MANAGEMENT CONTROL SYSTEM DESIGN IN INNOVATION-RELATED INTERNATIONALIZATION STRATEGIES (I-MODEL)

SISTEMA DE CONTROLO DE GESTÃO E ESTRATÉGIA DE INTERNACIONALIZAÇÃO I-MODEL

SISTEMA DE CONTROL DE GESTIÓN Y ESTRATEGIA DE INTERNACIONALIZACIÓN DEL I-MODELO

Ana Filipa Roque
PhD Candidate Management - Accounting
Invited Assistant of University of Beira Interior
Address: Estrada do Sineiro. Polo IV, Covilhã, Portugal
Phone: (+ 351) 275 319 839
E-mail: anaroque@ubi.pt

Maria Céu Alves
PhD Management - Accounting
Assistant Professor of University of Beira Interior
Address: Estrada do Sineiro. Polo IV, Covilhã, Portugal
Phone: (+ 351) 275 319 834
E-mail: mceu@ubi.pt

Mário Raposo
PhD Business Administration
Full Professor of University of Beira Interior
Address: Estrada do Sineiro. Polo IV, Covilhã, Portugal
Phone: (+ 351) 275 319 833
E-mail: mraposo@ubi.pt


ABSTRACT

This paper seeks to analyze the relationship between organizational structure, represented by the Management Accounting Control Systems (MACS) and strategy, and to understand how MACS design fit the internationalization strategy and to what extent this affects MACS design. To answer this objective, a case study was carried-out in a service sector company. The findings suggest that in an I-Model internationalization process MACS should be used throughout the process in a differentiated way, allowing the information output to respond to all needs. These results contribute to the scarce knowledge on MACS and its strategy fit.

Keywords: Internationalization Strategy; I-Model; Innovation; Management Accounting; Control Systems.

RESUMO

Este trabalho procura analisar a relação entre a estrutura organizacional, representada pelo Sistema de Contabilidade e Controlo de Gestão (Management Accounting Control Systems) e a estratégia, e entender como o desenho do MACS se ajusta à estratégia de internacionalização e em que medida isso afeta o desenho do MACS. Para responder a este objetivo, foi realizado um estudo de caso numa empresa do setor de serviços. Os resultados sugerem que, num processo de internacionalização I-Model, o MACS deve ser usado em todo o processo de maneira diferenciada, permitindo que o output de informação responda a todas as necessidades. Estes resultados contribuem para o escasso conhecimento sobre MACS e o seu ajustamento à estratégia.

Palavras-chave: Estratégia de Internacionalização; I-Model; Inovação; Contabilidade de Gestão; Sistemas de Controlo.

RESUMEN

Este documento busca analizar la relación entre la estructura organizativa, representada por los Sistemas de Contabilidad y de Control de Gestión (MACS) y la estrategia, y comprender cómo el diseño del MACS se ajusta a la estrategia de internacionalización y en qué medida esto afecta el diseño del MACS. Para responder a este objetivo, se realizó un estudio de caso en una empresa del sector servicios. Los resultados sugieren que en un proceso de internacionalización de I-Model, el MACS se debe utilizar a lo largo del proceso de manera diferenciada, permitiendo que la salida de información responda a las necesidades de información. Estos resultados contribuyen al escaso conocimiento sobre MACS y ajuste de la estrategia.

Palabras-clave: Estrategia de Internacionalización; I-Model, Innovación; Contabilidad de Gestión; Sistemas de Control.
1 INTRODUCTION

The companies' structure depends on the contingencies variables of each organization at a given context, such as its strategy, the environment in which the company operates, the technology at its disposal and the characteristics of its participants (Chandler, 1962). So it’s natural that the companies’ structure was adjusted to their strategies, thus finding an intimate relationship between the strategy and the organizational structure (Chandler, 1962). The companies’ internationalization process is considered a growth strategy (Welford and Prescott, 1994). And, the organizational changes are influenced by the company’s internal and external characteristics (Otley, 1980; Chenhall, 2003), so there is no single, universal, structure of Management Accounting and Control Systems (MACS).

