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Transformative Power Of Business Intelligence In Finance: Empirical Evidence On Adoption, Challenges, And Benefits

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Abstract:
The present study investigates the importance of Business Intelligence (BI) in finance, analyzing its impact on decision-making, operational efficiency, and competitive advantage of organizations. Based on a survey conducted with 84 finance professionals, including 58 users and 26 non-users of BI tools, the study reveals that 69% of professionals already use BI in their functions, with Power BI emerging as the dominant tool in the market. The results indicate that 91% of users agree that BI tools significantly improved decision-making in their organizations, mainly through financial reports, variance analysis, and budgeting. Among the main challenges for adoption are the lack of training/knowledge and data integration problems. For non-users, the perceived benefits include increased efficiency, improved data accuracy, and better visualization for deeper insights. Despite the growth of BI, 66% of users believe that Excel will always be essential for financial analysis. The study concludes that BI represents a transformative tool for finance, providing valuable insights that drive operational efficiency and strategic decision-making, although its successful implementation depends on overcoming challenges related to training, data integration, and organizational culture.

Key Word*: Business Intelligence, Finance, Decision-Making, Data Analysis, Power BI.*

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I. Introduction

In the contemporary business environment, characterized by increasing complexity and competitiveness, the ability to make data-driven decisions has become a fundamental strategic differentiator for organizations. In this context, Business Intelligence (BI) emerges as a set of technologies, processes, and tools that transform raw data into meaningful information, allowing managers and finance professionals to make more precise and well-founded decisions (Sivarajah et al., 2017; Al-Okaily, 2022).

The finance function, in particular, has experienced a revolution in the way data is collected, analyzed, and used to drive organizational performance. Traditionally dependent on spreadsheets and conventional accounting systems, finance now finds itself at an inflection point, where the adoption of advanced BI tools is redefining processes, improving analytical precision, and accelerating decision making (Huang et al., 2021).

The evolution of data analysis tools in finance reflects a trajectory that goes from manual accounting records to sophisticated BI systems. Financial ledgers, fundamental to accounting since the 14th century, had as their main focus the systematic recording of transactions for financial reporting purposes, but did not offer the granularity necessary for detailed analyses or insights at the product level (Vandanapu & Jain, 2024). With the advent of information technology, more advanced systems emerged that allowed not only the recording, but also the analysis and interpretation of financial data.

Today, BI represents a significant evolution in this trajectory, offering capabilities that go beyond simple retrospective analysis to include predictive and prescriptive analyses that can anticipate trends and recommend actions. This transformation is particularly relevant in the financial context, where precision, timeliness, and depth of analysis are crucial for organizational success.

The importance of BI for finance in the current scenario is varied. First, in a business environment characterized by exponential data generation, BI tools allow finance professionals to filter relevant information and identify significant patterns that could go unnoticed in manual analyses. Second, the growing pressure for operational efficiency and cost reduction requires financial teams to do more with less, and BI offers automation and insights that increase productivity. Third, the need to respond quickly to market changes demands an agility that can only be achieved with tools that process and analyze data in real time or near real time (Bany Mohammed et al., 2024).

Finance professionals face various challenges in the data era. The integration of multiple data sources, often in different formats and with varied levels of quality, represents a significant obstacle. Additionally, the need to balance regulatory compliance with analytical innovation creates tensions that need to be carefully

managed. The growing complexity of financial markets and economic volatility demand more sophisticated and real-time analyses, while the scarcity of talent with skills in both finance and data analysis further complicates the scenario (Hmoud et al., 2023).

In this context, the central problem of this research emerges: How is Business Intelligence transforming finance and what is its real impact on decision making, operational efficiency, and competitive advantage of organizations? To address this question, this study has the following specific objectives: (1) analyze the current state of BI adoption in finance; (2) identify the main uses, benefits, and challenges associated with the implementation of BI tools in the finance; (3) understand the perceptions of professionals who have not yet adopted BI about its potential benefits; and (4) explore the future of the relationship between BI and traditional tools such as Excel in financial analysis.

The relevance of this research lies in its potential to fill an important gap in the literature on the specific application of BI in finance, providing insights based on empirical evidence collected from professionals who work directly in the field. Additionally, the results can offer practical guidance for organizations seeking to implement or improve their BI capabilities within financial operation, helping them anticipate challenges and maximize benefits.

This article is structured as follows: after this introduction, we present a literature review that explores the fundamental concepts of BI, its specific applications in finance, and the relationship between BI and traditional tools. Next, we describe the methodology used in the research, including the data collection method, the population and sample, and the analysis procedures. The results and discussion section presents the main findings of the study, organized around key themes such as adoption profile, applications, impact on decision making, challenges, and future perceptions. Finally, the conclusion synthesizes the contributions of the study, discusses its limitations, and suggests directions for future research.

II. Literature Review

Fundamental Concepts of Business Intelligence

Business Intelligence (BI) can be defined as a comprehensive set of technologies, applications, and processes for collecting, storing, analyzing, and transforming data into useful information, with the aim of supporting business decision-making (Sivarajah et al., 2017). More than just technological tools, BI represents a strategic approach to information management that allows organizations to gain valuable insights from their data, identify market trends, and make more informed decisions.

The term "Business Intelligence" was introduced by IBM researcher Hans Peter Luhn in 1958, defining it as "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal" (Nelke, 2011). BI began to take shape in the 1970s with the first decision support systems, evolving in the 1980s and 1990s with data warehouses and OLAP (Online Analytical Processing) tools. In recent years, it has evolved to include advanced analytics such as data mining, predictive and prescriptive analysis, interactive visualization, and real-time processing, incorporating artificial intelligence and machine learning for increasingly sophisticated analyses (Kar & Varsha, 2023).

