

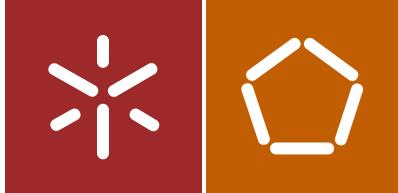


Raúl da Silva Does

The process of acceptance, design and
implementation of an ABC system: an
interventionist case in a Portuguese
company

Universidade do Minho
Escola de Engenharia





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company

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DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho

O processo de aceitação, conceção e implementação de um sistema ABC: um caso intervencionista numa empresa portuguesa

RESUMO

Esta tese é o resultado de um estudo intervencionista realizado numa empresa portuguesa entre setembro de 2011 e janeiro de 2014. Tem a particularidade de ter sido realizada através de uma bolsa de doutoramento em empresa pelo que os seus objetivos são bipartidos. Por um lado, tenta fazer uma contribuição para a empresa de acolhimento através da implementação de um sistema ABC (custeio baseado em atividades), que visa medir a rentabilidade dos produtos, clientes e das áreas de negócio. Por outro lado, tem o propósito de contribuir para a academia com novo conhecimento teórico e prático através da interpretação do processo de adoção do ABC. Esta tese é composta por três ensaios e explora tanto os aspetos tecnológicos como aspetos sociológicos do processo de aceitação e implementação do sistema ABC. Por ser um estudo particular, onde o investigador intervém na aplicação da técnica do ABC, também explora aspetos metodológicos relacionados com a investigação intervencionista (INV-I). O primeiro ensaio centra-se no estudo do processo de implementação piloto do sistema ABC, que decorreu entre setembro de 2011 e maio de 2012. Em particular, ele explora o papel das visualizações durante o processo de implementação. A implementação de um sistema ABC, quando aplicado a toda a empresa, implica 'receber' e 'enviar' muita informação, na forma de visualizações, as quais são provenientes de diferentes atores, com diferentes interesses e conhecimentos. Essas visualizações atuam como mediadores no processo de transferência de conhecimento. O segundo ensaio interpreta e analisa o processo de adoção e adaptação do ABC na empresa. Este ensaio apoia-se na teoria institucional para interpretar o caso. Através da combinação dos conceitos das lógicas institucionais, trabalho institucional e variações das práticas de gestão, este ensaio explora porquê a PortechCo aceita implementar o ABC e, em seguida, durante o processo de implementação, porquê as adaptações são realizadas na técnica ABC, no âmbito técnico, cultural e político da empresa. O terceiro ensaio, realizado através de um autoetnografia, explora experiências do investigador, enquanto profissional dentro da empresa de acolhimento e como académico procurando respostas para a utilização da INV-I na sua tese. Resultado desta exploração, o ensaio gera contributos para a metodologia de INV-I apontando novas direções para a condução destes estudos onde o investigador é também o objeto de investigação.

Palavras-chave: Autoetnografia; Custeio baseado em atividades; Investigação intervencionista; Teoria institucional; Visualizações

The process of acceptance, design and implementation of an ABC system: an interventionist case in a Portuguese company

ABSTRACT

This thesis is the result of an interventionist study conducted in a large Portuguese company between September 2011 and January 2014. The purpose of this study, in the form of a PhD studentship in Industry, was twofold. On the one hand, it attempted a contribution to the host company through the implementation of an activity-based costing (ABC) system across the company to measure the profitability of its products, customers, and business areas. On the other hand, it had the intention to contribute to the academia, with new theoretical and practical knowledge, through the interpretation of the process of adoption (acceptance and implementation) of ABC. This thesis comprises three essays and explores technological and sociological aspects of the acceptance and implementation process of the ABC system. It also explores methodological aspects related to interventionist research. The first essay focuses on the study of the pilot implementation process of the ABC system, which took place between September 2011 and May 2012. It explores the role that visualizations played during such process. Implementing an ABC system across the entire company requires 'receive' and 'give' information, at which is coming from different actors, with different interests and knowledge. Visualizations acting as boundary objects are an important mediator in this process. The second essay accounts the story about the process of acceptance and implementation of the ABC. This essay joins several concepts of institutional theory to interpret the case. Linking institutional logics, institutional work and variations of management practices, this essay explores why PortechCo accepts to implement the ABC, and afterwards during the implementation, explores how and why individuals make adaptations on the ABC technique according to the technical, cultural, and political characteristics of the company. The third essay, conducted through an autoethnographic study, explores some experiences of the interventionist researcher as a practitioner in the host company, and then as an academic, interacting with other scholars, searching for answers to justify the interventionist research method. This essay open avenues to the interventionist research methodology joining autoethnographic methods to the research. The interventionist researcher, as the object and the subject of study, could take a better position to tell and write interventionist case studies with autoethnography.

Keywords: Activity-based costing; Autoethnography; Interventionist research; Institutional theory; Visualizations

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INTRODUCTION

Prologue

Theory and practice

“All theory must be made to be put into practice, and all practice must obey a theory. Only superficial spirits disconnect theory from practice, not seeing that theory is nothing, but a theory of practice and that practice is nothing but the practice of a theory. Those who know nothing about a subject, and yet accomplish something in it by luck or by chance call “theorist” to those who know more and equally by chance achieve less. Those who do know, but cannot apply it - i.e., those who after all do not know, because not knowing how to apply is a way of not knowing – hold a grudge against rancour towards those who apply it by instinct, i.e., without knowing that they really know. But in both cases, for a man sound in spirit and balanced in intelligence, there is an abusive separation. In the higher life, theory and practice complement each other. They were made for each other.”.

Fernando Pessoa, in “Palavras iniciais” da Revista de Comércio e Contabilidade, n°1, de 25 de janeiro de 1926 (my translation)

Gap between theory and practice and the needed of interventionist research on ABC

The gap that exists between theory and practice is a persistent concern in the applied social sciences (Sandberg & Tsoukas, 2011). This concern is echoed by several scientific accounting journals, which state that the gap between theory and practice continues to increase as academic research has become less useful in solving practical problems (Tucker & Parker, 2014). This gap continues to increase because, on the one hand, findings from academic studies are criticised for not being useful or implemented by practitioners; and on the other hand, practical knowledge (tacit) is criticized for not being scientific research (Van de Ven & Johnson, 2006). In the past, knowledge was transferred only from one side – from academics to practitioners (e.g., in organizations) in a consulting logic, however practitioners fail in the adoption of that knowledge and do not apply it in practice (Van de Ven & Johnson, 2006). Furthermore, these authors suggest that more collaboration is needed between academics and practitioners to develop more studies where researchers can learn from practice (e.g., doing

interventionist and/or autoethnographic studies), so that knowledge can be transferred recursively contributing to practice as well to the academia.

One way to narrow the gap that exists between theory and practice is to develop studies between practitioners and academics aimed at generating contributions both for organizations and the scientific community (Parker, Guthrie & Inacre, 2011). In Europe, it is not uncommon to carry out scientific research with the goal to produce practical impact on society, in the economy and in the organizations. For this reason, several institutions support scientific research with this purpose. Similarly, it is not unusual for masters and PhD students to develop scientific research using their own organizational resources, triggering improvements and innovations in their management systems, such as management accounting systems (Jansen, 2018). According to the previous arguments it is critical to explore research methodologies that fit better in this reality, achieving outcomes both for companies (Kaplan, 1998) as for the academic community (Ahrens & Chapman, 2006).

One of the research methodologies used to investigate management accounting in a practical setting is called interventionism. The generic term 'interventionist research' encompasses several well-known approaches: action research, action, science, design science, clinical research, and constructive research (Jönsson & Lukka, 2007). The goal of interventionist research is to solve practical business problems and to create knowledge that can both be applied in practice and be relevant to the scientific community. Importantly, several scholars in management accounting field have used interventionism in their inquiries (see for instance Dumay, 2010; Jönsson & Lukka 2007; Suomala & Yrjanainen, 2010; Giuliani & Skoog, In Press).

Interventionist research, in the activity-based costing (ABC) topic, is either rare or non-existent, or at least the authors tend to omit their interventionist role in the study. However, there are some exceptions, such is the case of Robert Kaplan who collaborated with several companies in the implementation of ABC, using what he calls the "Innovation Action Research" (IAR) (Kaplan, 1998). Following the IAR method, for example, Liu and Pan (2007) conducted a study about the implementation of an ABC system in a Chinese company. However, like in the Kaplan studies, the contribution was merely technical or practical because in such case studies there was no intention to interpret the organizational and institutional change process, but only to inform and to identify how the technique was implemented. For that reason, it is essential to conduct more interventionist studies with a threefold objective - i) focusing on the implementation of advanced management techniques in companies, ii) focusing on the interpretation of the process of such management techniques' implementation through a sociological

perspective and iii) producing contributions that could have implications both to theory and to practice in the management field. Because there are not so many interventionist studies on the ABC adoption process (acceptance and implementation), it is crucial to carry out more studies on how interventionist research is conducted by researchers. The work presented in this manuscript aims to narrow the gap between theory and practice on ABC, exploring, in action, the adoption and implementation of an ABC system into a Portuguese company, using the interventionist research method. In the following section, I sum up the research method used in this doctoral thesis.

Research Method

Foremost, it should be mentioned that “*Fundação para a Ciência e a Tecnologia*” (FCT) and PortechCo (due to confidentiality reasons the company name was changed) supported this project. FCT is the Portuguese public agency that supports science, technology, and innovation in all scientific domains, under the responsibility of the Ministry for Science, Technology and Higher Education in the form of PhD Studentships in Industry (*Bolsa de Doutoramento em Empresa* – BDE). BDE supports graduates who wish to carry out research projects in an industry setting, leading to a PhD. This type of research project intends to generate two major contributions. First, the research aims to generate a practical contribution to the host company increasing their competitiveness, and second, the research should be relevant scientifically, contributing with new knowledge for the academia, allowing the PhD student to obtain the PhD degree awarded by the University. In short, this research project aims to produce two main outputs: i) generate a contribution to the host company, with impact in their competitiveness, and ii) generate scientific contributions that are relevant to the academic community.

This type of research, that intends to contribute to the practice and the theory, requires special attention in relation to the scientific research methods adopted, because the researcher is in the host company to implement a project, being himself involved in the changing process – he has an interventionist role in the project. If, on the one hand, it is important to bring theories into practice to implement the ABC project in the company; on the other hand, it is also important to understand the work of individuals (as well as the role of the researcher), who are involved in the process of acceptance and implementation of this management practice, according to the technical, cultural and political features of the company (Perkmann & Spicer, 2008) in order to produce management theory from the

practice (Jansen, 2018). Once this project intended to contribute to the practice and the theory, I conducted an interventionist research.

Before introducing the interventionist research, I outlined some words about ethnography to explore the motivation to use interventionist research. Ethnography has been applied in social science studies, such as organization studies, cultural anthropology, and sociology and has emerged in management accounting in the late 1970 and early 1980s because accounting academics recognized that management accounting is not only about technical issues but also about subjectivity. For that reason, academics realized that appropriate research methods were needed and that it could allow researchers to interpret the micro-level interactions between individuals and accounting practices in specific research settings. In short, management accounting researchers started adopting ethnographic methods (see the paper of Preston, 1986) because they recognized that management accounting practices are also subjective and socially constructed and enacted (Dey, 2017). Ethnography is defined as the description, classification, and interpretation of a particular group's way of life (Denzin, 1989) as in the case of organizations. In ethnography, the researcher takes the insider position for long periods of time within a social community (which can be an organization) observing and analysing, with more or less participation, the culture of that social community. Data is primarily collected through interviews, observation and document analysis. Even though the ethnographer could act in the 'complete participant' role, the literature on ethnography does not explain, with objectivity, what the role of the researcher is when he/she has an interventionist position, as is the case of the design and implementation of a management technique studied in this work. Ethnographic methods (see the work of Hammersley and Atkinson, 2007) do not explain the role of the researcher when he is engaged with an intervention in the role of a consultant or even an employee completely engaged under the case studied, as a member of the company studied. In interventionism, the researcher, is not only an outsider in the *etic* position of observing and analysing everything around the setting distant from the case, but also adopts the role of an insider in the *emic* perspective as a native, analysing what he/she is doing during his/her intervention (Headland, 1990). In short, the *emic* perspective is the realm of practical reason within an organization or community where the researcher studies the social system. Conversely, the *etic* perspective is the realm of pure reason where the researcher considers theory and links a theoretical framework to the findings, thus contributing to theory (Dumay & Baard, 2017). Unlike ethnography, and because the researcher seeks to solve real-world problems rather than just observe managers dealing with problems, it was needed to go beyond observation and interviews within a case study. So, scholars coming from the

management accounting field began developing a new research methodology, that nowadays is known by interventionist research (Dumay and Baard, 2017; Baard & Dumay, 2018). In short, Dumay and Baard (2017) defined interventionist research as:

“(…) a research methodology based on case study research, whereby researchers involve themselves in working directly with managers in organizations to solve real world problems by deploying theory for designing and implementing solutions through interventions and analysing the results from both a theoretical and practice perspective” (p. 267).

Interventionist research (hereafter defined by IVR) is a qualitative approach used in the management account field to conduct investigations where the researcher or the practitioner (hereafter called by interventionist actor) is an interventionist actor of the research. Usually, IVR is used by the interventionist actors to help organizations solve practical and real issues related with management accounting practices, like ABC, balanced scorecard, target costing, quality systems and other issues under the management accounting umbrella (Dumay & Baard, 2017). On the other hand, the interventionist actors should produce knowledge, from the case settings, which should be a relevant contribution to the academia. This is what academics usually define as building theory from case studies (Eisenhardt & Graebner, 2007). In short, the goal of IVR is to merge theory and practice and to contribute in the same way to solve practical problems and to produce scientific knowledge (Westin & Roberts, 2010). Contributing to practice or to the academia is not the same thing and tensions can occur between these two worlds (Suomala, Lyly-Yrjänäinen & Lukka, 2014). The interventionist actors need to deal with the differences between these two worlds and should be capable of making the bridge between one and the other world, which means that interventionist actors should be effective in both the *emic* and the *etic* domains (Jönsson & Lukka, 2007). As explained above, the *emic's* point of view refers to the study of human behaviour from inside the system, while the *etic* perspective means examining it from the outside (Suomala, Lyly-Yrjänäinen & Lukka, 2014). So, the interventionist actor should have practical and academic skills in a specific area of management accounting, as well as collaboration skills, attitude, and motivation to be able to perform their role and so to contribute to different worlds and different interests from both sides (Amabile et al., 2001). For instance, if the interventionist actor is a young scholar coming from academia only with knowledge about management accounting theories without practical skills on that area, he/she probably will have difficulties putting those theories into action. He/she will be in a

'weak' position to solve practical problems. On the other hand, if the interventionist actor comes from the practical world, acting as practitioner, like a consultant prescribing management theories for solving specific issues, as is it the case of this study, he/she will be in a 'strong' position. Depending on the knowledge of the theory and practice that the interventionist actor has, adjustments on the interventionist project should be planned to minimize the risk of failure. In both cases, coming from different or equal worlds having a more 'weak' or a more 'strong' position, the interventionist actor should deal with the academic contributions (Suomala, Lyly-Yrjänäinen & Lukka, 2014). The interventionist actor should be experienced and have knowledge on how to use qualitative methods to collect all data to produce theory from practice (Alvesson and Kärreman, 2007; Eisenhardt, 1989; Eisenhardt and Graebner, 2007).

Even though the interventionist research is the appropriate method for conducting this case, in which the researcher has a crucial role in the process of implementation of a management accounting technique, there are some aspects that were hardly explored in the literature of this method. An important aspect in which is underestimated in the interventionism, is related to the voice of the researcher when he/she is producing the scientific manuscript. Almost all researchers choose to omit their interventionist role when they are producing the scientific manuscript (Anteby, 2013) and consequently they are not well positioned to tell their personal stories, because they are more concerned in providing a distance from the case under study (like in the ethnographic studies) than exploring their personal role in it. This can obscure the interventionist researcher position that should accomplish two roles – practitioner and researcher – that is completely engaged in the case, interpreting with subjectivity the day-to-day practices and actions, having an active role, and working together with other individuals within the organization in such implementation processes. So far, it is not clear in the interventionist research literature, how this should be produced and written in the scientific manuscripts. The interventionist actor is completely immersed in the case study, and I suggest choosing the active voice when he/she is writing the scientific report, contrary to those who choose to write in the third person voice as it can be observed in the interventionist paper of Jansen (2018).

Because of their interventionist researcher insider role, it seems to be significant to introduce and to explore autoethnographic methods by interventionist researchers. Merging autoethnographic methods with interventionist research can allow those researchers to account their personal experiences, emotions, thoughts, and feelings when they are conducting such studies and therefore the final output can result into a more convincing manuscript (Baxter & Chua, 2008) with greater verisimilitude (Denzin, 2014).

Looking at this gap, it is interesting to observe that the autoethnography, as a research method, can help the interventionist researcher tell his/her story as researcher and practitioner.

Autoethnography is interested in the stories lived by the own researcher that are related to the culture that surrounds it (Ellis & Bochner, 2000; Richardson, 2000). The inclusion of autoethnography into interventionist research can generate more significant contributions, not only to the managerial knowledge but also to the scientific community. Linking autoethnography with interventionism, the researcher can adopt and introduce, from the beginning of the project, a different type of field notes focusing on the reflexivity and introspection of his/her intervention. He/she can collect data during the intervention, by taking notes and recording conversations, so that he/she can later write a daily report (or research diary) with a double lens –as a practitioner and as a researcher. The researcher not only records the technical issues that will be important for the managerial knowledge of the management accounting practice but can also record the cultural and the political issues associated with the changes in the organizational behaviour. These data are largely the personal experiences of the own interventionist researcher who lived with the 'other' actors of the organization. Mostly, the researcher will be the subject of the study that will then be analysed and written in the findings of its scientific manuscript.

For this reason, it is argued in the third essay of this thesis that autoethnography and interventionism will benefit by working together. This will allow to tell stories with greater veracity, giving a trustworthy account contributing to bridge the gap between theory and practice in management (accounting). In the next section I present the company and the initial ABC project.

The company and the prototypical ABC project

PortechCo was chosen because it was a big company and one of the biggest exporters of Portugal in 2011. PortechCo belongs to the area of information technology, competing worldwide with well diversified products and solutions. This is an interesting case, because PortechCo, in 2011, had a complex environment and it was considered a fast-growing company. The company is both a manufacturer of its own brands and a distributor of major international brands. It imports and exports goods and invests thousands of euro per year in products' innovation. An interesting point that should be noted is the fact that the company in 2011 (at the time that I was looking for a host company to investigate the implementation process of an ABC system) was undergoing an organizational change process, which included the acquisition of a new Enterprise Resource Planning (ERP) system, and in particular, the

company wanted to improve their management control system, which was based on financial accounting. In that year, the company felt the need to measure the profitability of its business areas and its major products. Due to this, it was a good opportunity to conduct the ABC interventionist research in this company. Both the researcher as well as the company would profit win from the project. In each of the essays of this thesis, the company is introduced according to the research topic presented and for this reason the company is not characterized with more detail in this introduction. In the following paragraphs it is briefly presented the prototypical ABC project that was initially intended to be implemented in PortechCo.

The prototypical ABC project developed in August 2011 was based on seven major stages (see Table 1). The goal of the project was to make a full implementation of ABC (Gosselin, 2007). The ABC project adopted the assumptions contemplated in the IMA (Institute of Management Accountants) 'Statements on Management Accounting', with the title 'Tools and Techniques for Implementing ABC/ABM'. This reference, for the tools and techniques used in the implementation of ABC, was developed by IMA with the collaboration of consulting companies, academics, and other specialized organizations in cost management.

Table 1- ABC project implementation stages

Stage	Description
1	Diagnosing the company
2	Planning the ABC project
3	Defining activities and processes
4	Developing the ABC conceptual model
5	Implementing the ABC system
6	Interpreting the ABC data and improving the ABC system
7	Ensuring ongoing system requirements

The IMA statement of ABC implementation was chosen, because PortechCo intended a full implementation, and such document was an essential piece to follow the ABC best practices implementation. This project was very ambitious, because not only had intentions to measure the profitability of products, customers, and market segments, but also to measure the business processes

of the company and support continuous improvement, by analysing the activities and their cost drivers. In the following sections I present a summary of the ABC project stages.

The first stage would start with the diagnose of all operational and financial processes of PortechCo. For that reason, two major departments were proposed to be analysed in detail in this stage, i) Management Quality department and ii) Financial department. In these two departments, the intention was to understand the connections between the operational and financial fluxes to have a better knowledge on how to design the new ABC system at PortechCo. In the second stage of the project, and with the information collected in the previous stage about the company, we would plan the goals of the ABC system, according to the requirements of PortechCo. In this stage the cost objects hierarchy according to the ABC principles should be designed. The third stage was intended to collect all activities and processes of the company, as well as all the cost drivers. Then, an activity dictionary should be done to codify all the information collected (see [Kaplan & Cooper, 1998](#); [Turner, 2005](#)). The fourth stage intended to develop the ABC conceptual model. All the connections between resources, activities and cost objects should be done in this stage. The implementation of the ABC system is the next stage. In the fifth stage, the company should be ready to run the ABC conceptual model into a software (spread sheets or specific ABC software). In this stage, it is expected to involve the information technology team to connect information from other systems, like ERP. The sixth stage is the Interpretation of the ABC data and make the improvements on the ABC system. The new information results from the ABC calculation should be analysed in detail and several analyses can be obtained: 1) department costs; 2) business processes costs; 3) activity costs by process; 4) resource costs by activity; 5) cost drivers; 6) activity attributes; and 7) cost objects ([Dores, 2009](#)). Finally, the seventh stage was to ensure the ongoing system requirements. This is important to assure that the ABC system is continually updated. Continuous Improvement should be the goal of the activity-based costing system and strategies for cost reductions should be implemented based on the management of the activities.

Purposes and research questions

This research intends to study the process of acceptance, design, and implementation of an ABC system through an interventionist research methodology. To have a better understanding of the case the manuscript was produced in three essays. In the first essay, the goal is to show the role that visualizations played during the design and pilot implementation process of the ABC. The second essay shows the

process of adoption (acceptance and implementation) of the ABC technique and aims to understand the reasons behind the ABC adoption, and how, then, it was adapted to be fitted to the technical, political, and cultural dimensions of PortechCo. Lastly, in the third essay the purpose is to recount the author's experience as an interventionist researcher in the management accounting field. It shows his practice, lived as practitioner and researcher, during his doctoral journey over 41 months.

The research questions of this thesis are the following:

- How does the ABC project was implemented and what was the result of such implementation?
- What is the role of visualizations during the process of design and implementation of the ABC system in PortechCo?
- Why did PortechCo accepted to implement the ABC technique?
- How does an interventionist researcher experience the PhD journey? How can he/she tell his/her own story of conducting an interventionist study?

In the next section, I provide a resume of the theoretical framework that was used to explore the above research questions.

Theoretical framework

In this section, I briefly present the theoretical framework that underpins the research questions of this thesis. A theoretical framework is regarded as an essential starting point for any case study because it presents the lens through which to interpret a case ([Humphrey & Scapens, 1996](#)). Because of the complexity of this case study and because the manuscript is written through different, and independent pieces in the form of essays, I adopted the combination of different theoretical lenses to make sense of the case ([Hopper & Major, 2007](#)). The interpretation of a case study through different theoretical approaches can place the researcher in a higher level of abstraction generating more complete knowledge than the one that can be found through a single theory ([Gioia & Pitre, 1990](#)). Furthermore, as the researcher is immersed into more theoretical approaches, he will be more informed and in a higher position to build better theory ([Weick, 1989](#)).

The first essay is about the process of the ABC implementation, therefore, to interpret the case I adopted the theoretical lens that comes from the field of Science and Technology Studies (STS). STS has

traditionally focused on understanding scientific and technological knowledge production and concerned about social constructions (Pinch & Bijker, 1984). Social constructions are human-created ideas, objects, or events by a series of choices and interactions, and all such relations should be seen both as social and technical (Bijker & Law, 1992). Since the ABC pilot implementation system is a process, involving knowledge, visualizations, objects, software, and human actors, I adopted, in this essay, notions from actor-network theory (ANT) and other concepts from STS as boundary objects and epistemic objects.

The second essay attempts to understand the institutional reasons behind the company acceptance of the ABC implementation and the reasons why then after adaptations occurred. Institutional theory has been used to study, from different perspectives, what is the impact of institutions on human and organizational behaviour (Thornton, Ocasio & Lounsbury, 2012). In this work, the ABC is viewed as an institution, so the use of institutional logics perspective seems to be useful to interpret the reasons of the ABC adoption by PortechCo. Given this essay is also about adaptations, that individuals done on the ABC original implementation, concepts of institutional works (Lawrence & Suddaby, 2006) are meld with institutional logics to have a better understanding on why those individuals, in action, affect the ABC as an institution. The literature on adaptations (Ansari, Fiss, & Zajac, 2010) is also framed to have a better interpretation on how practices are adapted and fitted during the implementation process.

The third essay recounts the story about my interventionist role, as a researcher and as a practitioner. For that reason, I use an autoethnographical approach (Ellis, 2004) to explore my lived experience during the PhD journey. In the next section I present the structure of the thesis.

Structure of the thesis

The remainder of this thesis is structured as follow. The first essay is about the role the visualizations have during the pilot implementation of the ABC. The title of the essay is: "Visualizing the ABC practice through inscriptions: An interventionist case in a Portuguese company". The second essay accounts the process of the acceptance, implementation, and adaptations of the ABC. This essay uses an institutional perspective to analyse the case. The title of this essay is: "Institutional reasons for adopting and adapting the ABC technique: a qualitative study in a Portuguese company". Finally, the third and last essay is an autoethnographic study about conducting interventionist research with the title: "Struggling with interventionist research: An autoethnographic account of a PhD journey". The thesis ends with the conclusion, in which are included the contributions, limitations and future research.

ESSAY 1: Visualizing the ABC practice through inscriptions: An interventionist case in a Portuguese company

Abstract

Drawing on an interventionist study, I analyse in detail the design and pilot implementation of an activity-based costing (ABC) system in a Portuguese company. Extending previous studies on accounting inscriptions, this case illustrates how visual inscriptions interact between the ABC consultant and the other company's actors as a process of sending out and receiving back practical knowledge to build the ABC system. I found that visual inscriptions translate the different actors' knowledge into 'praxis objects' allowing the implementation of the ABC concepts in PortechCo's reality. Visual inscriptions as 'praxis objects' are important mechanisms that can help consultants and practitioners to implement new management practices, as in the case of the ABC system.

Keywords: visual inscriptions; boundary objects; epistemic objects; activity-based costing (ABC) practice, interventionist research

1. Introduction

Recent studies in accounting (Brown, 2010; Cuganesan & Dumay, 2009; Justesen & Mouritsen, 2009; Quattrone, 2009; Free & Qu, 2011, Busco & Quattrone, 2015) showed that visual inscriptions have a very important role as mediators in the process of communication, coordination and knowledge transference within companies. However, these studies do not explain how the visual inscriptions incorporate knowledge from the actors and how this knowledge is incorporated into visual inscriptions and afterwards how are translated into economic knowledge through objects of practice, that is –the process of constructing economic knowledge through cascades of visual inscriptions. In this sense, the recent work of Busco and Quattone (2015) has called for further investigation on the process of construction of economic knowledge. Furthermore, in literature I didn't find any paper showing the role of visual inscriptions in the construction of an activity-based costing (ABC) system. In this essay, I intend to contribute to close this gap by exploring, in action, the ABC practice through an interventionist case study in PortechCo. How the ABC practice is performed by the companies needs to be more explored at a micro level, because “the key to understanding practices lies in the careful tracing of their constitutive activities” (Ahrens & Chapman, 2007, p.23). The design and implementation of an ABC system is a long complex process which occurs in various translations (Briers & Chua, 2001). The translation process consists of combining at least two different interests until that time into a single goal, but this combination of interests must yield a new result (Latour, 1999) or a change process (Robson, 1991; Andon, Baxter & Chua, 2007; Emsley, 2008). The translation process transforms political aspects into technical aspects and vice versa, through the mobilization of actors. This means that the translation process refers to all displacements between actors whose involvement is essential to the occurrence of any action (Latour, 1999). This process involves the interaction of human and non-human actors that despite being heterogeneous must be considered and analysed in the same way (Law, 2008; Walsham, 1997). Once the actors of a company are heterogeneous, (Callon & Law, 1997) with different practical perspectives and background knowledge, it becomes necessary to communicate and ‘negotiate’ with them the objectives and details of the ABC conceptual model and implementation, so that it can eliminate the boundaries and barriers (Koskinen, 2005) created by different departments of a company. One of the ways to mobilize a network of heterogeneous actors of a company is to use visual inscriptions. Visual inscriptions in the form of graphs, tables, and figures, have an important role as mediators in the process of communication and transference of knowledge in the companies.

“Graphically oriented displays (tables, equations, histograms, graphs) are frequently used to integrate complex sets of information, to illustrate phenomena too difficult or cumbersome to describe in words, and to present data in succinct ways. In some situations, one figure, as the popular adage goes, can be worth a thousand words.” (Roth & McGinn, 1998, p. 35).

Furthermore, visual representations when acting as boundary objects can function as a tool to mediate the conflict in the various worlds (e.g., departments of a company), or can be used as a process of reconciliation of different interests of a company (Star & Griesemer, 1989) or in the adoption of an idea, innovation, product or technique (Fox, 2011) such as an ABC system. Visual inscriptions can act also as an epistemic object when they embody what the actors of a company do not yet know. In this case, visual inscriptions also acted as epistemic objects which are translated in to ‘praxis objects’ of the PortechCo’s reality.

In short, considering that the social and the technical elements are embedded in each other (Law, 2008) and that different types of visual inscriptions have an important role as mediators (in this case mediators that incorporate knowledge) to mobilize heterogeneous actors during the translation of a practice implementation as a social technical process (Law & Callon, 1992; Latour, 2005), this research is concerned with how visual inscriptions interact with actors in order to build an ABC system in a Portuguese company denominated by PortechCo.

This paper is illustrated by six vignettes that represent the reality of the design and implementation process of the ABC system at PortechCo. This process can be interpreted as a set of translations (Latour, 1983; Callon, 1986b; Latour, 1999; Briers & Chua, 2001; Alcouffe, Berland & Levant, 2008; Dobers & Soderholm, 2009; Pipan & Czarniawska, 2010) occurring between, what I call in this paper, ‘received’ and ‘given’ inscriptions by actors from different departments at operational and strategic domain of PortechCo. The interventionist role performed by me as the consultant during the design and implementation of the ABC system at PortechCo was very important, because it was an opportunity to explore in action the gap that exists between the theory and the practice of the ABC principles and to see *in loco* the construction of economic knowledge.

The contributions are the following. First, this study is an excellent case to see that the social and the technical are embedded and interconnected (Law, 2008) and how visual inscriptions are translated into economic knowledge. The process of design and implementation of the ABC system in PortechCo

was the result of displacements and translations that occurred through several types of inscriptions bringing in and sending out (Callon, 1986b) a set of heterogeneous elements and semiotic materials (Law, 2008). These interactions between these elements occurred around the actors (human and non-human) of PortechCo that allowed the knowledge of the PortechCo's reality to be translated into economic knowledge. This perspective allowed the development of a theoretical framework constructed through practice that can be generalized to other cases that focus on the interaction of the consultants/practitioners who work in companies when implementing management technologies.

This study also provides some practical strategies to implement management accounting theories that can minimize the risk of failure or abandonment of the implementations. In this way, if the visual inscriptions are used, they can act as mechanism (as 'praxis object') that allows the mobilization of all the actors involved and consequently eliminates or reduces the complexity of the abstract practice that the company would like to adopt.

This paper is organized as follows. In the next section the theoretical background is presented with reference to the original visual model ABC and theoretical concepts that support the research. Subsequent sections explain the research method and present the interventionist case study conducted at PortechCo. Finally, the paper ends with the discussion and conclusion on the evidence found.

2. Theoretical background

2.1 The visual model of activity-based costing (ABC)

ABC was disseminated worldwide through the network of allies of the Harvard Business School (HBS) and CAM-I, by consulting companies (Major & Hopper, 2005), and through different types of applications in scientific papers, technical books, manuals of implementation etc. (Jones & Dugdale, 2002; Alcouffe et al., 2008). These conceptual "materials", which I designated by visual inscriptions, were developed to help companies and practitioners implement the ABC. Perhaps the most important visual inscription of the ABC as a technical theory (Argyris & Kaplan, 1994) is the conceptual model developed by CAM-I in 1990 (see Figure 1).