The literature has studied the relationship between internationalization MACSs (Haldma and Lääts, 2002; Carenzo et al., 2011; Roque et al., 2018b, 2019b, 2020), but there is no reference to the relationship between innovation-based models of internationalization (I-Models) and the company’s MACS structure.

Therefore, this study aims to answer the following research questions: (1) How does the I-models internationalization strategy imply (or not) changes in the MACS design? and (2) How does the company’s MACS design facilitate (or not) the implementation of the I-Models internationalization strategy?

In order to answer these research questions, a qualitative study was developed, through a case study, in a Portuguese company in the service sector in engineering and consulting. This company develops the internationalization process through the implementation of the I-Model.

The following section reviews and discusses the existing literature on the innovative models of internationalization and MACS. In section 2 the methodology is presented and the empirical study is analysed. Section 3 presents the results’, the conclusions, limitations and some recommendations for future studies.

2 LITERATURE REVIEW

The globalization of the economy transformed the internationalization into one of the most important strategies for companies that focus on growth (Lu and Beamish, 2005; Sapienza et al., 2006; Xie et al., 2009). However, Internationalization is an ambiguous term,
and its definition varies according to the phenomenon under study (Chetty and Campbell-Hunt, 200; Singh et al., 2010) and according to a variety of factors, such as the company’s characteristics, size, seniority, human and financial resources and environmental issues (Child and Hsieh, 2014).

Is, thus, a process that registers the company’s growing involvement in the international operations (Ruzzier et. al., 2006) or an adaptation of the business operations (Calof and Beamish, 1995) or even a de-internationalization phenomenon (Benito and Welch, 1997, Chetty and Campbell-Hunt, 2003).

2.1 THE INTERNATIONALIZATION BY AN INNOVATIVE MODEL

Literature has over time approached the Internationalization Model (IM) (Crick, 1995, Wortzel and Wortzel, 1997, Reuber and Fischer, 1997), and there are many models developed (Roque et al., 2018a, 2019a). One of the most reference models in literature was the Innovation models (I-Model). This model view the internationalization as a process in which the steps are analogous to adopting a new product (Rogers, 1962), and the simple exports decision making are understood like “a process of innovation adoption” (Reid, 1981, pp.102) for the company (Bilkey and Tesar, 1977, Cavusgil, 1980 and Reid, 1981), allowing to contribute to its incremental performance (Andersen, 1993; Rogers, 1962).

According to Andersen (1993), the most relevant innovation e models are developed through several phases.

In the 1970s, Bilkey and Tesar (1977) formulated a model can be summarized in three phases. In phase 1, companies usually begin to internationalize through sporadic export. In phase 2, they begin to export regularly to a country “psychologically” closer. Finally, in phase 3, they export to other countries that are “psychologically” more distant, progressively increasing their involvement.

Cavusgil (1980) developed a model that addressed the export process in 5 phases: pre-involvement, reactive involvement, limited involvement, active involvement and commitment.
Reid (1981) also proposed a model composed of 5 phases, indicating that the decision makers’ attitude, experiences, motivation and expectations have a significant and determinant impact on the internationalization process.

Czinkota (1982) proposed a model that derives from the model presented by Bilkey and Tesar (1987) and he showed that the companies, in the various phases of internationalization, have very different reciprocal characteristics, namely in terms of organization, management and other internal characteristics.

Leonidou and Katsikeas (1996) conclude that, despite the divergences between the models proposed in the literature, these allow to characterize, in a general way, the companies’ exporting process in three phases: (1) pre-involvement, which assembles the companies that only sell domestically and which are not interested in exports, and also those that consider the possibility of exporting, and that have already developed this process and have since been interrupted; (2) initial involvement that gathers companies that export sporadically, and (3) advanced involvement, which involves companies that export regularly to various markets and may have characteristics that commit them to a greater involvement in the internationalization.

2.2 MANAGEMENT ACCOUNTING AND CONTROL SYSTEMS DESIGN

In this study we assume that MACS are structures which use information derived from the MACS to support decision-making and to achieve the company’s strategic goals (Chenhall, 2003) and they simultaneously include controls, personal and top management, and their performance depends on the company’s structure (Gomes and Salas, 2001).

