed articles discuss management adoption and support, thus indicating the heavy focus in this area. This focus creates a major literature gap on such other elements of structural change as work environment, mergers, and partnerships. In the people-centric changes, there is an apparent research obsession on management adoption and support-oriented CSFs. 13 articles discuss these CSFs, while the other CSFs appear majorly in one article. In strategy change type, the existing literature is overly general and lacks focused analysis, thus calling for more research in this area.

Finally, only 13 CSFs were collected for the remedial change, thus pointing out less literature in this area. Resource and work environments-related CSFs, as well as data quality management and resource expertise, call for further investigations. Though remedial change has no significant contribution to organizational change, it still has some level of impact on BI system implementation.

Overall, all organizational change types heavily affect the BI delivery CSFs, management adoption and support dominate in people-centric, structural, and strategy changes. The rest of the CSFs appear less across the different change types. Business growth will be more likely affected by people-centric changes, while business intelligence will tend to be centered on people over data reliance in the future [39].

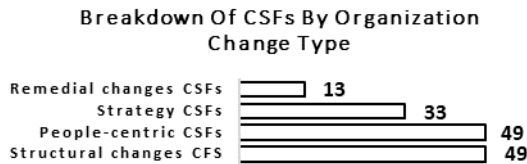


Fig.6. CSF Distribution by Change Type

Due to the fact that the contemporary world is constantly changing and technology is fast evolving, research has to be kept at pace with these rapid changes through continuous analysis of the organizations change types and their correlation with the CSFs to ensure the successful implementation of BI.

6. DISCUSSION

Organizational change directly influences the BI implementation process, thus necessitating the need to understand the impact of the change on the CSFs [26]. Organizational change can potentially lead to success or failure and affects the degree to which the necessary parameters and deliverables are met.

6.1 STRATEGY CHANGE RELATED CSFS

In the contemporary business environment, strategy change is an important practice in management. The goal of strategy change is to transform organizational operations, including policies, goals, tools, and resources [10]. The change impacts an organization’s performance, given that performance is related to organizational goals and objectives. In contrast, the change pushes the people in an organization to realize the goals objectives [27].



Fig.7. Frequencies of Strategy Change Related CSFs

From the review, 33 CSFs related to strategy change that influence the implementation and delivery of BI systems were identified. This was achieved by grouping the CSFs based on their homogeneity. For instance, the data drawn by Fig.7 showed that management adoption and support showed 13 times in the literature, business goals showed 6 times, and organizational processes showed 5 times. The remaining CSFs had less frequency.

Most of the strategy-related CSFs correlate to organizational management, thus, underlining the importance of management support in BI system implementation and delivery (Fig.7). Hence, strong management support in terms of the right skill set and an information-oriented culture is needed in BI system implementation [28].

Essentially, the management is responsible for managing the change effecting the implementation, mainly by ensuring swift adaptation to the change by all the stakeholders [27]. CSFs related to organizational strategies on culture prominently appear in the review, thus showing the importance of organizational culture in BI implementation. The alignment of organizational culture to the value created from such information systems [29]

6.2 PEOPLE-CENTRIC CHANGES RELATED CSFS

Resource-related CSFs dominate in the people-centric changes, thus underscoring the importance of providing resources and users involvement, participation, and satisfaction in BI system implementation. Other important people-centric change-related CSFs are data quality, cost, and culture & management involvement. Human capital's sole responsibility is to manage data in organization systems, and a change affecting them might influence the quality of data and thus the BI implementation CSFs [30]. Also, failing to meet the user's needs results in undesired outcomes in BI system implementation [31], [32]. There is a high correlation between cost, human capital reduction and retention, and people-centric changes. Maintaining, rewarding, and motivating employees is costly [33]. Reducing human capital costs and hiring the best talents is thus a common human resource practice in organizations.

enhanced when people-centric changes are well managed, allowing businesses to develop systems that are not only reliant on data but also centered on people [35]. Resource expertise on availability and acquisition is also part of the people-centric changes [36]. Human resource is thus important for the successful implementation of BI systems [37]. This review extracted 49 people-centric change-related CSFs, as shown in Fig.8. From Fig.8, it is clear that management adoption and support are the most important CSF which has a frequency of 13 while data quality and management, cost, and resources expertise follow with frequency of 12, 7, and 7 respectively.