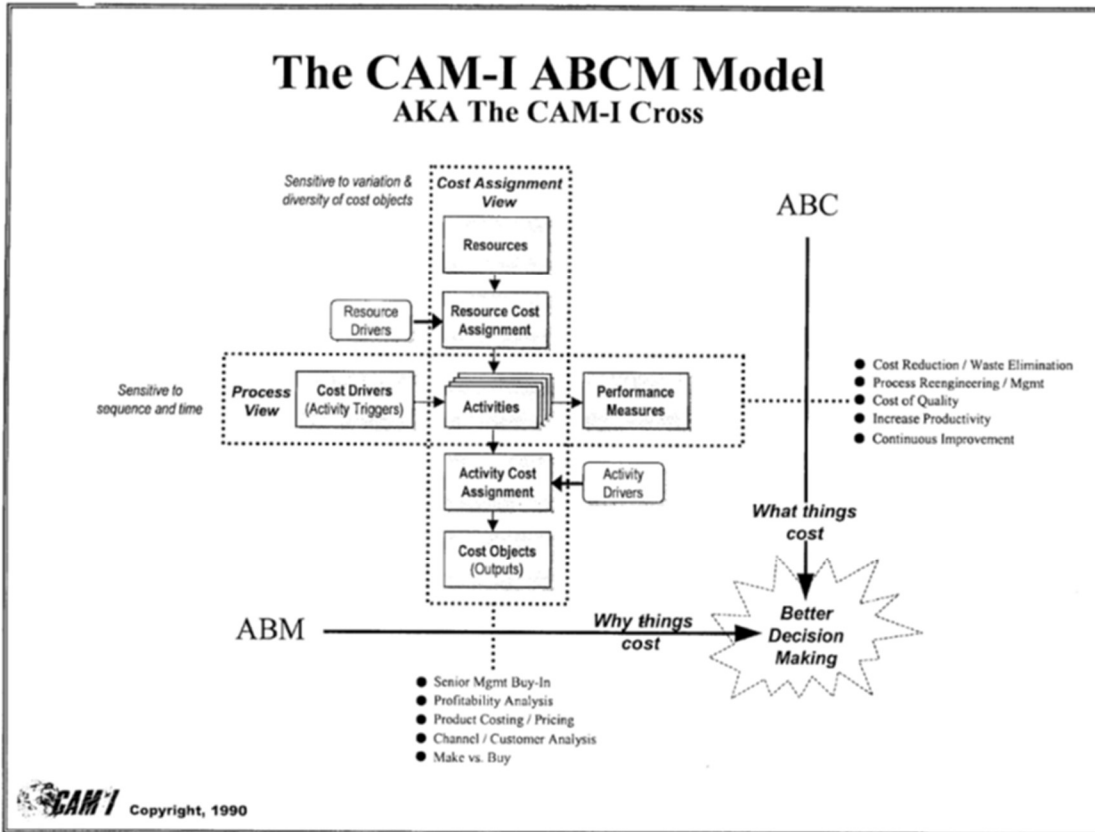


Figure 1- The CAM-I ABCM Model (Permission granted by CAM-I)

This visual inscription (see Figure 1) illustrates the ABCM model, demonstrating the relationship between the perspective of the ABC, seen vertically, and ABM, seen in the horizontal axis. In short, the ABM uses ABC information to support better decision making. Thus, the vertical perspective (ABC) shows the allocations of resources for these activities and for cost objects, from a cost perspective. The horizontal axis (ABM) focuses on the processes management, activities, and their cost drivers, that allow to identify opportunities for continuous improvement. Cost drivers show how an activity is performed and how much effort is spent to perform the activity. Performance measurements describe the work performed and the results obtained in the activity, that is, reports how an activity is performed. Measuring the performance of activities and processes provides a scorecard that reports how the improvement efforts were made, thus serving as a "gateway" for continuous improvement (CIMA, 2001).

Based on these elementary conceptual premises, that cost objects consume activities and activities consume resources, the ABC system can be implemented in any type of organization (Kaplan & Cooper, 1998).

The complexity lies in how to implement the ABC. Which methodology do consultants and software houses adopt in action to fit these basic conceptual premises within companies? Arguing that the ABC is initially implemented based on this first visual inscription, in the following sections I review the literature on inscriptions that support the theory that the implementation of an ABC system is a process of translation of visual inscriptions into economic knowledge.

2.2. Different types of Inscriptions and translations

In the last few decades, there have been several studies into the different types of accounting inscriptions in different contexts. From the literature review in the major journals on accounting, the following examples of inscriptions are referred to: graphics, tables, lists, pictures, maps, diagrams, reports, budgets, numbers, performance measures; equations, Power Point slides, emails, 2x2 matrices and 3-D images, (Robson, 1992; Ezzamel, Lilley & Willmott, 2004; Justesen & Mouritsen, 2009; Qu & Cooper, 2011; Dambrin & Robson, 2011; Pollock & D'Adderio, 2012). These studies used the inscriptions term introduced by Latour in his works in 1983 and 1987.

“Inscriptions are the ‘forms’ of an object or situation that can travel, but also avoid corruption or distortion; another description might be the ‘immutable mobile’” (Dambrin & Robson, 2011, p. 432).

Inscriptions are signals that are materially embedded in some type of material, equipment, instrument, or device, such as a paper or a computer monitor (Roth & McGinn, 1998). Inscriptions are mobile and immutable and need an inscription device that allows its visual display and displacement (Latour, 1987; Dambrin & Robson, 2011).

An inscription device is any item of apparatus or particular configuration of such items which can transform a material substance into a figure or diagram which is directly usable by one of the members of the office space (Latour & Woolgar, 1986, p. 51).

Some examples of inscriptions devices are paper, email, computer screens, slide projectors, tools (Latour, 1987; Roth & McGinn, 1998), and these can be used and controlled at a distance (Lowe & Koh, 2007).

In Table 2, several characteristics and attributes that are labelled as inscriptions (Latour, 1987; Robson, 1992; Roth & McGinn, 1998; Qu & Cooper, 2011) can be observed.

Table 2 - Attributes and characteristics identified with the inscriptions (Latour, 1987; Qu & Cooper, 2011; Roth & McGinn, 1998)

Attributes	Characteristics
Mobility	Because inscriptions are recorded in materials, they are mobile and can be easily sent to most places by means of, for example, mail, courier, facsimile, or computer networks (Roth & McGinn, 1998, p. 37).
Immutability and stability	During the process of moving to different locations, inscriptions are immutable, such that they do not change their properties or internal relations during transport (Roth & McGinn, 1998, p. 37). For example, a graph, an image, a PDF report, a map, a picture, etc.
Variability	Inscriptions can be easily incorporated in different contexts (Roth & McGinn, 1998, p. 38). For example, the same table can be used in a report or a presentation serving different interests.
Scalability/Modifiability	Inscriptions are easily rescaled to produce larger or smaller images without changing their internal relations (Latour, 1987). For example, the balance sheet and P&L of a company can be transformed into different ratios so that they can easily be compared with other companies.
Constructing facts	Inscriptions, after only a little cleaning up, can be made part of a written text. They can be enlisted in the task of persuading components in competing camps of the validity of one's evidence (Qu & Cooper, 2011, p. 346).
Multitude of translations	Inscriptions are often translated into other inscriptions, which are again translated, forming "cascades" of inscriptions (Latour, 1987). The meaning of any inscription is therefore not an inherent property but, similar to the meaning of a word, arises from the context of its use. That is, an inscription does not have meaning in and of itself; rather, its meaning arises in the context of other inscriptions and sign forms (Roth & McGinn, 1998, p. 38)
Diagrammable	Merge with geometry, everything, no matter where it comes from, can be converted into diagrams and numbers, and combination of numbers and tables can be used which are still easier to handle than words (Qu & Cooper, 2011, p. 346)

Due to the form of visual materialization of knowledge (in contrast to mental representations), inscriptions can be considered social objects (Roth & McGinn, 1998) used in different worlds like in the accounting practices. Recent studies in accounting (Brown, 2010; Cuganesan & Dumay, 2009; Free & Qu, 2011; Justesen & Mouritsen, 2009) showed that inscriptions, in particularly the visual ones, have an important role as mediators in the process of communication and knowledge transference within companies, either to their internal actors or to external actors, providing information either from the past or the future because they act as social objects.

According to Roth and McGinn (1998), we live in a visual culture, which means that we are concerned with visual events in which information (interpreted or perceived) is seen by the receiver as a visual technology link. Some advantages of visual and graphic representations (like inscriptions) of knowledge can be found in Table 3.

Table 3 - Advantages of graphic and visual representation of knowledge (Free & Qu, 2011; Ware, 2004)

Attributes	Description
Improving reasoning	Graphics help people to find relevant information more rapidly. Graphics make it easier to identify instances of a concept because an iconic representation can be recognized faster than a verbal description (Free & Qu, 2011, p. 165).
Enhancing perceptual understanding	Graphics make the relative positions explicit so that understanding can be reached with the help of simple and direct operationalization of the visual elements.
Enabling multiplicity of interpretation	Graphics support a large number of perceptual inferences and are open to multiple transformations (Free & Qu, 2011, p. 165). Visual objects do not have a single stable meaning.
Volume of information	Visualization provides the ability to understand large volumes of information. We acquire more information through vision than through all of the other senses combined (Ware, 2004, p. 2).
Serving multiple purposes	Graphics can be used to explain and illustrate, serving a number of purposes, such as: <ul style="list-style-type: none"> ▪ explanatory purpose: to show logical relationships between key ideas; ▪ operational purpose: to help perform well-specified tasks; ▪ data display purpose: to display the results of empirical observations;

-
- iconic purpose: to show what an object looks like, and to identify and label key parts (Free & Qu, 2011, p. 165).
-

Some visual representations are more easily understood than others (Ware, 2004). Furthermore, they can be organized from the concrete to the more abstract (Pozzer-Ardenghi & Roth, 2010); for example, a photograph or a drawing representation is more easily interpreted than a mathematical expression. In this perspective, it is important to highlight the role that the inscriptions have when they are represented in the form of numbers and translated by calculations, namely economic visualization (Justesen & Mouritsen, 2009). Numbers represent economic realities and are evident in everyday discourse about prices, costs, etc (Volmer, 2007). A number when combined with a mundane object can be easily interpreted (e.g., the price of a product), but understanding the process of calculation to reach that number can be very complex, because the number emerges through several calculations as it the case of profit represented in an accounting report (Lukka, 1990). An explanation of this can be given by using the example of the activity-based costing (ABC) methodology. A company can calculate the cost of the activity “visiting customers”, but such number was calculated through several layers of assumptions (e.g., estimate of the time spent by an employer in an activity) and calculations that incorporate various cost elements from the general ledger (e.g. salaries, expenses and so on). Thus, to calculate the profitability of a product (cost object) produced by the company, several activities can contribute to the calculation of the cost of this cost object, which is then subtracted by the value of the sale price to obtain the profitability of that product. On an ABC system, we can report easily in a table, the profitability of the cost objects of a company. But to understand the cause of these numbers – in which a large amount of calculation was produced– is not so immediate, because these numbers were the resulted of the ABC methodology – where the cost elements are first allocated to activities, which are then allocated to cost objects based on the volume of the cost drivers. In the case of the ABC methodology the number (value) identified in a cost object emerges by complex calculations that are assigned from costs through several layers (the ABC stages).

This means that “the stability of the accounting inscriptions is problematic for preparers or users, due to the specific characteristics of how these number calculations are embedded” Robson (1992, p. 697). As stated by Vollmer (2007), “the problem, to be solved by drawing on financial numbers and information, is not knowledge but action” (p. 580) that can be analysed as inscriptions. Nevertheless, it is not the intention in this study to explore the sociology of numbers. This note is important, because

numbers in the form of inscriptions could have different interpretations by the actors that produce and use such numbers. Furthermore, those calculations in management accounting can be complex for some actors as it is stated in the example of the profit calculation in [Lukka's \(1990\)](#) study.

Another important issue to take to account related to inscriptions is the concept of translations. The emergence of an idea may have several changes and inscriptions can be translated into other inscriptions. Eventually the idea or the inscription can be institutionalized for some time, if transformed into a material form ([Dobers & Soderholm, 2009](#)), but in the long term it tends to change. Translations never end, they can continue in time, always changing. Even if the translation can be inscribed in texts and machines, the translation can still enter into new interactions and then re-emerge changed ([Pipan & Czarniawska, 2010](#)).

The translation process consists of combining at least two different interests until that time into a single goal, but this combination of interests must yield a new result ([Latour, 1999](#)) or a change process ([Andon, Baxter & Chua, 2007](#); [Emsley, 2008](#); [Robson, 1991](#)). Furthermore, the translation process transforms political aspects into technical aspects and vice versa, through the mobilization of human and non-human actors. This means that the translation process refers to all displacements between actors whose involvement is essential to the occurrence of any action ([Latour, 1999](#)).

In a translation process we will always have a translator, acting as spokesperson who communicates and builds his/her interests ([Latour, 1983](#)) and ideas to all actors (human and non-human) in order to involve them into the translation process ([Callon, 1986b](#)). As stated by ([Callon, 1986a](#)).

“Translation is a process before it is a result [...] continues but the equilibrium is modified. [...] Translation is the mechanism by which the social and natural worlds progressively take form and the result is a situation in which certain entities control others” (p. 19).

2.3. Concepts of boundary objects, epistemic objects, and practice

Considering that inscriptions are signs which act as intermediates between actors it is important understand what they have intrinsically incorporated and how they act across several communities of practice.

Boundary objects. Inscriptions in the form of numerical calculations (Robson, 1992) and graphical representations, such as sketches and drawings (Doganova & Eyquem-Renault, 2009), can be also called boundary objects, when they are used as a mediator mechanism (Briers & Chua, 2001) to coordinate activities and translate discourses (Roth & McGinn, 1998) through time and space from people of different social worlds (Yoon & Roth, 2006). Boundary objects can be abstract or concrete objects. For instance, the business model and PowerPoint presentations in the paper of Doganova and Eyquem-Renault, (2009), accounting prototypes in the paper of Laine, Korhonen, Suomala and Rantamaa, (2016) or management accounting in the recent work of Fletcher and Ridley-Duff (2018) act as mechanisms to present, learn and transform ideas, innovations and knowledge between heterogeneous actors, solving problems at the boundaries of the companies' organizational structures (Star & Griesemer, 1989; Wenger, 2000; Doganova & Eyquem-Renault, 2009). However, in many contexts of practices, the boundaries are less salient and objects may be used in coordination with diverse knowledge sets, at the same time as knowledge development and learning (Ewenstein & Whyte, 2009). In short, the following initial definition of boundary objects stated by Star and Griesemer, (1989) describes that:

“Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several practices employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use and become strongly structured in individual-site use. These objects may be abstract or concrete. They have different meanings in different social worlds, but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is a key process in developing and maintaining coherence across intersecting social worlds” (p. 393).

Boundary objects are translations devices that act to make the technology understandable to the people and facilitate the conversation of businesses processes and practices into technologies (Locke & Lowe, 2011). Visual representations and graphics, as boundary objects, make the bridge between the abstract and the concrete, that is, they are themselves concrete but also represent the abstract thing (Ewenstein & Whyte, 2009). They can function as a tool to mediate the conflict in the various worlds (e.g. departments of a company), or they can be used as a process of reconciliation of different interests within

a company (Star & Griesemer, 1989) or they can be used in the adoption of an idea, innovation, product technique or technology (Fox, 2011), such as an ABC system.

In this sense, it can be argued that those inscriptions (visual or not) may acquire their particular 'performative' character and instead of supporting the actors can also create obstacles and tensions to successful cross-disciplinary collaboration (Nicolini, Mengis, & Swan, 2012).

Epistemic objects. On other hand, epistemic objects embody what one does not yet know and are synonymous with a research object or an epistemic thing, that is, those objects are not things with fixed qualities but are rather open-ended projections oriented to something that does not yet exist, or to what we do not yet know for sure (Miettinen & Virkkunen, 2005). Epistemic objects are objects that gain situated meaning within the process of being used in knowledge work (Jarzabkowski, Spee & Smets, 2013) and can be useful in examining the dynamics of practice evolving around a specific problem/knowledge constellation (Nerland & Jensen, 2012). In short, epistemic objects are useful for analysing how a practice can be made into an object of enquiry in order to produce novel and alternative ways of acting (Miettinen & Virkkunen, 2005).

Practice. The concept of practice is related to the practical aspect or application (action or doing) of something as opposite to the theoretical aspect. In Marxism, practice as praxis is the willed action by which a theory becomes a practical social activity. Another central aspect related to a practice is the notion that social life is an ongoing production and thus emerges through people's recurrent actions (Feldman & Orlikowski, 2011). Bernstein, (1971) posit the following argument about praxis.

“‘Praxis’ [...] signifies the [...] activities predominate in man's life. These [activities], which require knowledge and practical wisdom, can be contrasted with ‘theoria’ because their end is not knowing or wisdom for its own sake, but doing.” (p. x)

The term praxis is variously defined as ‘theory in action’, ‘enlightened human action’, or ‘thoughtful doing’ (Dede, 2002) and refers to the capacity of taking initiative, of breaking with the habits and beginning something new. Praxis signifies action (Belfiore, 1983) and is the acting of engage with entities. Praxis signifies the activities within communities or organizations (Nielsen, 1993).

In this paper, I am interested in understanding what is the role of visual inscriptions in action during the process of design and implementation of the ABC system in PortechCo. Furthermore, how those visual inscriptions are translated through practice into economic knowledge and what the role of

the consultant is in the translation process. I addressed these questions in the context of an interventionist case study in this Portuguese company.

3. Research method and context intervention

The methodology that I used to collect all data, facts and evidence of the socio-technical environment of the design and implementation of the ABC system, at PortechCo, was an interventionist research approach (Jönsson & Lukka, 2007; Suomala & Lyly-Yrjänäinen, 2008).

The goal of interventionist research in management accounting is to meld theory with practice and thus build theory through practice (Baard, 2010; Westin & Roberts, 2010), as well as to make a contribution by assisting and analysing organizations to implement change (Dumay, 2010; Jönsson & Lukka, 2007). The term interventionist research is considered more general and encompasses the well-known approaches: "action research", "action science", "design science", "clinical research" and "constructive research" (Jönsson & Lukka, 2007).

During the field intervention, I collaborated directly and actively in the project (see the studies of French, 2009; Suomala & Yrjanainen, 2010) of design and implementation of an ABC system, which will be used to develop solutions for PortechCo's problems (Dumay 2010). The 'strong intervention' (Jönsson & Lukka, 2007) I developed in PortechCo is very close to the work undertaken by consultants, so the term consultant-researcher (Bogt & Helden, 2011) can also define the role of researchers in this kind of situations, when the intention is to implement a new management accounting system (Jönsson & Lukka, 2007). In the following sections, my first name (Raúl) will appear in the voice of the researcher.

3.1 PortechCo

With over 20 years in the industry, Portuguese PortechCo is dedicated to the production and distribution of goods and technology products, with big statement brands within the national and international market. The company operates in two business areas called "National Business" and "International Business". In the National Business, PortechCo is dedicated almost exclusively to the distribution of leading international brands of technology goods. In the National Business, the company also sells one specific family of products (OEM¹) which is developed and manufactured under their own brand (called by Product

¹ Original Equipment Manufacturer (OEM)

A). The National Business is divided into three major segments: (1) "Small Retail Segment", with two thousand active clients and national coverage, which includes small retail customers, (2) "Retail Stores Chain Segment" which includes large national retail stores, and (3) "Business to Business segment", which covers the State, banks, and large national companies. In the International Business, the company operates only with another family of products developed and manufactured under their own brand (called by Product B). This business area is organized in "Countries and Projects Segment", which includes large international projects. In this International Business area, the PortechCo sells to Latin America, Europe, and Africa. In 2010, exports accounted for 49% in sales and in 2012 exports reached 67% of the sales (PortechCo annual reports, 2010 & 2012). PortechCo is positioned as one of the major Portuguese exporters.

I chose this company for three reasons: (1) it was a fast-growing company, (2) the company required the implementation of an ABC system to measure the profitability of its business units; and (3) I had the possibility to be an interventionist actor during the process of design and implementation of the ABC system.

3.2. The intervention and data collection

During the intervention phase, I collected evidence of the empirical facts observed in the research field. In this case, I kept a diary, a logbook of detailed fieldwork conducted over nine months. In this period, I held several meetings with various departments. Analysis of reports and documents were made as well direct observation of the organization situation. During this period, I performed a 'strong intervention' (Jönsson & Lukka, 2007) in PortechCo. I produce the visualizations (artefacts) during the design and implementation phase, so the access to this material was not problematic. However, it was agreed with the company to protect the confidentiality of this material. The narration of facts was performed considering the experience and practical involvement, done with my own eyes, as an interventionist actor during the process of change in PortechCo. After the field intervention, I analysed the information collected as proposed by Jönsson and Lukka, (2007): (1) reverse engineering and (2) recontextualization. First, the reverse engineering, held after the intervention, began at the end so that I could draw patterns of causality, proceeding to compare the differences between the ex-ante and ex-post. Second, before writing the report, I did the recontextualization of the results and the analysis of their consistency with the 'domain theory' and 'method theories' (Lukka & Vinnari, 2014). I conducted interviews in the format of analytical

conversation ([Kreiner & Mouritsen, 2005](#)) to corroborate the data collected for a better recontextualization of the intervention.

4. Vignettes of the ABC design and implementation system at PortechCo

In this section, I analyse the design and pilot implementation of the ABC system in PortechCo, which occurred between August 2011 and May 2012. During this period, I was the consultant/researcher [the translator or spokesperson according to [Latour \(1983\)](#) concepts] in charge of the design and implementation of the ABC system. In the following subsections I illustrate, through six vignettes, that the design and implementation of the ABC system is a process of translation visual inscriptions into economic knowledge.

4.1. Vignette #1: The ABC project report

In August 2011, I developed the ABC project report. With this initial report, the objective was to define the major milestones to implement the ABC project. The project was based on seven major stages: (1) diagnosing the company, (2) planning the ABC system, (3) analysing the company's activities and processes, (4) designing the conceptual model of the ABC system, (5) Implementing the ABC system; (6) Analysing the results and continuous improvement, and (7) ensuring the ongoing requirements of the ABC system. The project aimed to make a full implementation of ABC ([Gosselin, 2007](#)), because the intention was not only to measure the profitability of products, customers and market segments and business, but also to measure the business processes of the company and undertake continuous improvement by analysing the activities and their cost drivers.

This paper only accounts the phases till the design and pilot implementation of the ABC system that occurred between September 2011 and May 2012. In short, this report was translated from the theoretical concepts of the ABC methodology expressed on the IMA statements ([IMA, 2000](#)) and other sources in order to build a narrative that could explain, in practice, how I intended to implement the ABC system in a way that PortechCo could understand it. Besides the textual narrative described in the project several visual representations were incorporated into the report to easily represent the theoretical concepts of the ABC method. For instance, in the fourth stage of the project report (see Table 1; “Developing the ABC conceptual model”) I showed two critical visual representations (see Figure 2 and

3) in order to simplify the narrative and give a better understanding of how the ABC project could be implemented in PortechCo. In page 11 of the ABC report, the following statements were inscribed:

“At this critical stage, the ABC system should be conceptualized to answer the needs and requirements of the organization. Based on all the information obtained, the ABC model will be designed, that is, to make the connections of the cost of resources to the activities and to the respective cost objects” (as is showed in the Figure 2) (translated from the initial ABC project report, 16th August 2011, p. 11).

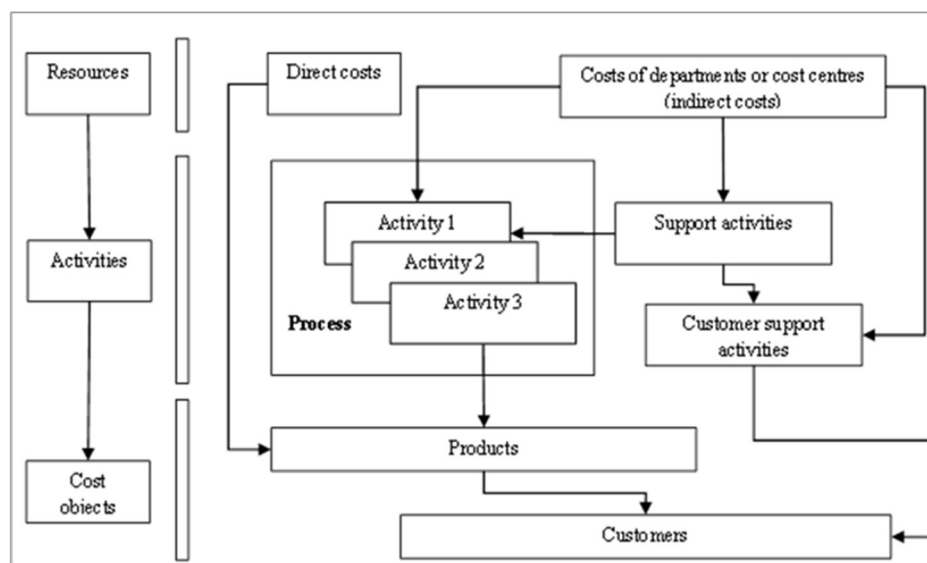


Figure 2 - Design of the ABC abstract model (Dores, 2009, p. 136, translated from the initial ABC project, August 2011)

“[...] Another relevant aspect that should be taken into consideration is the conversion of data from the general ledger in cost elements, that is, how the indirect costs (resources) are distributed to each activity. Moreover, it would be also necessary to break down the cost by departments (i.e., cost centres). Finally, at this stage, flow diagrams costs (Player & Keys, 1999), which allow a visual way to see the interconnections of costs within the ABC system, should be accomplished” (translated from the ABC project report, 16th August 2011, p. 13).

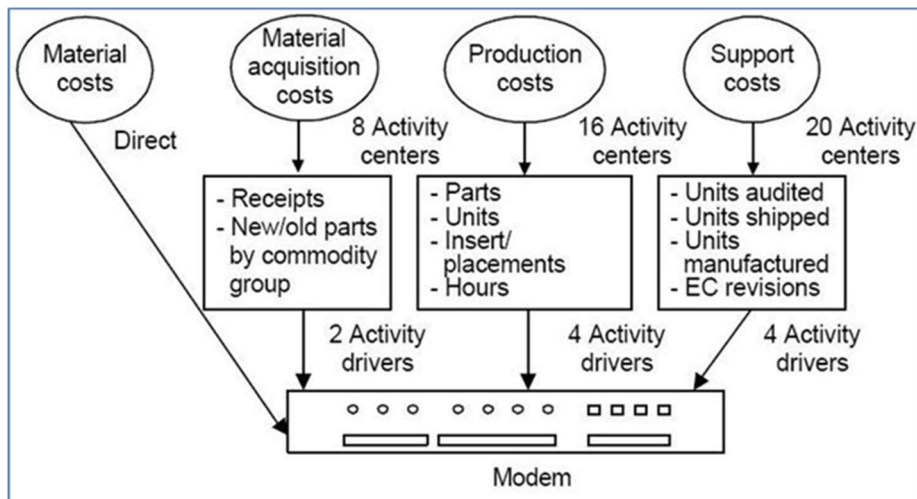


Figure 3 - Flow diagrams costs (Player & Keys, 1999, p. 156) (inscribed in the ABC project report, August 2011)

These two visual representations, inscribed in the fourth stage of the ABC project report, acted to make the bridge between the theory and practice of the ABC principles and to simplify the narrative inscribed in the ABC project report.

4.2. Vignette #2: Company diagnosis

In September 2011, I began diagnosing all the company's departments with the aim of understanding its operational processes and to have a general perspective of the sociotechnical reality in order to begin designing the ABC system. The diagnosis was carried out together with the Quality Director (QD) who was in the process of redesigning the quality system.

In the meetings, held with QD and other participants the ABC project objectives, and my role in the project were presented by the QD, in a very concise way.

"The consultant is working together with the CFO on a project to develop a management accounting system" (QD, September 2011, my translation).

In these meetings, conducted by the QD, the old quality flowcharts (that served as an intermediary to forward existing information and gather new ones in the drawing of the new quality system) were presented to the participants. Regarding the flowcharts used in the quality system and in the company it is important to highlight the plot stated by the QD.

“People capture more easily the information with flowcharts. There are companies that develop quality systems without using flowcharts; they opt for a writing methodology. In PortechCo, we use the two components [visual and written]. People have the tendency to fix better symbols, images, and colours. These representations are retained more easily. The written texts inscribed in our quality manual act as a complement to the visual representations. Through these representations it is easier to understand the sequence of activities in the processes of the quality system. In the mapping of the business processes, people use the flowcharts and schemes that are drawn through ‘boxes’ to better explain their processes. For them, it is an easier and more intuitive process. Through visual representations, we can quickly analyse the company's process. People are more interested in having information in diagrams and flowcharts. These mechanisms [flowcharts and diagrams] act as a good mediator because the activities and processes are represented in a very objective way that everyone can understand [both senior management and operational people]” (Interview, QD, January 2014, my translation).

In these meetings, I was able to collect information about the social and technical reality of the PortechCo.

The interaction with the quality department was extremely relevant to understand the functioning of PortechCo. In this department, I consulted the quality manual as well as all the documentation associated with the normative ISO 9001:2008. I also analysed in detail all the quality processes that were created in flowcharts. These received inscriptions (that is, flowcharts, organizational charts and tables) were the basis for the transversal understanding of PortechCo.

4.3. Vignette #3: Design of the ABC conceptual model

The basis for the design of the ABC conceptual model was the CIMA statements and the visualization represented in Figure 2 (see Vignette #1). This visual representation (Figure 2) represented the ABC principles. So, the first objective was to translate this abstract visual representation into a more concrete visual representation that could be a simple way of exposing the costs' flow of PortechCo. This course of action was taken because the CFO had stated that there was no intention of undertaking ABC

methodology training and because the main actors (chiefs and directors) of the company did not have knowledge of ABC.

During the diagnosis phase, it was possible to observe that the ABC implementation across the whole company would not be an easy task. PortechCo had two business areas that share several services, which increased the complexity of its business and the costs' information flow. Further, the company did not have cost centres by departments and therefore major changes had to be performed in the accounting and transactional routines of the ERP system to have this information.

As a result, I realized that I had to design an ABC model that was a solution between the abstract of the ABC practice and the reality of the company in order to mobilize the CFO and other actors for these initial changes. Translated from the visual representation exhibited in Figure 2, the first draft of the ABC conceptual model was created. The main idea was to represent the ABC principles into a level of abstraction that could be understood by the company's actors and therefore help to create the cost centres by departments, activities, and cost objects. The first concern during the design of the model was to draw the flow of the direct costs to symbolize that these costs were not the target of the ABC system. These direct costs could be directly allocated to the cost objects to measure its profitability. Then it was necessary to represent how to assign the indirect costs through the ABC principles. I drew in 'boxes' the main divisions/departments of the company and I assigned the main cost elements of accounting through arrows to show that these costs are consumed by the company departments. Then a small sample of activities - already identified in the company diagnosis –were drawn below the divisions/departments boxes to exhibit that it would be necessary to collect the activities of all departments and that these activities would be assigned on the cost objects hierarchy. For a better understanding of how this assignation would be done (allocate activities to cost objects), some examples of activity drivers were represented in the ABC model representation. Finally, the cost objects' hierarchy, in a high level of abstraction, was created in three levels. The representation of the cost objects allowed for the visualization of some of the activities that would be allocated directly to the customers (second level) and not to products.

Three critical aspects were important in the design of this ABC model representation. First, the diagnosis of the company and the collection of elements of the quality system provided a deeper insight of the company's reality. Second, the knowledge that I had on the ABC principles allowed for the creation of an ABC model that represented the main flows of direct and indirect costs of the company. Finally, the

abstract visual representation inscribed into the ABC project report helped me during the design of the conceptual ABC model in order to accomplish all the principles of the ABC theory.

In this way, the visual ABC model aimed to represent the practice of the ABC principles in the company so that it could be understood by the different actors of the different divisions/departments of the company. The development of this visual representation of the ABC model was an ally that helped to eliminate some resistance and to have a better general understanding of the model so that the ABC implementation could start as soon as possible.

In short, the received inscription of the ABC abstract model (see Figure 2), translated together with the information collected (received inscriptions) in the meetings during the first phase and the knowledge acquired in this process were crucial for me to construct – as a scientist in the laboratory, (Latour, 1986) – the conceptual model of the ABC system (see Figure 4).

