

## Analytics in digital marketing: aspirations vs. adoption in a developing business landscape

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### Abstract

*This paper explores the significance of applying analytics and data usage in contemporary digital marketing, with a particular focus on the domestic business context. The main objective is to assess the extent to which organizations adopt a data-driven approach in daily marketing activities, identify the most commonly used types of analytics, evaluate the impact of analytical tools, and examine the key challenges and barriers to their implementation. The research is based on a quantitative survey conducted among professionals from various sectors, with the collected data statistically analyzed and visualized. The findings reveal a high level of awareness regarding the importance of analytics, accompanied by a strong desire for broader application. However, a notable gap exists between this declarative orientation and actual usage. This discrepancy is largely attributed to insufficient managerial support, a shortage of skilled professionals, and underdeveloped data infrastructure. The paper offers practical recommendations for strengthening analytical culture through leadership education and systemic enhancement of organizational analytical capabilities.*

**Keywords:** digital marketing, analytics, data-driven approach, ROI optimization, management education

## 1. Introduction

In the contemporary digital landscape, marketing is increasingly shaped by technology, data, and evolving consumer behavior. Traditional decision-making models, rooted in intuition and experience, are gradually giving way to approaches driven by measurement, analysis, and the interpretation of vast volumes of data.

As businesses become more reliant on digital channels, the amount of information generated daily has emerged as a critical asset for understanding markets, consumers, competitors, and the performance of marketing activities. Following that narrative, the application of analytics and a data-driven approach is an indispensable part of successful digital marketing. The topic of the paper points to the perspective of a better understanding of the role of data in the management and implementation of digital marketing, in the era of technological progress and prosperity. In this context, it is very important to be aware of the importance of applying analytics in the daily work of employees in organizations in this area. Digital marketing is exactly that field that channels data in a symbiosis of communications and various applications, enabling experts to precisely generate and synchronize them (Hoppner & Griffith, 2015; Kannan & Li, 2017; Wamba et al., 2017).

It is well known that Big Data, or large data, refers to data sets whose volume, shaping path and complexity exceed the efficiency of classical tools for storage, filtering and evaluation (Laney, 2001). In digital marketing, Big Data encompasses massive amounts of information generated through online activities such as web browsing, session duration, online purchases, social media engagement, mobile apps, IoT devices, and other digital touchpoints (Iacobucci et al., 2019). According to IDC (2021), over 79 zettabytes of data are generated daily worldwide, a figure expected to exceed 180 ZB by the end of 2025—much of which originates from digital user interactions.

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Gartner (2016) estimates that companies effectively integrating Big Data analytics into their operations can outperform competitors by up to 20%. However, managing Big Data requires advanced technologies such as cloud data warehousing, distributed computing systems, machine learning, and artificial intelligence. These tools not only enable the analysis of large datasets but also allow for the real-time generation of actionable business insights (Chen et al., 2012). Research by McKinsey & Company (Bughin et al., 2018) indicates that organizations leveraging Big Data analytics are twice as likely to exceed their financial targets compared to those without a data-driven strategy.

Despite the well-recognized benefits, the MIT Sloan Management Review and IBM study (Kiron et al., 2014) reports that 63% of companies fail to fully capitalize on their data assets due to a lack of clear strategy, inadequate infrastructure, or insufficient analytical expertise. Some companies also face the potential of inclusion of different data sources, their quality and coherence of deposited data (Zahay et al., 2014).

A data-driven approach to marketing based on Big Data analytics facilitates the visualization and synchronization of user experience itself and helps in the construction of predictive models of consumer behavior, which further progressively affects the functionality and success of campaigns. The results of the study analysis by Accenture Interactive (2018), show that 83% of consumers are willing to publicly disclose their personal data in exchange for the necessary individualized offers that are in line with their preferences and aspirations.

The importance of a comprehensive insight into the distribution, analysis, potential and influence of Big data analytics in digital marketing was precisely the main motive of this paper, and in the need for it to be an important link in the affirmation of better business decisions and contribute to the improvement of the quality of work organizations. Through theoretical statements, a review of relevant studies and survey research, the paper seeks to determine the most common analytical techniques in digital marketing, to determine whether their implementation can improve the work and effectiveness of campaigns, as well as to specify their real application in everyday decision-making and evaluate the main imperatives, but also obstacles in their application.