6.3 STRUCTURAL CHANGES RELATED CSFS

Structural changes are an integral part of business changes as they are key in ensuring that an organization has its competitive advantage, especially in the constantly changing business environment [24]. They are also crucial to improving performance through streamlining business processes [33].

BI system implementation may be influenced by changes in stakeholders' communication structure [17]. Also, improving a business's technical position through structural changes can enhance BI implementation [3]. Structural changes channeled toward building a business's brand identity and reputation can help an organization acquire the resources needed for BI implementation.

This review successfully identified 49 structural change-related CSFs that were all impactful in implementing a BI system. What is noticeable is that the structural changes CSFs are the same as people centric change which indicates how the two types of changes correlate with each other and have similar impact on BI delivery. In addition to the top four CSFs listed for people centric, cost is one of the CSFs and critical to BI implementation as it dictates the timely availability of resources. Finding the correct balance between affordability and quality in implementing a BI system [38]. Fig.8 shows the frequency in which the structural- related CSFs appear in the reviewed literature.

6.4 REMEDIAL CHANGES RELATED CSFS

Remedial changes might negatively or positively affect the BI system implementation [39]. For example, the implementation may be impeded by the internal business disruption caused by competition [40]. However, businesses may be forced to adapt BI systems to march or outshine their competitors [41]. Societal pressure might also negatively influence the BI implementation process [39]. As shown in Fig.9, 13 remedial change-related CSFs were collected, including completion, enterprise reputation, organization performance, and business process.

7. GROUNDS FOR FUTURE RESEARCH

Successful future research calls for developing a research framework to guide future studies. Such specific variables as cost, enterprise reputation, data quality, and technical obsolescence can be picked out and adopted from this review. However, the main highlight is the necessity of further research on the impact of organizational changes on the BI system implementation process. Therefore, it is important to comprehend the broad concepts or constructs in analyzing the impacts on the development of measurable variables for future research in this area. Table.2 provides a snapshot of

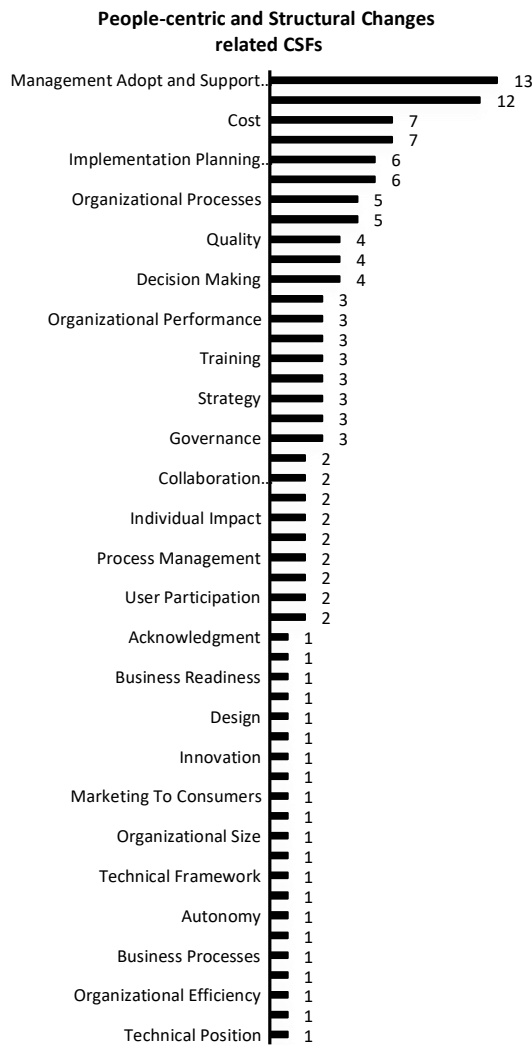


Fig.8. Frequencies of People-Centric and Structural Change Related CSFs Change Related CSFs

While making people-centric changes, organizations must mitigate the impacts of changes that come with the implementation of technological systems [34]. The development of successful self-service analytics systems is

independent and dependent potential constructs that can be used in future studies.

