What Makes Business Intelligence & Analytics Systems Stick? Identifying Recurrent Enablers in Management Accounting Practices

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Abstract
Despite the growing interest in Business Intelligence & Analytics (BI&A) systems, many organizations still struggle to fully embed these tools into their Management Accounting (MA) practices after initial adoption. Yet, limited attention has been devoted to the stage of actual use, and prior studies have mostly examined individual enablers of use in isolation. This paper addresses this gap by investigating which bundle of enabling factors most frequently recur across organizations that have integrated BI&A systems into their MA practices. Drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT) as a conceptual lens, the study is based on a cross-sectional field study involving eight Italian medium-sized and large companies.
The findings reveal that BI&A system usage in MA contexts emerges not from isolated drivers, but from combinations of factors spanning organizational, technical, and behavioural dimensions. In particular, six enabling factors emerged as consistently present: (1) perceived usefulness of the BI&A system by end users, (2) strong understanding of company processes by management accountants, (3) collaborative implementation involving end users, (4) active management support, (5) cross-functional implementation teams, (6) demand-driven development of BI&A outputs.
In addition, the study identifies the choice of the entry point, specifically the decision to start implementation with sales data, as a novel and underexplored enabler. Sales data, being highly accessible, easy to validate, and directly relevant to decision-making, played a crucial role in building early user trust and reducing perceived complexity. This trusted entry point contributed to lower resistance and foster confidence, allowing users to perceive the BI&A system as immediately useful and manageable.

Keywords: Management Accounting, Business Intelligence & Analytics, Use, Enablers.

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1. Introduction

Business Intelligence & Analytics (BI&A) systems refer to a combination of technologies and methodologies designed to gather, process, and analyze data with the goal of delivering actionable insights to support managerial decision-making (Davenport, 2006; Davenport et al., 2010). Their ability to streamline data collection, generate information, and organize results into accessible formats such as reports and dashboards for decision-makers (Appelbaum et al., 2017; Bhimani and Willcocks, 2014) has sparked academic debate regarding the implications for Management Accounting (MA) (Petrosino et al., 2018; Lombardi et al., 2021; Badia and Donato, 2022; Arkhipova et al., 2024).

On the one hand, research has shown that BI&A systems can support a wide range of MA activities, including forecasting and budgeting (Cupertino et al., 2018), margin analysis (Bronzo et al., 2013), pricing and product mix decisions (Kowalczyk and Buxmann, 2015), reporting and planning (Marx et al., 2012), and performance measurement (Visani, 2017). On the other hand, a growing body of research highlights how numerous BI&A implementations fall short of expectations (Elbashir et al., 2013; Visinescu et al., 2016; Audzeyeva and Hudson, 2016), while limited attention has been devoted to the actual use stage (Popovič et al., 2012; Burton-Jones and Straub, 2006). As noted by Hou (2015), there remains a lack of research into the factors that influence whether and how users continue to use these systems once implemented.

This issue is especially pronounced in the domain of MA, where user acceptance and sustained use remain key challenges (Ain et al., 2019; Mudau et al., 2024). In this regard, Knudsen (2020) has recently called for more in-depth qualitative studies to shed light on the factors that shape BI&A system usage in MA contexts, and to better understand both positive and negative implementation experiences.

Moreover, existing contributions often investigate enabling factors in isolation, without assessing which ones are most frequent or tend to appear together across organizational settings (Maroufkhani et al., 2017; Mikalef et al., 2018; Chi & Mahmud, 2020). This is a critical gap, as BI&A usage is rarely determined by a single factor, but rather emerges from a bundle of conditions. Understanding the frequency and co-occurrence of these factors can offer more nuanced insights into why, in some cases, BI&A systems become embedded in MA routines, while in others they remain underused.

In view of this research gap, the aim of this paper is to investigate the following research question: Which sets of enabling factors recur most frequently across organizations that have embedded BI&A systems into their MA practices?

To answer this question, the study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) as a guiding theoretical framework, and draws on a cross-sectional field study involving eight Italian medium-sized and large companies that have integrated BI&A systems into their MA routines.

The remainder of the paper is structured as follows. Section 2 outlines the theoretical background, while Section 3 describes the research method adopted. Section 4 presents the empirical analysis, and Section 5 concludes by discussing the study's main contributions.

