THE INFLUENCE OF ENTERPRISE RESOURCE PLANNING SYSTEMS ON THE MANAGEMENT CONTROL FUNCTION IN LARGE COMPANIES

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Abstract

This paper presents, firstly, a review of the literature relating to the conceptual debates and the founding theories of enterprise resource planning (ERP) and the management control function. Secondly, a questionnaire survey was conducted among 200 management controllers working in large companies in Morocco. Finally, the collected data were analyzed by structural equation modelling (SEM), precisely by the partial least squares (PLS) approach. The study shows that ERP systems enhance management control by improving control tools and redefining controller roles. Contingency factors like the company's structure, culture, controller competence (CC), and ERP market competitiveness also affect ERP's impact on management control. These findings have allowed us to make recommendations to professional actors to implement efficient ERP systems while taking into account the different contingency factors, in order to develop their management control function.

Keywords: ERP Systems, Management Control Function, Large Companies in Morocco, Contingency Factors, Structural Equation Modelling

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1. INTRODUCTION

In an increasingly competitive environment, companies are looking for new opportunities to improve their competitiveness. Since their introduction in the 90s, enterprise resource planning (ERP) systems have been widely used by companies hoping to increase their agility in the market (Grabski & Leech, 2007). Indeed, the particularity of these systems is that they have the potential to integrate all data and information circulating in a single system and with a shared database (Davenport, 1998).

Worldwide, there is a rapid increase in the number of companies adopting ERP systems (Granlund & Malmi, 2002). A clear example of the growing importance of ERP systems is the dramatic increase in sales of the largest vendor, SAP, from less than $500 million in 1992

to $17.6 billion in 2014 (Davenport, 1998; SAP, 2014). This can be explained by the fact that companies seem to believe that implementing an ERP system automatically leads to greater efficiency, and thus better performance (Bernroider 2008; Davenport, 1998). In addition, companies expect that implementing an ERP will have a significant impact on the organizational structure in general, and on the management control function in particular (Grabski & Leech, 2007).

Based on the above, the potential benefits of ERP systems have attracted significant attention from researchers in management control (Booth et al., 2000). From this perspective, several authors have studied the impact of ERP systems on the management control function; however, it seems to some that they are a decisive tool for change in management control. On the other hand, many studies show that there is no apparent relationship between these systems and the management control function (Hyvönen, 2003; Pérotin, 2004). It should be noted, however, that recent studies focus primarily on the expected results of the ERP system implementation, without paying attention to the impact of the ERP system on the management control function (Granlund, 2011).

Considering that the existing literature on the impact of ERP systems on the management control function is extremely insufficient and that contingency theory is not considered in the research conducted to evaluate this impact, we formulated our research problem as follows:

RQ: To what extent do enterprise resource planning systems impact the management control function?

In order to answer this question, we will first situate our subject in its theoretical context. To do this, we will review the different theories that highlight the relationship between ERP and the management control function. Thereafter, we will test the hypotheses derived from the theory in the field, specifically on large companies in Morocco. In this sense, we will explain our epistemological and methodological choices, while presenting in detail the process adopted for data collection.

Then, we will proceed to a modelling of the results by the method of structural equations, while justifying our choice of using the partial least squares (PLS) approach. At the end of this chapter, we will present the results of the evaluation of our model and finally discuss in depth the different results obtained.

Our study aims to make significant contributions across theoretical, methodological, and managerial dimensions. Firstly, we seek to provide a new synthesis of hypotheses regarding the relationship between ERP systems and management control by integrating contingency theory. Methodologically, we intend to employ structural equation modelling (SEM) in empirical research for the first time, to our knowledge, on this topic, enhancing our understanding of the dynamics involved. Managerially, our goal is to highlight the importance of considering various internal and external factors for successful ERP integration and management control development within organizations. Through these contributions, we aim to offer valuable insights for both theory and practice in this field.

The remainder of this paper is structured as follows. Section 2 provides an extensive review of relevant literature pertinent to this study. Section 3 details the research methodologies utilized to investigate the causality between variables. Section 4 highlights the research findings, including the results of hypotheses testing. Section 5 conducts a comprehensive discussion on the research outcomes, and lastly, Section 6 concludes with final remarks and offers some recommendations.

2. LITERATURE REVIEW AND HYPOTHESES DESIGN

Due to the large number of contingency factors, we have only focused on those that are considered the most significant in the literature and those that are the most decisive in providing a solid basis for our analysis. Thus, Mauldin and Ruchala (1999) support this observation by stating that "it is difficult to argue for the inclusion of a contingent variable, yet equally difficult to determine their completeness or to know which combination of factors make sense and are more important" (p. 324). Furthermore, Soobaroyen (2007) states that in the absence of a clear list of contingent factors, researchers focus on a limited number of contingent variables that appear to have an impact on management control. However, the choice of these variables remains arbitrary and depends on the aspirations of the researcher.

