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Using the EFQM excellence model for integrated reporting : a qualitative exploration and evaluation

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Abstract
Purpose – We propose to explore the way the EFQM model could be used in order to help managers better understand the connectivity between the various capital and consider it as a complementary management control systems tool, for implementing an integrated reporting <IR>, according to the new reporting standard developed by the IIRC (International Integrated Reporting Council).
Design/methodology/approach – This paper focuses on a qualitative analysis of the EFQM model. Its items are considered as a recognized database of strategic issues and questions, which are reclassified according to the IIRC ontology of intangible assets. This methodology is called elaborative coding (Auerbach and Silverstein, 2003). The literature review also helping in finding new categories of intellectual capital for this coding, which complements the propositions of the IIRC.
Research limitations and implications – Our research only explores how the EFQM model could help integrated thinking, and then later, implement <IR>. Other codes could have been attributed, and further research is still needed.
Findings – The study shows that intellectual capital is taken into account in the framework of the EFQM model from a dynamic perspective. Items of the EFQM model can be connected to a first intangible, considered as input, which affects a second intangible, considered as an outcome. In this sense it is possible to understand how intellectual capital is taken into account in the EFQM model, and can be assessed from a dynamic perspective.

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Originality/value – This work shows and checks how the EFQM model could be used, in improving the strategic thinking in conformity with the six capitals suggested by the IIRC framework.

1. Introduction

Previous literature, about financial statements and reporting, has shown their decreasing value relevance for financial markets (Lev and Gu, 2016). Is "integrated reporting" or <IR> the right answer and solution? Studies still suggest many improvements in order to really implementing integrated thinking, and a genuine sustainable and global performance transparency. First experimented with South Africa (Atkins and Maroun, 2015), the IIRC (International Integrated Reporting Council) has launched in December 2013, its official reporting framework with a clear list of principles to respect and key elements to disclose. Following such advice is hence quite a recent phenomenon. They have generated an increasing interest in academic researchers, mainly in the accounting field. We have reviewed 90 articles, published since 2011 in peer reviewed academic journals, which included "integrated reporting" in their title. Among them, some have noticed that authentic integrated reports might never come to reality without developing adapted and new management control systems. At this stage, the level of integration of the IIRC frameworks is still very low (van Zyl, 2013). According to Busco et al. (2013), management accountants should contribute to <IR> by integrating its new concepts with closer connexion to strategy, intangibles and long-term views. Velte (2014) considers the importance of controlling the development and improvement of new financial and social responsibility reports. Wulf et al. (2014) also suggest keeping in mind that management accounting is the key for better corporate reporting, with an official position of a business partner improving corporate governance and information provided to managers. Management accountants have been key in the role in helping key decision makers, employees and external stakeholders to understand corporate strategic objectives better and their cause-effect relations, and the way various capitals might be connected in practice. For Kerr et al. (2015), integrated reporting has not to be seen as an external object, disconnected from management control systems. Using a sustainable balanced scorecard (Hansen and Schaltegger, 2016), for example, or an integrated risk scorecard (Trébucq, 2015), might greatly help managers in developing a genuine integrated or systemic (Stent and Dowler, 2015) thinking, and finally a "true and fair" integrated reporting. But balanced scorecards, as initially proposed by Kaplan and Norton (1992, 2004), has remained just a very general model without clear guidelines in order to improve strategic thinking. As other authors, we then identify an opportunity to complement management control systems, and balanced scorecards, with the EFQM model (Wongrassamee, 2003). This article is also a proposition and evaluation, showing and checking how the EFQM model could be used, in improving the strategic thinking in conformity with the six capitals suggested by the IIRC framework.

Providing advice and making propositions in order to improve the implementation of the integrated reporting are not new. Other authors have already published in this direction. For example, Abeysekara (2013) has written a guide writing an integrated report. She insists on the definition of intangible capitals, seen as key resources used by the company. This template confirms the potential connexion with the EFQM model, which links with the resource-based view has been demonstrated by Ruiz-Carrillo and Frenadez-Ortiz (2005). Monteiro (2013) has considered the interest of using language technologies as the XBRL in order to communicate

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corporate information better. Other authors, like Haller and van Staden (2014) have insisted on the importance of value added statements, and Rambaud and Richard (2015) in new ways of formatting book keeping. To our knowledge, there has been no proposition to improve integrated thinking, with the exception of Stent and Dowler (2015). These authors call back the importance of systems thinking, which is another way to define cause-effect relations or "connectivity" in the words used by the IIRC. We then continue in this direction, trying to explore how the EFQM model could be used to understand the interactions better between intangible capitals, just as Kaplan and Norton (2004) had proposed that in the strategy model, but in a different way with fewer and a different list of capitals. Their strategic model is mainly based on three intangible capitals: human capital, information capital, organisation capital. We also propose to update this list, using the IIRC framework, introducing: financial capital, manufactured capital, intellectual capital, social and relationship capital, and finally, last but not least, natural capital. Previous information capital and organizational capital can be included in intellectual capital, and human capital can remain apart. We have to check if this list of six capitals is close to the EFQM model, and how there might be a connexion.