2. Theoretical background

To interpret the factors influencing BI&A system usage within MA contexts, this study draws on the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Unlike other models such as Technology Acceptance Model (Davis, 1989), the Task-Technology Fit model (Goodhue and Thompson, 1995) and the DeLone and McLean Information Systems Success Model (DeLone and McLean, 1992; 2003), UTAUT captures not only the motivational drivers that shape behavioral intention, but also the facilitating conditions that help translate this intention into actual and sustained use. Given that the goal of this study is to explore which sets of enabling factors most consistently support the actual use of BI&A systems in MA practices, UTAUT provides a coherent and comprehensive lens. Its focus on individual perceptions, organizational support and technical alignment makes it particularly suited for understanding how BI&A systems become embedded in day-to-day MA routines, beyond initial adoption.

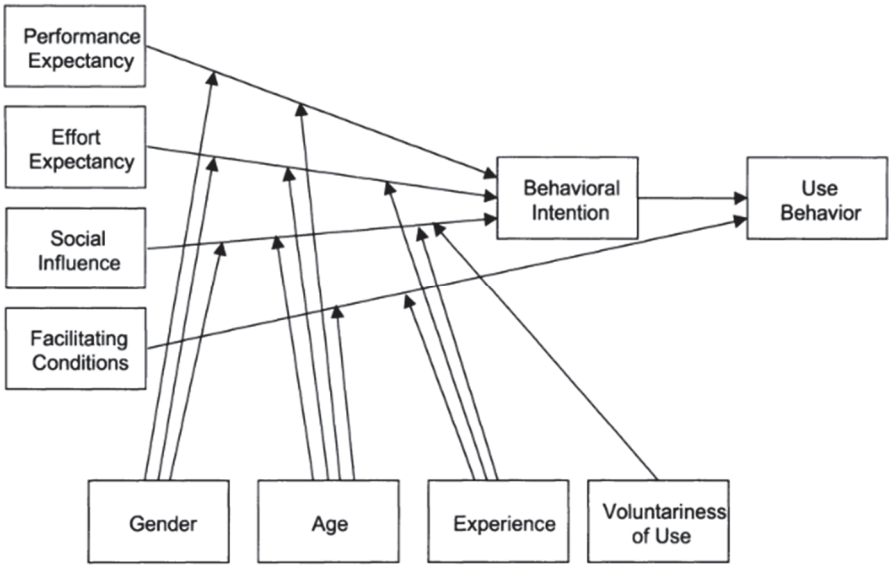
The UTAUT framework (figure 1 below) explains technology adoption by linking four core constructs. Performance expectancy (the belief that the system improves job performance), effort expectancy (the perceived ease of use), and social influence (the perception that significant others expect or support its use) primarily drive behavioral intention to use a system. Facilitating conditions (the organizational and technical infrastructure supporting usage) play a different role, as they help transform this intention into actual and sustained use, ensuring that users can effectively integrate the technology into their work practices.

UTAUT also acknowledges the role of moderating variables, such as age, experience, gender, and voluntariness of use, which can amplify or weaken the influence of the core constructs.

In this study, UTAUT is used as a conceptual framework to categorize

and interpret the factors identified in the literature and case evidence, rather than to test the full model empirically. For this reason, components such as moderating variables are not explicitly considered. The exclusion of the moderating variables traditionally included in UTAUT is justified because prior research suggests that in organizational settings with relatively homogeneous user populations, such as management accountants, these moderators tend to exert only a marginal influence on the adoption and continued use of a given technology (Slade et al., 2015; Williams et al., 2015).

Figure 1 – The UTAUT framework (from Venkatesh et al., 2003)



In line with the UTAUT framework, this study adopts a behavioral view of "actual use", referring to the observable and sustained utilization of BI&A systems, captured through the frequency and the duration of usage. Rather than dissecting alternative conceptualizations of use, such as depth, breadth, and appropriateness (Burton-Jones and Straub, 2006) or sequential stages like adoption, routinization, and infusion (Saga and Zmud, 1994), the focus is on uncovering the factors that explain whether BI&A systems become embedded into MA practices.

In the following sections, prior studies will be mapped onto UTAUT's core dimensions to clarify the multifaceted enablers highlighted in the literature and provide a coherent foundation for exploring the dynamics shaping BI&A usage in MA.

