



# **UNIVERSITÀ DEGLI STUDI DI PADOVA**

**DIPARTIMENTO DI SCIENZE ECONOMICHE E AZIENDALI  
“MARCO FANNO”**

-

**Corso di laurea in BUSINESS ADMINISTRATION**

## **“The role of KPIs in the integrated report: an empirical analysis.”**

**Ch.mo Prof. Giacomo Boesso**

**Laureando: Federica dal Bello**

**Matricola: 1109678**

**Anno Accademico 2017 – 2018**



Il candidato dichiara che il presente lavoro è originale e non è già stato sottoposto, in tutto o in parte, per il conseguimento di un titolo accademico in altre Università italiane o straniere. Il candidato dichiara altresì che tutti i materiali utilizzati durante la preparazione dell'elaborato sono stati indicati nel testo e nella sezione "Riferimenti bibliografici" e che le eventuali citazioni testuali sono individuabili attraverso l'esplicito richiamo alla pubblicazione originale.

Firma dello studente

---



## Sommario

Introduction .....	7
1. Sustainability .....	10
1.1 The “Corporate Social Responsibility” .....	10
1.2 Non-financial disclosure .....	13
1.3 Legislative requirements on sustainability reporting.....	16
2. The <IR> Framework .....	19
2.1 The guiding principles .....	19
2.2 The content elements .....	20
2.3 The Capitals .....	22
3. Literature overview .....	24
3.1 Benefits, costs and criticisms .....	28
3.2 Future Agenda.....	31
4. Research questions .....	33
5. Research Methodology .....	36
5.1 The sample .....	36
5.2 First research question.....	38
5.3 What about materiality? .....	46
5.4 Second research question .....	48
5.4.1 Materiality test.....	49
5.4.2 Results of the materiality test .....	64
5.4.3 Connectivity test .....	66
5.4.4 Results of the connectivity test.....	68
5.5 Materiality vs. connectivity .....	77
5.6 Research limitations .....	81
Conclusions .....	83
Bibliography .....	86
Appendix .....	90



## Introduction

In recent years, an emerging trend that has changed the world of corporate disclosure is the increased adoption of ESG (short for Environmental, Social and Governance) information for assessing the long-term prospects of companies' value creation. Nowadays, a large and growing number of investors is demanding for high quality sustainability information to integrate their traditional financial analysis with other type of information not directly tied to the traditional financial statements.

This trend has started its development with the shift from an economy heavily concentrated in manufacturing, so largely based on hard assets, to a knowledge-driven economy whose value comes from the management of intangible assets.

Intangible assets are notably difficult to express reliably in monetary terms so, following the rules of all financial accounting principles, they can't be disclosed on the companies' balance sheets. Nevertheless, intangible assets contribute to a big part of the company value and this is confirmed by the fact that, in successful companies, the market value of equity is systematically higher than its book value. What makes intangible assets so difficult to measure is that they show their financial effects over a long-time horizon, whose length is unpredictable, and that their value depends on numerous factors outside of the company control. An example of intangible asset is given by the company reputation with its customers or with the communities in which the firm operates. There are many real-life cases that witness the importance of the company reputation for investors: one for all the Nike scandal. In 1997 the public opinion was shocked by the press investigation of an American news channel about the exploitation of child labour in Cambodia by this famous multinational company, world leader producer of sneakers. The inspection report shown the precarious life conditions of the low-paid workers, most of them under age, employed by the subcontractors of Nike for the production of soccer balls and shoes. Exhausting shifts for a total of sixty-five hours worked a week added to bad air quality in the factory landscapes for the exposure to a carcinogen named toluene high above the law standards; this other side of the coin told by medias was enough to shock many consumers and the company had to batten out the hatches. Similar story in our country for *Moncler*, luxury brand in the fashion system. In 2014 a documentary was published by a national tv channel about the illegal practice of live-plunking common in many areas of the East Europe where the company buys the raw material to produce its famous jackets. This inquiry shown how animals were brutally mistreated in order to maximise plums extraction and cut down on costs. Many other examples could be done in

every industry sector: legal standards do exist and they are set by international organizations, nevertheless when it comes to employee health and safety, to the protection of the environment and of consumers as well, too often the rules are breached in the name of profits. The question is why is this related to the creation of value for a company?

The answer is not that easy but one thing is straightforward: after the scandal of Nike its share price dropped from around 66 dollars in August 1997 to 39 dollars in January 2018, a huge loss considering that the market capitalization was billions of dollars. At that time the company made considerable efforts in trying to restore its reputation and gain credibility again. For Moncler share price the result was quite similar since it lost 4,88% in the Italian stock market the day after the documentary was on air.

The aforementioned examples are not meant to question the value of these companies, on the contrary they still exist and they are still profitable. The point here is to prove that investors consider a wide range of information when they make their investment decisions besides the usual financial ratios calculated from annual reports or other market data. Cutting every year on direct procurement costs while maintaining high prices, all other things being equal, is for sure a good strategy because marginality increases. If we were to stop on operating profits over invested capital, we would say that the company had a good performance. But how would our valuation change if we knew that a significative percentage of the company suppliers are able to sustain such a low production costs only by breaching labour law on minimum wages and health security? At least we would ask ourselves whether the situation is sustainable or not and we would adjust for the consequent higher risk.

ESG information helps investors who, for their own reasons, want to know more about the company's activities beside their impact on the future financial performance. This happens because such investors are risk-averse, so they try to prevent the purchase of shares in non-transparent companies, or because such investors are long-term oriented, in the sense that they don't buy shares with the aim of speculating on the price.

