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The role of Intellectual Capital Reporting (ICR) in organisational transformation: a discursive practice perspective

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Abstract

Intellectual Capital Reporting (ICR) has garnered increasing attention as a new accounting technology that can engender significant organisational changes. However, when ICR was first recognised as a management fashion, the intended change it heralded in stable environments was criticised for having limited impact on the state of practice. Conceiving ICR through a lens predicated on the notion of discursive practice, we argue that ICR can enable substantive change in emergent conditions. We empirically demonstrate this process by following the implementation of ICR in one organisation through interviews, documents and observations over 30 months. The qualitative analysis of the data corpus shows how situated change, subtle but no less significant, can take place in the name of intellectual capital as actors appropriate ICR into their everyday work practices while improvising variations to accommodate different logics of action. The paper opens up a new avenue to examine the specific roles of ICR in relation to the types of change enacted. It thus demonstrates *when* and *how* ICR may transcend a mere management fashion and the intended change it sets in motion through altering organisational actors' ways of thinking and doing within the confines of their organisation.

Key words: Intellectual Capital Reporting (ICR), management fashion, discursive practice, substantive change, emergent/situated change

Introduction

Intellectual Capital Reporting (ICR) has been advocated as a new accounting technology that can engender organisational changes, notably the improvement of firm-level economic performance (Johanson *et al.*, 2001; Skoog, 2003; Mouritsen *et al.*, 2002; Mouritsen *et al.*, 2005). However, when ICR was first recognised as a management fashion, the intended change that it heralded in stable environments was

criticised for having limited impact on the state of practice (Dumay and Garanina, 2013; Habersam *et al.*, 2013). Indeed, like most performance management systems (Sutheewasinnon *et al.,* 2016), ICR is usually implemented in organisations under the sponsorship of particular power groups to account for and control a firm's intangibles (Fincham and Roslender, 2004). The type of change supported in this context tends to reinforce a pattern of organising as originally intended, whereas emergent change that is realised in action, and cannot be planned or predicted beforehand, is largely ignored. This dynamics tends to consolidate the unequal power relations between the sponsoring groups of ICR and its recipients, and subsequently contribute further to the dissemination of ICR as a fashionable management tool rather than as a technology capable of generating substantive change in practice (Scarbrough and Swan, 2001; Fincham and Roslender, 2003; Habersam *et al.*, 2013). More recently, researchers have been calling for a more robust development of the social and political implications of critical accounting research in organisations (Dillard and Vinnari, 2016) as well as for a deeper assessment of the ways in which accounting practices can "penetrate workforces" when implemented in a dynamic micro-organisational context (Fincham and Roslender, 2004, p. 326). Our paper responds to this call by examining how accounting, through the case of ICR in particular, can become more 'enabling' in its support of organisational transformation in emergent conditions (Masquefa *et al.*, 2016).

Following the emergent research tradition that looks at "intellectual capital (IC) in action" (Mouritsen, 2006; Catasús *et al.*, 2007; Guthrie *et al.*, 2012; Dumay and Guthrie, 2012; Dumay, 2013), we develop in this paper a new conceptualisation, i.e. ICR as discursive practice. Looking at ICR through a practice lens enables us to understand how emergent change occurs when ICR is implemented over time in a dynamic organisational context and allows us to give voice to individual actors who engaged in this implementation process. We demonstrate this process empirically in the paper through the study of an "Intellectual Capital Statement" (ICS) project, carried out over a 30-month period as part of an EU funded programme within an organisation in Spain, called S-FIRM.[1] The execution body of the EU-ICS programme was a consortium composed of 25 pilot SMEs as well as IC researchers and practitioners with an accountancy and/or management consultancy background. The programme was perceived as an opportunity to disseminate a 'tested' methodology with special emphasis on stabilising the effect of individual IC elements on the pilot firms' value creation processes so as to guarantee the "comparability of IC on the European level" (European ICS Guideline, 2010). Nonetheless, out of the 25 pilot firms across five European countries, S-FIRM reported a feeling of frustration and did not persevere with the original guidelines. S-FIRM's first-hand experience in implementing an ICS and the subtle shifts in action enacted by actors within or associated with it allowed us to examine the impact of ICR in practice on both the people and the organisation that they were serving.

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1 See Figure 1 in Appendices for a step-by-step illustration of the implementation process adopted by the project consortium.

The findings reported in this paper are based on our longitudinal fieldwork consisting of 25 interviews, numerous observations of meetings and events while the programme was running and a review of more than 300 pages of internal documents. The qualitative analysis of the data corpus shows how situated changes were enacted in S-FIRM over time as individual actors appropriate ICR into their work practices to experiment with local innovations and incorporate discursive, subjective and material variations to accommodate different logics of action within the confines of their organisation.

The paper proceeds as follows. First, we discuss the rationale and the limitations of the fashion metaphor in explaining the role of ICR in mobilising changes in organisational contexts. Second, we offer an alternative conceptualisation of ICR from the perspective of discursive practice and explain how this lens may offer different insights into our understanding of ICR-based organisational transformation. We then describe the research context and methodology. This is followed by the key findings and a further discussion before the paper concludes.

Introducing intended change: ICR as a management fashion
With the decline of Fordist factories, intangibles such as knowledge, information, communications or relationships, are increasingly recognised as the principal sources of value in today's economy (Spence and Carter, 2011). The discourses on ICR emerged from this context, first through the medium of the best-selling management texts in the mid-1990s and then through the various frameworks of measurement and reporting produced mainly by academic accountants, including both hard-number approaches and narrative-based models (Fincham and Roslender, 2004). Basic theories and the applied models of ICR acknowledged three main categories of IC: "human capital" – referring to individual competencies, such as skills and qualifications; "structural capital" – referring to process efficiencies and internal culture and infrastructure, such as organisational databases; and "relational capital" – referring to relational assets based on customer and external relations, such as suppliers and collaborators.

Despite the widespread dissemination of these broad ideas, the notion of IC itself remains ambiguous and lends itself to wide interpretation (Fincham and Roslender, 2004; Guthrie *et al.*, 2012). Viewed in this light, ICR is recognised by many as a management fashion (Scarbrough and Swan, 2001; Fincham and Roslender, 2004) and consequently, ICR-based change is considered far from substantive (Gendron and Smith-Lacroix, 2015). In what follows, we will specify from a change perspective both the rationale and the limitations of the 'fashion' metaphor for ICR.

First, as with other management fashions (Abrahamson, 1996), ICR promised a simple solution to "organize, quantify and valorize knowledge to address problems of business restructuring and competitiveness" (Scarbrough and Swan, 2001, p. 6). The

simplicity is communicated by best-practice case studies (see RICADIS for many examples).[2] These provide 'simple metaphors' of a generic kind of practice which can be re-interpreted for almost any context. Idolising 'best practice' means moreover that the problems of either choosing competing alternatives or designing a novel solution 'from scratch' are removed (Scarbrough and Swan, 2001). ICR is also presented as a mandatory choice if managers are to cope with uncertainties in their environment. It is linked simultaneously to highly valued principles such as efficiency, innovation, knowledge sharing and management control, without acknowledging how far these principles are consistent with one another. In such a situation, the sponsoring groups of a management fashion would sell their services, preparing to offer reassurance to clients by their ability to solve current problems, while at the same time opening up new uncertainties which would ensure their continued involvement. The type of change set in motion in this context is rather prescriptive, which presumes that the sponsoring groups of a management fashion are the primary source of organisational change and that these actors are capable of initiating changes in response to the perceived opportunities to improve organisational performance or 'fit' with the environment (Orlikowski, 1996).