2.1 Performance expectancy

Performance expectancy relates to the extent to which users believe a technology improves their job performance (Venkatesh et al., 2003). In the context under investigation, high-quality, reliable, and timely information is a primary enabler: when BI&A outputs support better decision-making, adoption and sustained usage for MA purposes are more likely (Jaklič et al., 2018; Popovič et al., 2012). Advanced functionalities, such as interactive visualization, drill-down, and customizable dashboards, can further enhance user engagement (Dilla et al., 2013; Peng et al., 2007; Seow, 2011). However, several studies indicate that technical sophistication alone is insufficient to sustain performance expectancy. The ability of BI&A systems to generate perceived value depends on their integration into established MA routines. In this sense, perceived usefulness emerges not only from what the system can do, but from how effectively its outputs align with user information needs (Hou, 2012). Consistently, bottom-up dynamics can also foster use; when reports are designed in response to specific user requests rather than imposed top-down, end-users demonstrate stronger engagement and more consistent usage (Fahlevi et al., 2021).

On the other hand, barriers reducing performance expectancy include data quality problems, such as missing, incomplete, or duplicate data, which undermine the reliability and perceived value of BI&A outputs (Lautenbach et al., 2017).

2.2 Effort expectancy

Effort expectancy reflects how easy a technology is perceived to use (Venkatesh et al., 2003). In the context under analysis, user-friendly interfaces and straightforward report creation reduce complexity and support the use of BI&A systems for MA purposes (Brockmann et al., 2012). Training, particularly when tailored to user needs, is a crucial enabler: it lowers the learning curve, prevents misuse, and strengthens confidence in system use (Spraakman et al., 2021; Nofal and Yusof, 2016; Borthwick and Hansen, 2017).

Beyond these direct enablers, studies show that collaborative design practices, where end-users are involved throughout the implementation process, further reduce perceived effort (Eldenburg et al., 2010). Feedback cycles during the BI&A system development help align minimize unnecessary complexity and foster a sense of ownership among users (Lynch and Gregor, 2004).

Conversely, several factors act as barriers by increasing perceived effort

for the users. These include reporting issues (difficulty customizing or navigating reports), system errors, missing functionalities, and workflow disruptions, all of which can frustrate users and hinder sustained use (Deng and Chi, 2012; Burton-Jones and Grange, 2013). Such issues often exacerbate perceptions that BI&A systems are complex, reducing willingness to explore or integrate them into daily MA tasks.

2.3 Social influence

Social influence refers to the extent to which users perceive that significant others (e.g., managers, peers) expect or support their usage of a given technology (Venkatesh et al., 2003). A well-developed data-driven culture within organizations has been repeatedly cited as a key enabler of BI&A use in MA contexts (Popovič, 2017). Social legitimacy, fostered by peers' advocacy, encourages reluctant users to engage with the system (Grublješič et al, 2014; Hou, 2014).

Yet, social dynamics can also pose barriers. Several studies note that BI&A adoption can disrupt traditional power structures, as operational managers gain greater autonomy in accessing and interpreting data, potentially diminishing the gatekeeping role of management accountants (Dunne et al., 2013). Such shifts risk marginalizing management accountants, weakening their influence over information flows, and creating perceptions of role erosion (Mertins and White, 2014). Nonetheless, empirical evidence shows that these risks are not uniform: in many contexts, management accountants have retained or even enhanced their organizational standing by adopting facilitative roles, acting as mediators between IT experts and decision-makers, and leveraging BI&A tools to provide higher-value information (Heinzelmann, 2017; Castellano et al., 2017).

2.4 Facilitating conditions

Facilitating conditions denote the degree to which an organization's infrastructure and resources support the use of a given technology (Venkatesh et al., 2003). In the context under investigation, management support is among the most influential drivers identified in prior studies: top management sponsorship ensures resource allocation, fosters a favorable environment, and signals the relevance of BI&A initiatives (Kee-Luen et al., 2018; Lautenbach et al., 2017; Nespeca and Chiucchi, 2018).

The composition of implementation teams is another frequently cited en-

abling factor: cross-functional teams, combining technical experts with management accountants and business specialists, foster alignment between system capabilities and organizational needs (Villamarín-García and Díaz Pinzón, 2017). This collaboration mitigates misalignments between IT and business functions, ultimately enhancing adoption and usage of the BI&A system for MA purposes (Munir et al., 2023).

Technical conditions also play a decisive role. Reliable IT infrastructure and effective integration with existing information systems enable users to access consistent and timely information (Peters et al., 2018). By addressing workflow inefficiencies and ensuring report availability, organizations reduce frustration and encourage engagement (Deng and Chi, 2012; Burton-Jones and Grange, 2013).

