

**Beyond persuasive representations of facts:
“Figuring out” what sustainable value creation means in practice**

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Abstract

Purpose: Although accounting and reporting visualisations (i.e., graphs, maps and grids) are often used to veil organisations’ untransparent actions, these practices perform irrespectively of their ability to represent facts. In this research, we explore accounting and reporting visualisations beyond their persuasive and representational purpose.

Design/Methodology/approach: By building on previous research on the rhetoric of visualisations, we illustrate how the design of accounting visualisations within integrated reports engages managers in a recursive process of knowledge construction, interrogation, reflection, and speculation on what sustainable value creation means. We articulate our theoretical framework by developing a longitudinal field study in IFCO, a medium size company operating in the fashion industry.

Findings: This research shows that accounting and reporting visualisations do not only contribute to creating unclear and often contradicting representations of organisations’ sustainable performance but, at the same time, “open up” and support managers’ unfolding search for ‘sustainable value’ by reducing its unknown meaning into known and understandable categories. The inconsistencies and imperfections that accounting and reporting visualisations leave constitute the conditions of possibility for the interrogation of the unknown to happen in practice, thus augmenting managers’ questioning, reflections, and speculation on what sustainable value means.

Originality/Value: This study shows that accounting and reporting visualisations can represent good sites (we are not saying a ‘solution’) through which managers can re-appreciate the complexities of measuring and defining something that is intrinsically unknown and unknowable, especially in contexts where best practices have not yet consolidated into a norm. Topics such as climate change and sustainable development are out there and cannot be ignored, cannot be reduced through persuasive accounts and, therefore, need to be embraced.

Keywords: Accounting and reporting visualisations, Integrated Reporting, Rhetoric, Topos, Case study.

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Prologue

In November 2016, the Chief Financial Officer (CFO) and Head of sustainability of IFCO¹ addressed the participants, attending a workshop on “Integrated Thinking”, illustrating the evolution of the company’s corporate reporting process since 2005. Surprisingly, one of his/her final slides featured a standalone question mark as the title page. The CFO further elaborated on the meaning of the ‘question mark’ as follows:

“Our corporate and integrated reporting process has evolved since 2005, and we will continue to do so. Although in the past, we looked at the annual report merely as a communication tool, we are using it as an opportunity for collective reflection on who we are and what we do. Nowadays, the Integrated Report helps us surface the challenges related to our business model by raising useful questions [indicating the ‘question mark’] regarding the sustainable value we generate. Ultimately, this process and the contents published in our integrated report represent the main playground for engaging with our internal employees and external stakeholders”.

1. Introduction

The quote from the CFO and Head of Sustainability of IFCO explains the twofold property of integrated reporting within his/her company. These practices are tools of communication of information and represent a source for internal reflection on the organisation's sustainable value. We know from the literature that this twofold property is mainly located in the materiality of accounting and reporting visualisations, that is, in the signs and representations that support organisations installing frameworks for internal and external communication (See, for instance, Chua, 1995; Qu and Cooper, 2011; Dambrin and Robson, 2011; Cooper *et al.*, 2016; Robson and Bottausci, 2018; Busco and Quattrone, 2018).

Although the literature recognises that accounting and reporting visualisations enable managers to reduce the length and detail of corporate reports into more understandable frames (Pollock and D'Adderio, 2012; Ronzani and Gatzweiler, 2022), this reduction clashes with the complexities and uncertainties that surround “what” needs to be measured and represented, which is often unknown and unframeable (Quattrone, 2022; Ferraro *et al.*, 2017). This stream of research also suggests that accounting and reporting visualisations (i.e., pictures, photographs, graphs, charts, grids, matrices, diagrams, infographics, scorecards, and maps) are intrinsically imperfect, as they provide for a ‘partial and simplified view’ of organisations decisions and performance (see, for example, Hines, 1988; Morgan, 1988; Messner, 2009; Jordan and Messner, 2012), especially when referring to sustainable development and value creation (Gray, 2006; O’Dwyer *et al.*, 2011).

Far from offering a well-defined and complete representation of how organisations address social and environmental challenges, accounting and reporting visualisations often fail to deliver what they promise (Yu and Mouritsen, 2020; Mouritsen and Kreiner, 2016; Kornberger

¹ IFCO stands for International Fashion Company and is used as a pseudonym for privacy and confidentiality reasons.

et al., 2017). Critical studies argue that accounting and reporting visualisations are unable to represent the cumulative effects of organisational activities on social and environmental challenges and provide for reassuring rhetoric that veils organisations' untransparent actions (Cho *et al.*, 2015; 2022; Gond *et al.*, 2009), whose sole purpose is to construct or re-construct an eroded market legitimacy (Gray, 2010; Quattrone, 2022).

Despite the criticisms mentioned above, other studies emphasised how this imperfection in representation is not necessarily counter-effective (Chenhall *et al.*, 2013). The imperfection of accounting and reporting visualisations can help managers recombine their ideas and perspectives and perform irrespectively from their ability to represent facts objectively and thoroughly (Achilli *et al.*, 2022; Busco *et al.*, 2018; Tregidga *et al.*, 2018).

Although these studies have demonstrated how the design of accounting and reporting visualisations prompt spaces for action and invention (Busco and Quattrone, 2015), the role of accounting and reporting visualisations as spaces for questioning and reflecting upon unknown and unframeable concepts (Ferraro *et al.*, 2017), such as the mysterious nature of “sustainable value” (Gibassier *et al.*, 2018; Quattrone, 2022), has been scantily debated (Lakshan *et al.*, 2021). Further case study research is needed to explore how accounting visualisations are designed in practice within corporate and integrated reports (De Villiers *et al.*, 2014; Perego *et al.*, 2016; Stubbs and Higgins, 2014; Simnett and Huggins, 2015), providing empirical evidence on how sustainable value is measured and defined (see Rinaldi *et al.*, 2018; Gibassier *et al.*, 2018; Adhariani and De Villiers, 2019; De Villiers and Sharma, 2020; De Villiers *et al.*, 2021).

Therefore, this paper seeks to answer the following question: Can accounting and reporting visualisations enable managers to “figure out” how and whether organisations create sustainable value?

This study explores the role of accounting and reporting visualisations beyond their persuasive and representational purpose. By engaging with issues related to the rhetorical shades of images and visualisations, we develop a theoretical framework to illustrate how the design of accounting and reporting visualisations involves managers in a recursive process of knowledge production, interrogation, reflection, and speculation of what sustainable value creation means. We articulate our theoretical framework by analysing the empirical materials collected during the development of a retrospective longitudinal field study in IFCO, a medium-sized company operating in the fashion industry. IFCO offers a significant setting for our research. It represents one of the first worldwide companies to design an innovative approach to integrated reporting that started in early 2005, almost a decade before the publication and adoption of the International Integrated Reporting (IIR) framework in 2013. The development and publication of a new form of report required managers to find alternative accounting and reporting practices to communicate the organisation's sustainable value-creation process.

Drawing on the case material collected from IFCO and combining it with insights from studies on rhetoric, our paper shows that the adoption of accounting and reporting visualisations within Integrated Reports does not only result from their supposed ability to represent, persuade, and reconcile through possible compromises the multiple and differing views expressed by an organisation's stakeholders (van Bommel, 2014). Instead, as rhetorical methods of knowledge composition, accounting and reporting visualisations (i.e., graphs, maps and grids) facilitate an unfolding process of knowledge construction, questioning, and speculation of what is meant as sustainable value creation within organisations.

We contribute to the literature on the persuasiveness and rhetoric of accounting by arguing that accounting and reporting visualisations do not only contribute to creating unclear and often contradicting representations of organisations' sustainable performance but, at the same time, “open up” and support managers' unfolding search for ‘sustainable value’ by reducing its unknown meaning into known and understandable categories. In this regard, we argue that rather than offering standardised and framing views of unknown concepts, the inconsistencies, lack and imperfect spaces that accounting and reporting visualisations leave, and possibly intentionally offer, are generative as they grant users an active role. This imperfection constitutes the conditions of possibility for the interrogation of the unknown to happen in practice, thus augmenting managers' questioning, reflections, and speculation on what sustainable value creation means.

Further, we add to the recent call for more case study research on integrated reporting by exploring its practical functionality, especially in contexts where best practices still need to consolidate into a norm. We contribute to the literature on integrated reporting by showing that rather than assuring a better or even more complete account of organisations' sustainable value creation, the accounting visualisations designed within IFCO's integrated reports support managers in shifting the organisation's thinking towards a better alignment between profit maximisation objectives, cost optimisation and the well-being of society and the environment.

The paper is structured as follows. Section 2 reviews the relevant literature on the imperfection of accounting and reporting visualisations as a means of representation and their potencies as spaces within which actors engage in action. Drawing on these studies, section 3 introduces our interpretative lens on the rhetoric of visualisations. Section 4 sheds light on the research methods used and presents the case of IFCO. Evidence from the case material is illustrated in section 5 and subsequently used in section 6 to discuss the contributions and implications the paper intends to offer.

2. Literature Review

2.1 The imperfection of accounting and reporting visualisations

To respond to the increasing requests from standard setters and regulators regarding corporate reporting transparency and disclosures, organisations try to pull multiple pieces of information within their reports drawing on a varied and decentralised set of sources, frameworks, and guidelines. The evolving European directives on non-financial disclosures and corporate sustainability reporting², as well as the release of multiple standards worldwide³, have increased the realm of what needs to be measured (De Villiers *et al.*, 2021; Cho *et al.*, 2022), represented and visualised within corporate reports (Davison, 2010, 2015; Greenwood *et al.*, 2018; Quattrone, 2022; Achilli *et al.*, 2022) often negatively affecting, instead of improving, the validity and reliability of the information disclosed (Quattrone, 2022). Therefore, corporate reports are progressively moving from numerical to graphical (Chakhovich and McGoun, 2016), pictorial (Davison and Warren, 2017) and broader visual modes of communication

² [https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/738177/EPRS_ATAG\(2022\)738177_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/738177/EPRS_ATAG(2022)738177_EN.pdf)

³ See, for instance, the recent publication of the European Taxonomy Regulation, the upcoming EFRAG's Corporate Sustainability Regulation Directive and the proposal for general sustainability-related disclosure requirements from the International Sustainability Standards Board – ISSB.

(Dhanani, 2019) to convey multi-faceted data and often interwoven conflicting information (Davison, 2010; 2014).

As highlighted by recent studies, although accounting and reporting visualisations may enable managers to frame and reduce complex concepts into more understandable data (Chambers, 1999; Pollock and D'Adderio, 2012; Ronzani and Gatzweiller, 2022), this reduction clashes with the ambiguities and uncertainties that surround "what" needs to be measured, communicated and represented (see, for example, Hines, 1988; Morgan, 1988; Shapiro, 1997; Mattessich, 2003; Messner, 2009; Jordan and Messner, 2012; Chapman, 1997; Lillis, 2002). This stream of research suggests that accounting and reporting visualisations, including pictures (Davison, 2008), photographs (Davison, 2014; Dhanani, 2019; Duff, 2011), graphs (Beattie and Jones, 2008), charts (Lowe *et al.*, 2011), grids (Chakhovich and McGoun, 2016), matrices (Pollock and D'Adderio, 2012; Jordan *et al.*, 2018), diagrams (Ronzani and Gatzweiler, 2022; Mouritsen *et al.*, 2001), infographics (So and Smith, 2002), scorecards and maps (Quattrone, 2017) cannot "completely represent all features of reality or completely satisfy the information needs of all possible [...] users" (Roberts and Scapens, 1985, p. 172). In this regard, accounting and reporting visualisations provide for an imperfect, interlinking and overlapping mixture of data (Davison 2010, 2015; Achilli *et al.*, 2022), where different visual and textual genres are 'mixed and bent' to reconcile and mediate multiple and often competing rationales (Zappettini and Unerman, 2016; Contrafatto, 2014; Quattrone, 2017).