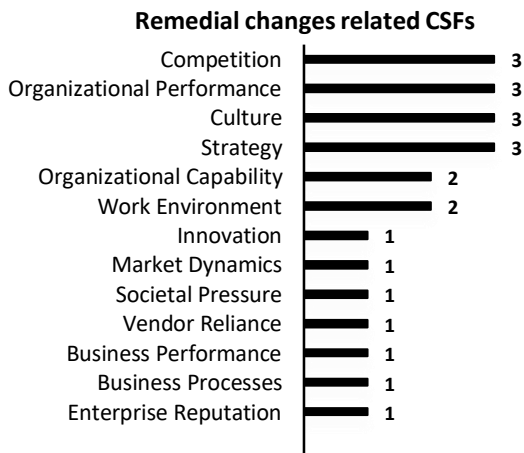


Fig. 9. Frequency of Remedial Change Related CSF

7.1 CHALLENGES

An inadequate focus has been put on how organizational change affects the BI systems delivery. Previous research has primarily focused on BI implementation CSFs. Despite this, some CSFs have been covered only once, while some have been covered more in the literature. Also, existing literature on organizational change impacts BI systems CSFs is generic. Another thing is the biases in some of the CSFs encountered in the review. Furthermore, though there has been an increase in the interest in the importance of organizational changes in BI system implementation, there is not enough empirical research on the importance of CSFs in delivering BI systems. Lastly, it is challenging to build systems needed to provide integrated groups of users and data crossing technologies.

7.2 OPPORTUNITIES

This SLR identifies several opportunities for future research. First is the research on the impacts of different organizational changes on the delivery of BI systems and the related CSFs that focus on management adoption and support. Secondly, research can be done to understand different dimensions of organizational change, including resource shift, departmental change, partnership, merger, and their impact on BI delivery CSFs.

Another area is the impact of remedial change on BI implementation CSFs and the work environment as a dimension that affects all the change types based on its related CSFs in BI implementation.

Finally, organizations also have the opportunity to build their competitive advantage and achieve business growth by gaining a deeper understanding of organizational change and CSFs in BI system implementation. There is also an opportunity for several types of qualitative and quantitative research on the topic such as use cases study or survey study using the constructs and variables in Table.2.

Another opportunity that will be driven by this SLR is to define the hypothesis for future research such as a survey research to understand the relationship between the CSFs and the organizations changes. The hypothesis development diagram in fig.10 will be used in future studies to define the hypothesis and use them for further studies. Some of the hypothesis that we are looking at are:

- Strategy change has impact on management adoption and support of BI implementation and delivery
- Structural changes has impact on Organization Processes and therefore affect BI delivery and implementation
- People-centric change has impact on training and therefore impact BI delivery and implementation
- Remedial changes such as Competition change has an impact on business operation and therefore it impacts projects such as BI delivery and Implementation

