

# The Impact of Business Intelligence on Strategic Analyzer Behavior: An Empirical Study of High-Tech Companies

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## ABSTRACT

This research examines the influence of business intelligence on strategic analyzer behavior through an empirical study conducted among high-tech companies. The survey, carried out with 275 firms, was analyzed using SPSS and AMOS 22 software. The results show that the structured and systematic adoption of business intelligence practices constitutes a key lever for developing strategic analyzer behavior. By providing companies with tools for analyzing and interpreting information, business intelligence enables them to anticipate changes and respond effectively to shifts in their competitive environment. The study highlights that the continuous and organized integration of business intelligence promotes a more refined, predictive, and dynamic understanding of market challenges, thereby strengthening companies' ability to adapt and strategically position themselves in an ever-evolving context.

**Keywords:** Business Intelligence – Information Monitoring – Influence – Strategic analyzer behavior – High-Tech Companies

## INTRODUCTION

In the field of strategic management, behavioral typologies of companies play a key role in understanding their choices for adapting to the environment. One of the most legendary figures is that of the analyzer type of strategic behavior, characterized by an intermediate stance between exploring new markets and consolidating established positions (Fischer et al, 2020). According to the founding classification by Miles and Snow (1978), this type lies at the intersection of forward-looking and defensive behaviors, thus adopting a dual strategy that combines selective innovation and operational efficiency.

This analyzer strategic behavior is influenced by a variety of internal and external factors. Among the major determinants are organizational learning capacity, governance structure, competitive pressure, and environmental volatility (Choo, 1998). These elements determine the company's ability to manage complexity and make decisions based on a detailed understanding of its environment.

Nevertheless, the literature review highlights a notable contradiction regarding the nature of the relationship between the practice of business intelligence and analyzer-type strategic behavior. Indeed, some studies, such as that by Lesca & Lesca (2011), show that the implementation of business intelligence has a positive influence on companies adopting an analyzer stance, enabling them to combine the exploration of opportunities with the exploitation of existing resources. On the other hand, other research emphasizes that this strategic behavior is more determined by structural and contextual variables such as company size, organizational maturity, and competitive pressure, which are not directly related to business intelligence. This is particularly highlighted in

the study by Le Roy and Czakon (2019), which shows that companies' choices of analyzer-type strategic behavior are more influenced by their ability to manage organizational complexity and respond to competitive intensity than by formal business intelligence mechanisms.

Furthermore, some recent contributions, such as that of Chen et al. (2019), suggest the existence of an indirect influence, with business intelligence acting in particular through mediators such as absorption capacity, organizational culture, or strategic decision-making routines. This diversity of theoretical approaches fuels uncertainty about the real effect of business intelligence on Strategic analyzer behavior. This ambivalence raises a central question: to what extent does the practice of business intelligence influence Strategic analyzer behavior in high-tech companies?

The main objective of this research is twofold: On a theoretical level, it aims to clarify the link between business intelligence and the Strategic analyzer behavior profile, drawing on the conceptual frameworks of strategic management and business intelligence. On an empirical level, it aims to evaluate, through a field study, the real impact of business intelligence practices on the strategic choices of companies operating in a dynamic technological environment.

In this context, this research aims to analyze the influence of business intelligence on strategic behavior of the analytical type, based on an empirical study conducted among a sample of Tunisian companies operating in high-tech sectors. The objective is to understand how business intelligence can support the strategic decisions specific to this hybrid profile by strengthening its capacity for anticipation and adaptation.

In order to address this issue, the article adopts a three-part structure, organized in a logical and progressive manner: an analysis of the literature and the establishment of a research model. Next, the methodological framework is presented. Subsequently, the most important statistical results obtained are presented. Finally, this document discusses in detail the research results and main conclusions.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In this section, the foundations of the conceptual model and the research hypotheses will be presented, based on an in-depth analysis of the existing literature.