## 2. Theoretical foundations – data and analytics in digital marketing

Marketing based on data (Data-Driven Marketing) enables meticulously identifying clients and adjusting to their needs as well as optimizing calculations and potential. In this interaction, data becomes a valuable strategic resource that can significantly improve campaign quality, comparative advantage and market position. The data-driven approach has greatly reconstructed and modified classic marketing in terms of better personalization, control, and the ability to obtain fine, precise data about customers, which further improved the strategy of successful marketing (Verhoef et al., 2021).

The analytical framework consists of several interconnected categories that are not viewed as isolated tools but certainly represent an evolutionary path of analytical stages to final maturity. Each step and stage builds on the previous one, until the basic raw information becomes an upgraded and configured product. The sophisticated division of analytics into descriptive, diagnostic, predictive and prescriptive exactly mirrors that evolution of data until obtaining final solutions based on real data. The key dimensions of the concept of big data were first defined by Doug Laney (2001) within the "3V" model, - Volume, Velocity and Variety. However, with the development of analytics, a level was reached when this model was no longer sufficient to represent all the specificity and delicacy in business, so experts in this field expanded this framework by adding new dimensions: Veracity and Value, thus creating a more comprehensive 5V model that is elaborated in more detail by Gandomi & Haider (2015). Understanding this multidimensional framework helps marketing professionals better navigate the opportunities and challenges that Big Data presents, and build a mature, sustainable analytics strategy.

To fully unlock the potential of Big Data, it is essential to understand its origins and how it can be technically organized. The classification of data into first-party, second-party, and third-party categories—based on their source and relationship to the organization—is vital for assessing their value, reliability, and strategic application, especially under increasingly strict data privacy regulations.

Managing diverse data sources requires more than simple data collection; it demands a thoughtful and sophisticated information architecture. The architecture must align with the company's analytical maturity and problem-solving needs and may include systems such as data warehouses, data lakes, lakehouses, and the modern marketing data stack. Investment in a robust data architecture is considered a strategic investment in the foundation of business operations and a prerequisite for building data trust, enabling analytical team efficiency, and unlocking advanced capabilities that generate true competitive advantage.

While traditional analytical methods provide a framework for understanding data, the emergence of machine learning (ML) and artificial intelligence (AI) marks a tectonic shift. These technologies are transforming marketing analytics from a reporting tool into an autonomous decision-making engine. AI is not merely a new method, it is a technological catalyst redefining the boundaries of speed, personalization, and optimization in marketing (Huang & Rust, 2021).

Despite the recognized advantages of analytical approaches, many organizations face significant barriers to full data-driven transformation. Although technology is often cited as the main challenge, research consistently reveals that the real obstacles are organizational and cultural. According to McAfee and Brynjolfsson (2012), the greatest challenge is not data access, but the ability to integrate data with technology and, more importantly, with organizational culture. In addition to internal challenges, data-driven transformation is also hindered by external obstacles such as regulatory and ethical frameworks. These obstacles are not only legal in nature but relate to the way companies collect and use customer data. This entails and opens up complex ethical issues related to algorithmic bias that indicates that analytical models can recklessly discriminate against certain groups of people, thus implying to companies that they are obliged to protect data and that their analytical models are used in the correct way. This further complicates the process of data-driven transformation but also traces the correct path of information management.

Although the position, importance and potential of the data-driven approach in marketing itself is highlighted in the public, practice does not continuously follow recommendations and ideal models. This creates a gap between the formal understanding of the importance of analytics and the practical application in marketing activities. This paper therefore aims to realistically evaluate the application of analytics in marketing, with the intention of achieving better business results.