We will therefore present a review of the literature on a wide range of contingency factors, both internal and external, in order to study their contribution to ERP's impact on the management control function. To do so, we have chosen the following factors.

2.1. The ERP's impact on management control under internal factors

2.1.1. Company's structure

In centralized structures, the management control function has not changed after the implementation of ERP systems. The role of the management controller remained focused on strategic analysis and contribution to the definition of managerial policies (Meyssonnier & Pourtier, 2006). Furthermore, Six (2019) states that when the management controller performs their functions within the company's headquarters (centralized structure), the consulting mission is less present than within the subsidiaries (decentralized structures). More often, it is the parent company that chooses both the ERP and the modules to be integrated and imposes them on the various subsidiaries (de Rongé, 2000).

H1: The more the company's structure is decentralized, the more enterprise resource planning contributes to the evolution of the management control function.

2.1.2. Company's strategy

Given its high size and acquisition cost, ERP is one of the most important strategic projects for the company. "If the ERP project is not aligned to a predefined and budgeted strategy, no added value would be generated, and the investment will be characterized as unprofitable" (Lotfi & Faraj, 2018, p. 27). Consequently, managers should focus their ERP project on their strategic intentions, and be aware that they will certainly not be able to control

all the consequences of ERP implementation. According to Ouiddad et al. (2015), the system is constantly reinvented and reinterpreted and the engagement opens up a game. Therefore, an ERP regulation mission is essential to ensure a permanent alignment with the company's strategy. Indeed, it relies on the reorientation of project teams in the defined strategic direction, mobilizing additional resources and efforts (Lotfi & Faraj, 2018).

Furthermore, according to Cebekhulu and Ozor (2022), there is a positive relationship between ERP systems and organizational performance, and this relationship depends essentially on the size of the company.

H2: The more the enterprise resource planning is aligned with the company's strategy, the more it contributes to the evolution of the management control function.

2.1.3. Company's culture

The implementation of an ERP system aims to introduce "best practices" within a company, but management controllers often resist these changes, preferring their old methods. This resistance stems from a fear of losing their role as information providers and becoming mere "scorekeepers". For successful ERP implementation, Zouine (2020) emphasizes the importance of user acceptance of change. Cultural factors, such as management commitment, leadership influence, involvement of business people, and collaboration among project stakeholders, significantly influence the impact of ERP on the management control function. Committed management ensures resources for ERP implementation and ongoing controller training (Loning et al., 2003). Leadership encourages employee participation and fosters a culture conducive to ERP objectives. The involvement of management controllers in the ERP process allows for better restructuring and explanation of new configurations. Collaboration among project stakeholders, both internal and external, promotes change, communication, and knowledge transfer. Finally, the level of cohesion among company personnel is crucial, as disaffection and partitioning among user groups can hinder information flow and strategic data updates (Meyssonnier & Pourtier, 2006). Given these complexities, the implementation of ERP systems in organisations is crucial since they provide a systematic way of planning resources that align with the organisations' needs (Vos & Boonstra, 2022).

H3: The more the corporate culture is open and engaged, the more the enterprise resource planning implementation is successful and the more the management control function evolves.

2.1.4. The management controller's profile

According to Mrani Zentar (2020), the profile of the management controller, as a manager, is also a decisive factor having a significant impact on the practices of the management control function. The current context thus encourages management controllers to use information technology (IT) tools and to specialize more in information systems. However, studies by Besson (1999) and Meyssonnier and Pourtier (2006) show that these tools are difficult to use and require a highly competent controller.

The implementation of an ERP is highly dependent on the mastery of the IT tool. According to Azan (2007), "the competence of management controllers is becoming linked not only to knowledge of action and interaction but also to knowledge of use and even programming and algorithms" (p. 18).

H4: The more the management controller is competent, the more its role evolves into an enterprise resource planning renovator and the more it contributes to the evolution of its function.

2.2. The ERP's impact on management control under external factors

The environmental context of the firm is an extremely important contingent factor (Govindarajan, 1984). In this sense, Chapman (1998) and Hartmann (2000) have highlighted the importance of uncertainty as a fundamental variable in management control research based on contingency theory. We have therefore deemed it relevant to also take into account the competitiveness of the ERP market (CM).