### **The effect of information monitoring on the adoption of Strategic analyzer behavior: theoretical contributions and empirical controversies**

Information monitoring is defined as a systematic, ethical, and continuous process of collecting, analyzing, and exploiting environmental information in order to guide strategic decision-making (Martinet & Ribault, 1989; Lesca & Lesca, 2011). It plays a crucial role in understanding competitive dynamics and detecting opportunities for innovation.

In Miles and Snow's (1978) typology, analytical behavior corresponds to a hybrid stance that combines operational stability and targeted innovation capacity. Information monitoring feeds this stance by providing exploitable weak signals and reliable data on market developments (Choo, 1998). It thus ensures consistency between the exploitation of existing skills and the exploration of new avenues for development.

Recent studies highlight a direct and significant relationship between the implementation of an effective monitoring system and the adoption of adaptive strategic behavior. Gondran and Giffard (2021) show that innovative companies make greater use of information monitoring systems to refine their strategic decisions. Similarly, Zhou and Li (2020) emphasize that intelligence contributes to responsiveness and strategic resilience, two essential dimensions of the analyzer profile.

However, other studies qualify this link. Nguyen et al. (2023) propose a model in which the effect of information intelligence on strategy is mediated by the company's absorption capacity. Kettinger and Li (2010) also emphasize the role of dynamic capabilities in transforming information into strategic action.

Some authors consider the relationship to be neutral or contextual. De Pelsmacker et al. (2005) show that some SMEs have information monitoring mechanisms but do not systematically translate them into structured strategic decisions. Bournois and Romani (2000) refer to a latency effect in monitoring, due to cultural or organizational barriers.

These discrepancies between empirical results lead us to question the link between information monitoring and analytical behavior, formulating hypothesis **H1**: Information monitoring has a positive effect on the adoption of strategic analyzer behavior.

### **The influence of information protection on the adoption of strategic analyzer behavior**

Information protection refers to all technical, organizational, and behavioral measures aimed at securing critical company knowledge against leaks, intrusions, or economic espionage (Harbulot, 2009). It is part of an informational resilience approach that ensures the sustainability of competitive advantages and the integrity of strategic decisions.

From a theoretical perspective, the informational contingency model (Galbraith, 1973) stipulates that the quality of the fit between information flows and organizational structure directly influences strategic performance. For an analyzer-type company, according to Miles and Snow (1978), which combines stable exploitation and cautious exploration, information protection is an essential security factor.

Recent studies confirm a direct and positive relationship between information protection practices and strategic behavior. Gondran & Giffard (2021) observe that companies with an integrated cybersecurity system are better able to implement hybrid strategies such as those used by analyzers. Yang & Lee (2020) demonstrate that proactive information risk management promotes strategic agility and controlled risk-taking, which are typical of analyzer organizations.

Other research suggests that the relationship is indirect, particularly through variables such as organizational culture, internal trust, and digital maturity. Zarrouk and Ben Rejeb (2021) emphasize that information protection only has a strategic impact if it is integrated into a culture of cautious innovation. Similarly, Singh et al. (2023) show that digital security governance only has a strategic effect when coupled with an explicit knowledge management strategy.

Studies report a neutral or insignificant relationship, particularly in SMEs and in contexts where protection is perceived as a barrier to innovation. Péladeau and Lefebvre (2018) warn of the organizational lock-in effects associated with overprotection of information, which reduces the capacity for exploration. Martins et al. (2022) note that some companies associate security with inertia, which limits their propensity to adopt an analytical stance.

Given these contradictory results, the question of the real impact of information protection on hybrid behaviors remains open, which justifies the formulation of **H2**: Information protection has a positive effect on the adoption of strategic analyzer behavior.

### **The effect of informational influence on the adoption of strategic analyzer behavior**

Strategic influence, as a component of business intelligence, refers to an organization's ability to shape its decision-making environment and influence the perceptions of its stakeholders (Harbulot, 2009). This influence manifests itself through lobbying, institutional communication, standardization, and the construction of symbolic legitimacy (Salmon, 2007).

Theoretically, this capacity for influence is part of the work stemming from neo-institutional theory, which considers that organizations adopt strategic behaviors not only in response to technical pressures, but also to meet the social and symbolic expectations of the institutional field (Barabel and Meier, 2021). In this context, the analyzer behavior can benefit from influence strategies to secure its innovations and stabilize its traditional activities.