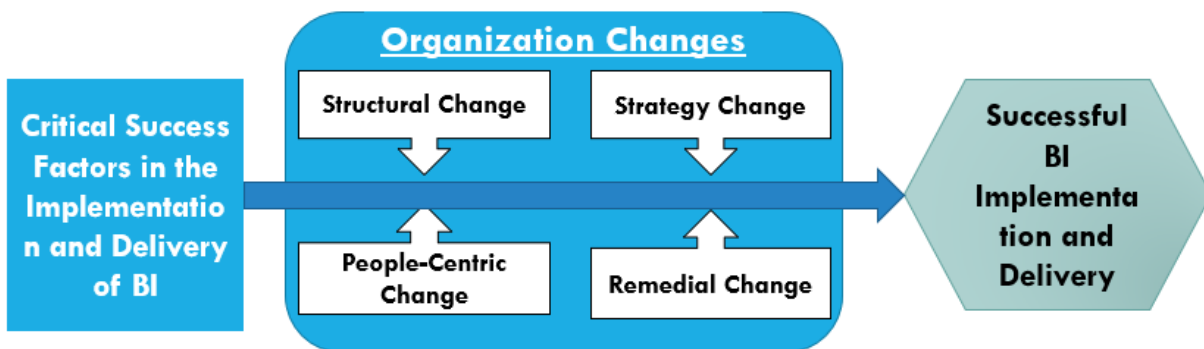


Fig. 10. Hypothesis Development Diagram

Table 2: Constructs and Variables for Future Research

Research dimension	Latent Construct	Manifest construct	Independent variable	Dependent variable
Strategy change	Organizational commitment	Organizational investment	Organization as a driver of successful implementation and delivery of BI system	Impact of organizational commitment in implementation and delivery of BI system
				What is the role of business processes in ensuring the successful implementation of BI systems?
People-centric change	Employee motivation	User needs	People and BI systems	Impact of people in the implementation of BI systems
	User satisfaction	Employee retention	Labor capital	Impact of the labor on the implementation of BI systems
	Data quality	Data Acceptance	Customers	The effect on customers by the implementation of BI systems
		Actionable insights	Management	What is the impact of other stakeholders on the implementation of BI systems
		Staff attrition and retention	Other stakeholders	
Structural changes	Communication strategy	Business processes	Merger	What is the impact of mergers on future BI system delivery?
	Data quality delivery	Business performance	Data quality	How do previous actionable insights driven by data shape/forecast future needs for BI systems
	Business astuteness	Actionable insights	Structure	What is the impact of departmental shifts on future BI system delivery?
		Business investments	Business performance	What is the effect of business investments driven by structural change on the successful implementation and delivery of BI systems?
Remedial change	Societal pressures	Competition	External factors influencing implementation of BI systems	How do Pandemics impact the process of delivering BI systems?
	Enterprise reputation	Organizational capability	Societal	What is the impact of enterprise reputation on the delivery of BI systems?
	Culture		Business environment	How do societal pressures influence the process of delivering BI systems?
			Vendor	How does vendor reliance affect the delivery of BI systems?
			Competition	How does competition affect the successful delivery of BI systems?

8. CONCLUSION

This study has successfully presented evidence-based findings on the interaction between organizational changes and BI implementation CSFs. Strategy, people-centric, structural, and remedial changes and their associated CSFs were analyzed. The results of the SLR identifies the impact of structural, people-centric, and strategy changes in implementing BI systems. The findings of the SLR point out the need for more research on the

remedial change-related CSFs, especially in consideration of contemporary changes in the business. The adoption and support of BI systems by organizations’ managements appear to be the most influential CSF across all the organizational change types. The existence of a research gap on the effect of organizational changes on the BI system implementation CSFs is demonstrated in the SLR. Thus, several organizational changes impact the CSFs of BI implementation and system delivery.

9. REFERENCES

[1] Hejazi, A., Abdolvand, N., & Harandi, S. R. (2016). Assessing the organizational readiness for implementing BI systems. *International Journal of Information Technology Converge and Services*, 6(1), 13-22.

[2] Yusof, Z. M., Ab Aziz, M. J., Shatat, A. S. A., & Saleh, A. (2013). The relationship between user engagement and business intelligence system effectiveness. *World Applied Sciences Journal*, 28(7), 978-984.