Following this introduction, the paper offers a general review of previous academic literature of the EFQM and <IR> models. Further, it checks the potential relations between the EFQM evaluation questions and a list of key intangible capitals. Finally, some discussion and conclusions are presented.

2. Literature and models' review

According to Anthony and Govindarajan (2004, p. 8), "management control systems are tools to aid management in moving an organization toward its strategic objectives". Finding the right strategy needs a matching between core competencies and industry opportunities. An environmental analysis and internal analysis then have to be achieved in order to assess such a fit. A performance management system can then be developed, in order to measure what really counts, and check if goals are achieved. For these matters, the balanced scorecard is also become a key management control tool (Anthony, 2004, p. 499). According to Merchant and Van der Stede (2007), no confusion also has to be made between management control and strategic control. "Strategic control involves managers addressing the question: Is our strategy valid? Or, more appropriately in changing environments, they ask: Is our strategy still valid, and if not, how should it be changed? All firms must be concerned with strategic control issues, but the concern that a strategy may have become obsolete is obviously greater in firms operating in more dynamic environments."

Related to integrated reporting, these definitions and statements suggest companies might adapt their strategy, value proposition and business model to new sustainability issues and stakeholders' demand. Such a phenomenon should also appear more frequently in dynamic environments, or for more controversial activities, with greater social pressure. A large body of literature has already explored this contingency theory for integrated reports adoption (Jensen and Berg, 2012, Dragu and Tiron-Tudor, 2013, Frias-Aceituno, 2013, Tudor-Tiron and Dragu, 2014, Lodhia, 2015, Maniora, 2015, Fasan and Mio, 2016). Gianfelici et al. (2016) which confirm that sector membership influences the adoption of integrated reporting. Stacchezzini et al. (2016) have also found empirical results showing that lower social and environmental performers are more reluctant to disclose information about their sustainability engagements, actions and results. But these research articles do not open the black box of strategic control systems, and do not help to improve them.

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Another set of research has also started to highlight the deficiencies of, not only, many integrated reports, but also, which is more serious, the IIRC framework. In other words, deficiencies of integrated reports have a lot to do with the lacks and inconsistencies of the IIRC framework. According to Brown and Dillard (2014), the IIRC has provided a shareholder-focussed view. For de Villiers et al. (2014), the fact that integrated reports are reliable and concise sustainability reports about material issues is a key challenge. Flower (2015) goes further, considering that the IIRC has abandoned its initial project in favour of a new sustainability and responsible accounting system. Many problems still remain unresolved. For example, Kuzina (2014) stresses the fact that the way changes in one or another form of capital might be evaluated is still unclarified. Thomson (2015) and Alexander and Blum (2016) ask for a better understanding of sustainability constructs, before developing new accounting practices in order to grasp, show, and explain a complex set of multi-capital, multi-measurement, multi-stakeholder and multi-sustainability issues. Finally, Adams (2015) and Dumay et al. (2016) call for more academic research in these areas to ensure that the potential of integrated reports might be one day reached. Our conceptual framework can also be represented in figure 1. By distinguishing three different layers, making clearer that one cannot expect an improvement in corporate reporting without any managerial thinking and decisions supported by a useful information system. The use of the EFQM model is then expected at this conceptual layer in order to influence future decisions.

We also propose to explore the way the EFQM model could be used in order to help managers better understand the connectivity between capitals. The EFQM model has nine criteria, among which five main organizational factors are identified (leadership, strategy, people, partnerships and resources, process products and services) which themselves impact four areas of results (people, customer, society, business). As mentioned earlier, the IIRC model is based on six capitals (financial, manufactured, intellectual, human, social and relationship, and natural). The framework established by the IIRC distinguishes inputs and outcomes, and sees each capital as areas of inputs but also outcomes. The relations between these two models are obvious for the "people" or "human capital" fields, and to a lesser extent between "society" and "social and relationship capital". Hence, the EFQM model appears to be more stakeholder-oriented (people, customers, partners, business, society). The <IR> model is more resource-oriented (financial, manufactured, intellectual, human, social, natural). But these two views are very close, and Ruiz-Carrillo and Fernandez-Ortiz (2005) have shown that the theoretical foundations of the EFQM model were related to a resource-based view (RBV) of the firm. Their analysis has been achieved at the sub-criteria level, and each of them has been connected with previous RBV academic literature. The two models also share in common many points similar to the balanced scorecard and the strategy map models (Wongrassamee et al., 2003; Wu, 2005 ; Andjelkovic Pesic and Dahlgaard, 2013), initiated and designed by Kaplan and Norton (2004). These last authors have retained three main intangible capitals (human capital, informational capital, organizational capital), which impacts the quality of processes, and results for customers and shareholders. Marr and Adams (2004) have also criticized this model for its lack of originality and its relative disconnection from previous literature. Kaplan and Norton have in fact produced a strategic model very close to those of Edvinsson and Malone (1997), also known as the Skandia navigator. The "market value tree" considers a first branch with the financial capital, and then a second branch of the intellectual capital composed of the human capital and the structural capital. This former capital covers the customer capital and the organizational capital, which also includes innovation and process capitals. In their review of tools available to manage intangible resources, Bontis et al. (1999) recognized that IC (intellectual capital) models were at their early stage for metric development, and were concentrated too much on stocks at the

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expense of flows. The <IR> framework has also succeeded in providing definitions of capitals for its model, but it still failed to provide insights to measure and to assess them. Nonetheless, the EFQM model provides an interesting methodology for scoring the level of performance of an organization. Each EFQM item can be assessed on a scale of 100 points, using the PDCA (Plan, Do, Check, Act) Deming's wheel. Unfortunately, these items are not classified by capitals, and that is what our research has tried to achieve. As a consequence, getting the EFQM items or evaluative questions connected to the IIRC capitals could help to implement an integrated thinking in practice and finally the IIRC framework.