Despite the growing and multifaceted body of research across the four UTAUT constructs, research has shown that BI&A systems often fall short when it comes to effectively supporting managerial decision-making (Elbashir et al., 2013; Visinescu et al., 2016; Audzeyeva and Hudson, 2015). While the realization of benefits from BI&A initiatives strongly depends on whether, how, and to what extent these systems are actually used to inform decisions, the phase of actual system usage has attracted relatively limited scholarly attention (Popovič et al., 2012; Burton-Jones and Straub, 2006). Borrowing from Hou (2015, p. 1), "even though a great deal of attention has been paid to the practical decision-making benefits of BI system adoption, there's still a lack of research to investigate factors that affect users' intention to continue using BI systems after they had already adopted the systems".

This issue appears particularly acute in the field of MA, where ensuring user acceptance and promoting continuous use of BI&A systems remain critical yet unresolved challenges (Ain et al., 2019; Mudau et al., 2024). In this respect, Knudsen (2020) has recently emphasized the need for more in-depth qualitative investigations to shed light on the factors that shape BI&A system usage in MA contexts and to gain a deeper understanding of both positive and negative implementation experiences.

Beyond this general neglect of the use stage, prior studies have typically examined enablers in isolation, without systematically assessing which factors are most recurrent or which tend to co-occur across organizational contexts (Maroufkhani et al., 2017; Mikalef et al., 2018; Chi and Mahmud, 2020). Identifying these patterns is crucial because BI&A system adoption and sustained utilization are rarely driven by a single determinant. Instead, they result from bundles of conditions, where the presence or absence of certain factors can amplify or mitigate the impact of others. Clarifying the relative frequency, salience, and co-occurrence of these enablers can therefore

provide insights for both scholars and practitioners seeking to understand why some BI&A implementations achieve deep integration into MA practices, while others remain underutilized.

In view of this research gap, the aim of the paper is to investigate the following research question: Which sets of enabling factors recur most frequently across organizations that have embedded BI&A systems into their MA practices?

3. Research method

In order to answer the research question, this study adopts a cross-sectional field study design (Granlund and Malmi, 2002) involving eight Italian medium-sized and large companies. A cross-sectional field study is a qualitative research method that allows us to collect and analyze empirical data from a limited number of cases, each of which is explored with limited depth (Roslender and Hart, 2003). Although it shares similarities with the survey and case study, it is characterized by a less structured data collection compared to the survey and a lower level of depth than the case study (Lillis and Mundy, 2005). A cross-sectional field study is suitable when it comes to providing a wide representation of a phenomenon through the identification of cross-case patterns, i.e., common aspects across the cases analyzed (Granlund and Malmi, 2002).

This method was chosen because it aligns with the nature of the phenomenon under investigation. The use of BI&A systems for MA purposes is highly context-dependent, shaped by organizational, technical, and human factors. This design provides a balanced means of producing a comprehensive snapshot of the factors driving BI&A usage across multiple organizational settings by capturing both commonalities and divergences and enabling a nuanced understanding of the mechanisms through which these systems gain traction into MA practices.

The case companies were selected purposefully (Patton, 1990). In particular, preliminary informal conversations with company contacts had confirmed that all firms had adopted BI&A systems for MA purposes and were making use of them in an observable and sustained way. Actual use was then assessed qualitatively through interviews, focusing on recurring patterns of engagement (e.g., daily interaction, continuous use throughout the day) to assess the extent to which BI&A systems had become embedded into standard workflows. This operationalization remains coherent with UTAUT,

where actual use is typically measured in terms of frequency and duration, while being adapted to the qualitative nature of this study.

To ensure heterogeneity in the organizational contexts examined, a maximum variation sampling strategy was adopted (Patton, 1990), selecting companies from a range of industries, including consumer electronics, software, agri-food, to name a few (see the Appendix for an overview of the case companies). These firms had also implemented BI&A systems for diverse MA purposes, ranging from reporting and sales monitoring to margin analysis and forecasting. This diversity enabled us to capture a broad spectrum of organizational settings and usage patterns, enriching the analysis of factors influencing BI&A system utilization.

The data presented in this paper are collected through semi-structured interviews (Qu and Dumay, 2011) with the management accountants or the CFOs who were in charge for the use of the BI&A systems within the case companies. This data collection method ensures a high degree of flexibility (Rubin and Rubin, 2011) and allows researchers, during the interview stage, to explore issues that were not originally included in the interview guide (Wengraf, 2001). This feature is particularly valuable for collecting data on the factors that enable the use of BI&A systems for MA purposes, as such factors cannot be fully anticipated when designing the interview guide.