[3] Jahantigh, F. F., Habibi, A., & Sarafrazi, A. (2019). A conceptual framework for business intelligence critical success factors. *International Journal of Business Information Systems*, 30(1), 109-123.

[4] Ján, D., & Veronika, T. (2017). Examination of factors affecting the implementation of organizational changes. *Journal of Competitiveness*, 9(4), 5.

[5] Jalil, N.A. and Hwang, H.J., 2019. Technological-centric business intelligence: Critical success factors. *International Journal of Innovation, Creativity, and Change*, 5(2), p.1499.

[6] Hanelt, A., Bohnsack, R., Marz, D. and Antunes Marante, C., 2021. A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), pp.1159-1197.

[7] Shelygov, A.V., Filonova, A.S. and Gorlova, O.E., 2019. Basic models of managing organizational changes in modern companies. *Экономика и предпринимательство*, (5), pp.1297-1302.

[8] Skogstad, A., Matthiesen, S.B. and Einarsen, S., 2007. Organizational changes: a precursor of bullying at work?. *International Journal of Organization Theory & Behavior*.

[9] Singh, S. K. (2018). Managing organizational change in emerging markets. *Journal of Organizational Change Management*.

[10] Stouten, J., Rousseau, D.M. and De Cremer, D., 2018. Successful organizational change: Integrating the management practice and scholarly literatures. *Academy of Management Annals*, 12(2), pp.752-788. *Systems*, 13, 177-195. Retrieved from <https://core.ac.uk/download/pdf/301376512.pdf>

[11] Ain, N., Vaia, G., DeLone, W.H. and Waheed, M., 2019. Two decades of research on business intelligence system adoption, utilisation and success—A systematic literature review. *Decision Support Systems*, 125, p.113113.