Some critical studies on corporate social responsibility and non-financial disclosure argue that, due to their imperfection, accounting and reporting visualisations are unable to represent the cumulative effects of organisational activities on social and environmental challenges (Gray, 2002) and provide for reassuring rhetoric that veils organisations' untransparent actions (Gray, 2006; Milne and Gray, 2007; Gray, 2010; Cho *et al.*, 2010, 2015; Gond *et al.*, 2009, 2015; Boiral, 2013; Tregidga *et al.*, 2014; Quattrone *et al.*, 2021). In particular, Rutherford (2003, p. 206) suggests that:

"The elaborate design of the modern corporate report offers further, non-linguistic, opportunities to obfuscate, for example, by locating disclosures in relatively obscure parts of the report or drawing attention away from disclosures by graphical devices."

Similar criticism has been directed to the design of Integrated Reports within organisations. Although Integrated Reporting (IR) has been introduced to address companies' call for more transparent and responsible business management and reporting practices (De Villiers *et al.*, 2014; 2017; De Villiers and Maroun, 2017; De Villiers and Sharma, 2020; De Villiers *et al.*, 2021), the literature describes the worldwide spread of IR as a ceremonial response in search of "legitimate" compromise between sustainability and financial issues (Higgins *et al.*, 2014; van Bommel, 2014; Milne and Gray, 2013; Cooper *et al.*, 2022). These studies have described integrated reports as a fad and fashion tools that lack 'holistic transparency' and have been "rhetorically" (i.e., persuasive) used by companies to foster ambiguity in their sustainable storytelling (Higgins *et al.*, 2014; Humphrey *et al.*, 2017; Milne and Gray, 2013; Flower, 2015; Thomson, 2015).

Despite the critics mentioned above, recent studies suggest that corporate reports' rhetoric and gap in representation are not necessarily counter-productive and have the potential to perform irrespective of organisations' ability to represent facts objectively (Frame and O'Connor, 2011; Hall *et al.*, 2015; Christensen *et al.*, 2015; Busco *et al.*, 2018). These studies have emphasised the need to understand further what accounting visualisations might conceal rather than reveal,

investigating the potential effects of what is not visible, unclear, and therefore unknown such as the concept of sustainable value (Quattrone, 2022).

In this regard, in the following section, we illustrate how the potency of accounting and reporting visualisations (i.e., tables, indicators, forms, charts, formulas) resides not only in the imperfect representations that they provide but also in the actions that this imperfection unfolds (Busco, Giovannoni, Granà, and Izzo 2018; Mouritsen and Kreiner, 2016).

2.2 Beyond Representation: the potency of imperfect accounting and reporting visualisations

Accounting and reporting visualisations are designed because of and are sustained by the lack they generate or the imperfections they attempt to camouflage (Giovannoni and Quarchioni, 2019; Ronzani and Gatzweiler, 2022; Achilli *et al.*, 2022). Without these imperfections, without the impossibility of defining and “figuring out” – literally to make something unknown, such as the concept of sustainable value creation, visible and understandable to many – ‘representations’ would not be needed (Quattrone, 2006).

Previous studies suggest that accounting and reporting visualisations facilitate managers’ involvement (see, for instance, Qu and Cooper, 2011; Pollock and D’Adderio, 2012; Busco and Quattrone, 2015; Cooper *et al.*, 2016; Themsen and Skærbæk, 2018; Jordan *et al.*, 2018) to “discover and agree on ways to resolve” differences of opinion about new performance measures (Wouters and Roijmans, 2011, p. 9). Through accounting visualisations, managers can debate what the features of accounting systems should be and then collectively use them to draw causal maps that link knowledge to actions and results and help steer organisations towards set goals (see Abernethy and Bouwens, 2005).

By relying on infographics, dashboards, scorecards, risk management, and ranking visualisations, managers within organisations create “a shared body of knowledge that allows for communication between actors” (Carlile, 2004, p. 566) and mediate multiple and often conflicting ideas and expectations (Busco and Quattrone, 2015; Jordan *et al.*, 2018; Qu and Cooper, 2011; Ronzani and Gatzweiler, 2022). As suggested by Ronzani and Gatzweiler (2022), the juxtaposition and complexity of mixing multiple criteria, ideas, and knowledge through the use of accounting visualisations (e.g., text, numbers, graphs, maps) enable managers to effectively communicate and engage different users in a “performative exercise” (See also Quattrone, 2009).

More recent research shows how the use of accounting visualisations is necessary to support managers in framing, evaluating, and reporting organisations’ sustainable value creation (Arjalies and Bansal, 2018; Mennicken and Espeland, 2019), which is often too complex to be defined and grasped using conventional accounting measurements and practices (Achilli *et al.*, 2022; Ronzani and Gatzweiler, 2022). This point is further expanded by Busco *et al.* (2018), showing how the use and design of accounting visualisations are not necessarily meant to ‘please the eyes’ of an external audience but may prompt the aspirations and concerns of the preparers in the attempt to achieve the “right” balance between profit maximisation and the well-being of society and the environment (De Villiers and Sharma, 2020).

Although these studies demonstrate that the design of accounting and reporting visualisations prompts spaces for ‘action’ and ‘invention’ (Quattrone, 2017; Busco and Quattrone, 2015), the role of corporate reporting visualisations as spaces for reflecting upon and “figuring out” what

is unknown, such as the concept of sustainable value (Quattrone, 2022), has been scantily debated (Lakshan *et al.*, 2021; Gibassier *et al.*, 2018). In particular, an increasing number of studies call for further qualitative research to explore how Integrated Reporting visualisations are designed in practice (De Villiers *et al.*, 2014; Perego *et al.*, 2016; Stubbs and Higgins, 2014; Simnett and Huggins, 2015; De Villiers and Sharma, 2020; De Villiers *et al.*, 2021), providing empirical evidence on how sustainable value is defined, measured and represented within organisations' reports (Adhariani and De Villiers, 2019).

Aiming to explore the adoption of accounting and reporting visualisations beyond their persuasive and representational purpose, we explore how these practices can generate new understandings of unknown and unframeable concepts such as sustainable value creation.

To address this gap, in the following section, we introduce our theoretical lens built upon previous research on the rhetoric of visualisations and how these were traditionally used beyond any representational and persuasive purpose.

3. Theoretical framework: Accounting and reporting visualisations as rhetoric practices

As discussed in the previous sections, the potency of accounting and reporting visualisations resides in the knowledge exchanges, engagements, and actions that these practices continuously generate because of their inherent imperfection, complexity, and incapability to frame reality as it is.

Previous research on the rhetoric of visualisations shows how this duality (literally twofold nature) between potency and imperfection of visualisations was mastered and professionally leveraged by orators when preparing their rhetoric speech in front of an external audience (See, for instance, Barthes 1970; Carruthers and Espeland, 1991; Green, 2004; Suddaby and Greenwood, 2005; Flori, 1636; Quattrone, 2009, 2015).

In particular, Roland Barthes (1970) noted how Aristotelian rhetoric practices were not only related to the techniques that an orator could use to persuade the receiver of a given message, concept, or definition (through the appeal to *ethos*, *logos*, and *pathos*), but they were also, if not above all, used for the making (and remaking) of such messages, concepts, and definitions⁴. Beyond a persuasive focus on representations and narratives, rhetoric practices provided ancient orators with methods of knowledge classification, known as *topoi*, to better organise and deliver their speeches regarding a specific *topic* (Bolzoni, 1995; Carruthers, 1998, 2011).

In rhetoric terms, a *topos/I* (from the Greek for "place" or "turn") provide methods of knowledge classification that use visualisations (either to be imagined mentally or to be drawn graphically) to literally "figure out" the subjects (*topic*) to be known and represented (Barthes, 1970; Hallett, 2011). According to Barthes (1970, pp. 75), the distinction between the rhetorical '*topos*' (i.e., a space ready to be filled in with arguments) and '*topic*' (i.e., the knowledge content to be defined) is crucial to understanding the dual nature of rhetoric visualisations beyond any persuasive representation (Carruthers, 2015).

A *topos* represented "a site of possibility, a productive 'vacuum'" (Hallett, 2011, p. 99), literally "a conceptual space" where a speaker or writer "locates" arguments that are

⁴ As the etymology of the word 'concept' remind us (from Latin *conceptus*): concepts have to be given birth.

appropriate to a given subject” (Miller, 2000, p. 141, quoted in Hallett, 2011, p. 92). In particular, the *topoi* provided orators with some categorial spaces and visualisations, through which, by reducing the unknown into known and simplistic categories, they constituted the condition for constructing and augmenting orators’ knowledge of a given concept (see Point A in Figure 1). The construction of knowledge through visualisations is intrinsically imperfect as it always leaves meaning latent, veiled, and not fully graspable (Barthes, 1970). The impossibility of fully grasping and representing something undefinable engages actors in an unfolding process of generative interrogation to explain and get acknowledged about something unfamiliar (See Point B in Figure 1).

Rhetoric practices were also used for *speculating* about topics, questions, and concepts unknown to the orators and the auditors attending the speech. The etymology of the verb ‘speculation’ – from Latin *speculum*, i.e., mirror – directs our attention to visualisations’ narrative and constitutive nature as rhetoric practices aimed at interrogating a certain unknown aspect of our life. As in the *speculum theologiae* of the Middle Ages (Carruthers, 1990, p. 254), this mirroring practice did not have a representation purpose in the modern sense of the word (i.e., implying accuracy and isomorphism between the represented and the representation) but a moral and reflective (from Latin *re-flectere* – bending back twice), with the recognition of possible present deficiency and fallibility to anticipate and predict future failures as the preconditions for further knowledge construction and examinations (see Knorr Cetina, 1997; Carruthers, 1998). Through this process, orators used rhetorical visualisations not only as knowledge construction and interrogation methods on a certain topic but also as a means to anticipate the audience’s questions and practice futural thinking (Barthes, 1970; Carruthers, 2015) (see Point C in Figure 1).

These reflexive and speculative perspectives of rhetoric visualisations cyclically unfold and are enacted through a continuous and recursive process of interrogation and knowledge construction (Figure 1).