The interview guide was grounded in the UTAUT framework and its structure was designed to explore the four core constructs of the model. The first section gathered contextual information on the interviewee and the company, including role, years of experience, company size, structure of the MA and BI&A teams, and their competencies. The second section focused on general aspects of the BI&A system, such as the motivations for its adoption, its purpose, the implementation process, the frequency and duration of use, and its perceived impact on MA activities, including benefits and drawbacks. The third section examined factors connected to performance expectancy. Questions explored whether the system was experienced as a valuable tool for accomplishing MA tasks and whether users felt it improved their capacity. The fourth section focused on effort expectancy, investigating elements related to the perceived ease of use of the BI&A system. Specific topics included the level of user-friendliness, the accessibility and navigability of the interface, the effectiveness of training, and the presence of any barriers to use, such as information overload. The fifth section addressed social influence, capturing how the organizational environment shaped system use. Interview questions examined the legitimacy of BI&A practices within the firm and whether the introduction of the system had altered the power dynamics between management

accountants and other organizational actors. The sixth section focused on facilitating conditions, collecting data on the organizational and technical infrastructure that enabled or constrained usage. Questions explored top management sponsorship, the presence of a data-driven culture, the composition of implementation teams, or integration with existing information systems. The interview concluded with open-ended questions, inviting respondents to identify any additional factors influencing system usage, to reflect on how different factors interact, and to indicate what they considered the three most important enablers shaping the use of BI&A systems in MA contexts.

Eight semi-structured interviews were conducted, one for each case company, between July and November 2022. Each interview involved a key informant directly engaged in the adoption and use of BI&A systems for MA purposes, such as the CFO, the head of the MA department, or a senior management accountant. The interviews lasted between 60 and 80 minutes, allowing sufficient time to explore both pre-structured themes and emergent topics. All interviews were audio-recorded and transcribed verbatim to ensure accuracy and support a reliable analysis of the data (Silverman, 2013). When needed, follow-up interviews were conducted to further explore themes that had surfaced during the initial interviews.

As regards data analysis, the interview transcripts were coded using a structured protocol informed by the principles of content analysis (Krippendorff, 1980). The coding framework was largely deductive, being derived from the extant literature on BI&A use in MA (e.g., Popovič et al., 2012; Hou, 2015; Rikhardsson and Yigitbasioglu, 2018) and aligned with the thematic areas of the interview guide.

Each of the seven macro-dimensions of the interview guide was broken down into topics derived from specific interview questions, and each topic was associated with one or more codes. For example, within the facilitating conditions dimension, the topic "top management support" was detected through codes such as "early sponsorship", "resource allocation approval", "prioritization of BI&A in strategic planning", or "support in vendor/tool selection". Although the coding framework was deductive, inductive refinement allowed us to capture context-specific dynamics which emerged across multiple cases. These additional codes were integrated into the analysis to reflect the richness of the empirical material.

Transcripts were read multiple times and coded line by line, with text segments tagged according to the predefined codes (Ayress, 2008). Throughout the coding process, memos were written to document reflections and preliminary interpretations (Corbin and Strauss, 2008). To ensure consistency,

the research team met repeatedly to review the coded material, discuss discrepancies, and reconcile divergent interpretations (Ahrens and Chapman, 2006). Overall, the analysis focused on identifying the factors that acted as enablers to BI&A usage in MA contexts.

4. Analysis of cases

In this analysis, enabling factors are interpreted broadly to reflect two situations. First, they encompass the active presence of enablers, such as explicit management support, cross-functional implementation teams or customized reporting. Second, they also capture the absence of significant barriers, such as data quality issues or system errors, which, although not representing proactive drivers, still facilitate the sustained use of BI&A systems by removing frictions that could otherwise undermine use for MA purposes. In Table 1, grey cells indicate the presence of such enabling conditions, either through concrete enablers or the absence of barriers, while white cells mark instances where neither enablers nor a barrier-free context was observed, signaling a reduced likelihood of sustained system usage within that construct. In line with the approach adopted, Table 1 reports only the codes generated through deductive coding based on the extant literature on BI&A use in MA and on the UTAUT framework.

The cross-case analysis revealed that enabling factors rarely operated in isolation. Some factors are indeed present in all companies and these represent almost necessary conditions for sustained use of BI&A systems. The empirical discussion that follows focuses on this bundle of enabling factors. In addition, particular attention is given to one factor that emerged inductively from the data and has received limited attention in prior literature: the entry point of the BI&A initiative.