Second, as a management fashion, ICR is also advocated for its technical rationality (Abrahamson, 1996), i.e. to stabilise the causal effects of IC elements on value creation in stable environments (Dumay, 2009). This technocratic approach reflects what Fincham and Roslender (2003) term the "anxiety" of the accounting discipline over becoming irrelevant as a professional group to managers seeking to exploit tacit knowledge. However, empirical studies which investigate the effects of IC on firm-level economic performance present an inconsistent picture due to arbitrariness over *why*, *how* and *what* to measure in IC (Cuganesan, 2005; Spence and Carter, 2011). The kind of change effected in this context can be accounted for as some kind of technical imperative, which assumes the adoption of ICR and its technical merits, i.e. finding that regularities exist in the relationship between designated variables within a 'stable' classification system may create predictable changes in an organisation's structures, work routines or performance (Orlikowski, 1996).

While the fashion metaphor provides an elegant description of some aspects of ICR's dissemination and the two kinds of change that it may bring about, there is a critical limitation to the explanatory power of this metaphor (Scarbrough and Swan, 2001). Existing accounts of management fashion focus mostly on the action of suppliers (i.e. the sponsoring groups) in communicating new concepts to users. This is a partial account of knowledge dissemination because (1) it treats the adoption of new ideas as an episode that is isolated from the contexts where they will be implemented and (2) it treats users as rather passive recipients of ideas. In other words, although the groups

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[2] RICADIS report is available at: http://ec.europa.eu/invest-in-research/pdf/download_en/2006-2977_web1.pdf

sponsoring ICR certainly exert considerable influence, the impact of context and of managers' sense-making activities on assimilating such offerings needs due recognition. Along this line of thinking, the implementation of ICR within firms should be seen less as a product of fashion than as mediated organisational responses and interpretations.

From a change perspective, ICR as a management fashion promotes either a prescriptive or a technology-driven view of change. The kind of change introduced in this context is superficial, since it attempts to identify the configurations of IC elements that rely on historical patterns and assumptions about the way in which the past leads to the future (Mouritsen, 2006). Nonetheless, in the radicalism of a knowledge-based society, the past is discontinuous from the present and therefore change rather than stability governs the future (Mouritsen, 2006). This is the reason why many have criticised ICR for lacking more than academic impact (Dumay, 2013). What is missing seems to be emergent change following the implementation of ICR in the absence of explicit, *a priori* intentions. In the following section, a new conceptualisation of ICR is offered in order to incorporate emergent change into the discussion of ICR-based organisational transformation. Through this new conceptualisation, we seek to explain the role that ICR may play in practice.

Enacting situated change: ICR as discursive practice
There has been considerable debate over the theoretical perspectives on the balance between human agency and structure in the analyses of accounting and organisational change processes (Beaubien, 2012). Theories such as structuration theory (e.g. Caglio, 2003), actor-network theory (e.g. Dechow *et al*., 2007) and the interaction of practice and institutions (e.g. Lounsbury, 2008) have all been proposed. Researchers in this area have addressed both the organisational context and the technological and practice-related factors that unfold in the development and use of accounting systems for management control purposes (Beaubien, 2012). Choosing a practice perspective on ICR-based change allows us to make a shift from the above views, which to a greater or lesser extent are still premised on the primacy of organisational stability (Orlikowski, 1996).

Our point of departure is to reiterate the importance of the tacit knowing dimension of organisational actors. This dimension is important since it directs our attention to what organisational actors actually *do* with ICR during its dissemination processes, as opposed to what the sponsoring groups *say* about ICR. For this reason, it may help overcome what the 'fashion' metaphor lacks in accounting for the role of ICR in the real world. As Tsoukas (1996, p. 17) explains, "all articulated knowledge is based on an unarticulated background, a set of subsidiary particulars which are tacitly integrated by individuals" and these particulars reside in the work practices that organisational actors engage in. The only way, then, that tacit knowing can be learned is through organisational actors' pre-reflexive experiences accumulated from past

socialisations or embodied action as they acquire particular skills at work (Polanyi, 1975). Researchers who embrace this tacit knowing dimension have called for new paradigms to study IC in action (Guthrie *et al.*, 2012). We take this call seriously by offering a new conceptualisation: IC as discursive practice, as a foundation for incorporating the discussion on emergent change. Fundamentally, we locate emergent change in the tacit knowing of a firm's workforces through engagement in their everyday work practices.

Understanding ICR as discursive practice
There has been a critical, albeit minor, stream of ICR literature which recognises that the tacit knowing dimension of organisational actors requires IC to be studied in action (Cuganesan, 2005; Mouritsen, 2006; Catasús *et al.*, 2007; Guthrie *et al.*, 2012; Dumay, 2013). For example, Cuganesan (2005) notes that the actual IC inter-relationships and transformations which occurred in his study were different to those originally envisaged by the organisational participants. Mouritsen (2006) also reminds us that IC can be compared to a "boundary object" (Bowker, 2000), which is weakly structured in common use and becomes strongly structured in individual site-use. As such, it would have an appearance that can be perceived, but yields its meaning only in specific situations. Insightful as these studies may be, the conditions or social mechanisms through which the tacit knowing dimension of organisational actors can be learned over time remain little understood *processually*. Through developing a deeper understanding of these social mechanisms, we can (i) study IC continuously throughout its dissemination process, including the implementation of ICR in practice; and (ii) move away from the fashion metaphor, which assumes implicitly the importance of the sponsoring groups. As a result, our approach gives voices to organisational actors who work on the ground.

Broadly speaking, ICR as discursive practice is consistent with the move towards a practice-based perspective on organisations (Orlikowski, 1996; Schatzki *et al*., 2001), which is grounded in the assumptions of action not stability. In light of this view, organisations are embodied in action and have no existence apart from action. They are constituted by the ongoing agency of individual actors. Every action taken by these actors either reproduces the existing organisational arrangements or alters them. Thus, situated change (Orlikowski, 1996), emerging out of the actors' tacit knowing – learned through their accommodation to and experiments with everyday exceptions, opportunities and unintended consequences – can be enacted, even in the absence of explicit, *a priori*, intentions. Change, perceived here as ongoing improvisation, is thus inherent in everyday human action as actors try to make sense of the world over time.