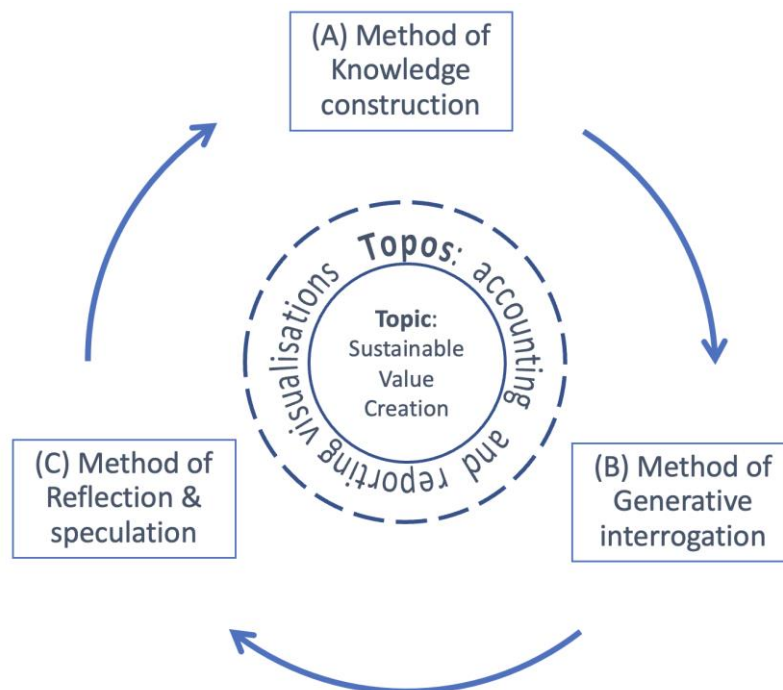


Figure 1 – Theoretical Framework

Through these three stages, we argue that accounting and reporting visualisations can be leveraged in practice and used by managers as *topoi* – rhetoric methods of knowledge construction, generative interrogation, reflection and speculation – to figure out the meaning of unknown and unframeable concepts, such as sustainable value creation.

We rely upon this theoretical lens to build the narrative of our case study. In particular, we focus on how participants combined and engaged with different accounting and reporting visualisations, challenging the meaning of sustainable value within the longitudinal case study at IFCO, a medium-sized company operating in the fashion industry.

4. Research Methodology

This paper builds on a qualitative longitudinal case study as it enables us to analyse how accounting and reporting visualisations evolve ‘in practice’ over time (Eisenhardt, 1989; Ryan *et al.*, 2002; Yin, 2009). In this regard, we analyse the design of accounting visualisations within the integrated reports published by IFCO, a medium-sized international fashion company, since 2005.

4.1 The case of IFCO

Founded in the late sixties, IFCO is an internationally recognised brand operating in over 50 countries through flagship stores, corners and shops in the world’s most exclusive department stores and boutiques. The company’s mission is to create value over time by offering fashionable, high-quality, high-identity products for retailers and consumers. IFCO aims to achieve its mission by relying on a flexible and customised service, a dynamic and challenging work environment, an ongoing and profitable relationship with suppliers and a sustainable company policy for the local community and business environment.

The case of IFCO has been selected as a suitable research site due to the company’s role as a pioneer of an innovative process of annual integrated reporting that started in early 2005, almost eight years before the publication of the International Integrated Reporting Framework in 2013. Within IFCO, the originality in the design of an annual integrated report is emblematic as it challenged managers’ communicational skills and required them to adopt new performance measurement practices, accounting visualisations, and infographics to better represent how the company creates and distributes its sustainable value.

In particular, from 2005 to 2013, the design, implementation and publication of the integrated reports in IFCO were not supported by specific standards or guidelines. The uniqueness of the reports published since 2005 and of the visualisations used to explain how multiple stakeholders benefit from the company’s value creation were confirmed by the numerous awards received as the best reports that integrate social dimensions with financial information (in 2005, 2010 and 2011).

Although the lack of established integrated reporting guidelines increased the complexity of the designing process of IFCO’s annual reports, this normative absence stimulated managers’ creativity, questioning, and speculation on how to figure out (literally unearthing the meaning of a concept through visualisations) and measure the company’s sustainable value creation.

The following section describes in detail the data collection and data analysis.

4.2 Data collection

Blazejewski (2011) argued that case time and research time might coincide only at certain intervals within longitudinal field studies. In this research study, we explored the development and use of accounting and reporting visualisation within IFCO for 12 years (from 2005 to 2017). However, while our analysis starts retrospectively from December 2005, when IFCO published its first annual integrated report, the research time spent to gather and collect data includes the period between 2010 and 2017. For this reason, our research is of the longitudinal retrospective type, within which the researchers, situated in a certain moment in time, seek data that deal with a period in the past in which the process they wished to examine started or unfolded (Blazejewski, 2011).

Our study relies upon primary data in the form of semi-structured interviews with key employees at the case company, complemented with different secondary data (Blazejewski, 2011). We collected our primary data from 40 interviews with nine informants in two different periods. Four interviews with the founder of IFCO (CEO) and the CFO, who was also in charge of implementing and designing the annual Integrated Report, were conducted in 2005 when the company won the first reward as the best report that integrates social dimensions with financial information. The data collected from these preliminary interviews helped us understand how accounting visualisations were used by managers to design a first draft of the annual integrated report and communicate externally how the company creates sustainable value.

From 2010, when the company won its second reporting reward, we conducted 36 interviews with seven other informants: Production Manager, Managing Director, Sales Manager, Retailer, Stylists (2), and Business analyst (See Table 1). Interviews were primarily conducted in Italian and held at the IFCO's headquarters. Transcripts were then translated into English, reviewed by all co-authors, and compared with the data collected from the organisation's public statements and reports. From 2013, when the first draft of the IIRC framework was released, the number of meetings with the CFO (also Head of Sustainability) has intensified, focusing on visualising the company's sustainable value creation process.

Interviews were semi-structured and open-ended. Most of the interviews lasted between one and two hours and, when allowed, were recorded and transcribed into electronic files. During this process, we asked different interviewees similar questions, sometimes meeting with them more than once, to learn different points of view and clarify their understanding of the critical issues being researched.

Interviewees	Period	N. Interviews
CEO	2005-2017	9
Managing Director	2010-2017	3
CFO (and Head of Sustainability)	2005-2017	11
Production Manager	2010-2017	7
Sales Manager	2010-2017	2
Retailer	2010-2017	3
Stylist 1	2010-2017	3
Stylist 2	2010-2017	1
Business Analyst	2016	1
Total		40

Table 1 – Schedule of interviews (2005 - 2017)

The primary data collected from interviews have been triangulated with other sources of secondary information (i.e., notes on informal discussions and participation in internal workshops and public presentations) to improve the narration and understanding of the case study.

In particular, for the period 2005 – 2010, during which the researchers were not directly observing the design of IFCO's annual integrated reports, we relied upon retrospective secondary data (Yin, 2009; Blazejewski, 2011) collected through documentary analysis of reports as well as notes and memories from informants that were working on the report from 2005 onwards. To reduce the potential bias coming from retrospective data (Golden, 1992), we triangulated the information collected from different sources to verify the memories of the informants (see Flick, 2009).

The case material gathered through the interviews and the analysis of additional documentation offered a deeper understanding of how different professionals engaged in designing IFCO's accounting visualisations of the annual integrated reports while attempting to define and represent the company's sustainable value-creation process.

4.3 Data Analysis

Data analysis started as soon as some of the secondary and primary data were collected. Based on the collected information, the key company's activities and events were mapped out to explore how managers within IFCO were involved in the design of accounting visualisations within the annual integrated reports and what this engagement generated.

We proceeded with the transcription of the interviews and particularly of the notes and memories shared by the informants on the publication of the company's integrated annual reports since 2005 when the first version of the report was made available. After the transcription of the interviews, we added a commentary section to each interview file to enable the triangulation with secondary data retrospectively collected.

For data management facilitation, we initially coded our primary information according to IFCO managers' job positions' initials letters (e.g., Sales Manager – SM). Moreover, secondary data from press releases and news from multiple journals or websites, integrated annual reports, and internal documents (e.g., the company's sustainability updates or conference appearances and presentations) were coded as follows PR, IAR, ID. The triangulation of the primary and secondary data collected in the same document was reviewed by each co-author to identify critical events and turning points in the design of the integrated reporting visualisations.

The data analysis proceeded with a second coding process to develop a sharper theoretical focus over time. The second data analysis occurred through the following activities: 1) construction of a longitudinally chronological narrative; 2) visual mapping of events; 3) classification of the chronological events according to the subthemes identified in the visual mapping process.

In the initial step, our coding focused on qualifying how the integrated reporting process unfolded over time within IFCO to develop a longitudinally chronological narrative of its evolution and importance within the organisation (Burgelman, 2011; Sminia, 2009). In particular, primary and secondary materials were analysed to identify the key reporting events in IFCO and capture how managers interacted with and designed the accounting visualisations annually reported to define the company's sustainable value creation. The narrative was reduced to 16 critical events, placed chronologically on a detailed timeline (See Table 2).

Years	Events	Codes
2005	Starting reporting about multiple financial and non-financial information on the company's value creation with particular attention to the value distributed to the supply chain and the community	IAR
	Integrating the civil and social statements in the annual report	PR
	1st Annual Report Oscar for the best report that integrates social dimensions with financial information	PR
	Use of strategy map (published in the annual report) to explain the value created and distributed by the company	ID
	Launch of a 1st focus group with customers, outsourcers, and suppliers to improve the reporting process	ID
2006	Fondazione IFCO is set-up	PR
	Reporting on the intangibles in the annual report	IAR
2007	Launch of a 2nd focus group with agents and representatives to improve the reporting process	ID
2008	The company receives the Goodwin Award by the nobel prize Joseph Stiglits for the innovativeness in the annual report and the company's contribution to the society and the community where it operates	PR
2009	First SGS certification for the Annual integrated Report	PR
	Launch of a research project and focus group with employees, stylists and external suppliers to produce clothes made of organic and bio textiles	ID
2010	2nd Annual Report Oscar for the best report of the SMEs category	PR
	For the first time, the annual integrated report was designed according to seven strategic priorities informed by the stakeholders' perspectives	IAR
	All the employees were directly involved in the design of the report by launching a photo shooting workout	ID
2013	Adhere to the IIRC framework	IAR
2015	SGS certification - ISO14001	PR
2017	Valuation, measurement, and reporting of the main company' social, environmental and economic impact to the community in which IFCO operates	IAR

Table 2 – Chronological timeline of the key events collected from the case of IFCO

The second part of the analysis involved the construction of a visual map (Langley, 1999). In particular, the chronological ordering of the key events in the design of the company's integrated reports helped us map our argument according to a series of narrative themes. In particular, first-order narrative themes (FNTs) emerged from the chronological anecdotes analysed during the first activity (Glaser and Strauss, 1967; Strauss and Corbin, 1990). The emerging first-order narrative themes, which included interpretative data from interviews and secondary data sources, were coded as follows: "Defining sustainable value"; "Focusing on the integration of stakeholders' priorities in the company's strategies"; "Identifying better-integrated measurement systems and maps to visualise the value created by the company"; "Maximization of the use of number and visualisations instead of text"; "Measuring sustainable value through numbers"; "Designing new visualisations to communicate better the sustainable value added and created for the regional community over time" (See Figure 2).