Providing clear evaluative items, the EFQM model is composed of a set of questions that has been progressively improved by professionals and consultants since 1989, the year of its creation. The 2013 version represents the latest improvement. In this sense, this source is very interesting, and gives us a good image of contemporary business thinking. Normally, the EFQM model, as helping the development of a total quality management system, should not be shareholder oriented, but stakeholder oriented. Nonetheless, this aspect seems to remain unclear and still needs to be evaluated. The EFQM model could also help in order to implement a new business model and strategy in favour of sustainability still have to be illustrated and demonstrated.

3. Method

The EFQM database is composed of 187 items or evaluative questions (version 2013).These questions can be split, as seen before, into nine criteria. Our objective is to reconsider this classification, and help to illustrate how these questions could be used in order to assess capitals and think about their relations and interactions.

According to our research objective, it was not useful to start with an open coding, as advised in a classical grounded theory methodology. We have started our coding using the list of capitals provided by the IIRC. This technique is known in the literature as elaborated coding (Auerbach and Silverstein, 2003, Saldaña, 2013). In this case, the codes are pre-existing, and not have to be created during the coding phase.

However, some of these codes, here capitals, have been split or slightly modified. Instead of using the <IR> label of intellectual capital, which could have been misleading, we have maintained the term of organizational capital. The social and relationship capitals have also been separated in two categories: societal capital and relationship capital. This last category has been recognized and used by several authors (Roos and Roos, 1997 ; Bontis, 1998 ; Koch et al., 2000).

As mentioned earlier, this <IR> list of capitals was just not detailed enough to appropriately code all EFQM items. We have finally progressively added some capitals that were essential to categorize the remaining EFQM items. For example, the <IR> framework has retained implicitly four main stakeholders: shareholders with the financial capital, employees with the human capital, society as a whole and communities with the social capital and finally nature and ecosystems with the environmental capital. Quite strangely two main stakeholders are not explicitly mentioned: customers and suppliers. These categories have also been added in our coding system. Another stakeholder that is most of the time forgotten is the organization itself. This is a key code, and even more so, if we take into consideration the legitimacy theory

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("licence to operate" mentioned in the <IR> definition of social capital). For this reason, we have included a brand capital, which is also close to the corporate reputation. We finally maintained the informational capital suggested by Kaplan and Norton (2004), due to the importance of information systems and a good management of new technologies in order to get the right information for the right decision. Our coding scheme is finally based on 11 capitals, labelled as follows.

Finally, we have achieved a double-coding methodology, given the way EFQM items were formulated. For example, in the following item: "Excellent organizations effectively plan to attract, develop and retain the talents required to meet the needs" (3.2.2.), one can find two main subjects. The first one is about corporate reputation, and the second one covers its impact on recruitment and human capital.

Let us take another item. In the following statement: "Excellent organizations inspire participation in activities that contribute to wider society", we have first a matter of human capital and then an effect on the societal capital. By generalizations, we have applied this way of coding to all items. For each item, an initial capital, as input, and a destination capital, as the outcome, has been defined.

The theoretical number of combinations of these codes is 121 possibilities (112), since each capital can be assigned as input or outcome for each EFQM item. The empirical results of the coding will also help to better understand the potential connectivity between intangible assets. It will also permit us to visualize the underlying model that EFQM experts have used in order to check the excellence of organizations.
In order to check the validity and originality of our coding, we have finally achieved a content analysis in order to identify key concepts within each coding category. The software used for the analysis of the EFQM items, classified by capitals, is Tropes. It can be downloaded at the following URL: http://www.semantic-knowledge.com/tropes.htm.

4. Findings and discussion

In order to better understand the content of EFQM items and their main topics, we have first used the Tropes software on all statements/questions.

This description gives us a first overall understanding of the content of the EFQM model. As can be seen, the main topics are about performance and results of the organization with key stakeholders: employees (people), and customers. Quite strangely, shareholders are almost not mentioned. The broader concept of stakeholders is more commonly used. Many questions are then focused on the way the needs and expectations of stakeholders are taken into consideration, the way the organization improves its processes, and obtains and analyses the right information in order to create value, and reaches its goals. The term "impact" is mostly connected to the social responsibility theme ("impact on public health, safety and environment", "societal impact", "workplace impact", "local and global environmental impact). Finally, the resource-orientation appears with more than ten questions citing "resources", once detailed as "financial, physical and technological".