2.2.1. Environmental uncertainty

Many studies conclude that uncertainty necessitates the adoption of more open and outward-looking management control styles. According to Boitier (2002), ERP systems allow companies to meet the need for reactivity in an uncertain environment. He states that external growth policies, the organization into subsidiaries, and the need for shareholders to have a clear view of the results are driving the implementation of a control and information system with homogeneous and standard data. These factors are leading to a trend towards a more formalized and structured management control system that serves both operational efficiency and strategic relevance (Bennani et al., 2021). Moreover, ERP systems facilitate the implementation of a proactive management control system, which is able to support management in making timely decisions (Erraoui & Slimani, 2021).

H5: The enterprise resource planning systems adapted to the environmental uncertainty allow the management controller to keep performing its missions, despite the repercussions, and eventually to evolve its function.

2.2.2. The competitiveness of the ERP market

The ERP market has seen significant expansion, intensifying competition among vendors and companies. Vendors now prioritize maintenance, consulting, and service over license costs, targeting both large enterprises and small and medium-sized enterprises (SMEs). Tomas and Gal (2011) argue that a company's competitiveness no longer depends on developing its own application solutions but on acquiring, configuring, deploying, and utilizing ERP systems effectively. Information systems play a crucial role in generating competitive advantages, as noted by Mrani Zentar (2020). SAP emerged as the global leader in 2011, followed by Oracle, SAGE, Microsoft, and other vendors, according to Pitetti's (2010) study. Additionally, Open ERP (formerly Tiny ERP) and Compiere are popular choices among OpenSource ERPs.

As for the most recent research, a survey conducted by Apps Run the World in 2019 stated that the top 10 ERP vendors represented 44.2% of the global ERP market, or $30.8 billion in licensing, maintenance, and subscription revenue. As a result, Workday ERP captured the market leadership position with an 8.2% share, followed by SAP, Microsoft, Automatic Data Processing (ADP), and Ultimate Software (Pang et al., 2024).

The global expansion of the ERP market reflects widespread adoption, including in Morocco, where several major ERP vendors have established themselves since 1995 (Bighrissen et al., 2012). According to a study by Capital Consulting in 2010, over 50% of 61 large Moroccan companies surveyed had adopted ERP solutions from SAP and Oracle, with 41% and 18%, respectively (El Achhab, 2012). This heightened competitiveness has created a complex decision-making environment for companies, with an array of factors to consider and limited reaction time (Vallat, 2017). Chenhall (2003) suggests that management control systems need to provide more information to facilitate effective decision-making and implementation. In addition, Tarigan et al. (2020) confirmed that the ERP integration mediated the influence of top management commitment on the competitive advantage.

H6: The more the enterprise resource planning market is competitive, the more the company needs to adopt a performing enterprise resource planning to create a competitive advantage and thus evolve its function.

3. RESEARCH METHODOLOGY

The aim of our research is to verify the causal links between the ERP system and the management control function. Therefore, our work is based on a positivist perspective where the explanation of the causes and effects between the variables is made objectively. Furthermore, we have adopted a hypothetical-deductive methodological approach, because the positivist paradigm recommends the adoption of this mode of reasoning, which is based on theory, in order to provide reliable results supported by solid arguments. Thus, we chose to conduct a confirmatory factor analysis by structural equations, specifically by the PLS approach, in order to verify the validity of the constructs of our model and to test the hypotheses formulated.

In addition to the chosen method, it's crucial to explore alternative approaches that could enrich the research process. Qualitative methods, such as in-depth interviews or case studies, offer insights into management controllers' perspectives on ERP implementation. Comparing successful and challenged ERP implementations provides valuable insights into the factors influencing adoption and management control. Longitudinal studies, tracking ERP usage over time, reveal the long-term implications of implementation. These alternative methods complement the chosen approach, enhancing the comprehensiveness of the research findings.

Following the different hypotheses formulated at the end of the theoretical part, we have operationalized the different variables selected, while associating valid measurement scales to each variable. Then, we elaborated the questionnaire in order to collect the required data and to test the different hypotheses.

As for our target population, we chose large companies in Morocco, whether they are multinationals or Moroccan. In this sense, we used a probabilistic method, more precisely a simple random sampling method. Our choice is justified by the fact that we have a very precise sampling frame and that we wish to generalize, objectively, the results of our sample to the population studied, while determining an optimal margin of error. The sample size consisted of 200 management controllers, and the time frame of the study spanned 19 months.

As for the method of diffusion, we opted for electronic sending. To this end, we created our online questionnaire on the Google Forms platform, while adapting the parameters to the anonymous criteria. A pre-test was carried out, which consisted of submitting the questionnaire to the critical analysis of management controllers operating in companies adopting an ERP system. This pilot phase was followed by a phase of improvement of the questionnaire based on the comments received, and finally, the final version of the questionnaire was submitted to management controllers operating in large companies in Morocco.