Digital Transformation in Finance

Digital transformation represents a fundamental change in how organizations operate and deliver value to their customers, driven by the integration of digital technologies in all business areas. In the financial area, this transformation has been particularly impactful, redefining processes, functions, and even entire business models (Al-Okaily, 2022). The automation of financial processes through technologies such as RPA, digital workflows, and integrated systems is revolutionizing traditional manual tasks, resulting in reductions of 25-40% in operational costs, a decrease of 90% in manual errors, and freeing up 20-30% of professionals' time for higher value-added activities (Deloitte, 2022; Infopulse, 2023).

Predictive analysis represents a significant evolution in financial analytical capabilities, allowing organizations to not only understand what happened, but also what will likely happen in the future. Using statistical algorithms and machine learning, this approach has revolutionized cash flow forecasting, early risk detection, and scenario modeling, with improvements of 10-20% in the accuracy of financial forecasts (Yiu, Yeung & Cheng, 2021). In parallel, artificial intelligence emerges as a transformative force, introducing capabilities such as advanced analysis of financial documents, fraud and anomaly detection, financial virtual assistants, and resource allocation optimization, with improvements of 30-50% in productivity (Kar & Varsha, 2023).

Business Intelligence in Finance

Business Intelligence has found particularly valuable applications in finance, where precision, timeliness, and depth of analysis are crucial for organizational success. The automation and enhancement of traditional financial reports transforms static statements into interactive visualizations that facilitate the identification of

trends and anomalies. Variance and performance analysis allows detailed comparisons between actual and budgeted results, quickly identifying significant variations and their root causes. The budgeting and forecasting process benefits enormously from BI tools that facilitate the creation of multiple scenarios and forecasts based on historical trends and external factors (Caseiro & Coelho, 2019).

Other important applications include profitability analysis by product, customer, or region; cash flow management and forecasting; financial risk analysis; fraud detection through advanced algorithms; and automation of regulatory compliance processes. These capabilities not only increase operational efficiency but also fundamentally transform how the financial function contributes to organizational success.

The market for BI tools is diverse, with solutions that meet different needs and contexts. Microsoft Power BI stands out for its integration with the Microsoft ecosystem and intuitive interface, being particularly popular in financial departments. Tableau is recognized for its advanced visualization capabilities, while Qlik offers a unique associative approach to data exploration. Other relevant tools include SAP Analytics Cloud, Oracle Analytics Cloud, IBM Cognos Analytics, and Looker (Google Cloud). The choice of the most suitable tool depends on multiple factors, including the size of the organization, the complexity of financial data, and the existing IT infrastructure (Bany Mohammed et al., 2024).

Emerging Trends in BI for Finance

The field of Business Intelligence for finance is constantly evolving, with several emerging trends that promise to further transform how financial professionals analyze data and make decisions. Augmented analysis combines artificial intelligence and machine learning with human expertise to amplify the analytical capabilities of finance professionals, including automatic insight generation, automated narratives, AI-based recommendations, and conversational analytical assistants, potentially reducing by up to 70% the time needed to identify significant insights in complex financial data (Hmoud et al., 2023).

The evolution of financial BI is increasingly incorporating collaborative and social elements, recognizing that financial decision making rarely occurs in isolation. Collaborative analysis platforms, contextual annotations in dashboards, secure sharing of insights, and analytical practice communities are transforming BI from an individual tool to a platform for collective knowledge construction, with improvements of 25-40% in the adoption of analytical insights (Bany Mohammed et al., 2024). In parallel, a growing trend is the incorporation of external and alternative data sources to enrich traditional analyses, including macroeconomic data, market sentiment analysis, geospatial and demographic data, IoT data, and ESG metrics, improving the accuracy of forecasts by 15-30% and identifying risks and opportunities invisible when using only internal data (Yiu, Yeung & Cheng, 2021).

Overcoming Challenges in BI Implementation in Finance

The successful implementation of BI in the financial area faces various challenges that need to be addressed systematically to maximize return on investment (Moss & Atre, 2003). Data quality and governance represent fundamental challenges for BI initiatives in finance, where precision and reliability are absolutely critical. Effective strategies include establishing consistent standards and definitions for financial metrics, implementing data validation and cleaning processes, developing corporate data dictionaries, creating governance structures with clear responsibilities, and implementing data quality monitoring tools, resulting in reductions of 40-60% in data errors and an increase of 30-50% in confidence in financial analyses (Hmoud et al., 2023).

The development of analytical competencies among finance professionals is another significant challenge, overcome through personalized training programs, communities of practice, partnerships between finance and IT/data teams, mentoring programs, and formal certifications, resulting in BI adoption rates 2-3 times higher and significantly superior return on investment. The integration of BI with existing financial processes represents a third critical challenge, addressed through detailed process mapping, an incremental approach prioritizing high-value use cases, process redesign, data flow automation, and development of APIs and custom connectors for legacy systems, with reductions of 30-50% in cycle time for critical processes such as financial closing and budget planning (Bany Mohammed et al., 2024).

Maximizing the Benefits of BI in Finance

To extract maximum value from BI investments, organizations need to adopt strategic approaches that go beyond simple technology implementation (Huang et al., 2021).

BI is catalyzing a fundamental transformation in the role of finance professionals, from a traditional focus on recording and reporting to a more strategic and insight-oriented role. This evolution includes the shift from data producer to insight interpreter, from retrospective to prospective, from controller to business partner, from technical specialist to effective communicator, and from executor to solution architect. Professionals who develop these new competencies report significantly higher levels of job satisfaction and career progression.