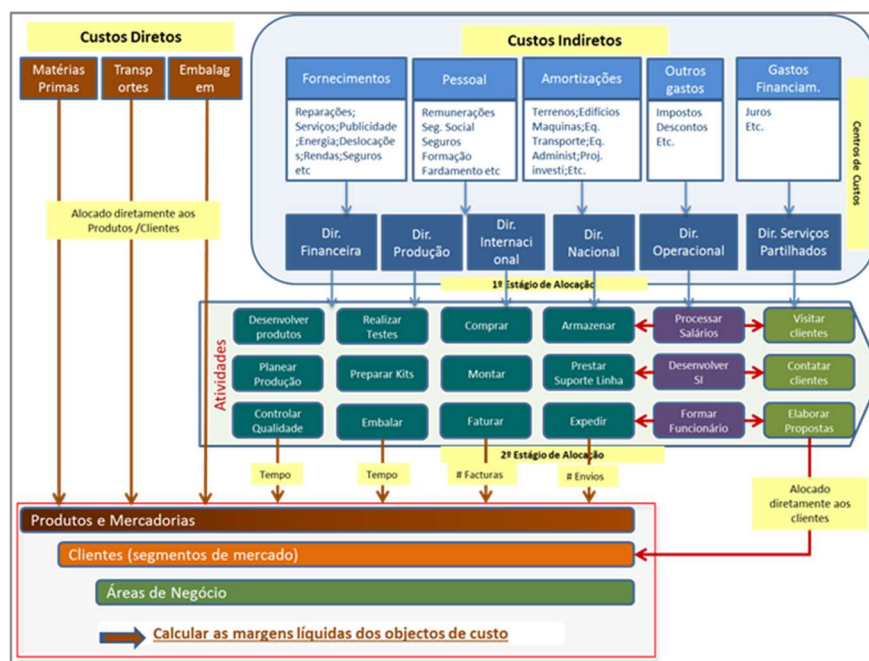


Figure 4- Visual inscription of the ABC conceptual model (kept in original, October 2011)

The CFO validated the ABC conceptual model that acted as a ‘working tool’ that allowed to visualize how the ABC could be implemented across the whole company. After this, it was agreed with the CFO to begin the meetings with all departments of the company to collect the activities performed in each of them. The priority was to begin in the departments that had strong impact in the costing of products and afterwards explore the commercial and support departments that contributed to the profitability of the market segments and the two business areas.

4.4. Vignette #4: Departmental meetings and final ABC model

The second round of meetings was scheduled. These meetings had four main objectives: (1) to sensitize the participants to the elementary ABC concepts, applied to PortechCo 's reality (given inscriptions), (2) to 'receive' more specific information about the whole company in order to develop the ABC pilot implementation (through received inscriptions); (3) began to 'give' the employee time sheet table (received and given inscription) (see Figure 4) in the departments where it was necessary to collect the employees' times, and (4) to collect information in order to allocate the activities cost to the cost objects. Several meetings were held, and some departments required more meetings than others.

The visual inscription, illustrated in Figure 4, 'followed' me to all the meetings with the departments. Through this visual inscription, with some examples of activities previously collected, I briefly explained to the participants the ABC principles in these department meetings.

"[...]through this cost management method it is intended to initially measure the profitability of all business cost objects (i.e., products, market segments and business areas). There are costs denominated as direct costs [raw materials and others] that are not allocated to departments and activities but are directly allocated to cost objects. The information of direct costs already exists in the ERP system of PortechCo. The emphasis of this methodology focuses on the indirect costs (that is, on all costs that cannot be directly identified with a cost object). Indirect costs are first distributed to cost centres (that is, departments) and then allocated to the respective activities of those departments. Activities can also be allocated to other activities, such as shared services. Finally, the cost objects will only consume the activities that contributed to the completion and production of work. This means that there are activities that will be allocated directly to products and others to market segments and business areas. In summary, with these approximately correct cost assignments, (Kaplan, 1988) the company will be able to measure the profitability of its cost objects" (my narrative, October 2011).

In these presentations and meetings with the departments' managers – more important than going into the details of the ABC methodology – the main goal was to attract the interest of new actors to the ABC network to involve them in the ABC practice. This process of engagement allowed for minimal

potential resistance and mobilized different actors with different interests in the process of the ABC system design. The technical services department manager stated the following:

“The method used to elucidate the ABC was effective because you received the feedback of the people, that is, if the people understood the ABC principles or not. If the explanation was given in an auditorium full of people, maybe the doubts that they had would not have been raised. This is very effective especially in a company of this size” (Interview, Technical services manager, August 2013).

The second round of meetings main goal was essentially ‘to give’ the employee time sheet table (received and given inscription) to collect the amount of time that the departments ‘employees spent in the activities. This action was a process that worked as an interactive format because the final activities and all the ABC information was not collected during the first round of meetings. In the first meetings, interviews were conducted to capture the main activities (received inscriptions) of the departments and in the second round of meetings I gave the department manager the employee timetable with the activities to allocate after the amount of time consumed by the employees in those activities. In some departments the employee matrix with the activities was used to reorganize and validate the activities that were collected in the first meeting because through the matrix, the department manager could better visualize if the activity reported the work done by the employees. One example of the matrix that collected the activities and the time consumed by employees in it can be seen in the Figure 5.

ID#	Assistência Reparação Computadores		Serviço Pós-Venda Internacional			Serviço Pós-Venda Canal e Registo		Gestão		Total	
	Fazer Reparação Computadores e Garantia	Fazer Reparação Computadores e Fora Garantia	Vender Peças	Fazer Garantia de Peças	Reparar Equipamentos	Controlar Stock Cliente Intern.	Gerir Garantia das Peças	Reparar Componentes	Fazer Trabalho Administrativo		Planear/Gerir Departamento
13	0%	0%	0%	0%	0%	0%	98%	0%	2%	0%	100%
216	75%	15%	0%	0%	0%	0%	0%	5%	5%	0%	100%
145	75%	15%	0%	0%	1%	0%	1%	1%	7%	0%	100%
27	0%	1%	20%	50%	1%	10%	0%	0%	18%	0%	100%
62	0%	0%	2%	0%	0%	0%	60%	5%	33%	0%	100%
121	0%	0%	0%	0%	0%	0%	98%	0%	2%	0%	100%
248	0%	1%	20%	50%	0%	10%	0%	0%	19%	0%	100%
275	0%	0%	2%	0%	0%	0%	80%	0%	20%	0%	102%
63	0%	0%	0%	0%	0%	0%	97%	0%	3%	0%	100%
167	0%	0%	0%	0%	0%	0%	90%	0%	10%	0%	100%
74	75%	15%	0%	0%	1%	0%	1%	1%	7%	0%	100%
85	0%	0%	5%	2%	0%	2%	1%	1%	40%	49%	100%
83	0%	1%	20%	50%	0%	10%	0%	0%	19%	0%	100%
165	20%	10%	0%	0%	0%	0%	70%	0%	0%	0%	100%
											0%
											0%
											0%

Figure 5 - Employee time sheet table (received and given inscription, kept in the original and anonymized)

The following statements given by two directors of the company highlight the importance of this matrix.

“This map, which was given, with the activities [that were previously diagnosed] and with the people [employees] to put the time they consume in each activity, was a good tool. Without this tool it was not possible to work in a proper way [...] this methodology represented in a matrix [representation] was an important way to characterize the company reality.” (Interview, Operations director, July 2013, my translation).

“Through this map I can understand if have the sufficient number of employees in my team and if they are allocated to the right activity. I have people that are allocated to several activities, so through this matrix I can visualize how and on what where the team is working [...] it is important to know the costs by activity, but this map also provides more information about how I can plan better my resources. This type of matrix is useful to obtain practical results about the work.” (Interview, Production director, August 2013, my translation)

At this point only the percentages of the time of the employee were express in the matrix. This data would be very important to calculate the employees' costs consumed by the activities.

The last round of meetings was important to know approximately the effort that each activity contributed to the cost objects. In this pilot implementation of the ABC system, the intention was only to measure the profitability of the cost objects at a macro perspective.

The hierarchy of cost objects was defined through three main categories of types of objects: (1) products, (2) market segments, and (3) business area.

At the first level of the cost objects' hierarchy –denominated by products– only three cost objects were considered in the ABC system: (1) 'merchandise' that represented all the distribution brands sold in the Portuguese market, (2) 'family of products A' (called Products A) that represented the own brand produced (OEM) in the company to be sold in the Portuguese market, and (3) 'family of products B' (called Products B) that represented the own brand produced in the company to be sold in the international market.

At the second level of cost objects' hierarchy – denominated by market segments –four markets that represent the Portuguese and international market were considered: (1) 'small retail segment' (called

SR segment), (2) 'retail stores chain segment (called RS segment) (3) 'business to business segment (called BB segment), and (4) 'countries and projects segment (called CP segment). These segments received the costs from the first level of the cost objects hierarchy and received some activities that were not assigned directly to the first level (that is, activities assigned directly into the level two of cost objects).

Finally, at the third level of cost objects' hierarchy – designated by business areas – the national area and the international area were taken into consideration. These business areas received the costs from the second level of cost objects' hierarchy and received activities which were not directly related with the first and the second level of the cost objects' hierarchy.

In the innovation division, the following visual representation example exhibited in the Figure 6 was developed as a mechanism to better understand how to allocate the effort of the activities consumed in the level one and two of the cost objects' hierarchy.

Innovation Division		Level 1	Level 2
Dept.	Activity	Product	Market Segment
Product development	Product development		CP 75% SR 25%
	Research market/product	A 90% B 10%	
	Giving internal training		CP 50% SR 50%
	Making sale support		SR 100%
Engineering laboratory	Ensure product quality	A 90% B 10%	
	Giving technical support		SR 60% CP 30% RS 10%
	Track product development	B 100%	
	Provide advice to projects		CP 90% SR 10%
Procurement	Planning and programming		CP 95% SR 5%
	Sourcing		CP 95% SR 5%
	Procurement		SR 100%

Figure 6 - Activity allocation to the cost objects hierarchy in the Innovation Division (my translation)

The creation and the benefit of this visual representation (Figure 6) can be better explained by the statements of the Innovation director.

“[the process of building the ABC in the Innovation Division] was a moment of reflection to try to measure what we do in our daily routine [...] this ‘map’ was perfect for me because it allowed to define what we do in here in terms of responsibilities and skills, that is, we defined the activities we do and then we allocate these activities to the products or market segments [...] through this map we see quickly that either in the Product development Dept. or in the Engineering laboratory Dept., only 10 % of the time of two activities (research market/product in the product development dept. and ensure product quality in the Engineering laboratory dept.) are allocated to Product B so probably if the company would want to grow in Product B it will need to allocate more time to these activities. So, if the company would want to build a strategy for Product B it will have to consider the number of resources it needs to support a determined number of sales” (interview, Innovation director, July 2013, my translation).

In meetings described in this section, the visual representations served to receive and to give information to all actors and to understand better the narratives which I was explained about the ABC principles in order to proceed with the ABC implementation and to advance to the next stages of the project.

4.5. Vignette #5: Creation of cost centres in the ERP software

The next step was the creation of a cost centres’ (CC) hierarchy to allocate indirect costs consumed by the departments. Each department received a CC designation and supports CC were also created to allocate all corporate costs (structure costs).

The company did not have cost centres (CC) by department. The design of the CC hierarchy was conducted by the acquired knowledge of the company and based on PortechCo’s functional organization chart.

“For me it was essential to create cost centres by department [...] In spite of the need for a macro perspective of costs, the five cost centres that existed in the company did not allow for ‘capillarity’ and ‘granularity’. They were a black box, where several costs fell [...] Which made it difficult to analyse” (Interview, Operations director, July 2013, my translation).

The new CC structure was presented to the board of directors through a visual table ordered and coded with divisions and departments (see Figure 7) in accordance with the design of the functional organization chart of the company (received inscription). At the CC meeting presentation (January 2012), managers (CFO and the chair of board directors) validated the structure of the new CC through the table of CC and organization chart of the company (given inscription).

1-01-00	Direcção Produção, Serviços Técnicos e Lab
1-01-01	Laboratório de Certificações e Validações
1-01-02	Serviços Técnicos
1-01-03	Produção
1-01-04	Produção
1-01-05	Produção
1-02-00	Direcção Financeira e Ser. Administrativos
1-02-01	Finanças e Administração
1-02-02	Jurídico
1-02-03	Contabilidade
1-03-00	Direcção Negócio Internacional
1-03-01	Gestão de Produto
1-03-02	Marketing
1-03-03	Vendas
1-03-04	Projectos
1-04-00	Direcção Negócio Nacional
1-04-01	Gestão de Produto
1-04-02	Marketing
1-04-03	Vendas Canal SMB
1-04-04	Vendas Retalho
1-04-05	Vendas Corporate
1-05-00	Direcção Operacional
1-05-01	Logística P
1-05-01	Logística A
1-06-00	Direcção Serv. Partilhados
1-06-01	Recursos Humanos
1-06-02	Inovação de Produto
1-06-03	Qualidade, ambiente, Seg. e Manut.
1-06-04	Tecnologias de Informação

Figure 7 - Some cost centres (table kept in the original) (January 2012)

The first CC hierarchy was created with 49 CC, of which 39 CC were related to departments. Cost centres were then loaded into the ERP software. It was required to create rules on the document classification of the cost centres. This required the involvement of the finance and the operations departments. Only the end users that would have the task of classifying documents in the ERP system were involved. These new rules were verbally transmitted to these users who had obtained training and access to the table displaying the cost centres.

4.6. Vignette #6: Pilot implementation in the ABC software

Several actors participated in the pilot implementation process. With the support of the IT department team, the expenses were extracted from CC of the ERP software to be imported into the ABC software through the Microsoft Excel. The ABC software selected and purchased by PortechCo was from a USA software company, so technical assistance and training on site was not an option.

The knowledge of the ABC software was acquired through user guides and tutorials examples provided by the ABC software company provider (see some examples of this received inscriptions in the appendix of this essay) and emails sent with visual examples and tables (given inscriptions).

In April 2012, with the previous information received, the ABC pilot system began to be built in order to show the potential in terms of information and how the ABC principles could help the decision-making process in PortechCo. To calculate the first ABC pilot, I used the accounting data of the January 2012 period.

Through this process of given and received inscriptions, it was possible to fabricate and calculate the first pilot project in the ABC software, without the presence on-site of the technical staff of the software's USA based ABC company. The first data of the pilot ABC project built in the ABC software with the January of 2012 data was presented at a meeting to the board of directors of PortechCo (see Figures 12 and 13 in the appendix of this essay).

5. Discussion and conclusions

In this study I posed three research questions: what is the role of visual inscriptions in action during the process of design and implementation of the ABC system in PortechCo? How are visual inscriptions translated through practice into economic knowledge? What is the role of the consultant in the translation process?

With respect to these questions, the process of the design and pilot the implementation of the ABC system at PortechCo can be interpreted as a set of translations (Alcouffe, Berland & Levant, 2008; Briers & Chua, 2001; Callon, 1986b; Dobers & Soderholm, 2009; Latour, 1983-1999; Pipan & Czarniawska, 2010) occurring between received and given inscriptions by actors from different departments at both operational and strategic domains of PortechCo. In this paper, the 'strategic domain' designation is used to represent the socio-technical (Law & Callon, 1992; Latour, 2005) actions that occurred at a more macro and abstract level of the company (that is, ABC principles, calculations, numbers, etc.). Furthermore, the 'operational domain' is more related to the social-technical actions that took place at the micro level of the company and represents the practical activities that occurred in the daily routines of PortechCo (see Table 4 below). The explanation of this phenomenon can be discussed by the concepts of actor-network theory because "(...) the key to actor network theory is the building and maintenance of networks between people, sites and activities to enable actions at a distance. "Actor-

networks ‘bring in’ and ‘send out’, they transform or translate remote contexts into forms that are mobile and stable” (Dambrim & Robson, 2011, p. 432).

The strong intervention I had in this research was very important to understand the actions and the mechanisms that took place between the actors during the design and pilot implementation of the ABC system. Indeed, it allowed to identify the translations and the different types of inscriptions associated with the construction of the ABC pilot system. The construction of the pilot ABC system at PortechCo be an actor-network constructed and translated by different types of inscriptions and by human and non-human actors since “(...) in actor-networks, chains of translation are formed that bring together actors and non-human actors (such as inscription devices) to mediate and transform linguistic and material elements so that action may occur.” (Dambrim & Robson, 2011, p. 432).

In the process of building the ABC pilot system two types of inscriptions were found: (1) ‘received inscriptions’ and (2) ‘given inscriptions’ (see Figure 8) that occurred between human and non-human actors in the operational and strategic domain of PortechCo.

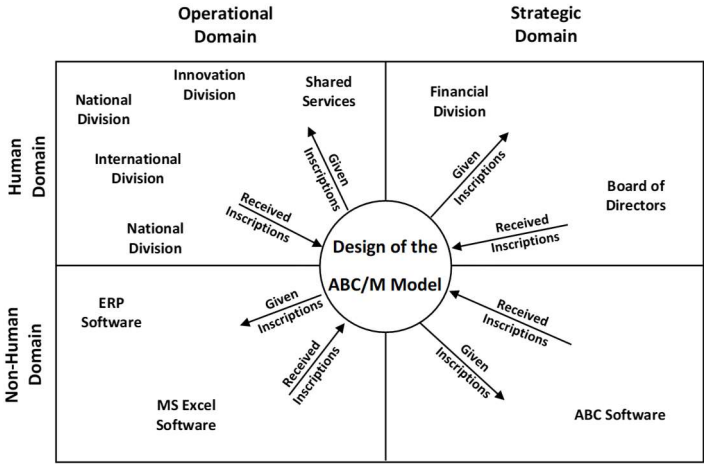


Figure 8 - Received and given inscriptions in the process of design and pilot implementation of the ABC system

The received and given inscriptions found and observed in this study are from different types, as can be observed in the Table 4.

Table 4 - Inscriptions and actants at operational and strategic domains

	Operational domain	Strategic domain
Inscriptions	Email, Quality flowcharts, FTE employees' matrix, ABC database	Conceptual ABC/M model, ABC/M project report, Power Point presentation
Human actors	Department's chiefs and some directors	Department directors and board of directors
Non-human actor	MS Excel, Software ERP	Software ABC

The inscriptions are concrete and abstract, and some are represented in a visual format. The visual representations can act as a kind of mediator mechanism that permitted 'visualizing' the ABC principles in a more real and less abstract perspective for all human actors. This argument is in line with the study of [Free and Qu \(2011\)](#), who states that visual representations play an important role in the promotion of innovation in management practices. For example, the inscription showed in Figure 4 was an effective way to communicate the complexity of the ABC system in PortechCo, allowing designating it as a boundary object. This will be discussed in the following subsections.

5.1. Different types of inscriptions and boundary objects

The inscriptions at the operational domain have a higher level of detail (more concrete) and serve to align the departments at a more operational level in the design of the ABC system. These inscriptions were translated into a level of detail that serve the department's interests (for examples see Figure 2, 4 and 5 above). Departments' chiefs are more sensitive to this kind of inscriptions because they are more concrete and therefore it allows the generation of improvements at the operational level.

Strategic inscriptions serve the best interests of the senior management. They are more abstract, as is the case of the visual representations exhibited in the ABC project report (see Figure 1), in the ABC conceptual model (see Figure 4) and the tables exhibited in the Power Point slides (see Figure 10) that were presented at the meeting of the board of directors, in May 2012. Through strategic inscriptions, the senior management (CFO and board of directors) were able to validate the pilot ABC model because "a key contribution of inscriptions is to help convert intangible consulting services into tangible outputs, which are then subject to visible detailed control" ([Qu & Cooper, 2011, p. 353](#)).

During the technical implementation of the ABC software, visual inscriptions such as technical support manuals and tutorial examples (see Figures 14 and 15) acted as boundary objects because they allowed the implementation of the ABC software at a distance without the human presence of a technology partner within PortechCo.

Visual representations in the form of inscriptions or of boundary objects, if used properly, serve to transform ideas and innovations and to act as a mediate mechanism to facilitate communication and permit the passage of knowledge, allowing the stabilization of areas of disagreement between the various actors of the company's boundaries. This means that the knowledge of the nature of those inscriptions

and boundary objects may allow for actions to be taken that may help eliminate the barriers (Koskinen, 2005) between the different actors in the process of design and implementation of an ABC system.

However, the reports produced by the ABC software did not have wide acceptance in the meeting where the ABC pilot project was presented to the board of directors, which means that no translation can be considered taken for granted without the occurrence of resistance (Callon, 1986b). The ABC reports produced by the software are presented in tables with very detailed numerical values based on the ABC methodology calculations. It means that greater inscription-related literacy (Pozzer-Ardenghi & Roth 2010) of ABC is needed to understand the information that was calculated by the ABC software. This evidence is consistent with the study done by Cardinaels (2008) who demonstrated that the presentation of information on the profitability of a customer to managers with low ABC knowledge is more easily interpreted if presented in a report through graphic representations as opposed to being represented in a conventional table format.

Regarding numbers, they can be easily understood if they are associate to objects which are well known (mundane). However, I have different insights about the numbers calculated through the ABC methodology that emerged from several calculations. Despite Robson (1992) has argued that the numbers are problematic for preparers or users, I found in this single case that the numbers are more problematic for end users because they need to trust them. From this discussion, some questions can be asked: How can senior management believe in a number if this number is dubious and unknown? What kind of controls are necessary to validate and make numbers trustworthy? Is the senior management sensitive (and available) to understand the great level of details which the ABC methodology provide (numbers that emerge from resources, activities and cost objects through several cost drivers and allocations)? The answer to these questions can be given if a new type of control or audit were created (and institutionalized) to validate the calculations from the ABC system.

In short, inscriptions and boundaries objects that circulated at both the operational and the strategic domains were important allies and they acted as a mechanism of mediation between different actors, as will be discussed in the following section.

5.2. The role of human and non-human actors

Regarding the involvement of actors in the design of the ABC model, I can mention two types of human actors: (1) human actors with operational influence and (2) human actors with strategy influence. Human

actors with operational influence are at the level of department's direction and some operational directors (e.g., Operations Department). Human actors with strategic influence are essentially the CFO and the board of directors. I can conclude that the design of the ABC model was made with the involvement of the two types of human actors (strategic and operational). Consequently, operational human actors transferred knowledge, through inscriptions (visual or not) and boundary objects, to the domain of strategic human actors and vice versa.

The non-human actors –ERP, MS Excel, and ABC software– performed different roles. Excel was a weak actor in the construction of the ABC system. The ABC system was not successfully 'fabricated' through MS Excel. The ERP software was a key actor because it allowed the allocation of costs by the respective CC. Through this cost classification by CC, it was possible to obtain costs by department. Finally, the ABC software (non-human actor) was also a very important ally in the network. The ABC software has a GUI (graphical user interface) that allows the modelling of the system according to the ABC methodology. It has specific routines to operate the conceptual ABC model more quickly and with minimal errors.

5.3. Theoretical framework of the design and implementation of a management technology

This study shows that visual inscriptions are important mechanisms that make the bridge between the conceptual ABC model and the 'reality' of the company. Visual inscriptions have the power to compel other actors to be aligned with the ABC concepts. Visual inscriptions incorporate knowledge from other inscriptions enabling the process of design and implementation of the ABC system. Furthermore, I found that visualizations render the translations more evident for all entities in the process of design and implementation of a new ABC system. Visualizations in action allows an idea or a new concept to be translated into practice. I interpret the design and implementation of the ABC as a sequence and cascade of translations of visual inscriptions which interacted with the actors in order to build new economic knowledge. This new knowledge is obtained by the translator (consultant) who acts in the centre of the calculation, orchestrating other actors through the power of visual inscriptions. These visual inscriptions can act as a boundary object or as an epistemic object.

Nonetheless, in this study I observed that visual inscription engages into a new role. I found that visual inscriptions act as practical objects because they become part of the actors' actions in the

construction of the ABC system. The visual inscriptions in one moment can only be a theoretical concept (see the example of PortechCo's ABC conceptual model in Figure 4) but afterwards when they are sent to the field of the actions, they gain new features as they travel between the different PortechCo's actors throughout a multitude of translations. These visual inscriptions, when translated into other visualizations incorporating more knowledge from the field of actions, they became more practical and closer to the reality of the world of PortechCo's actors. In this sense, these visual inscriptions are translated into 'praxis objects'. A 'praxis object' in this context is a visual inscription that emerges from practice and incorporates the notions of boundary objects and epistemic objects. Theoretical visual inscriptions (see the example of employee time sheet table in the Figure 5) when sent to the field of actions they act as boundary objects because they become more logic for the actors, making the bridge between the abstract and the concrete of the ABC. These visual inscriptions act as epistemic objects because they have a lack of knowledge for all the actors acting as objects of inquiry since they are not objects with fixed qualities but are rather open-ended to collect more information about something that we do not yet know for sure (Miettinen & Virkkunen, 2005).

In short, these visual inscriptions gain agency and act as mediators between different actors within the company, always passing through the translator (consultant) who is situated in the centre of the calculation in order to build the ABC. In this way, the translator could send in and bring back (Dambrim & Robson, 2011) the information in order to be able to develop the ABC system in a way that materializes it into numbers which are, in turn, translated into reports designated in this study as economic knowledge. The process of building these economic relations was conducted by the translator through the received and given inscriptions during the process of building the ABC system. These interactive processes of bringing in and sending out (Callon, 1986b) generate the accumulation of knowledge in the centre of the translation. This enabled to materialize the conceptual model into a practical system.

Following these arguments, I built a theoretical framework (see Figure 9) to show how to put conceptual models into practice, in which takes the form of economic knowledge at the centre of the calculation (system's design).

The role of visual inscriptions to design a management system is shown in the following theoretical framework developed through practice.

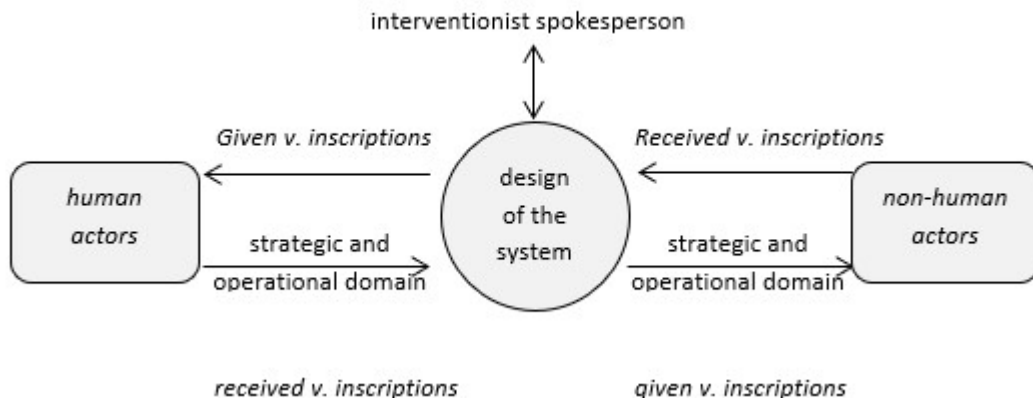


Figure 9 - Theoretical framework for the translation of the design and implementation of a management technology

The consultant's intervention in the process of design and pilot implementation of the ABC system, through received and given visual inscriptions, allowed to observe the theoretical and practical contributions that will be discussed hereafter with the empirical data.

The process of gathering information through visual inscriptions received from the quality management system was a way to visualize the company in a simplified perspective. The accumulation of this knowledge received from visual inscriptions and through the communication with other actors allows to accumulate more knowledge at the centre of calculation to develop the ABC conceptual model (see Figure 4).

The knowledge acquired by the consultant through received visual inscriptions allows to develop a new visual inscription (ABC conceptual model presented in Figure 4) which acted simultaneously as a boundary object and as an epistemic object. As an epistemic object, the design enabled at the same time to convince the CFO to advance to the ABC implementation and to realize that it was necessary to collect more information to build the system. The ABC conceptual model (see Figure 4) also worked as a boundary object because helped to collect more information to develop the next steps. That visualization functioned as a simplification of the ABC concepts representing the reality of PortechCo. This visualization helped the communication and eliminated resistance in the actors allowing the collection of information from the company's departments. This visual inscription become a 'praxis object' because simplified the principles of ABC and mobilized different actors from different departments to provide more information to further develop the ABC System. In order to collect more information, the consultant created new visual devices to collect the activities and the times that the employees consumed in those activities.

These visual inscriptions presented in this case study, unlike the inscriptions discussed in the [Qu and Cooper \(2011\)](#) study which acted to persuade other actors, had the power to force the implementation ([Busco & Quattrone, 2015](#)). However, the visual inscriptions presented in this study acted in a different way. More than to compel other actors, these inscriptions incorporated knowledge produced by the simplification of the ABC concepts because they are more near to the actors' practice. This allow the transmission of knowledge and engage different actors with different interests reducing the resistance when the ABC data is being gathered, even if the actors are not familiar with the result. For instance, the employees time sheet (see Figure 5) inscription incorporate the notion of boundary objects when the translator sends it to the actors and become an epistemic object when that inscription is sent back to the consultant converted into a 'praxis object'. This permitted to continue to translate the ABC for other stages of implementation because the ABC need information in several layers. It is necessary to link the information from the cost elements to activities, which then are consumed by the cost objects. To build an ABC system is a process of knowledge accumulation between the translator (consultant) and the other actors that represent the reality of the company.

The interaction between the consultant and the different actors of the company through these visual representations act as inscriptions devices which carry knowledge to the centre of calculation. With all the information on the activities necessary to build the system it was possible to force and convince the CFO that it was necessary to open new costs centres in the ERP system. Create more cost centres is not a passive decision because it involves change on the company's routines. This process of knowledge accumulation through received and given visual inscriptions permitted to finish the ABC conceptual model and to begin the connection of the ABC with the ERP system to calculate de ABC model in order to produce economic information. The costs centres were developed to link the ABC knowledge accumulated in the conceptual model with the ERP. Cost centres as 'praxis objects' collect information from the transactions that the company produces daily. These cost centres are after linked and allocated to activities. With the implementation of cost centres in the ERP it was possible to make the passage to the ABC pilot calculation – that is, the visual cost centres table was translated into 'praxis objects' that becomes part of the PortechCo's practice.

PortechCo decided to acquire the ABC software to calculate the model. The ABC software was installed in order to calculate all the information gathered by the received and given visual inscriptions in the previous stages. The knowledge transmitted between the software house company located in the USA and PortechCo was accomplished at distance through received and given visual inscriptions (manuals,

tutorials, etc.) without the presence of the technical staff. With this process of received and given visual inscriptions between the translator and the software house it was possible to export information to the ABC software to calculate the information collected in the previous stages and afterwards to receive visual inscriptions translated into reports with the numbers of the ABC calculation. In short, such conceptual model shows in detail how the ABC concepts were translated into economic knowledge.

5.4. Final remarks and implications for management accounting

Considering the ABC as a management technology (Briers & Chua, 2001) and a company as a network of heterogeneous elements (Callon & Law, 1997), the success or failure of the design and implementation of a management technology in a company cannot be seen only by social factors (human actors) or technological factors (non-human actors) (Briers & Chua, 2001), because the social and the technical are embedded and interconnected (Law, 2008). The implementation of a management technology will be the result of the displacements and translations implemented by each company (Briers & Chua, 2001), that occurs in this set of heterogeneous elements and semiotic materials (Law, 2008) that interact with each other. This means that these mobile relations occurring between these elements are simultaneously heterogeneous materials (between things) and semiotic (between meanings and signals) which together form a unique network.

The development of the theoretical framework shown in Figure 9, constructed through practice (Baard, 2010; Westin & Roberts, 2010), during the translation process of the design and pilot implementation of the ABC system in PortechCo is one of the contributions of this study. This theoretical framework can be extended to other cases that focus on the interaction between the consultants/practitioners, who work in companies when implementing management technologies. This theory highlights the special role and importance of the visual inscriptions in action that are translated into 'praxis objects'.

This study also contributes with relevant practical management considerations that could help other practitioners and consultants implement an ABC system because it explores in detail the steps during the design and implementation stage. Regarding this contribution, the study provides some practical strategies to implement management accounting theories that can minimize the risk of failure or abandonment of the implementations. It also shows that it is important to involve the actors of the

different boundaries of a company through visual inscriptions allowing the translation into 'praxis objects' that become part of the company's practice.

In sum, in this interventionist case study it was possible to show in action the relevance that this process of cascading visual inscriptions into 'praxis objects' can have when a company wants to implement a new management practice. This process of translating visualizations into 'praxis objects' can help consultants and practitioners bridge the abstract of the management theory into the company's reality.

Future research should focus on the involvement between consultants and companies (Qu & Cooper, 2011; Pollock & D'Adderio, 2012) or between academics and practitioners, at both a theoretical and practical level (Bogt & Helden, 2011). It is also recommended more research on inscriptions so that we can better understand the critical factors of success or failure during the design and implementation of innovative management technologies such as the case of the ABC system.

