

Impact of Management Support on Business Intelligence Adoption: Illustrative Case Study Testing Different Managerial Strategies

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Abstract

Business intelligence (BI) is a crucial tool for organizations to gain a competitive advantage on the market. BI encompasses collection, analysis and utilization of data to enhance decision-making and drive organizational innovation. The system quality or management support most often influences the success of BI projects. The present article aims to verify the importance of management support in implementing BI solutions. The research was conducted in a global shipping company. The research is based on an illustrative case study in which four managerial tactics were tested. A different form of managerial support was applied to the four newly introduced reports provided by BI tools. The results confirm the importance of management support but also show the impact of other factors influencing user behaviour. Keeping the possibility of using the original data sources played a significant role. Thus, the habit effect manifested itself, as it strongly accompanies all efforts for process changes. So far, business intelligence tools are becoming a part of decision-making processes on an operational basis, but management support is still essential at all job levels.

Keywords

Business intelligence; BI; Critical success factors; CFS; Illustrative case study; Management support; Czech Republic.

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1 Introduction

In recent years, business intelligence (BI) tools have found their place in processing and using corporate data. Implementation of these tools has become standard across industries. In the literature, it is possible to find an abundance of publications devoted exclusively to the theory and BI systems from the point of view of their successful software implementation (Laberge, 2012; Lans, 2012; Moss & Atre, 2003; Novotný et al., 2005; Sabherwal & Becerra-Fernandez, 2013). The essential principles are always described almost identically, and the development and management of these types of projects have been described.

Therefore, the software background and the reasons for introducing BI in the company have been designated preferably. The subsequent correct use and management of these tools, emphasising including outputs in the decision-making process, have been addressed somewhat marginally in these publications and studies.

However, the inclusion of BI in managerial decision-making should represent a logical outcome of implementing these methods in the organization. The whole process starts with a well-set data model infrastructure and data preparation, followed by actual data analysis, integration, data conversion into knowledge, and finally, actual use of the acquired knowledge (Surma, 2011). Eidizadeh et al. (2017) found that BI has a significant and positive impact precisely on knowledge sharing, organizational innovation and gaining a competitive advantage. This suggests that BI enables organizations to make use of their knowledge assets and drive innovation, ultimately leading to a competitive edge (Eidizadeh et al., 2017).

To fully harness the profits of BI, it is crucial for management to support continuously all activities related to BI, namely knowledge management, data analysis, data warehousing and data mining (Shapouri & Najjar, 2020). According to Bordeleau et al. (2020), organizations must also invest in fostering a company culture that embraces data-driven decision-making (Bordeleau et al., 2020).

Moreover, utilization of BI systems by management decision-makers has been shown to improve service efficiency. Organizations can make data-driven decisions that optimize resource allocation and enhance service delivery (Gomwe et al., 2022). In addition to its impact on internal processes, BI can also contribute to solving business problems and promoting business growth. Organizations can increase their production and overall performance (Qhal & Mohammed, 2022).

Correspondingly, the most cited theories dealing with the adoption of technological innovations agree that management support is one of the critical success factors (CSFs) of BI projects. According to the individual perception of the meaning of this term, authors talk about service quality (Delone & McLean, 2003), perception of external control (Venkatesh & Bala, 2008) or facilitating conditions (Blut et al., 2022). Theoretical research hereinafter ends with a summary of the most frequently mentioned success factors when implementing BI built on 43 research studies. The overview shows that, after system quality, BI users consider management support to be most essential (Gaardboe & Svarre, 2018).

Overall, management support is a critical success factor for BI projects, as it provides the necessary leadership, resources, direction and advocacy needed to drive successful implementation and adoption throughout the organization (Ermakova et al., 2021; Gomwe et al., 2022; Walters et al., 2023).

By securing strong management support, organizations can increase the likelihood of success and maximize the value of their investments in BI and analytics (Chen & Lin, 2021). The role of managers in preventing the failure of business intelligence projects is thus to ensure sufficient communication between IT specialists and end users (the cause of almost 75% of failure) and to ensure appropriate skills among dedicated employees (Richards et al., 2019).

