



Towards the understanding of the relationship between the mode of use of management control, organizational agility and organizational performance.

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ABSTRACT

In a constantly evolving environment, a company's ability to be agile is crucial for its survival and growth. According to numerous studies, organizational agility is defined as the ability to act quickly, flexibly, and decisively to initiate, seize and exploit opportunities and avoid negative effects of changes.

Management control has an impact on organizational capabilities such as organizational learning and innovation. The diagnostic use of management control has a negative effect on agility as it limits the exploration of possibilities for achieving predetermined goals. Conversely, the interactive use of management control encourages idea generation and creativity, which improves agility by clearly specifying the goals assigned to each member of the organization.

This study examines the impact of management control usage on agility and organizational performance of companies. Using a quantitative study of 81 companies in Morocco, it analyzes the relationship between management control and organizational agility, as well as the relationship between organizational agility and organizational performance in a crisis and post-crisis context.

In summary, the results of this study can help companies understand how management control can be used to foster organizational agility and improve their performance in a constantly evolving environment.

I. INTRODUCTION

Today's business environment is marked by constant change. In this ever-evolving landscape, organizational competitiveness must be dynamic to keep up. Organizations can face instability in operations or even fail if the dynamism of the external environment surpasses the organization's capabilities. To address this, organizations have launched a major reform to enhance their flexibility in adapting to a dynamic environment. Consequently, a proposal for a new organizational structure that incorporates the idea of organizational agility has been presented. This views organizational adaptation as a

continuous process instead of a short-term or occasional one.

Agility refers to a company's capacity to swiftly recognize and take advantage of opportunities before rivals do. It has become a crucial aspect of success as the ability to respond to changes in the environment has become increasingly important.

A recent survey conducted by McKinsey & Company revealed that 90% of executives see organizational agility as a vital factor in business success. They anticipate that agility will bring benefits such as higher revenue, customer satisfaction, market share, and the ability to adapt quickly to the market (Sull, 2009). In the field of management

accounting, researchers examining the connection between management control use and organizational capabilities typically focus on organizational learning and innovation capabilities, while also considering agility as a key organizational capability. The purpose of this study is to explore the role of agility in the relationship between management control use and organizational performance. The study first looks at the relationship between management control usage and agility, and then investigates how agility affects organizational performance. The use of management control systems can be divided into two styles: diagnostic and interactive (Henri, 2006; Widener, 2007). The distinct control and information flow features of these two approaches may impact organizational agility in different ways. Furthermore, organizational agility is believed to improve both financial and non-financial results, as it can serve as a way to gain a competitive edge.

This research adds to the field of management control by emphasizing the significance of agility as an organizational capability. In a constantly changing environment, agility can play a crucial role in enhancing competitiveness. Therefore, the focus of this study is on the significance of analyzing the impact of agility on the connection between the utilization of management control and organizational performance.

1. Theoretical framework and formulation of hypotheses

1.1. Organizational agility

Recently, management science literature has emphasized the concept of organizational agility. Many researchers have studied agility in the context of agile manufacturing, with a focus on processes, technology, and the challenges faced by large agile firms (Ashkenas and al., 1995). In this study, we present agility as a capability of organizations and connect it to the management control considerations.

Agility is defined and described differently in various contexts. Many studies on agile manufacturing suggest that agility helps organizations to thrive in a constantly evolving environment by allowing them to respond promptly and efficiently to changes in the market (Gunasekaran, 1999). In the context of agile business, agility is seen as the ability to continuously adapt to changes, rather than simply following them.

Agile organizations view adapting to the surrounding environment as an ongoing process, rather than a one-time occurrence. McCann and al., (2009) highlights that agility involves the capability to respond quickly, adapt easily, and confidently to take advantage of opportunities and minimize the harm of change. Sull (2009) also emphasizes that agility is the ability to continuously and rapidly identify and capitalize on business opportunities, ahead of competitors. In conclusion, agility is considered a critical organizational capability and is defined as speed, flexibility, and adaptability.

In this context, agility resembles concepts such as 'dynamic capability' (Teece and al., 1997), 'market orientation' (Kohli and Jaworski, 1990), 'absorptive capacity' (Zahra and George, 2002), and 'strategic flexibility' (Grewal and Tansuhaj, 2001). However, each of these concepts has its own unique scope and composition dimensions.