4. RESEARCH RESULTS

In order to evaluate our research model, we have adopted the PLS approach. In fact, this approach is derived from the least squares method and is based on simple and multiple regressions. Its purpose is to estimate an SEM in order to highlight the relationships between the independent and dependent variables. Our choice is justified by the fact that PLS is considered the most suitable method for quantitative research in management sciences due to its better predictive capabilities regarding the estimation of statistical models to provide causal explanations (Chin, 1998; Wold, 1980).

Practically, the PLS approach is integrated into many software packages, namely SmartPLS (Henseler et al., 2015), PLS-graph (Chin et al., 1998) and LVPLS (Lohmöller, 1984). Thus, we used SmartPLS version 3.3 software in order to analyze the data collected during our investigation.

As recommended by Hair et al. (2017), the data analysis was conducted in two phases: the first phase consists of the evaluation of the measurement model and the second phase consists of the evaluation of the structural model.

4.1. Evaluation of the measurement model

The evaluation of the measurement model consists of examining the adequacy of the pre-specified model by assessing the internal consistency, reliability and validity of the measurement scales (items) used. The ultimate goal is to ensure that the scales are valid and adequately reflect the constructs.

In order to purify our measurement scales, we retained items that describe more than 50% of the variance of the latent variable, as stipulated by Hulland (1999). Consequently, and as illustrated in the following table, we retained only those items whose factor contribution value was greater than 0.50, in order to increase the composite reliability and the average variance extracted (AVE) from the construct. In other words, the items retained are those that represent their variables most accurately.

Table 1. Factor loadings and reliability tests of measurement scales

Items	*Factor loadings*	*Cronbach alpha*	*rho_A*	*Composite reliability*
ERP alignment with corporate strategy (AS)		0.719	0.724	0.876
AS1	0.871			
AS2	0.896			
Competitiveness of the ERP market (CM)		0.497	0.649	0.782
CM1	0.663			
CM2	0.926			
Controller competence (CC)		0.756	0.778	0.837
CC1	0.785			
CC2	0.599			
CC3	0.799			
CC5	0.629			
CC6	0.737			
Decentralized corporate structure (DC)		0.944	0.982	0.972
DC1	0.979			
DC2	0.966			
Openness of corporate culture (OC)		0.693	0.758	0.863
OC1	0.919			
OC3	0.822			
Environmental uncertainty (IE)		1.000	1.000	1.000
IE2	1.000			

Source: Authors' elaboration using SmartPLS software.

In addition, we measured convergent validity, which consists of determining whether items intended to measure the same variable are correlated (Evrard et al., 2003).

In order to assess convergent validity, Fornell and Larcker (1981) recommend using the AVE test, which measures the amount of variance absorbed by the construct relative to the amount of variance attributed to the measurement error. It is based on the principle that the variable must be explained more strongly by the items that measure it than by the error. Convergent validity is, therefore, considered satisfying when the value of the AVE index is greater than 0.50 (Bagozzi, 1981; Fornell & Larcker, 1981).

In our case, the table shows that all the values of the AVE index obtained are greater than 0.50. We can thus deduce that the convergent validity of our constructs is verified.

Table 2. Test of convergent validity

Items	*Factor loadings*	*AVE*
ERP alignment with corporate strategy (AS)		0.780
AS1	0.871	
AS2	0.896	
Competitiveness of the ERP market (CM)		0.648
CM1	0.663	
CM2	0.926	
Controller competence (CC)		0.510
CC1	0.785	
CC2	0.599	
CC3	0.799	
CC5	0.629	
CC6	0.737	
Decentralized corporate structure (DC)		0.946
DC1	0.979	
DC2	0.966	
Openness of corporate culture (OC)		0.760
OC1	0.919	
OC3	0.822	
Environmental uncertainty (IE)		1.000
IE2	1.000	

Source: Authors' elaboration using SmartPLS software.

Regarding discriminant validity, we used the method of Fornell and Larcker (1981) and the method of cross-loadings. Indeed, discriminant validity means that when variables are different on the theoretical level, they are also different on the empirical level. Discriminant validity is therefore obtained when indicators that are supposed to measure different phenomena are weakly correlated with each other (Jackson & Paunonen, 1985).

Table 3. Method of Fornell and Larkcer

	AS	*CC*	*CM*	*DC*	*IE*	*OC*
AS	**0.883**					
CC	0.631	**0.752**				
CM	0.544	0.345	**0.805**			
DC	0.010	-0.021	0.246	**0.973**		
IE	0.177	0.212	0.136	-0.014	**1.000**	
OC	0.478	0.554	0.250	-0.134	0.109	**0.872**

Source: Authors' elaboration using SmartPLS software.