The sustained success of BI initiatives in finance fundamentally depends on developing an organizational culture that values and promotes data-driven decisions. Key elements include leadership by example, aligned

metrics and incentives, democratization of access to relevant financial data, promotion of a continuous learning mindset, and celebration of successes. Organizations with strongly data-oriented financial cultures report 2-3 times more likelihood of exceeding financial goals (Bany Mohammed et al., 2024).

Demonstrating the return on investment (ROI) of BI initiatives in finance is crucial to ensure continued support. Effective approaches include early definition of clear value metrics, quantification of tangible and intangible benefits, internal and external benchmarking, documented case studies, and specific dashboards for value monitoring. Organizations that implement these practices report 40-60% higher success rates in obtaining approval and resources for expansion of analytical initiatives (Yiu, Yeung & Cheng, 2021).

Relationship between BI and Traditional Tools such as Excel

The relationship between BI tools and traditional applications like Excel represents an important aspect of analytical evolution in finance. Although many initially predicted that BI would completely replace Excel, reality has proven more nuanced, with the two technologies often coexisting and complementing each other (Vandanapu & Jain, 2024). Excel continues to be an essential tool for many finance professionals due to its flexibility for ad-hoc analyses, familiarity and relatively low learning curve, financial modeling capabilities, and universal availability. However, it presents significant limitations for corporate analyses, including scalability issues with large volumes of data, governance and version control challenges, limited visualization capabilities, and difficulties in integrating with multiple data sources (Yiu, Yeung & Cheng, 2021).

Modern BI tools overcome many of these limitations, offering superior capabilities for processing large volumes of data, interactive and dynamic visualizations, simplified integration with multiple data sources, automatic updates, and robust governance and security. However, they may present challenges such as steeper learning curves, less flexibility for highly customized analyses, and potentially significant licensing costs (Bany Mohammed et al., 2024). An emerging model is the integration between Excel and BI tools, leveraging the strengths of each technology through approaches such as using BI for processing and aggregating large volumes of data with export to Excel for specific analyses, direct integration through add-ins such as Power Pivot and Power Query, and implementation of hybrid workflows, resulting in greater user satisfaction, wider adoption of advanced analytical capabilities, and better balance between governance and flexibility (Hmoud et al., 2023).

III. Methodology

This study adopted a mixed methodological approach, combining literature review with a structured questionnaire to obtain a comprehensive understanding of the use of Business Intelligence (BI) in finance. The choice of the mixed method is justified by the need for data triangulation, allowing the integration of theoretical information consolidated in the literature with empirical perceptions collected from professionals, according to recommendations by Creswell and Clark (2018). Additionally, the mixed design favors understanding both quantitative and qualitative aspects of the investigated phenomenon, enhancing the robustness and validity of the obtained results (Gil, 2019).

The literature review allowed establishing the theoretical framework on BI in finance, identifying emerging trends, and understanding the main concepts and applications. Simultaneously, the structured questionnaire made it possible to collect empirical data on the adoption, use, and perceptions of finance professionals regarding BI tools.

The research is further characterized by its exploratory and descriptive nature. It is exploratory when investigating perceptions, challenges, and emerging trends in this field, seeking to expand knowledge on a constantly evolving topic. The descriptive nature manifests in the intention to map in detail the current state of BI adoption and use in finance, identifying practices, benefits, and obstacles (Vergara, 2016). This dual approach was chosen considering the diverse nature of the topic and the need to understand the contextual factors that influence its use and impact.

For primary data collection, a structured online questionnaire was developed, containing closed questions, distributed to finance professionals. The dissemination strategy sought to ensure the heterogeneity of the sample and include different professional profiles, aligning with good practices in applied social sciences research (Sampieri et al., 2013). The final sample consisted of 84 respondents, with 58 professionals (69%) who use BI tools in their financial functions and 26 professionals (31%) who do not use BI tools.

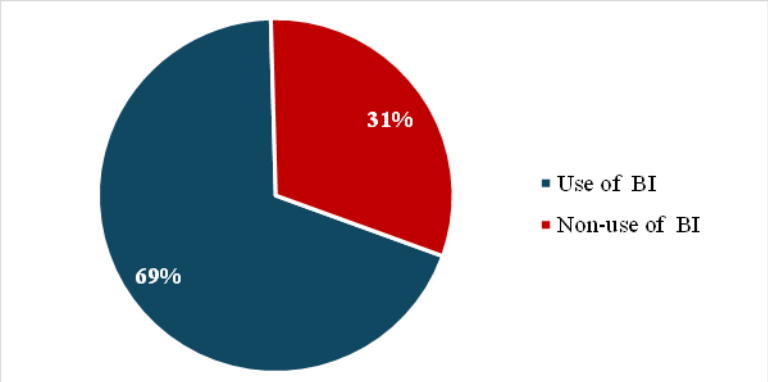
It is important to acknowledge some methodological limitations: the non-probabilistic sampling limits the generalization of results; there is possible self-selection bias; respondents' subjective perceptions may be influenced by personal experiences; the structured format of the questionnaire may not capture all nuances; and the data reflect a specific moment in a rapidly evolving field. These limitations were considered in the analysis and are recognized as opportunities for refinement in future research.

IV. Results And Discussion

BI Adoption Profile in Finance

The research results reveal a scenario of significant Business Intelligence (BI) adoption among finance professionals. Of the total 84 respondents, 58 (69%) indicated using BI tools in their financial functions, while 26 (31%) reported not using such tools. This adoption rate of nearly 70% suggests that BI has already established itself as a mainstream technology in the financial area, no longer limited to cutting-edge organizations or specialized IT departments.