Table 1 - Distribution of enabling factors across UTAUT categories and case companies

Category	Factors	Type	Alfa	Beta	Gamma	Delta	Epsilon	Zeta	Eta	Theta	
Perfomance Expectancy	Perceived usefulness of the Bi&A system	Active enabler									8
Facilitating Conditions	Strong understanding of company processes by management accountants	Active enabler									8
Effort Expectancy	Collaborative implementation of the Bi&A system involving end users	Active enabler									8
Facilitating Conditions	Active management support to the Bi&A project	Active enabler									8
Facilitating Conditions	Implementation of the Bi&A system led by cross-functional teams	Active enabler									8
Perfomance Expectancy	Demand-driven development of Bi&A outputs	Active enabler									8
Social Influence	No perceived loss of management accountants' influence	Latent enabler									7
Facilitating Conditions	Effective integration of the Bi&A system with existing information systems	Active enabler									5
Perfomance Expectancy	Absence of data quality issues	Latent enabler									5
Facilitating Conditions	Lack of IT architecture issues	Latent enabler									5
Effort Expectancy	Absence of role authorization issues	Latent enabler									5
Social Influence	Established data-driven culture	Active enabler									4
Effort Expectancy	Targeted training initiatives on the Bi&A system	Active enabler									4
Effort Expectancy	Availability of interactive features provided by the Bi&A system	Active enabler									4
Effort Expectancy	Lack of reporting constraints	Latent enabler									4
Effort Expectancy	No critical system errors	Latent enabler									4
Facilitating Conditions	Absence of workflow disruptions	Latent enabler									3
Effort Expectancy	Perceived ease of use of the BI&A system	Active enabler									3
Facilitating Conditions	Clear communication of Bi&A benefits to management accountants	Active enabler									3
Perfomance Expectancy	Availability of visualization techniques to deliver information	Active enabler									3
Perfomance Expectancy	Access to feedback and recommendations provided by the Bi&A system	Active enabler									0
			14	14	12	16	13	11	14	13	

4.1 Performance expectancy: perceived usefulness and bottom-up requests

Across all eight companies, performance expectancy emerged as a primary driver of BI&A system sustained usage. Respondents consistently emphasized that system uptake depended on how clearly users perceived its benefits for their tasks and decision-making processes. As interviewees highlighted:

> *"The perceived usefulness of the BI&A system is crucial to make it used by the users of the firm. Like with other software, it is important that all the users understand the usefulness of the new system so that they will be the first ones to have the desire to use it." (Gamma)*

> *"When the final users understand the importance of the BI&A system, they are much more interested in utilizing it. We knew that this would have been an important boost for the project, and we organized several meetings to explain to everyone the project we were implementing and why it would have been relevant for the company, and I can say that it was crucial in terms of system usage." (Delta)*

This perception of usefulness was not driven solely by the system's inherent capabilities, but also by practices that connected its outputs to the concrete needs of decision-makers. One such practice was the reliance on bottom-up requests in report development. Rather than imposing standardized templates, management accountants responded to user-driven demands, tailoring reports to facilitate individual workflows and decision-making. As respondents explained:

> *"The organization of our management accounting activities is a bit fragmented and not standardized. We always worked so much to implement tailor-made solutions for the people asking information to us and we went on with this approach even when we decided to implement a BI&A system. We know that it is not the best way but at least we are creating a system that's being used regularly by all the final users, and it is good for us." (Epsilon)*

> *"I believe that when the final user proposes the development of a report, he will use it more intensely as it was requested to facilitate his work and make sense of it." (Gamma)*

Such responsiveness enhanced users' perception that BI&A outputs were

directly relevant to their work, strengthening not only performance expectancy but also their motivation to integrate the system into everyday tasks.

4.2 Effort expectancy: collaborative design

Effort expectancy, understood as the perceived ease of using BI&A systems, was primarily fostered through collaborative implementation practices. Across all eight cases, respondents emphasized that involving final users throughout iterative design phases reduced the learning curve and minimized risks of misuse. As two respondents explained:

> *"Of course, the implementation must be collaborative. If not, the process fails from my point of view. In our case we followed the collaborative approach, and we benefited for sure from it. This was a determinant factor to make the implementation successful and the system used." (Eta)*

> *"In our company the implementation of the system is always collaborative, and we think that this is one of the main reasons why our system is used and understood by the final users. Our approach of collaborative implementation is an iterative approach between the implementation team and the final users that allows us to constantly obtain feedback by them and answer to their specific needs." (Delta)*

This collaborative dynamic ensured that BI&A systems were not perceived as overly complex, reinforcing users' confidence and facilitating their integration into everyday routines.