In the table below, the diagonal elements represent the square roots of the AVE. Below the diagonal elements are the correlations between the construct values. Thus, we see that the AVE square root values of all constructs are greater than the values of their correlations with the other constructs. Therefore, we can say that discriminant validity is verified and that the constructs are different from each other in our measurement model.

However, a recent study by Henseler et al. (2015) found that this method is not appropriate for measuring discriminant validity because the Fornell-Larcker criterion does not perform well, especially when the factor loadings of the indicators on a construct differ only slightly (e.g., when all the factor loadings of the indicators are between 0.65 and 0.85). For this purpose, we used the cross-loading method to recheck the discriminant validity. The latter is based on the fact that the factor loadings of the items supposed to measure a construct must be higher than those of the other constructs (Chin, 1998; Urbach & Ahlemann, 2010). According to Gefen and Straub (2005), "discriminant validity is shown when each measurement correlates weakly with all other constructs except for the one to which it is theoretically associated" (p. 92).

From the following table, we notice that all items are strongly correlated to their own constructs compared to the other constructs. We thus reconfirm that discriminant validity is established.

Table 4. Method of cross-loading

Items	*AS*	*CC*	*CM*	*DC*	*IE*	*OC*
AS1	**0.871**	0.514	0.501	0.107	0.157	0.292
AS2	**0.896**	0.597	0.463	-0.080	0.156	0.540
CC1	0.404	**0.785**	0.155	-0.153	0.028	0.389
CC2	0.228	**0.599**	0.228	0.153	0.243	0.321
CC3	0.556	**0.799**	0.310	0.049	-0.080	0.610
CC5	0.452	**0.629**	0.300	0.189	0.257	0.156
CC6	0.546	**0.737**	0.226	-0.264	0.377	0.414
CM1	0.429	0.109	**0.663**	0.167	-0.139	0.157
CM2	0.470	0.380	**0.926**	0.226	0.242	0.235
DC1	0.024	-0.017	0.243	**0.979**	0.010	-0.106
DC2	-0.009	-0.024	0.235	**0.966**	-0.044	-0.161
IE2	0.177	0.212	0.136	-0.014	**1.000**	0.109
OC1	0.494	0.532	0.199	-0.193	0.003	**0.919**
OC3	0.314	0.423	0.249	-0.009	0.231	**0.822**

Source: Authors' elaboration using SmartPLS software.

4.2. Evaluation of the structural model

Following the significant and satisfying results obtained during the evaluation of the measurement model, we proceeded to a second step, the evaluation of the structural model. The purpose of this step is to ensure that the relationships between the latent variables are well described.

In order to verify our hypotheses, we used a bootstrapping technique, with a resampling containing 5,000 bootstraps (Henseler et al., 2015). This is a method of estimating the sampling distribution based on taking several samples with a discount from a single sample. These repeated samples are called resamples. Therefore, we obtained the following results.

- β = 0.100, t-value = 2.175, p-value = 0.030, p-value is less than 0.05. Therefore, *H1* is confirmed.
- β = 0.014, t-value = 0.236, p-value = 0.813, p-value is not less than 0.05. Therefore, *H2* is rejected.
- β = 0.184, t-value = 3.436, p-value = 0.001, p-value is less than 0.05. Therefore, *H3* is confirmed.
- β = 0.268, t-value = 3.843, p-value = 0.000, p-value is less than 0.05. Therefore, *H4* is confirmed.
- β = 0.044, t-value = 0.748, p-value = 0.455, p-value is not less than 0.05. Therefore, *H5* is rejected.
- β = 0.113, t-value = 2.603, p-value = 0.010, p-value is less than 0.05. Therefore, *H6* is confirmed.