More recently, management scholars have applied this practice lens to a number of fields, including strategy as practice (Whittington, 1996; Jarzabkowski, 2004; Chia, 2004), ethics as practice (Clegg and Kornberger, 2007) and leadership as practice (Carroll *et al*., 2008). Social theorists, such as Garfinkel (1967), Foucault (1972, 1977,

1981) and Bourdieu (1977), all address practice explicitly. Building on the common ground shared by these theorists and in particular on Foucault's elaboration on the mutually constitutive relations between power and discourse, we consider discursive practice as the use of a sign system, for which there are shared understandings or norms of right and wrong use (Harré and Gillet, 1994). These shared understandings or norms are then determined by the extent to which discourses concerning this system and its use, resonate with the actual practice of using it (Bjørkeng *et al.*, 2009). Hence "practice" is what it is by virtue of the background distinctions that are embodied in it and the meaning of these distinctions is established through their use in discourse (Tsoukas, 1996). We believe that this conceptualisation would allow us to capture the active, unpredictable, subjective and not fully controlled ways in which organisations operate and implement changes. Our interest is more oriented towards an interpretative understanding of organisational actors as they live with the real world impact of IC. We unpack the details of this conceptualisation in light of the social mechanisms outlined below.

Adopting a practice lens, Bjørkeng *et al.*'s (2009) study of alliance collaboration, in which a leadership action team was created as a new organisational level, shows how collaborative practice as situated change is enacted and unfolds over time. By virtue of observing the team's day-to-day activities longitudinally, the authors were able to witness how the three social mechanisms described below manifested themselves across time and space. They thus provide us with a more fluid and ongoing view on practice: in its perpetual becoming of something else, while continuously being accepted as 'the same' (Bjørkeng *et al.*, 2009). We thus follow the steps of these authors to theorise the becoming processes as follows:

(a) *Authoring Boundaries*, processes whereby activities are constructed as legitimate parts of practising. In our view, these processes are essentially about the legitimate discourses in forming a firm's realms of activity. According to Foucault (1972), we should understand discourse as the taken-for-granted ways that people make collective sense of an experience. Different discourses provide different frameworks and different logics of reasoning that form different realms of activities (Bjørkeng *et al.*, 2009). It is a framework of this kind that becomes instantiated in the written, spoken and other communicated texts that are constitutive of organisational realities. To study ICR as discursive practice, therefore, is to look at how IC is enacted through these discourses, which may provide patterned ways of understanding and dealing with possible choices and decisions. In other words, discourses can be understood as resources that legitimatise behaviour and construct frameworks to justify the boundaries of activities within an organisational context.

(b) *Negotiating Competencies*, processes whereby practising and practitioners are constructed as competent. These processes are concerned with the mechanism of

subjectivity in shaping actors' behaviours. According to Foucault (1977), different discourses not only form different realms of activity, but also objectivise people into different subject positions. Subject positions refer to the locations in social space from which certain delimited agents can act. Subjects are socially produced as individuals who take up positions within discourses (Clegg and Kornberger, 2007). In this process, discourses are the principal means by which organisational actors create a coherent social reality that frames their sense of who they are and by implication, how they should act. Viewed in this light, to argue ICR as discursive practice is to study how IC-related discourses in an organisation give rise to the possibility of various subject positions and how these positions are taken up or resisted by organisational actors and eventually shape their behaviours and organisational realities. Our position here, as with Foucault, is that a subject can constitute itself in an active fashion through its own practices (Clegg *et al*., 2011).

(c) *Adapting Materiality*, the processes whereby material configurations are enacted and entangled in practising, linked with the identification of subjective positions and construed as essential elements of a practice. According to Foucault (1977), discourses generate not only subject positions, but also materiality (e.g. in the form of tools, methods, or spatial arrangements) by reference to the immediate material settings and intersubjective understandings of the activities explored (Bjørkeng *et al*., 2009). To treat ICR as discursive practice, in this regard, is to study how a specific material configuration functions as a medium that allows IC-related discourses to compete and/or to collaborate with each other in constituting a collectively negotiated identity as part of the organisational reality.

In what follows, we adapt the above framework for the analysis of S-FIRM. The research questions that guide our analysis are: (1) what were the changes enacted following S-FIRM's implementation of ICR? and (2) how did a discursive practice lens on ICR help us better understand S-FIRM's transformation?

Research context and methodology
While all the authors of the present paper were involved in the EU-ICS programme, the first author participated in research activities throughout the three phases of the programme's duration.[3] The overarching goal of the programme was to strengthen the competitiveness and innovation potential of European firms by means of systematic measurement and reports of their IC. IC was thus conceived as an "invaluable input for economic growth"; it was broken down into sub-categories and a list of corresponding factors and indicators to be aligned with a firm's strategic goals.[4] The premise of the EU-ICS programme was that companies "would like to

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3 See Figure 2 in Appendices for a detailed description of the first author's research activities.

4 See Figure 3 in Appendices for the classification of IC adopted by the consortium.

have a more standardised ICS with indicators for added value in order to use the tool as a complementary report (management report) for the purpose of external reporting as well as comparison" (Edvinsson and Kivikas, 2007, p. 376). Indeed, the original implementation guidelines assumed an external reporting function of the ICS, i.e. that pilot firms would be interested in using ICS to attract the attention of creditors and investors in the capital market, and capital markets themselves would be interested in such documents. However, this external reporting idea was soon aborted by the consortium due to the lack of institutional knowledge on the part of both the supply side (pilot firms) and the demand side (capital markets). For this reason, the consortium decided to focus on advocating ICS as an effective tool for supporting internal managerial decision-making.

S-FIRM was one of the 25 pilot firms participating in the EU-ICS programme. Like the other pilot firms, it was told that the ICS would help to improve its business performance. However, S-FIRM encountered many difficulties in implementing the ICS guidelines and then decided not to follow them religiously. Crucially, this decision was endorsed by a small number of researchers/consultants (including the authors of the present paper[5]) within the programme consortium who became empathetic with S-FIRM's position after listening to the pilot firms' feedback and reflecting on the major problems associated with the implementation guidelines. In what follows, we delineate the methods of data collection and analysis before reporting on how S-FIRM enacted situated change in the name of IC and on the effect of this initiative.

Data collection
Data collection at S-FIRM was conducted in three phases over a 30-month span when the EU-ICS programme was running. All three phases involved the use of unstructured and semi-structured individual or group interviews, observations and document reviews. In total, 25 interviews (see Table 1) ranging from 29 to 108 minutes in length were conducted across the three phases. All the interviews were recorded and transcribed. The participants spanned administrative levels and functional groupings (see Table 2) and involved IC consultants, employees at the Engineering Business Unit (EBU), employees at other business units, EBU's suppliers, collaborators, and clients, and S-FIRM's senior management. Observations occurred when site visits were arranged to understand the day-to-day work procedures and practices of EBU and hear the actors' reflection on the experience of implementing an ICS; field notes were taken where possible. The materials reviewed included different sets of programme artefacts, such as the pilot firms' evaluation reports, the programme proposals, and the implementation guidelines.