To characterize the MACS design we consider four, of the most referenced dimensions of MACS (Agbejule, 2006; Ahrens and Chapman, 2004; Ballvé, 2006; Berland et al., 2006; Bisbe and Otley, 2004; Bouwens and Abernethy, 2000; Hartmann and Vaassen, 2003; Henri, 2006; Naranjo-Gil and Álvarez-Dardet, 2006; Naranjo-Gil and Hartmann, 2006, 2007; Thorén and Brown, 2004) grouped into two categories, as suggested by Novas et al. (2017), namely:

The type of information provided by MACS with two dimensions “aggregation” and “integration”.

The type of decision supported. – MACS support decisions regarding “performance evaluation” and “resource allocation”. It’s possible register a certain dynamism between MACS dimensions (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006). The information’s provided by the system can oscillates between aggregation and integration of the information. The information aggregation favours the management of decentralized units, it allows a large volume of information to be processed over a given period of time and it is relevant to the various domains of the organizational reality (Bouwens and Abernethy, 2000).

In turn, the information integration provides the coordination mechanisms between the different organizational units, becoming fundamentally relevant in decentralized structures, for both the decision-making process as well as in terms of control (Chia, 1995). Even allows to understand the cause-effect relationships between the operational structure, strategy, objectives and other aspects, such as customers and suppliers. On the other hand, it includes a measurement component related to the provision of several measures that are related to financial aspects (customers, organizational processes and innovation) (Chenhall, 2005).

The “type of decision” dimension allows its applicability, whether in the context of “resource allocation” (support in the decision-making process), or in the “performance evaluation” context (evaluation and control) (Naranjo-Gil and Hartmann, 2006).

The type of decision related to the resources’ allocation corresponds to the use of the MACS for planning and coordination (Novas et al., 2017) and it is associated to the management and distribution of monetary and non-monetary resources by the different decentralized units, in order to instill responsibility to the managers, in management and in their activity performance (Naranjo-Gil and Hartmann, 2006).

Regarding the type of decision for “performance evaluation”, the system focuses essentially on how performance can be improved (Novas et al., 2017), using the system information to monitor and control the organizational objectives (Naranjo-Gil and Hartmann, 2006), as well as in the managers’ performance control and the organizational units they manage (Silvi, 2002).
2.3 THE RELATIONSHIP BETWEEN THE INNOVATIVE MODEL AND MACS

It is noteworthy that companies that internationalize have access to a potentially larger market and, therefore, are able to obtain a greater performance (Kafouros et al., 2008), with a natural propensity for innovation.

Regarding the type of information provided by MACS, in the model’s initial phase (according to Bilkey and Tesar, 1977), the I-Model aims the information aggregation and, then, in the subsequent phases (phases 2 and 3), a dynamism between the aggregation and integration (Simons, 1995), where the integration assumes a greater weight. Considering that the aggregation reunites a large amount of information, in a certain time period, which is useful for the organizational reality knowledge (Bouwens and Abernethy, 2000), this will allow the full development of the internationalization process’ phase 1, according to Bilkey and Tesar (1977), thus preparing the process for the next phases. Between phase 1 and phase 2, the aggregation will improve the management of decentralized units, compare more alternatives, innovate and gain a better understanding of the relationships established between the organizational units (Bouwens and Abernethy, 2000). In turn, the information integration allows the consolidation of coordination mechanisms between the different organizational units, supporting the decision-making process and also control (Chia, 1995), which is recorded and required in the I-Model phases 2 and 3. We recall that the systems, in which information is more integrated, allow understanding the cause-effect relationships between the operational structure and the strategy and promote the adoption of preventive measures with financial aspects (Chenhall, 2005), such as innovation.