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Appendix of Essay I

Examples of visual inscriptions used in the process of design and pilot implementation of the ABC system in PortechCo

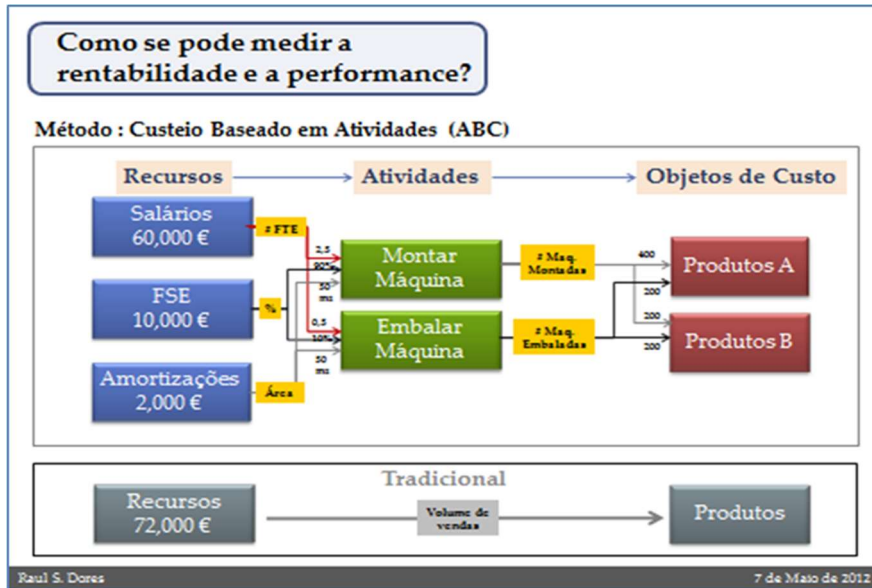


Figure 10 - Cost flow diagram presented to the board of directors meeting through the Power Point presentation (slide kept in the original and anonymized, May 2012)

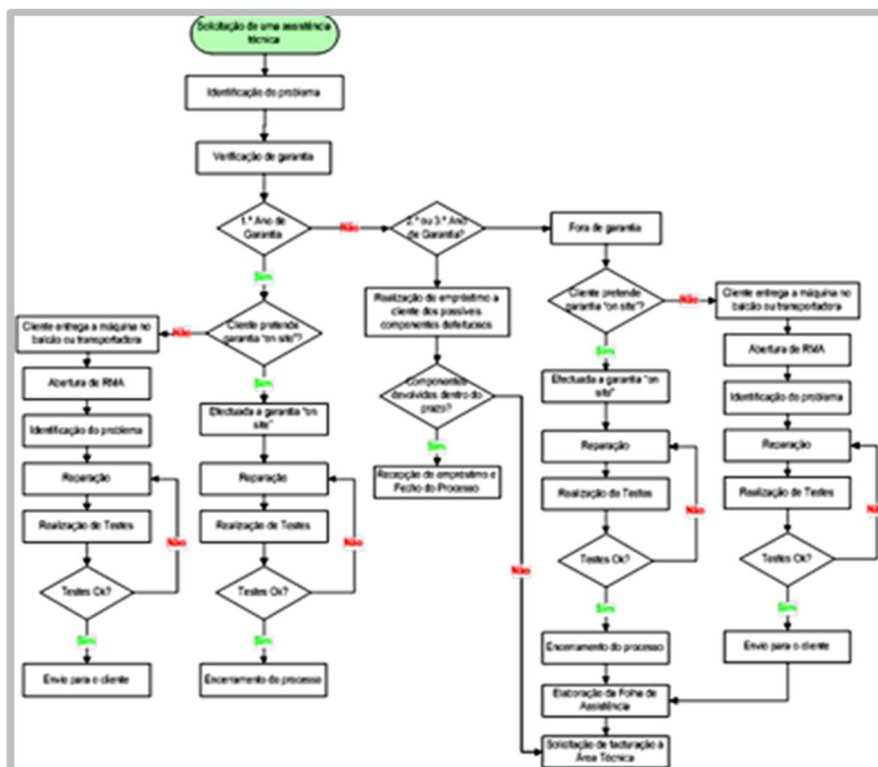


Figure 11 - Production flowchart -received inscription by quality management system (kept in the original, September 2011)

Objetos de Custo

Nível 1: Linhas de Produtos

Report Date	Piloto Janeiro 2012		Page
05/06/2012	By Profitability		1
Description	ABC Cost	Revenue	Profitability
Mercadorias Distribuição	6,606,978	6,748,061	141,083
Produtos A	1,668,439	1,721,843	53,405
Produtos B	101,239	47,584	(53,655)
	€8,376,656	€8,517,487	€140,831

Nível 2: Segmentos de Negócio

Description	ABC Cost	Revenue	Profitability
Segmento	-497,819	768,147	1,265,966
Segmento	1,650,436	2,178,519	319,083
Segmento	1,412,661	1,209,977	(202,684)
Segmento	5,011,603	4,360,845	(650,758)
	€7,803,380	€8,517,487	€714,107

Nível 3: Áreas de Negócio

Description	ABC Cost	Revenue	Profitability
Área Negócio	5,961,661	6,338,969	377,308
Área Negócio	1,867,263	2,178,519	311,256
	€7,828,923	€8,517,487	€688,564

Raul S. Soares 7 de Maio de 2012

Figure 12 - Cost objects by profitability report (received inscription of the ABC software and given presented to the board of directors meeting through the Power Point presentation) (slide kept in the original and anonymized, May 2012)

Report Date	Piloto Janeiro 2012		Page
04/23/2012	Activity Cost High to Low Report		1
By Department/ (All Activities)			
Department: Serviços Técnicos	Department Total:		€39,517
Number	Activity Description	Cost	% CUM%
10401A004	>2Gastos Serviços Técnicos (SUP10405)	€10,774	27.26
10405A008	N2Gentr Garantia Peças RMA Nac (STEC)	€9,785	24.76
10405A001	N2Gentr/Administ Dept. Serv. Técn (STEC)	€7,113	18.00
10405A002	N2Reparar Comput Garantia (STEC)	€3,010	7.61
10405A005	N2Fazer Garantia de Peças RMA Int	€2,660	6.73
10405A004	N2Vender Peças RMA Int (STEC)	€2,322	5.87
10405A007	N2Controlar Stock Cliente RMA Int. (STEC)	€1,742	4.41
10405A006	N2Reparar Equipamentos RMA Int. (STEC)	€1,180	2.98
10405A003	N2Reparar Comp Fora Garantia (STEC)	€470	1.18
10405A009	N2Reparar Componentes RMA Nac (STEC)	€457	1.15
Totals:		€39,517	100.00
Serviços Técnicos TOTAL:		€39,517	15.00

Figure 13 - Activities of the technical service Dept. (received inscription of the ABC software and given inscription presented to the board of directors meeting through the Power Point presentation) (kept in the original and anonymized, May 2012)

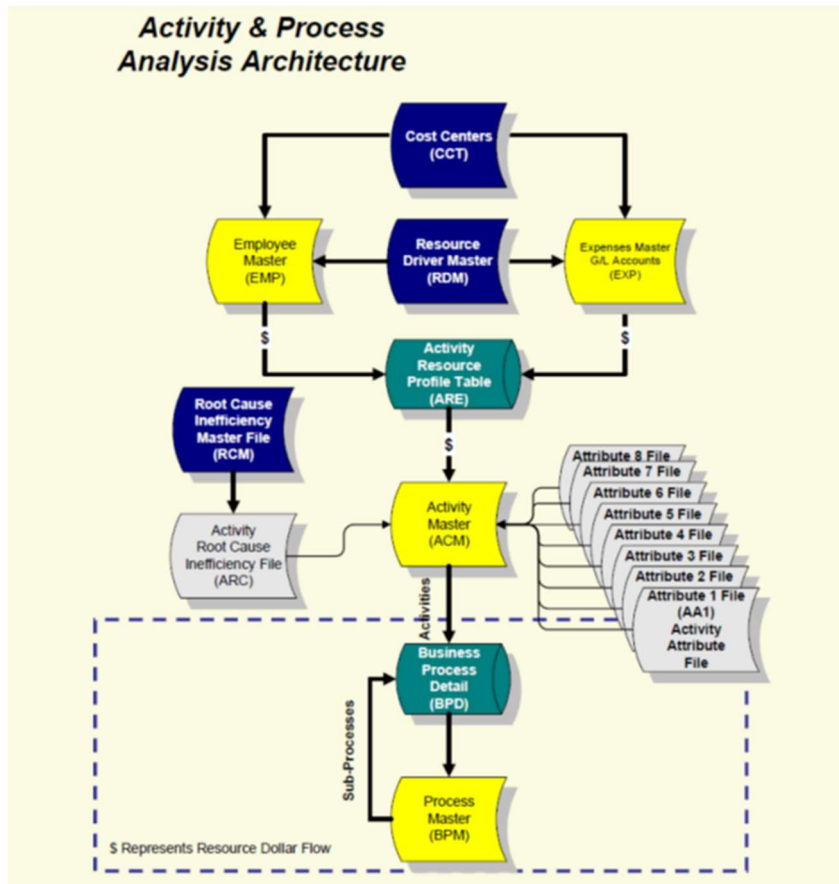


Figure 14 - Database table diagrams of the ABC software (received inscription of the technical support manual). (kept in the original and anonymized)

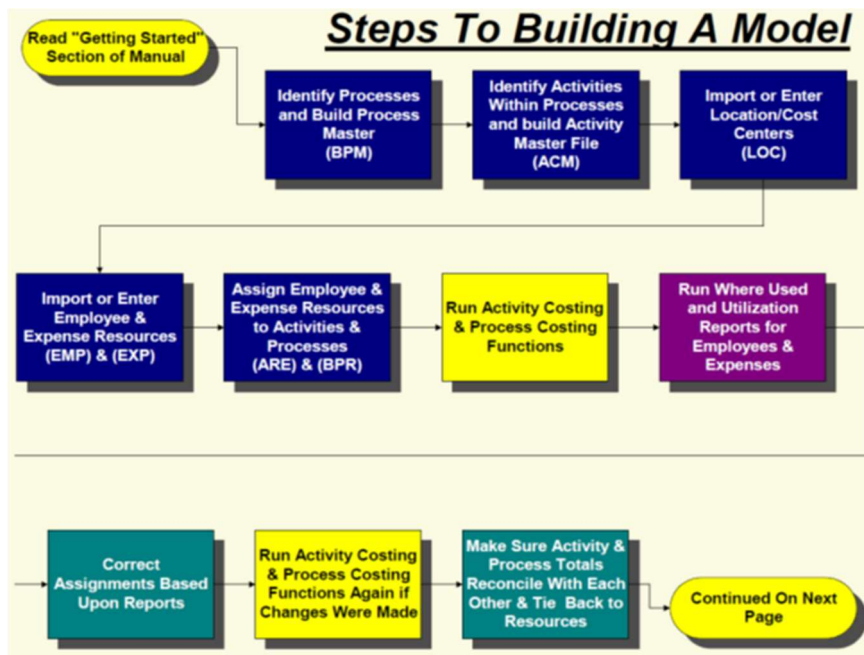


Figure 15 - Steps to building a model in the ABC software (received inscription of technical support manual); (kept in the original and anonymized)

**ESSAY 2: Institutional reasons for adopting and adapting the ABC technique:
a qualitative study in a Portuguese company**

Abstract

Drawing on activity-based costing (ABC) practice and institutional literature, this study develops reflections on why the ABC was accepted to be implemented in a Portuguese company (PortechCo), and why and how this technique, during the implementation process, was adapted by individuals to have a better fit with the cultural, technical, and political characteristics of the business logic of the company. The case follows a qualitative approach, using the interventionist research method as the main source of data, as the researcher undertook a strong intervention in the process of the ABC implementation. This study contributes with insights into the microfoundation of institutional logics and the creation of institutions. It shows the interaction between logics at the micro level, performed by institutional actors on the ground of the actions, and institutions at the macro level. The tensions (also competition) between those actors, in this case, forced several adaptations in ABC technique providing insights into a better understanding on why and how (new) logics change techniques and create new institutions. This study also contributes to the management accounting practice, because it provides strategies that can be useful for consulting firms and practitioners to understand the critical factors that can influence the success in the adoption of new management techniques, as is the case of the ABC.

Keywords: Activity-based costing practice; Variations; Adaptations; Institutional theory; Institutional logics; Interventionism research; Qualitative research.

Prologue

“We live in a very turbulent world, very dynamic [...] we must always be looking for new opportunities [management techniques] [...] we need to continually implement changes and adjustments in our management systems. If we use static management systems into dynamic business, as is our case, we reach a point that these management systems are completely misfits with the business model.” ([PortechCo's CFO, August 2013](#))

1. Introduction

ABC emerged at the end of the 1980s in the United States and it rapidly spread to Canada and Europe ([Gosselin, 2007](#)). Since then, some scholars have studied why and how companies implemented and adopted (with success or not) the ABC technique. In general, these scholars have found that ABC is linked to technical and/or sociological factors ([Agbejule, 2006](#); [Anderson, 1995](#); [Anderson, Hesford & Young, 2002](#); [Banker, Barhan & Chen, 2008](#); [Briers & Chua, 2001](#); [Byrne, 2011](#); [Gosselin, 1997](#); [Jones & Dugdale, 2002](#); [Kennedy & Affleck-Graves, 2001](#); [Krumwiede, 1998](#); [Liu, Mitchell & Robinson, 2008](#); [Major & Hopper, 2005](#); [Malmi, 1999](#); [Pike, Tayles & Mansor, 2011](#); [Shields, 1995](#); [Soin, Seal & Cullen, 2002](#)).

However, there is a gap in these studies, because they do not explain the relationships between the macro level and the micro level of the actions inherent to such processes; and they do not relate institutions, institutional logics, and institutional work to the process of adoption of the ABC. [Bjerregaard and Jonasson, \(2014\)](#) stated that the connection between the macro and the micro level is important because:

“The institutional work and institutional logics perspectives serve as complementary ways of orienting analysis; both draw inspiration from practice-based organizational scholarship to elucidate the recursive interaction between macro-institutional processes and the lived experiences and everyday practices of organizational actors” (p. 1509).

Since institutions carry simultaneously material and symbolic characteristics ([Friedland & Alford, 1991](#)), it is important to understand why these institutions influence actors to take decisions and how their logics and others related to institutional logics influence such actors in their actions. Furthermore,

after the actors' decisions were taken (influenced by such institutional logics) it is important to know how individuals enact such institution in the day-to-day routines at the organizational level of actions. That is, how institutional workers create, maintain and disrupt institutions (Lawrence & Suddaby, 2006; Lawrence, Suddaby & Leca, 2009).

Despite some recent studies that have investigated the creation, maintenance, and disruption of institutions, I did not find studies that investigate how and why adaptations occur during the implementation of a management technique. As well as why variations between the ideal management technique (institution) and the final management technique (or the system) adopted occurs (neither in the ABC nor in other management technique). The study of adaptations during the implementation process of a management technique is critical because according to recent investigations, such adaptations are more likely to be the rule than the exception (Ansari, Fiss & Zajac, 2010).

“Adaptation refer to the process by which an adopter tries to create a better ‘fit’ between a [management technique] and the adopters’ particular needs, where fit is the degree to which the characteristics of a management technique are consistent with the perceived needs, objectives, and structures of an adoption organization” (Ansari, Reinecke & Spaan, 2014, p. 1315).

Even though, we may be sympathetic with the previous statements, which evoke the relevance of the phenomenon of adaptations, one also needs to understand the actions taken by institutional workers by which these adaptations are motivated. That is, it is necessary to understand how institutions, institutional logics, and institutional work stake on the ground of the actions; how those interconnections can motivate the foundation of new management techniques, and how, at the long term, new institutions, new institutional logics, and new order are created.

This seems to be also important because it can provide further explanations and reflections to unfold the paradox of embeddedness agency (Seo & Creed, 2002) and trace avenues to understand the microfoundations of institutional logics (Thornton, Ocasio & Lounsbury, 2012). Relatively to these issues, Feldman and Orlikowski (2011) stated that the relationship between actions and institutions is rarely engaged or actively theorized.

This essay is an attempt to make contributions to these gaps. It presents and discusses the findings of a qualitative study of acceptance and implementation of the ABC technique that was afterwards adapted by professional workers to fit with the political, technical, and cultural features of PortechCo. The

strong intervention (Jönsson & Lukka, 2007) that I have played during the implementation of this management technique enriched the understanding about the tensions, collaborations, actions and struggles of individuals coping with intuitions, institutional logics and work of the organizational level of PortechCo. As noted by Ahrens and Chapman (2006), “researchers need spend more time in organizations studying management accounting systems, in a sense to obtain adequate knowledge of cultural practices by engaging in those practices” (p. 828). To undertake this research, I spent 30 months in PortechCo working (as an interventionist researcher) and immersed with their cultural, technical, and political work (Perkmann & Spicer, 2008).

Thus, this study contributes to understand the entire process of why and how a prescribed management technique is accepted, according to their symbolic and their material features, in order to be implemented unquestionably by organizational actors – that is, a management technique as an institution. During the implementation phase, individuals struggle to maintain and adapt the management technique in order to be fitted with the cultural, technical and political characteristics of the company. The connection of the acceptance phase with the implementation phase contributes to understand the variations that occurred during the process of adoption of a management technique. The entire process of adoption (acceptance and implementation) attempts to generate insights and reflections on the microfoundations of institutional logics and on the paradox of embedded agency. This study also contributes to the managerial practice because it provides some explanations and strategies that can be useful for consulting firms and practitioners in understanding the critical factors of the success (or not) in the adoption of a new management technique, as is the case of ABC.

This essay is structured as follow. In the next section, I present the theoretical context with reference to ABC as an institution, and I present the theoretical concepts of institutional logics, institutional work, and adaptations of management practices. I, then, explain the research questions and the research methods applied in this research. In the findings, I recount the acceptance and the implementation phases of the ABC technique at PortechCo. This essay ends with the discussion of the implications of the process of acceptance and implementation of a management technique, in order to understand why the ABC technique was accepted by PortechCo, to be implemented and why and how, during the implementation process, the ABC technique was adapted by the professional staff in order to have a better fit with the cultural, technical and political characteristics of the company.

2. Theoretical context

In this section, I outline the theoretical context that supports this study. Firstly, I introduce the ABC technique as an institution. After this, I present the institutional logics perspective that allows to understand why the macro level influences the micro level. Finally, I present the institutional work perspective to provide a lens for understanding how the micro level influences the macro level.

2.1. Activity-based costing (ABC) as an institution

In the early 80s, many companies as result of major changes in the market and in their organizational structures, increased their indirect costs and their variety in product range, etc. They began to realize that their traditional management accounting systems generated incorrect information on the costs of products and other cost objects. Thus, these systems resulted irrelevant for making operational and strategic decisions and did not provide information about the real sources of competitive advantage (Brimson, 1991; Hicks, 1999; Johnson & Kaplan, 1987; Kaplan, 1988-2006; Shank & Govindarajan, 1993; Turney, 2005)

This issue, led academics, and practitioners to begin to develop new approaches to management accounting problems. Professors Robin Cooper and Robert Kaplan, from Harvard Business School (HBS), other Professors, such as H. Thomas Johnson and Peter B. B. Turney and organizations such as the Consortium for Advanced Manufacturing International (CAM-I), the Institute of Management Accounting (IMA) and the Society of Management Accountants of Canada (SMAC) contributed to the emergence and development of what came to be designated as the activity based costing (ABC) (Alcouffe, Berland, & Levant, 2008; Bjornenak & Mitchell, 2002; Hicks, 1999; Jones & Dugdale, 2002). Since ABC has been adopted by organizations in the entire world since 1985 and “considered by many academics and practitioners as one of the most important innovations in management accounting of the twentieth century” (Gosselin, 2007, p. 641), the ABC technique can be viewed as an institution². This concept of institution is grounded on the work of Friedland and Alford (1991), in which they argue that institutions are “simultaneously material and symbolic” (p. 241). According to these authors, institutions are the material patterns of human action “by which individuals and organizations produce and reproduce their

² I am not the first arguing that a management technique can be an institution. For instance, the work of Green, Li and Nohria (2009) and Zbaracki (1998) views TQM technique as an institution.

material subsistence and organize time and space” (p. 243). Institutions are “also symbolic systems, ways of ordering reality, and thereby rendering experience of time and space meaningful” (Friedland & Alford, 1991, p. 243). Following the previous argument, I posit that ABC, like all institutions, is constituted by both these symbolic and material characteristics.

ABC embraces a methodology to measure the profitability of different cost objects by assigning the organization's resources to activities. Comparing with others costing methodologies, the central logic of ABC is to measure activities³. First, the resources are allocated to activities and subsequently the costs of activities are allocated to cost objects. The calculation is done by recurring to technology, as for example specific ABC software for complex models and spreadsheets for more simplistic cases (Bescos, Cauvin & Gosselin, 2002).

ABC has been disseminated and widespread in the entire world as a management accounting technique that helps companies to measure the performance and profitability of a company. As stated by Argyris and Kaplan (1994)

“(…) ABC is a technical theory that provides more accurate information to managers about the cost and profitability of their business process, products, services, and customers. The provision of more accurate ABC information was intended to help managers make better decisions about the use and deployment of their organization’s resources (…) It shares certain features (…) in several other managerial functions disciplines such as finance, strategy, information technology and human resources” (pp. 83-84).

According to this statement, ABC presumed to have economic benefits. That is, like others management techniques, organizations that adopt ABC tend to be motivated by a desire “for technical or efficiency gains and related boosts to economic performance” (Kennedy & Fiss, 2009, p. 897). On the other side, organizations tend to imitate other organizations in order to appear legitimated in the eyes of powerful constituents, peer organizations, and outside stakeholders (Ansari, Fiss, & Zajac, 2010; DiMaggio & Powel, 1983; Kennedy & Fiss, 2009). For that reason, social logics may affect the diffusion process of ABC through institutional pressure, such as those created by consultants, professional

³ For a detail explanation, on the technological logics of ABC, see for instance the work of Kaplan and Cooper, (1998).

accounting associations and education, promoting the institutionalization of ABC. As stated by [Gosselin, \(2007\)](#), “ABC has now been incorporated in most management accounting courses offered in Organization for Economic Co-operation and development (OECD) country universities and in management accounting textbooks (...) Accounting institutes are also providing executive training on ABC to their members” (p. 642). Since the ABC technique is institutionalized in society, through books, articles, cases, and numerous seminars and conferences ([Cooper, Kaplan, Maisel, Morrissey & Oehm, 1992](#)), organizations tend to implement it, recognizing that the ABC is a taken-for-granted practice, accepted by their social actors.

I wrote this brief note to argue that ABC is an institution, that is, it has embedded the material (practice) and the symbolic, which are intertwined and constituted of one another, but we need further explanations on why institutional actors cope with institutions and institutional logics during the process of adoption (acceptance and implementation). In the next sections, I continue outlining the theoretical orientation that permits to discuss the findings of this research.

2.2. Institutional logics and managements decisions

The institutional logics perspective is a metatheoretical framework for analysing the interrelationships between institutions, individuals and organizations in social systems, allowing researchers to study how individual and organizational actors are influenced by institutional environments ([Thornton, Ocasio & Lounsbury, 2012](#)). That is, individuals and organizations (i.e. actors) are embedded within prevailing institutional logics that shape and influence their actions.

The term institutional logics was first introduced in the work of [Friedland and Alford \(1991\)](#), criticizing the theory of [DiMaggio and Powell \(1983, 1991\)](#), arguing that such theory does not adequately explain the success and failure of institutionalization, because it does not consider the interests and actions of actors. [Friedland and Alford \(1991\)](#), state that “each of the most important institutional orders of contemporary Western societies has a central logic – a set of material practices and symbolic constructions – which constitutes its organizing principles, and which is available to organizations and individuals to elaborate” (p. 248). These logics of actions, which exist in the field level, are: (1) the market, (2) the corporation, (3) the professions, (4) the family, (5) the religions, (6) the state ([Thornton, 2004](#)) and community ([Thornton, Ocasio & Lounsbury, 2012](#)).

Institutional logics provide a bridge between the macro (institutions) and the micro (actions) (Thornton & Ocasio, 2008). Thornton and Ocasio (1999) defined institutional logics “as the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality. Institutional logics are both material and symbolic—they provide the formal and informal rules of action, interaction, and interpretation that guide and constrain decision makers in accomplishing the organization’s tasks and in obtaining social status, credits, penalties, and rewards in the process. These rules constitute a set of assumptions and values, usually implicit, about how to interpret organizational reality, what constitutes appropriate behaviour, and how to succeed” (p. 804).

Organizations are complex entities, influenced by a diverse variety of internal and external aspects of organizational life (Greenwood & Hinings, 1996) that combine multiple institutional logics (Besharov & Smith, 2014), that is, institutional complexity, in their efforts. Greenwood, Díaz, Li and Lorente, (2010) coined the notion of institutional complexity to refer “to organizational environments where actors are influenced by varied signals and pressures stemming from multiple institutional logics” (Thornton, Ocasio & Lounsbury, 2012, p. 140). Such institutional complexity can generate innovative solutions to complex problems (Jay, 2013) or produce tensions and delays (Raaijmakers, Vermeulen, Meeus & Zietsma, 2015) during the decision-making process of the organizational actors.

Despite some recent progress in the study of institutional complexity, more work needs to be done in order to find the reasons that influence actors’ decision making in the adoption of new management techniques (like the ABC technique) in response to multiple institutional logics (Pernkopf-Konhäusner, 2014) inside organizations (Greenwood, Díaz, Li & Lorente 2010).

2.3. Institutional work and adaptations of management practices/techniques

The concept of institutional work refers to the “purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (Lawrence & Suddaby, 2006, p. 215); emphasizing three main aspects: “it depicts institutional actors as reflexive, goal-oriented and capable, it focuses on actors’ actions as the centre of institutional dynamics, and it strives to capture structure, agency and their interrelations” (Lawrence, Leca & Zilber, 2013, p. 1024). In other words, the institutional work approach aims to study how action and actors affect institutions (Lawrence, Suddaby & Leca, 2009). Despite recent research on the creation, maintenance and disruption of institutions have been conducted, until now I

did not find any paper regarding the issue of why and how actors adapt institutions and how these adaptations promote the foundations for the creation of new institutions and logics. This gap opens an avenue to understand what happens when individual actors intentionally produce efforts to adapt institutions in order to manage institutional contradictions (Hargrave & Van de Ven, 2009). That is, the study of adaptations during the process of adoption of a management practice or technique seems to be an opportunity for understanding how individual actors intentionally engage in institutional work (Battilana & D'Aunno, 2009), especially when such individuals have to cope with contradictions (Seo & Creed, 2002). This is important because we still know little about 'the concrete practices employed by actors in relation to institutions' (Lawrence, Suddaby & Leca, 2009, p. 10). There is a scant research on the work produced intentionally by individual actors. The intentionally and the day-to-day efforts that individual actors produce to create, maintain, and disrupt institutions make the difference between institutional entrepreneurs and institutional work. In the former approach, researchers have tended to explore institutions' change, rather than the experience, motivations and activities of how and why individuals change institutions (Lawrence, Suddaby & Leca, 2011). The concept of institutional work promotes the persistent recursive interaction between agency and institutions (Lawrence, Suddaby & Leca, 2011). This means that the reproduction and continuation of institutions cannot be taken for granted (Lawrence & Suddaby, 2006), because institutions and action exist in a recursive relationship, in which institutions provide templates for action and action affects those templates (Lawrence, Suddaby & Leca, 2009). In this study, I posit that such recursive mechanism, between institutions and action, is conducted by the adaptations that individual actors enact in action during the process of the reproduction of the institution. That is, it is the process in which institutionalized management techniques are transformed by individual actors to fit into a new organizational context (Ansari et al. 2010) face to their institutional contradictions.

In organizational theory, "studies in an institutionalist tradition have shown how, when an organization adopts new practices or techniques, they often adapt to increase their fit with the technology, culture, strategy, and politics of the organization by recombining elements of 'templates' that are commonly accepted at the time of adoption" (Canato, Ravasi & Phillips, 2013, p. 1725). Building on this body of research, Ansari et al. (2010) developed a framework to understand how practices (hereafter I will call it techniques) are adapted and fit during the implementation process. In a similar institutional perspective, Gondo and Amis (2013) developed a framework, based on two dimensions –acceptance and implementation– to understand how practice adoption takes place. Both frameworks discuss reasons for variations during implementation; however, Gondo and Amis (2013) articulate the reasons for unintended

adaptations, while [Ansari et al. \(2010\)](#) focus on intended adaptations. In this research work the focus was on both the intended and unintended adaptations made by institutional workers. In spite of institutional work having intentions for creating, maintaining and disrupting institutions ([Lawrence, Suddaby & Leca, 2009](#)), individuals may unconsciously be led to do unintended adaptations in such institutions ([Lawrence, Suddaby & Leca, 2011](#)).

According to [Ansari et al. \(2010\)](#), adaptation refers “to the process by which an adopter strives to create a better fit between an external practice (or technique) and the adopter’s particular needs to increase its ‘zone of acceptance’ during implementation. This adaptation process may involve changes in how a practice is ‘framed’ over time or it may involve change in the actual implementation of the practice, as when different versions of the same practice are adopted at different points in the diffusion process” (p. 71). Adaptation can occur in the practice, in the organization, and both in the practice and in the organization (mutual adaptation) ([Ansari, Reinecke & Spaan, 2014](#)). In this research, the focus is on the high adaptation of the ABC technique and in the low adaptation of the organization.

[Ansari et al. \(2010\)](#) argue that adaptation involves two key dimensions: fidelity and extensiveness. According to these authors, fidelity “relates to whether the adapted practice resembles or deviates in kind from the features of the previous version of the practice as it is transmitted” (p. 71). That is, it measures how similar these implementations are to previous versions of the practice ([Fiss, Kennedy & Davis, 2012](#)). Prototypes are very appropriate to map the possible variations in an evolving practice over time. In the ABC practice, this concept can be related to the level of dosage that the company want to apply in order to implement the ABC. For example, if a company wants to implement the ABC only to do product costing or if it wants to do activities and processes analyses based on the cost drivers’ information. And thus, for instance, taking actions for cost reduction, evaluating for the activity-based management (ABM) philosophy.

Extensiveness assesses whether the degree of practice/technique implementation is higher or lower than that of the previous version of the practice. This concept is closer to the notion of scale of implementation, which measures the degree of the implementation of the practice ([Fiss et al., 2012](#)). For instance, in the ABC practice, if the company would design and install an ABC system for only one aspect of an organization such as a department or a product line ([Gosselin, 2007](#)), the level of extensiveness would be low.

In short, according to [Ansari et al. \(2010\)](#), practices or techniques are “high in fidelity but not extensive when they are truer to the previous version – but not comprehensively implemented. Practices

are extensive but low in fidelity if comprehensively implemented – but not true to the previous version” (p. 72).

Furthermore, following the [Ansari et al. \(2010\)](#) framework technical, cultural, and political incompatibilities or misfits trigger different patterns of adaptations among adopters ([Ansari et al., 2014](#)). In this sense, individuals need to cope with three forms of fit (technical, cultural, and political) in order to adapt the institutionalized management technique to the organizational context. Technical fit refers to the degree to which the characteristics of a practice are compatible with the technological base and the sophistication level of the systems already in use by potential adopters. Cultural fit refers to the degree to which a practice is compatible with the cultural values of adopters. Political fit refers to the degree to which a practice is compatible with the interests, power structures and agendas of individuals and dominant coalitions in an organization ([Ansari et al., 2014](#))

Such concepts, exposed in the previous paragraphs, are ideal types, providing logics for studying variations in the practice adoption. However, there is scant research showing, at the micro level, how actors cope with those ideal types. Regarding this, more studies are needed to investigate how and why individuals become motivated and enabled for changing the taken for granted management techniques, which should be viewed as institutions that organizations adopt. I believe that the intertwining of the recent sociology of institutional work with the concepts of variations and adaptations in the adoption of new management techniques or practices provide a powerful theoretical lens to explain how individuals change and create institutions in action. The combination of such theoretical approaches can also contribute to the debate on the ‘paradox embedded agency’ ([Battilana & D’Aunno, 2009](#); [Seo & Creed, 2002](#)). That is, “how can actors change institutions if their actions, intentions, and rationality are all conditioned by the very institution they wish to change?” ([Holm, 1995, p. 398](#)). To resolve this paradox [Battilana and D’Aunno, \(2009\)](#) refer that it is important to take into account the interrelationships between individuals and institutions, because institutions shape people’s practices, but at the same time it is also people’s practice that create, maintain and disrupt institutions.

3. Research questions and methods

Several studies have focused on the institutional reasons (macro-level) in which practices have been adopted by organizations. Others have focused on the technical process of the practice (i.e. micro-level), but few are the studies that relate the external factors with the internal factors that occur during the

process of a management technique acceptance and implementation. As stated by [Feldman and Orlikowski, \(2011, p. 8\)](#), “the mutually constitutive relationship between actions and institutions is rarely engaged or actively theorized”. That is, (1) on the one hand, more studies are needed to understand how and why individuals on the ground of the actions cope with institutional complexity in a top-down perspective, and (2) on the other hand, it is important to know how and why individuals, performing their work as professionals, change and create new institutions in a bottom-up perspective. Since this study aims to make the relationship between the macro and the micro level, it seems that it can also attempt to find some explanations to unfold the ‘paradox of the embedded agency’ and to provide insights for the microfoundations of institutions and institutional logics. The set of research questions that motivated this study are the following:

Researcher questions:

- *Why did PortechCo accept to implement the ABC technique?*
- *Why and how the ABC project was adapted during the implementation process?*
- *Why did variations occur between the prototypical version of the ABC project and the final ABC model adopted?*

To address the questions outlined above, I investigated the process of acceptance and implementation of ABC at PortechCo. The acceptance and implementation of ABC at PortechCo can be considered a relevant case because it is a complex and fast-growing company.