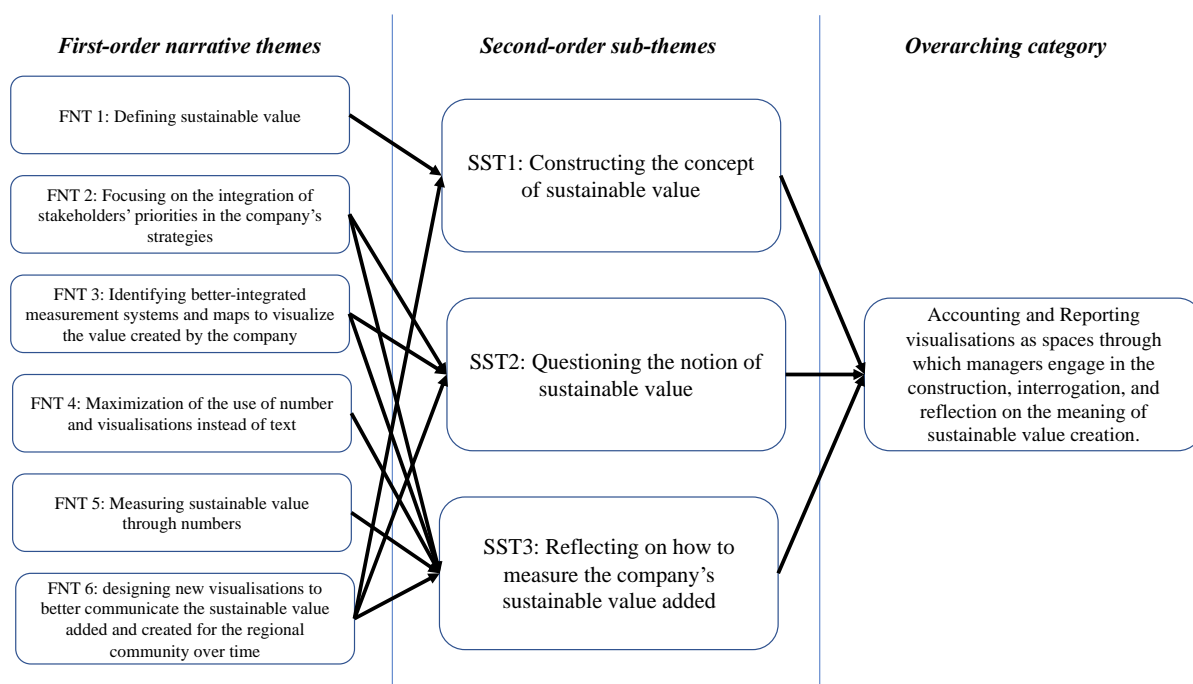


Figure 2 – Visual map analysis

Based on their thematic denotations, the emerging FNTs were aggregated into second-order sub-themes (SST) and categorised into three critical theoretical stages, which gives structure to the narration of Session 5 of this paper: “Constructing the concept of sustainable value”; “Questioning the notion of sustainable value”; “Reflecting on how to measure the company’s sustainable value added”. Figure 2 shows the visual map we used to analyse our primary and secondary data.

Using the visual map helped us provide more detailed and relevant insights into the key events that brought managers to use accounting and reporting visualisations to illustrate better how the company creates sustainable value for stakeholders (See Figure 2).

Finally, as a conclusive step of our analysis, we clustered the events listed in the longitudinal chronological timeline in Table 2, according to the second-order subthemes (SST) shown in Figure 2. In particular, events were classified according to the process of internal construction and the definition of the concept of sustainable value within IFCO (SST1); the company’s top management’s requests to make the concept of sustainable value as much as integrated within managers’ daily activities (SST2); and the managers’ processes of reflection and speculation on the organisation’s impacts and future outcomes in terms of sustainable value creation (SST3) (See Figure 3).

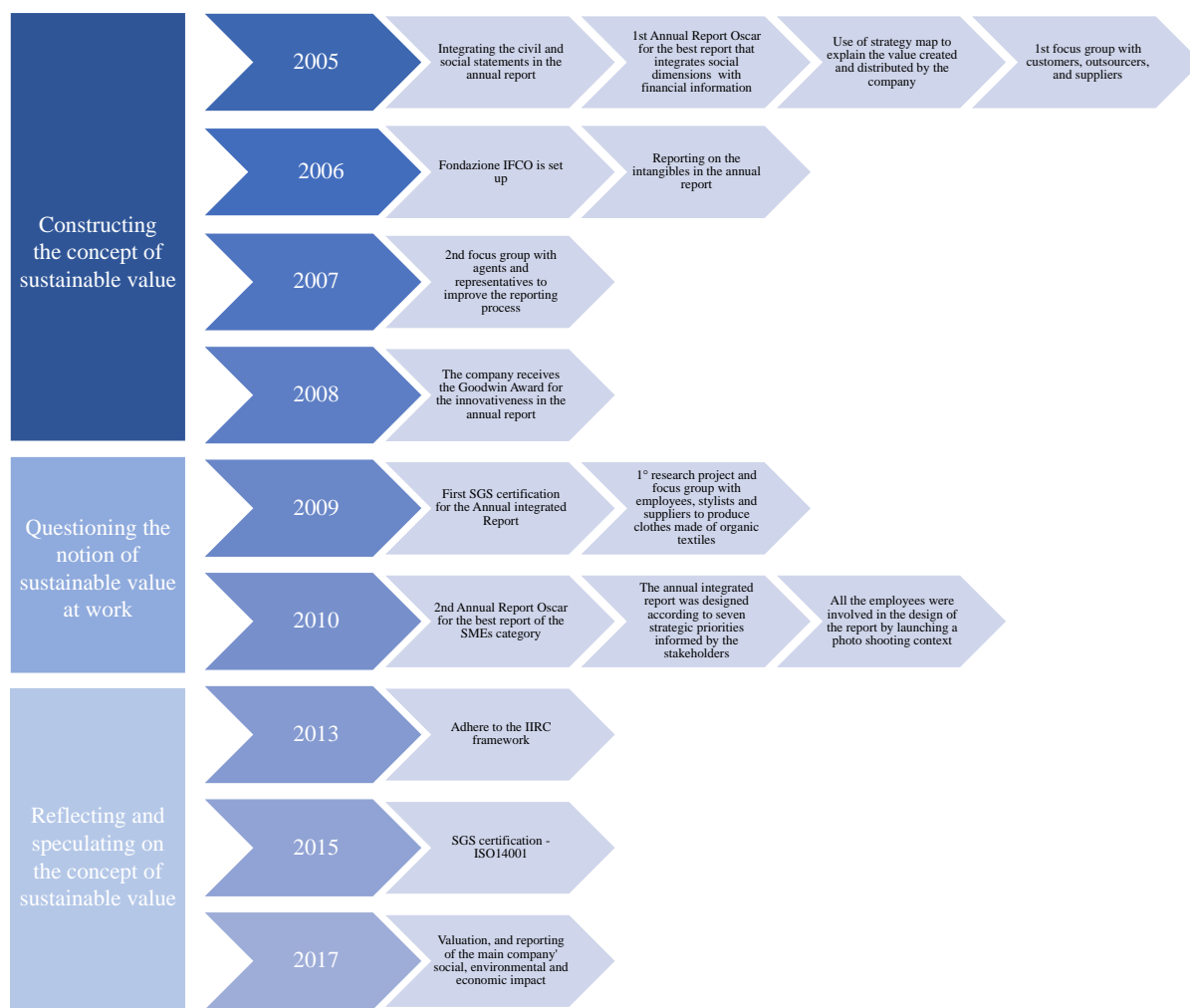


Figure 3 – Constructing, questioning, and reflecting on sustainable value creation in IFCO

5. From thinking integrated to Integrated Reporting in IFCO

5.1 *Constructing the concept of sustainable value through accounting and reporting visualisations*

IFCO’s value creation process is structured around two clothing collections per year, one for the autumn-winter and the other for the spring-summer seasons. Each collection is developed through several inter-connected phases that dictate *“the rhythm and the stages of value creation within the company and require a delicate balancing act that calls for confrontation and cooperation among different parties and interests at stake”* (CEO).

The collection begins with a briefing between the Heads of Design, the Sales and Marketing, Production, and Finance managers to discuss broad plans regarding the number of lines and categories of garments to be designed. The process of cross-functional collaboration that is featured in the development of the collection represents the core of IFCO’s value creation process since it entails inherent trade-offs among the aesthetic aspirations of the stylists, the complexity, and costs of production of the garments, the ethical concerns of local suppliers, as well as the expectations of customers and retailers that operate at the local level.

The garments' design and development (Phase 1 in Figure 4) represents the most important and creative phases of the collections, which generally unfold under the leadership of the stylists and terminate with the production of high-quality prototypes and samples inspired by local customers' expectations. One of the two stylists interviewed at IFCO stated:

“The product design and development phase represents ‘the cradle’ of the collection creations [...] At this stage, we need to care about the expectations and requests of our clients, who are increasingly asking for information on how we use fabrics and textiles, their quality standards, how and whether we engage with ethical suppliers, and where we locate our production. It is not our job as designers to collect all these requests, but we need to consider them when designing a new garment. [...] We need to understand how to balance all these aspects when launching a new product” (ST 1).

The Sales and Marketing Department plays a crucial role since it is also responsible for collecting comments from retailers and consumers on the style and quality of the clothing they expect to buy. This information is subsequently shared with the Design Department (Stylists) and the Production Department for production planning.

As frequently highlighted by the CEO, the briefings and conversations that take place during the development of the collections contribute to the definition and design of all initiatives that affect the company's *sustainable value* creation as the “*final – unknown – outcome to achieve*” (CEO) (See Figure 4).

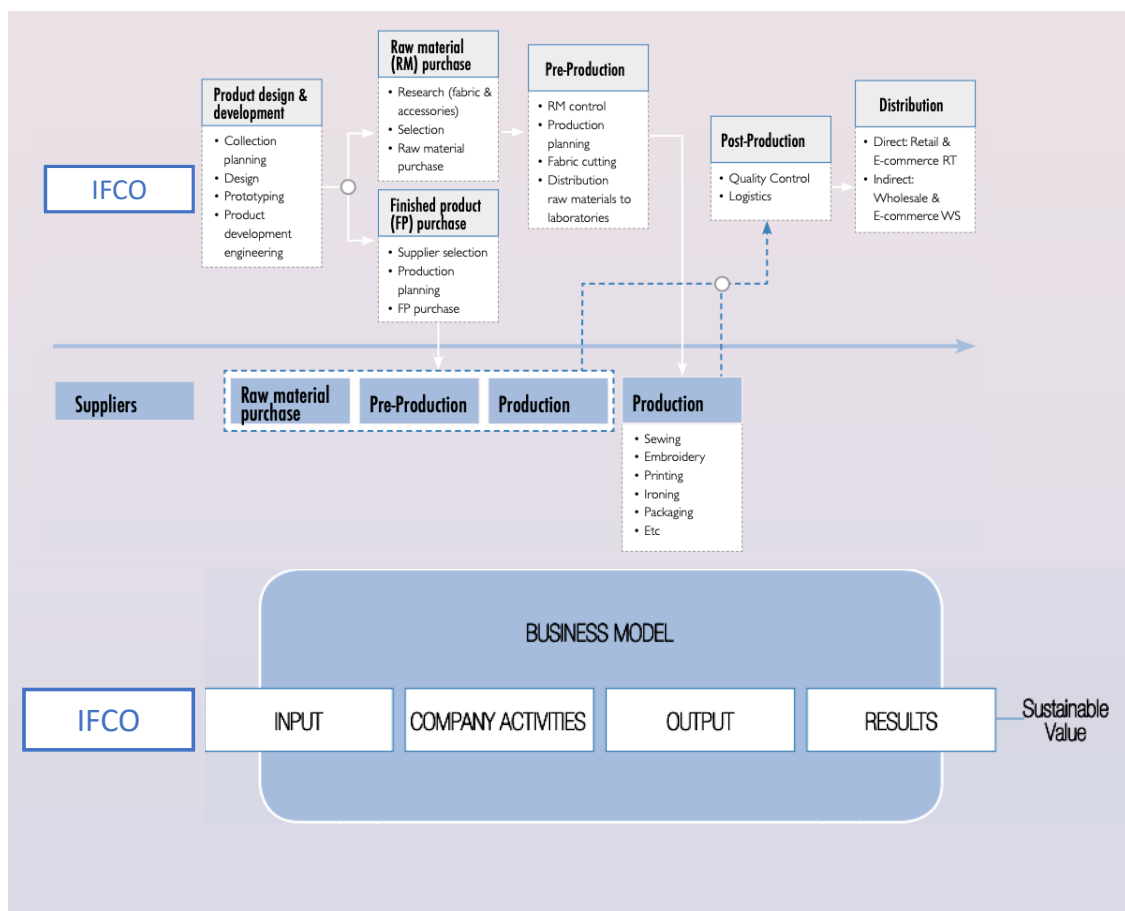


Figure 4 – IFCO’s sustainable value creation process and business model (Figure adapted from the company’s 2018 annual report)

In another interview on the company’s value creation, the words of the CEO stressed the necessity to find the right trade-offs between multiple dimensions:

“Every garment we design and sell results from a balanced process of operational effectiveness, cost efficiency and sustainable development. All these data are not easy to manage or communicate to our stakeholders and need multiple colleagues’ support to manage the trade-offs better and improve our communication process.” (CEO).