### 3. Methodology

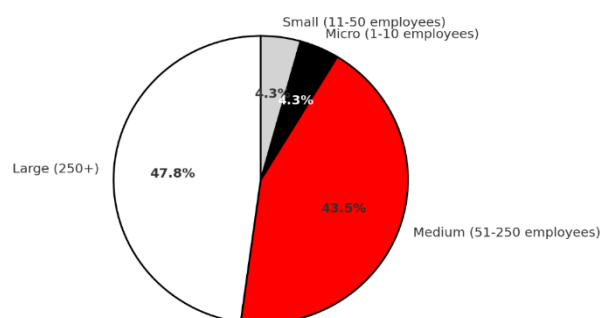
To gain deeper insight into the application of analytics in digital marketing, a survey was conducted among professionals from various sectors and organizational sizes. The primary objective of the research was to understand how analytics is used in practice, which tools and methods are most commonly applied, how deeply analytics is integrated into decision-making processes, and what the key challenges and future investment plans are in this domain. The survey was structured around five thematic areas:

- General respondent information – including company size, industry sector, years of professional experience, and role within the organization.
- Usage of analytics – covering frequency of use, types of analytics employed, and dominant marketing channels.
- Effects of analytics and benchmarking – exploring perceived performance impact and comparisons with competitors.
- Investments and strategic plans – assessing budget allocations and willingness to invest further in analytics.
- Challenges and barriers – identifying the main obstacles to full-scale data-driven transformation.
- The survey was conducted anonymously through the Google Forms platform. The questionnaire included a combination of closed-ended questions (single and multiple choice), Likert scale-based items (1 to 5), and open-ended questions. This design enabled both quantitative and qualitative data analysis.

### 4. Results and discussion

A total of 23 respondents participated in the study, representing a range of sectors such as e-commerce, digital agencies, SaaS, FMCG, and other industries actively engaged in digital marketing. The majority of participants came from large companies (47.8%), followed by medium-sized enterprises (43.5%), while micro and small businesses were significantly underrepresented (Figure 1).

**Figure 1.** Company size of respondents

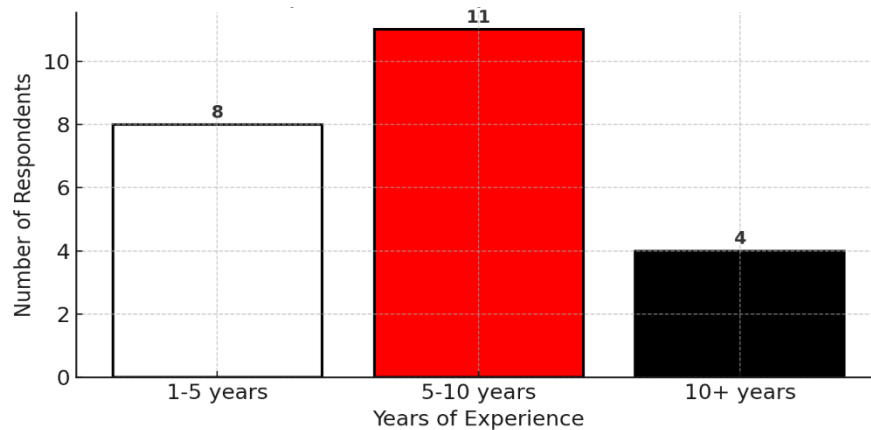


#### *Respondent Experience Structure*

The analysis of respondents' years of professional experience reveals a diverse sample. The largest group (39%) reported having between 3–5 years of experience, while 26% had between 6–10 years. Interestingly, 35% of participants reported

either less than 3 or more than 10 years of experience, suggesting a broad distribution across different stages of professional development.