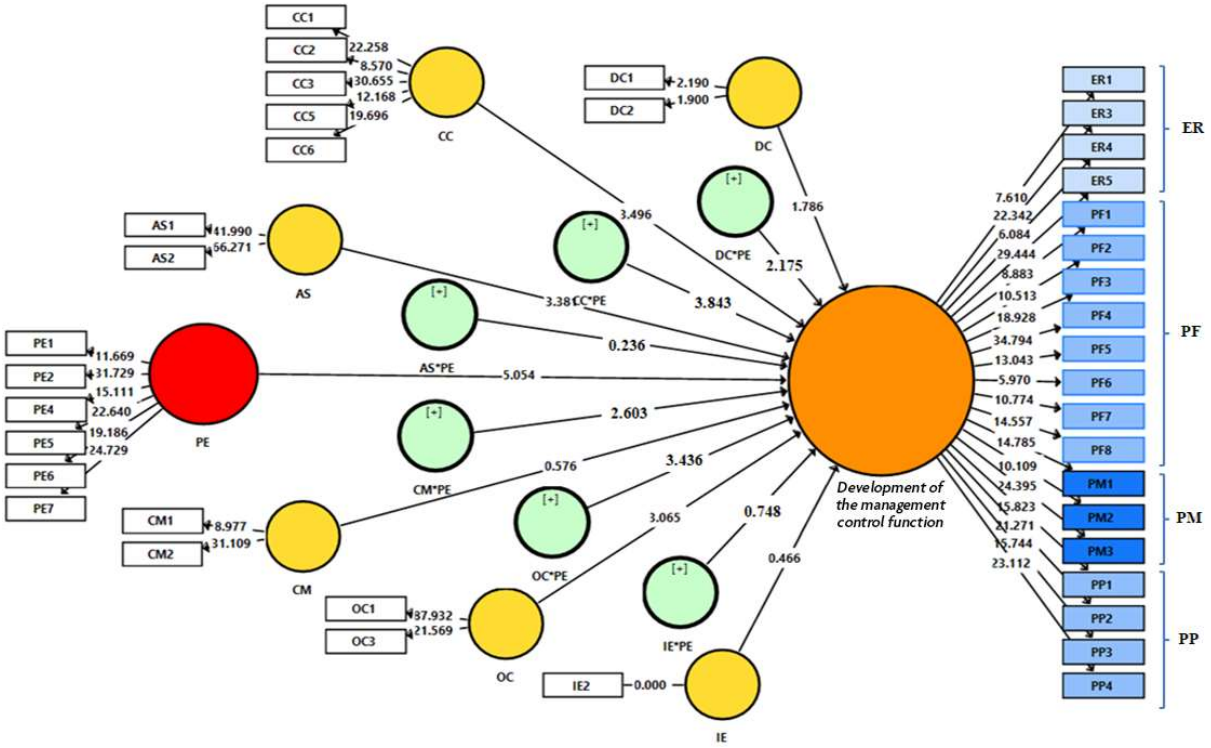
At the end of this evaluation, we obtained the following structural model.

Table 5. Test of hypotheses related to contingency factors

Hypotheses	*Relations*	*Coefficient β*	*Std. dev.*	*t-value*	*p-value*	*Decisions*
H1	*PE * DC* → Development of the management control function	0.100	0.046	2.175	0.030	Confirmed
H2	*PE * AS* → Development of the management control function	0.014	0.059	0.236	0.813	Rejected
H3	*PE * OC* → Development of the management control function	0.184	0.054	3.436	0.001	Confirmed
H4	*PE * CC* → Development of the management control function	0.268	0.070	3.843	0.000	Confirmed
H5	*PE * IE* → Development of the management control function	0.044	0.059	0.748	0.455	Rejected
H6	*PE * CM* → Development of the management control function	0.113	0.043	2.603	0.010	Confirmed

Source: Authors' elaboration using SmartPLS software.

Figure 1. Final structural model (containing moderator variables)



*Note: * PE = ERP system performance, PP = relevance of action planning tools, PM = relevance of action measurement tools, PF = relevance of performance management tools, ER = evolution of the role of the management controller.*
Source: Authors' elaboration using SmartPLS software.

5. DISCUSSION OF THE RESULTS

5.1. The effect of contingency factors on ERP's impact on management control function

The contingency factors indeed influence the evolution of the management control function. The practice of management control has always been applied in a standardized manner, without considering the type and specificities of the company. It was characterized by its neutral nature and the permanence of roles for management controllers and the tools used. The contingency theory has intervened to impose the adaptation of management control tools and roles to different contexts, in other words, to contingency factors. According to Pariente (1999), management control is undergoing an evolution that consists of adapting its tools to the new contexts it faces.

Given the numerous contingency factors, we have focused on those considered the most relevant in the literature and most influential for providing a solid foundation for our analysis. Mauldin and Ruchala (1999) emphasize the difficulty in both justifying the inclusion of contingent variables and determining which set of factors is complete or most relevant. In a similar vein, Soobaroyen (2007) argues that, due to the lack of a clear list of contingent factors, researchers typically focus on a small number that appears to affect management control. However, the choice of these variables remains arbitrary and depends on the researchers' aspirations and the dimensions of their research.