As suggested by [Gondo and Amis \(2013\)](#), I investigated the acceptance and implementation dimensions in two distinct phases (see Figure 16). The acceptance phase reports to the historical period until the acceptance decision to initiate the implementation of ABC project in September 2011. I also account my own experience lived between July and September of 2011 because I was the person chosen to design and implement the ABC project. The implementation phase reports the real time period that I intervened at PortechCo, between September 2011 and January 2014.

To investigate this case, I adopted a qualitative approach. Because the features of qualitative work are its methodological plurality ([Bansal & Corley, 2011](#)), in each of these phases different qualitative methods were applied. As I was an actor of the process of acceptance and implementation of ABC at PortechCo, this study is also an interventionist research ([Jönsson & Lukka, 2007](#)). In this research, I have played a strong intervention ([Jönsson & Lukka, 2007](#)), because I was the person responsible to design,

implement and work mostly with the ABC system in the company. As I was engaged in all the phases of the ABC adoption process, I applied, also autoethnographic methods (Denzin, 2014; Ellis, 2004). That is, I interacted with the phenomenon under study, and for that reason I cannot be separated from the study – I am respectively also the subject of study (Richardson & Pierre, 2005). This brings the reader closer to the phenomenon being studied, engaging it in the researcher’s eyes and in the informants’ experiences (Bansal & Corley, 2011).

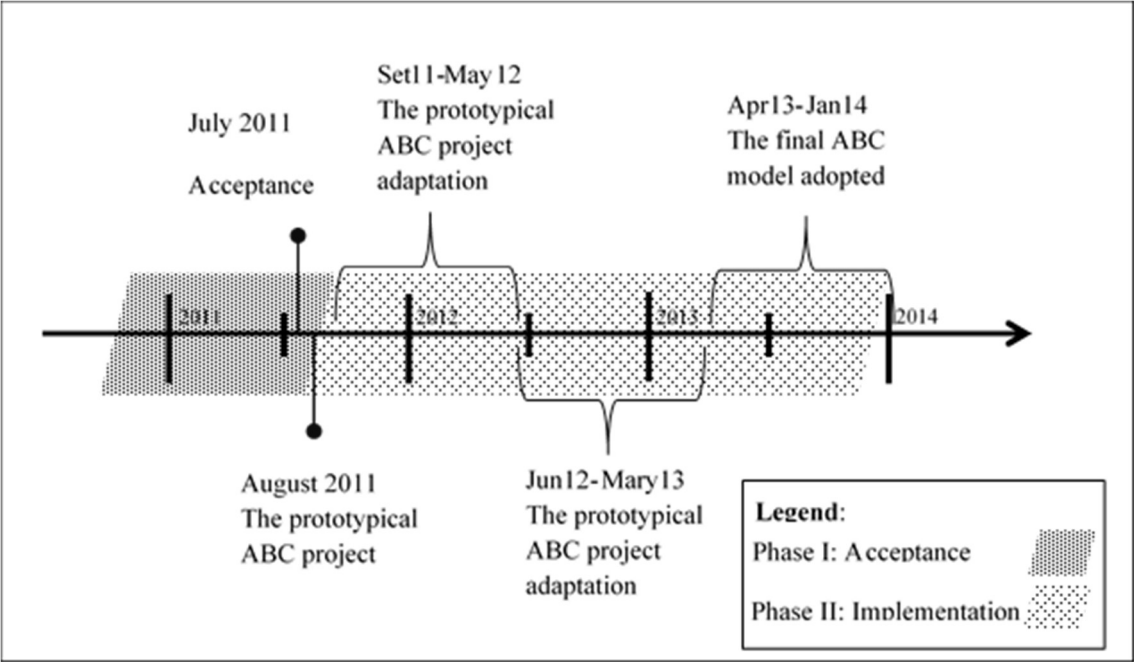


Figure 16 - Timeline and phases of the study

3.1. Research Setting

With over 20 years in the industry, PortechCo is dedicated to the production and distribution of goods and technology products, with well-known brands within the national and international market. In recent years, business processes and production, as well as several of its nuclear activities, have become more complex and required appropriate management tools. On the other hand, the product portfolio and customer basis has also been diversified considerably. The company’s sales increased very rapidly, but that sacrificed the margins and affected the earnings. In this scenario, it was important to understand the contribution of the different market segments to the total profit. In 2009, the levels of indirect costs were quite different from 2007 and far from the situation at the beginning of the 2000 decade, showing profound changes in the company and in its business model. In 2011, the company presented a higher percentage of fixed costs and indirect costs. The business is more complex with a larger customer

portfolio and a diversified product portfolio. In just two years, between 2007 and 2009, indirect costs have grown by about 11 million euro, exceeding 18 million euro in total, requiring a better knowledge of their behaviour and origin. Overall, personnel costs and financial costs accounted for more than 15 million euro in 2009. Moreover, in 2008, a deeper transformation occurred in the business, with implications in PortechCo, resulting in profound changes in its business strategy. With the launch of a new product in 2008, PortechCo started a new business area, with special features and requirements, not only in terms of products offered, but also regarding the business model and in terms of target markets, taking on a clear strategy of internationalization. The new business area has, as one of its strategic objectives, the regular release of new products, features and the appropriate price for this specific market. Thus, a new operating segment was defined. This segment was more complex than the traditional one operated by the company, requiring the adoption of a more complex cost management system to costing products and customers. In 2013, PortechCo was undertaking a process of growth and internationalization. In 2010, exports had a weight of 49% in sales and in 2012 exports reached 67% of sales. In that time, PortechCo was positioned as one of the major exporters of Portugal.

3.2. The study of the acceptance phase

A combination of archival material, observations, hallway conversations and interviews were necessary to interpret this phase.

Firstly, I began to collect all the institutional documentation of PortechCo, whether financial or organizational. The 2009 and 2010 annual reports and internal documents related to the company's business were collected. These documents helped me to understand the evolution of the company, its fast growth, and its complexity. Another important document was the report that the CFO had produced on the company's costing system. The 11-pages CFO's report described the current state of the company's costing system, providing concerns and reflections on future developments, which would allow a better measurement of the profitability of each business area. Observations on the ground and hallway conversations were collected only during the implementation phase of ABC. These data were important, to understand all the reports and to observe in loco through other 'voices' the concerns revealed by the CFO's report, as well to know better the company history. Nonetheless, I realized that I needed more information to understand what led the company to decide for the implementation of the ABC system. To achieve a better understanding of all the data that I have mentioned previously, interviews were conducted

with the ROC (statutory auditor) and the CFO. The interviews⁴ were conducted over the years 2012, 2013 and 2014. Interviews are an appropriate method when one intends to explain and achieve a deep understanding of something related to the social process, social change, social organization or social meaning (Mason, 2002; Saunders, Lewis & Thornhill, 2009).

The interviews were conducted in the form of conversation to cross check the information that I had already collected. More than confirm the data I had, I wanted to find other less obvious aspects that could have influenced the decision related to the adoption of the ABC system. Thus, during interviews I tried to introduce tension and conflict to provoke and keep an open conversation, in order to challenge the interviewee to take a different line of thought (Kreiner & Mouritsen, 2005). Thus, the interviews turned into dialogues between respondents and myself, who freely generated knowledge to my research. The CFO interviews were conducted over a course of one year enabling to see different logics of the same problem and to open avenues to understand other contexts over time. The interviews were tape recorded and transcribed. Then, the interviews were analysed and triangulated with the data collected on the ground of actions.

The interviews with the CFO and the ROC were used as the principal means of data collection in this phase. Interviews were performed in Portuguese (the mother tongue of interviewees and the interviewer). Reports on the interviews were sent to respondents to correct errors and misinterpretations of what was stated or observed. This procedure also provides the interviewees with the opportunity to volunteer additional information and to summarize information. Finally, it reinforces the data by having the participant's confirmation on what was said and observed. The transcription of the interviews was in Portuguese to avoid the distortion of idiomatic terms and particular meanings in the data analysis. The interview transcriptions were translated after the data analysis, when writing up the findings.

The interviews lasted approximately 57 minutes on average. Their specific purpose was to determine the main reasons for the adoption of a management accounting system and the identity of the main institutional and competitive factors influencing the adoption of the ABC system. A list of interview topics was provided to participants in advance. This promoted validity and reliability by enabling the interviewee to prepare in advance the information being requested. A conscious effort was made to avoid influencing the views of respondents with personal perspectives. Several other sources of data were used to collect evidence concerning the process of implementing the new management accounting system.

⁴ See Table A in the appendix section

These included the annual reports and a CFO report. These data provided supplementary evidence that facilitated comparison and corroboration (triangulation) of the information collected through formal interviews.

3.3. The study of the implementation phase

During the intervention phase, and similarly to what occurs in a case study (Yin, 2003) and in ethnographies (Hammersley & Atkinson, 2007), I collected evidence of the empirical facts observed directly from the research field. In this case, I kept a diary, a logbook of detailed fieldwork conducted over the implementation phase. In this period, I conducted several meetings in various departments. I made analysis of reports and documents and I did direct observation of the organization situation, through the ethnographic perspective. In this period, I played also a 'strong intervention' (Jönsson & Lukka, 2007) at PortechCo, working three and a half days per week. The access to company information was agreed to in advance by allowing greater ease of data access, always safeguarding, however, confidentiality. The narration of facts was performed by me in the light of my lived experience (Denzin, 2014; Ellis, 2004); and by my practical involvement, as an interventionist researcher (Jönsson & Lukka, 2007) in the process of the ABC implementation and organizational change at PortechCo. After the field intervention, I preceded two stages to analyse the information collected (as proposed by Jönsson and Lukka, (2007): (1) reverse engineering and (2) recontextualization. The reverse engineering held after the intervention began at the end so that I could draw patterns of causality, proceeding to compare the differences between the ex-ante and ex-post. The last step before writing the report was the recontextualization of the results and their consistency with the domain theory (ABC) and the method theories (institutional logics; institutional work, practice variations) to do the connexion between such theories and the researcher's intervention (Lukka & Vinnari, 2014). In this phase interviews were also conducted (see Table A) in the format of analytical conversation (Kreiner & Mouritsen, 2005) to corroborate with the data collected for a better recontextualization of the intervention.

4. Findings

Contrary to previous studies that considered the acceptance and implementation as synonyms during the adoption process, Gondo and Amis (2013) suggest that the process of adoption needs to be studied separately and split into two dimensions: (1) acceptance and (2) implementation. Thus, and according to

Gondo and Amis (2013), in this essay, the findings are divided into two phases separately in order to explore the variations between the decision to accept the prototype ABC project, and the final ABC model implemented and accepted by PorttechCo.

4.1. Phase 1: The acceptance of ABC

In this phase, I posit two institutional logics to describe why and how PorttechCo decided to accept the ABC technique. These logics are: (1) the business's logic, and (2) the stakeholders' logics. The business logic, in this case, represents the actions and strategies that PorttechCo took in order to be competitive. It represents also the mission, the values, the culture and the vision of the entire company. In addition, the concept is limited (but not exclusive) to the internal organization and those who engage in economic transactions with the business like the clients at the market level. Stakeholders' logic refers to the external partners who have interests in the company but cannot control the company. To simplify, I could call them secondary stakeholders, which represent the government, creditors, investors, and auditors.

This phase finishes with the decision to accept the ABC and the production of the ABC project according to the "Statements on Management Accounting" developed by IMA (Institute of Management Accountants).

4.1.1. The business logic

In recent years, the business and production processes of PorttechCo, as well as several of its nuclear activities, have become more complex requiring appropriate management tools. The product portfolio and customer basis have also diversified considerably. The company's sales increased very rapidly, but such growth sacrificed the margins and affected the earnings.

In 2009, the levels of indirect costs were quite different from 2007 and far from the situation at the beginning of the 2000 decade, showing profound changes in the company and in its business model.

PorttechCo's business is more complex due to a larger customer portfolio and a diversified product portfolio. In just two years, between 2007 and 2009, indirect costs have grown by roughly 11 million euro, exceeding in total 18 million euro, requiring therefore a better knowledge of their behaviour and origin.

Overall, personnel and financial costs accounted for more than 15 million euro in 2009. Moreover, in 2008, a deeper transformation occurred in PorttechCo, resulting in profound changes in its

business strategy. Indeed, with the launch of a new product in 2008, PortechCo started a new business area (manufacturing). This new business had special features and requirements, not only in terms of products offered, but also regarding the business model and target market, aiming to take on a clear strategy of internationalization.

This new business area had, as one of its strategic objectives, the regular release of new products, features and the appropriate price for this specific market. Thus, it is defined as a new “Operating Segment”, more complex than the traditional one operated by the company (Distribution), requiring the adoption of more complex management costs systems for costing products, customers and other relevant cost objects.

During 2011, PortechCo recognized the need for a better understanding of the profitability of its business areas. Although the company had generated a large profit in 2010, there were doubts concerning what areas of business were contributing positively to the profit. According to the CFO report from 2011, the information and analyses performed by the company were controversial. It did not seem to help the process of decision making at the strategic and operational management levels of the company. The CFO report (2011) highlighted: (1) doubts about the accuracy of the calculated margins, (2) difficulty in the decision-making about whether to keep or to abandon products, activities, customers and distribution channels, (3) difficulty in the analysis of the costs and profitability of new products and special orders, (4) many problems understanding the key performance indicators (KPI) of competitors, and (5) difficulties related to the investment in new business areas.

“During the recent rapid process of growth and change it was perceived the necessity to rethink the costing system and cost management practices in PortechCo” ([CFO Report, 2011](#)).

Managers of different business areas began to question the consistency and accuracy of the calculated net margins. There were many questions and not enough information to make decisions about whether the company should leave some products on the basis that they were not profitable. Regarding new products or ‘special orders’, the belief, in the company, was that the decision making is a complex task, occupying many people and too much time. Additionally, PortechCo showed difficulties to understand competitors’ price.

“According to our calculations and perception, competitors act in a way that seems to indicate they are ‘losing money’ because of their incomprehensibly low prices. Additionally, they offer to customers payments periods that are incomprehensibly large” (CFO Report, 2011).

Since 2000, PortechCo has grown in turnover and number of employees. The management control and decision support system that existed needed to be improved urgently.

“PortechCo recognizes the critical need to improve its cost management in order to understand the contribution of each of the existing market segments to the overall profit” (CFO Report, 2011).

PortechCo explicitly recognized the need to rethink the costing system and cost management practices. The company was aware of the importance to know more about their indirect costs and how they influenced profit. Top managers and directors felt the need for a better costing system based on a better understanding of cost objects, cost centres and, especially, cost drivers that permitted to monitor the performance of their activities. The CFO stated the following:

“The company had adequate information on its reality in the past. [But,] the reality of the business has been changing radically. [We need] different solutions for different realities [...] the company until 2008 had a single business area [Distribution] that was simple to analyse. This is because the cost of raw materials represented around 95% of total costs and we did not need to have a sophisticated cost system to measure [the profitability]. Once there is a need to have information in new business areas, with more customers and more products, it is necessary to make adaptations and acquire different management tools. Cost analysis is an important issue and therefore, it is necessary to refine [improve] this problematic issue. This was what we intended to do with the ‘introduction’ of the ABC” (CFO interview, August 2013, my translation).

4.1.2. Stakeholder’s logic and the need to have more information

PortechCo is legally audited since 2002, presenting clean audit reports. However, in 2007, with the company’s fast-growing process, the business complexity and the difficulty to access credit, PortechCo began to think of registration, at medium term, in the CMVM (*Comissão do Mercado de Valores*

Mobiliários – Portuguese Stock Exchange Commission). This led PortechCo to hire the services of one of the big four audit firms (hereafter Big4).

“The hiring of Big4 aims to meet a requirement of CMVM, which establishes that companies wishing to be registered at the CMVM are required to be audited, at least during five consecutive years by one of the auditing firms registered at the CMVM” (CFO interview, February 2012, my translation).

“Traditional companies only think about raising capital in banking. A company like PortechCo needs to have a wider vision and to be listed on the stock exchange is a possibility that is present in our strategic horizon” (CFO interview, August 2013, my translation).

Thus, since 2007 PortechCo had had two audit reports: (1) The external auditor report conducted by the ROC firm and (2) the external auditor report prepared by the Big4 consultant company.

One important recommendation provided by Big4, in 2010, was the improvement of the internal control of management accounting information, suggesting that more analytical information should be provided. The reports issued by Big4 had been suggesting that PortechCo should have more rigorous information on the profitability of the business, as well as more information on the cost structure.

This type of information cannot be provided by financial accounting statements, which are prepared in accordance with the national accounting standards, that is SNC – *Sistema de Normalização Contabilística*. Since the company intended to be listed on the stock exchange, it was necessary to adopt all IAS⁵/IFRS⁶, including the IFRS8 ‘Operating Segments’. According to this, it has been suggested that PortechCo should implement a more analytical cost management system, in order to calculate the costs and profits of each of its operating segments (the business areas).

“Companies that want to be listed and registered at the CMVM are recommended to disclose accounting, tax and management information as detailed as possible. This is not to say that the CMVM wants to impose a specific cost accounting system. However, CMVM recommends that

⁵ International Accounting Standards

⁶ International Financial Reporting standards

companies have an internal control system that provides transparent and accurate information. In fiscal terms, it is assumed that an industrial company may have cost accounting systems that allow to measure their finished products. PortechCo aims to be listed on the stock exchange in the medium-term. Regarding the products, PortechCo uses a standard costing system. However, it cannot show the actual costs incurred in the period in order to determine the deviations and to correct the standard cost” (ROC Interview, February 2012, my translation).

Additionally, the banks and credit insurance companies had been seeking for more analytical information about PortechCo’s business markets. This idea was reinforced by the ROC in the following interview.

“In order to respond to the 'pressures' of funding entities', we have suggested that the company [...] reports financial information by segment for: (1) helping the company and stakeholders to understand the [company's] performance, (2) improving the assessment of risks and returns of the entity and (3) assessing the performance of the entity as a whole. The income statement by function and the performance by operating segments improve the process of decision making. For the preparation of the income statement by function and reporting by segment it is necessary that the company adopts an [appropriated] cost accounting system” (ROC Interview, February 2012, my translation).

In respect to these issues the CFO highlights that:

“There is a need to provide more information in order to have a quicker and cheaper access to credit” (CFO interview, February 2012, my translation).

These organizations (creditors) want to know where the business adds value, since they do not want to fund activities or “Operating Segments” that show low profitability. Therefore, they have made recommendations and have requested further analytical information that will allow PortechCo to have access to credit and to reduce the cost of capital. Both banks and credit insurance companies required PortechCo to have more information on international projects and on “Operating Segments”.

Another issue was the inventory system. Regarding inventory measurement, according to the ROC, it was noted that by 2008 the finished products, manufactured (assembled) and sold, represented a low weight in the turnover of the company. In 2008, as a result of the strategic decision of manufacturing a new product, the company had a large increase in the turnover of finished goods. Following the above recommendations, the ROC recommended PortechCo to adopt a standard cost system, with the calculation of real costs and respective deviations.

4.1.3. Accepting the ABC in response to institutional logics

Two main reasons were found in this case that influenced PortechCo to accept the ABC. Firstly, the academic knowledge of CFO on ABC. Secondly, the ABC project proposed by the researcher to be implemented in PortechCo.

First reason. PortechCo had knowledge about the ABC technique through the CFO. The first contact that the CFO had with the ABC was during his degree in economics, specifically in the cost accounting course. Then, during the MBI (master's in business information), he has contacted again with the ABC concepts. In 2011, the CFO entered a postgraduate degree in Management Control and he received specific training in cost management practices. In the following statement, the CFO highlights the importance of such postgraduate degree.

“The degree [in management control] allowed the contact with some tools [ABC, ABM, TDABC⁷, target costing] that can be used by the company [...] it was also important because I had contact with other people, with other realities and it is always very important and fundamental to acquire new knowledge” (CFO interview, 16th August 2013, my translation).

During that time, the CFO also participated in a workshop on TDABC, which has increased the interest and the belief that it was necessary to apply activity-based cost accounting practices at PortechCo.

Second reason. In June 2011, I was admitted in a doctoral program and I began to look for a company to do an interventionist research on the process of the design and implementation of an ABC system. In the middle of June, by email, I began to contact big companies located in the north of Portugal.

⁷ Time-Driven Activity-Based Costing

On 11th July 2011, I sent an email to PortechCo with an invitation to participate in the project. The following transcript is part of the email sent with the message about the purpose of a doctoral study in the industry.

“[...] Through this research project, I intend to implement, validate and explore a system of performance and cost management, probably using the activity-based costing and management (ABC/ABM) technique. [...] The main goals of this project are: (1) to obtain a better knowledge of the cost of resources, activities and business processes, and (2) to measure product costs and the profitability of the clients and other cost object that the company intends to measure. Consequently, the aim is to trigger actions to improve the company’s performance and to reduce costs” ([email sent to PortechCo, July 2011](#)).

This email reached the CFO that saw the ABC project as an opportunity to respond to the pressures of business and stakeholder’s logics. Through the ABC system, PortechCo could have more analytical information about the business. Regarding these arguments, the CFO stated the following:

“To have the knowledge about the evolution and the behaviour of costs is important. From the moment that a new business area was introduced, the company becomes more complex with different types of relevant cost objects. Thus, cost management techniques, as ABC, allows a better understanding of the performance and the cause of costs in an organization. [...] [Furthermore] we have gone from a “period” that was relatively easy to access credit... The changes in the financial system brought by the Basel agreement have put greater pressure on credit. For further credit, banks, and financial institutions, have to meet certain requirements, such as the stipulated by the Basel agreements, which came to change the paradigm of the credit granting and regulate somehow a set of requirements. One key aspect is information. The more information and more transparency are transmitted to the financial partners, the better. [...] The analytical information is increasingly a valuable asset, not only for internal management but also to our stakeholders” ([CFO interview, 16th August 2013, my translation](#)).

On the 13th of July, PortechCo called me to have a meeting about the doctoral project. In that meeting, I presented very succinctly the project and the ABC concepts to the CEO (owner) and to the CFO of the company. On the 15th of July, they decided to initiate the ABC project starting in September 2011.

4.1.4. The prototypical ABC project (high fidelity to ABC)

The next step was to build the ABC project report. In August 2011, I developed the project following the best practices of the ABC implementation. It was also supported by the detailed 2011 CFO report. The CFO Report (2011) described the main concerns about cost management at PortechCo, as stated in the following sentence.

“Changes in market conditions and nature of business had implications in terms of behaviour and cost management, calling for the creation of a new costing system and new processes and tools to control and manage costs, appropriately framed with the company strategy” (CFO Report, 2011, my translation).

The implementation of the ABC project was based on seven major steps, shown in Table 5, to be concluded over 30 months.

Table 5 - ABC project implementation stages

Stage	Description
1	Diagnosing the company
2	Planning the ABC project
3	Defining activities and processes
4	Developing the ABC conceptual model
5	Implementing the ABC system
6	Interpreting the ABC data and improving the ABC system
7	Ensuring ongoing system requirements

The ABC project adopted the assumptions contemplated in the IMA (Institute of Management Accountants) “Statements on Management Accounting”, with the title “Tools and Techniques for Implementing ABC/ABM”. This reference for the tools and techniques used in the implementation of ABC was developed by IMA with the collaboration of consulting companies, academics, and other specialized

organizations in cost management. In the acknowledgment section of such manuscript, one can find the following statement:

“This statement was approved for issuance as a Statement on Management Accounting by the Management Accounting Committee (MAC) of the Institute of Management Accountants (IMA®). IMA appreciates the collaborative efforts of the Cost Management Competency Center at Arthur Andersen LLP and the work of Dr. C.J. McNair, CMA, of Babson College, who drafted the manuscript. Special thanks go to Randolph Holst, CMA, Knowledge Manager at Arthur Andersen, for his continuing oversight during the development of the Statement. IMA thanks the Consortium for Advanced Manufacturing-International (CAM-I) for their support in the development of this SMA. IMA is also grateful to the members of the Management Accounting Committee for their contributions to this effort” (kept in the original, IMA 2000)

The ABC project intended to implement the ABC technique in all departments of PortechCo and explore all the concepts that this technique provides, with special attention to the measurement of the performance of activities and business processes. Once PortechCo did not have any specific cost accounting system, I had freedom to develop a full ABC project, which also included the ABM philosophy.

4.2. Phase II: The implementation process

This phase reports the implementation process and explores the work done by me and by the professionals at the level of actions to implement and adapt the ABC technique in order to fit it with the technical, cultural and political features of PortechCo.

4.2.1. The adaptation of the prototypical ABC towards the implementation of the pilot ABC: the first tailored adaptation

I entered the company on 1st September 2011. My workplace was in the Financial Department (FD), near the CFO. I was able to access all the accounting and financial information needed to develop the conceptual ABC model.

I began the diagnosis of PortechCo together with the Quality Manager, who was in the process of redesigning the quality system. Through several meetings with all the departments, I was able to understand the production and business processes of the company.

PortechCo –a fast growing company– was in a process of change. The complexity of the ABC implementation was soon noticed as it can be observed in the following conversation, I had with the Quality Manager (QM) in September 2011.

“QM:

This firm is very complex and will not be easy to implement the ABC project in the entire company!

Raúl (The interventionist actor):

But the industrial process seems to be simple compared to other companies I've seen.

QM:

Yes, but this company also has a distribution business.

Raúl:

But the processes associated with buying and selling [distribution] are usually simpler than industrial processes.

QM:

Yes, but these two major business areas operate as if they were two companies. The level of complexity is huge because there is a lot of interaction between them. You will understand it better over time.

Raúl:

I see. Only after the diagnosis, I will realize how possible it is to implement an ABC system here”.

Observing the reality of the company, I began to realize that I had to make several fits to the initial ABC project. I had to simplify the project so that it could work in the short term. During the diagnosis stage, I talked with the CFO explaining that it was necessary to create cost centres by departments and specific cost centres to group the business support costs.

* * *

In early 2011, the CFO had launched a small cost project with five cost centres. At that time, the classification of all expenses into these cost centres, which in fact were four cost objects, began to measure the business at a very high level and one cost object to group all the support costs. In spite of the very simplistic cost model, some individuals (for example, FD) had already begun to incorporate a new culture about the classifications of expenses into those five cost centres.

* * *

Regarding the cost objects, the first conceptual ABC model was drawn to measure the cost object hierarchy based on three levels. In the first level, the intention was to measure all the products' families and new projects. In the second level, the clients were grouped by segments. In the third level, the market segments were grouped into the two main business areas of the company. In the ABC project report, the ABC technique was described with the intention to measure the company's profitability of all its customers and products, but in order to accelerate the implementation this was put aside. With a better understanding of the reality of the company, and through several developments of the conceptual cost model, the need to simplify and to adapt the initial ABC project in order to be implemented and applied to the entire company was evident.

In October 2011, I had already a simplified draft of the ABC model to be implemented. These simplifications had the acceptance of the CFO. The first meeting and presentation of the conceptual model was held on 23rd November 2011. The conceptual model was presented to the CEO, CFO and to a new collaborator (hereafter called by ADV) who was hired to advise and to help in the coordination of top management activities and help the company's owners with the decision-making. ADV would also be the project coordinator of the new ERP system that PortechCo would begin to implement in the middle of 2012. This new actor brought in a big experience in multinational companies and the goal was to counsel guide the owners and the managers with the best international management practices.

In this brief meeting with the CEO, CFO and ADV, the CEO said that he needed information, with a high level of detail, reported quarterly. He noticed that only the board of directors could access the ABC information. Moreover, it was determined by ADV that the ABC project had to be aligned with the new ERP software. Despite the international experience of this new actor, he was not familiar with the ABC

technique. His focus was more on the information that the ERP would provide through the use of business intelligence (BI) tools. I knew that BI is an excellent tool to extract and process large volumes of data but it is not a methodology to measure the profitability of cost objects. The first divergence between us is evidenced in the following dialogue.

“Raúl:

The ABC is a good management cost technique to measure the profitability of the company.

ADV:

In this new ERP system, we can do the same thing if we connect a BI solution to the ERP system.

Raúl:

I am sorry, but I think we are not talking about the same thing!

ADV:

With the BI tool, we can have the information through OLAP analyses to visualize the data on the perspective we need.

Raúl:

I know...but... the ABC is a methodology, which permits the assignment of the costs through several stages in order to measure products, customers and even business processes. The BI is not a cost methodology. It is only an excellent data extractor, which can also be interconnected with the ABC software.

ADV:

We have different perspectives, but please provide me all the information about the ABC project.”

In the same day (23rd November) at 4:00 pm, I had a meeting, only with ADV, to explain and give him the ABC project report. In that meeting, the ADV told me that he had the intention to measure business processes at a macro level. At this point, we agreed that the ABC methodology would provide the process costs.

In this meeting, I began to feel the first pressures to reschedule the “deliverers” of each of the ABC project stages, because this new actor wanted analytical information as soon as possible.

I continued collecting the activities per department through several meetings with the head of each department and other key employees. The company did not want to do online entry of employee's time through specific software. So, the time that the employees spent in each department' activities was estimated in percentage. This activity information was registered into matrix tables. Relating to the activities, my main concern was about the activity drivers, and I spent a lot of time finding the best way to distribute the activity's cost to the cost objects, because there was no intention to change the department's routines or introduce new tools – for example to capture the time employees spent in their activities. At that moment, I was not convinced that this was the best way to assign the activity's cost to the cost objects. After this, I began to design the main business process with the collected activities.

The MS Excel[®] software was not an alternative to implement the ABC system, because I was not able to build the system through spreadsheets. I had many data to organize according to the ABC technique and I suggested PortechCo to acquire a specific ABC software according to the CAM-I concepts and terminology, since I had developed the ABC project according to the IMA standards. In December 2011, I contacted the main ABC software houses, and a cost benefit analysis was made by the CFO and ADV to decide which software would fit better the requirements of the ABC project at PortechCo. The choice was to buy a specific ABC software from a USA company.

On the 6th of December 2012, ADV announced by email the PortechCo's decision to begin the reconstruction of the internal information systems. In short, the email stated the following:

“Dear all,

We have all discussed a wide range of needs in terms of information systems and their impact on our productivity and satisfaction.

There seems to be a consensus among all and especially with the operational teams that we have to improve (...) maximize three key objectives, namely: (1) Information and knowledge (...); (2) Increase profitability/productivity (...); (3) Integrity and control of the operations/processes.

To make this possible, we have to follow a transformation path. For an organization with the size and complexity of PortechCo, this way requires advantage of the need to improve and optimize processes allied to an intelligent and practical methodology for implementing new systems allowing to be faster, cheaper, and better at what we do and what we put on the market (...).

What specifically are we talking about?

The implementation of a new ERP; CRM⁸, SCM⁹ (...) Implementing an ABM/ABC system connected to the ERP. Creating a data warehouse that allows the extraction of KPI¹⁰s through BI¹¹ (...)

As you can see, we have at least two years ahead and the changes in our work will be intense (...)

Consider this email as a kick-off of the project.

Thank you.

ADV”

PortechCo contracted the services of two consulting teams. One consulting firm to implement the new ERP, CRM and BI system and another consulting firm specialized in SCM. This last consulting firm would also implement a specific software, which should be connected to the ERP.

In the annual meeting, held in December 2011 with all the employees, PortechCo announced that another restructuration would occur in the company. On the 12th of January 2012, the CEO sent an email with the following communication:

“Good afternoon,

Considering the changes in the work environment resulting from the challenges in the evolution and growth of our company, PortechCo will adopt a new organizational structure, treading the path for continuous improvement and resources optimization (...)

The company's success depends on each of us!

CEO”

Several changes occurred in the PortechCo organizational structure. ADV, CFO and the National Sales Director were nominated as administrators of the company.

* * *

⁸ Customer Relation Management

⁹ Supply Chain Management

¹⁰ Key Performance Indicator

¹¹ Business Intelligence

The kick-off of the SCM project was done on the 16th of January 2012. During the SCM presentation, the speaker (senior consultant hereafter called by SCM) showed several slides relating to costs management, logistics activities and KPI. I realized that some topics of the SCM project would be redundant with the ABC project. At the end of the presentation, I asked the following question to the speaker:

“Raúl:

As you must know the company is also implementing an ABC system. Your project, in the cost management topic, seems to be very similar to an ABC system. I would like to know how do you intend to integrate costs in your system?

SCM:

After the implementation and with the driver’s volumes we have to collect the cost information in the financial department. With this information we will monitor the KPIs we want to measure.

ADV:

[ADV interrupts our conversation] You must have a meeting together to align the projects”

On the 2nd of February 2012, I had the first meeting with the SCM. In this meeting, we talked for more than an hour about the projects. My master specialization was in operations management, so the conversation was very fluid. We talked about the main activities and the logistics departments’ process, and we concluded that we had the same activities collected. At the end of the meeting, I felt some tensions because in the future the projects could collide anyway.

The ERP project kick-off initiated with a presentation on the 23rd of February 2012 for all the key employees, head of department and board of directors. In the following months of 2012, I began to have several meetings with the ERP consulting firm to align the analytical information created in the old ERP with the new ERP system. The new ERP had different analytical functions, which permitted the creation of multidimensional cost centres.