4.3 Social influence: legitimacy and the controlled role of power dynamics

Social dynamics played a central role in legitimizing BI&A system use. Concerns about power shifts were marginal in practice. Only Alfa reported a tangible erosion of management accountants' influence:

> *"Yes, it had an important impact. Now all analysts have the means to conduct their analysis and are no longer totally dependent on management accountants. Sometimes you have the impression that the management accountants are starting to no longer count because in every area there are analysts capable of independently conducting their own analyses with the new BI&A systems." (Alfa)*

In all other cases, management accountants either maintained their influence or reinforced it, as respondents explained:

> *"Obviously there was fear that the system could affect the activities and responsibilities of the management accountants and that it could somehow decrease their relevance for management. Luckily this was not the case, on the contrary, the management accountant was important at every moment of development and became even more so at the end of the implementation." (Eta)*

> *"We didn't have this problem. The management accountant has always been important, and BI has only helped accentuate his role." (Delta)*

These findings suggest that while social legitimacy is critical for system use, fears of disempowerment can be mitigated when management accountants embrace a facilitative role.

4.4 Facilitating conditions: management sponsorship, cross-functional teams, process knowledge, and a trusted entry point

Facilitating conditions provided the structural backbone for BI&A use across the cases. Top management sponsorship was consistently cited as the most decisive enabler for both implementation and sustained use:

> *"The management team has always supported the whole implementation process during each step of it and this was the most important determinant to gain a successful implementation and to make the BI&A system used by the final users." (Alfa)*

> *"We started exploring the functionalities of the BI&A system more than twenty years ago thanks to the foresight of the top management team, that continued to be the main sponsor. I can affirm that without it we would never have achieved the actual degree of use of the system for management accounting activities." (Theta)*

Cross-functional implementation teams, combining IT specialists, external consultants, and management accountants, were equally crucial for aligning technical design with organizational needs:

> *"During the implementation phase the mix of competences of the implementation team was one of the main success factors from my point of view. It allowed to create a BI&A system perfectly related to our business needs and with the adequate IT infrastructure." (Gamma)*

"In our case the implementation team was composed of different professionals, both internal and external, and the main benefit was the mix of competences of them. We would not have been able to obtain successful implementation without this factor. It was one of the main relevant for us." (Zeta)

In addition, deep knowledge of business processes was seen as indispensable for ensuring that the system represented operational realities and could adapt as processes evolved:

"The knowledge of the business processes involved in the data sources that will be integrated with the BI&A system is crucial. The new system must perfectly fit and represent the business processes as they are, and it must be able to adapt whenever they change. We worked so hard to make this happen, and I can affirm that this was determinant for the usage of the BI&A system." (Beta)

"The implementation of the BI&A system should absolutely be managed by people who know perfectly all the business processes. This is so relevant to make the system used by the final users." (Alfa)

Finally, the choice to begin BI&A implementation with sales data – simple, easily verifiable, and central to decision-making – acted as a practical entry point that lowered adoption risks and built trust during early phases:

"We chose sales data to start with for the implementation of the BI&A system for two main reasons. In the first place they are the fundamental data that should be analyzed with such a system. The other ones can be integrated only after the sales data. The second reason is that they are the easiest data we could have started with, and we decided to proceed with them to make the system as easy as possible because we have never used BI&A models before." (Zeta)

"Sales data are the most easily verifiable ones and least subject to free interpretation, so starting from these can be useful for developing 'trust' in these systems." (Gamma)

Together, these facilitating conditions underscore that BI&A adoption is not merely a matter of system capabilities, but of organizational anchoring: when sponsorship, cross-functional collaboration, deep process knowledge, and a trusted entry point converge, BI&A systems are more likely to take root and evolve into meaningful tools for MA purposes.

5. Discussion and conclusions

The aim of this paper was to investigate which sets of enabling factors recur most frequently across organizations that have embedded BI&A systems into their MA practices.