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We then mapped and analyzed all these words, from the EFQM model (table 3), with the key words identified in the definitions of the <IR> framework (table 2). 27% of the <IR> key words are found in the EFQM model. They also give a good idea of the key concepts that these two major standards share. However, this approach undermines the number of connexions. A more detailed qualitative analysis is needed. One can also notice that two intangible capitals have absolutely no terms in common. These are the financial capital and the natural capital. As we will see later, the main reason for that seems that there is a limited number of items connected to both of these capitals in the EFQM model.

Using our own list of capitals, and following our double-coding methodology, we have then quantified the number of items for each category. It clearly appears that some capitals are more considered as inputs (informational, relationship), and others as outcomes (human, customer, societal). One of them seems to be central, organisational capital being at the same time considered as a major source of input and also a major area of the outcome. We then confirm the limited focus on financial capital, brand capital, physical capital, natural capital and supplier capital. This empirical result shows that the EFQM model has probably some limits, and could be still improved in the future. Having only two items about the natural capital simply appears to be insufficient, and the same observation should be done for the physical capital.

If we go more into detail, one can also observe that all links between capitals have not been considered. For example, the way financial resources are allocated to all other capitals is not systematically tested. The impact of the societal capital of the human capital is also not questioned. The way the physical capital might affect the use and development of the human capital, and inversely the impact of the human capital of the physical capital is not studied. The feedback effects of the way the natural environment has been treated are also not considered. With only one item where customer capital is classified as an input, the EFQM model cannot also help to understand the impacts of results in this area on other capitals. A similar remark could be done for the supplier capital.

Among the 121 potential relationships between the 11 capitals, we found 70 key relations. Indeed, all relations might not be essential, which does not mean that they do not exist or do not play any role. Even if our selection is subjective, it is interesting to observe that we have only found in the EFQM model 21 relationships (see next table). So, according to this estimation, the EFQM model only covers 30% of the key interactions between capitals. It may appear to be few, but in the meantime, the EFQM model has no equivalent, except similar total quality management models (See Oger and Platt 2002 for a comparison between the EFQM and the Baldrige model, used in North America).

In the next figure, we have mapped all relations present in the EFQM model, in accordance with our double-coding scheme. As can be seen, the EFQM model analysed with intellectual capital (IC) and intangible assets appears to be more complicated than the standard strategy map developed by Kaplan and Norton (2004).

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We also have separated this model (figure 2) in three areas. The first one is composed of three non-human resources (financial, physical, natural). The second one is based on key capitals developed by managers (informational, relationship, organizational, brand and reputation). The third one helps to grasp key relations with main stakeholders (suppliers, employees, customers, shareholders and society as a whole). Relationships with dotted lines are also less developed in the EFQM model than those with bold lines. Unlike Kaplan and Norton (2004), it seems difficult here to argue that cause and effect relationships, or interactions between capitals, come from the bottom to the top of the map. Normally, resources should be used through managerial processes, themselves used in order to satisfy stakeholders, but processes can have an effect on resources (see relationships between C07 and C01, or C08 and C01 or C06), stakeholders can impact processes (see relationships between C05 and C08, or C11 and C08), and finally resources can also affect stakeholders (see relationships between C01 and C02). In the middle of our EFQM strategy map, the interaction between informational, relationship and organizational capitals also runs in all directions. The EFQM model also appears to be essentially focused on the importance of the informational capital in order to assess the main stakeholders' relationships, the impact of the ability to improve relations and communications with employees and the society, and finally organize processes and knowledge to achieve expectations of employees, customers and other external stakeholders. Some key interactions are missing. For example, the way environmental performance and respect of natural capital might impact financial resources is ignored. One could take another example of the relationship between natural capital and the reputation and image of the organization. If customers, media and other ONGs are aware of social responsibility, the link should exist.

We finally seek which terms were related to each outcome capital, and were used only once in relation to each outcome capital. We then got a list of specific terms, giving a better idea of their related topics, useful to explore and to assess every intellectual capital. Results are particularly interesting for societal, human, organizational, and customer capitals. This EFQM model qualitative analysis less performs as well for other intellectual capitals (financial, reputation, informational, relationship), which in fact are more input capitals than outcome capitals.

As anticipated, specific words for input capitals are more developed for informational and relationship capitals. In the next table, specific words better describe what has to be measured in order to develop these capitals.

The analysis of the EFQM model appears to be a valuable source in order to implement the <IR>. It first helps to clarify the list of intangible capitals to use (see table 2). IC framework also permits us to better understand the structure and the limits of the EFQM model (see table 5). This model also provides a useful framework for the understanding of connectivity, or "cause and effect relationships", between intangible assets (see table 6). As shown, these interdependencies can be grasped not only by performance indicators, but also through the EFQM evaluative statements. From a cognitive perspective, our qualitative analysis finally complements definitions brought by the <IR> framework, showing which areas have to be assessed for each capital (see tables 7 and 8).

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Mapping the EFQM model and IIRC framework helps us to think through better the interdependencies and the connectivity between capitals, but any standard framework has to be adapted to each organization. Some important links are still missing in the EFQM model, especially in the fields of social responsibility and sustainability. For example, the natural capital appears to be significantly underdeveloped. Its connexion with other capitals are thereby not investigated enough. Thereby, even if the EFQM model has obvious weaknesses, using its evaluative questions could have a positive impact on integrated thinking, avoiding being mainly focussed on relational capital, as observed by Melloni (2015). The EFQM model can enhance the level of linkage between capitals, proved to be very low by Robertson (2015). Future versions could also be more explicitly connected to the IIRC framework, with a greater focus on materiality and risks (Clayton et al., 2015).