As the ABC system was part of the entire information system, I began to have several meetings with the ERP and SCM teams to align the projects.

* * *

In the ABC diagnosis stage, I realized for the reasons I have mentioned, that it was not plausible to measure all the cost objects separately. I knew that the ABC software would work better in a stand-alone mode because I had experienced it in other implementations. The main information would be extracted in the ERP system but afterwards it would be imported to the ABC system.

Despite PortechCo wanting to implement a new ERP system, in December 2011, the former version of ERP was customized by the IT department to support the 49 new cost centres. These cost centres were related to departments and support areas. In the middle of January 2012, a new routine was introduced in the financial, operations and human resource departments. All the expenses and the employees began to be classified with the new cost centres. The cost centres would be fundamental to assign the costs (resources) to the activities.

The first ABC system was produced by the time the January accounting period was closed (middle of March 2012). During this time, my interaction with the IT department was intensive and on a daily basis. To build the first pilot, I needed the expenses and the employees' costs by costs centres. This information was extracted from the ERP system. Then it was imported into the ABC software through MS Excel[®]. The main problems in the IT department were related to the cost objects hierarchy. To extract all the direct costs and the revenues per each cost object in the ERP system, proposed in the initial conceptual model, was a complex task. Furthermore, it was necessary to validate the data extracted in the ERP with the accounting data. This validation was a very time-consuming process and the cost object hierarchy had to be simplified. This also occurred because ADV was pressuring me to have the first ABC pilot information available. In order to begin calculating the January data in the ABC software, I had to do more adaptations to the ABC conceptual model.

I led the ABC project, and I had the flexibility to make the adaptations in the ABC model in order to fit PortechCo's requirements. My insight was that PortechCo wanted to know the profitability of the business areas and segments. Therefore, I decided to further simplify the ABC model. The final simplified cost object hierarchy is represented below in the ABC conceptual model (see Figure 17).

This simplified cost objects' hierarchy also permitted me to solve my problem with the activity drivers. Since the cost objects were grouped, I realized that it was not plausible to find a cause-effect relation to assign the activity costs to the cost objects. This made me think of another simplification to assign the activities to cost objects. I changed my strategy and I started to focus on the sensibility and the experience of PortechCo's employees. My idea was to assign the activity costs to the cost objects

based on the percentage value that each activity contributed to the cost object. To collect this data, I had several meetings with the heads of departments and the key employees of the different departments. With the activities' matrix, I asked these actors –based on their sensibility and experience on the PortechCo business– to allocate the percentage of each activity spent to the different cost objects. The percentage values helped to assign the cost of the activities to the cost objects.

Notwithstanding, I made this simplification in the activity's drivers, I began introducing some performance measures that I had found in the production and service departments. Moreover, using the processes' outputs and the activities, I was able to measure the performance of some processes and activities related to those two departments.

Figure 17 shows the final design of the ABC model that was used to produce the first pilot ABC system.

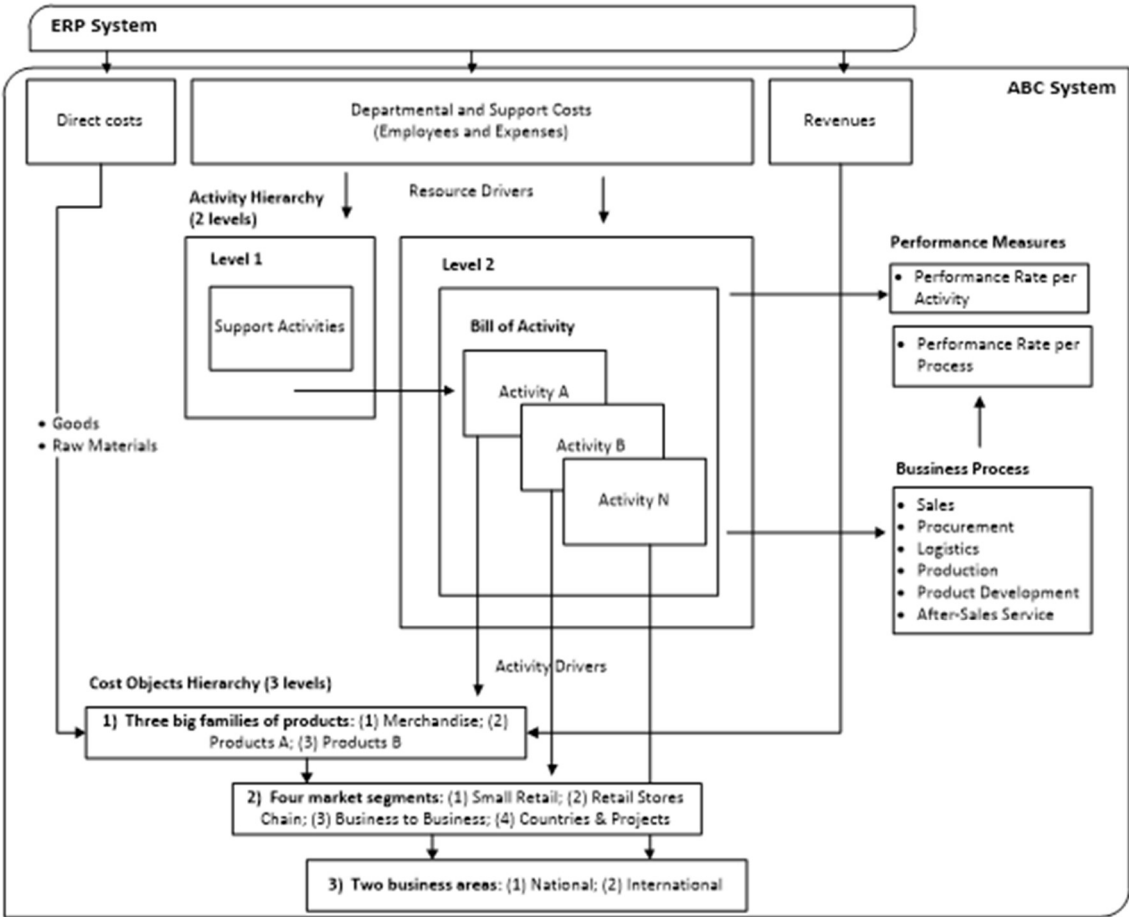


Figure 17 - The final ABC conceptual pilot model at PortechCo

The first ABC pilot system was produced with January's accounting data. The output generated by the ABC calculation was presented in a meeting to all the board directors chaired by ADV on the 7th of May 2012. Two days after the ABC presentation, I received an email of ADV with the following request.

“(…) It would be very helpful if you elaborate the 1Q 2012 report, based on your work already raised. This work would be the first analysis report, focused on the activities raised and would serve as the first reflection document. I think of a report more focused on the employee's time sheet table activities than of the final numbers, for the reasons we discussed previously. Would you please think about this issue and make a proposal? In any project, the "deliverables" are fundamental, and this would be the first “stone” that justifies the importance of the project you are leading” (ADV emailed this to me on the 9th of May 2012, my translation).

Following this email, I talked with ADV about the deliverables.

“Raúl:

I had made my schedule for my next week without these deliverables, but what would be the time that you consider useful to have the 1Q 2012 report?

ADV:

Could it be before the 15th of May?

Raúl:

I don't know if I will have enough time but I will try to finish it by the 15th or 16th of May
(…)

ADV:

Ok, I am waiting!”

I had only around one week to finish the first quarter report. So, my strategy was 'translated' in the same model that I used to calculate the January pilot in the new ABC project. The ABC software had that function, but I had to overwrite the model with the new data of the 1Q 2012. I knew that the data reported through the ABC calculation would need to be validated, but my first concern was to have all the information I needed to import from the ABC software. I spent a lot of time validating the employees and

the expenses' costs (resources), because I wanted to have the same value as reported in the accounting system. I had to find the accounting variations and accrue the differences in the ABC project.

I made the ABC calculations in the ABC software, and I built the final report with the first quarter ABC information. The following pieces listed in Figure 18 were produced and included in the 1Q 2012 ABC report.

Pieces	Description
Income statement by function	In this piece it was also detailed the function by department
Segment Operating Performance	This piece reports the income by products vs. market segment
Costs by departments	This piece reports the expenses and the employees allocated by department
Costs by business process	Expenses and FTEs by business process (sales, procurement, logistics, production, SPV, product development, after-sales service)
Production costs	Expenses, FTE, depreciation expenses and overhead by section production
Costs by activity	Expenses, FTE, depreciation expenses and overhead by activity
Costs by department	Expenses, FTE, depreciation expenses and overhead by department
Performance measures	Cost per # machines produced; cost per # RMA
Cost object contribution	Activities cost assigned by big families of products

Figure 18 - First quarter ABC report

In short, I conclude that in order to produce the January pilot and the 1Q 2012 ABC calculation I needed to made adaptations to the initial ABC project report. At this stage, several variations occurred between the prototypal ABC and the pilot ABC implemented for the following reasons:

- (1) the August ABC report (prototypal) was produced based on the ABC technique without diagnosing PortechCo;
- (2) the need to implement the ABC system in the entire company;
- (3) the complexity of the company;
- (4) the complexity to extract data from the ERP software in order to build the detailed cost object hierarchy;
- (5) the pressures to accelerate the implementation when the ADV entered the company.

4.2.2. 1st quarter 2012 ABC model adaptation and ‘routinization’: the second tailored adaptation

PortechCo did not have a specific employee to do the management control job. Management control was done in the accounting and financial department and specifically by the CFO. On the 17th of May 2012, a new actor was hired to perform the management control function (Management Controller). This actor (hereafter, CO) had experience in auditing and had knowledge about PortechCo, because she integrated the external audit team (Big4). CO was involved in the ABC project to make the link between myself the CFO and ADV.

On the 20th of June 2012, I had a meeting with CO. In that meeting, it was established that I had to do the P&L by segment for the period January to May 2012. On the 2nd of July, I finished the production of the ABC model with the same parameters I had used in the first quarter ABC model.

On the 5th of July 2012, I gave CO all the data that the ABC software produced. CO had the task to validate and control the numbers, allocations, and calculations I had made through the ABC software. I gave CO all the detailed information about the allocations I had made between resources to activities and the cost drivers I had used to allocate the activities to all cost objects. I sent all the ABC software reports in PDF format. On the 9th of July 2012, I had the following conversation with CO.

“CO:

You sent to me all the ABC data in PDF, but I cannot do my work through this format. I need the reports in Excel.

Raúl:

But why do you need the data in Excel?

CO:

I need to validate and audit the data and the calculations’ reports, which are in PDF and it is very hard to do it!

Raúl:

The ABC software database can be linked –through ODBC– to MS Access and I can after export to the Excel format.

CO:

I work better in Excel, but I can also work in Access...

Raúl:

I will send to you all the ABC tables in Excel by email.”

I began to send the ABC software tables to CO. The first question CO asked me was about the overhead activity allocations, which I had made to other activities and also directly to level two of the cost objects hierarchy (see Figure 17).

In order to represent the reality of the costs shared between some departments of PortechCo, I created a hierarchy of activities in the ABC software composed of two levels (see Figure 17 above). The costs of the first level activities were allocated to the activities of the second level in order to distribute the overhead cost. For instance, I can refer to the following department's activities examples: human resources activities; management quality activities; information technologies activities; etc. Some activities in the second level were allocated to other second level activities. That is, I had some costs that I preferred to allocate to other activities. For example, I allocated the activities related to the head of sales to the activities sales. In conclusion, about this activities' hierarchy, I can confirm that only the main activities of the second level were assigned directly to the costs object. Some activities were allocated to products (level one of the cost objects hierarchy) and others were allocated to market segments (level two of the cost objects hierarchy). This was my interpretation about how to allocate this type of costs in PortechCo.

At this time the CFO delegated autonomy and power in CO to validate and coordinate the next stages of the ABC project. In the following weeks, CO began to ask me for information about the ABC model that I had produced. My insight was that CO was not familiar with the main ABC concepts. She did not only want to validate the numbers produced by the ABC calculation, but also to understand the ABC methodology.

The calculation I had made showed that one product and one segment had negative profitability. The first concern of CO was to validate the overhead costs. On the 11th of July, CO told me that she wanted to split the overhead in two large groups. One group would be allocated to the activities which after would be allocated to products in the level one of cost objects (the same criteria I used). The other overhead group related to the costs of the Board of Directors, Legal Department and Communication Departments would not be allocated to any cost object level. These costs would appear separately in the level three with the designation of Business Sustain Overhead. On the 23rd of July 2012, the May 2012

ABC model was recalculated and “run” in the ABC software with the new overhead criteria proposed by CO.

As I was producing more models (1st semester ABC model), I realized that the CFO and CO placed more questions about the ABC criteria which I had used. It seems a process of ‘learning over time’ because I did not make any detailed presentation explaining the ABC model and the criteria used to calculate the model.

In August 2012, PortechCo made several changes in the company. On the 16th of August 2012, a new organization chart was published and institutionalized. I had to make a new cost centre hierarchy in order to have the cost separated by the newly created departments.

On the 28th and 29th of August 2012, I had two important meetings with the CFO and CO. In these meetings, the need to produce a manual about the cost centres rules was established. This procedure had the objective to eliminate the human failures that the ERP users made when classifying the different expenses. CO had verified that some expenses had wrong costs centre codes. It seems to me that the verbal explanation, made in January 2012, about the new cost centres was not enough. The other topic of the meeting was related to the allocation’s reformulation. The CFO introduced several adaptations to the cost drivers. That is, the cost drivers’ estimations that I considered very simplistically in my first ABC model were even more simplified. Moreover, some activities were grouped on a macro level – at the department level; and other activities were divided by Business Area in order to facilitate the allocation to the final cost objects.

In Table 6, I used the Technical Services (TS) department example to explain these variations. In my previous ABC model, I had eight activities in the TS department. These activities also served to calculate several measures in this department. With the new macro activities, the ABC logic was different from which I had initially proposed.

Table 6 - Variations in the Technical Services department activities

Previous activities (1Q ABC model)	New macro activities
1. Manage technical Services	1. TS for National Business Area
2. Repair products under warranty	2. TS for International Business Area
3. Repair products out warranty	3. TS for Products A
4. Perform sales parts	4. TS for Business Support
5. Parts warranty	
6. Control internal customer stock	
7. Manage parts under warranty	
8. Repair components	

This new ABC model was more aligned with the first cost system that the CFO introduced in early 2011. The focus of this new ABC cost model was the cost objects hierarchy. Consequently, the business processes and the performance measures by activity and process were abandoned.

According to the new criteria for the new ABC model, I had to design the adaptations proposed by the CFO and CO. On the 24th of September 2012, I built a matrix that represented all the new ABC information.

At the same time, I was producing the Cost Centre' manuals with the directives for the end users.

On the 18th of October 2012, all the company ERP users received an email to apply the new cost centres rules. Part of the email is shown below.

“[...] This guide aims to provide the basic information on cost centres for the ERP end users to classify the expenses with the cost centre code. The aim of this procedure is that all expenses incurred by the normal activity of PortechCo should have a cost centre. In general, all expenses will be allocated into two main groups of cost centres: (1) Department Cost Centres; and (2) Support Cost Centres” (my translation).

On the 23rd of October 2012, PortechCo's owners gave contributions to the ABC model and more simplifications were made in some cost drivers with new values and in the support costs. On the 24th of October 2012, I had the following conversation with CO.

“CO:

It was only possible today to give you the feedback about the ABC model, because the owners wanted the information in a very simple way. That is, I had to produce the ABC model in MS Excel[®] with resources directly linked to the cost objects.

Raúl:

Did you receive feedback?

CO:

I don't have good news because the owners introduced more simplifications in the model. I see these simplifications as a setback!

Raúl:

So... and now, what will the next steps be?

CO:

We need to recalculate the ABC model with the new criteria.”

These simplifications were made because the owners had doubts about the profitability in these Market Segments. They wanted to make sure that some costs were allocated to the cost objects denominated by Business Support. The owners had to have the confidence in the numbers produced by the ABC model. They needed to understand the origins of the numbers in order to make decisions in these segment markets. Before, the owners would make decisions based only on the accounting information. Therefore, this new information, provided by the ABC model, had to be carefully validated. The company did not have a culture of management accounting practices. So, to have a higher control and understanding of the data, they introduced more simplifications in the costing model.

In the following months, I produced several ABC models with new criteria in a routine way.

4.2.3. The final ABC model adopted

The final ABC model adopted by PortechCo since the 2Q 2013, was the model that entered in production in the routinization phase with the simplifications described in the previous section. Instead of being produced through the ABC software, the following ABC models began to be built by CO in MS Excel[®]. This happened because the ABC model was intentionally adapted to be produced in MS Excel[®].

In short, despite the CFO was the advocate and the sponsor of the ABC project, he was influenced by the CO to have a more simplistic model. This is evidenced by the following CO's statement:

"(...) Many of the changes that we did in the ABC model were proposed by me since people [CFO, ADV, owners], even if they did not understand the data, they accepted it...they believed....but in order to involve more people in the project, many of the adaptations were made by myself to involve people that need the information and to give them the information that they could understand and that was useful for them. In that sense, yes, I swerved the ABC project to become simpler than the ABC projects I saw during my career in the Big4. It is a deviation to this (...)" (interview CO, 23rd January 2014, my translation).

This means that the company has adapted the original ABC model deliberately. It was not interested in the information provided by the activities. Again, CO validates this argument in the following statement.

"From the moment that you begin to take it [ABC] to an extreme, if you're measuring small activities (...) then it is very difficult to explain the sum (...) the assumptions are very complicated...are not verifiable, or they are more difficult to verify and explain" (interview CO, 23rd January 2014, my translation).

The final ABC model provided information about the business segments of PortechCo, which supported the decisions-makers, and also helped in the production of statements by business segments. The ABC adopted by PortechCo serves more the corporate and finance interests. In Figure 19, is represented the final ABC model.

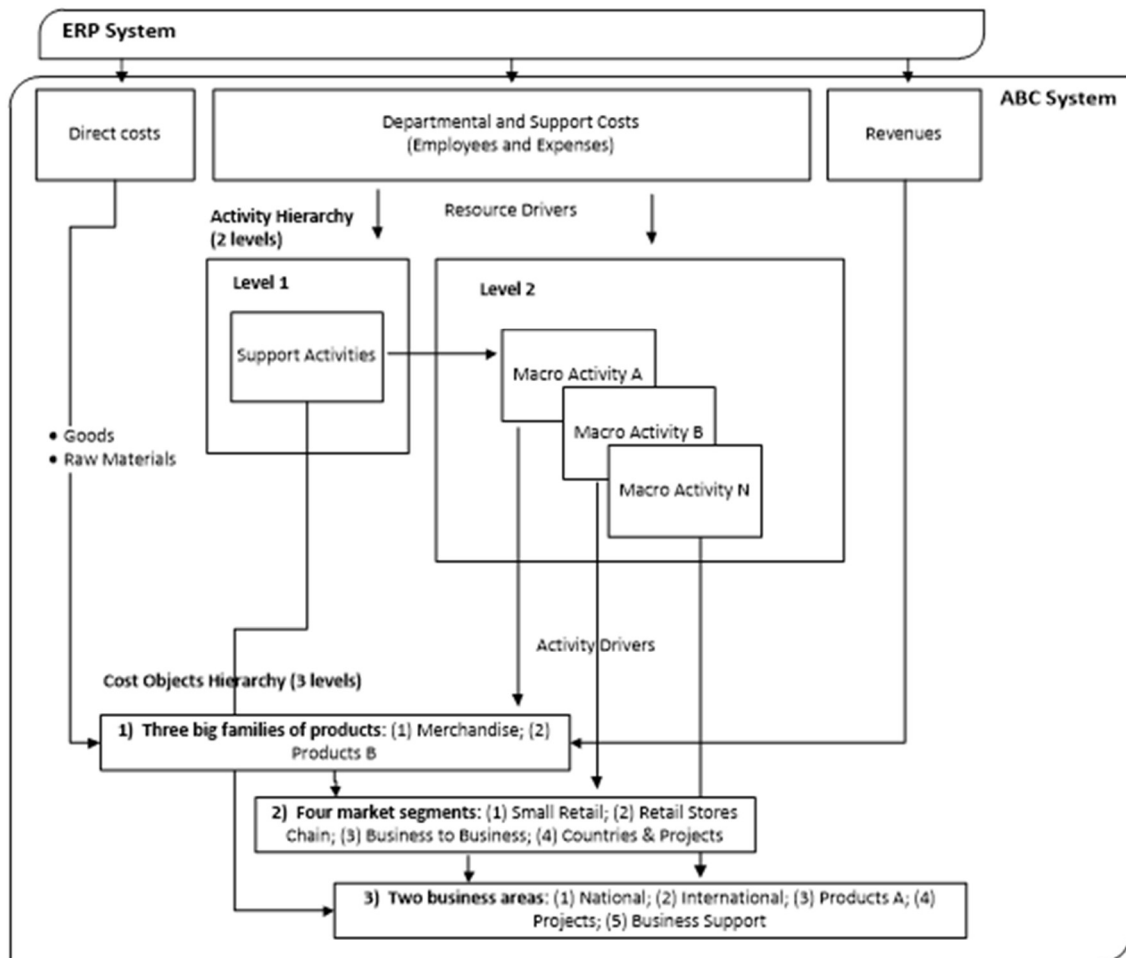


Figure 19 - The final ABC model at PortechCo

4.2.4. Recursive adaptations and the control of the management systems at PortechCo

The new ERP system began to operate in May 2013 throughout the entire company. In the following months, the company was back to the normal activity. With the new ERP system, PortechCo had several gains, because in this new system the accounting function was completely integrated with all the operational functions at the transactional level (for example, the product rebates were very problematic to control in the old ERP system and the new ERP fixed this issue). Some end users had to learn some accounting concepts in order to have the capacity to register the data (e.g. some expenses are directly registered in the system with a list of predefined accounts). On the other hand, PortechCo lost some operational functionalities.

The older ERP system was tailored in the last years to work according to the company's requirements. The new ERP system was expected to evolve in the next years to be tailored to the new

PortechCo's challenges at the operational level. This could be done by extending and exploring all the new ERP system capabilities. According to my lived experience inside the company, my insight is that the company regressed in some operational functions but had several gains in terms of the company's information, because now it has the control and confidence in the transactional data. For instance, the inventory is very problematic and complex for a company that works with roughly 30.000 sales products and the inventory value varied between 20 million euro to 60 million euro in just two years.

In the middle of 2013, the SCM project was put on hold because it was very difficult to connect the ERP system with the SCM system in this initial stage. All the inventory information (picking, stock movements, valuation etc.) had to be done in the SCM system.

Regarding the complexity of the business and the implementation work of the new management systems, the CFO stated the following:

“You may want to have an ideal, very elaborate management system, following the best practices, but if it does not have the people, in the organization, engaged with that system, it will fail! [...] It will not take more years to implement, it will fail, that I have no doubt. People are the most important element of any management system. You get to a point that one of two paths have to be chosen. If I want to follow the ideal system path, with the best practices, I should hire new people. But, if the people, in the organization, are important, if they are an asset to the organization, if I intend to work with them, then I need to adapt my system to such people. Therefore, it is not worth to implement very complex and very complicated things that do not fit the profile of the people who will use and be part of that system. There will be a moment that there will be a deadlock, there will be a disruption, and, then the system will not work” ([interview CFO, 16th August 2013, my translation](#))

Regarding the ABC project –after adaptations and the adoption of a very simplified ABC system– in July 2013 PortechCo decided to explore the logistics department costs. The CFO wanted more analytical information about this department and I began to develop of a new ABC model, which was implemented between July 2013 and December 2013. In the final stage of this implementation, CO highlighted the importance of having the control over the ABC data in order to progress into more analytical information.

“I think now the whole process is going to be like this [as in the ABC project implemented at the logistics department]. We already have large numbers and from there we can have detailed information ... and this is important for two reasons ... the numbers in order to be understandable for everyone need to have a basic understanding and a basis for reporting. That is, to start having systematic information and say ok there is a quarterly report with this and that information and the amount of information maybe be small but the information is understood and the assumptions are clear transversely to the organization and it is consistent and that people are beginning to rely on these numbers to trust these numbers” (interview CO, 23rd January 2014, my translation).

5. Discussion and conclusion

The objective of this qualitative research was to understand why PortechCo accepted the implementation of the ABC technique; and why and how, during the implementation process, the ABC technique was adapted by individuals in order to have a better fit with the cultural, technical and political characteristics of the business logic of the company.

I had a strong intervention during the design, implementation and adaptation of the ABC system at PortechCo. I was an interventionist actor in the field of the actions with the lens of a researcher and the role of a professional worker. This opportunity allowed for the observation of the direct and the indirect ‘matters’ related, firstly, to the decision for the acceptance of the ABC and afterwards with the daily practice of the ABC implementation process. Given I was strongly immersed in this study, I cannot avoid using a double lens, as a researcher and as a practitioner, to discuss with a peculiar perspective the institutional change that I saw, and I intervened in. The discussion of this case will be done based on my reflections, which emerged from my everyday actions and through the empirical findings presented in the previous section. I related all the empirical data and my reflections (Geletkanycz & Tepper, 2012) after the facts with the pluralistic approach presented in the theoretical section. This argument is valid taking into account the recent calling for further investigations relating the macro level, like institutions and logics, with the micro-processes in a recursive way (Gawer & Phillips, 2013). It is important to explain that management techniques can be accepted to be implemented, because companies are influenced by the institutional environment; however, during the process of implementation, changes may occur in the practice of the management technique (Canato, Ravasi & Phillips, 2013). The management technique

can be adapted (Ansari et al., 2010), occurring variations between the prototypal version of the management technique (Gondo & Amis, 2013) and the final version adopted. Those actions, which occurred at the micro level, should be combined and related to the macro level perspective, in order to achieve a better understanding of the dynamics between individuals, organizations and societies (Thornton & Ocasio, 2008). Therefore, these findings can contribute with insights on the microfoundations of institutional logics and the creation of institutions. In the next two sections, I discuss, individually, the acceptance phase and the implementation phase. Then, I discussed the variations between the initial and the final model adopted to provide a collective meaning of the theoretical implications of the study (Geletkanycz & Tepper, 2012). Finally, I provide thoughts on the practical implications, limitations, and future research.

5.1. Reflections on the ABC acceptance

The findings point out that the acceptance of the ABC by PortechCo was influenced by two main reasons.

Firstly, the institutional complexity around the fast-growing PortechCo, through the business logic and the stakeholder logics, pressured the company to have more analytical information on their business areas. These two logics interacted directly in the work of the CFO compelling and influencing him to find a management technique that, on the one hand, satisfied the internal pressures of the business logic and on the other hand, provided more analytical information according to the pressures of the stakeholder logics. Despite the fact that these two logics have different goals in the scope of the information (the stakeholder logic pushed for macro information while the business logic compelled for micro and macro information) they do not compete with each other. Instead, they cooperate and have one interest in common, that is to guide the CFO in the pursue of more information about the business areas of the company. Regarding this institutional influence, the CFO found in the ABC technique the solution to solve the problem of such institutional complexity in what concerns the issue of the analytical information.

The second reason is the assumption that the ABC was understood by the CFO as an institution (Friedland & Alford ,1991) – a taken for granted management technique, carrying both symbolic and material meaning – making him believe that it could solve the issue of the lack of analytical information on the business areas. These findings explain why top managers decide to accept a particular ideal management technique according to the belief that such techniques are institutions. That is, managers, at certain times, believe that management tools are best practices that can solve all the institutional

complexity. This argument was validated in this case: the decision for the acceptance of ABC at PortechCo was influenced by the CFO, who did not have practical experience in this technique. He had only contacted with the ABC through academic courses and workshops. This learning experience of the CEO influence him to make the decision to accept the implementation of the ABC technique. This justifies the understanding of the reason on why the ABC project was developed by me, based in the high fidelity of the ideals of the ABC and ABM concepts according to the standards of IMA. The ABC project was uncontested, because the CFO and CEO viewed, at that moment, the ABC as an institution – a taken for granted management technique that works in other companies and that should work, also, at PortechCo. At this point, the contribution of this study indicates that fast-growing companies (earlier adopters) that are exposed to institutional complexity, try to solve such complexity by accepting certain management techniques, that are viewed as institutions. In short, institutional logics, per se, did not prescribe management techniques, but they are crucial to force actors to decide for accepting a certain management technique that they believed as an institution.

5.2. Reflections on ABC adaptations

According to [Ansari et al. \(2010\)](#), during the implementation process of a management technique, adaptation seems to be more the rule than the exception. Nevertheless, what do we know about the institutional work process done by individuals to change, adapt and create institutions in practice?

The findings of the implementation phase show that individuals attempt to change and adapt the ABC technique, but they struggle with contradictions. Indeed, on one hand, they want to follow the main principles of the ABC technique. In the other hand, they are confronted with the technical, cultural and political features that characterize PortechCo. Thus, the adopted ABC needed to be fitted (tailored) excluding the activities that are an essential piece of the ABC.

The ABC project report (prototypical) was developed according to the main principles of the IMA statements, aiming to be a full and true implementation of the ABC technique with a high level of fidelity and extensiveness. The purpose was to implement all the features of the ABC to measure the profitability of PortechCo with high detail.

In the implementation phase, I found two main adaptations that will be reflected hereafter. The first adaptation occurred in the design and pilot implementation. At that moment, several internal tensions occurred between the initial ABC project and the business complexity in order to implement the ABC

technique in the prototypical version. Firstly, the ABC technique had to be aligned with the technological characteristics of the company (ERP system) and, secondly, the need for more cost centres required some political and cultural fits. As well, the hiring of ADV resulted in more tensions since he demanded the first ABC pilot in a short period of time. In order to meet the ADV's interests and pressures, the researcher (myself) had to undertake adaptations in the ABC project. Thus, the ABC project began losing fidelity in order to be implemented faster.

In short, in the first adaptation, this case study shows how the institutional actor (myself) took actions and produced efforts to intentionally maintain (Lawrence & Suddaby, 2006) the institution of ABC technique. However, during the practice of the implementation he was also forced to adapt the ABC according to the business's complexity.

The second major adaptation occurred when PortechCo hired CO. This professional began the interaction with the ABC practice through the validation of the ABC system that I had developed. She had the mission of controlling PortechCo business information, so she began to influence the CFO to do more adaptations in the ABC model, in order to simplify the audit process of the ABC data in MS Excel. As PortechCo was immersed in the implementation of several information systems at the same time, all of these techniques began to be adapted to the business complexity in order to have success. For example, the SCM project originated several tensions and resistances in the logistics' department, and it was interrupted and re-evaluated, because the consultants wanted to prescribe the best SCM practices in action but failed because they did not adapt the SCM system to the logistics' department.

Furthermore, in the ABC project, cultural, political and technological fits were needed, in order to adapt the ABC project to the business complexity. New rules about cost centres were introduced and a new paradigm began to be institutionalized in the entire company. Since the new ERP entered in production, the cost centres allocations became more efficient. The cost drivers were simplified and the cost object hierarchy had some adjustments made it. These fits and adaptations were intentional because the CO and the CFO began to understand that having information on the activities and processes level would not be the priority, but rather the results at the financial level on the profitability of the business areas. According to this, a new logic emerges in the company; a kind of 'control logic', which is broader than the ABC technique and cooperates (Goodrick & Reay, 2011) with the business and the stakeholder logic. That is, CO and the CFO have at the same time the intention of consolidating and integrating all the business information with the accounting information that was linked through the ERP system. The ABC information was only accessible in the financial department. The other departments only had access to

the information of those departments at an operational level obtained through the ERP system (i.e. cost centres information). These findings suggest that the CFO and CO began the creation of a new institution that may be denominated by 'management control', which cooperates with the business and stakeholder logics. This new institution was created according to the business logic and the ABC principles that were adapted to fit with technical (e.g. ERP), cultural (owners' culture) and political (legitimacy and power interests of CFO and CO) features of PortechCo.

Concerning this thesis, the adapted ABC model was adopted and became a routine, produced every quarter by CO in MS Excel under the umbrella of the "management control" institution that such institutional workers (CO and CFO) aimed to create and institutionalize at PortechCo. This is justified because CO used the ABC methodology to produce part of the financial reports (profitability by business segments), but the reports did not mention the use of the ABC methodology nor any kind of ABC calculations.

As a result, variations occurred between the initial ABC project and final ABC adopted. Following [Ansari et al. \(2010\)](#), this case shows a tailored adaptation and distant adaptation, because the fidelity of the ABC technique was low. Notwithstanding the adapted ABC model could be used to measure the entire company, the information only served the financial and controlling interests to provide information for the decisions-makers (PortechCo owners). In this sense, [Kaplan \(2006\)](#) gives the example of the ABC adoption at General Motors and Chrysler and stated the following:

"Chrysler's implementation was more successful than GM's because its efforts were led and championed by the CEO Robert Eaton, and President Robert Lutz, General Motors, in contrast, introduced ABC more earlier than Chrysler but the GM project never got outside the finance office; it became adopted as the "official" costing methodology at General Motors, not an inconsiderable achievement in that company, but never became the central focus for the company's design, engineering, and production efforts as at Chrysler" (p. 134).