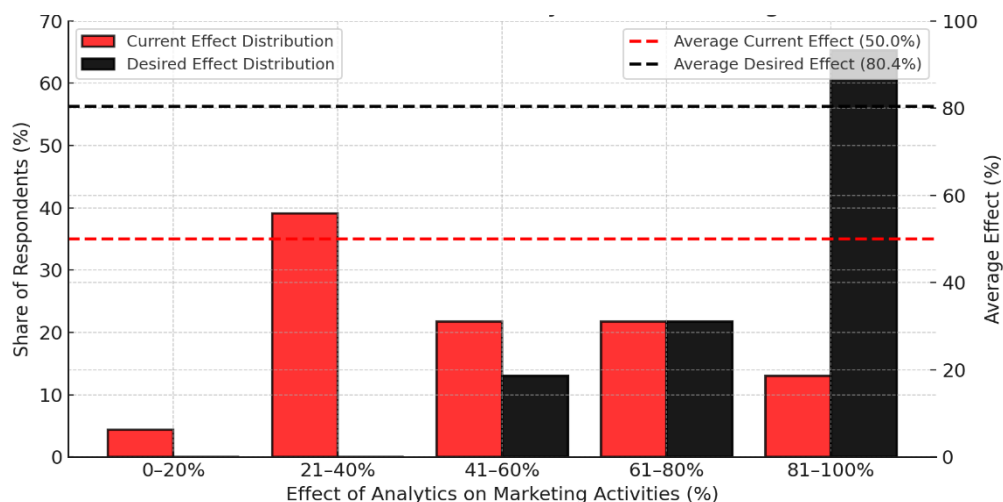
**Figure 2.** Presentation of the respondent's years of work experience



#### *Current vs. Desired Use of Analytics*

One of the central goals of the research was to assess the current level of analytics usage in digital marketing activities and compare it with respondents' desired future levels. Questions 2.2 and 2.3 focused on capturing the perceived percentage of marketing decisions currently and ideally driven by analytics.

**Figure 3.** Current vs. desired effect of analytics on marketing results



As shown in **Figure 3**, most respondents currently use analytics to a limited or moderate extent. Specifically, 39.13% indicated that analytics contributes to 21–40% of their marketing activities, while only 13.04% reported using analytics in more than 80% of cases.

In contrast, the desired usage levels reflect a substantial shift. A significant majority—65.22%—would like analytics to be integrated into 81–100% of their marketing decisions. Notably, none of the respondents expressed a desire for analytics usage to remain below the 40% threshold. This contrast clearly indicates a strong ambition for deeper integration of analytics in strategic marketing processes.

The comparison of mean scores also highlights this discrepancy: Current average usage: 3.00 (on a scale where 1 = 0–20%, 5 = 81–100%); Desired average usage: 4.52.

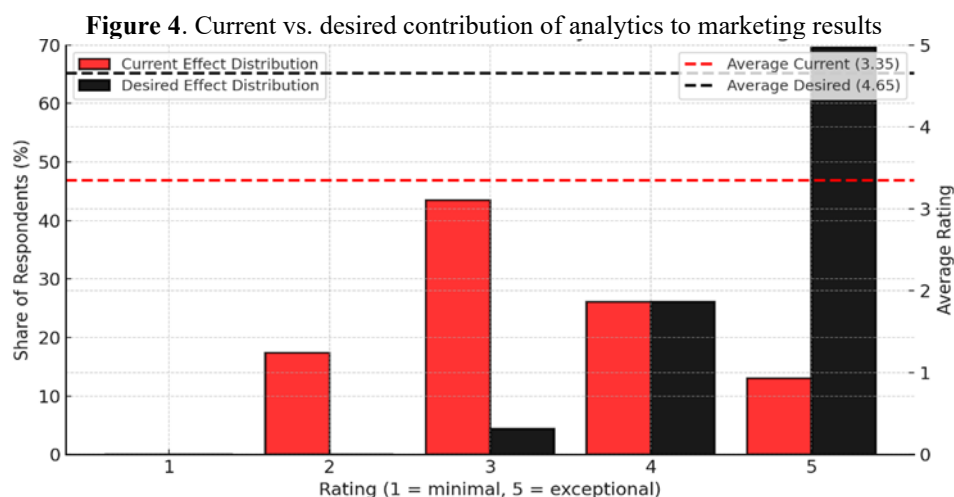
To test the statistical significance of this difference, the Wilcoxon signed-rank test was applied. This non-parametric test is suitable for comparing two related sets of ordinal data—in this case, the same participants' ratings for current and

desired usage. Unlike the paired t-test, which assumes normality, the Wilcoxon test does not require a normal distribution, making it ideal for analyzing Likert-scale survey responses.

Test results: (Test statistic:  $W = 0.0$ ;  $p\text{-value} = 0.00016$ ) confirms that respondents express a strong need for greater reliance on analytics in daily marketing decisions and highlights a clear gap between current and desired usage levels.