Regarding the decision type category, promoted by the MACSs, according to the structure of Novas et al., (2017), and according to Bilkey and Tesar (1977), the I-Model, is supported, in all its phases, by systems that allow the Resources management, as well as a performance evaluation, especially in phases 1 and 2. The MACS must be useful for planning and coordination (in the Resources Management), in all the phases, and allow a wide organizational objectives’ monitoring and control (Naranjo-Gil and Hartmann, 2006) and the performance of those responsible for the organizational units that manage (performance evaluation) (Silvi, 2002), fundamentally from the moment it reaches a more active phase (IM’s phase 2).
3 METHODOLOGY

To answer the research questions: (1) How does the internationalization strategy imply (or not) changes in the MACS design? and (2) How does the company’s MACS design facilitate (or not) the implementation of the internationalization strategy? a qualitative study was developed, in a Portuguese company in the service sector in engineering and consulting.

The company was selected by convenience, since it is a company located in the interior of Portugal that participated in the “IX Symposium COTEC Europe”, on February 10, 2017. Two in-depth interviews were conducted with the company’s CEO and CFO. The interviews details are presented in table 1. Similarly, to other studies (Simons, 1990; Archer and Otley, 1991; Francisco and Alves, 2012), a single case study was developed (Yin, 1993, 2014) between September 2017 and January 2019.

Table 1 - Interview details

<table>
<thead>
<tr>
<th>Interviewee name</th>
<th>Responsibilities</th>
<th>Date / interview duration</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filipe Lourenço</td>
<td>Chief Executive Officer (CEO)</td>
<td>September 2017 90mn</td>
<td>Corporate headquarters</td>
</tr>
<tr>
<td>João Medroa</td>
<td>Chief Financial Officer (CFO)</td>
<td>November 2018 95mn</td>
<td>Corporate headquarters</td>
</tr>
</tbody>
</table>

Source: Authors (2020).

The interview questions were adapted from previous studies (Burns et al., 2002; Major et al., 2010; Novas et al., 2017). The critical incident technique was used (Flanagan, 1954; Hettlage and Steinlin, 2006; Hay, 2014), since it allows collecting information in a reflexive logic, accessing the subjective information, focused on the form, as situations and events are lived and experienced by the interviewees (Chell, 2004). The data was interpreted and triangulated, based on documentary analysis of information provided by the company. The key informants were selected by the company. Initially, the CEO was appointed, since he is responsible for the entire company’s internationalization process. Later, to complete and extend our study on the financial side, we request an interview with the person responsible for accounting and control in the internationalization process. The company selected the CFO. Our proposed research is presented in Figure 1.

The two MACSs’ categories analyzed, were related to the different phases of the I-Model, as proposed by Bilkey and Tesar (1977) and Leonidou and Katsikeas (1996).
We assume that in the initial stages, the I-Model is supported by a system more limited in the search for innovative solutions, since the managers are focused on the results control and deviations correction, associated to the established performance objectives (Simons, 1995).

Figure 1 - Research Model

<table>
<thead>
<tr>
<th>Internationalization Model</th>
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<tbody>
<tr>
<td><strong>I-Model Phases</strong></td>
</tr>
<tr>
<td><strong>1st phase:</strong> unsolicited exports (Bilkey and Tesar, 1977) or pre-export phase (Leonidou and Katsikeas, 1996)</td>
</tr>
<tr>
<td><strong>2nd phase:</strong> exports to geographically closer countries (Bilkey and Tesar, 1977) or phase of &quot;trail&quot; exports (Leonidou and Katsikeas, 1996)</td>
</tr>
<tr>
<td><strong>3rd phase:</strong> exports to geographically more distant countries (Bilkey and Tesar, 1977) or advanced export phase (Leonidou and Katsikeas, 1996)</td>
</tr>
</tbody>
</table>

Source: Authors (2020).
4 EMPIRICAL ANALYSIS

4.1 COMPANY’S PRESENTATION

Procifisc – Engineering and Consulting, Lda (http://www.procifisc.pt/) is a Portuguese company dedicated to the development of engineering, architectural and consulting services since 2007.

The company’s promote research, development and innovation to ensure a sustained growth, based on the creation of new products and services, increasingly adapted to the market’s evolution, which allows to characterize the internationalization process as an innovative process by an innovative model.