In the attempt to better communicate internally and externally how the company balance operational efficiency, financial stability, and sustainable development objectives, in 2005, the CEO decided to restructure the company’s management accounting and reporting process.

A strategy map was used as the most appropriate management accounting visualisation to explain the “delicate balancing act” and “trade-offs” between cost efficiency, high quality of the garments produced and sold, and the company’s sustainable strategy. As stated by the CFO (also Head of sustainability in IFCO):

“The strategy map was implemented to support the process of collaboration and integration that characterises our business model. [...] In 2005, we launched the first focus group to understand our stakeholders’ perspectives on the value created by our company and its different aspects. That’s why we also decided to make the strategy map a fundamental part of the design of our first annual integrated report”. (CFO)

To improve the company’s reporting and accounting process, from 2005, a growing number of internal and external stakeholders – such as suppliers, stylists, agents, and customers – were involved in a series of focus groups. During these workshops, the strategy map was used as a shared practice to figure out what kind of objectives the company should achieve to succeed in terms of customer satisfaction, internal process innovation, and social inclusion. The strategy map acquired a central role in this context, offering a space within which different interests and concerns materialised and became translated into financial and non-financial performance (See figure 5).

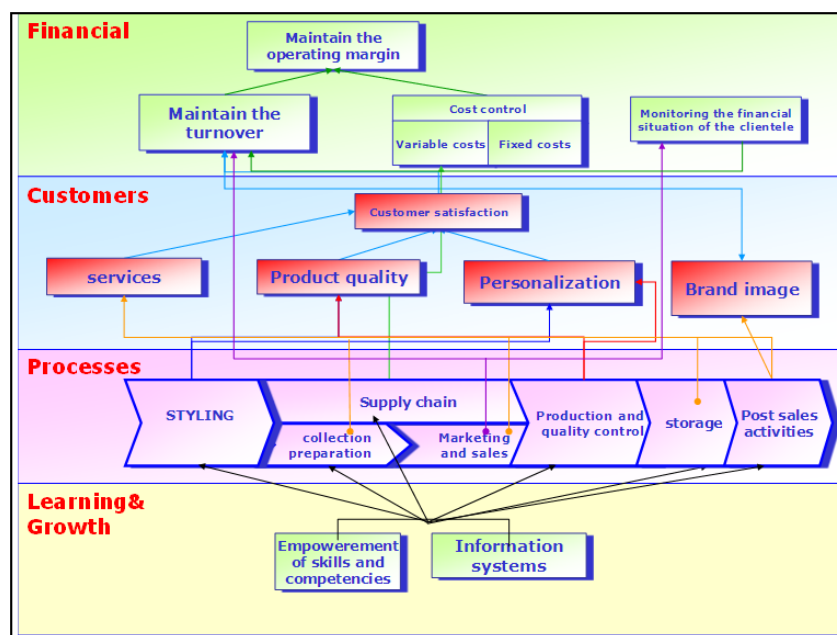


Figure 5 – IFCO’s Strategy Map published in the 2005 annual integrated report

The adoption of the strategy map was not only described by managers as a source of internal confrontation and knowledge construction of the possible trade-offs between financial and non-financial objectives of the collection but also to increase IFCO's attention to and communication with its stakeholders.

A sales manager who organised different focus groups over the years explained: *"The strategy map that we designed works like a magnet; it is a tool that attracts everybody's attention"*. Further, while being interviewed on the strategy map and its use in the design of the annual integrated report, the CEO mentioned that:

"Many of the users of the strategy map are not finance experts, and they become aware of the underlying interconnections between the different development phases of the collections only once these connections are visually translated into the strategy map [...] The visualisation of the strategy map in the annual report 2005 increased both internal colleagues and external stakeholders' understandings of what we need to prioritise to create and deliver sustainable value". (CEO)

Therefore, since its first publication in the annual integrated report in 2005, the strategy map has been used as a powerful visualisation tool to explain internally and externally how the company combines financial (i.e., EBITDA, Cash flow), operational, and intellectual objectives to create and distribute sustainable value. Further, the publication of the strategy map in the annual integrated report was fundamental to engaging other stakeholders in the design of the seasonal collections.

The use of the annual integrated report and the strategy map as communication and visualisation tools for engaging external stakeholders in the design of future collections bore its fruits in 2009. After organising a second session of focus groups with suppliers, local agents, and representatives regarding the environmental impacts of producing fashion goods, the company launched an innovative project to design, produce and sell ecological t-shirts. As suggested by one of the stylists involved in the project:

"The idea to use the strategy map for the second session of the stakeholders' focus group enabled us to produce a t-shirt made of organic cotton farmed without using either genetically modified seeds or synthetic pesticides, which are generally used in conventional cultivation with negative consequences for the environment. The packaging was entirely made of recycled materials. Further, it included an educational game to stimulate adults' and children's curiosity and give them more information on four endangered animals and their habitats." (ST 1)

The second stylist, who was attending one of the interviews, proudly introduced the design of the t-shirts as an excellent example of shared value creation with suppliers and agents, both from a qualitative, economic, and sustainable point of view. However, she also explained how the design of the new ecological t-shirts created internal tensions and debates with the production manager regarding the increased complexity in the production process, the delays in delivery, and the overall increase in costs that would have potentially threatened the design and realisation of the collection.

In this context, the uncertainty associated with the processes of innovation using new materials and the difficulty of predicting the results of such processes stimulated continuous debates

between managers. Interestingly, a second stylist pointed to the strategy map of the 2005 report, which we were showing him/her during the interview, with disappointment and affirmed:

“I had to fight hard for the design and production of a dress made of organic fabric. I believe the overall result could have been even better if they [pointing to the Process perspective of the strategy map] had not convinced me to modify some things in the design at the last minute” (ST 2).

While talking on the same aspect in another interview session, the production manager claimed:

“Disagreements are often related to the impact of new ideas on our production methods and the bottom line [...] The managing director is generally inclined to support stylists because he/she trusts that the next item that hits the shelves is going to redefine our (IFCO) brand image again [...] I guess he/she does understand that sometimes the launch of new collections may be extremely complex to manage from a production point of view. However, he/she is always confident the final consumer will be willing to pay for the value we offer” (PM).

In this case, the main grounds for disagreement between the stylists and the production manager were the purchase of specific types of organic cotton from suppliers from different locations. Although it would have benefitted the job of local artisans, this decision would have also increased the production costs of the t-shirts and delayed the delivery time to customers.

Finally, the decision of the CEO to carry on the production of the t-shirts co-created with local suppliers and customers contributed to mediating the tensions between the production managers and the stylists. In 2010, the t-shirts were featured in the “IFCO chic” line as a clear example of sustainable value creation.

5.2 Questioning the notion of sustainable value at work

With the 2010 annual integrated report, IFCO introduced some of the most significant reporting innovations. For the first time, the annual integrated report was designed according to seven strategic objectives informed by the stakeholders’ priorities gathered during the focus groups. These objectives characterised the publication of IFCO’s annual integrated reports for almost a decade. They were listed as follows: (1) maintain a strong identity, (2) foresee the future by reporting on sustainability, (3) guarantee high-quality standards, (4) innovate, (5) encourage the valorisation of the resources employed within the company’s value chain, (6) ensure a transparent and successful communication with and involvement of stakeholders, and (7) contribute to the territory’s development.

Further, in 2010, to improve the alignment between multiple performance indicators and stakeholders’ perspectives in the Integrated Report, IFCO’s employees were asked to gather informally and express, through the publication of a series of photo stories, what kind of strategic objectives were better representing the company’s sustainable value creation process (See Figure 6).



Figure 6 - A snapshot from an IFCO's photo-story workout published in the 2010 annual integrated report

The “photo-stories” workout proved to be extremely important in capturing and representing the company's main objectives from the employees’ point of view and how they actively contribute to their achievement, especially those related to the company’s intellectual capital objectives, environmental impacts and relations with stakeholders. For instance, on the left side of Figure 5, the first photo story shows five employees explaining how they contribute to reducing energy consumption and CO2 emissions. Looking, for instance, at the comic of the girl seat on the right side in the photo story, we can understand how employees “[...] *encourage smart working to limit energy consumption and CO2 emissions*”. On the right side of Figure 5, instead, the photo story explains how people team working, creativity and motivation improve problem-solving and efficiency at work within IFCO. As argued by the Sales Manager:

“Some of these objectives may be difficult to understand since their effects are not visible in the short term [...] Additionally, not so many people in the organisation have the experience or knowledge to understand the deep interplays across functions and their consequences for the company. Especially if we talk about the concept of sustainable value creation” (SM).

As further emphasised by the production manager:

“Initially, I was sceptical about the publication of the photo stories in the annual report. We were asked to gather in groups and question how we work as a team to meet the company’s social and environmental objectives. [...] In the end, I realised that, although it was challenging, our involvement in the photo stories was important to reflect on the company's sustainable development and our department’s role in achieving long-term financial and sustainable objectives” (PM).

Trying to convey individuals' introspective reflections within the 2010 annual integrated report, the photo story helped IFCO's employees shed light on several critical issues characterising the company's sustainable value creation. As also emphasised by the CFO:

“The annual integrated report is “everyone's” document, which includes recounting the employees' daily work activities. Besides a real increase in the

participation in the Annual Report, the contribution given by each employee has also made it easier to gather the necessary information and to analyse our performance more in-depth”.

The integration between IFCO’s financial performance and intellectual, social, and environmental objectives was further legitimised by the company's prize in 2010 as the Best Annual Report among SMEs. Three years later, in 2013, the contingent publication of the first International Integrated Reporting (IIR) Framework by the International Integrated Reporting Council worked as a litmus test for IFCO as most of the information published in the annual report every year was already available and required little adjustments.