Several studies support the idea of a direct and positive link between strategic influence and an analytical stance. Barabel, Meier, and Montalban (2021) show that companies that invest in influence strategies are better at striking a balance between adaptation and innovation. Lesca and Lesca (2011) find that the use of influence strengthens organizational legitimacy in uncertain environments, which facilitates the adoption of strategic analyzer behavior.

Other studies highlight an indirect relationship, mediated by brand awareness or organizational social capital. Lee et al. (2022) indicate that external influence increases stakeholder confidence, which acts as a lever for strategic acceptability. Zahra and George (2002) also emphasize that influence affects absorptive capacity, which is essential for integrating new ideas into partially stable structures.

Conversely, some studies suggest a neutral or even ambivalent relationship. Oliver (1991) believes that in highly regulated sectors, influence does not necessarily lead to strategic effects due to institutional barriers. Christensen and Cornelissen (2011) observe that excessive strategic communication can dilute a company's credibility and hinder decision-making agility.

Given these contradictory findings, the nature of the relationship between influence and hybrid strategy remains partially unclear. This leads us to propose the following hypothesis **H3**: Strategic influence has a positive effect on the adoption of strategic analyzer behavior.

Analysis of the interactions between the variables in this research led to the construction of the following conceptual model.

## METHODOLOGICAL APPROACH OF THE STUDY

### Survey methodology

To confirm the theoretical model proposed by this study, we conducted an in-person and email survey of a selected group of advanced Tunisian technology companies. The questionnaire was evaluated by ten managers from various advanced technology companies to better understand the content, and adjustments were made based on their feedback. Subsequently, the final version of the questionnaire was developed. A random sample of 350 technology companies was selected. The participants were company executives with access to company-wide data. Finally, 273 usable questionnaires were returned, representing a response rate of 78%.

### Measurement of variables

The measurement scales used in this research were adopted from the literature. The scales developed by Avci et al (2011) and Degan et al. (2018) scales were used to assess strategic analyzer behavior and business intelligence, respectively. The items are measured on a 5-point Likert scale ranging from 1 = "Strongly disagree" to 5 = "Strongly agreed". In addition, the reliability of the three concepts in the original studies was very high, with a Cronbach's alpha  $> 0.90$ . The 14-item scale classified into three dimensions, namely: information monitoring, protection, and influence, was used to measure economic intelligence. Cronbach's alpha for this scale is 0.814 for information monitoring, 0.787 for protection, and 0.842 for influence. To measure strategic analyzer behavior, we used a scale composed of nine items. Cronbach's alpha for this scale is 0.872.

SPSS and AMOS 22 software were used to conduct a series of empirical analyses. Initially, an exploratory analysis followed by a reliability test based on Cronbach's alpha identified the relevant dimensions, refined their structure, and assessed their internal consistency. Subsequently, confirmatory factor analyses were conducted to validate the measurement scales, in accordance with the methodological approach proposed by Fornell and Larcker (1981).

## RESULTS AND DISCUSSION

### Presentation of exploratory analysis results

First, latent variables to be included in the model are identified using principal component analysis (see Table 1). The results indicate that KMO scores are above 0.5, meaning that each dimension presents a satisfactory factorial

solution. Bartlett's tests indicate significance at a 5% risk level and confirm the existence of a non-empty matrix. In addition, all variables are retained in the analysis since their extraction is considered favorable according to the empirical acceptance criterion of 0.5. Internal consistency tests revealed that Cronbach's alpha coefficients ( $\alpha$ ) exceed 0.7. Therefore, these results are considered to integrate all dimensions