Dynamic capability refers to an organization's ability to integrate, develop, and renew its resources and competencies to respond to changes in the environment. Agility is a component of dynamic capability.

Market orientation enables organizations to identify the needs of their current and potential customers and disseminate this information throughout the organization (Kohli and Jaworski, 1990). This focus on market orientation prioritizes information processing, whereas agility prioritizes the organization's quick response, rather than relying on processes.

Absorptive capacity enables the development of dynamic organizational capabilities through the acquisition, dissemination, and application of knowledge specific to each organization (Zahra and George, 2002). This can be seen as a continuous process of knowledge management. Conversely, agility is related to individual changes, rather than being a continuous process.

Strategic flexibility, which refers to the ability to anticipate and respond to economic or political risks, is closely tied to strategy. Meanwhile, agility encompasses a wider range of issues, encompassing both strategic and operational aspects (Overby and al., 2006).

In this research, agility is viewed as a vital dynamic organizational capability that enables quick response to a fast-paced changing environment. It is defined as the ability to quickly identify and seize opportunities, outpacing

competitors (Sull, 2009). The business environment has become increasingly competitive with globalization, and organizations must be able to respond to changing customer needs and scarce resources. Thus, organizations must concentrate on developing their agility to effectively respond to an unpredictable environment.

Studies on the connection between management control and organizational capabilities have examined the impact of management control on capabilities such as innovation and organizational learning, among others. Several authors have emphasized the impact of management control systems on organizational learning and innovation (Widener, 2007; Henri, 2006; Bisbe and Otley, 2004). The relationship between the use of management control systems and organizational capabilities has resulted in varied outcomes in different studies. These diverse results can be attributed to the differing styles of management control system use, which can impact organizational capabilities differently (Henri, 2006). Hence, it's crucial to clarify the style of management control system usage and its effect on organizational capabilities.

1.2. The use of management control and organizational agility

Diagnostic control systems are designed to evaluate the outcomes of processes, correct any performance deviations, and compare actual results to predetermined patterns. These controls enable analysis of factors that guarantee the attainment of desired strategies.

The diagnostic approach of management control has a negative impact by enforcing adherence to rules and limiting the investigation of alternatives to achieve set objectives. This tight control over operations and strategy stifles organizational flexibility, as it relies on a rigid method of decision making. As a result, the development of agility, crucial for quickly identifying and responding to changes in dynamic environments, may be hindered. Communication and collaboration, key factors in enhancing organizational capabilities, may also be suppressed due to the focus on hierarchy and accountability in the diagnostic approach of management control, which impedes the open exchange of information.

The diagnostic approach to management control can negatively impact the development of organizational agility, as it may restrict the free flow of information and hinder open communication. Organizational capabilities, which rely

heavily on cross-functional processes and open communication, may be impaired by the diagnostic approach to management control.

To summarize, the conventional and mechanical use of management control, or the diagnostic approach, does not create the necessary conditions for promoting agility. Based on the preceding discussions, the following expectations can be formally stated:

H1: The diagnostic control is negatively associated with agility.

Control systems are considered interactive when managers use them frequently and consistently for their own and their employees' activities. They are managed subjectively and informally through experiences, perceptions, discussions, regular dialogues, meetings, and plan reviews. This approach fosters organizational learning, new ideas, and innovation. Interactive control systems enhance the search for new strategies in a changing market and help managers ensure that the organization can respond to challenges and capitalize on opportunities.

The interactive approach to management control fosters creativity and idea generation, contrasting the negative effects of the diagnostic approach. This type of management control focuses on establishing a central agenda, promoting ongoing attention from management, and encouraging members of the organization to discuss, analyze, and challenge current information. The interactive approach generates curiosity, expands the examination of opportunities, spurs the creation of new strategic initiatives, and helps members focus on organizational goals and strategic uncertainties by providing signals of senior management priorities.

To conclude, the interactive use of management control enhances agility by clearly defining goals for each member of the organization, encouraging accountability, and inspiring action on significant opportunities. The hypothesis below is established based on the previous discussion.

H2: The interactive control is positively associated with agility.