- [12] Gaardboe, R. and Jonasen, T.S., 2018. Business intelligence success factors: a literature review. *Journal of Information Technology Man Yusof agement*, 29(1), pp.1-15.
- [13] Fernández-Caramés, T.M. and Fraga-Lamas, P., 2018. A review on human-centred IoT-connected smart labels for the industry 4.0. *IEEE access*, 6, pp.25939-25957.
- [14] Yeoh, W., Koronios, A. and Gao, J., 2008. Managing the implementation of business intelligence systems: a critical success factors framework. *International Journal of Enterprise Information Systems (IIS)*, 4(3), pp.79-94.
- [15] Audzeyeva, A., & Hudson, R. (2016). How to get the most from a business intelligence application during the post-implementation phase? Deep structure transformation at a UK retail bank. *European Journal of Information Systems*, 25(1), 29-46.
- [16] Ramakrishnan, T., Khuntia, J., Kathuria, A. and Saldanha, TJ, 2020. An integrated model of business intelligence & analytics capabilities and organizational performance. *Communications of the Association for Information Systems*, 46(1), p.31.
- [17] Nortje, M. A., & Grobbelaar, S. S. (2020, June). A framework for the implementation of artificial intelligence in business enterprises: a readiness model. In *2020 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC)* (pp. 1-10). IEEE.
- [18] Caseiro, N., & Coelho, A. (2018). Business intelligence and competitiveness: the mediating role of entrepreneurial orientation. *Competitiveness Review: An International Business Journal*, 28(2), 213-226.
- [19] Anjariny, A. H., Zeki, A. M., & Hussin, H. (2012, November). Assessing organizational readiness toward business intelligence systems: a proposed hypothesised model. In *2012 International Conference on Advanced Computer Science Applications and Technologies (ACSAT)* (pp. 213-218). IEEE.
- [20] Gee, J. (2011). "There is nothing permanent except change." Retrieved from <https://news.illinoisstate.edu/2011/05/there-is-nothing-permanent-except-change/>
- [21] English, V. & Hoffman, M. (2018). Business intelligence as a source of competitive advantage in SMEs: A systematic review.
- [22] Eder, F., & Koch, S. (2018). Critical success factors for the implementation of business intelligence systems. *International Journal of Business Intelligence Research (IJBIR)*, 9(2), 27-46.
- [23] Ravasan, A. Z., & Savoji, S. R. (2019). Business Intelligence Implementation Critical Success Factors. In *Applying Business Intelligence Initiatives in Healthcare and Organizational Settings* (pp. 112-129). IGI Global.
- [24] Ranjbar Card, M., & Hatami, Z. (2020). Critical Success Factors of BI Project Implementation: An Implementation Methodology Perspectives. *Interdisciplinary Journal of Information, Knowledge & Management*, 15.
- [25] Kitchenham, B., & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering.
- [26] Vallurupalli, V. and Bose, I., 2018. Business intelligence for performance measurement: A case-based analysis. *Decision Support Systems*, 111, pp.72-85.
- [27] Zou, Y., & Lee, S. (2008). The impacts of change management practices on project change cost performance. *Construction Management and Economics*, 26(4), 387-393. doi: 10.1080/01446190801918714
- [28] Foshay, N., & Kuziemy, C. (2014). Towards an implementation framework for business intelligence in healthcare. *International Journal of Information Management*, 34(1), 20-27.
- [29] Ali, M. S., & Khan, S. (2019). Organizational capability readiness towards business intelligence implementation. *International Journal of Business Intelligence Research (IJBIR)*, 10(1), 42-58.
- [30] Mungree, D., Rudra, A., & Morien, D. (2013). A framework for understanding the critical success factors of enterprise business intelligence implementation.
- [31] Harrison, R., Parker, A., Brosas, G., Chiong, R., & Tian, X. (2015). The role of technology in the management and exploitation of internal business intelligence. *Journal of Systems and Information Technology*.
- [32] Rostami, N. A. (2014). Integration of Business Intelligence and Knowledge Management—A literature review. *Journal of Intelligence Studies in Business*, 4(2).
- [33] Sayedi, M., Ghafari, P., & Hojati, E. (2017, December). Analysis of the Effects and Factors of Implementing Cloud Business Intelligence in Banking Systems. In *Proceedings of the 10th International Conference on Utility and Cloud Computing* (pp. 197-198).
- [34] Divatia, A. S., Tikoria, J., & Lakdawala, S. (2021). Emerging trends and impact of business intelligence & analytics in organizations : Case studies from India. *Business Information Review*, 38(1), 40-52.
- [35] Jantunen, N. (2019). Success factors for agile self-service analytics.
- [36] Russ, H., Kuilboer, J. P., & Ashrafi, N. (2016). Business Intelligence in the Music Industry Value Chain: Ensuring Sustainability in a Turbulent Business Environment. In *Business Intelligence: Concepts, Methodologies, Tools, and Applications* (pp. 1557-1571). IGI Global.
- [37] Tohidi, H. (2011). Human Resources Management main role in Information Technology project management. *Procedia Computer Science*, 3, 925-929.
- [38] Olbrich, S., Poepplbus, J., & Niehaves, B. (2011). BI systems managers' perception of critical contextual success factors: A Delphi study.
- [39] Khan, A. M. A., Amin, N., & Lambrou, N. (2010). Drivers and barriers to business intelligence adoption: A case of Pakistan. In *Proceedings of the European and Mediterranean Conference on Information Systems (EMC 2010), Abu Dhabi, UAE* (pp. 1-23).
- [40] Gonzales, M. L., Mukhopadhyay, S., Bagchi, K., & Gemoets, L. (2019). Factors influencing business intelligence-enabled success in global companies: an empirical study. *International Journal of Business Information Systems*, 30(3), 324-347.
- [41] Hung, S. Y., Huang, Y. W., Lin, C. C., Chen, K. C., & Tarn, J. M. (2016). Factors influencing business intelligence systems implementation success in the enterprises. In *2016 Pacific Asia Conference on Information Systems*. (pp. 297-309). AISel. <http://aisel.aisnet.org/pacis2016/297>