Due to their considerable advantages, BI tools are also used in logistics. They serve to enhance operational efficiency, decision-making and overall performance (Grabińska & Ziora, 2019). Specifically, BI is used in the following areas within logistics: BI is embedded in products, processes and logistics infrastructure,

contributing to improved supply chain performance within the context of Industry 4.0 (Fatorachian & Kazemi, 2021; Kaur, 2021).

BI tools enable facilitated inventory management and transportation planning. BI supports logistics coordination through inventory management and transportation planning, particularly in the context of third-party logistics (3PL) (Kmieciak, 2022). Furthermore, BI contributes to the development of intelligent logistics systems, enhancing customer involvement and experience (McFarlane et al., 2016).

The presented illustrative case study was conducted in a logistics company providing delivery of small and large shipments worldwide. Case studies, in general, play a crucial role in understanding and improving logistics operations. They provide real-world examples that can be used to adapt general concepts and best practices to specific needs (Brzezinski, 2022). In this article, an illustrative case study method was applied to verify the importance of management support when securing a successful adoption of business intelligence tools. Using a research case study as a qualitative tool appears to be an appropriate choice, given that it is the pilot test of the importance of managerial support in the selected process (Štrach, 2007).

The article aims to verify the importance of management support in implementing BI projects. The experiments were carried out in the Czech Republic. The company transports hundreds of thousands of shipments annually, which are transported using a hub-and-spoke system. Therefore, the optimal use of individual transport points represents a key parameter in evaluating the efficiency of the utilization of a given hub. In one of these nodes, four new reports generated using BI tools were introduced to facilitate decision-making processes at the operational level (occupancy, distribution of shipments, efficient handling of shipments). The importance of management support in implementing these reports was thus pilot-tested using an illustrative case study to verify the following research questions:

RQ1: Does management support significantly affect the use of BI outputs?

RQ2: How does retaining other options for tracking the reported data affect the rate of use of BI outputs?

To find answers to the research questions, two reports were communicated and presented to the employees in detail; two reports, on the other hand, were only briefly introduced without further support. Another evaluation criterion was the (non)existence of other options for obtaining the monitored data. Again, for half of the reports, it was possible to find the required information elsewhere (in other systems, the original version was retained). For two projects, these options were completely disabled. Therefore, the study's primary purpose is to present the optimal solution for implementing BI outputs in connection with management support and the coexistence of BI reports with previously used information sources.

2 Literature Review

The literature review presents the perception of management support as a critical factor in adopting BI across the most cited theories and studies. Delone and McLean (2003) included management support in their information systems success model already in 2003. They added combined support services from management under the term “service quality”. The authors defined service quality as the overall support for service operation. This support can be provided by the IT department, a completely new organizational unit, or offered directly by the service provider. Nowadays, users are regarded as customers. The authors therefore pointed out that poor user support can lead to the loss of customers and, thus, sales (Delone & McLean, 2003).

In one of the latest studies, Blut et al. (2022) engaged in an in-depth analysis of the validity of the UTAUT – one of the most used theories dealing with successful technology adoption. The unified theory of acceptance and use of technology (UTAUT) was proposed as a combination of eight earlier theories dealing with acceptance and motivation to adopt technology to create a unified theory (Venkatesh et al.,

2003). Blut's results obtained by an extensive meta-analysis following 1935 studies, publications or contributions that applied the UTAUT theory proved that the current concepts of UTAUT and UTAUT 2 show certain limitations. The study results introduced four new variables: technology compatibility, user education, personal innovativeness and technology costs. According to the study's conclusions, these explain the substantial difference and gap in the intention and use of technology, which the previous predictors could not capture (Blut et al., 2022).

Although the theory has undergone a turbulent development over more than twenty years, authors still consider management support through facilitating conditions to be one of the key factors influencing the successful adoption of technological innovations. Enabling conditions refer to the degree to which individuals believe that the governance and technical infrastructure to support the system or innovation being implemented exists and is available. Therefore, facilitating conditions are closely related to the support provided and available resources necessary for using a technology (Ambarwati et al., 2020). Lack of assistance, insufficient timely support, incomplete information and limited resources can then prevent individuals from adopting new technologies (Kamaghe et al., 2020).