1.3. Organizational Performance and Agility

Organizational capabilities play a crucial role in implementing new resources for a fresh value creation

strategy, driving organizational transformation. Unique resources and capabilities within an organization result in a lasting competitive advantage, resulting in improved performance compared to rivals. Agility, being highly valued, hard to imitate and not always a permanent capability, is key in detecting and taking advantage of opportunities in a rapidly changing environment. Hence, it can be considered as a critical organizational capability that affects performance and strategy (Goldman et al., 1995)

Studies on the connection between agility and performance often focus on measuring the relationship between performance and agile manufacturing (Chenhall and Morris, 1995; Van De Ven, 1986; Sull, 2009) Swafford and al. (2006) found that agility positively impacts value chain and overall competitive performance. Narasimhan and Das (1999) observed that organizations with high agility levels tend to enhance customer-focused performance, such as timely delivery and faster time-to-market, leading to superior performance compared to less agile organizations (Narasimhan and Das, 1999). Sánchez and Perez (2005) found that supply chain flexibility, a component of agility, can improve responsiveness to changes and reduce environmental uncertainty, leading to increased profitability and market share (Sánchez and Pérez, 2005);

Previous studies suggest a correlation between agile organizations and higher performance. For instance, Katayama and Bennett (1999) compared the performance of organizations focusing on agility to those that do not, finding that more agile firms are more competitive due to factors such as break-even, price elasticity, and fixed costs (Katayama and Bennett, 1999). McCann et al. (2009) reported a positive association between agility and competitiveness, which is a measure of organizational performance (McCann and al., 2009). This suggests that agility, through effective understanding, responsiveness, and quick exploitation of opportunities, leads to competitiveness and ultimately affects profitability. Based on these findings and logical reasoning, it is expected that agility will have a positive impact on organizational performance.

H3: Agility is positively associated with organizational performance.

The purpose of this paper is to analyze the connection between the mode of use of management control, agility, and the performance of an organization. This research specifically presents agility as a unique organizational

capability that has yet to be explored in management control research.

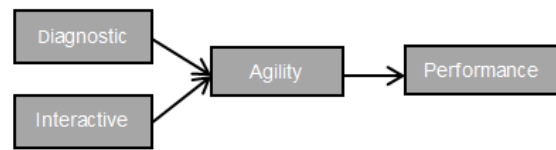


Fig1: Theoretical framework

2. Research method and operationalization of variables

The questions in the questionnaire are taken from previous research and ask participants to rate their answers on a Likert scale. The level of diagnostic control is evaluated using five questions based on the work of Henri (2006), Widener (2007), and Simons (1995). The concept of interactive control is based on Bisbe et al's model and involves five key elements: (1) strong management usage, (2) strong usage by operational managers, (3) direct challenges and discussions, (4) focus on important unknowns, and (5) a non-intrusive, supportive, and motivating approach. Each of these aspects is evaluated with a single indicator, which is based on Widener (2007), Henri (2006), and Bisbe and Otley (2004).

The organizational performance is evaluated using a self-assessment tool originally created by Gupta and Govindarajan in 1984 (Gupta and Govindarajan, 1984), and further developed by Govindarajan and Gupta in 1985 (Govindarajan and Gupta, 1985) and Govindarajan and Fisher in 1990 (Govindarajan and Fisher, 1990). The instrument assesses multiple performance aspects.

The ten performance dimensions that cover both financial and non-financial performance. Respondents evaluated the organization's performance against established standards for each criterion on a scale of 1 to 7, with 1 being "unsatisfactory" and 7 being "outstanding".

Our survey frame was constructed from the professional LinkedIn platform using the "search" tab by typing in the word "controller" and "chief financial officer"; "chief executive officer".

From thousands of people, we sorted out 500 contacts of people. Afterwards, we sent them invitations to join our professional network. This allowed us to build our survey

frame in order to contact professionals to administer our questionnaire.

We then opted for electronic administration of the questionnaire, i.e., we sent the questionnaire in digital format (Google Forms) by email and in private messages on LinkedIn directly to the respondent (controller, CFO, general manager, etc.). This mode of administration allowed us to easily make contact with the managers of the service companies, something that was very difficult in face-to-face meetings outside of any formalism.

The quantitative survey took place over a period of 60 days and involved 81 companies in Morocco with a response rate of 16.2%. This low response rate represents the main limitation of this research work, in addition to the profile of the interviewed companies, which belong to different sectors of activity. We had the advantage of collecting the data in a brief span of time. thanks to the collaboration and availability of the managers. This proves that the choice of the data collection method is adequate, relevant and efficient.