5.3 Reflecting and speculating on the concept of sustainable value through diagrams and performance indicators

With the publication of the IIR framework in 2013, the role of the annual report within IFCO was further legitimised as “the means through which IFCO periodically reports to its stakeholders (internal and external to the company) on the choices made, activities carried out and results obtained, indicating the resources used and added value generated in financial terms as well as the impact on the social and environmental fabric.” (IFCO 2013 Annual Integrated Report, p.5).

However, from 2013 onwards, the amount of information to be reported according to the new IIR framework affected the complexity of the annual report's graphical visualisations (e.g., charts, diagrams, and tables) (See Figure 7).

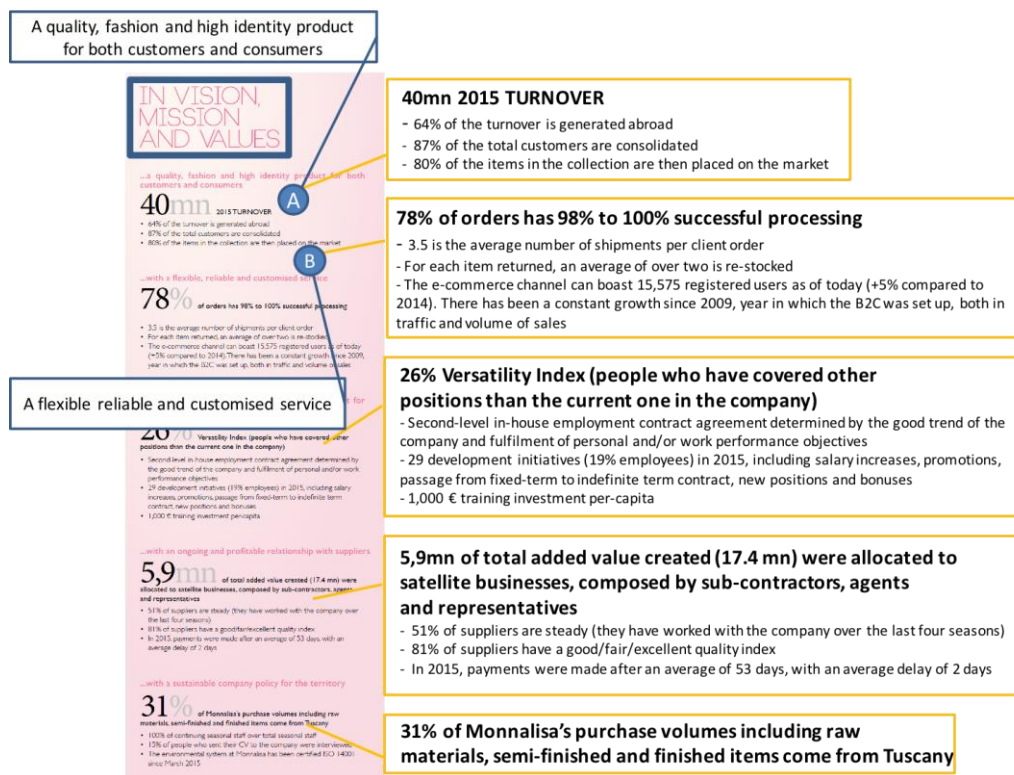


Figure 7 – IFCO’s vision, mission and values textually and graphically articulated (Figure adapted from the company’s 2015 Annual Integrated Report)

This aspect became a critical point of reflection for IFCO's top management, as the complexity of the report was clashing with their intention to communicate better, visualise and measure how the company creates sustainable value every year. During an interview session, the Managing director took the 2015 annual integrated report from the library behind his office desk and pointed at the vision, mission, and values page to explain that:

All the information and data visualised in our report's vision, mission and values page are expected to illustrate how our collections create value for our stakeholders. This page is the result of a continuous process of struggle, debate, and sometimes fight between me, the managers involved in data collection, and the CFO, on what kind of information we should prioritise during the year to meet our sustainable development targets (MD).

The vision, mission, and values page of IFCO's annual report combines financial and non-financial KPIs to illustrate how the organisation annually interact with local communities and artisans, the up-to-date strategic priorities and targets for employees, and the capacity to create sustainable value by offering 'flexible, reliable and customised service' [see point B in Figure 7]. As many other infographics and visualisations in the report, this page "is not required by any framework but represents [the company's] approach to sustainable value creation", stated the Business Analyst (BA), and "informs people of the key performance achieved during the phases of the development of the collection" (Production Manager - PM).

Contrarily to other optimistic managers' feelings on the infographic shown in Figure 7, the Sales Manager, who is involved in the collection of data and represents the main point of contact for B2B clients, challenged us during an interview by asking:

"Look at this page and try to be honest with me. Do you really believe that this is easy to read or understand? From my point of view, this page is too heavy to digest and lacks clarity. We can't throw data, numbers, figures, and information on a page without a clear idea" (SM).

Although the understandability of the Vision, mission and values page was highly contested by some of the managers involved in its design, the performance gathered and illustrated through the infographics represents the outcome of a continuous process of analysis, definition, and determination of how managers define sustainable value in IFCO, without necessarily explaining it in full.

In this regard, the infographic of the organisation's distributed added value is a clear example of the visual absences that managers within IFCO have tried to address every year since 2005.

"The vision, mission, and values of IFCO cannot explain how we create and distribute sustainable value if we don't translate these notions into one key measure. I agree with some of my colleagues that our report's Vision, Mission and Values page might be complex to understand. However, it makes much more sense if we take it as a blueprint to question the different components of our sustainable value and how to measure the wealth that we create and distribute to our stakeholders (pointing at the infographics and tables of the company's distributed added value)" (CFO).

From 2017, the visualisation of the sustainable value creation within IFCO's integrated reports has been improved to give a more detailed representation of the 'flows' of value distributed among different stakeholders (see Figures 8, 9 and 10).

The first and most interesting attempt to graphically explain how the company creates and redistributes its value among different stakeholders is shown in Figure 8. IFCO managers reclassified the traditional cost statement and cash out-flow statement of the company to measure the wealth distributed to different stakeholders during the business year. While identifying the items of this reclassification, managers decided not to consider sister companies, subcontractors, and representatives as a source of cost but to consider them as the main recipients of the added value created and distributed.

The value created and distributed was analysed across a period of three years (2015 -2017) and illustrated according to the following criteria (See Figure 8): Personnel payments; Payments to linked industries (Subcontractors); Payments to related industries (Agents and representatives); Payments to public administration; Payment on credit capital; Remuneration of risk capital; Company remuneration; External Charity donation.

	2015	%	2016	%	2017	%
Personnel payments	6,255,539	38.09%	6,955,236	44.50%	7,510,138	44.47%
Employees	6,255,539		6,955,236		7,510,138	
a) direct remuneration and bonuses (including the employees at the Galeries Lafayette corner; the employee at the PR office in Russia, at the showroom in Germany and UK and at the Spanish branch)	4,357,556		4,879,054		5,296,427	
b) indirect remunerations	1,676,011		1,730,635		1,836,504	
c) reimbursement of expenses and safety expenses	112,735		152,857		153,623	
d) canteen expenses	74,330		93,581		109,267	
e) training	32,827		27,509		23,319	
f) welfare	2,080		71,600		90,998	
Payments to linked industries: subcontractors	4,652,665	28.33%	4,629,911	29.62%	5,089,993	30.14%
Costs for embroidery, printing, sewing, ironing and dyeing	4,652,665		4,629,911		5,089,993	
Payments to linked industries: agents and representatives	1,303,761	7.94%	1,240,903	7.94%	905,117	5.36%
a) direct remunerations	1,269,822		1,205,992		877,509	
b) indirect remunerations	33,939		34,911		27,608	
Payments to the Public Administration	1,049,357	6.39%	132,056	0.84%	177,160	1.05%
Direct Taxes	1,022,475		780,432		1,189,220	
Indirect Taxes	96,949		85,684		135,937	
Subsidies for the period	70,066		734,061		1,147,997	
Payment on credit capital	170,994	1.04%	164,926	1.06%	287,529	1.70%
Costs for short-term capital	153,499		155,357		248,602	
Costs for long-term capital	17,495		9,569		38,927	
Remuneration of risk capital	0	0.00%	0	0.00%	0	
Dividends	0		0		0	
Company remuneration	2,895,942	17.63%	2,495,978	15.97%	2,907,606	17.22%
Changes on provisions	2,895,942		2,495,978		2,907,606	
External charity donations	94,647	0.58%	11,325	0.07%	10,503	0.06%
GLOBAL NET ADDED VALUE	16,422,904	100.00%	15,630,335	100.00%	16,888,046	100.00%

Figure 8 – IFCO's representation of the distributed added value statement (IFCO Annual Integrated Report, 2017)

The key aspects of the distributed added value statement were also graphically represented in an infographic, similar to a pie chart, that illustrates how the margins generated by the company are redistributed to the stakeholders affected by the company's operation (See the comparison between the company's distributed added value graph in 2005 and 2017 in Figure 9).

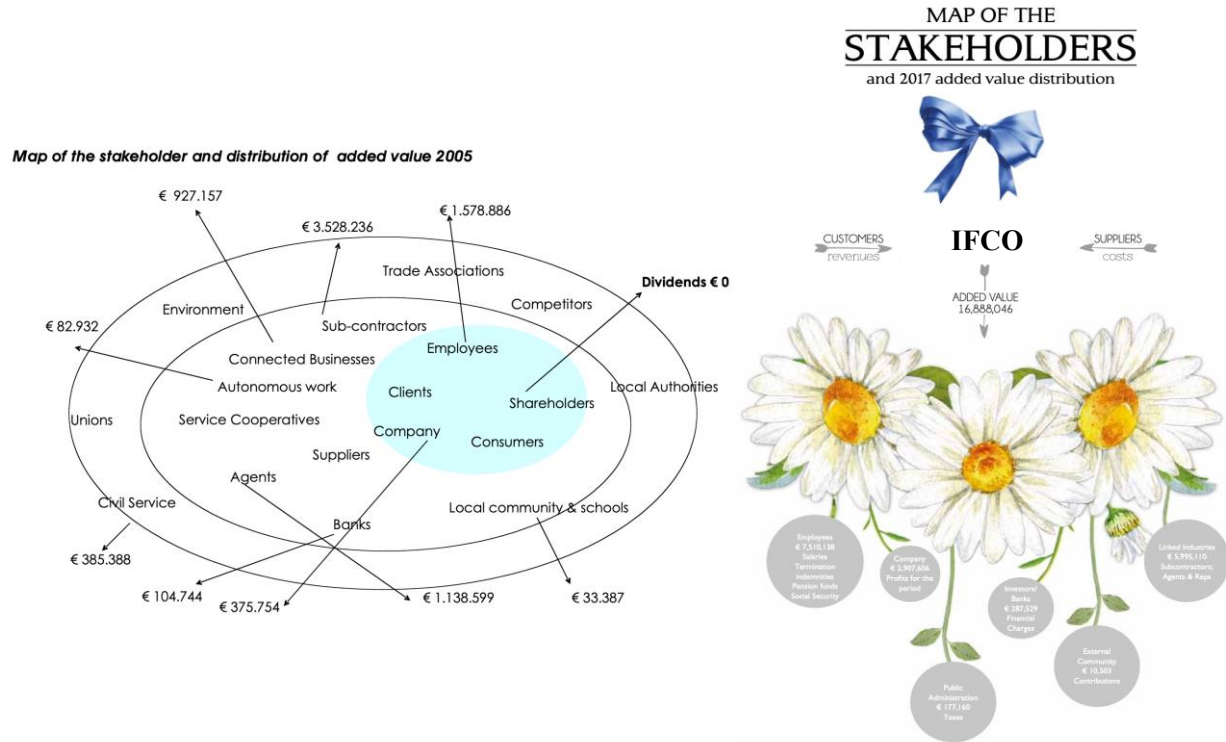


Figure 9 – IFCO’s representation of the distribution of added value in the stakeholder map (IFCO Annual Integrated Reports, 2005 compared to 2017)

While hastily looking at the multiple information and data represented in the 2017 report, the CFO highlighted the importance of not only graphically visualise the value distributed to a multitude of stakeholders but also the necessity of measuring and communicating the economic, social, and environmental impacts generated by IFCO along the years [See Figure 10]:

“In 2017, we made a further step trying to measure and graphically represent the economic, social and environmental impacts generated by the company. We designed an impact chart to show the benefits generated by IFCO over five years, from 2013 to 2017. Through this chart, we wanted to explain how the value we create results from inevitable trade-offs at the basement of our relationship with all stakeholders. As you can see, the widening of the graph showed an improvement in the specific analysis of the economic, social and environmental impacts in 2017 compared to 2013, when our Integrated Report became compliant with the IIR framework.