Data analysis
We assembled the three phases of data and reflected on our own experiences of taking

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[5] By working with SMEs directly on their feedback on the original methodology, the authors of this paper were able to record and report the problems SMEs experienced and therefore maintained a degree of academic freedom in spite of the relationship developed with the field.

part in this longitudinal research-and-practice-combined EU-ICS programme. These activities became the foundation for our writing and re-writing of the characters involved and their social milieus. In other words, although the quotations presented below were taken mainly from interviews, the narratives presented below have also been reinforced by informal conversations and observations. We used Atlas.Ti software to derive themes and concepts, starting from a free-coding process. This process was generally supported by the literature, as discussed above, which embraces a situated change perspective, i.e. the stable and changing patterns of a practice (Bjørkeng *et al.*, 2009). In other words, we did not treat practice as something constituted by discrete entities which become related through a specific array of activities (Sandberg and Dall'Alba, 2009). Instead, we explored it in the light of emergence, which was carefully approached by detecting the themes that make a practice "changing and transforming while at the same continuing to be referred to as 'the same'" (Bjørkeng *et al.*, 2009, p. 145). For example, most interviews touched upon the topic of 'how to create value in EBU', yet, the meaning and content of the value creation discourse changed over time. Moreover, taking questions from each other, openly discussing our different foci and re-reading the extracted quotations gave us the confidence to present our interpretations from a more balanced standpoint.

Table 1 Individual/Group interviews across three phases

	Phase I (Jun. 2006 – Apr. 2007)	Phase II (Apr. 2007 – Feb. 2008)	Phase III (Feb. 2008 – Dec. 2008)	Total
IC consultants	3 individuals	4 individuals	2 groups	9
Employees at EBU	1 group	1 group	1 group 1 individual	4
Employees at other business units and collaborators	NA	2 individuals	1 group	3
Suppliers and clients	NA	NA	2 groups	2
Senior management at S-FIRM	2 individuals	2 individuals	1 group 2 individuals	7
Total	6	9	10	25

Table 2 Functional groups participating in the interviews

Code	Roles of respondents	Functional areas
JJ	Trainer, IC project consortium	Consultants
BM	Country Coach, IC project consortium	
JV	Country Coach, IC project consortium	
SS	Purchasing specialist, EBU	Employees in EBU

FB	Mechanical technology support, EBU	
SL	Commerce, EBU	
JD	Electronic technology support, EBU	
SC	Project manager, EBU	
FM	IT support, EBU	
VF	Metal, former manager at CBU & collaborator	Collaborators
AG	Environment, former manager at CBU & collaborator	
AM	Aluminium, manager at CBU	
JM	Supplier, Manager of Stem	Suppliers
MM	Supplier, Managing Director of Atotech	
AJ	Client, Director of Chrom	Clients
JB	Client, CEO of Anodizing Technology	
JA	R&D Director of S-FIRM	Top Management
RC	Vice President of S-FIRM	
RP	General Manager, EBU	
CC	Financial Director of S-FIRM	

Implementing an ICS on the ground

S-FIRM is a family-owned Spanish firm, which has specialised in surface treatment processes since 1952.[6] The firm's headquarters is situated in Barcelona and it has operational sites in eight cities in Spain. As a first step, S-FIRM decided to implement an ICS in its Engineering Business Unit (EBU). The core business of the firm has always been the supply of global solutions for surface treatment, e.g. chemicals (Chemical Business Unit – CBU), surface treatment devices (EBU) and environmental solutions (ES). The yearly turnover of S-FIRM is around 40 million Euros in total, of which 10 million Euros are secured through EBU. EBU serves clients in France, Germany, Brazil and other countries, including automotive tier 1 manufacturers and suppliers, the aircraft industry and provides the aluminium for the cosmetic and construction industries.

CBU, however, is the largest and most profitable unit. The chemicals that CBU produces require specific devices to be applied. This was precisely the reason why EBU was set up in the 1980s: as an appendix of CBU providing auxiliary facilities to meet the requirements of CBU's clients. While EBU gained a more independent status over the years, the tension caused by internal competition for resources and rewards between the firm's 8 business units was easy to see. Externally, S-FIRM faced fierce price competition from the emerging markets in Eastern Europe and Asia. One of its main competitors in Spain for the last 50 years, for example, decided to close down its

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6 Surface treatments processes include a wide range of products and chemicals specialties for surface treatment, as well as plants for their application in electroplating, metalworking, lubricants, aluminium, environment, paint, polishing and installation. The firm has a complete range of products and services, a wide geographical covering together with a highly experienced team in this area.

engineering division and to buy all its installations from China.

At the time the EU-ICS programme was introduced to EBU, people there had little idea what IC was. Moreover, the internal and external environment where EBU operated seemed to be characterised by the conditions of uncertainty described above. EBU thus felt obliged to "do something about it" even without knowing "what's in it for us". To start with, two junior employees and two senior employees were selected from EBU's main operational domains to form an ICS project team. As the project proceeded, employees from other business units, from S-FIRM's senior management covering all major strategic functions (general administration, finance, and R&D), and also from EBU's stakeholder groups (suppliers, clients, distributors and collaborators) were all mobilised along the way to support the emergent changes in EBU's way of performing. In retrospect, the inclusion of people with different levels of experience and backgrounds in the implementation of an ICS was deemed essential to the enactment of IC elements:

> "*[T]he fact that people from different functions and of different ages were communicating together determined the results; [and these] would otherwise have been very different if only I and the Managing Director had done this exercise by ourselves*" (RP, General Manager)

Towards the end of the Phase I implementation, EBU, like other pilot firms, ended up measuring most of the IC factors and indicators prescribed by the programme consortium, yet EBU felt "*they were choosing from a list of IC factors as if it were a restaurant menu*" (JJ, Trainer). In fact, this measuring exercise, caused two major problems: For one thing, most pilot firms, including S-FIRM, failed to see how the three sub-categories of IC could capture a complicated event in their business contexts due to the ambiguous, overlapping and even conflicting boundaries of these concepts. For instance, "professional training" is considered a major element in employees' professional competence, which is a further factor in human capital. In practice, however, if the purpose of training is to develop competencies to make people more familiar with the firm's newly acquired technology, then "training" is related not only to human capital but also to structural capital. Equally, when this new technology contributes to the goal of enhancing customers' experience, then "training" may become an investment essential for maintaining customer relations – this is the 'domain' of relational capital. In a nutshell, a complicated event may be interpreted in different ways depending on how the organisational actors frame their imminent business issues in the first place.

For another thing, the proposition that the three sub-categories of IC can be used to define a statistical model is problematic in practice. To help pilot firms understand the three sub-categories of IC and their effect on improving a firm's business performance, the consortium provided a list of 'commonly seen' IC factors and IC indicators (see Figure 3 in the Appendices). In particular, 15 IC factors were identified: 4 of those

were used to account for human capital, 6 were related to structural capital and 5 were connected with relational capital. By using a Structural Equation Model, the correlation of each IC factor with its individual capital was carried out by an independent researcher contracted by the consortium (Halim, 2010). The results showed that of these 15 factors, 14 closely correlated with their respective capital category (at a 5% significant level), and only "investor relationship" had a weak association with relational capital. At first glance, the results after eliminating the "investor relationship" factor seemed to indicate that the 'commonly seen' IC factors are a good fit. However, as Mouritsen (2006, p.825) warns, "statistical relations may be stable on average but may not be useful for prediction in the individual case". In this regard, even common IC factors may be misleading, irrelevant, or distorted without adapting to the specific business context in which a firm is situated. The same holds for the measurement of IC indicators.