Therefore, critical success factors (CSFs) are the key areas on which an organization must focus to achieve its objectives and ensure the success of a BI project. However, despite the vibrant BI market, the CSFs for implementing BI systems still need to be better understood (Yeoh et al., 2008).

The relationship between the decision-making environment and the advantages of BI was already presented more than ten years ago by Isik et al. (2012). The study results emphasized the necessity of incorporating flexibility into decision-making processes, even within the framework of structured operational decisions, which usually lack the possibility of flexible response. According to the obtained outputs, it is necessary to pay increased attention to the technical and organizational possibilities of BI tools. The authors highlighted the importance of providing users with simple access to BI tools and ensuring smooth integration with other systems in use (Isik et al., 2012).

Gaardboe and Svarre (2018) presented a study examining research devoted to implementing BI in business processes. It offered a comprehensive overview of critical factors. To identify specific success factors, the authors applied the framework used to analyse the success of information system implementation (Gaardboe & Svarre, 2018). The results were based on their focus and divided, according to the framework defined by Petter et al. (2013), into the following four groups:

- **Tasks:** factors describing the characteristics of the activity itself, such as complexity, compatibility and significance. BI is used to automate or inform such tasks.
- **People:** includes social characteristics and characteristics of users. The most frequently observed change is the user experience with technologies.
- **Structure:** organizational solution contains factors related to the nature of the project (e.g., level of project management, user involvement) and the structure of the company (e.g., management support, vision and strategy setting, type of organizational structure or process settings).
- **Technology:** includes variables referring primarily to the quality of the system and available information, as well as to benefits resulting from the introduction of BI.

After reviewing the available materials, the authors included 43 articles in the study, in which 34 factors related to BI success were identified. The most frequently identified critical success factors (CSFs) were system quality, management support and net benefits (Gaardboe & Svarre, 2018). Factors occurring with a frequency of 5 or more are summarized in Table 1.

Table 1. Most mentioned factors of BI success according to studies from 2008 to 2017. Source: Own processing based on (Gaardboe & Svarre, 2018).

Factor	Category	Frequency (out of 43)
System quality	Technology	32
Management support	Structure	20
Net benefits	Technology	20
Data quality	Technology	19
Usage	Technology	14
Project management	Structure	13
User engagement	Structure	11
User satisfaction	Technology	9
Vision and strategy	Structure	8
Process management	Structure	8
Service quality	Technology	8
External environment	Structure	7
IT management	Structure	6
Competency development	Structure	6
Interaction with 3 rd parties	Structure	6
Supplier expertise	Structure	6
Task compatibility	Tasks	5
Technological experience	People	5
IT infrastructure	Structure	5

Table 2 presents the sum of frequencies of all the factors related to individual categories.

Table 2. Total frequencies of most mentioned success factors by category. Source: Own processing based on (Gaardboe & Svarre, 2018).

Category	Sum
People	14
Structure	113
Technology	104
Tasks	5

Overall, the CSFs for implementing BI systems include factors such as top management support, user involvement, data quality, training, decision-making processes and system capabilities. These factors are essential for organizations to make use of the full potential of BI and drive organizational effectiveness and competitive advantage.

3 Research Methods

The following chapter presents the importance and use of case studies not only in logistics and also presents the design of the particular case study applied in this article.

3.1 Case study

A case study can offer a comprehensive view of a particular unit (individual, small group, organisation, community or even nation) within the studied topic. In other situations, it can also be used as a basis for future application of principles and guidance from a pilot study (Burkholder et al., 2020). Furthermore, logistics case studies contribute to the literature and industry with solution suggestions, thereby improving the long-term sustainability of the logistics sector (Taş, 2023). By conducting case studies, logistics service providers can compare their approaches and learn from best practices in reporting environmental and social performance, ultimately leading to better supply chain visibility and benefits (Krstev, 2022).

However, researchers must make a critical decision whether to carry out a case study, consisting of two major components: defining the nature of the case and its limitations. A clear and comprehensive definition of the case is an issue at the beginning. Limitations relate to what is covered by the case regarding time, structure or additional points of view (Yin, 2018).