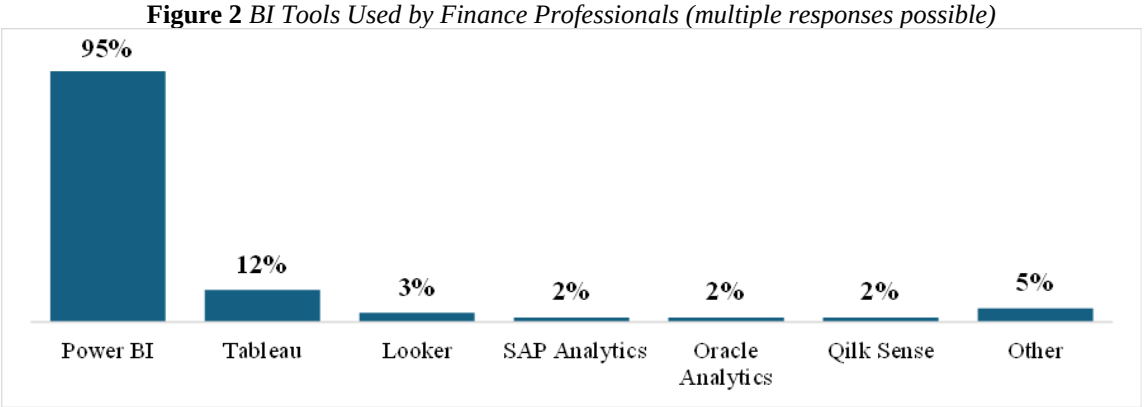
Figure 1 *BI Adoption Rate Among Finance Professionals*



Note. Created by the author.

Regarding the specific tools used, Microsoft Power BI emerges as the dominant solution in the market, being mentioned by 55 of the 58 BI users (95%). This predominance can be attributed to various factors, including integration with the Microsoft ecosystem (widely used in financial departments), relatively intuitive interface, robust data visualization and modeling capabilities, and competitive pricing strategy. Other tools mentioned include Tableau (7 mentions), Looker (2 mentions), SAP Analytics Cloud (1 mention), Oracle Analytics Cloud (1 mention), Qlik Sense (1 mention), and organization-specific tools. It is interesting to note that some respondents (2) indicated using "mainly Excel" even having responded affirmatively to the question about BI use. This may reflect a gray area in the perception of some professionals about what constitutes a BI tool, with some considering advanced Excel functionalities (such as Power Query and Power Pivot) as BI tools. The dominance of Power BI aligns with trends observed in recent market reports. According to Bany Mohammed et al. (2024), Power BI has consistently led the leaders quadrant in industry analyst reports, thanks to its combination of usability, functionality, and integration with other Microsoft tools widely used in finance.

Figure 2 *BI Tools Used by Finance Professionals (multiple responses possible)*



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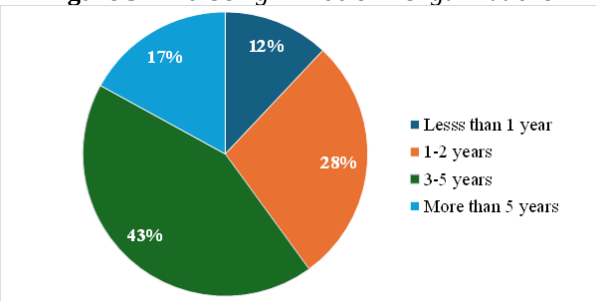
Regarding the time of use of BI tools in organizations, the results show a varied distribution, indicating different stages of maturity in adoption. The survey revealed that 12% of organizations have been using BI for less than 1 year, 28% for between 1-2 years, 43% for between 3-5 years and 17% for more than 5 years. This distribution suggests that, although BI is not a new technology, its widespread adoption in finance departments is relatively recent, with the majority of organizations (71%) having implemented these tools in the last five years. This coincides with the period of greatest development and accessibility of self-service BI tools, which have democratized access to advanced analytical capabilities for non-technical professionals.

Figure 3 *Time Using BI Tools in Organizations*



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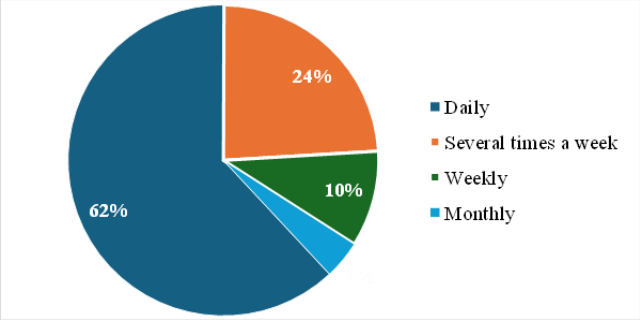
In terms of frequency of use, the data reveal a pattern of intensive use among adopters. The survey showed that 62% of users use BI tools daily, 24% several times a week, 10% weekly, and only 4% monthly or less frequently. The fact that 86% of users use BI tools at least several times a week indicates that these are not just occasional or complementary tools but have become an integral part of the daily workflow of finance professionals. This high frequency of use suggests that, once adopted, BI tools tend to become essential for financial operations, corroborating the perception of their practical value.