PortechCo can be compared with GM project because the ABC project was led by the CFO (sponsor). The business logic was dominant and the ABC technique was adapted with low fidelity, since in the end, the main interest was the costing of the business segments.

5.3. Reflections on ABC variations and institutional contradictions

The logic of the ABC was incompatible with the business logic and therefore the ABC practice had to be adjusted or adapted to its technical, cultural and political reality. Nevertheless, this is only a chapter of the whole story.

PortechCo decided to implement the ABC system without first introducing a traditional cost system. The stakeholder logics cooperated with the business logic of PortechCo allowing the acceptance of the implementation of the ABC technique –they accepted the implementation of a full and true ABC system.

The study of [Tomás, Major and Pinto \(2008\)](#) indicates that 22% of the larger companies in Portugal admitted having implemented the ABC technique. They concluded that the high rate of implementation could be influenced by the recent diffusion of the ABC technique in Portugal and because the ABC (as an institution) is now incorporated in all accounting courses offered by Portuguese universities. In this sense, I consider PortechCo an early adopter of the ABC technique. Early adopters are likely to avoid experimentation and adopt truer or high-fidelity versions of the new practice ([Ansari et al., 2010](#)).

As the ABC project and its implementation were undertaken by professional staff, I saw the adaptations, which occurred in this case as bottom-up. Unlike the study of [Ansari et al. \(2014\)](#) that indicates top-down strategies by the corporate company which acted as a facilitator in the implementation process of the ACE technique, at PortechCo's case the strategies to adapt the ABC technique were mainly political (but also technical and cultural in nature) and emerged from the institutional work done by individuals. The CO and CFO, in order to legitimate their interests, made several intentional simplifications and adaptations to the ABC technique, in order to make it easier to control the information (technical fit). They had the vision of the control logic as a dominant logic. Additionally, the CO and CFO needed the information to be culturally accepted (political fit) by the PortechCo's owners. This case provides rich contribution to the literature on ABC since it permits to understand the variation that occurs between the initial ABC accepted and the final ABC adopted. These variations were intentional and occurred, because the institutional actors wanted to legitimate their positions around the business logic of PortechCo. This extension of the theory can be also applied in the adoption of other management techniques. Therefore, individuals seeking their own interests, and following the business logic of the company, acted as institutional workers ([Lawrence & Suddaby, 2006](#)), providing explanations on the creation of new

institutions based on new logics. In spite of the fact that adaptations were intentional and based on the logic of control, the new institution that I called “management control” was created and emerged from the practice, during the process of the acceptance and implementation of ABC, and derived from the technical, political and cultural fits. This means that intentional adaptations (Ansari et al., 2010) that occur in action by institutional actors (Lawrence & Suddaby, 2006) during the acceptance and implementation (Gondo & Amis, 2013) of management techniques promote the creation of new institutions according some visionary and abstract institutional logics that such individuals idealize to cooperate with other logics, which are pressing their organizations to change. This can enrich our knowledge on the paradox of embedded agency, because this case indicates that news institutions are created through the visionary institutional logics that institutional workers idealize in their day-to-day actions. This theory contrast with the arguments of institutional theorists that have been suggesting that institutional logics come from the field and from institutions. Nevertheless, this thesis needs more research and future work should be developed, inside organizations, conducted through the lens of institutional work, in order to unfold the microfoundations of institutional logics and to understand why and how institutions are created.

These insights can contribute to institutional theory because institutional theorists have been calling for more studies focusing on real concerns about the origins of institutional theory – understanding why and how organizations change according to institutional and technical pressures.

5.4. Practical contributions and future research

Finally, this case study contributes to the practice for several reasons. First, this case can help consulting firms and practitioners to understand better how to develop strategies to convince the company (early adopters with low management practices experience) to introduce novel management techniques. Moreover, if consulting firms want to implement management techniques as ‘template’, the possibility of failure in the introduction of the technique could be huge. The success of the implementation increases if the management technique is initially adapted with low fidelity, given that as adopters become more knowledgeable about the practice over time, they make more informed adaptations to the technique (Ansari et al., 2014).

Apart from the work developed by the academics R. Kaplan and R. Cooper on topics such as activity based costing and balanced scorecard (Baldvinsdottir, Mitchell & Norreklit, 2010), research

practice gap is frequent in management accounting research (Chapman & Kern, 2012). Most management accounting research does not have practical management account development as an aim, and there has been scant interest shown in management accounting research by those involved in the practice (Baldvinsdottir, Mitchell & Norreklit, 2010). In this sense, future research could focus on the organizational routines produced during the process of adaptation of a management technique to better understand the adaptation mechanisms used by individuals. More future work is also needed to understand how institutional logics influence the adaptations of management techniques that are already institutions, but that in practice, during the process of adoption, these adaptations promote the creation of new institutions and new institutional logics.

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ESSAY 3¹²: Struggling with interventionist research: An autoethnographic account of a PhD journey

¹² This essay was accepted with major revisions and is in waiting for revised manuscript from the author

Abstract

The aim of this paper is to recount the author's experience as an interventionist researcher in the management accounting field. It shows his practice, lived as practitioner and researcher, during his doctoral journey over 41 months. This paper takes an autoethnographical approach, reported in a 'layered account' format of two scenes to explore the experiences lived by the author as an interventionist researcher in both the practitioner and academic worlds. The paper generates two main findings. First, the paper details the author's experiences as an interventionist researcher and discusses some of the tensions faced by researchers conducting interventionist studies. Second, the paper attempts to introduce a new style of writing interventionist research – the 'layered account' style – showing how it can be used to tell and write interventionist stories. Regarding future research, this paper recommends joint work between researchers and practitioners to develop relational autoethnographical studies in order to bridge the gap between theory and practice. This paper provides new insights to interventionist research methodology, showing the value of reporting interventionist stories using the autoethnographic approach, and more specifically, the 'layered account' format.

Keywords: Interventionist research, Qualitative research, Autoethnography, Layered account, Management accounting research, Management accounting practice

Prologue

Sunday, 1st of July 2012, 17:45 hrs. I am at home. I haven't gone out yet today, but, finally, I have finished the activity-based costing (ABC) report accumulated to May 2012, and it's ready to be sent by e-mail to PortechCo (pseudonym).

Subject: ABC P&L¹³ accumulated May and support maps with segment profitability

Dear Controller and CFO;

Please see attached the P&L of business areas and market segments accumulated to May 2012. In the P&L, the distribution business value is the sum of market segments A, B and C and the production business is the same value of segment D [...]. The results of the business calculated by the ABC means that these were the values included in the ABC model to calculate the profitability of PortechCo in the ABC software [...] If you need more detailed information, please let me know and I can send all the support maps. This is what I have done today; now I will turn to another deadline – the PhD project. I am at your service for any further information you may need.

Kind regards,

“The researcher”

* * *

On June 25th, 2012, I began to build the accumulated ABC model to May 2012 for PortechCo. My agreement with the CFO was that I had to finalize the ABC model by Friday, June 29th, 2012, in order to be free, the next week for academic appointments, but the ABC model took longer than I had planned so I had to work over the weekend. The next few weeks are very critical in my academic journey because I need to take examinations and my first-year thesis presentation is scheduled for 26 July 2012. The first

¹³ (P&L) Profit & Loss statement

year of my PhD in Industry has been very complicated. I am working 75% of my weekday time for the company and I allocate the remaining 25% to academic activities. But I'm starting to think that the time allocated to academic activities isn't enough. I can't fail to meet the objectives proposed by the company, but I also cannot fail my academic commitments. These are two different worlds, but my goal is only one – to do my PhD in Industry. Nevertheless, I can't help but wonder: how will I reconcile these two different worlds in the upcoming years?

1. Introduction

The gap that exists between theory and practice is a persistent concern in the applied social sciences (Sandberg & Tsoukas, 2011). This concern is echoed by several scientific journals of accounting, which state that the gap between theory and practice continues to increase as academic research has become less useful in solving practical problems (Tucker & Parker, 2014). This gap continues to increase, because, on the one hand, findings from academic studies are criticised for not being useful or implemented by practitioners; on the other hand, practical knowledge (tacit) is criticized for not being scientific research (Van de Ven & Johnson, 2006). One way to narrow the gap that exists between theory and practice is to develop studies between practitioners and academics aimed at generating contributions both for organizations and for the scientific community (Parker, Guthrie & Inacre, 2011). In Europe, it is not uncommon to carry out scientific research that aims to produce practical impact on society, the economy, and the organizations. In this sense several institutions¹⁴ support scientific research with this purpose. Similarly, it is not uncommon for masters and PhD students to develop scientific research using their own organizational resources, triggering improvements and innovations in their management systems, such as management accounting systems. Within the perspective of research in the business environment, it is critical to explore research methodologies that best fit this reality to achieve advantageous results both for companies (Kaplan, 1998) and for the academic community (Ahrens & Chapman, 2006).

A research methodology advocated to investigate management accounting in a practical setting is interventionism. The generic term 'interventionist research' encompasses several well-known

¹⁴ In Portugal, the Foundation for Science and Technology (FCT) supports such scientific research called by PhD Studentships in Industry, supporting graduates who wish to carry out research projects in an industry setting, leading to a PhD. In UK, the Economic and Social Research Council funds projects research for the same purpose (to name only two examples).

approaches: action research, action, science, design science, clinical research, and constructive research (Jönsson & Lukka, 2007). Interventionist research aims to solve practical business problems and create knowledge that can both be applied in practice and be relevant to the scientific community. Importantly, several scholars in management accounting field have used interventionism (Dumay, 2010; Jönsson & Lukka 2007; Suomala & Yrjanainen, 2010, to name a few). However, this research does not often detail the process that the researcher undergoes in developing interventionist studies. More specifically, there are few accounts of academic/practitioner researchers who aim to develop work for an organization whilst investigating organizational phenomena from a scholarly perspective. The aim of this study is, thus, to explore the lived experience of the interventionist researcher juggling between practical outcomes and academic theory.

In this paper, I use the autoethnographic method (Ellis, 2004; Ellis & Bochner, 2000; Ruiz-Reed & Vidal-Ortiz, 2011) to detail an account of my personal lived experiences as a doctoral researcher in Industry (i.e., as interventionist researcher), between July 2011 and November 2014. During this time, I lived in two 'worlds': (1) the world of a practitioner in the host company and (2) the world of a doctoral researcher. The qualitative research method of autoethnography is used to interpret and analyse personal experiences lived by the researcher/author, that are closely related to a particular phenomenon in a specific social and cultural context. In this paper, the phenomenon analysed is the 'interventionism' that I used as research methodology in my doctoral research project in order to design and implement an ABC system in a fast-growing company located in the north of Portugal, called hereafter by PortechCo.

This autoethnography is organised in two scenes. The first scene of the story describes two experiences I lived at PortechCo that serve as a starting point for a discussion on the problematic position of the 'strong' interventionist researcher engaging in a practitioner's world. The second scene of the story details five personal experiences that I lived in the academic world which underpin a discussion of the tensions that exist within the academic world on 'telling' and 'writing' an interventionist research.

The contribution of this work is twofold. First, through my personal experience as an interventionist researcher in the professional world (as a practitioner), I produce a reflexive account on intervention in the field. The case presented enables readers, who are likely to be interested in applying interventionist research to their academic work, to attain a deeper understanding of this research methodology, helping them to reflect on strategies to use. The second contribution is related to the production and writing of the scientific manuscript. Through my personal experience, lived in the academic world, I argue for alternative writing formats of 'telling' interventionist stories.

This paper is organised as follows. In the first section, I discuss theoretical aspects of interventionist research in order to sensitise the reader to the issue at hand. In the methodology section, I provide an outline of the autoethnographic method and detail how I implemented this methodology. Then, using the example of my personal experiences that I lived as an interventionist researcher, I discuss my autoethnographic story in two scenes. The first scene reports the experience lived in the practitioner world and the second scene reports the experiences lived in the academic world. In the final concluding section, I discuss opportunities for future research.

2. A note on interventionist research

Interventionist research is a recent research method, originating in management accounting studies with focus on practice, on which understanding and knowledge of the sociotechnical reality of an organization is built and based on the proximity and interactions between practitioners and researchers. Some examples of management accounting interventionist studies can be found in the works of the following authors ([Arnaboldi, 2013](#); [ter Bogt & van Helden, 2011](#); [Chenhall, Hall & Smith, 2017](#); [Cullen, Tsamenyib, Bernonc & Gorstd, 2013](#); [Giuliani & Skoog, in Press](#); [Suomala, Lyly-Yrjänäinen & Lukka 2014](#)), but there are many other interventionist studies published in management accounting papers that are identified as action research ([Ansari & Bell, 2009](#); [Groen, Wouters & Wilderom 2012](#), to name only a few). The goal of interventionist research is to merge theory with practice ([Westin & Roberts, 2010](#)) and thus narrow the gap that exists between theory and practice ([Baard, 2010](#)). In this paper, my concept of practice is related to the practical aspect or application of anything opposite to a theoretical aspect ([Bernstein, 1971](#)). Thus, practice means theory in action or human action ([Dede, 2002](#); [Belfiore, 1983](#)) and it is the activity performed within a community or organization ([Nielsen, 1993](#)). Theory, on the other hand, is anything that can be done in the future. That is, we understand the theory¹⁵ but we do not know what the future practical outcome will be when the theory is applied and tested, for example, in an organization, as is the case of management accounting theories. As noted by [Argyris and Schön \(1974\)](#),

¹⁵ In this context, theory is an idea, a technique, a concept. Applying the same principle to the field of management accounting, a theory can be a management accounting technique that despite being tested, or not, by other organizations, has never been tested in the context that is to be applied. It means that this theory has not yet been tested and materialized into practical action in a particular organization. The concept of practice refers to the ability to break with certain habits and start something new ([Dede, 2002](#)).

theories do not necessarily have to be accepted as good or true; they are only vehicles for explanation, prediction, or control.

The link between theory and practice has been subject of intense debate within the community of management accounting researchers since the late 1980s (Westin and Roberts, 2010). Management accounting is a practical discipline, performed by practitioners in the day-to-day operations of companies. Therefore, in order to generate new theoretical contributions for scholars, it is critical that researchers get involved and understand how management accounting theory is practiced on the ground, within organizations. It is important that researchers participate in the daily actions of such organizations to meet in loco 'what is happening' with the practices of management accounting, as such practices are constantly changing, translating, and adapting to the reality of each organization. That is, the theoretical concepts of management accounting are built, used, and adapted by practitioners in the actions on the ground of practice. Interventionist research is positioned between theory and practice and aims to generate two outcomes: (1) creating knowledge for practitioners and researchers, and (2) developing solutions for organizations' problems (Baard, 2010; Scapens, 2014). Thus, the interventionist researcher is actively involved in the organization, developing, or improving new management practices and/or working directly with managers in an organization (Suomala & Lyly-Yrjänäinen, 2010). According to Jönsson and Lukka (2007), an interventionist researcher can perform a 'modest intervention' or a 'strong intervention'. 'Modest intervention' means that the researcher holds a less radical role in the development of management accounting techniques. In 'modest intervention', the intention is to find solutions to improve management systems that are already underway. A 'strong intervention' occurs when the researcher, together with the company team, intervenes in order to implement radical changes or new processes in the management accounting system of the company. The interventionist researcher in the academic role still collects data, resulting from the intervention in the organization, which is then intentionally used as an 'asset' to produce new theory (Lukka & Suomala, 2014). Considering that interventionist research can narrow the existing gap between theory and practice, it is essential to conduct interventionist studies to develop more theory based on practice (Westin & Roberts, 2010). But what do we know about personal experiences when researchers are performing interventionist research?

3. Autoethnographical methodology

The methodological strategy employed in this paper draws on autoethnographic material in order to tell and describe my own experience lived as an interventionist researcher between July 2011 and November 2014. Autoethnography is defined by [Ellis and Bochner \(2000\)](#) as “an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural” (p. 739) and by [Richardson \(2000\)](#) as “highly personalized, revealing texts in which authors/researchers tell stories about their own lived experiences, relating the personal to the cultural. The power of these narratives depends upon their rhetorical staging as ‘true stories’, stories about events that really happened to the writer (author/researcher)” (p. 11). “As every person is like every other person, but like no other person, the autoethnographer (author/researcher) inscribes the experiences of a historical moment, universalizing these experiences in their singular effects on a particular life” ([Denzin, 2003, p. 268](#)). The researcher – rather than using a survey, a questionnaire or other conventional quantitative techniques to collect data – is the ‘instrument’ ([Richardson & Pierre, 2005](#)) at the centre of the investigation as a ‘subject’ ([Ngunjiri, Hernandez & Chang, 2010](#)), engaging in dialogue with informants beyond the self ([Anderson, 2006](#)). In short, “autoethnographies are conventionalized, narrative expressions of life experience” ([Denzin, 2014, p. 7](#)) and are not separable from the self ([Richardson & Pierre, 2005](#)), neither from others or the phenomenon under study in a specific social and cultural context.

In this autoethnographic context, I assume the position that writing a story is not about people or cultures ‘out there’ as ethnography subjects or objects. Rather that, writing a story is about ourselves, our workplaces ([Richardson & Pierre, 2005](#)), and our own lived experiences which are socially constructed ([Denzin, 2014](#)) when we are interacting with the others through an interpretative process ([Blumer, 1969](#)). ‘The act of telling a personal story is a way of giving voice to experiences that are shrouded in secrecy’ ([Ellis & Bochner, 1992, p. 79](#)) and engaged in social interaction ([Blumer, 1969](#)).

The story of my personal experience as an interventionist researcher is accounted chronologically and divided into two scenes. In the first scene, I recount my lived experiences in the professional world, and, in the second scene, I discuss my lived experiences in the academic world. I use the concept of scenes to divide these two ‘worlds’ so that the reader distinguishes the experiences that I lived in each of these scenes. In each scene, I use a ‘layered account’ format. As stated by [Denzin and Lincoln \(2002, p. 72\)](#): ‘The layered account co-mingles various writing forms and styles. This often includes the use of

person narratives, self-commentary, self-reflections, and the voice of the others, interspersed with field notes, as well as popular cultural and social science writing. These different styles and genres are layered, one on the other, with transitions between layers marked by asterisks – * * * – or other typographic signal-symbols'. Following the 'layered account' definition, and, in addition to introspection (Ellis, 1991), I use dialogic materials (Ellis, 2004), such as emails and conversations (Clandinin & Connelly, 1998) to tell my experiences.

The italicized text indicates my own voice, written in the first person, aiming to engage and immerse the reader in my story. Much of the italicized texts are epiphanies to express some moments of revelation in my life (Denzin, 2014), usually as the starting point of the theme under discussion. In the layers I alternate between more conventional forms of social science reporting and narrative forms to communicate 'emotionality' (Ellis, 2004) through introspection (Ellis, 1991). That is, I write layers with my personal voice and dialogic material lived with the 'others', and then move to other layers in order to discuss the theme in a more conventional form of scientific reporting, thereby intertwining my personal experiences with scientific literature.

The material presented in the first scene was not validated by 'others' in the organization. In this scene, I focus only on the experience that I had interacting with 'others'. In this way, the conversations presented were reproduced by introspection (Ellis, 1991) and some moments, which I reveal in the text, are epiphanies (Denzin, 2014) that changed and marked my personal life. The material presented in the second scene was validated by all actors involved in the conversations and emails. In this case, it was very important to receive this validation (and the names of actors) in order to create a convincing story in which the veracity is crystallized through the voices of 'others' who participated in the second scene.

In the next sections, I present these two scenes through a 'layered account' format with the findings and discussion of my own personal lived experiences in both the professional and academic worlds.

4. Scene #1: Personal experiences and theoretical discussion on the professional world

In this scene, using a 'layered account' format, I present two themes that focus on my personal experiences as a practitioner within PortechCo. In the first theme, I begin by presenting the ABC project that was to be implemented by PortechCo, relating it to the role of the researcher as a 'strong

interventionist'. This relationship suggests the importance of adapting the management technique to the company in order to reduce the gap that exists between such management technique (theory) and the practice of the company. The second theme details a personal lived experience during the implementation process of the ABC system, giving way to a discussion on the researcher's role as a native member (insider) of the company, where, on the one hand, I try to solve the problems of the company, and on the other hand, I am a scientist, collecting data to later produce a scientific report.

4.1. The ABC project and strong intervention

Porto, Wednesday, 13th July 2011, 14h30 hrs. I'm sitting in the entrance hall of PortechCo waiting for a meeting with the CFO and the CEO to present the ABC PhD project in industry. Suddenly, I notice a former co-worker entering the building. We had worked together on an ABC consultancy project and we have not seen each other for over a year. We started talking a little.

“Raúl Dores (the researcher):

Hello Bruno (pseudonym), how are you? What a coincidence to see you here! Are you working here?

Bruno:

No, I am working in an IT solutions company. I come here often to pick up orders! And why are you here Raúl?

Raúl:

I'm waiting for a meeting about a potential PhD research project that I intend to do in this company on activity-based costing.

Bruno:

PortechCo is a large company [...]

The nice conversation with Bruno is interrupted by the administration secretary who calls me for the meeting. The CEO and the CFO enter the meeting room and we started talking about the ABC project.

CEO:

Would you like to summarize the purpose of the project that you intend to carry out in our company?

Raúl:

Sure. Thanks for this opportunity. As pointed out in the email previously sent, I am looking for a company that would be willing to host me, as PhD researcher, to implement an activity-based cost management system. Through this methodology [ABC] the aim is to measure the profitability of products, customers, markets or any other cost object that the company needs and wants to measure [...]

CFO: (interrupts)

This is what we need to measure our profitability of the business segments [...]

CEO:

But how is the PhD project performed?

Raúl:

The PhD project has two components. A practical component held in the company, in which I act as a practitioner, and an academic component that aims to attain a PhD degree. This research project hopes to have the support of FCT, which will fund the greatest portion of the costs. The company will support the other portion of the grantee's costs, as the project aims to increase the company's competitive advantage [...] the work is developed by me in collaboration with the company, so that we can achieve the proposed objectives. [...] At the end of the PhD project, I expect to have implemented an ABC system in your company [...]

On July 15th, 2011, the company calls me to have a new meeting with the CEO and CFO. On this day, the ABC project is accepted by PortechCo. We plan to start the ABC project on the 1st September 2011.

* * *

In my research setting, I executed a 'strong intervention' because my intention was to design and implement a new ABC system that the company had not yet implemented. In cases where the researcher is faced with a 'strong intervention' (Jönsson & Lukka, 2007), tensions and variations between the

prototype version of the project and the final solution implemented may occur (Gondo & Amis, 2013). In July 2011, I presented the ABC project as a solution to measure the profitability of PortechCo. I acted as a type of consultant who had sparked interest in the company to implement an ABC system. In this initial project phase, the ABC system was a theoretical concept, a management technique that I had to design and implement in the field of practical actions of the company. Practice is a sequence of actions performed by a person to serve other clients that are considered (Argyris & schön, 1974). In theory, management techniques¹⁶ can be easily understood (or can be embedded in the actors influencing the adoption of the management practice, according to their own institutional logics), but when implementing them in the field of actions social and technological resistance can occur.

Given my personal experience as an interventionist researcher at PortechCo, I can reflect on and discuss the argument posited in the above paragraph. During the adoption of a management technique, adaptations seem to be more the rule than the exception (Ansari, Fiss & Zajac, 2010). In the case of a 'strong intervention', in which the goal is the implementation of a new system or a management process in the company, a strategy that can be used to minimize possible resistance in the adoption of a management technique is adapting the management technique to the company. As such, the interventionist researcher can make adjustments that enable approximation of the theory of the intended management technique with the technical¹⁷, political and cultural reality of the company (Ansari, Fiss & Zajac, 2010). Thus, the success of a 'strong intervention' can fail if the researcher, during the diagnosis of the company, does not effectively identify technical, cultural, and political elements engaged in the ground of actions of the company. However, the researcher must balance the adaptations and fits made to the management technique. On the one hand, too many adaptations may compromise the effectiveness of management technique as it may deviate too much from its initial focus; on the other hand, too few adaptations of management technique to the company may lead to resistance and difficulties in implementing the original management technique (Ansari, Reinecke & Spaan, 2014). In either case, my suggestion is that the interventionist researcher should not impose the management technique or force its implementation. Organizations tend to be complex (Battilana & Lee, 2014) and are

¹⁶ 'Management technique' refers to the practice of management which in this context and paper is synonymous with theory; that is, the management technique has not been applied in practice (e.g., in the company under study). But as I mention practice as opposed to theory, I adopt the 'management technique' term to avoid false interpretations.

¹⁷ Here, the technical term means technological equipment and hardware (e.g., machines, software, etc.).

confronted with different logics (Greenwood, Diaz, Li & Lorente, 2010) that may influence the implementation and adoption of certain management technique.

4.2. The interactionist role of the interventionist researcher inside the company

Porto, Thursday, 1st August 2013, 11:00 hrs. I'm on the shop floor of PortechCo overseeing the chief of logistics dept. to improve the ABC implementation in the logistic department. I continue to walk, and when I am in the #2 aisle of the #1 warehouse, I find Pedro (pseudonym) performing the inbound activity 'goods storage'. He has a laptop and a hand-held barcode scanner and is storing three pallets of merchandise in the racks. As I still have some time, I decide to stop for few minutes to observe his actions in the round of the activity and to talk to him a little. After asking him a few questions about what he is doing I am unexpectedly asked the following question:

Pedro:

Are you doing a study to improve our productivity in logistics?

[... I begin to think that my presence at the warehouse may be interpreted as hostile because it seems that Pedro believes that I am controlling his performance and that I want to get more information to improve the storage process ...]

Raúl:

In fact, it is not quite the same! I am working on a cost allocation project. I want to know, for example, the cost of the activity 'goods storage' and how I will then allocate that cost to a customer, a brand, or a product family.

[... Pedro quickly understands my concerns and, knowing that I don't intend to control his processes but only seek to measure the profitability of the company's cost objects, promptly begins to chat with me with more confidence, giving me more information about the activities. As a matter of fact, with the costs per activities, the company through the activity drivers can measure the performance of the employees' job based on an activity-based management philosophy, but only the operations director knows the details of my study ...]

In the field of the intervention, the researcher plays two distinct roles: the practitioner role that aims to solve the problems of the company and the researcher role, developing theory resulting from the intervention. Although conflicting at times, the researcher must learn to deal with both roles simultaneously. Thus, the way that the interventionist researcher engages and interacts with the company can be negotiated and may have different formats. During my intervention, I complied with the company work schedule, performing similar functions to an industrial controller/consultant (practitioner) in order to implement an ABC system.

During this time, I gained many insights on balancing both roles. Importantly, the interventionist researcher must negotiate his/her identity – he/her should not neglect his/her identity as an academic (although a different lens of the practitioner role), but he/she should also not only identify himself/herself merely as a researcher because the company's employees might not take the work that is being produced by the researcher seriously, placing the intervention and the research project at risk (Hammersley & Atkinson, 2007). An effective interventionist researcher should also have the ability to manage large amounts of information, an ability to develop long lines of invention and inference, and a capacity to maintain several ways of looking at things at the same time (Cooper & Morgon, 2008) while performing his intervention. The interventionist researcher will have more advantages assuming the role of 'reflective practitioner' during his intervention (Schön, 1983) for a better comprehension of the company's reality. To be reflective is to examine closely one's own actions, thoughts and feelings, and their effects; it is also the act of examining the actions of other people in the environment (Bolton, 2003). Finally, an interventionist researcher, while in the field of action, may have more advantages if he/she is a 'native' member of the company staff – this was the case in my study. In this way, he/she could also have the same routines and habits of other employees, for instance, working the same hours in the company. Unlike a problem identified in ethnographic studies on the role of the researcher, as 'complete participant' he/she cannot take notes while on the ground in order not to reveal his/her identity to the other group members (Denzin, 1989), in an interventionist research this tension is suppressed because the researcher is solving a problem in the company and the notes taken in meetings are not incompatible with his/her role as a practitioner.

* * *

Accessing the data and the field is another critical aspect to be discussed between the researcher and the organization. In my case, we agreed to have access to all necessary information, but this does not mean that either party should use such an 'agreement' to force or to deliberately request to obtain certain information. More important is that the researcher becomes a native member of the organization (Brannick & Coghlan, 2007) in order to get the necessary information that results from the natural role of the intervention and, thus, avoid biases. Whilst it is important to negotiate access to confidential data that may be necessary for the case, this type of confidential data should not enter in the scientific report for ethical reasons but can still be very useful to help in to understand the sociotechnical reality of the organization.

Once in the field of action, the researcher may begin the intervention by first diagnosing the organization – understanding the technical, cultural, and political environment, as discussed above in another layer of this narrative. In my case, the first two months were very relevant. During this time, I followed the director of the quality department who was redesigning the company's processes to include in the next review of the company's quality management system (ISO 9001: 2008).

* * *

During the intervention phase, like a case study (Yin, 2003) or ethnography (Hammersley & Atkinson, 2007), it is necessary to collect evidence of empirical facts arising from the intervention and note observations experienced into the field of actions. The interventionist researcher should keep a research diary (Nadin & Cassell, 2006) that is written daily or soon after the interventions, in order to register chronologically all the actions undertaken in the organization. The interventionist researcher, when performing the intervention alone or together with other employees in the organization, interacts with and reflexively observes the sociotechnical reality that occurs in the implementation of the management accounting technique. The interventionist researcher plays two roles that should not be overlooked: (1) as a practitioner, he/she must think of solutions to improve or innovate the company's management accounting system, and (2) as an academic, he must observe actions taking place on the ground with another 'lens' and another perspective, even though this cannot predict the future result of the

implementation or improvement that the management accounting technique can produce in the company.

Some important facts to be recorded in the diary field are: the name of the people with whom the researcher interacted, the start and end time of the meetings, incoming and outgoing e-mails, etc. (for a complete discussion on this issue see the paper of [Jönsson and Lukka \[2007\]](#)). Tensions felt, problems encountered and contradictions can also be recorded to reflect the complexity of sociotechnical reality of the organization. These events, even if they may seem insignificant during the intervention, must be recorded in order to be analysed later, because they certainly may help the researcher complete the puzzle of the research. Hallway conversations should also be recorded in the diary field. Dialogues that the researcher deems most critical should be reconstructed and transcribed in a dialogue format because they can be very relevant to validate the theory construction in the crafting of the scientific work. Depending on the intervention and the research project in question, it may be useful to conduct audio recordings and keep visual records of events because in the future it will help the researcher remember the facts in the data analysis phase. After the intervention is completed, it may be necessary to collect more information. In my case, I conducted interviews with some key actors of PortechCo that I considered important and critical to validate, defend and discuss my arguments with more robustness. This does not mean that conducting interviews is necessarily important. There are many interventionists and ethnographic studies that do not use interviews to validate and to tell the story (for an ethnographic example that does not use interviews see, for instance, [Preston \[1986\]](#)). In this paper I do not intend to discuss the role of interviews; however, the interventionist researcher, as a reflexive practitioner, should learn more from the case if adopting the method of analytic interviews (for a discussion of analytical interviews see, for instance, [Kreiner and Mouritsen \[2005\]](#)).

5. Scene #2: Personal experiences and theoretical discussion on the academic world

In this scene, I present five themes that focus on my personal lived experiences in the academic world as a doctoral researcher. Using a layered account format, I describe chronologically moments (also epiphanies) of my journey, on the subject of telling and writing an interventionist research, in order to interpret and discuss my own position according the 'other' scholars' positions. This scene also aims to

engage and immerse the reader in my own experiences, prompting reflections on their experiences when they are reporting on their interventionist research.

5.1. Telling the interventionist story

Brussels, Thursday, April 18th, 2013, 15:45 hrs. I am in a small meeting room of the monumental and historic Hotel Metropole, venue of the EDEN doctoral seminar on case-based research in management accounting, waiting for my seminar supervisor, Professor David Cooper, and my four group colleagues to begin the discussion of my PhD project. The remaining 15 participants of the EDEN doctoral seminar are divided into three remaining groups supervised by Professors Kari Lukka, Sven Modell and Jan Mouritsen.

David Cooper:

How do you want to do your presentation? Do you intend to present over the 30 minutes and at the end receive our comments or should we have an open discussion where we can comment throughout the presentation?

Raúl:

I'd rather have an open discussion. Your comments are welcome.

David Cooper:

You can begin!

My discussion takes about 60 minutes and ends with the following comment.

David Cooper:

[...] My view of the comments is that you're too immersed in this case. It is fine that it is Interventionist and I suggest you consider using a more narrative approach. I encourage the narrative to include your feelings, your wishes, your desires, your interests and your involvement in this process. This would basically be an insider account of the project to build and implement an ABC system [...]

* * *

In the final editorial, Robert Scapens, after having served 25 years as an editor of the *Management Accounting Research*, notes that many interventionist papers have been rejected by accounting journals, because they are overly descriptive and lack a compelling theoretical dimension (Scapens, 2014). The problem of interventionist papers lacking theoretical depth can be overcome by adopting a more creative writing approach (Bansal & Corley, 2011) that engages and immerses the reader and conveys lived experiences.