Table 1. Results of exploratory analyses

PCA results				Cronbach's alpha		
Dimension	Items retained	Extraction	Eigen values			
Business intelligence	monitoring.1	0,802	1,533	0,814		
	monitoring.2	0,803				
	monitoring.3	0,786				
	monitoring.4	0,733				
	influence.1	0,844	1,829	0,783		
	influence.2	0,754				
	influence.3	0,768				
	influence.4	0,625				
	protection.1	0,685	1,957	0,842		
	protection.2	0,849				
	protection.3	0,823				
<b>KMO= 0,868</b>		<b>Bartlett's significance =0,000</b>				
<b>Percentage of variance explained = 84,487</b>						
<b>KMO= 0,884</b>		<b>Bartlett's significance =0,000</b>				
<b>Percentage of variance explained = 65,426</b>						
PCA results				Cronbach's alpha		
Dimension	Items retained	Extraction	Eigen values			
strategic analyzer behavior	analy.1	0,966	1,226	0,872		
	analy.2	0,947				
	analy.3	0,982				
	analy.4	0,944				
	analy.5	0,922				
	analy.6	0,968				
<b>KMO= 0,844</b>		<b>Bartlett's significance =0,000</b>				
<b>Percentage of variance explained = 86,794</b>						

### Validation of dimensions obtained in confirmatory analyses

Using Amos 22, a confirmatory factor analysis (CFA) was performed for the ideas generated by the exploratory factor analysis. Initially, first-order factors are considered to be highly correlated once Jöreskog's rho reaches 0.7. Convergent validity is verified by checking the fit between what the data should measure (the latent variable) and what they actually measure. This validity is justified by a convergent validity rho greater than or equal to 0.5 (Fornell and Larcker 1981). Our results are consistent with these suggestions (Table 2). In addition, discriminant validity was verified when the correlations between the latent variables in the model were less than the square root of the average extracted variance. Therefore, we can determine the validity and reliability of the dimensions obtained. The convergent and discriminant validity of the constructs are shown in Table 2.

Table 2. Results of confirmatory analyses

Dimensions	Reliability (RhôdeJöreskog)	Convergent validity (AVE)	Discriminant validity
<b>Monitoring</b>	0.846	0,576	0,768
<b>Protection</b>	0.784	0.563	0,747
<b>Influence</b>	0,813	0,521	0,728
<b>strategic analyzer behavior</b>	0.932	0.705	0.946

### **Presentation of the structural model and testing of hypotheses**

To assess the quality of fit of the proposed model and test the causal links between business intelligence and strategic behavior, we used structural analysis. Figure 2 presents the structural model. We can conclude from the results in Table 3 that the fit indices are satisfactory given the empirical acceptance thresholds.

Table 3. Structural model fit (ML estimation)

Indices	Parsimony	Absolute				Incremental	
	Chi-square/df	GFI	AGFI	RMR	RMSEA	NFI	CFI
<b>Values</b>	2,218	0,867	0,846	0,041	0,064	0,886	0,934

The results of this study empirically confirm that the three dimensions of economic intelligence, namely information monitoring, strategic protection, and informational influence, each have a positive and statistically significant effect on the adoption of strategic analyzer behavior.

More specifically, information monitoring has a significant influence ( $t = 4.083 > 1.96$ ;  $p = 0.000 < 0.05$ ), confirming that the ability to anticipate and process information from the environment is an essential lever for balancing exploitation and exploration, which are fundamental elements of the analyzer profile.

For its part, information protection also has a significant effect on analytical behavior ( $t = 4.576 > 1.96$ ;  $p = 0.000 < 0.05$ ), indicating that companies that invest in securing their information capital are more inclined to adopt hybrid strategies combining caution and agility. Informational influence also confirms its positive contribution to strategic analyzer behavior ( $t = 4.588 > 1.96$ ;  $p = 0.000 < 0.05$ ), indicating that actions to guide external perceptions strengthen the organization's ability to manage uncertainty, legitimize its strategic choices, and navigate between innovation and continuity.