The findings from the eight case companies demonstrate that actual use cannot be attributed to any single determinant. Instead, it arises from bundles of conditions spanning all four constructs of the UTAUT framework. This contribution marks a departure from much of the prior literature, which has typically focused on identifying individual factors that promote or hinder technology adoption, often in isolation. While such studies have provided valuable conceptual foundations (e.g., Popovič et al., 2012; Spraakman et al., 2021), they rarely investigate which enabling conditions are most consistently observed across diverse settings, nor do they examine the extent to which these factors tend to co-occur in practice (Maroufkhani et al., 2017; Mikalef et al., 2018; Chi and Mahmud, 2020).

Moreover, the study introduces the entry point of the BI&A initiative as a novel facilitating condition that has received limited attention in previous research. As shown in the empirical findings, starting the BI&A journey with sales data emerged as a recurring choice across all cases; sales data were indeed perceived as the most reliable, easily verifiable, and familiar dataset.

By enhancing both the perceived usefulness and ease of use of the system, this entry point played a pivotal role in fostering initial user engagement and reducing resistance. This novel insight offers a valuable contribution to existing literature, suggesting that how and where the BI&A journey begins within the organization can shape subsequent use dynamics.

Therefore, the paper confirms and refines the findings of Jaklič et al. (2018) and Popovič et al. (2012) by shedding light on the reasons why the BI&A systems may be perceived useful and easy to use, namely because implementation starts with a familiar and uncontroversial entry point, such as sales data. In addition, the paper adds to Lautenbach et al. (2017) by showing how data-related problems and the issues connected to the reliability of the information might be addressed by using sales data as entry point for the BI&A system. Given that these data are typically less affected by quality problems such as incompleteness or inconsistency, they represent a low-risk, high-trust starting point that reduces uncertainty and facilitates early user engagement with the BI&A system. In doing so, the study contributes to a more nuanced understanding of how data quality concerns can be proactively managed to foster the usage of BI&A systems.

Furthermore, this insight enriches the literature on effort expectancy (e.g.,

Brockmann et al., 2012; Borthwick & Hansen, 2017). While prior studies have emphasized factors such as training and interface design, our findings indicate that data domain familiarity also lowers perceived complexity. Sales data, being highly accessible and already embedded in most organizational workflows, reduce the learning curve during early phases, creating a smoother entry path into BI&A usage.

From a practical perspective, the study suggests that organizations should design BI&A initiatives for MA purposes not by focusing on isolated best practices, but around clusters of conditions that support one another. This perspective not only helps to explain why some BI&A systems become deeply embedded in MA practices while others remain peripheral, but also provides a roadmap for practitioners seeking to enhance adoption outcomes.

In closing, it is important to acknowledge the limitations of this paper. Despite its relevance, the cross-sectional field study design entails some inherent constraints. Specifically, it does not allow for an in-depth exploration of the temporal evolution and interplay of enabling factors over time. To gain a more nuanced understanding of how BI&A systems become embedded in MA practices, future research could adopt longitudinal single case studies.

Another limitation of this study is that data collection in each case relied primarily on a single perspective, typically that of the management accountant or CFO most directly involved in the adoption and use of the BI&A system. While this approach ensured the inclusion of the perspective of key actors, it limited the possibility of triangulating viewpoints and detecting potential tensions or divergent interpretations within each organization. Future research should address this limitation by incorporating multiple perspectives, including operational managers, top managers, or IT personnel to develop a more comprehensive of the dynamics underpinning BI&A usage in MA contexts.

Finally, while the conceptualization of BI&A use is consistent with the UTAUT framework, it does not capture more nuanced dimensions. Prior literature has indeed proposed richer conceptualizations of usage, such as depth, breadth, and appropriateness of use (Burton-Jones and Straub, 2006), or different types of use, such as monitoring vs. decision-support (Elbashir et al., 2013). Future studies should build on these perspectives to explore whether different types or intensities of use are enabled by distinct configurations of factors. In this regard, longitudinal single in-depth case studies appear particularly well-suited to investigate how different usage profiles emerge.

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Appendix - Showcase of the companies involved in the study

Company	Case profile	Industry
Alfa	Alfa develops and sells a wide range of software solutions for both B2B and B2C customers	Software
Beta	Beta sells electronic devices in the B2C market	Consumer electronics
Gamma	Gamma is a company specializing in the production of red and white meat products	Agri-food
Delta	Delta commercializes musical instruments	Music instruments
Epsilon	Epsilon is a company that designs, produces and sells toys for children	Toys
Zeta	Zeta manufactures measurement and quality control systems for companies operating in various industries	Industrial machines
Eta	Eta designs and sells architectural lighting solutions	Architectural lighting
Theta	Theta produces and markets dairy products	Dairy