Takahashi and Araujo (2019) also disputed some of the criticisms that identified a given sample size. A tiny sample of units examined are the subject of a case study. The study aims to deepen theoretical and empirical knowledge by examining the issue in depth, not width. The approach and ideas which it has adopted may also be challenged and questioned. This often arises because of the complex and extensive character of the phenomenon investigated, which is not due to any internal constraints on the chosen method (Takahashi & Araujo, 2019).

3.2 Research design: Illustrative case study

Conducting an illustrative case study involves a systematic process of gathering, analysing and presenting detailed information about a particular case, situation, phenomenon or individual (Yin, 2018). Hereinafter, the general steps needed to conduct an illustrative case study presented in this article are described briefly (theoretical background according to Annette & Kelly, 2019; Hayes et al., 2015):

Step 1: Definition of objectives

In the first phase, specific purposes are determined that illustrate or explore selected cases, such as key events, processes, stakeholders involved, challenges faced or outcomes achieved.

The presented literature review demonstrates the importance of management support in the adoption of technological innovations in general, as well as specifically in business intelligence projects. Case studies are generally built on research questions beginning “why” or “how”. This article uses defined research questions to verify the impact of supporting managerial activities on a specific BI implementation case in a selected company. BI tools are utilized in the early stages in this company. Therefore, it was possible to test the effectiveness of managerial support within the framework of introducing four new reports.

Step 2: Case selection

It is crucial to choose a case that is considered typical, representative or particularly informative for illustrating a specific concept, theory or phenomenon.

The focal point of this study was four distinct analytical reports, each tailored to specific users within a single organisation. These reports served as critical tools in the weekly workflow of their designated user groups. To assess the impact of the management approach and data accessibility on report usage, we analysed 20 consecutive weeks following the implementation. These reports were strategically

implemented utilizing two contrasting management approaches, resulting in two reports for each approach.

Management support was identified as a critical factor when implementing BI (see the literature review). Therefore, one managerial strategy was built on a **supportive**, proactive approach from the management. On the contrary, two reports were not specifically introduced and there was no special training. So, the **lax** approach can be characterised by a lack of management support. Furthermore, within each approach, one report provided an alternative means of accessing the required data, while the other report represented the sole avenue for obtaining the desired data. An overview of the four combined tactics is below:

- **Lax approach with alternative data access:** Under this management approach, one of the analytical reports was implemented with minimal management involvement, providing users with limited instructions and a link to PowerBI. Users in this category could access the required data through alternative sources outside of PowerBI.
- **Lax approach as the sole data option:** In a parallel instance of the lax approach, another analytical report was introduced with similarly limited management involvement. However, in this case, users were constrained to rely solely on PowerBI as the exclusive means to procure the necessary data for analysis.
- **Supportive approach with alternative data:** Within the framework of the supportive management approach, one analytical report was meticulously implemented with proactive management support, including workshops and training. Users could explore alternative data sources outside of PowerBI for their analytical needs.
- **Supportive approach as the sole data option:** Concurrently, another analytical report was introduced with the same supportive management approach, offering structured training and guidance. However, in this instance, users were encouraged to utilize PowerBI as the exclusive and preferred method for obtaining the essential data required for their analysis.

This research configuration allows a comprehensive examination of the interplay between management approaches and data accessibility, offering insights into the differential impacts of these factors on the utilisation and effectiveness of PowerBI as a business intelligence analytics tool within a single organisation.

The categorisation of reports according to the mentioned criteria, including the number of target users, is summarised in Table 3.

Table 3. Categorisation of reports.

Report	Implementation approach	Data availability	Number of users
A	lax	alternative access	14
B	supportive	alternative access	9
C	supportive	sole data option	10
D	lax	sole data option	10

Step 3: Data collection

Relevant data and information about the case can be gathered from various sources, such as interviews, observations, documents, archival records and secondary sources.

Data collection efforts used in this article centred on gathering statistics related to the weekly usage of each of the four reports. We recorded the number of unique users accessing each report during the 20

weeks. Notably, the targeted user groups for these reports were identified as individuals who required access to the data contained within them as an integral part of their weekly work responsibilities.

Step 4: Data analysis and reporting of results

The next step involves the analysis and interpretation the data to draw insights, lessons and conclusions from the case. It is essential to relate the findings back to the research objectives and theoretical framework and consider the implications of the case for theory, practice or future research.