Figure 4 *Frequency of BI Tools Usage*



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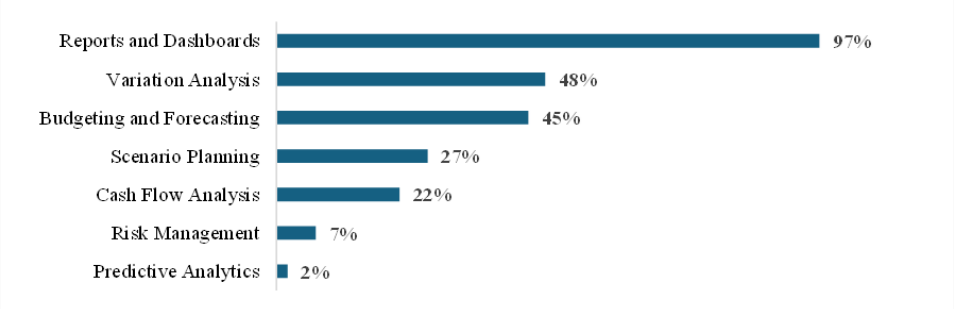
Main Applications of BI in Finance

The research identified that the most common application of BI in finance is the creation and maintenance of financial reports and dashboards, mentioned by 56 of the 58 users (97%). This result is not surprising, considering that the visualization and communication of complex financial information in a clear and accessible way is a fundamental need in any organization. Financial reports and dashboards created with BI tools offer significant advantages over traditional approaches based on Excel or static presentations. These advantages include automatic updating through direct connection with data sources, eliminating the need for manual updates and reducing errors; interactivity that allows filtering, drilling down, and exploring data from different perspectives; consolidation of multiple data sources into a unified view; advanced visualizations that facilitate the identification of patterns, trends, and anomalies; and ease of distribution and collaboration with stakeholders throughout the organization. As observed by Vandanapu and Jain (2024), modern financial dashboards created with BI tools allow finance professionals to transcend their traditional role as "guardians of the numbers" to become true business partners, providing strategic insights that drive decision making throughout the organization.

Figure 5 *Main Applications of BI in Finance (multiple responses possible)*



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The second most common application, mentioned by 28 respondents (48%), is variance and performance analysis. This application is particularly valuable in financial contexts, where comparison between actual and budgeted results, or between different periods, is fundamental for control and continuous improvement. BI tools enhance variance analysis through automation of complex calculations, contextual visualization that automatically highlights significant deviations, multidimensional analysis that allows examining variations across multiple dimensions simultaneously, visualization of trends over time, and configuration of automatic alerts when variations exceed predefined limits. The importance of this application reflects the transition from a purely retrospective approach to financial analysis to a more proactive and action-oriented posture, where variations are not just recorded, but deeply analyzed to inform strategic and operational decisions.

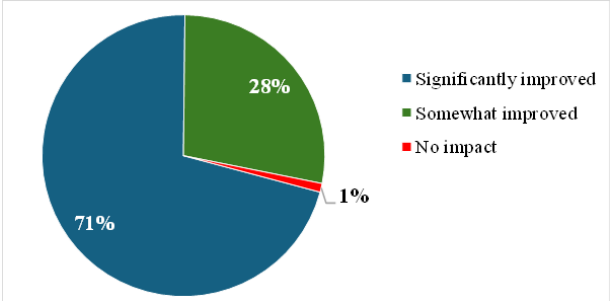
Budgeting, forecasting, and scenario planning constitute the third most common application, mentioned by 42 respondents (72% combining "Budgeting and forecasting" and "Scenario planning"). This area represents a significant evolution in the use of BI, going beyond retrospective analysis to incorporate prospective elements that support strategic planning. Modern BI tools offer capabilities that transform these traditionally time-consuming and laborious processes, including driver-based modeling, rapid analysis of multiple scenarios, forecasts based on historical trends, collaborative planning platforms, and integration of external factors such as economic indicators and market trends. As highlighted by Caseiro and Coelho (2019), the ability to perform effective scenario planning is particularly valuable in volatile and uncertain business environments, allowing organizations to develop strategic resilience through preparation for multiple possible futures.

Beyond the three main applications, respondents mentioned other significant uses of BI in finance, including cash flow analysis (22%), risk management (7%), and predictive analytics (2%). It is interesting to note the relatively low adoption of advanced predictive analytics, suggesting that many organizations are still in the early phases of their analytical maturity journey, focusing primarily on descriptive and diagnostic analyses before advancing to more sophisticated predictive and prescriptive capabilities.

Impact of BI on Financial Decision Making

One of the most expressive results of the research refers to the perceived impact of BI on organizational decision making. Among BI users, 41 (71%) indicated that the tools "significantly improved" decision making in their organizations, while 16 (28%) reported that they "improved in some way." Only 1 respondent (1%) indicated "no impact." This extremely positive perception (99% reporting some level of improvement) corroborates the central proposition of the literature on BI: that these tools effectively transform data into actionable insights that improve the quality of organizational decisions. The high percentage of respondents reporting "significant" improvement (as opposed to just "some improvement") suggests that the impact is not marginal, but substantial and clearly perceptible. These results align with the findings of Huang et al. (2021), who demonstrated positive correlations between the effective implementation of BI and measurable improvements in financial decision-making processes. The current research, however, adds an important dimension by quantifying the perceived magnitude of this improvement among finance professionals.

Figure 6 *Impact of BI on Organizational Decision-Making*



Note. Created by the author.

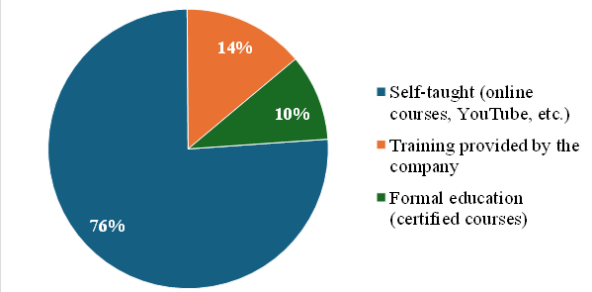
Although the questionnaire did not request specific examples of how BI improved decision making, the literature suggests several mechanisms through which this improvement occurs. These include faster access to relevant information, significantly reducing the time needed to collect, process, and present financial data; more holistic view of financial performance through the integration of data from multiple sources; proactive identification of problems and opportunities through automatic alerts and intuitive visualizations; democratization of financial insights for non-financial stakeholders in accessible formats; deeper and more granular analyses that allow identifying root causes of problems; and consistency in metrics and definitions, establishing a "single version of the truth" for critical financial metrics. The high recommendation rate among users (93% would recommend the BI tools they use to other finance professionals) further reinforces the perception of tangible value

derived from these tools, suggesting that the benefits significantly outweigh the costs and challenges associated with implementation.