In figure 2, we have also provided a picture of the links that our double qualitative coding procedure has brought out. Our graphical model has been based on the logic of strategy maps, initiated by Kaplan and Norton (2004). Unlike previous studies, in contrast, each arrow corresponds to evaluative statements existing in the EFQM model. According to the scoring methodology of the EFQM model, each arrow could also be assessed. It is then possible to provide a global score for each capital, but also sub-scores in order to understand their strengths and weaknesses in relations with other capitals. The implementation of such a quantitative assessment could also provide empirical data in the future, with time series, that could allow organizations to anticipate their future performance better.

Our coding classification could have been done with a panel of experts, and a consensus of the EFQM assessors. Our intention in this paper was only to explore how the EFQM model could help integrated thinking, and then later, implement <IR>. Results shown in Table 6 attest that a double coding is reliable, and robust. Nevertheless, other codes could have been attributed, and further research is still needed (Gröjer, 2001). The right number of capitals is also problematic. For example, innovation capital has not been retained in our coding scheme (see table 3). This notion has been in fact included in the human capital and the organizational capital. It could then become difficult to immediately visualize problems in this area if the notion remains merged with other intangibles. Achieving case studies would also greatly help in future to better understand how to improve internal processes of strategic control, based on the EFQM model, the IIRC and the IC frameworks, and sustainable balanced scorecard tools.

Following comments of de Villiers et al. (2014), our results help to clarify differences between stakeholder management, capital management and resource capitals. One could also imagine a model, more rooted in robust methodologies, established for measuring environmental or social impacts, like life cycle analysis (LCA). In such methodologies, a clear distinction is achieved between mid-points and endpoints, with a better understanding of the final impacts of business activities. For example, environmental LCA helps to open the black box on natural capital, with aggregated indicators of natural resources depletion and quality of ecosystems, and social capital, with an indicator of human health. Future version of EFQM models could have more scientific foundations. Having said that, observing how managers could improve their integrated thinking still has to be empirically observed, and assessing the level and quality of integrated thinking will remain a difficult challenge.

5. Conclusion and recommendations

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Several authors had already tried to compare the EFQM with the BSC (balanced scorecard) frameworks (Hoque, 2002), the EFQM and the IC framework (Martin-Castilla and Rodriguez-Ruiz, 2008), and others the BSC with the IC framework (Mouritsen et al., 2005). None of them had integrated the EFQM and the BSC with IC, using the latest IIRC reporting standard, with a fine granularity and detailed level of qualitative coding. Our double-coding scheme has also allowed us to map relationships between capitals, and provide a first strategy map of all connexions between intangibles within the EFQM model. Such a coding and refiling of EFQM evaluative questions allow managers to think in terms of flows, and not only stocks. The content of this article also reveals that EFQM model will have to be improved in some areas, and particularly the natural capital. <IR> definitions of intangibles do not also provide a sufficient guideline to assess intellectual capital categories. So, even if the EFQM model has some weaknesses, it already represents a significant forward step in giving an operational methodology to score several intangibles of an organization, and think in terms of their connectivity. In order to obtain such a result, EFQM items had to be reclassified, and organized in the function of <IR> capitals. In practice, our coding has also needed further capitals than those listed by the <IR> framework. New technologies and information systems play a crucial role in decision-making and strategy achievement. We have finally distinguished three main categories of capitals: stakeholders' relations, managerial processes, and non-human resources dependence (see figure 2). Those three strategic perspectives are also deeply rooted in stakeholder theory, organizational theory, legitimacy theory, resource-based view theory and resource dependence theory. Organizations will have the challenge of obtaining quantitative scores for such a model, and present more precisely their input or outcome capitals. Considering the financial capital as an input or an outcome is not neutral, and some organizations might continue to be reluctant to clarify such points. Implementing <IR> thus remains a big challenge, in terms of transparency and accountability. The <IR> framework will also have to be improved in future in order to enhance comparability of integrated reports. At this point, the EFQM model can obviously help to manage intangibles, and improve the quality of narratives in future reports. A next step could be to observe companies mixing <IR>, BSC and EFQM models.