4.2 RESULTS ANALYSIS

4.2.1 The Company’s Internationalization and the innovative model

The internationalization process started in 2012, in order to respond to the emerging challenges that the market presented. Actually, Procifisc has three legally established companies abroad: Angola (since 2014), São Tomé (since 2013) and Brazil (since 2014). It exports to Mexico, Spain, the Dominican Republic (since 2015) and to Mozambique and Timor (since 2016).

The way of entry and establishment used by the company in the international market was initially through sporadic exports and through the establishment of companies in the host country at a later stage (Bilkey and Tesar, 1977, and Leonidou and Katsikeas, 1996).

With a new markets the CEO assume, there was as an adaptation to the innovation potential, regarding responsiveness and the creation of new services that were scarce in the market (Cunha and Verhallen, 1998). The internationalization process is assumed as an innovation for the company and that it allows its incremental development (Bilkey and Teaser, 1977, Cavulgil, 1980, Reid, 1981).

The internationalization process was developed 5 years after the start of the company’s activity (pre-exports phase) and the whole process is based on a behavioural theory that stems from an incremental form, where market factors and justifications for the
process are evaluated based on intuitive arguments of the process promoter and manager, we find, in a first line, the basis for the characterization of the I-Model presented by Andersen (1993).

According to the interviewees the most important criteria in choosing the first external market were the existing contacts and the eminent business opportunities. For the CFO, penetrating a market where knowledge exists, for example, through the establishment of partnerships “increases access and facilitates success in business opportunities”, but “implies a reduction in the capacity of the managerial control that can lead to non-conformities in the quality of the work developed.”

The internationalization process was facilitated by the host countries’ contact and linguistic proximity, which, as we have previously seen, constituted a criterion for ranking the international markets. With this fact we can confirm and characterize the I-Model’s second phase, in which the process’ design and development begins, in an active way, to geographically and culturally closer countries.

With this analyse we validate the I-Model characterization, according to Bilkey and Tesar (1977) and Leonidou and Katsikeas (1996), where exports are progressively assumed to geographically more distant countries and an advanced export phase is reached.

4.2.2 The company’s Management Accounting Control Systems

To analyze the nature of the information dimension, we questioned the interviewees to characterize the system. According to the interviewees, the system provides: “Information on costs and other measures, associated to the various departments; Disaggregated information (e.g. fixed and variable costs); Sectoral information, related to specific areas (for example, sections of a department, cost’s center, etc.); The definition of precise objectives for the activities performed by the different areas of the organizational structure; Studies on the effect of certain events on concrete time periods (e.g. reports, trends, comparisons); The possibility of obtaining information prepared to allow the construction of scenarios.”

However, according to the interviewees, the system is incomplete, because “it does not respond to some factors, it does not provide: processed information to show how
different functions are specifically affected by the occurrence of certain events; information on the effect of the decisions of a functional unit on the performance of other functional units; and information on the effect of decisions, taken on a particular functional unit, on the unit itself and their influence on other decisions. However for the CEO the system don’t provide information in appropriate formats for the construction of indicators and decision models, but the CFO recognizes a different view, the system allows it to build indicators and structure decision models.

This imperfect system threaten the development of the internationalization process based on innovation. The information integration allows, as we have seen, to understand the cause-effect relations between the operational structure and the strategy, as well as to promote the adoption of preventive measures with financial aspects (such as innovation) (Chenhall. 2005). However, this system’s inability can be justified by the fact that the decision-making process is based on more intuitive arguments, as proposed by Andresen (1993), where information is naturally more aggregated and there are few clear arguments for the procedures’ classification and explanatory variables. Thus, we keep in mind that the dynamism between aggregation and integration occurs between the various phases of the internationalization process, with an oscillation (Simons, 1995) and a complementarity in the different phases (Agbejule, 2006; Bisbe and Otley, 2004; Henri, 2006).

Relatively to the “type of decision” the interviewees were asked to discuss the decisions regarding the distribution of financial and non-financial resources, as well as decisions related to monitoring the goals and control the objectives execution, by the units or services under his supervision. So, we deduced that the type of decision supported by MACS information is directed not only to management, evaluation and control of resources, but also to a constant concern with performance evaluation.