We utilized a Partial Least Squares (PLS) approach with the SMART-PLS 4 software to verify our research hypotheses. PLS was chosen due to several advantages over traditional methods such as LISREL and AMOS, including lesser requirements for sample size and residual distributions for statistical significance, and the ability to examine both measurement and structural models. This approach has recently been used in management accounting research to test theoretical frameworks, as demonstrated by various studies (Chin, 1998; Sholihin & Pike, 2009; Hartmann & Maas, 2011; Van Rinsum and Verbeeten, 2012; Bisbe and Malagueño, 2015).

Before examining the connections between the constructs, we first ensure the reliability and validity of the construct measures by independently examining the measurement model (Bisbe and Malagueño, 2015).

3. Results and discussion

We tested our research hypotheses by utilizing the Partial Least Squares (PLS) method. This method was chosen for its several advantages over other techniques. It does not have strict limitations on sample size or residual distributions, which provides a higher level of statistical power. Furthermore, PLS is capable of evaluating both the measurement and structural models of our data. Before

examining the relationships between the constructs, we first analyzed the measurement model to confirm its reliability and validity.

3.1. Assessment of measurement models

3.1.1. Convergent Validity

To ensure the validity of our variables, we assessed the reliability of the individual factors through their factor loadings. A factor loading above 0.6 is generally considered acceptable as an indicator of reliability. We removed items with factor loadings below 0.6, but as shown in the table 1, all remaining items have factor loadings above 0.6, indicating that each construct has a strong convergent validity.

Table 1: Factor loadings

	Agility	diagnostic	interactif	Performance
AGL1	0,730			
AGL10	0,862			
AGL12	0,837			
AGL17	0,826			
AGL18	0,858			
AGL19	0,851			
AGL2	0,780			
AGL20	0,884			
AGL21	0,830			
AGL22	0,887			
AGL24	0,740			
AGL25	0,769			
AGL3	0,764			
AGL30	0,712			
AGL31	0,738			
AGL32	0,775			
AGL33	0,863			
AGL34	0,842			
AGL35	0,758			
AGL36	0,814			
AGL4	0,736			
AGL6	0,732			
AGL8	0,677			
AGL9	0,755			
DIAG1		0,899		
DIAG2		0,956		
DIAG3		0,949		
DIAG4		0,900		
DIAG5		0,907		
INTER1			0,895	
INTER2			0,953	
INTER3			0,924	
INTER4			0,948	
INTER5			0,917	
PE1				0,859
PE10				0,868
PE11				0,696
PE13				0,705
PE2				0,902
PE3				0,814
PE4				0,762
PE5				0,861
PE6				0,793
PE7				0,780
PE8				0,751
PE9				0,751

3.1.2. Internal consistency

Next, the internal consistency was evaluated using the mean extracted variance (AVE) greater than 0.5, composite reliability greater than 0.7, and Cronbach's alpha greater than 0.6 (Fornell and Larcker, 1981). The table 2 shows that all variables meet these standards, thus exhibiting good internal consistency.

Table 2: Overall reliability test

	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
Agility	0,974	0,975	0,631
Diagnostic	0,956	0,963	0,851
Interactif	0,960	0,973	0,861
Performance	0,947	0,953	0,637

3.1.3. Discriminant validity

Finally, the discriminant validity was assessed using the correlation matrix based on Fornell and Larcker's criterion. The table 3 shows the factor loadings of observable variables to their relevant latent variable are robust compared to loadings with other latent variables, implying a sufficient discriminant validity of the constructs.

Table 3: Correlation matrice (discriminant validity: critere de Fornell et Larcker).

	Agilité	diagnostic	interactif	Perfor_mance
Agility	0,795			
Diagnostic	0,678	0,922		
Interactif	0,742	0,710	0,928	
Performance	0,873	0,516	0,813	0,798

In conclusion, the results of the PLS measurement model show that all constructs have acceptable validity and reliability.

3.2. Hypothesis testing

In this research, we examined our hypotheses through a structural model in Partial Least Squares (PLS) by

determining the significance of the connection between the relevant variables. The significance of the path coefficient was determined using a bootstrap method with a sample size of 5000 (as recommended by Hall, 2008).