Challenges in the Adoption and Use of BI

The most frequently cited challenge by BI users was the "lack of training/knowledge," mentioned by 40 of the 58 respondents (69%). This result highlights a critical reality: even with increasingly intuitive interfaces, BI tools still require specific knowledge that many finance professionals do not naturally possess. The predominance of this challenge can be attributed to several factors, including the gap between traditional finance skills and emerging skills such as data modeling and visualization; the rapid evolution of tools that require continuous learning; insufficient training resources in organizations; and limited time for learning due to operational pressures. It is interesting to note that, when asked about how they learned to use BI tools, 76% of users indicated being self-taught (online courses, YouTube, etc.), while only 14% received company-provided training and 10% had formal education through certified courses. This predominance of self-learning may contribute to knowledge gaps and suboptimal use of tool capabilities. As highlighted by Hmoud et al. (2023), adequate training is a critical success factor in BI implementation, and organizations that neglect this aspect often fail to realize the full potential value of their technology investments.

Figure 7 *Methods of Learning BI Tools*

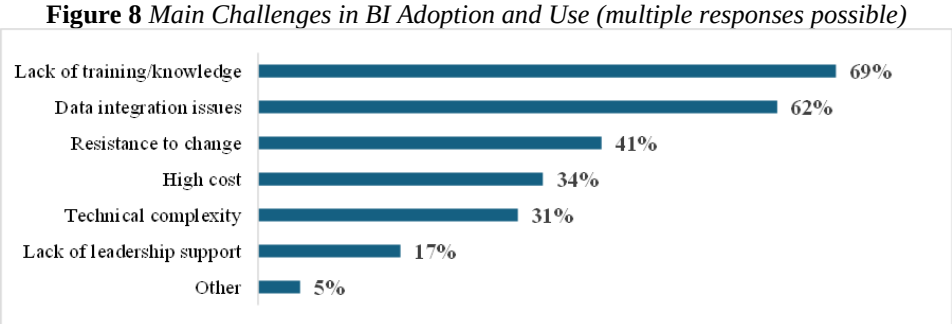


Note. Created by the author.

The second most cited challenge was "data integration problems," mentioned by 36 respondents (62%). This result reflects the complex reality of corporate data environments, where financial information often resides in multiple systems that were not originally designed to interoperate. Data integration problems manifest in various forms, including data silos dispersed in isolated departmental systems; semantic inconsistencies with different definitions of financial concepts between systems; technical connectivity challenges with legacy systems; data quality issues such as incompleteness and inaccuracy; and inadequate governance to manage the access and maintenance of financial data. The prevalence of this challenge suggests that, despite advances in data integration technologies, creating a cohesive and reliable data infrastructure continues to be a significant obstacle for many organizations. As observed by Yeoh and Popovič (2016), data quality and integration are often the most critical factors that determine the success or failure of BI initiatives.

Other significant challenges mentioned by respondents include "resistance to change" (41%), "high cost" (34%), "technical complexity" (31%), and "lack of leadership support" (17%). Resistance to change is particularly interesting, as it highlights the human and cultural dimension of technology adoption, where even tools with clear benefits may face obstacles due to established habits, fear of the unknown, or concerns about skill obsolescence. The high cost, although mentioned by a third of respondents, does not figure among the main challenges, possibly reflecting the trend of democratization and cost reduction of BI tools in recent years, especially with the emergence of cloud-based subscription models.

Figure 8 *Main Challenges in BI Adoption and Use (multiple responses possible)*



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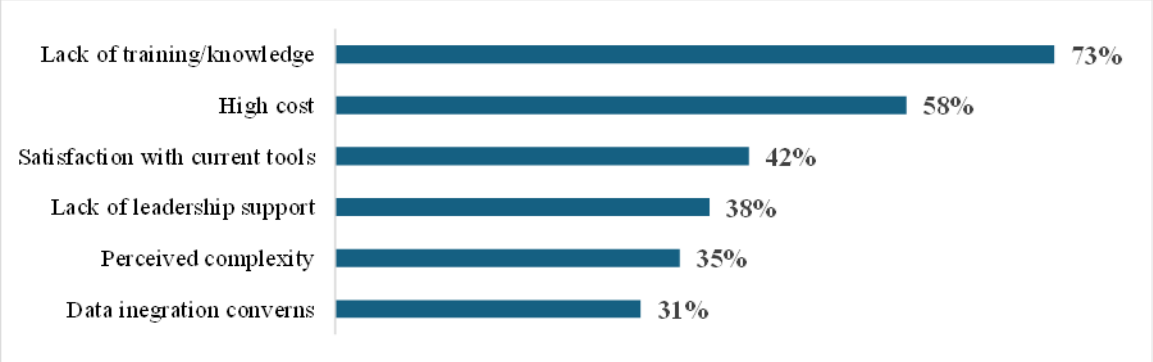
Reasons for Non-Adoption of BI

Among the 26 respondents who indicated not using BI tools, the most frequently cited reason was "lack of knowledge/training" (73%), followed by "high cost" (58%), "satisfaction with current tools" (42%), "lack of leadership support" (38%), "perceived complexity" (35%), and "integration concerns" (31%). It is notable that the main reason for non-adoption mirrors the main challenge faced by users, reinforcing the critical importance of education and training in the BI ecosystem. Cost appears to be a more significant factor for non-users than for users, suggesting that the perception of cost-benefit may change significantly after implementation and experience with the tools. "Satisfaction with current tools" as the third most common reason suggests that many non-users do not perceive significant deficiencies in their current approaches (often Excel-based) that would justify the change to dedicated BI tools.