To overcome the above difficulties, EBU realised that it should spend more time on framing their imminent business issues and developing an in-depth understanding of its everyday work practices before finding context-specific meanings for its measured IC factors and indicators. In other words, measuring IC *per se* is less important, understanding "IC in action" is much more critical. Table 3 provides a summary of what EBU actually did, with the details fleshed out below.

Table 3. Implementing an ICS in S-FIRM

The becoming of EBU's practice	Initial constructs	Emerging constructs	Enacting situated change	Reflecting on the role of IC in action
Authoring boundaries - What are deemed as the legitimate activities inside EBU?	The "engineering" discourse ● Sales & Projects ● Engineering & Assembly ● After-sales	The "innovation" discourse ● Sales & Projects ● Engineering & Assembly ● After-sales ● R&D	SC1[7]: Internal Collaboration RC2: Cooperation Partners Relations	Probing a possible way of performing in relation to an endogenously defined value creation discourse
Negotiating competencies - What does it take to perform as a competent practitioner at EBU?	The "engineer" imagery ● KPIs adopted in the ISO 9001 documents	The "consultant" imagery ● Updated work profiles and career development plans	HC2: Social Competencies	Creating a space for negotiating a collective identity and related performance measure that allows for novel value-creation activities

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[7] See section "Introducing intended change" for the specific definitions of SC, RC and HC.

Adapting materiality - Through what devices are EUB's practices materialised?	The immediate material setting ● Installation manuals, budgets, formal contracts or protocols etc.	The wider material setting ● Affirming the material significance of events ● Ongoing achievements	SC5: Process Innovation RC1: Relations to suppliers RC3: Relations to Clients	Addressing the gap between fragmented and sustainable materiality for capturing future value creation opportunities

Authoring boundaries

The initial constructs guiding the work to be performed by EBU revolved around an 'engineering' discourse, named by us, which was closely related to S-FIRM's historical development: in the 1970s and 1980s, EBU functioned as a workshop affiliated to CBU providing in-house engineering services. In the late 1980s, however, as soon as EBU became more independent, it began to explore market opportunities worldwide. Consequently, many services previously supplied in-house were gradually contracted out. This 'engineering' discourse was exemplified by three sets of activities that constituted EBU's formalised practice: first, the *Sales and Projects* team takes charge of contacting a client firm, identifying its requirements, and opening a project study file for the client; second, and most importantly, the *Engineering and Assembly* team carries out a "deep study" of the client and designs a device prototype before selecting and contracting suppliers, in addition to arranging logistics for the device to be assembled and installed on client sites; third, the *After-Sales* team takes over and deals with the client's repair and maintenance requests after the assembly-installation stage.

While the ICS project was running, we noticed that EBU as a whole seemed to spend a substantial amount of its time discussing Research and Design (R&D) activities relating to new markets.[8] In doing so, EBU was attempting to offer its clients 'a complete solution' with a higher profit margin than a set of coating devices. It did so even though R&D activities fall outside EBU's formalised business processes and thus are considered by many to be no legitimate part of EBU's working sphere. Besides, the R&D activities that EBU focused on were more concerned with market-based innovation than with technology-based innovation. Hence, this focus could not be sustained by EBU alone without building a strong collaborative relationship with its business partners, suppliers and other business units. For instance, resources, such as CBU's diversified client base, expanded business networks, and its up-to-date knowledge of chemicals could have served as resources for EBU's R&D processes to tap into. Unfortunately, the premise that all business units within S-FIRM functioned as independent cost, investment and profit centres made internal

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[8] It is fair to say that the situated changes discussed in this paper were catalysed and strengthened as a result of the ICR initiative, yet the initial impetus for these changes may already have made its effect through the organisation's previous dynamics, only in a latent manner.

information exchange and collaboration increasingly scarce.

In these circumstances, a number of IC elements were activated by EBU to address the tensions between its existing practice and a possible way of performing in the future, including, most notably, "SC1: Internal Collaboration" and "RC2: Cooperation Partners Relations". EBU defined "SCI: Internal Collaboration" as "the way by which employees, business units, and different organisational levels exchange information and collaborate among themselves" and used "the number of reconciliation meetings" and "the number of collaborative projects" as indicators for improving internal collaboration. Likewise, "RC2: Cooperation Partners Relations" was defined as "all relationships with professional associations, bodies, and societies". To manage these relationships, EBU considered indicators such as "the number of knowledge transfer meetings with R&D partners". In the later phases of implementing an ICS, EBU called four reconciliation meetings with CBU and ES to review and plan for "common projects". More significantly, it hosted a knowledge transfer meeting in which two collaborators were invited to share their first-hand experiences of supporting market-based R&D activities. This meeting sought to address the issue of the lack of collaboration and recognition in EBU's performance:

> *"EBU was a 'workshop' ... we had plenty of people downstairs making machines ... we had to change people and [their] mentality... to go from this workshop to an innovative unit that is able to sell around the world..."* (RP, General Manager).

Both collaborators had previously held managerial positions at S-FIRM, yet both left when they sensed that the internal communication and coordination was becoming increasingly difficult:

> "*I travelled periodically to Madrid to meetings where we exchanged experiences [and] analysed systems, but the transfer of knowledge never happened at the head office... the last meeting of this kind was... 14, 15 years ago*" (AG, Collaborator/Former-manager at S-FIRM).

> "*I brought my notes from 30 years ago, no one had asked for these before*" (VF, Collaborator/Former-manager at S-FIRM).

The reception to the knowledge transfer meeting by the EBU staff was exceptionally positive. Two collaborators' first-hand experiences of supporting market-based R&D activities were considered "inspirational". It was at this meeting that EBU's focus on R&D activities for new markets was made explicit, and subsequently a narrative was created calling for systematisation as part of its work practices:

> *"I felt privileged to talk to them ... [We came to understand] in Valencia*

people were following a different set of procedures, using new chemical products, and doing installations collaboratively... we need to rethink our design ... systematic innovation should be part of our business process (JD, Technician)

"Innovation needs to be systematised, in how we work, in how we behave" (SC, Sales and Projects Manager)

By the time the ICS project was concluded, the changing constructs that guided EBU's way of performing were more concerned with an "innovation" discourse, which was exemplified by the fact that the R&D function was externalised as a legitimate part of EBU's business processes. This discourse embodied EBU's endogenously defined value proposition in terms of seeking a higher profit margin by embracing market-based innovation. From a practice perspective, what we observed was that EBU enacted a number of interrelated IC elements, regardless of the boundaries of each capital category, to find a way to perform within its redefined value creation discourse.