Additionally, a global fit measure (GoF) for PLS path modeling has been introduced by Tenenhaus et al. (Tenenhaus and al., 2005). It is calculated by taking the square root of the product of the mean R² of the endogenous variable and the communal mean. A GoF value above 0.36 is considered to validate the model (Wetzels and al., 2009).

Table 4: R2/Q2/GoF

	R-square	Q ² predict	Global Of Fit (GOF)
Agility	0.596	0.558	0,656
Performance	0.762	0.551	

As shown in the table, the obtained GoF value of 0.656 indicates a satisfactory model fit. The R² values also surpassed the 10% threshold (Falk and Miller, 1992), making the model significant. Additionally, the Q² values for all endogenous constructs are positive, indicating the model's predictive relevance (Hair and al., 2017). The large GoF value (above the 0.36 threshold) further supports this conclusion.

The results of the structural model, as presented in the table 5, depict the relationships between the latent variables.

Table 5: Hypotheses test using PLS path analysis

	Original sample	Sample mean	Standard deviation	T statistics	P values
Agility -> Performance	0.873	0.874	0.035	25.226	0.000
Diagnostic -> Agility	0.305	0.286	0.168	1.810	0.070
Interactif -> Agility	0.525	0.551	0.161	3.259	0.001

In summary, the results from the PLS-SEM approach suggest that the interactive use of management control likely affects organizational performance through its impact on agility. A prior study Henri (2006) suggests that the way management control is used does not have a direct link to organizational performance, but it may be connected through organizational capability.

Therefore, This research examines the influence of interactive management control on organizational

performance, with agility serving as a mediating factor. The table 6 of indirect effects is presented to analyze the mediating effect of agility.

Table 6: Indirect effects test results

The findings reveal that the diagnostic use of GCS does not have a significant impact on agility, while interactive use of MCS is positively correlated with agility. This suggests that the characteristics of organic control, including shared focus, goal setting, open communication, and creative

	indirect effects	T	P values	Confidence level (95%)
diagnostic -> Performance	0.266	1.863	0.062	-0,105 - 0,456
interactif -> Performance	0.459	2.892	0.004	0,242 - 0,879

The data in the table 6 indicates that agility plays a significant role in mediating the relationship between the use of interactive management control and organizational performance. The indirect effect of Interactive Control on performance exceeds the threshold value of 0.05, as suggested by Lau and Moser (Lau and Moser, 2008). Hence, agility acts as a mediator in the relationship between interactive management control and organizational performance.

curiosity, boost agility. Agility has a positive impact on organizational performance, indicating that traits such as being receptive to the environment and being able to quickly seize opportunities are crucial in staying ahead of competitors in a rapidly changing environment. Thus, the interactive use of GCS can improve both financial and nonfinancial performance by enhancing agility as an organizational capability.

The results suggest that there is no substantial correlation between the use of management control for diagnosis and agility. Moreover, The findings indicate that there is a significant positive correlation ($p < 0.01$) between interactive management control usage and agility. Interactive control fosters ideas and creativity by promoting joint attention, open communication, and free flow of information within an organization, which helps organizations identify and exploit environmental opportunities more quickly than competitors and develops agility. On the other hand, diagnostic control, which focuses on limited authority and accountability, monitoring, and analysis of results against objectives, does not seem to enhance agility. The results support hypothesis H3, indicating that the positive relationship between agility and organizational performance is strong ($p < 0.01$).

This study has potential limitations that are consistent with other empirical studies. First, the use of self-reported survey data for collection of data can result in common response bias. Second, the cross-sectional survey method used in the study makes it difficult to establish a causal relationship between the variables in the model, despite the theoretical support for the relationships. Thirdly, the emphasis on incorporating agility as a fresh idea in management control may have overlooked other influential elements such as organizational learning and culture. Further research is necessary to investigate other variables that could be related to agility.

Agility is the ability of an organization to respond quickly and effectively to changes in the environment. Organizations with higher agility are likely to achieve better performance by being able to identify and take advantage of opportunities faster than competitors. This relationship between agility and performance is supported by Sull (2009).

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CONCLUSION

In order to navigate an unpredictable environment, it's crucial to continuously keep track of environmental changes, recognize and take advantage of new business opportunities, and redirect resources. Hence, this study defines agility as an organizational ability and investigates the connection between the use of MCS, agility, and organizational performance.

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