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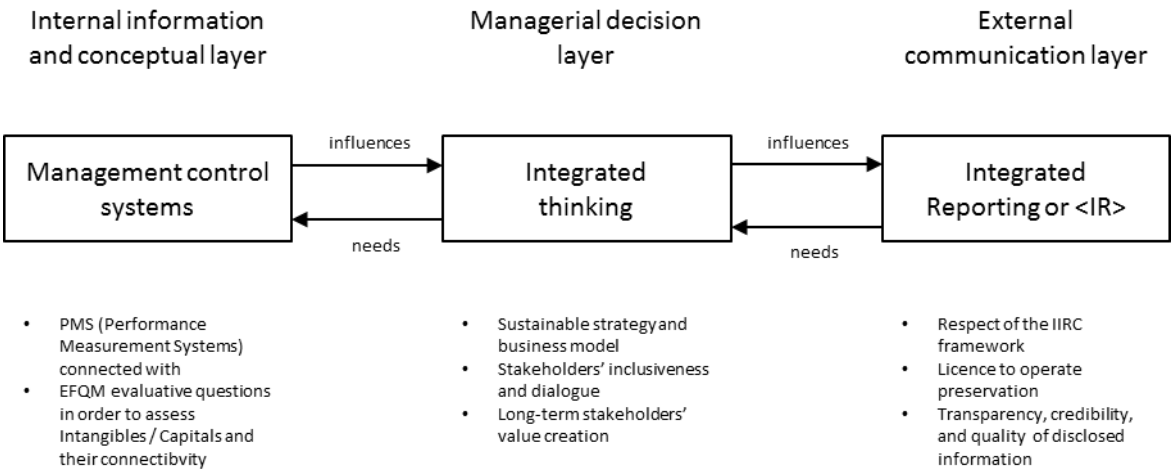

Figure 1. Conceptual framework of our research

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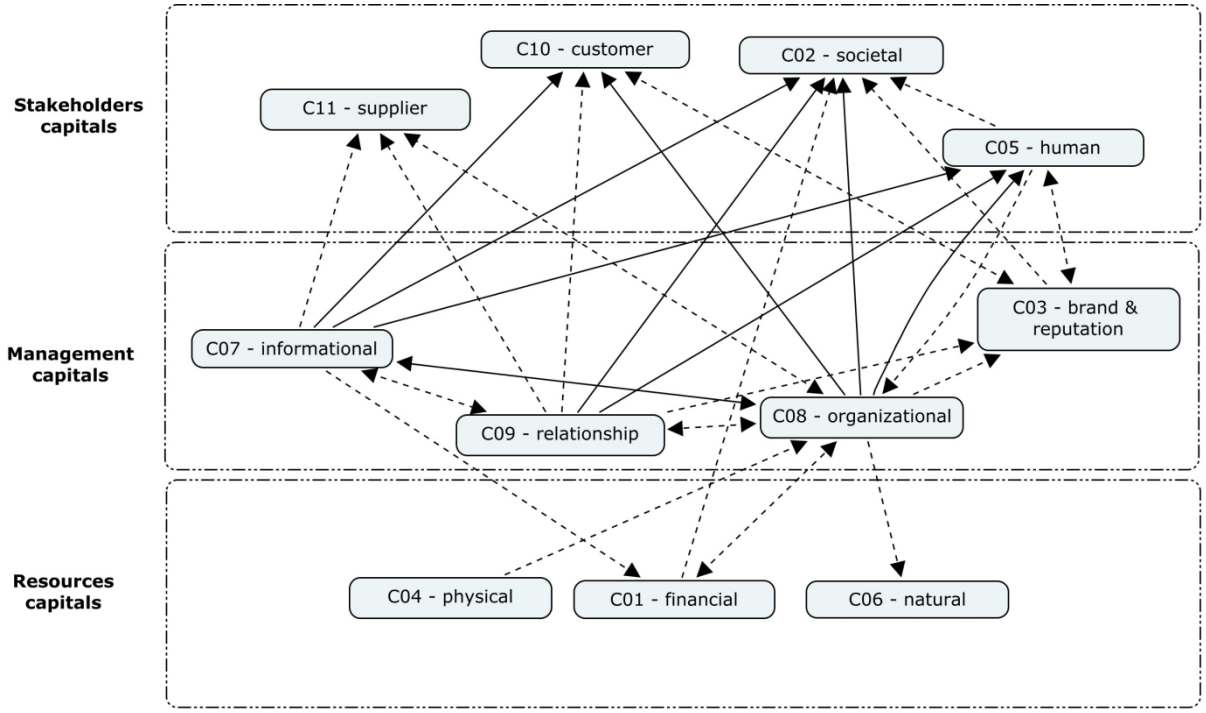

Figure 2. Strategy map showing relations between the intangible capitals considered within the EFQM model

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Table 1. <IR> definitions of key intangible capitals

<IR> framework	Definition	Key words
Financial capital	The pool of funds that is available to an organization for use in the production of goods or the provision of services ; obtained through financing, such as debt, equity or grants, or generated through operations or investments.	funds ; financing ; debt ; equity ; investments
Manufacturing capital	Manufactured physical objects (as distinct from natural physical objects) that are available to an organization for use in the production of goods or the provision of services, including buildings, equipment, infrastructure (such as roads, ports, bridges, and waste and water treatment plants). Manufacturing capital is often created by other organizations, but includes assets manufactured by the reporting organization for sale or when they are retained for its own use.	physical objects ; buildings ; equipment ; infrastructure ; assets manufactured and used for production
Intellectual capital	Organizational knowledge-based intangibles, including: intellectual property, such as patents, copyrights, software, rights and licences ; "organizational capital" such as tacit knowledge, systems, procedures and protocols.	intellectual property ; patents ; copyrights ; rights and licences ; organizational capital ; tacit knowledge ; systems ; procedures ; protocols
Human capital	People's competencies, capabilities and experience, and their motivations for innovating, including their : alignment with and support for the organization's governance framework, risk management approach, and ethical values ; ability to understand, develop and implement an organization's strategy ; loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate.	competencies ; capabilities ; experience ; innovation ; alignment ; improvement of processes ; leadership
Social and relationship capital	The institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being. Social and relationship capital include: shared norms, and common values and behaviours ; key stakeholder relationships, and the trust and willingness to engage that an organization has developed and strives to build and protect with external stakeholders ; intangibles associated with the brand and reputation that an organization has developed ; an organization's social licence to operate.	communities ; key stakeholder relation-ships ; ability to share information ; well-being ; shared norms ; common values and behaviours ; trust with external stakeholders ; brand and reputation ; licence to operate
Natural capital	All renewable and nonrenewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization. It includes: air, water, land, minerals and forests ; biodiversity and eco-system health.	environmental resources ; air ; water , land ; minerals ; forests ; biodiversity ; eco-system health