Figure 9 *Main Reasons for Non-Adoption of BI (multiple responses possible)*



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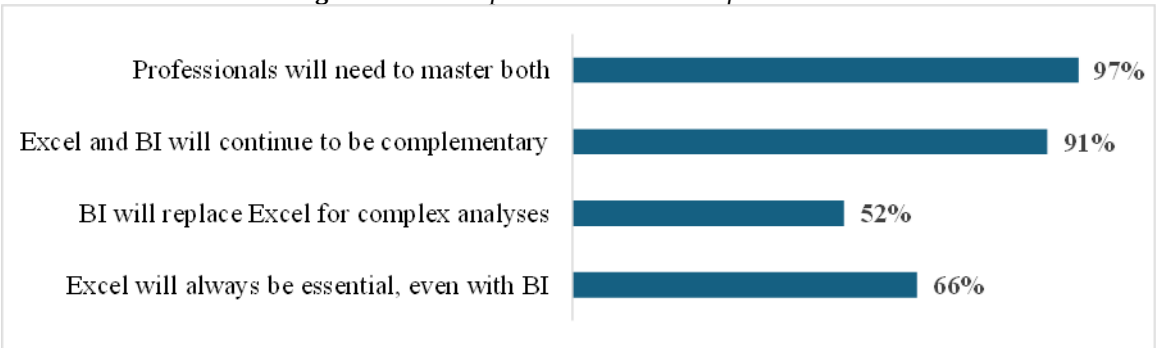
When asked about what would encourage them to adopt BI tools in the future, non-users predominantly mentioned "accessible training" (81%), "clear demonstration of ROI" (65%), "simpler/more intuitive solutions" (58%), and "adequate technical support" (54%). These responses offer valuable insights for technology providers and organizational leaders on how to expand BI adoption in the finance function. The emphasis on training and simplicity reinforces that perceived barriers are often related to skills and usability, rather than fundamental limitations of the technology. The need for clear ROI demonstration highlights the importance of quantifying the tangible and intangible benefits of BI tools, especially in finance departments where investment decisions are typically subject to rigorous cost-benefit analysis.

Perceptions on the Future of BI in Finance

An interesting aspect explored in the research was the perception of professionals about the future of the relationship between BI and Excel, a traditionally dominant tool in finance. The results reveal important nuances: 91% of respondents agree that "Excel and BI will continue to be complementary," and 97% believe that "professionals will need to master both." At the same time, 66% agree that "Excel will always be essential, even with BI," while 52% believe that "BI will replace Excel for complex analyses." These seemingly contradictory perceptions reflect the complex reality of technological evolution in finance, where new tools rarely completely replace existing ones, but frequently create hybrid ecosystems where different technologies coexist, each with its specific strengths.

Figura 10 – *Perceptions on the Future of Excel vs. BI*



Note. Created by the author.

The strong agreement with the complementarity between Excel and BI suggests that professionals see these tools as occupying different niches in the financial analysis ecosystem: Excel for ad-hoc calculations, customized financial modeling, and quick analyses of smaller datasets; BI for interactive visualizations, analyses of large volumes of data, automated dashboards, and distribution of insights. The perception that professionals will need to master both tools has important implications for education and professional development in finance, suggesting that curricula and training programs should incorporate both traditional Excel skills and emerging capabilities related to BI.

When asked about future trends that will have the greatest impact on BI for finance, respondents highlighted "integration with artificial intelligence" (78%), "advanced automation" (67%), "predictive analysis" (59%), and "more sophisticated interactive visualizations" (48%). These perceptions align with the directions observed in the technology market, where the convergence between traditional BI and AI/ML capabilities is creating a new generation of "augmented analytics" tools that combine human intuition with algorithmically generated insights. The emphasis on automation and predictive analysis suggests that finance professionals are increasingly interested in tools that not only describe the past but also help anticipate the future and automate routine decision-making processes, freeing up time for higher value-added analyses and strategic thinking.

Contrast of Results with Literature

The analysis of the results obtained in this research reveals important convergences and divergences when compared with academic literature and industry reports on Business Intelligence in finance. Table 1 presents a contrast between the main findings of this study and recent theoretical references, highlighting the practical implications of these comparisons.

Table 1 *Contrast between Research Findings and Existing Literature.*

Findings from this study	Theoretical references	Convergences/ Divergences	Practical implications
66% of users maintain Excel as a parallel tool to BI	According to Grandview Research (2023), BI tools are expected to gradually replace traditional spreadsheets as adoption increases	**Divergence:** Our data shows that Excel remains essential even in organizations with mature BI, contradicting the expectation of replacement	Organizations should develop BI-Excel integration strategies instead of focusing only on replacement
Lack of training is the main barrier to adoption (69% of cases)	IBM (2024) reports that 65% of financial leaders state that success with analytical technologies depends more on people's adoption than on the technology itself	**Convergence:** It confirms that the human factor and training are critical for the success of BI initiatives	Implementing continuous training programs and mentoring with real business cases should be a priority
Power BI dominates the financial market (95% of users)	Gartner (2024) positions Microsoft as a leader in the Magic Quadrant for Analytics and BI Platforms, but with Tableau and Qlik also in strong positions	**Partial divergence:** Our research shows a dominance of Power BI much higher than reported in global market analyses	Prioritize training in Power BI and ensure integration with other Microsoft systems already in use
62% of users use BI daily	MX Report (2024) indicates that "financial data intelligence" is becoming part of the daily workflow, but without quantifying the frequency	**Partial convergence:** Our research quantifies what the literature qualitatively indicates about increasing use	Create usage KPIs to monitor and encourage regular use of the tools
Leadership resistance is a barrier in 38% of cases	Ataccama (2024) reports that 72% of data specialists believe that companies will fail without adoption of analytical technologies, but encounter executive resistance	**Convergence:** It confirms that the lack of support from senior management is a significant limiting factor	Develop specific use cases for the C-level, demonstrating clear ROI and strategic alignment
Integration with legacy systems is the biggest technical challenge (62%)	IBS Intelligence (2024) reveals that 55% of banks cite legacy systems as the main barrier to digital transformation	**Strong convergence:** Our findings are aligned with the integration challenges reported in the financial sector	Prioritize tools with native connectors for existing financial systems and consider gradual modernization approaches