To gauge the extent of report utilization, we calculated the average percentual usage for each report according to Equation (1). This calculation involved determining the percentage of actual unique users (AU) accessing a report in a given week relative to the total number of targeted users (TU) for that report. The 20-week dataset established a robust average utilization rate (u) for each report.

$$u = \left(\sum_{i=1}^{20} AU / \sum_{i=1}^{20} TU \right) * 100 \quad (1)$$

With the average percentual usage data in hand, we conducted a comparative analysis. Our primary objective was to ascertain whether the type of management approach (lax vs. supportive) and data access options (alternative vs. sole data option) exerted discernible influences on report usage. By comparing the utilization patterns across the four reports, we aimed to identify any notable disparities that could be attributed to these factors.

The average absolute variance from target (AAVT) is computed using Equation (2) as a quantitative metric to facilitate the discernment of pivotal factors contributing to discrepancies in data. This measure serves as a valuable tool for identifying and assessing the significance of various factors, particularly those associated with different implementation approaches.

$$AAVT = \frac{\sum_{i=1}^{20} (TU - AU)}{20} \quad (2)$$

Step 5: Conclusions and reflection of limitations

Drawing conclusions is based on the analysis and interpretation of the case study findings. In the final phase, it is required to sum up the main insights, lessons learned and implications for theory, practice or policy. Last but not least, authors should reflect on the limitations of the illustrative case study, such as potential biases, limitations of data sources or constraints on generalizability.

The outcomes achieved are briefly described in the Results chapter. A separate chapter then further discusses the resulting outputs concerning the defined research questions. Finally, the main conclusions are summarized and the research limitations are presented.

4 Results

Results of our research are summarized in Table 4.

Table 4. Calculated utilisation of reports.

Week	Report A Lax/alternative access		Report B Supportive/alternative access		Report C Supportive/sole data option		Report D Lax/sole data option	
	AU	u	AU	u	AU	u	AU	u
1	8	57.14%	6	66.67%	10	100.00%	9	90.00%
2	12	85.71%	7	77.78%	9	90.00%	8	80.00%
3	10	71.43%	8	88.89%	8	80.00%	9	90.00%
4	7	50.00%	8	88.89%	9	90.00%	7	70.00%
5	13	92.86%	7	77.78%	9	90.00%	10	100.00%
6	14	100.00%	6	66.67%	8	80.00%	6	60.00%
7	7	50.00%	8	88.89%	9	90.00%	8	80.00%
8	9	64.29%	8	88.89%	10	100.00%	8	80.00%
9	12	85.71%	6	66.67%	8	80.00%	9	90.00%
10	14	100.00%	7	77.78%	7	70.00%	9	90.00%
11	5	35.71%	8	88.89%	9	90.00%	7	70.00%
12	12	85.71%	7	77.78%	10	100.00%	9	90.00%
13	13	92.86%	7	77.78%	9	90.00%	9	90.00%
14	11	78.57%	8	88.89%	8	80.00%	8	80.00%
15	9	64.29%	6	66.67%	7	70.00%	7	70.00%
16	10	71.43%	8	88.89%	9	90.00%	8	80.00%
17	8	57.14%	5	55.56%	10	100.00%	9	90.00%
18	14	100.00%	8	88.89%	9	90.00%	9	90.00%
19	12	85.71%	6	66.67%	9	90.00%	8	80.00%
20	10	71.43%	7	77.78%	8	80.00%	7	70.00%
Avg.	10.5	75.00%	7.05	78.34%	8.75	87.50%	8.2	82.00%

Notes: AU = actual unique users; u = average utilization rate.

Reports A and D were implemented with a lax approach, where minimal management involvement and guidance were provided. Despite this approach, Report A has a lower average utilization percentage (75.00%) than Report D (82.00%). This fact suggests that the lax approach may have varying effects on report usage and other factors, such as data availability, could also play a role.

Reports B and C were implemented with a supportive approach involving proactive management support and training. Report B has a slightly lower average utilization percentage (78.34%) than Report C (87.50%). While the supportive approach generally affects report usage positively, other factors such as data availability may influence differences in utilization.