#### *Perceived vs. Desired Impact of Analytics*

In a subsequent section, participants were asked to evaluate the current impact of analytics on their marketing outcomes (Question 3.1) and how much impact they believe it should have (Question 3.2). The responses were rated on a 1–5 Likert scale, where 1 = “none” and 5 = “very significant”.



As illustrated in **Figure 4**, while most respondents currently perceive analytics as having a moderate to high impact (most frequent ratings were 3 and 4), the desired distribution shifts strongly toward the maximum score: 69.57% want analytics to have a very significant influence on marketing performance.

The mean values support this trend: Current average perceived impact: 3.35; Desired average perceived impact: 4.65. Once again, the Wilcoxon signed-rank test was employed to examine statistical significance (test statistic:  $W = 0.0$ ;  $p\text{-value}: 0.000091$ ) and results indicates a statistically significant difference between current and desired perceptions of analytics' impact. These findings reinforce the notion that participants not only aspire to increase analytics usage but also strongly believe that doing so would significantly enhance the effectiveness of their marketing activities.

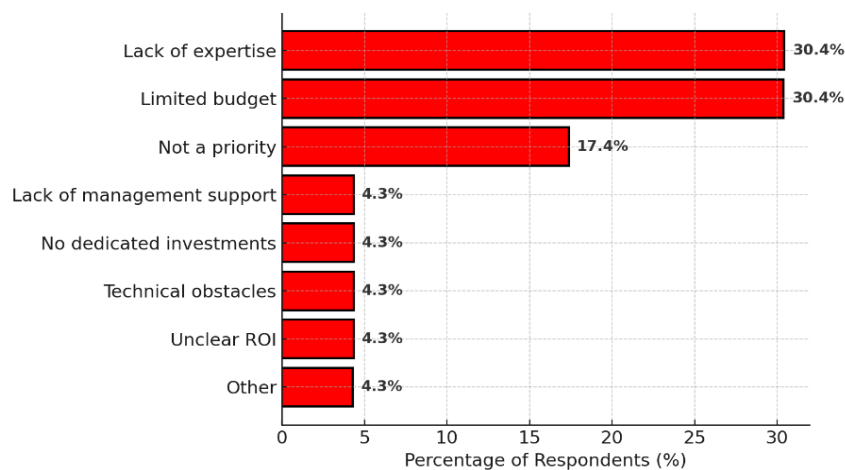
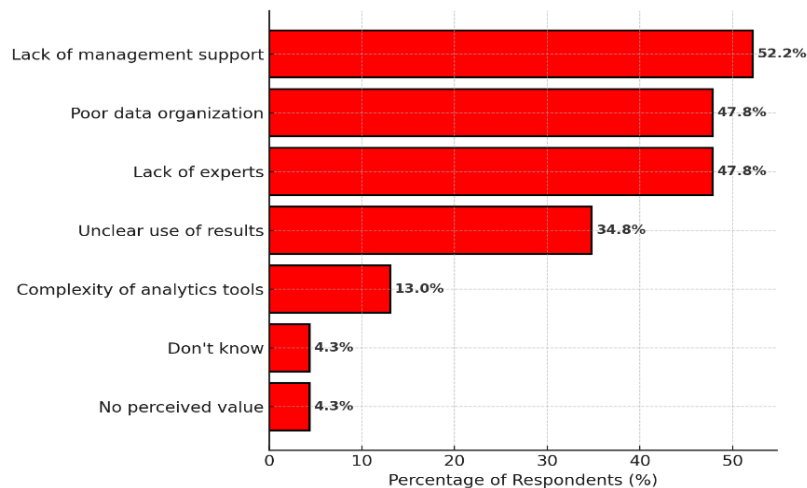
#### *Investment in Analytics and Budget Allocation.*

In the continuation of the research, the focus shifted to understanding how companies currently allocate budgets for analytics, whether they plan additional investments, and which barriers they perceive in developing a data-driven strategy. When asked "What portion of your marketing budget is allocated to analytics tools and teams?", over half of the respondents (52.17%) stated that they dedicate less than 10% of their marketing budget to analytics. An additional 13.04% reported allocating between 10% and 25%, while only 17.39% invest between 26% and 50%. Alarming, 17.39% of participants either could not estimate this amount or stated that no specific investment is currently being made in analytics resources.