Based on the obtained results, we observe that several contingency factors condition the degree of impact of the ERP on the management control function. These factors include the decentralization of the company's structure, the openness of the company's culture, the competencies of the management controller, and the CM.

5.2. Decentralization's impact on the company's structure

The decentralization of the company's structure plays a crucial role in strengthening the impact of the ERP system on the management control function. Increasing the level of participation in strategic decision-making and delegating decision-making power enhances the involvement and accountability of the management controller towards the ERP project. These findings align with the results of Meyssonnier and Pourtier (2006), who state that the role of the management controller remains unchanged in centralized structures (focused solely on analysis) but expands significantly in decentralized structures with the integration of advisory tasks. Consequently, ERP systems are more effectively utilized by management controllers working in decentralized structures, as these systems facilitate the decentralization of management responsibilities and autonomy in decision-making.

In the same vein, Boitier (2020) stated that in a decentralized company with an ERP system, "department heads are told, 'Now that you have SAP, you are responsible for your budget, and therefore, you can directly access information in SAP'. They are accountable for their budget, have a certain level of autonomy, and also receive management training for section and project leaders" (p. 11).

5.3. Alignment of the ERP with corporate strategy

The findings lead us to reject the hypothesis that the ERP's alignment with the company's strategy influences the degree of its impact on the management control function. The fact that the company aligns its ERP project with its strategic intentions does not have a significant effect on the relationship between ERP and the management control function.

In terms of our population, management controllers operating in large Moroccan companies are able to take advantage of the benefits of ERP, regardless of whether or not it is aligned with the company's strategy. However, it is advisable to update management and control models and diagrams prior to ERP implementation, so that they reflect management's strategic ambitions (Meyssonnier & Pourtier, 2006). Moreover, an ERP regulatory mission is essential to ensure permanent alignment with corporate strategy. As stipulated by Lotfi and Faraj (2018), this mission relies on reorienting project teams in the defined strategic direction, by mobilizing additional means and efforts.

5.4. Culture of the company

The openness of the company culture, in turn, is a factor that conditions the degree of ERP's impact on the management control function. According to the obtained results, we observe that the investment from the management and the involvement of the management controllers in the ERP project promote the success of the integration of this software package. Indeed, activities related to the ERP project, including providing stable financing necessary for the development and operation of the ERP, are a true guarantee of the success of the ERP project. Moreover, the involvement of the management controller ensures a better redefinition of the structure through the introduction of new practices, processes, techniques, and methods (activity-based costing, etc.), as well as a better explanation of the new configurations to be carried out on the ERP (formulation of needs, explanation of specific techniques and methods, etc.).

Furthermore, at the level of our sample, namely large Moroccan companies, the acceptance of change by all stakeholders in the company is not a significant issue for the success of the implementation of the ERP. This is due to the fact that the implementation of an ERP is primarily a strategic decision imposed by the management and does not take into account the employees' resistance to change, contrary to the conclusions of Zouine (2020), who claims that this resistance, caused by employees' preference to retain old practices, has an undeniable effect on the success of the ERP project. Moreover, strengthening trust in the reliability of the results obtained by the ERP could allow the controller to benefit more from the functionalities of the ERP system and rely on the results generated by this system without resorting to third-party applications.

5.5. Competence of the management controller

The competence of the management controller plays a crucial role in enhancing the impact of the ERP system on the management control function. According to the results obtained, this factor has the greatest impact on the relationship between the ERP and the management control function (ERP $\beta = 0.268$, $t = 3.843$, $p = 0.000$). We observe that when management controllers are competent, they are able to exploit ERP functionalities appropriately. In fact, their mastery of the ERP allows them to fully utilize the tool and benefit from its multiple functionalities. However, the inability to use all the features of the ERP and the loss of time in using applications such as Excel and Access to complete their work prevents them from fully benefiting from all the advantages of this tool. These findings align with the results of Besson (1999) and Meyssonnier and Pourtier (2006), which state that the appropriate use of the ERP requires a high level of competence from management controllers.

In this perspective, the management controller is required to have sufficient knowledge to accurately input data while adhering to standard terminology, easily collect data from the ERP, and be able to analyze and interpret the collected data effortlessly. Furthermore, the ability to configure the ERP system without relying on specialized technicians reflects the high competence of the management controller and allows them to evolve in their role, as stated by Azan (2007).