Both Reports A and B offered alternative data access options. Despite the similar implementation approach (alternative data access), Report B (supportive) has a slightly higher average utilization percentage (78.34%) compared to Report A (lax support) at 75.00%. This fact indicates that while alternative data access is available, the supportive approach may have a slight advantage in terms of utilization.

Reports C and D were the sole data options for their respective users. Report C (supportive with sole data option) exhibits a notably higher average utilization percentage (87.50%) compared to Report D (lax with sole data option) at 82.00%. Having a report as the sole data option may lead to higher utilization, particularly with a supportive approach.

The following two graphs show the effect of both approaches over time. As can be seen from Figure 1, reports presented to employees actively and with the support of management showed more continuous use without significant fluctuations.

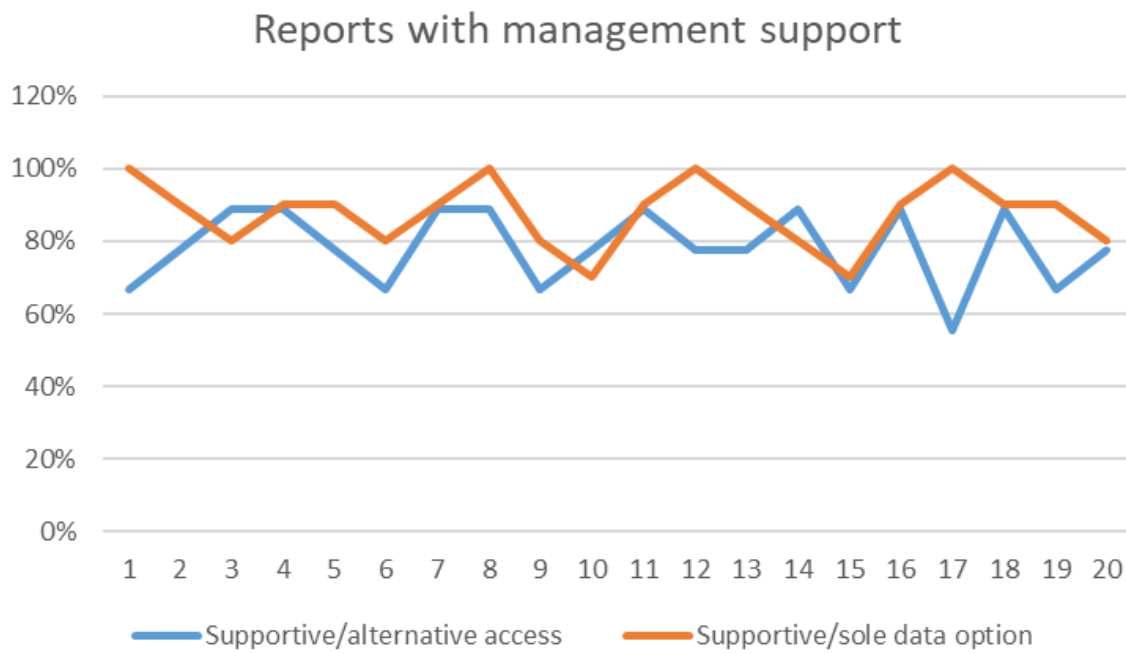


Figure 1. Usage of reports supported by management over time.

On the contrary, the curves in Figure 2, which represent the use of reports with lax support, illustrate the fluctuations in applying these reports between particular periods.