Thus, hypotheses H1, H2, and H3, formulated on the basis of the theoretical framework, are empirically validated. These results reinforce the theoretical foundations developed, while aligning with previous studies used in this research. (See table below)

Table 4: Results confirming the hypotheses

Hypotheses	Relationship tested	Value T	p-value	Significance thresholds	Results	Interpretation
<b>H1</b>	Monitoring → strategic analyzer behavior	4,083	0,000	$t > 1,96$ ; $p < 0,05$	Validated	Positive and significant impact
<b>H2</b>	Protection → strategic analyzer behavior	4,576	0,000	$t > 1,96$ ; $p < 0,05$	Validated	Positive and significant impact
<b>H3</b>	Influence → strategic analyzer behavior	4,588	0,000	$t > 1,96$ ; $p < 0,05$	Validated	Positive and significant impact

This research explores the link between the application of economic intelligence and strategic analyzer behavior. The results of the study empirically validate the three hypotheses formulated from the theoretical framework. With regard to the first hypothesis, the analyses confirm a positive and significant relationship between the

practice of information monitoring and the adoption of strategic analyzer behavior. This observation corroborates the work of Lesca and Lesca (2011), who emphasize the crucial role of monitoring in detecting weak signals and predicting competitive dynamics, key elements of an analyzer profile. This also corresponds to the logic of the Miles and Snow (1978) model, in which the analyzing company uses information to balance stability and innovation. However, these results contradict those of Bournois and Romani (2000) and De Pelsmacker et al. (2005), who observed low strategic use of monitoring in some SMEs, often due to a lack of structure or approval. The observed discrepancy can be explained by the profile of the companies surveyed, which are characterized by a higher level of informational maturity and a position in sectors exposed to rapid change.

The validation of the second hypothesis also confirms that information protection is a factor explaining analyzer-type strategic behavior. These results are consistent with those of Yang and Lee (2020) and Gondran and Giffard (2021), who demonstrate that information risk management improves a company's ability to manage uncertainty while maintaining its strategic orientation. However, this relationship differs from some more critical studies, such as those by Martins et al. (2022) and Péladeau and Lefebvre (2018), which link overprotection to the risk of strategic inertia and lock-in.

In the sample used in this study, companies appear to have found a balance between securing information and maintaining decision-making flexibility, which could explain the difference in results.

Regarding the third hypothesis, the results show that informational influence also has a positive effect on the adoption of analyzer behavior. This finding supports the work of Barabel, Meier, and Montalban (2021), which highlights the importance of influence in complex environments. By guiding stakeholder perceptions, companies strengthen their ability to maintain a hybrid posture consistent with the analyzer profile. However, these results differ from those reported by Christensen and Cornelissen (2011), who note the limited effectiveness of influence in regulated environments. In the context of this research, the positive effect observed could be explained by a more targeted, contextual, and strategic use of influence, in line with the sector-specific characteristics of the companies surveyed.

However, this study draws the attention of Tunisian high-tech business leaders to the need to implement economic intelligence in order to adopt a strategic analytical approach. From this perspective, it is incumbent upon managers to fully incorporate these elements into organizational practices, in line with the company's objectives and principles. Such an approach could increase their ability to forecast and better align their decisions with informed and flexible strategic thinking.

In fact, this study has some limitations. Despite the particular attention paid to the data collection method, the statistical representativeness can be questioned due to the sample used for quantitative processing. In addition, the research presents intriguing new perspectives to explore. To complete the study, it would be relevant to consider the use of qualitative research methods. Certain implicit aspects of this research would benefit from further investigation using qualitative methods such as individual interviews, focus groups, or content analysis. Furthermore, future work would do well to explore the mediating role of variables such as human resource management, knowledge management, and organizational change dynamics in order to enrich our understanding of the mechanisms at work.

## CONCLUSION

This study highlights the crucial role of business intelligence in shaping analyzer strategic behavior within high-tech companies. The empirical validation of the three hypotheses confirms that information monitoring, protection, and influence are essential drivers enabling organizations to reconcile operational efficiency and innovation capacity in unstable environments.

From a managerial perspective, these findings emphasize the importance for business leaders to integrate structured business intelligence practices into their decision-making and strategic processes in order to enhance organizational agility and sustain competitive advantage.

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### Conflicts of Interest

The authors declare that they have no conflict of interest. The funding organizations had no role in the design of the study, data collection, analysis, or interpretation, nor in the writing of the manuscript or the decision to publish the results.

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