According to Baxter and Chua (2008), a convincing text should take into account three dimensions: (1) authenticity, (2) plausibility and (3) criticality. The first dimension - authenticity - refers to the form in which the researcher describes his/her involvement in the field. That is, the researcher should illustrate convincingly his/her role in the case. The second dimension - plausibility - is concerned with the credibility (or not) of the facts obtained in the field of research. It is important that the story makes sense and that it is coherent and likely, that is, credible, allowing the reader to understand the reality studied in the case. The last dimension - criticality - is concerned with how the author writes the text. That is, after the fact, how does the writing allow the reader to engage in theoretical and critical analysis that enables reflection into other contexts and realities. The combination of these three dimensions aims to generate the 'convincingness' of the story. Following this position, one can question on the type of writing the interventionist researcher should use in the manuscript, in order to generate in the reader such 'convincingness'.

* * *

The interventionist researcher has a role inside the organization under study. He/she should express in the manuscript his emotions, feelings and positions concerning the intervention that he/she is performing. Solely trying to understand the actions and decisions taken by the other actors involved in the process, using an outsider lens, places the interventionist researcher in a weak position to tell a 'convincing' story. Thus, taking an insider position allows the interventionist researcher to produce new theories emerging from practical actions rather than simply trying to test or extend other theories leading to research with less scientific relevance.

The papers of Preston (1986) and Chenhall, Hall and Smith (2017), both published in *Accounting, Organizations and Society*, are two good examples that demonstrate the suggestion made by Professor David Cooper. The first example (Preston, 1986) is an ethnographic study, in which the author

takes a participant observer role over the course of a year in a plastic containers division of a large English company. The second example (Chenhall, Hall & Smith, 2017) is an interventionist study in which the second researcher plays the role of volunteer (61 days of participant observation) in a non-governmental mental health organization in Sri Lanka. These two papers include the researchers' voices in dialogue format, demonstrating the authenticity, plausibility, and criticality of the study. Although these two papers use a creative writing approach, thus creating a 'convincing' story for the reader, the story is not told in the voice of the researchers. The authors do not tell their own experiences lived in the field, demonstrating a clear and intentional distance between the researchers and the case. A way to reduce this distance is using autoethnographic accounts. This topic will be discussed in the following sections.

5.2. Layered Account

The doctoral seminar on qualitative research in management accounting in which I had participated in 2013 in EIASM (Brussels), and in particular the discussion of my thesis project with Professor David Cooper, had a strong influence in the way I began to 'look' at my interventionist study. He had further said that in order to conduct my interventionist research I would need to have a lot of knowledge of qualitative research, and I then realized that I needed to invest more time in reading about qualitative research. I began reading on reflective writing, critical ethnography, autoethnography and so on, and, when I was reading the chapter "Writing - The Method of Inquiry" by Laura Richardson and Elizabeth Pierre, in the book "The Sage Handbook of Qualitative Research, edited by Norman Denzin and Yvonna Lincoln, 2005 I found the writing style 'layered account'!

* * *

Tuesday, July 9th, 2013, 11:00 hrs. I am sending my second email to Professor Carolyn Ellis, Chair, Dept. of Communication in the University of South Florida. Her research has been situated in interpretive and artistic representations of qualitative research and focuses on writing and 'revisoning' autoethnographic stories as a way to understand and interpret culture and to live a meaningful life. In my first email, I had discussed my concerns about autoethnography in general, but in this message my concern is focused on the autoethnography writing technique known as 'layered account'.

Dear Professor Carolyn Ellis;

I am back again [...] I am reading on 'layered account', however I have some concerns about it and I would like your opinion [...] Is it possible to include theories in the middle of self-narrative? i.e., can I quote others authors? Or is this type of literature review another layer that I can write during the narrative? [...]

Many thanks, once again, for your time and I hope to receive your feedback!

Regards,

Raúl

Tuesday, July 9th, 2013, 14:42 hrs. Professor Carolyn Ellis promptly replies to my email with the following message:

I sent your email to one of my advanced PhD students for response. Good luck in your project.

Carolyn Ellis

Tuesday, July 9th, 2013, 17:07 hrs. I received a very extensive email from Jennifer Whaler¹⁸, the PhD student of Carolyn Ellis with the following reply:

Hi Raúl-

Dr. Ellis forwarded me your email regarding your questions about the layered account. I've worked with Dr. Ellis for a few years and am familiar with the layered account methodology so she thought I might be able to help you out [...] I think taking a look at Rambo-Ronai's definition of the layered account might be helpful in constructing your project. The layers that you write shouldn't be sections that are separate from one another but should flow together to form a cohesive narrative, much like a story. I'm sure by now you've read Rambo-Ronai's piece, 'Multiple Reflections of Child Sex Abuse: An Argument for a Layered Account'. This is definitely a pivotal piece to start

¹⁸ PhD candidate – University of South Florida, USA.

with if you haven't read it already (though I will warn you that it is very graphic). I'll attach it to this email.

As for 'how many' layers to include, that's totally your jurisdiction. The nice thing about this methodology is that it is flexible. There is no standard number of layers. You can include your literature within the layers, or you can make the literature different layers [...]

Feel free to let me know if you have any other questions.

Jen Whalen, M.A

Tuesday, July 12th, 2013, 13:21 hrs. I sent another email to Jennifer.

Hi Jennifer,

I think I created some confusion when I wrote to you about the 'layered account'. I understand that we can have all the layers we want; my questions were more about the 'voices' I use to tell my stories. I think that I can shift to another layer if I want change "to a different temporal/spatial/attitudinal realm" (Ronai, 1995, p. 397) and I use the asterisks to denote this. Am I correct? [...] Is it possible to mix layered accounts with other 'material' like interviews?

Monday, July 22nd, 2013, 19:58 hrs. I received another email from Jennifer.

Hi Raúl-

[...] To answer your questions, yes, you can shift from layer to layer with the asterisks (* * *) and you can integrate interviews (or other artefacts) and your own voice. [...] As for the time concerns you're having, I find that writing autoethnographic pieces can be the most challenging because you have to really think through being reflexive, but I find them much faster to write than traditional social scientific pieces because you become immersed in exploring your personal experience. That's just my experience, though [...]

Let me know if I can help you with any other questions!

* * *

One possibility, which can be included as a writing technique in interventionist texts, is called 'layered account'. In researching major accounting journals, I could not find a single paper using a layered account format. "Layered account is a postmodern ethnographic reporting technique that embodies a theory of consciousness and a method of reporting in one stroke. [...] The layered account offers an impressionistic sketch, handing readers layers of experience so they may fill in the spaces and construct an interpretation of the writer's narrative" (Ronai, 1995, p. 396).

The adoption of this writing method can completely change the way we read and write cases and interventionist stories in management accounting field. The layered account style can help the author/researcher tell the story in a clearer and simpler way, allowing for the possibility to include multiple voices in the text. As noted by Jennifer Whalen in the emails above, several 'layers' of text may be included, which may be different episodes or different voices, divided by asterisks (for a layered account example see the paper of Ronai, [1995]). Analysing in detail the work of Preston (1986), it is evident that the author did not write the paper in a traditional format (e.g. introduction, literature review, method, discussion and/or conclusions). The story written by Preston (1986) follows a different format with only one similarity to the traditional format – the conclusion. Despite this fact, such a paper is referred to by several authors (and was referred in the EDEN seminar) in the social and organizational accounting field as an excellent example of how to tell a scientific story in which the author/researcher is immersed in the research field. Like the unconventional style used in Preston's paper, I suggest that the 'layered account' style can be used for writing about the organizational and social accounting domain.

5.3. Distancing between the case and the researcher

Tartu, Sunday, 18th May 2014, 9:00 hrs. Today is unusually warm in Estonia. I saw on the news that it has never been so hot before in the month of May. I feel like home (Portugal), because I am wearing summer clothes, but I'm at the 30th EEA doctoral colloquium. I am the first speaker in the organizational and social accounting research group chaired by Professor Keith Robson, by Professor Andrea Mennicken and by Professor Martin Messner. We are nine PhD students in this group developing qualitative studies

in organizational and social accounting. All of us have about one hour to present and discuss our papers with the faculty and the doctoral scholars.

* * *

In my paper of this colloquium, entitled “Variations in the fidelity of a practice: A narrative of the acceptance and adaptation of an ABC system in a fast growing Portuguese company”, I adopted a pluralist theoretical approach (Nicolini, Mengis & Swan, 2012), mixing ‘New Institutional Theory’, ‘Practice Theory’ (more specifically Actor-Network Theory) and ‘Institutional Logics’ in order to tell the whole story of my interventionist case. Furthermore, I mixed the interventionist and the autoethnographical approach in the method section of the paper, as is it highlighted below.

[...] The methodology that I used to collect data during the design and implementation of the ABC system, in PortechCo, was interventionist research (Jönsson & Lukka, 2007). [...] I performed a ‘strong intervention’ (Jönsson & Lukka, 2007) because my intention was to implement a new management accounting system. [...] In this study, I also used an autoethnographic approach, because I used reflexive writing to describe the experiences that I lived while working as a professional (Haynes, 2013) during my intervention. [...]

As I had adopted a pluralistic theoretical approach, I received comments from the group saying that I had a lot of conceptual overloads. In addition to the theoretical queries, one discussant of the group intervened about my methodological approach, noting the following:

[...] I think that you know the interests of the autoethnography [...] this story is also about your experiences and the tensions that you lived with the ‘others’ during your intervention [...] It may help you to look at your interventionist case with more distance, but I mean that is impossible, because you implemented the ABC system – it is your autoethnography [...]

In the comment above, which I paraphrased, this discussant is explaining that interventionist work lacks critical distance, but at the same time the discussant seems to indicate that it is not easy for the interventionist researcher to have distance from the case, because the researcher is an actor with an active professional role in the implementation of a management accounting technique. According to my own experience, this tension, which occurs in the interventionist researcher's role (as practitioner and researcher), can be problematic when the researcher is writing an interventionist case because, the researcher will always have his/her perspective on the case. In the same vein, several authors have strongly encouraged researchers to write self-reflections or autoethnographies (Berg & Lune, 2012), implying that interventionist researchers cannot escape reflexivity and their own voice when they are telling their story. The researcher is also socially constructed and influenced by his/her lived experiences in interventionist study. The researcher is constantly constructing meaning and social realities as he/her interacts with others and talks about his/her experiences (Cunliffe, 2003).

5.4. Taboo on telling our own stories

Rotterdam, Friday, July 4th, 2014. I am at the 30th EGOS Colloquium, in the large auditorium of the Rotterdam School of Management, Erasmus University. The auditorium begins to fill. The Sub-plenary #2: "Dynamics of Organizational Routines" is open. Professor Martha Feldman chairs this session: she begins with a practical presentation, engaging the audience with a game on organizational routines. The sub-plenary ends with the speakers Professors Luciana D'Adderio and Carlo Salvato that present case studies on organizational routines. At the end of the presentation, I approach Professor Martha Feldman and we have the following conversation:

Raúl:

Nice to meet you. My name is Raúl, I am from Portugal, and we exchanged a couple of emails earlier this year on organizational routines. I'm conducting an interventionist study on the process of design and implementation of an ABC system in a Portuguese company. I have a studentship in industry, and I had to contribute to the company with

practical work and now I'm just doing research. I'd love your opinion on conducting this type of studies [...]

Martha Feldman:

I already remember you. In fact, my doctoral research was also performed in the same manner as yours. I also contributed to an organization that I worked for over 18 months [...]

Raúl:

[...] But I have noticed that this kind of research method is not well accepted by the academy [...]

Martha Feldman:

It is not quite like that, but I do think it needs to be well justified [...] I have two books published on the topic. The first was published in 1989, entitled *Order Without Design: Information Production and Policy Making* and the second was published in 2003, entitled *Gaining Access: A Practical and Theoretical Guide for Qualitative Researchers* [...]. There is also a recent paper by Michel Anteby published in 2013 in *Organization Science* that provides a good discussion of telling our own stories [...]

Raúl:

Thank you for the recommendations. I am delighted to know that these types of empirical studies are on the agenda! [...]

* * *

There is still some reluctance to publish studies that tell the author's own story (Anteby, 2013). I noticed this trend in the interventionist studies of management accounting. Authors tend to omit their personal experiences when recounting their interventions in the field. Anteby (2013) states that "many involved researchers simply choose to omit, at least for publication, the full nature of their relationship to the field (p. 1279)". However, as noted by Professor Martha Feldman, the problem is not in telling the story itself, but in its justification, which reinforces the argument that an interventionist study should be written convincingly (Baxter & Chua, 2008) and with different writing strategies, opening the door for an experience to be had by the reader (Grey & Sinclair, 2006).

5.5. Autoethnography

Edinburgh, Friday, 6th November 2014, 17:40 hrs. I'm on the fourth and top floor of the Business School building at the University of Edinburgh. I'm in the conference room in order to attend the annual New Public Sector Seminar organized by Professor Irvine Lapsley (University of Edinburgh). After the presentation of an anonymous speaker, Professor Lee Parker, the discussant of the presentation, makes the following comment on the methodology used in the paper presented.

Lee Parker (discussant):

Because you are telling a story that you lived in the 1990s, I recommend that you use the autoethnographic methodology in your paper [...]

I smiled and I thought to myself – "the autoethnographic methodology is falling on my doorstep". At the end of the seminar, I turned to Professor Lee Parker.

Raúl:

It's a pleasure to meet you. My name is Raúl, I'm here in Edinburgh as a visiting doctoral student. During your discussion, I found it curious that you suggested that the speaker would change his methodological approach to an autoethnographic style [...]

Lee Parker:

Yes, the speaker is 'telling' a story that he lived during that period, and I think that this method fits well in the case that he has presented here [...]

Raúl:

Your suggestion is pertinent to me, because I have been exploring this research methodology, and in the reading I've done [accounting journals], I've just encountered the work of Haynes [...] She is a researcher in accounting here the UK [...]

Lee Parker:

Yes, it's true; I know who Kathryn Haynes is. She works at the University of Newcastle. And she is not the only one publishing autoethnography [...] and we will see, in the near future, more papers published in accounting journals using this research methodology. I believe that no one in this room knows what autoethnography is!

Raúl:

Yes, it is unusual to see an autoethnographical approach in accounting scholarships and from what I know, most management top journals do not identify themselves with this method [...]

* * *

Autoethnography is a research method that can be used to write interventionist research. Autoethnographic texts are usually written in the first-person and may appear in a variety of forms, such as personal essays, short stories, dialogues, layered accounts, and so forth. In any case, the researcher/author is the object of research, thus breaching the conventional separation that exists between the researcher and informants. In short, autoethnography is an autobiographical genre of writing and research that demonstrates multiple layers of consciousness in connecting the personal to the cultural (Ellis & Bochner, 2000).

In the accounting journals, I found only three authors (Davie, 2008; Gibbon, 2012; Haynes, 2013), who have used the autoethnographical method for writing and for analysis, using themselves as the object of their research. For instance, Haynes (2013) in her paper tells her own personal experience as an accountant professional, evaluating critically the significance of sexuality and sexual symbolism as processes of gendering the identities of employees within an accounting firm. Because autoethnography has rarely been used in the accounting context (Haynes, 2013), there is space to progress with this methodology, specifically for 'telling' on interventionist studies.

6. Conclusions and contributions

This autoethnographic paper seeks to contribute to interventionist research in the management accounting field in two ways. Firstly, this paper presents my personal experiences as an interventionist researcher. This confessional story allows for reader engagement, immersing the reader in some of the tensions that confront the interventionist researcher when performing (or planning to do) such research. Secondly, this paper presents a new style for telling and writing interventionist stories called 'layered account'. This novel style of writing aims to shift the reader into different layers of consciousness in a

'sandwich' format – on the one hand, immersing the reader in the researcher/author's experiences and, on the other hand, informing the reader of the scientific explanation of the story.

Concluding and reflecting on the first scene, as an interventionist researcher playing the practitioner role, I focused on the prescription of solutions aimed at solving the company's problems. In playing the role of the researcher, as a scientist I sought theoretical insight about the management technique implemented and adopted in the company; that is, the interventionist researcher must examine the phenomenon (Corley & Gioia, 2011) with great reflexivity (Delbridge & Fiss, 2013). An interventionist researcher must bear in mind that his/her goal as a scientist is to theorise the logic of practice of a specific phenomenon within an organization (Sandberg & Tsoukas, 2011). This bipartite position, as a practitioner and researcher, allows the interventionist researcher to embrace a range of opportunities, as he/her is able to produce knowledge with impact to the professional community, as well as to the academic community (Parker, Guthrie & Linacre, 2011).

Regarding the issue of publishing interventionist research, Scapens (2014) points out that many interventionist papers have been rejected by accounting journals, because they lack compelling writing. On this topic, in the second scene of this paper, my story suggests that the interventionist researcher can adopt writing strategies closer to the reader, with more reflexivity and less distance from the case. In this way, the interventionist researcher is in a position to develop more convincing texts (Baxter and Chua, 2008) with greater verisimilitude (Denzin, 2014). One way to bring the reader closer to interventionist research is by using autoethnography to develop greater reflexivity, whereby the researcher's voice has a dominant position in the writing. In this paper, I mention the 'layered account' format as an alternative form of writing, in which the author/researcher has greater freedom to tell the story. In accounting journals, this method has not yet been employed, to my knowledge. Like Preston's (1986) introduction of ethnography to the accounting field as an effective way to study organizational phenomena, the 'layered account' style can be adopted by interventionist accounting researchers. This style allows the reader to become immersed in a continuous experience emerging from a multitude of reflexive voices that simultaneously produce and interpret a text (Ronai, 1995).

In this paper, I write on my experiences as a material object, while simultaneously an active subject (Denzin, 1992). At the same time, I discuss my personal experiences with the scientific literature in order to produce a more robust insight into the management accounting, making the reader more aware of the *problematization* of writing interventionist studies. This method of writing can encourage

more authors/researchers to tell their own story, instead of intentionally omitting their position from the field study (Anteby, 2013).

In short, this form of writing generates convincingness whilst considering authenticity, plausibility, and criticality (Baxter & Chua, 2008), so that the reader becomes immersed and can learn from the case and story. To reach this goal, I suggest that interventionist researchers tell and write their personal experiences, as well as the experiences they lived in the field of actions, including engagement with other actors.

6.1. Final remarks and implications for future research

Instead of trying to produce a checklist of good practices on interventionist research, in this paper, through my personal experience that I lived as an interventionist researcher, I have sought to develop an appropriate basis for a discussion on 'telling and 'writing' a convincing interventionist story in the management accounting field.

Though autoethnography provides an opportunity for the researcher to communicate multiple perspectives of the world without compromising the need to be scientific (Custer, 2014), in this paper I propose a new approach to writing interventionist research: the 'layered account' style. As demonstrated in the 'scenes' of this paper, this format mingles personal experiences, accounted through the interventionist researcher's voice and the voices of 'others' encountered during the intervention, with 'layers' of scientific texts, thus enhancing the convincingness and verisimilitude of interventionist studies. Adopting this novel writing style –'layered account'– in the field of the management accounting provides an opportunity to produce studies that reduce the research-practice gap in the management accounting domain.

As for future research, I recommend conducting interventionist studies using autoethnographic methods as an alternative format for building theory in the management accounting field. Moreover, given the autobiographical element of the autoethnographic approach, I recommend, in future research, that researchers and practitioners of the management accounting field partner up to produce autobiographical studies. This 'relational autoethnography' (Ellis & Rawicki, 2013) may contribute further to building more theory from practice, because it encourages professionals of the management accounting field tell their own stories and experiences in very original and practical way, that is both comprehensible for

practitioners and extremely relevant for academics, as they can learn more from the experiences of management accounting professionals.

Acknowledgments

I would like to thank Professors David Cooper (Alberta School of Business), Carolyn Ellis (University of South Florida), Martha Feldman (University of California), Lee Parker (RMIT University) and PhD candidate Jennifer Whalen (University of South Florida) for giving me permission to include their 'voices' in this autoethnography. In particular, I would like to thank Jennifer Whalen for her invaluable guidance given by email and Professor Lee Parker for his helpful and insightful recommendations on the first version of this paper. Any mistakes or omission in the dialogic material are entirely my own. An earlier version of this paper was presented in the IPA Emerging Scholars' Colloquium Stockholm, 6-7 July 2015. Thanks to the participants in this presentation (Professors Keith Robson [HEC Paris] and Silvia Jordon [University of Innsbruck] and colleagues Christos Begkos [Manchester Business School], Chiara Bottausci [HEC Paris], Marian Gatzweiler [University of Edinburgh], Mo Yan [University of Edinburgh], Ana Conceição [ISCTE Business School], James Dunn [University of Edinburgh] and Miguel Gil [Manchester Business School]). I would also like to thank my colleague Alette Lambert (University of Edinburgh) for her help editing this essay.

CONCLUSION

This thesis is the result of an interventionist study conducted in a large Portuguese company, called PortechCo. My intervention in the company took place from September 2011 to January 2014. The purpose of this study, supported by FCT in the form of a PhD studentship in Industry, was twofold. On the one hand, it was necessary to contribute to the host company through a practical project aiming the implementation of an ABC system. The intention was to implement the ABC across the company to measure the profitability of its products, customers and business areas allowing PortechCo to be more competitive, through a better costs organization and more accurate costs allocation. On the other hand, it was necessary to contribute to the academia with new theoretical and practical knowledge by interpreting the intervention of the process of acceptance and implementation of the ABC system. To be in the both sides was not an easy task and tensions between me (as practitioner and researcher) and the academia world were evident during my long PhD journey. The PhD project was planned to spend 75% of the time inside the company, working in the finance department, developing a full ABC system (Gosselin, 2007). The remaining 25% of the time were to be allocated to academic issues, spending two days a week in the University of Minho doing the first year of the doctoral program and the subsequent years collecting, analysing, and interpreting data, reading academic papers and writing the scientific manuscript. 25% of time was not enough and social life was sacrificed. In the academia, I learned from my supervisors that I should make readings on theories that came from sociology and others social sciences fields to have enough knowledge to support and interpret my case study. Furthermore, when I frequented the EDEN doctoral seminar on case-based research in management accounting, in 2013, an intensive course that I participated in Brussels, under the Professor David Cooper's supervising, I learned that to conduct my interventionist case study I should do further readings on qualitative research (Berg & Lune, 2012), like ethnography (Hammersley & Atkinson, 2007). Despite the fact that I had a masters' degree in operations manager, where I had explored scientifically the activity-based costing methodology, my skills were more technical than sociological and as a qualitative researcher I was a complete novice. As a practitioner, coming from consulting (costing) and silversmith's industry as a manager, I started realising that I had a new and huge world to explore and to learn about in the academic side. Another important issue was related to the PhD manuscript. One of my supervisors told me that nowadays the academia was more interested in thesis produced through essays (usually three pieces) refuting the old manuscript and arguing that most of the "old style" manuscripts were redundant in the literature review

and less prepared to be published in scientific journals. For this reason, I started to produce my PhD manuscript having in mind the thesis by essays, via three pieces. Producing the PhD manuscript via essays has advantages in the sense of publishing quickly, but the risk to fail is also high because the PhD thesis should be produced narrowing a specific gap in the literature and the PhD student can easily be lost and submerged in a swamp of papers struggling with time for reading all published material in good journals. Usually, a PhD student uses a single theory (from sociology) to explore deeply the case study attempting to contribute to the theory as well to practice. Once again, my supervisor, David Cooper from Alberta School, in EDEN doctoral seminar, advice the risks of producing a not plausible thesis, by telling me that their PhD students only needed to produce one good paper, to be published, for instance in Accounting Organization and Society (AOS) journal, to finish their PhD. Despite the advice of Professor David Cooper, this thesis has adopted a pluralistic approach using different lenses, theories, and unusual qualitative methods. Through three essays in this thesis, I have explored different theories from different fields, as actor-network theory and other concepts coming from the Science and Technology Studies (STC), as boundaries objects and epistemic objects and institutional theories as institutional logics and institutional work. Regarding the research methodology, I have adopted a qualitative research paradigm, using the interventionist research and autoethnography attempting to contribute to the interventionist methodology.

Despite the use of disparate theories and qualitative methodology, with high risks of fail the schedule to finish my PhD on time, this thesis can be an example to encourage others students to have a pluralistic approach because they certainly can reach a higher level of abstraction to produce new knowledge that can contribute both to the academia and to practice (Van de Ven & Johnson, 2006).

This is what a researcher should attempt to do when he/she is conducting an interventionist research. As explored above, this thesis comprises three essays and explores different aspects (technological and sociological) of the acceptance and implementation process of the ABC system at PortechCo. It also explores methodological aspects related to interventionist research that the researcher experienced during his doctoral journey.

The first essay focuses on the study of the pilot implementation process of the ABC system, which took place between September 2011 and May 2012. It explores the role that visualizations played during that process. Implementing an ABC system, a cross the whole company, requires receiving and giving information which is coming from different individuals with different interests and management knowledge, and in that sense the visualizations are an important mediator in this process.

The second essay tells the whole story about the process of acceptance and implementation of the ABC in PortechCo. Theoretically, this essay joins several theories to interpret the case. Linking the theory of institutional logics, institutional work and variations of management practices, this essay explores why the PortechCo accepted to implement the ABC, and then, during the implementation phase, explores how and why individuals made adaptations in the ABC technique according to the technical, cultural and political characteristics of the company.

The third essay, conducted through an autoethnography, explores some experiences of the researcher as a practitioner in the host company and then as an academic interacting with other scholars and searching for answers to justify the interventionist research method. In short, this essay is an autoethnography of my journey as a researcher that adopted the interventionism as a research methodology to conduct this thesis.

CONTRIBUTIONS

The contributions of this thesis are threefold. This thesis tries to provide contributions to the interventionist research methodology, to management theories and to the practice of ABC.

Interventionist research methodology. The link of autoethnography with interventionism is an important contribution of this thesis that is articulated in the third essay. Interventionism is a qualitative research method used to study situations where the researcher participates and intervenes in the implementation processes or in the improvement of practices in management accounting. In these cases, the researcher not only observes others, collects information from others and the world around them, but also tells their story. In interventionist research, the researcher is also the object and the subject of study. The researcher, is in a better position to look at himself/herself as a piece of research, to tell his/her own experiences and emotions and how he/she deals with the problems during the implementation or improvement process of management practices. The researcher, as the object of study, should be the main source of data. He/she is at the centre of research and therefore, entangling autoethnographic methods in the interventionist studies, in my perspective, can help the researcher to have a better and a more comfortable position of himself/herself in the research. In the third essay, I tell my journey as interventionist researcher through an autoethnography. This essay shows how the researcher can use his/her own information to report his/her actions, positioning him/her at the centre of the investigation. The methods used in autoethnography help the interventionist researcher tell his/her story. By assuming,

from the begin of the research, his/her own "I" as a source of information, the researcher can account stories and experiences that usually are occult or become difficult to explain when the researcher chooses to omit his/her role. Another important aspect is the style of writing used in this essay. The layered account format is an alternative style that allows the researcher to write the scientific manuscripts with more freedom, including several voices, in which the voice of the researcher is clearly present and dominant in the study. These methods have the power to account credible stories and report experiences that can be very relevant both to the practical and academic world.

Management theories. Within the academic branch Science and Technology Studies, this thesis contributes to a greater understanding of the role that visualizations play during the process of implementing a management system. In addition to acting as boundary objects, with the ability to mediate different worlds within an organization, visualizations accumulate and carry different forms of knowledge, acting as epistemic objects which are then processed and calculated into economic knowledge, represented by numbers. Visualizations, when applied in the correct level of abstraction, become praxis objects with the capacity to support the design and implementation of management systems.

This thesis also contributes to the theory in several ways. For institutional theory, this work shows the relationship that exists between the macro level of institutional logics and institutions with the micro-level of the individuals in the organizations. It shows how the ABC, as an institution, together with other institutional logics, influences organizational decision makers to choose their adoption. However, during the adoption process (acceptance and implementation), this thesis shows how ABC was adapted by the institutional work of actors that worked on the ground of the actions. These adaptations are intentional and unintentional and aim to adapt and fit the ABC technique with the technical, cultural and political dimension of the organization. This means that management techniques can be adopted by its institutional power and influenced by other logics, however, these techniques are then adapted by individuals that are at the micro-level of the actions inside the organization. Yet, these individuals seem to be the promoters of new management techniques that can be institutionalized in the long-term in society. This thesis is grounded in the fact that there is a continuous cycle of adaptations in management practices and that in the long-term the management techniques are far from the original ideal model seen as an institution and taken for granted by society. Thus, individuals seem to accept the management techniques, by its symbolic and material value, but then during the implementation they make adaptations to those techniques. This is relevant for the study of ABC. Can it be argued that companies that adopt the ABC and then abandon it, because the lack of technical, cultural, and political fits? And those

companies that said have adopted the ABC? Are they really following the ideal practice of ABC or did they make several adaptations, resulting in a very distant variant of the ABC? These management practices, institutionalized in such organizations, through adaptations, promote afterwards the creation of new management techniques that enter in the cycle of diffusion and in short term are translated into other management techniques? This recursiveness between the macro and the micro level is an important contribution of this thesis. Of course, this foundation is not limited to this study, and further research needs to be done to understand the changes that management techniques suffer and how new management techniques are created. According to this thesis is it my belief that these are important contributions to better understand the paradox of the embedded agency and to provide insights to continue explore the microfoundations of institutional logics.

Managerial practice. This thesis contributes specifically to better understand the ABC technique in practice. However, it is my belief that, in general, this thesis also contributed to all management techniques, since it analyses common and cross-cutting issues that occur during the process of acceptance and implementation of a management technique, and in this sense can serve as an example for other cases. For this reason, it provides insights through practical contribution to other management techniques. First, this study helps to understand how management techniques are accepted by companies. This is important for consultants and practitioners that must apply more time to the acceptance process that anticipates the phase of implementation. Special attention at this stage can help companies and consultants to better understand the risks of the management practice implementation.

Following this theory, this thesis also shows to the consultants or practitioners that desire the implementation of a management technique according with the ideal type as a best practice, following the canons prescribed for its implementation that such management technique could fail during the implementation process. This study highlights that the implementation of management techniques possibly will be more successful if they are adapted according to the technical, cultural, and political reality of the company. In short, companies seem to be resistant to adapting their own environment to the management techniques and management techniques seem to be more successful when they are adapted to the company's reality.

Another important aspect that this thesis points out refers to the use of visualizations during the design and implementation of a management system. This thesis shows that visualizations are important tools that should be considered every time a management technique is implemented. Visualizations help

different individuals get involved in the process of communication by sending and receiving back information that are crucial to the design and implementation of an ABC system.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This thesis is the resulted of an interventionist research and analyses the case of acceptance and implementation of ABC in PortechCo company. Therefore, this case cannot be replicated in other cases. Further, this thesis has the personal perspective of the researcher who has chosen to use specific theories to analyse the findings of the study. Another researcher, doing the same study, could get other results because he/she will take his/her personal perspective into account and could use another theoretical framework to analyse the case. Despite these limitations it is in this context that qualitative research is conducted. Qualitative data are subjective, and the researcher seeks to interpret the social reality of a specific site in accordance with his/her personal perspective. But more important than to replicate the qualitative studies is to build new theory and the lesson that the readers can take from the example under study can help other researchers and other practitioners to reflect on similar problems to those found in this thesis. In this sense, the qualitative studies are very important to the creation of scientific knowledge and to narrow the gap between theory and practice.

Another important aspect that a study like this offer is the possibility to open new avenues for conducting future research. This thesis highlights the aspect of being able to do interventionist studies recounted through an autoethnography. Consequently, other researchers can choose to tell their interventionists stories which may result in new theories that emerge from life experiences. These stories may be important to other academics and practitioners when implementing management systems. Another important issue, which can generate more knowledge to society, is the possibility to conduct relational autoethnographic studies. In such case, the researcher collaborates with a practitioner that has a relevant story to account. The joint work, co-authoring, can serve to build new theory that comes from personal stories. Individuals, like owners, directors and managers have, 'tons' of managerial experiences that certainly can be important to reduce the gap that exists between theory and practice. More future research can be carried out to understand the role of organizational routines during the process of the adaptation of a management technique. An additional suggestion for future research, concerning the study of ABC visualizations, can be to investigate their role and how they have promoted the spread of ABC.

APPENDIX

Table A

Interviews

Actors	# Interviews	Date / Duration
ROC	1	29-02-2012 (65'40'')
CFO	3	28-02-2012 (41'20''); 16-08-2013 (54'10''); 23-07-2014 (39'38'')
CO	2	27-06-2013 (51'33''); 23-01-2014 (61'37'')
Innovation Director	2	12-06-2012 (78'34''); 17-07-2013 (54'34'')
Logistics Director	2	18-07-2013 (105'21'')
Production Director	1	05-08-2013 (40'33'')
Technical Services	1	05-08-2013 (62'57'')
Quality manager	1	28-01-2014 (34'18'')

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