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This comparison between the research findings and existing literature reveals that, although there are important convergences in areas such as integration challenges and organizational resistance, there are significant divergences especially regarding the continuing role of Excel and the dominance of Power BI in the Brazilian financial market. These divergences suggest particularities of the local context that deserve attention from both researchers and professionals in the field.

V. Conclusion

This study investigated the importance of Business Intelligence (BI) in finance, analyzing its impact on decision-making, operational efficiency, and competitive advantage of organizations. Based on a survey conducted with 84 finance professionals, including 58 users and 26 non-users of BI tools, it was possible to obtain valuable insights about the current state of BI adoption in finance, its main uses, benefits, challenges, and future perspectives.

The survey results reveal a scenario of significant BI adoption among finance professionals, with 69% of respondents indicating they use BI tools in their financial functions. Microsoft Power BI emerges as the dominant solution in the market, being mentioned by 95% of BI users, followed by Tableau and other tools with smaller shares. The main applications of BI in finance include financial reports and dashboards (97%), variance and performance analysis (48%), budgeting and forecasting (45%), scenario planning (28%), and cash flow analysis (22%). This distribution reflects the versatility of BI tools and their ability to add value to various financial processes.

One of the most expressive results refers to the perceived impact of BI on organizational decision-making. Among BI users, 99% reported some level of improvement in decision-making in their organizations, with 71% indicating "significant" improvement. This extremely positive perception corroborates the central proposition of the literature on BI: that these tools effectively transform data into actionable insights that improve the quality of organizational decisions. The main challenges faced in the adoption and use of BI include lack of training/knowledge (69%), data integration problems (62%), and resistance to change (41%). Among non-users, the most cited reasons for non-adoption were lack of knowledge/training (73%), high cost (58%), and satisfaction with current tools (42%).

This study offers significant contributions to both academic literature and professional practice in finance and BI. From a theoretical perspective, the study expands the understanding of BI adoption in finance, providing updated empirical data on adoption rates, tools used, and usage patterns. It identifies factors that influence the success of BI implementation, documents challenges and barriers specific to the financial context, and explores the relationship between BI and traditional tools, suggesting a model of coexistence and complementarity rather than replacement. From a practical perspective, the study offers benchmarks for organizations to evaluate their own analytical maturity, guidance for successful implementation, insights for technology providers on areas of opportunity for improvements in BI tools, and direction for professional development.

BI is transforming the financial area in several fundamental ways: automating repetitive analytical processes, democratizing access to financial insights, improving the quality and reliability of financial data, facilitating deeper and multidimensional analyses, and accelerating the planning-execution-analysis cycle. The impact on decision-making is substantial, manifesting through faster decisions, based on more complete and accurate data, and enriched by visualizations that facilitate the understanding of complex relationships. Regarding operational efficiency, BI contributes through the automation of analytical processes, error reduction, and facilitation of collaboration between teams. In terms of competitive advantage, BI allows organizations to respond more quickly to changes in the business environment, identify emerging opportunities and threats, and make more well-founded financial decisions.

Despite the significant contributions, it is important to recognize some limitations of this study. The sample was obtained by convenience and, although diverse, does not necessarily represent the total population of finance professionals. Many of the measures are based on subjective perceptions of respondents, which may be influenced by various factors beyond the objective effectiveness of BI tools. The study did not include objective metrics of organizational performance that could be correlated with the adoption and use of BI. The cross-sectional design does not allow establishing definitive causal relationships or tracking the evolution of BI adoption and impact over time. Additionally, although the study identified the most used tools, it did not explore in depth the differences in functionality, usability, and impact between different BI platforms.

Based on the results and limitations of this study, several promising directions for future research can be identified, including longitudinal studies that track the evolution of BI adoption and impact in finance over time; comparative analyses between different BI platforms; investigations on how organizational factors influence implementation success; in-depth case studies of successful and unsuccessful implementations; research on BI-Excel integration; studies on the impact of AI on financial BI; and investigations on the development of specific competencies needed for finance professionals in the BI era.

The results of this study, combined with emerging trends in technology and business, suggest that BI will continue to play an increasingly central role in the future of the finance function. This role will likely evolve in several important ways: from tactical tool to strategic platform; increasing integration with AI and automation; continued democratization making tools more accessible and intuitive; coexistence with specialized tools like Excel; and transformation of the role of the finance professional to emphasize skills in interpretation, communication, and strategic consulting. Ultimately, the value of BI for the financial area lies not only in its ability to process and visualize data more efficiently, but in its potential to fundamentally transform how

organizations use financial information to create value and competitive advantage. Organizations and professionals who recognize and embrace this transformation will be better positioned to thrive in the increasingly data-driven business environment of the future.

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