Negotiating competencies

The initial constructs that helped us make sense of EBU's subjective position were the Key Performance Indicators (KPIs) briefly touched upon in the ISO 9001 documents that EBU prepared. The KPIs, which built upon the criteria used for measuring engineering service delivery in a timely (schedule), price-competitive (cost), and reliable (quality) manner, evoked the image of an engineer in our heads. Admittedly, schedule, cost, and quality are the typical measures used for assessing engineers' work, but these could not account for the other characteristics of EBU's workforce. While the ICS project was running, what we observed was that most of EBU's staff were required to deal with clients from all over the world and therefore they must be "flexible", e.g. travel frequently, speak different languages, work online and offline, and adjust their timetables from time to time; but they needed to be "collaborative" as well, since EBU's suppliers, returning customers, as well as CBU's products and clients all exerted a great influence on EBU's new product design and innovation, which in turn affected its profit margins. Being "collaborative" would thus allow EBU staff to listen to the firm's stakeholders and to explore opportunities of developing projects of common interest.

Given this situation, EBU enacted "HC2: Social Competencies" to demonstrate the issue of partial assessment in the existing performance evaluation system. EBU defined "HC2: Social Competencies" as "the ability to coordinate with people, communicate and discuss in a constructive way, generating a kind of behaviour that brings up trust and makes possible a quiet and relaxed cooperation", and chose "the percentage of matching each person with his/her work profile" as an indicator. The subsequent actions that EBU took involved conducting an employee satisfaction

survey and consulting employees informally before reviewing and redefining work profiles, including career development plans, for each staff member. In a retrospective group discussion within EBU at a later date, we noted the following conversations:

JV: *How do you find the internal coordination and communication [within EBU]?*
JD: *I start from the idea that I am an individual, in a department that operates and works as a team... I am a person who relates to the rest of my colleagues through a common objective, in this case, an installation project.*
SL: *In my case, it's about satisfying a client … if there is a problem experienced by my colleague, I can't just say, 'yes, I will help you'. No, the problem with her today could be with me tomorrow … if it's not resolved systematically, they [clients] may not consult us on another project …*
BM: *… and what kind of initiative, if managed systematically, would you welcome?*
SS: *… RP fought for us to be enrolled on an English course so that we can communicate with clients from English speaking countries... our department will fly to Paris to attend an exhibition there... learning about new things …*

The above excerpt can be construed as a snapshot of the continuous negotiating of competencies that we observed in EBU. This type of conversation brought to mind the image of a consultant who works in a project-based, team-oriented, and client-facing environment in which continuous training and learning are treated as a crucial element of the job. Indeed, towards the end of Phase II implementation, EBU ended up with approximately 60% of updated work profiles and career development plans at both a strategic and an individual level which accommodated a new set of performance evaluation criteria. Without enacting "HC2: Social Competencies" and its corresponding indicator, EBU as a whole had to meet the performance evaluation criteria predetermined for assessing an engineer's work. And its staff's skills and expertise in terms of (a) maintaining a degree of flexibility at work and (b) collaborating with stakeholders would never have been taken seriously. Viewed in this light, what we observed is that the enactment of IC elements created a space for negotiating a subjective position and the related performance measure that rendered novel value-creation activities possible.

Adapting materiality
The initial constructs featuring EBU's materialisation of its practice were installation manuals, budgets, formal contracts and protocols etc., which can be understood with reference to the immediate material settings of EBU's business activities. While these constructs were useful in the management of traditional design and construct projects, EBU and its stakeholders soon overturned this fragmented materiality in the course of implementing an ICS. In its places, they developed an alternative approach to materialising their practice, which was largely concerned with constructing an overarching material setting in which they could discuss, negotiate and work with each other around emergent issues and initiatives. Specifically, the reception of the knowledge transfer meeting in terms of boosting confidence and trust and

materialising new business ideas was extremely positive and it actually triggered EBU's desire to organise similar networking events.

Given this development, EBU enacted a number of IC elements, including, "SC5: Process Innovation", "RC1: Relations to suppliers", and "RC3: Relations to clients" in order to build up a narrative showing that the management of relationship with suppliers and clients can contribute to the optimisation of business processes, especially from the perspective of co-authoring and implementing novel business ideas. The indicator of "SC5: Processes Innovation" was thus defined as "the number of reported ideas for new developments/the number of implemented ideas". Following these ideas, EBU decided to host a "Procurement Event" in order to liaise with suppliers and clients so as to pursue its exporting ambitions. By the time the event was hosted by EBU, its materiality was reflected in EBU's selection of participants, artefacts, and topics for the event.

> "... *Many companies closed down, [so] 'to do things correctly is not enough*" (RP, General Manager).

This kind of pre-conception set the scene for the event. Staff members at EBU then presented sales figures in relation to the indicator of SC5: Processes Innovation and concluded that returning clients not only made a valuable contribution to its sales volume but also became a source of inspiration for improving its products and services:

> "*We have a good number of returning clients... we studied their cases and made other machines at a cheaper cost... clients' feedback became part of our know-how...*" (SS, Purchasing specialist).

> "... *We subcontract plenty of things, so supplies are part of this picture too*" (FB, Technician).

Although the event was hosted by EBU, the presence of senior management in S-FIRM gave it a "strategic tone". In addition, the General Manager RP at EBU introduced an initiative that it had implemented to ensure customer loyalty, i.e. a web-based tool that allowed clients from all over the world to exchange ideas about the same products as they had bought from EBU. RP emphasised that it was a system through which the company could learn from clients and clients could learn from each other. No tangible outcomes were produced immediately after this one-day event. However, an important message was brewing and spreading about affirming the material significance of the event and generalising desirable patterns of behaviours for ongoing collaborations:

> "*The relationship is not with a person but with the company, it is the company that offers trust... it [the event] even goes beyond that [since]*

this shows ... S-FIRM's philosophy: an open company, in possession of and giving a lot of trust..." (MM, Supplier).

"*If S-FIRM changes, we want to change with it...*" (AJ, Client).

A few months after the ICS project was concluded, we learned that a joint project co-developed by EBU and one of its suppliers was in progress. This reinforced our impression that EBU had adapted its materiality from a simple focus on the immediate material settings to a commitment to building a wider and overarching material context, in which the significant role of events and ongoing achievement were emphasised. Within this picture, the enactment of IC factors and indicators is crucial for addressing the gap between EBU's fragmented materiality and sustainable materiality that aims to capture future opportunities for value creation.

Discussion

Despite the different lenses being deployed to observe the interplay between change and continuity, Gendron and Smith-Lacroix (2015) point out two constant themes emerging from the existing literature. First, substantive change, perceived as a significant transformation in practices, beliefs, and/or knowledge, may be more difficult to achieve than at first supposed. Second, substantive change may take place in ways that differ significantly from organisational actors' initial expectations as they consider the obstacles. While the fashion metaphor helped us explain why the dissemination of ICR as a new accounting technology failed to take emergent or situated change into account, it is the discursive practice perspective that allowed us to understand when, why and how substantive change has taken place.