5.6. Uncertainty of the company's environment

Regarding the "uncertainty of the environment" factor, the results obtained led us to reject the hypothesis that this factor has an effect on the relationship between the ERP and the management control function. In fact, we took advantage of the current context (the COVID-19 pandemic) to measure this variable. We observe that it is certain, as stated by Mrani Zentar (2020), that companies require an ERP that meets the need for responsiveness in an uncertain environment to ensure their sustainability. However, this does not have a significant effect on the management control function of large Moroccan companies. We associate this result with the fact that 89.5% of these companies already had an ERP that met various responsiveness requirements (need for useful, up-to-date, reliable, contextual, coherent information, etc.) and that the situation of the health crisis, including confinement, did not have an effect on the management control function. Management controllers were already accustomed to carrying out their tasks remotely well before any potential repercussions of the COVID-19 crisis.

5.7. Competitiveness of the ERP market

The CM significantly contributes to encouraging companies to adopt high-performing ERP systems, ensuring their optimal implementation, configuration, and utilization, thereby benefiting the management controller with the advantages of these systems and potentially evolving their function.

Indeed, the expansion of the ERP market and the diversity of functionalities offered motivate companies to adopt increasingly powerful ERP systems, especially the latest generation ones, to differentiate themselves from the competition and turn this tool into a competitive advantage. This aligns with the findings of Tomas and Gal (2011)

who state that "the company no longer increases its competitiveness by developing its own application solution, but by its appropriate acquisition, proper configuration, successful deployment, and full utilization. It is now recognized that the role of information systems in the company is to help generate this competitive advantage that will make the company more efficient and better than its competitors" (p. 47).

6. CONCLUSION

In conclusion, this research aimed to uncover the impact of ERP on the management control function of large companies in Morocco and highlight the different contingency factors that condition this relationship. Its relevance lies in providing insights into the mixed findings in the literature. It also sheds light on how management controllers operating within large companies in Morocco perceive the connection between ERP and the management control function.

In line with the results of this study, we confirm our central hypothesis that contingency factors such as decentralization of the structure, openness of the company culture, competence of the management controller, and CM play a crucial role in strengthening the degree of ERP impact on the management control function.

This paper makes several theoretical contributions to the current literature on ERP systems and the management control discipline. Firstly, this study is the first to apply contingency theory to examine the impact of ERP systems on the management control function. Furthermore, we have focused on contingency factors specifically tailored to this context, such as the CM and the competence of the management controller in mastering the ERP system.

Secondly, our main theoretical contribution lies in providing a new synthesis of the various hypotheses regarding the links between ERP and the management control function. By integrating contingency theory and considering specific factors, we have enhanced our understanding of how ERP systems interact with and affect the management control function.

In terms of methodological contributions, our study is the first empirical research, to our knowledge, to use the SEM method to demonstrate the nature and intensity of the relationship between ERP and the management control function. It is worth noting that the majority of previous empirical studies, to our knowledge, examining the relationship between these two concepts have used qualitative methods, which significantly strengthened our theoretical foundations.

Furthermore, the chosen method involved incorporating six moderating or control variables (company structure, company culture, management controller's profile, etc.) into the traditional model, allowing for a more comprehensive analysis of the relationship between ERP and the management control function. By employing SEM and considering these additional factors, our study provides a more rigorous and nuanced examination of the ERP-management control relationship, contributing to the methodological diversity within the field.

Regarding our managerial contributions, this research highlights the controversial relationship between ERP and the management control function. Through a literature analysis and empirical study, we shed light on the different links and confirm the existence of a positive relationship between ERP and the management control function.

Another contribution lies in emphasizing the importance for companies to consider various internal and external contingency factors in order to successfully integrate the ERP system and develop their management control function. Firstly, it is crucial to recruit competent management controllers who can drive the evolution of the control function. Secondly, companies should focus on strengthening their culture by promoting collaboration among different stakeholders and investing in user training on the ERP system. Thirdly, they should encourage the involvement and accountability of the management controller in the ERP project, while also enhancing decentralization in the company's structure. Lastly, companies should choose an ERP system that meets performance criteria. A high-performing ERP system will enable the company to gain a competitive advantage, become more efficient, and outperform its competitors.

While precautions have been taken, it is important to acknowledge some limitations and future research directions that should be considered in subsequent studies. Firstly, our empirical study only focuses on large companies in Morocco. Longitudinal studies would be more appropriate to understand the impact of ERP on the management control function across different types of companies. Secondly, it would be valuable to enrich the proposed research model by incorporating a broader range of contingency factors. Exploring additional factors could provide a more comprehensive understanding of the relationship between ERP and the management control function. Thirdly, comparative case studies that examine companies facing different contingency factors or adopting different ERP systems, using action research methods, would be beneficial in better understanding the factors that can influence the relationship between ERP and the management control function. By addressing these limitations and pursuing these future research directions, scholars can deepen their understanding of the ERP-management control relationship and provide more nuanced insights for both theory and practice.

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