These findings suggest that, despite its recognized importance, analytics is still not systematically funded in most organizations. It appears to be underrepresented in long-term planning and is not yet treated as a strategic resource. When asked "Do you plan to increase investment in analytics over the next 12 months?", 39.13% responded affirmatively. However, a similar proportion was split between those not planning any additional investments (30.43%) and those who were undecided or uncertain (30.43%). This division indicates that analytics still lacks a secure and established role in the strategic planning of many organizations, despite the declared intent to expand its usage.

It is also possible that some respondents do not hold high enough hierarchical positions within their organizations to fully understand or influence budget planning.

In addition, the survey explored the main reasons for not investing in analytics tools and teams. The most frequently cited barriers were limited budgets (30.43%) and lack of qualified personnel (30.43%). A significant share of firms also stated that analytics is not currently a priority (17.39%). Less frequently mentioned reasons included technical constraints, unclear return on investment (ROI), and lack of understanding or support from management.

**Figure 5.** Main reasons for not investing in analytics**Figure 6.** Main obstacles in using analytics

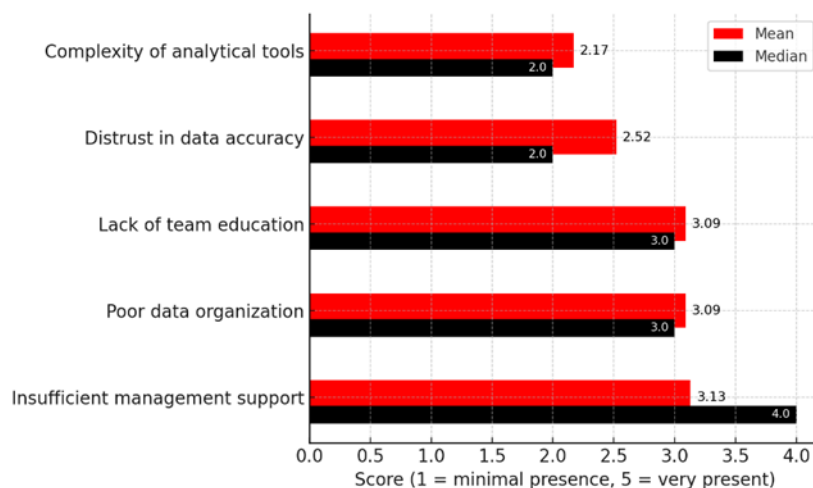
This clearly highlights a significant discrepancy between the desired and current state of analytics integration. Although respondents express a strong and unambiguous intention to increase the use of analytics, this aspiration is not yet reflected in concrete financial commitments or structured investments. The gap suggests that, while the value of analytics is acknowledged on a conceptual level, practical implementation remains hindered by financial constraints, lack of strategic prioritization, and organizational inertia.

This gap between ambition and execution sets the stage for a deeper examination of the key organizational and structural barriers that hinder the full implementation of data-driven strategies. In the following section, we explore the perceived obstacles that limit the adoption of analytics in everyday marketing practice.

#### *Key Barriers to the Use of Analytics*

As part of the subsequent phase of the research, respondents were first asked to identify the main barriers to implementing analytics in their organizations. **Figure 6** presents the distribution of responses to this multiple-choice question. The most frequently cited barriers include lack of management support (52.2%), poor data organization (47.8%), and shortage of skilled personnel (47.8%). These findings suggest that the challenges related to analytics implementation are predominantly organizational and human-resource-related, rather than technical in nature. Notably, these three barriers are often interrelated—without strong managerial support, investments in training, internal capability-building, and data quality improvement are significantly hindered.

On the other hand, technical complexity of tools (13.0%) and unclear use of analytics results (4.3%) were reported less frequently, while only a small number of respondents (4.3%) stated that they do not perceive any value or outcome from using analytics.

**Figure 7.** Average and median rating of obstacles in using analytics

To deepen the understanding of the severity of these barriers, respondents were subsequently asked to rate, on a Likert scale from 1 to 5, the extent to which each barrier affects their organization. This follow-up question was designed to capture the perceived magnitude of each issue, rather than its mere presence.