Table 2. List of intangible capitals used for coding the EFQM model

Code	Capital	Source
C01	Financial	<IR> framework (2014)

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C02	Societal	<IR> framework (2014) 'Social and relationship capital'
C03	Brand-Reputation	<IR> framework (2014) 'Social and relationship capital'
C04	Physical	<IR> framework (2014) 'Manufactured capital'
C05	Human	<IR> framework (2014)
C06	Natural	<IR> framework (2014)
C07	Informational	Kaplan & Norton (2004)
C08	Organizational	<IR> framework (2014) 'Intellectual capital'
C09	Relationship	<IR> framework (2014) 'Social and relationship capital'
C10	Customer	Kaplan & Norton (2004)
C11	Supplier	European Commission (2006) RICARDIS

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Table 3. Words used within the EFQM model, and ranked by their level of occurrence

Number of occurrences	**References**
34>N>20	organisation, people, results, strategy, performance, customer, stakeholder
21>N>10	needs, procedure (process), expectation, value, key, policy, product, use, information, impact, service, development, goal, resource
11>N>5	target, society, engagement, relationship, indicators, experience, innovation, similarity (comparisons), capability, improvement, knowledge, culture, technology, partners, business, perception, outcomes, group, competencies, changes, activity
6>N> 2	effect, benefit, vision, deployment, measure, environment, opportunity, support, mission, confidence, understanding, trend, level, lifecycle, management, behaviour, idea, portfolio, equipment, requirements, reason, way, leadership, proposition, contribution, cause, supplier, reputation, driver, responsibility, creativity, core, objective, project, structure, empowerment, governance, review, image, dialogue, scenario, achievement, planning, mechanism, feedback, leader, openness, business model, safety, market, (value) chain, ability, benchmark, effectiveness, communication

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Table 4. Words in common between the <IR> framework definitions listed in table 1 and the EFQM model key words listed in table 3

<IR> capitals	**Words cited than 2 times in the EFQM model, and in common with the <IR> definitions of capitals**
Financial capital	
Manufactured capital	equipment
Intellectual capital	knowledge, procedures (processes)
Human capital	capability, competencies, experience, improvement, innovation, leadership
Social and relationship capital	reputation, trust (confidence), stakeholder
Natural capital	

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Table 5. Number of items/questions for each capital within the EFQM model

Code	**Capital**	**Number of EFQM items as input**	**% of EFQM items as input**	**Number of EFQM items as outcome**	**% of EFQM items as outcome**
C01	Financial	2	1%	9	5%
C02	Societal	0	0%	**49**	26%
C03	Brand	3	2%	4	2%
C04	Physical	2	1%	0	0%
C05	Human	5	3%	**37**	20%
C06	Natural	0	0%	2	1%
C07	Informational	**86**	46%	9	5%
C08	Organizational	**54**	29%	**36**	19%
C09	Relationship	**33**	18%	5	3%
C10	Customer	1	1%	**31**	17%
C11	Supplier	1	1%	5	3%
	Total of items	*187*	*100%*	*187*	*100%*

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Table 6. Main relations between intangible capitals within the EFQM model