4.2.3 The relationship between MACS and the IM

Therefore, we validate the relationship between the MACS design and strategy, as it is altered and adapted, according to the information that derives from the system, thus conforming and validating our proposal.
We still asked the company’s interviewees about changes in the MACS’ structure, as the internationalization process was being developed, and we simultaneously asked him to identify those changes. The CEO stated that “... the company has undergone changes at the Management Control level, namely changes that were fostered by the Quality Management certification process. Tasks and responsibilities were also simultaneously defined for each department and each job, all the information was centralized in management software that allows the regular data monitoring and control and we supported the collaborators’ permanent training.

The internationalization, thus, fostered “the machine refinement”.

The CFO fundamentally highlights the responsibility delegated to each department, and the ability to get information daily from the system: “Tasks have been defined to be executed specifically by each department, and each worker, and everything is controlled through a management software, available and accessible to all for daily monitoring.”

The system provides useful information to support decisions and define the strategy. It allows everyone to steer the management to investment, or vice versa. If the information’s usefulness effectively allows it, it is because the information is integrated and available to all. Regarding the information’s nature, the I-Model is based on the system, also according to the different stages of the process and its information needs.

The information that the system provides is, in our perspective, stimulated by the phase of the process that the company is going through. In the early stages, the information is simpler. As it develops, it tends to become more aggregated, allowing a large amount of information to be processed, in a given period of time (Bouwens and Abemethy, 2000) and, at the same time, being increasingly integrated (Chenhall, 2005), allowing a broader and more complete view of the coordination set and means between the different companies (Chia, 1995), according to the needs.

Regarding the type of decision, and according to the interviewees, the MACS supports both resource allocation decisions and performance evaluation decisions (Novas et al., 2017). We find that, as the internationalization process develops, it is important to obtain feedback to consolidate decisions regarding the distribution of financial and non-financial resources, as...
well as to consolidate decisions related to the monitoring and control of the implementation goals and objectives by the units or services under supervision.

Therefore, the Procifisc’s IM is supported by a MACS directed to resource allocation decisions, in the 3 phases of the I-Model, essentially to plan and coordinate the other companies’ activities (Naranjo-Gil and Hartmann, 2006). However, the information is also directed towards performance evaluation decisions, whether being of monitoring or controlling objectives, or for the evaluation of both human resources and the organization’s, fundamentally in the phases 2 and 3.

After establishing the relationship between the MACS design and the IM followed by the company, we conclude that there is a bilateral relationship. The MACS responds to the process’ information deficiencies and conditions it, although it assists it in the decision-making process, and the system is progressively adjusted to the information needs of the model.

5 CONCLUSIONS, IMPLICATIONS AND LINES FOR FUTURE RESEARCH

The IM followed by the company fit the models presented by Bilkey and Tesar (1977) and by Leonidou and Katsikeas (1996), which allows us to conclude that the adopted model is the I-Model.

In the relationship between the MACS and the IM, we conclude that Procifisc adapts its MACS’ design as the internationalization process evolves. The MACS facilitates the internationalization strategy’s implementation, which reveals that it contributes to the company’s permanence and development in international markets.

In phase 1 of the IM, I-Model, the MACS was based on an aggregated way and with the purpose of assisting the decision-making process, essentially in the resources allocation management. This result is based on the fact that the system, at an early stage, does not have as many information reporting abilities because the need is simply little stimulated by the process. The dimensions of interaction, integration and support to performance evaluation decisions are only considered downstream, after phase 2 of the IM.

This study contribute to the knowledge on the fit between structure (MACS) and strategy (IM) and its effects on the company’s MACS design.
Due to the fact that our data is limited to a single case study, we propose a replication of the study in other companies, to understand what IM is mostly adopted and what relationships are being established with the MACSs as the process unfolds.

Finally, in a more challenging way, we suggest to broaden this study’s scope and replicate it through a quantitative approach to internationalized Portuguese companies, in order to analyze the relationship and effects between these companies’ IM and their MACS.

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