**Figure 7** illustrates the average and median scores for each barrier. The highest average scores were recorded for “lack of team education” (3.13) and “insufficient management support” (3.09), while “poor data organization” also received a notably high rating. The median value for insufficient management support was 4, indicating that a significant portion of respondents perceive this issue as highly impactful. Median scores for all other barriers were 3 or lower, suggesting that they are considered moderately or occasionally present.

Overall, the findings demonstrate a strong alignment between frequency and perceived severity of the reported challenges. The barriers most often selected are also those considered most impactful. These results are consistent with previous studies that emphasize the critical role of management support and internal competence in the successful implementation of data-driven strategies in marketing (Sedkaoui & Khelifaoui, 2024; Petrescu et al., 2020; Proença & Martins, 2024).

## 5. Conclusion

The conducted research clearly demonstrates a near-universal consensus among employees in domestic companies that a more intensive and systematic use of analytics in marketing would significantly enhance organizational performance. The vast majority of respondents express a strong desire to increase the use of analytical tools and believe that adopting a data-driven approach would lead to better market understanding and faster adaptation to changes in the business environment. These views are aligned with global trends—studies show that 87% of executives worldwide believe that improving the use of data and analytics in everyday decision-making is essential (Kiron et al., 2014).

Although respondents recognize a moderate to significant current impact of analytics on marketing results, there is a statistically significant difference between the current and desired level of contribution ( $p$ -value = 0.000091), confirming a strong aspiration for a greater role of analytics in improving marketing performance.

Moreover, the average score for current use of analytics is 3.00 (on a scale from 1 to 5), while the desired score is considerably higher at 4.52. A Wilcoxon signed-rank test confirmed that this difference is statistically significant ( $p$  = 0.00016), highlighting a pronounced gap between aspiration and reality in the integration of analytics into marketing decision-making.

Additionally, analysis of budget allocations reveals that more than half of companies spend less than 10% of their marketing budgets on analytics tools and teams. A significant portion either does not plan to increase these investments or remains undecided, suggesting that analytics still lacks systematic financial support despite being widely recognized as important.

It can be concluded that the lack of management understanding of the possibilities and potential of analytics and new technologies is currently one of the key problems and that the success of data-driven transformation depends on the quality and breadth of managerial support. Additionally, the lack of experts and the debatable education system slow down the application of analytical culture and therefore threaten favorable business results.

These results are fully in line with international reports, such as Deloitte (2019), where the main obstacles to the full integration of analytics in the marketing process are precisely the lack of management engagement and understanding. Likewise, Gartner (2020) indicates that management, which is often less technically savvy or insufficiently informed about the possibilities of modern technologies, does not fully recognize the potential that analytics and digital tools can bring to the company and its progress.

Although many companies today declare that they are analytically oriented, the results indicate a discrepancy in the relationship between organizational strategy-institutional support-analytical day-to-day decision-making. Despite the declarative readiness of companies to become analytically oriented, the findings show that without a concrete change in organizational dynamics, strategy and strengthening of institutional support, analytics remains suppressed and neglected in everyday decision-making.

### *Recommendations for Future Research and Practice*

Based on the research, the following key recommendations can be singled out:

- Stronger management support and education is necessary. The initiative of Data-driven transformation must be initiated and supported by the top management, which through personal engagement, clearly defined goals and strategic engagements. Educating management about the capabilities of analytics is also of great importance in order to make better business decisions and better support analytics teams. It is believed that developing an analytical culture and continuous education must be a key part of business, until analytics becomes an integral part of everyday work. It goes without saying that management should be the initiator and role model in developing an analytical culture.
- Improving the infrastructure for working with data. The integration and quality of data is of essential importance, because heterogeneity and inconsistency represent a serious anomaly for the development of advanced analytical solutions.

A better understanding of the barriers and motivations of managers, together with the improvement of analytical literacy in management positions, can be achieved by conducting benchmark research focused exclusively on management. A focused analysis of leadership perspectives, capabilities, and openness to change could lead to more targeted strategies for successful data-driven transformation in domestic companies.

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