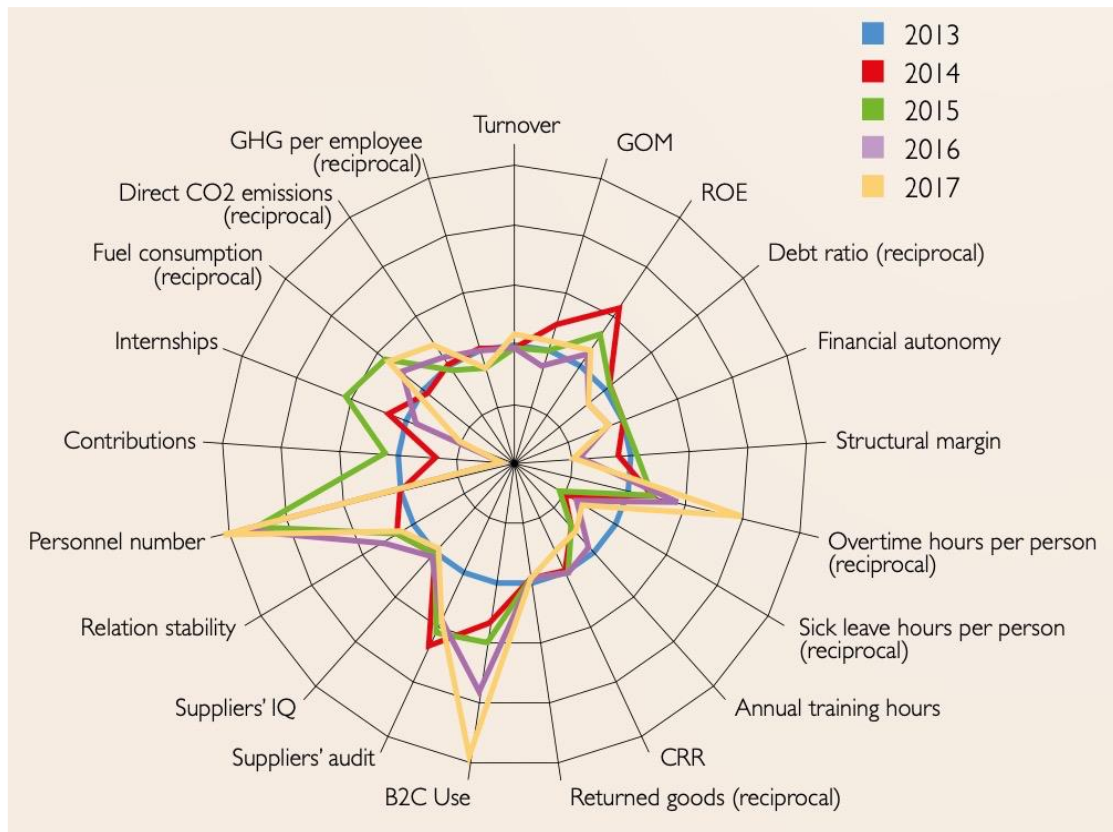


Figure 10 – IFCO’s representation of social, economic, and environmental impacts generated (IFCO Annual Integrated Report, 2017)

The dashboard graph shown in Figure 10 provides a list of economic (e.g., ROE, Turnover, Debt Ratio), environmental (e.g., GHG per employee, Direct CO2 emissions, Fuel consumption), social (e.g., Relational stability, Suppliers’ IQ, B2C use), human, and intellectual (e.g., Sick leave hours per person, Overtime hours per person) indicators, to explain the benefits generated by IFCO for a multitude of stakeholders over five years. As mentioned by the Managing Director:

Through this picture, we can appreciate the tridimensionality of our sustainable objectives by figuring out the future trade-offs between financial, environmental, and social performance. Although the graph synthesises our sustainable value into only 21 key metrics, it makes everyone [within and outside the company] aware of our objectives during the year and what we will need to improve in the future to change certain negative trends.

The adoption of a dashboard able to illustrate and visualise the different components of IFCO's sustainable value (21 key metrics) and impacts on multiple stakeholders over time improved the company’s predictability on certain decisions and results. By showing the cause-effect relations between environmental, social, and economic dimensions in one chart, the company tried to anticipate how to manage certain risks and what kind of mitigatory actions to take in the short and medium term.

The analysis of the value distributed and the visualisation of the social and environmental impacts generated also improved the company risk evaluation and stakeholders’ relationship

management process. Certain areas of possible deficiency and fallibility identified in the 2017 dashboard, such as GHG per employee, number of internships, and the contributions made, were substantially improved three years later at the expense of some financial KPIs such as Revenues, total Gross Margin % and ROE (See Figure 11 the pink line in the chart from the 2020 Annual report).

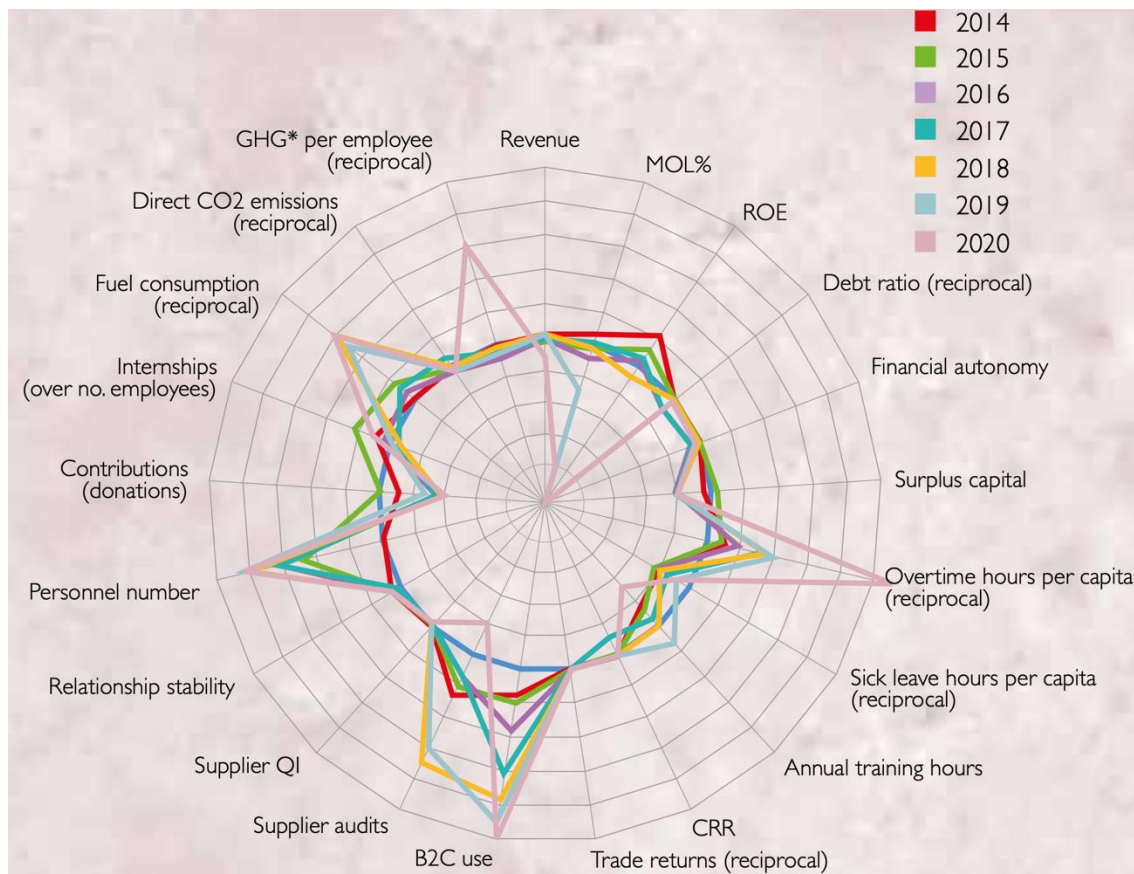


Figure 11 – IFCO’s representation of social, economic, and environmental impacts generated (IFCO Annual Integrated Report, 2020)

6. Discussion

6.1 Integrated Reporting visualisations as “topoi”: methods of knowledge construction

Since 2005, managers within IFCO have relied upon a variety of accounting and reporting visualisations such as the strategy map (see Figure 5), the “Vision, Mission and values” infographic (See Figure 7), the stakeholders’ value-added distribution map (see Figures 8 and 9) and the impact dashboard charts (see Figure 10 and 11) to construct, question and speculate upon what was defined as a sustainable value within IFCO, Although being defined by the CEO as “*unknown final outcome*” to achieve, managers tried to figure out its meaning and measure how the company contribute to the wealth of a variety of stakeholders.

Within IFCO, accounting and reporting visualisations (e.g., graphs, diagrams, tables, grids), although being intrinsically ambiguous and imperfect in representing organisations’ performance, provided managers with methods of knowledge classification – “*topoi*” – to

frame and define what was still unknown into known, quantifiable categories and more understandable measures for internal and external stakeholders. In turn, this framing and knowledge construction process created the condition of possibility for further questioning and reflecting upon how to measure the company's *sustainable value*.

In particular, accounting and reporting visualisations offered a space where the conversations generated and maintained by different stakeholders were not intended to create shared views and sustain consensus in practice (“*I had to fight hard for the design and production of a dress made by an organic fabric*” – as mentioned above by Stylist 2 pointing at the strategy map in the annual report). Also, “*This page is the result of a continuous process of struggle, debate, and sometimes fight between me, the managers involved in the collection of data and the CFO, on what kind of information we should prioritise during the year to meet our sustainable development targets*” (as explained by the Managing Director).