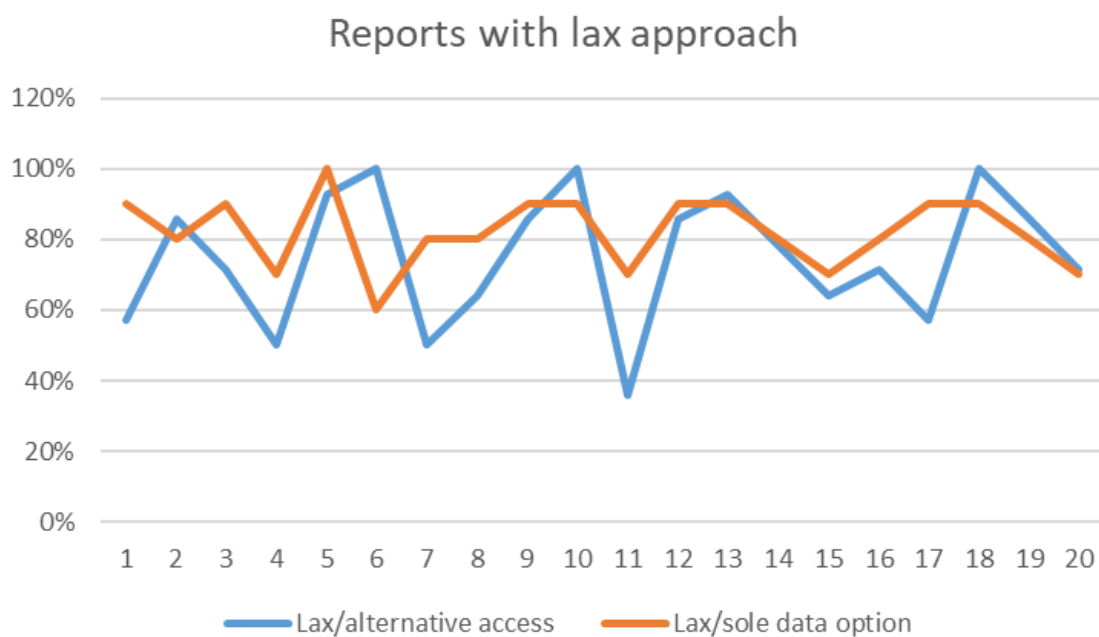


Figure 2. Usage of reports with limited support over time.

The most significant fluctuations in the usage across all reports can be seen in the blue curve in Figure 2. It illustrates the use of Report A over time. Not only was the lowest average utilization rate measured in this illustrative case study, but utilization over time also showed the most distinctive variance.

Table 5. Average absolute variance from target of implementation approaches.

	Alternative access	Sole data option	AAVT
Lax	3.35	1.8	2.575
Supportive	1.95	1.25	1.6
AAVT	2.65	1.525	2.0875

Note: AAVT = average absolute variance from target.

Table 5 presents the average absolute variance from the target user count, categorized by different implementation approaches. Notably, the outcomes indicate that reports configured as sole data options consistently exhibit the lowest variance from the intended user count. While the supportive approach demonstrates comparable advantages in average absolute variance from the target, it becomes evident that the sole data option exerts a more substantial influence on report utilization. The authors posit that managerial support often follows a non-uniform distribution, being targeted at specific intervals rather than maintained continuously throughout the implementation phase. Conversely, the sole data option manifests as a more definitive and consistent determinant over time.

5 Discussion

If we return to the research questions posed, it can be stated that the illustrative case study provided the requested answers. The first RQ dealt with one of the critical factors for the successful implementation of BI tools, namely management support:

RQ1: Does management support significantly affect the use of BI outputs?

For reports where management support was provided through workshops or training (B and C), a higher use rate was recorded than for reports with little management support (A and D). Thus, active support from the management has a positive effect on user behaviour. The synthesis of the above-mentioned references and outputs of the illustrative case study highlights the importance of BI in supporting management decision-making and gaining a competitive advantage. Using BI tools, organizations can develop knowledge sharing, drive innovation, improve operational processes and solve business problems (Chen & Lin, 2021).

However, it must be noted that it is always necessary to consider other factors or the context when introducing new data presentation methods. In this study, the influence of soft (the original possibilities of obtaining data were retained) or hard (the original source of information was removed) implementation of new reports was investigated with the second research question:

RQ2: How does retaining other options for tracking the reported data affect the rate of use of BI outputs?

At this point, the utilization rate was positively influenced by the strict inclusion of newly introduced reports. If the users also had the original data sources available, the utilization rate of the newly presented BI outputs was lower. This fact confirms the decisive importance of the habit factor in adopting technological innovations.

It is therefore not only a matter of managerial support itself, which is most often perceived as providing training and education to enhance employees' data literacy, ensuring that they can effectively use BI tools and interpret data. Habits play a significant role in the utilization and effectiveness of BI within

organizations. The influence of job routines on BI can be observed in various aspects, including knowledge sharing, customer behaviour analysis and decision-making processes (Kašparová, 2023). Furthermore, habits can affect the decision-making process within organizations when utilizing BI. The habitual use of BI systems and the integration of BI into decision-making processes can lead to more informed and effective decisions (Lim & Teoh, 2020).