	Input capital	**Outcome capital**	**Examples of corresponding EFQM evaluative questions**
01	C01- financial	C02 – societal	Allocate resources to provide for long-range needs rather than just short-term gain and, where relevant, become and remain competitive (2.4.3.)
02	C01- financial	C08 – organi-sational	Ensure that financial, physical and technological resources are available to support organisational development (4.3.2.)
03	C03 – brand & reputation	C05 - human	Effectively plan to attract, develop and retain the talents required to meet the needs (3.2.2.)
04	C03 – brand & reputation	C10 - customer	Customers' image of the organization and its reputation (6.1.1.)
05	C05 - human	C08 – organi-sational	Involve employees, and their representatives, in developing and reviewing the people strategy, policies and plans, adopting creative and innovative approaches when appropriate (3.1.4.)
06	C07 – informa-tional	C01 – financial	Financial outcomes and more precisely financial outcomes (9.1.1.)
07	C07 – informa-tional	C02 – societal	Identify and understand the key results required to achieve their mission and evaluate progress towards the vision and strategic goals (2.3.3.)
08	C07 – informa-tional	C07 – informa-tional	Business performance indicators about technology, information and knowledge (9.2.5.)
09	C07 – informa-tional	C08 – organi-sational	Base decisions on factually reliable information and use all available knowledge to interpret current and predicted performance of the relevant processes (1.2.4.)
10	C07 – informa-tional	C09 – relation-ship	Performance indicators of people results about leadership (7.2.3.)
11	C07 – informa-tional	C10 – customer	Use market research, customer surveys and other forms of feedback to anticipate and identify improvements aimed at enhancing the product and service portfolio (5.2.3.)
12	C07 – informa-tional	C11 - supplier	Segment partners and suppliers, in line with the organisation's strategy, and adopt appropriate policies and processes for effectively working together (4.1.1.)
13	C08 – organi-sational	C08 – organi-sational	Transform ideas into reality within timescales that maximise the advantages that can be gained (4.5.6.)
14	C08 – organi-sational	C09 – relation-ship	Secure their future by defining and communicating a core purpose that provides the basis for their overall vision, mission, values, ethics and corporate behaviour (1.1.1.)
15	C08 – organi-sational	C10 – customer	Transform needs, expectations and potential requirements into attractive and sustainable value propositions for both existing and potential customers (5.3.2.)
16	C08 – organi-sational	C11 - supplier	Ensure partners and suppliers operate in line with the organisation's strategies and values (4.1.3.)
17	C09 – relation-ship	C02 – societal	Encourage their stakeholders to participate in activities that contribute to the wider society (1.3.5.)
18	C09 – relation-ship	C05 - human	Set and communicate a clear direction and strategic focus ; they unite their people to share and achieve the organisation's mission, vision and strategic goals (1.1.3)

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19	C09 – relation-ship	C10 – customer	Strive to innovate and create value for their customers, involving them and other stakeholders, where appropriate, in the development of new and innovative products, services ad experiences (5.2.1.)
20	C09 – relation-ship	C11 - supplier	Build a sustainable relationship with partners and suppliers based on mutual trust, respect and openness (4.1.2.)
21	C11 - supplier	C08 – organi-sational	Manage the end to end processes, including processes that extend beyond the boundaries of the organisation (5.1.2.)

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Table 7. Specific words used for each intangible capital as outcome within the EFQM model

Code	**Capital (as outcome)**	**Key words related to the outcome capital and used only once in the EFQM model**
C01	Financial	budget ; control ; cost ; resilience
C02	Societal	assets (for long-term wealth creation for society) ; awards ; balancing (conflicting) imperatives ; community ; divestment ; efficiency (towards the strategic goals) ; equipment (with a sustainable use) ; (public) health ; media coverage ; planet ; procurement ; profit ; consider PPP (People, Planet, Profit) as a reference ; (long and short term) priorities ; sourcing ; sustainability ; workplace impact
C03	Brand-Reputation	(employees as) ambassadors
C05	Human	action ; career ; competency ; (24/7) connectivity ; (clear) direction ; diversity ; employability ; equal opportunity ; fairness ; work/life (balance) ; management training ; mind ; motivation ; (culture of) ownership ; (full) potential ; recognition ; recruitment ; satisfaction ; sharing (of information) ; skill ; succession ; talent ; team ; work
C06	Natural	minimise (their local and global environmental impact)
C07	Informational	gather ; input
C08	Organizational	(beyond) boundaries ; decision making ; employment ; learning ; (innovation in) marketing ; (process) owner ; align (remuneration with strategies and policies) ; representatives (involvement in reviewing strategy) ; (new ways of) thinking
C09	Relationship	(secure their) future (by communicating a core purpose) ; basis (for their overall vision, mission, values, ethics and corporate behaviour)
C10	Customer	channels ; complaints handling ; contact ; customer service ; delivery ; distribution ; loyalty ; market research ; positioning ; value proposition ; customers segmentation ; selling points
C11	Supplier	build (a sustainable relationship) ; supplier ; volume (of products)

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Table 8. Specific words used for each intangible capital as input within the EFQM model

Code	Capital (as input)	Key words related to the input capital and used only once in the EFQM model
C01	Financial	gain
C03	Brand-Reputation	talent
C05	Human	ambassador ; employment ; representative ; remuneration
C07	Informational	award ; benchmark ; budget ; cause ; competency ; complaint ; cost ; customer service ; decision making ; delivery ; divestment ; driver ; effect ; efficiency ; feedback ; loyalty ; health ; media coverage ; management training ; market research ; motivation ; outcomes ; reason ; satisfaction ; segment ; survey ; understanding ; working ; workplace
C08	Organizational	advantage ; balancing ; basis ; channels ; connectivity ; control ; distribution ; employability ; future ; gather ; globalisation ; imperative ; lifecycle ; minimise ; operation ; optimise ; planet ; planning ; potential ; requirement ; priority ; procurement ; profit ; property ; value proposition ; public health ; recruitment ; reference ; reporting ; risk ; scenario ; security ; selling ; skill ; sourcing ; speed ; sustainability ; teamwork ; timescale ; transparency ; view ; work
C09	Relationship	action ; build ; care ; challenge ; community ; respect ; deployment ; direction ; effort ; generation (of new ideas) ; learning ; marketing ; network ; owner ; ownership ; practice ; recognition ; accountability ; role ; sharing ; success ; thinking ; tool ; trust ; diversity ;
C10	Customer	responsibility
C11	Supplier	boundary