Indeed, our analysis suggests that work practices and procedures inside S-FIRM's EBU changed considerably over the 30-month period following implementation of an ICS. The significant transformation, while made possible by ICR, was not caused by it directly. Rather it occurred through the ongoing improvisation and sustained adjustments enacted in the name of IC by the organisational actors in EBU (employees and management) and around it (IC consultants, suppliers and collaborators). The conceptualisation of ICR as discursive practice drawn on here thus posits ICR not as a fixed technical entity or a social construct, but as a set of inhibitors and enablers realised in practice by the appropriation of its technological feature as a classification system, shaping the production of situated actions, and being in turn shaped by these actions.

Specifically, we saw situated changes enacted in the name of IC as EBU gradually appropriated ICR into its work practices over time, and then experimented with local innovations and incorporated variations in the following areas: the discursive boundary of EBU's work practices (from formal to informal); the subjective recognition of the worth and value of EBU's work practices (from evaluation-driven

to collectively negotiated performance) and the material configurations adopted by EBU staff (from fragmented to sustainable). Overall, the new conceptualisation discussed above has two implications, which compensated for what the 'fashion' metaphor lacks in elaborating the role of ICR in practice.

(I). Conceptualising ICR as a discursive practice has provided insights in the adoption of new accounting techniques embedded in their contexts of implementation, as an integral part of the dissemination of new accounting technologies. Our case study illustrated that ICR was particularly useful in situations characterised by uncertainties and ambiguities because it can be used to arrange, coordinate and control action (Rahaman *et al*., 2010) through the following mechanisms. First, "*Authoring Boundaries*" is essentially about constructing discourse *in situ*, and involves the members of EBU constructing formal and informal boundaries of practice, thus enabling them to perform and to identify activities as either falling inside or outside the particular practice which they collectively constructed to be a part of (Bjørkeng *et al*., 2009). The enacted IC elements such as "SC1 Internal Collaboration", "RC2 Cooperation Partners Relations", and their corresponding indicators, externalised the tension between two value creation discourses ("engineering" vs "innovation") through which EBU's possible ways of performing were investigated. As an enacted element, IC is accorded an "in-between" status for examining endogenously defined value propositions and thus accommodating different "logics of action" (Gendron, 2002), which are loosely defined as a way of reasoning, or as an interpretative scheme that influences organisational actors' ways of thinking and behaving. This status makes the translation between the actual and the potential logics of action possible and thus transcends the agenda of stabilising the effect of IC on value creation (Mouritsen, 2006; Dumay, 2009).

Second, "*Negotiating Competencies*" represents a recurring theme of subjectivity in EBU's daily practice with regard to the issue of good performance and competent practicing. The enactment of "HC2: Social Competencies" created a space in which different subject positions taken up by EBU and their related performance measures were negotiated and reinterpreted in light of the redefined value creation discourses. A deliberate focus on if and how a subject can constitute itself in an active fashion through their practices would enable us to take seriously individual actors and their first-hand experience of engaging with IC. This may serve as an important premise for setting ICR free from the ethical concern of managerial control and manipulation (Fincham and Roslender, 2003; O'Donnell *et al*., 2006; Sveiby, 2007).

Third, "*Adapting Materiality*" reminds us to examine the theme of materiality in the becoming of a practice. As we have seen, the formal work of the EBU was to begin with an organisational unit situated in its immediately material settings; however, its practising was actively grounded in the materiality of networking events and became inherently meaningful in those contexts. The enactment of "SC5: Processes

Innovation", for example, revealed the gap between fragmented and sustainable materiality in EBU, which paved the way for capturing its future opportunities for value creation. Materiality as a social mechanism is thus essential for us to apprehend the performativity of IC, the transformative qualities of IC and the accomplishment of IC (Mouritsen, 2006; Chaharbaghi and Cripps, 2006) in the sense of exploring what IC-related discourses "do to things" (Foucault, 1981, p.67).

(II). Conceptualising ICR as a discursive practice has enabled us to understand the case firm's organisational processes when they were used to accommodate the conflicts and contradictions embedded in its different "logics of action" (Gendron, 2002). In particular, our case study confirmed that the logics of action are produced and reproduced through organisational actors' daily activities and decisions in accordance with their own situated interests. It thus demonstrated that organisational actors, as autonomous agents, are capable of making interpretations and inventing responses according to the circumstances. For this reason, the users of ICR were no longer treated as passive recipients of ideas, instead, their active sense-making of the processes of change during the implementation of ICR was acknowledged.

Concluding remarks

This paper makes possible an analysis of ICR-based organisational transformation that is ongoing, improvisational and grounded in everyday, knowledgeable agency. It therefore shifts the focus of attention from the organising pattern of stability (planned or predicted change) to that of action (situated change and ongoing improvisation). For this reason, the paper enriches our understanding of the contribution made by accounting, with reference to the specificities of ICR, to broader societal and organisational transformation in practice by building on a contextualised approach to accounting (Masquefa *et al.*, 2016; Broadbent and Laughlin, 2005; Napier, 2006). Thus, while the advocates of ICR promote it as an accounting technology that sanctions the role of intangibles in value creation through management control, our study, contrariwise, found cause to cautiously celebrate the tacit knowing dimension of organisational actors that eludes measurement and control and steers towards agentic learning and innovation in these actors' everyday activities and decisions.

The paper has also sought to contribute to an emerging critical stream of accounting literature that emphasises the need to study IC action (Guthrie *et al*., 2012; Dumay, 2013). The new conceptualisation offered above, i.e. ICR as discursive practice, provides a useful insight into situated change enacted in the name of IC by individual actors following their implementation of ICR. In it, we have unpacked the social mechanisms through which the tacit knowing dimension of organisational actors can be learned over time processually. Studying ICR as discursive practice in light of the three mechanisms discussed above offers a practice lens that prevents ICR from being perceived as a fixed technical entity or a social construct; instead, its transformational qualities, as inhibitors or enablers, emerge only through applications. Our paper thus

offers a new avenue to examine the specific roles of ICR in relation to the types of change instigated in an organisational context: that ICR is far from being a management fashion that engenders intended change; instead, in the organisation under study it set in motion significant processes that altered organisational actors' ways of thinking and doing as enacted in their everyday work practices.

The case of S-FIRM offers rich practical insights for practitioners who are interested in learning more about the details of disclosing IC systematically in an organisational setting by acknowledging the difficulties, e.g. following or not following the implementation guidelines, that individual actors experience in the course of implementing ICR (*cf.* Dumay, 2009). This long-due acknowledgement would require such practitioners, senior management, accountants, or consultants, to value the inputs of people who carry out the work of implementing ICR and live with the impact of IC on a day-to-day basis.