Moreover, Imandeka (2020) identified information integration and productivity increase as significant factors influencing the continuity of BI use, emphasizing the ongoing relevance of these factors beyond the initial adoption phase (Imandeka, 2020). Furthermore, Mohammad et al. (2022) developed a theoretical model exploring the impact of technological, organizational and environmental factors on BI adoption and usage in the banking sector, highlighting the multifaceted nature of determinants influencing BI adoption (Mohammad et al., 2022). So, it is crucial to consider all determinants in a complex context. Additionally, Rouhani et al. (2018) highlighted that decision support and BI systems have been increasingly adopted in organizations, emphasizing the importance of understanding the factors affecting such adoption decisions (Rouhani et al., 2018).

As a research method used in this article, the case study provided real-world examples of how BI solutions have been implemented, the challenges faced and the outcomes achieved. Grabińska & Ziora (2019) presented a review of research and case studies related to the application of business intelligence systems in logistics. They also highlighted the significance of management support in driving the adoption of BI tools and practices in logistics companies across the world (Grabińska & Ziora, 2019). In another case study, Kaur (2021) emphasized the role of management support in enhancing organizational functions and facilitating the exchange of expertise and information with customers in the logistics industry in Malaysia (Kaur, 2021). Additionally, Sangari & Razmi (2015) highlighted that BI is essential for providing quick and easy access to relevant information, enabling managers to make better-informed decisions in various organizational contexts such as supply chain agility in terms of both agile capabilities and agile performance (Sangari & Razmi, 2015).

6 Conclusion

Our analysis clarifies the intricate relationship between the implementation approach, data availability and report utilization. While the implementation approach, particularly the supportive approach, generally augments utilization, it is discernible that other pivotal determinants, such as data availability, subtly influence the utilization dynamics. These multifaceted interactions warrant further investigation to comprehensively grasp the nuances governing report usage within the organizational context.

Like other research, this study has some limitations. The presented case study focused only on management support and did not examine other significant factors influencing the adoption of technological innovation. Only one factor – the (in)ability to obtain information from original sources – was chosen as an additional determinant. Thus, in future research, it is possible to expand the analysis by other factors or contexts. The research was also carried out in only one company and in the case of further research, it would be possible to test the mentioned approaches in other areas of business as well. Due to the unique opportunity to test individual managerial tactics, finally, the methodology process was found to be adequate.

Thus, case studies can inspire new ideas and approaches for implementing BI within an organization. They can showcase innovative solutions and strategies that may not have been considered otherwise (Olszak, 2016). Seeing successful BI implementations in similar industries or contexts can build confidence among decision-makers (Zhao, 2021). It demonstrates that BI is not only feasible but has proven value in specific situations. When using case studies, it is important to critically evaluate their relevance to a specific situation, as every organization is unique. Additionally, it is necessary to consider the scalability

and long-term sustainability of BI solutions presented in case studies to ensure that they align with the business goals and growth plans (McBride, 2014).

In summary, management support is a fundamental driver of BI adoption in an organization. It influences resource allocation, strategy alignment, culture and many other aspects that are crucial for the successful implementation and utilization of BI tools and processes. When management fully backs BI initiatives, it significantly enhances an organization's ability to harness data for competitive advantage and informed decision-making. Therefore, future research can examine other management support tools and activities that can influence the successful adoption of BI, such as setting KPIs monitoring the use of BI, making the company culture more data-driven, constant monitoring with quick response to changes, or regular feedback collection links among users. Furthermore, the factors already tested can be verified in other business sectors. The data collected in this case study can also serve as a basis for extensive quantitative research conducted in numerous companies.

Additional Information and Declarations

Conflict of Interests: The authors declare no conflict of interest.

Author Contributions: J.A.: Data curation, Writing – Reviewing and Editing.
P.K.: Conceptualization, Methodology, Writing – Original draft preparation.


Data Availability: The data that support the findings of this study are available from the corresponding author.

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