Contrarily, accounting and reporting visualisations, although intrinsically imperfect, as they provide for a ‘partial and simplified view’ of organisations’ decisions and performance (Chambers, 1999; Pollock and D’Adderio, 2012; Ronzani and Gatzweiller, 2022), have the potency to act as pathways for constructing knowledge on the topic of sustainable value creation by making it visible and therefore stimulating ongoing conversations among managers and stakeholders. For instance, in the case of IFCO, the strategy map engaged (“*Instead of looking at the annual report merely as a communication tool, we are using it as an opportunity for collective reflection on who we are and what we do.*” - as suggested in the quote above by the CFO “) and mediated multiple tensions and concerns (*Disagreements are often related to the impact of new ideas on our methods of production and the bottom line [...] as claimed by the Production Manager*).

The accounting and reporting visualisations within IFCO integrated reports and their use in the focus groups with stakeholders worked as *topoi* providing for “sites of possibility, productive ‘vacuum’” (Hallett, 2011, p. 99), through which new products, knowledge, and ideas on how sustainable design products emerged. Although interpreted as a source of tension, the use of the integrated reports’ visualisations during focus groups with stakeholders increased managers’ creativity and aspirations in the design of a new t-shirt co-created with local suppliers and customers.

The publication of the strategy map in the annual integrated report and its use during the focus groups was fundamental, not only because it increased internal understanding of the organisation’s sustainable value creation process but also because it engaged managers in a generative process of co-creation and confrontation about the development and design of a new garment made of bio fabrics (“*The idea to use the strategy map for the second session of the stakeholders’ focus group enabled us to produce a t-shirt made of organic cotton farmed without using either genetically modified seeds or synthetic pesticides [...] as stated by Stylist 1 above*).

Finally, the design of the “Vision, mission and values” infographic (Figure 7) acted as a clear example of *topoi* through which managers constituted the condition for constructing and augmenting internal and external stakeholders’ knowledge of the company’s sustainable value, although reducing into known and simplistic categories and performance (*All the information and data visualised in our report’s vision, mission and values page are expected to illustrate how our collections create value for our stakeholders* – as stated by the Managing Director).

6.2 Integrated Reporting visualisations as a means of generative interrogation

The accounting visualisations designed within IFCO's annual integrated reports required managers to interrogate and question how the different perspectives of the company's sustainable value creation were interrelated and connected. This process, however, is intrinsically imperfect as it always leaves meaning latent, veiled, and not fully graspable (*Have a look at this page and try to be honest with me [...] this page is too heavy to digest and lacks clarity. We can't throw data, numbers, figures, and information on a page without a clear idea in mind* – Stated the sales manager above while questioning the clarity of the information reported in the “Vision, mission and values” statement of the integrated report)

Within IFCO, the impossibility of fully grasping and representing something undefinable, such as the topic of sustainable value creation, engaged managers in processes of generative interrogation to explain and get acknowledged about something they needed to be more familiar with. The infographic used to visualise and represent the company's mission and sustainable values provided for a space through which managers could question and reflect upon how to create wealth and distribute value to multiple stakeholders (*The vision, mission, and values of IFCO cannot explain how we create and distribute sustainable value if we don't translate these notions into one key measure. I agree with some of my colleagues that our report's Vision, Mission and Values page might be complex to understand. However, it makes much more sense if we take it as a blueprint to question the different components of our sustainable value and how to measure the wealth we create and distribute to our stakeholders – sustained by the CFO in a quote above*).

This generative interrogation was also replicated internally when managers' points of view and interpretations of the company's sustainable objectives were published in the annual integrated reports through a series of photo stories. The launch of the Photo stories contest and their publication in the annual integrated report engaged managers in questioning how they contribute to and enable the company to make positive impacts on society and the environment (*We were asked to gather in groups and give space to our creativity, questioning on how we work as a team to meet the company's social and environmental targets [...] mentioned the Production Manager in a quote above*).

Within this context, the photo stories acted as methods of generative interrogation through which managers had the opportunity to both reduce (“Synthesise” as cited by the CFO and the Managing Director above) and expand any possible definition and interpretation of their role in the sustainable value creation of the company. In particular, managers questioned and reflected upon how their actions and decisions met the company's sustainable objectives (See the photo stories in Figure 6).

Therefore, within our case study, accounting and reporting visualisations such as maps, pictures, and infographics acted beyond their representational purpose, not only because they reduced and constructed unknowable concepts, such as sustainable value, into understandable categories but also because they allowed managers to question and reflect on their practical implications.

6.3 Integrated Reporting visualisations as spaces for reflecting and speculating on sustainable value creation

Within IFCO, the design of accounting and reporting visualisations provided participants with tangible spaces through which they engaged in reflecting and speculating on what sustainable

value creation means and how it could have been measured (*[...] it makes much more sense if we take it as a blueprint to question the different components of our sustainable value and how to measure the wealth that we create and distribute to our stakeholders – pointing at the infographics and tables of the company's distributed added value*” – as sustained by the CFO in a quote above)

Indeed, some interesting examples are offered by the schematic illustrations reproduced in Figures 8, 9, 10, and 11. In particular, the calculation of the added value distributed, and the impact charts, show how accounting and reporting visualisations relied on their “rhetoric” - not necessarily persuasiveness – to engage managers in a speculative activity of judgement and reflection.

On one side, accounting and reporting visualisations engaged managers in judging their performance and reflecting on how they meet the company's sustainable objectives (*[...] our involvement in the photo stories was important to reflect on the company's sustainable development and my department's role in achieving long-term financial and sustainable objectives* – as stated by Production Manager cited above). On the other side, accounting and reporting visualisations, like those in figures 10 and 11, enabled managers to speculate on what kind of performance should have been improved in the upcoming years to mitigate certain economic, social and environmental risks (*Through this picture, we can appreciate the tridimensionality of our strategic objectives, figure out and speculate on the future trade-off between financial, environmental and social performance* – as maintained by Managing director cited above).

Although complex (showing the impacts on multiple stakeholders over 5/7 years – see pictures 10 and 11) and imperfect (21 key metrics were used to define the company's sustainable value created and impact generated), the adoption of the accounting and reporting visualisations such as dartboards and pie charts do not have only a representation purpose (i.e., implying accuracy and isomorphism between the represented and the representation). Instead, accounting and reporting visualisations also have a reflective and speculative role (from Latin *speculum* – mirror) that requires managers to recognise their possible performance deficiencies and fallibilities to anticipate any possible future risks and provide for the preconditions to create further knowledge and debate between the actors involved in their design. Indeed, by showing the cause-effect relations between environmental, social, and economic dimensions in one chart, the company tried to anticipate how to manage certain gaps and what kind of mitigatory actions to take in the short and medium term.

These reflexive and speculative perspectives of accounting and reporting visualisations are never ending and cyclically unfold through a continuous and indefinite process of interrogation and knowledge construction.

7. Conclusions

Drawing on the case material collected from an International Fashion Company (IFCO) and combining it with insights from studies on rhetoric, our paper shows that the adoption of accounting and reporting visualisations does not only result from their supposed ability to represent, persuade, and reconcile through possible compromises the multiple and differing views expressed by an organisation's stakeholders. Instead, as rhetorical methods of knowledge composition, accounting and reporting visualisations (such as graphs, dartboards, maps and grids) facilitate and engage managers in an unfolding process of knowledge construction,

questioning, and speculation of what is meant as sustainable value creation within the organisation.

In this regard, our paper offers several contributions.

First, we contribute to the literature on the rhetoric of accounting and reporting visualisations by showing that their representational complexity and imperfection offer fruitful spaces through which users can engage in knowledge construction, interrogation, and reflection processes. Within IFCO, accounting and reporting visualisations granted managers an active role in making fragmented and complex topics, such as sustainable value, not an exercise of imagination (Gray, 2010) but a hopeful aspiration to change the world at a macro level by acting at the micro level.

Further, the inconsistencies and imperfect spaces that accounting and reporting visualisations offer stimulated managers in a continuous process of questioning and reflection on how to measure the sustainable value generated by the organisation and, eventually, how to recognise possible performance deficiencies and fallibilities to anticipate future risks. Through our case study, we address the gap in the literature by showing how the imperfection of accounting and reporting visualisations constituted the conditions of possibility for the interrogation of the unknown to happen in practice (Quattrone, 2022; Gibassier *et al.*, 2018), thus augmenting managers' reflections and speculation on what sustainable value creation means and could be in the future.

Second, we add to the recent call for more case study research on integrated reporting by exploring its practical functionality, especially in contexts where best practices have not yet consolidated into a norm (Rinaldi *et al.*, 2018; Adhariani and De Villiers, 2019; De Villiers and Sharma, 2020). We contribute to the literature on integrated reporting by showing that rather than assuring a better or even more complete account of organisations' sustainable value creation, the accounting visualisations designed within IFCO's integrated reports supported managers in shifting the organisation's thinking towards a better alignment between profit maximisation objectives, cost optimisation and the well-being of society and the environment. Through the analysis of the case of IFCO, we demonstrate that integrated reporting visualisations sustained the managers' attempt to figure out what sustainable value creation means by reducing it into known and understandable practices used to engage internal and external stakeholders. At the same time, integrated reporting visualisations "opened up" and supported managers' unfolding search for measuring and defining IFCO's 'sustainable value' while being involved in a recursive process of knowledge construction, questioning, reflection, and speculation.

The findings of this study have implications for further research into how managers should interpret and use corporate reporting disclosures. We acknowledge that any attempt to reduce the complexity of sustainable value creation into a visual representation (i.e., graphs, maps, dashboards, for instance) reproduces the same problems the literature has already witnessed and well criticised over forty years of accounting research. However, our study shows that accounting and reporting visualisations can represent good practices (we are not saying a 'solution') through which managers can re-appreciate the complexities of measuring and defining something that is intrinsically unknown and unknowable. Topics such as climate change and sustainable development are out there and cannot be ignored, cannot be reduced through accounts and, therefore, need to be embraced. Further, this study demonstrates that managers' involvement in filling the gap left by imperfect accounting and reporting

visualisations might improve companies' relations with external stakeholders, fostering integrated thinking and stimulating managers' reflections on how value is created and "to whom".

As a field study of a single organisation, this research has some limitations. First, to analyse how the concept of sustainable value has been represented, constructed, and questioned within IFCO's integrated reports, this research relied upon visual accounts, infographics, descriptions of events, and documents provided by the participants interviewed, which are based on their interpretations of the company's reality (Roberts and Scapens, 1985). The methodological approach adopted in this study shares the concerns of many other qualitative approaches as it explores how socially produced ideas and objects that populate an organisational context are created and held in place over time (Ryan *et al.*, 2002). Specifically, this study is situated and contingent rather than universal since it refers to a specific context analysed during a specific period of time (Ryan *et al.*, 2002; Taylor and Van every, 2001).

In this regard, this research does not attempt to provide some generalisable and universal truth on a specific organisational approach to sustainable value, as it comprises "interpretations of interpretations" (Scapens, 1992; Yin, 2004; p. 31). Instead, the theoretical lens adopted in this study provides a template through which the insights gathered on how managers within IFCO constructed, defined and speculated upon the company's sustainable value creation process can be transferred to other case studies (Ryan *et al.*, 2002; Yin, 2004).

Our findings highlight space for further research that needs to be addressed when explaining the adoption and diffusion of integrated reporting within organisations. Further research is needed to explore organisations' positive and negative impacts on society and the environment and whether these align with the targets suggested by the Sustainable Development Goals. In particular, more research is needed to demonstrate the critical implications of better communicating and representing companies' short-term objectives considering their societal and environmental medium and long-term impacts.

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