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Appendices

Figure 1 A step-by-step illustration of the implementation process.
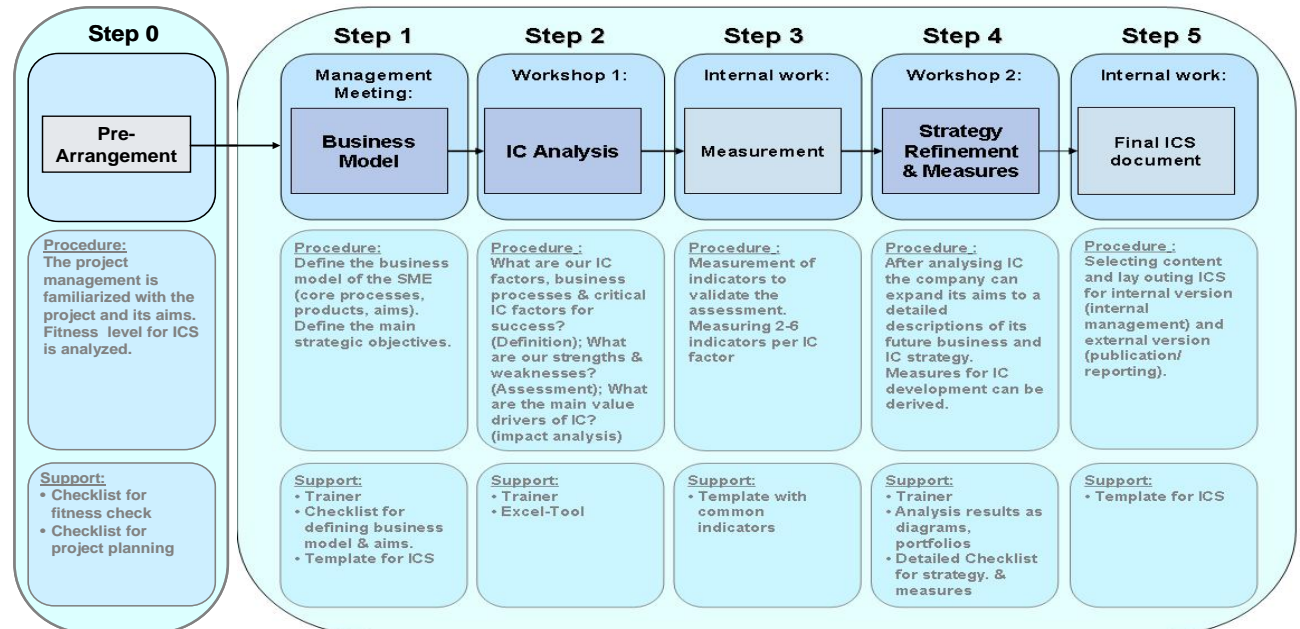
The EU-ICS programme under study started from site visits by IC consultants to pilot firms where participants of the ICS project were selected (Step 0). Pilot firms then discussed their business models under the guidance of IC consultants before familiarising themselves with the ICS guidelines, in which IC was broken down into three categories, namely, "Human Capital (HC)", "Structural Capital (SC)" and "Relational Capital (RC)". Under each category, common IC elements, including IC factors and indicators, were further specified (Step 1 and 2). Later, pilot firms measured their IC in terms of selecting and calculating IC indicators in relation to their business strategies (Step 3). This step led to the refinement of their business strategies based on their interpretations of the IC measurement results (Step 4). Finally, pilot firms were required to put together all the information in a document called an ICS (Step 5).

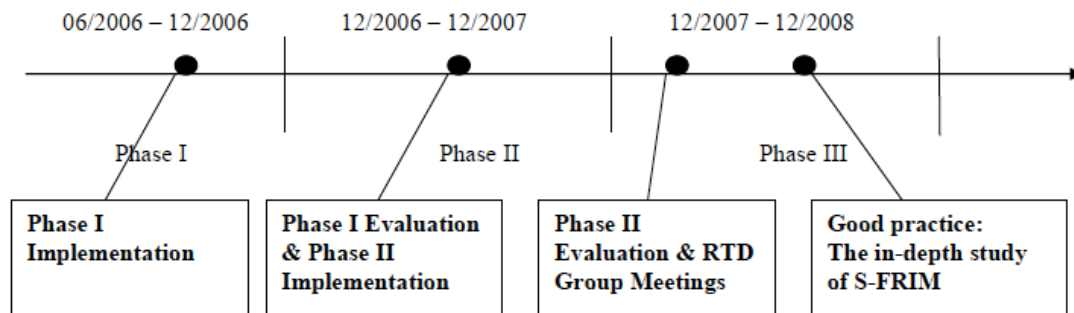Figure 2 Participation in research activities throughout the IC programme

Figure 3 Common IC factors and indicators

Employees' professional competence

- Average period of employment
- Employees' education/qualification
- Further training days and costs
- Employees' age structure
- Quality regarding professional competence

Employees' soft skills (social competence)

- Frequency of incidence of conflicts
- Quality regarding soft skills

Employee motivation

- Frequency of employee surveys
- Employee satisfaction (gathered by surveys)
- Participation rate at employee surveys
- Employee turnover (inflow and outflow)
- Medical absenteeism / Absenteeism

Leadership competence

- Number of executives
- Quality of executives (gathered by surveys)
- Executives with adequate qualification
- Further training days and costs for executives

Internal collaboration and knowledge transfer

- Number of internal reconciliation meetings
- Number of collaborative projects
- Number of topical work groups
- Succession regulations (e.g. CEO and key positions)
- Quality of internal collaboration and knowledge transfer (gathered by surveys)

Leadership instruments

- Quality of applied leadership tools (gathered by surveys)
- Number of organisational units/hierarchy levels
- Number of executive meetings
- Number of appraisal interviews
- Number of employees with performance-related salary share

Information technology and explicit knowledge

- IT-expenditure

- Number of PC-workstations
- Intranet / knowledge databases access
- Satisfaction regarding IT and explicit knowledge (gathered by employee surveys)
- Costs of explicit knowledge (e.g. studies, journals, books, etc.)

Product innovation

- Number and revenue of new products
- Number of products in design and development
- Number and costs of patents
- Licence revenue
- Number of registered trademarks
- Quality of product innovation (gathered by employee surveys)

Process- and system innovation

- Number of (implemented) improvement suggestions
- Savings through improvement suggestions
- Number and quality of certificates
- Quality of process technology and engineering (gathered by employee surveys)

Customer relations

- Customer structure (new customers, regular customers…)
- Customer satisfaction (gathered by surveys)
- Number of customer complaints
- Revenue share according to customer structure
- Quality regarding customer relations (gathered by surveys)

Supplier relations

- Supplier structure (new suppliers, regular suppliers…)
- Supplier dependency
- Supplier complaints
- Quality of supplier relations (gathered by surveys)

Public relations

- Media response
- Number of publicity events
- Number of lectures/talks and seminars
- Marketing costs
- Quality of public relations (gathered by surveys)

Investor relations

- Average interest on capital
- Rating outcome

- Quality of investor relations (gathered executive surveys)

Cooperation partner relations

- Membership of clubs/societies, associations and working parties
- Number of external coordination meetings
- Number of collaborative projects
- Number of supervised theses / term papers
- Quality of relations with collaboration partners (gathered by surveys)