The increasing demand of this type of information has placed the issue on the top list of standard setters and in fact, over the last years, numerous form of "alternative" accounting frameworks have been released. Some of them were developed by scholars and practitioners with a special focus on intangible assets' value and intellectual capital management while other standards are more dedicated to sustainability issues and corporate social responsibility. The present dissertation takes the perspective of the Integrated Reporting Framework, a form of accounting standards who lays somewhere half-way between these two schools of thoughts. The IR Framework attempts to combine elements of both the intangibility and the



sustainability movement with the traditional financial information in order to increase investor's understanding of the value creation processes.

The present work will analyse the best practices of non-financial performance measurement adopted by companies who have chosen to prepare their annual report according to this Framework. In particular, the present work will study the role of key performance indicators (KPIs) as reporting tools by testing their compliance with the guiding principles of the Framework over a sample of companies recognized as integrated reporters. The objective is to understand if integrated reporters disclose KPIs in their reports and what are the capitals that are mostly represented by them. On top of this, the analysis will try to understand if this information is useful for investors and if there are some intrinsic characteristics that are related with the company's ability to implement the best reporting practices.

The rest of the paper is organized as follow: Chapter 1 introduce the concept of sustainability and the various types of sustainability frameworks highlighting their distinctive characteristics; Chapter 2 is completely dedicated to the IR Framework and explains the guiding principles, the content elements and the concept of capitals; Chapter 3 reviews the most relevant literature on the argument; Chapter 4 presents the research questions formulated on the role of KPIs in the integrated report, Chapter 5 show the research methodology and the results derived by its implementation.

# 1. Sustainability

## 1.1 The “Corporate Social Responsibility”

The concept of corporate social responsibility is very wide because the theories explaining it have been developed by researchers and academics over many years. In general terms, it can be defined as the corporate initiative to assess and take responsibility for the company’s effects on environmental and social wellbeing until and beyond the minimum standards set by regulators.

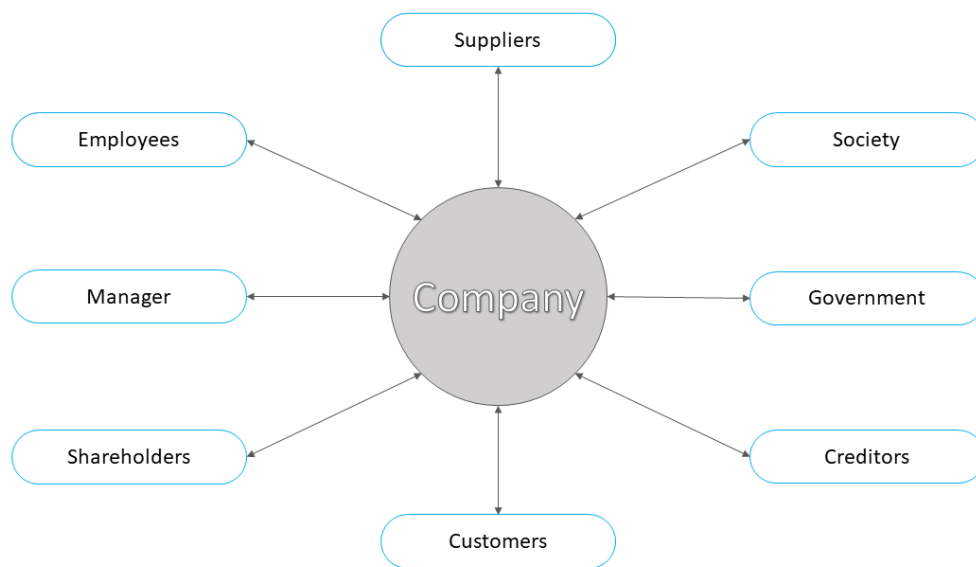
The father of this theory is considered Howard Bowen, who wrote an article named “Social responsibility of businessmen” in which the CSR was defined as “*the obligations of businessmen to pursue those policies, to make those decisions or follow those lines of action which are desirable in terms of the objectives and value of the society*”.

This was against the most prominent ideology at that time according to which the only objective of companies is the maximisation of profits. Milton Friedman, Nobel Prize of Economic Sciences in 1976, was probably one of the intellectual leaders in this school of thought and in his paper “Capitalism and freedom” he stated: “*there is one and only one social responsibility of business--to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.*”. All the matters not directly tied to the business must be under the government concern because they ask for investments with zero or negative returns which may undermine the company efficiency and this at the very end would turn out to be bad for the whole economy as well.

From the Seventies onwards, with the development of increasingly bigger multinational firms, it has become clear that high profits for shareholders are often followed by negative externalities due to company operations and that the national governments alone are not able to bear effects spreading outside of their boundaries. In addition, some academics pointed out how the audience impacted by company activities has enlarged over time and started on questioning about the role that corporations should have with respect to their various counterparties not directly interested in profit maximisation.

The concept of *stakeholder* was first introduced in 1963 by the *Stanford Research Institute* (SRI) and it is a key pillar of the CSR . The major supporter of this theory is Edward Freeman, professor of business administration at the University of Virginia, who described the stakeholders as “*any group or individual who can affect or is affected by the achievement of the organization's objectives*”. In his view, the providers of financial capital are a sub-

category of stakeholders, together with employees, customers, regulators etc., who have their own legitimate expectations towards the company. Actually, all of these categories are not on the same level of importance for the company and they can be divided in primary and secondary stakeholders. The first ones are fundamental for the company existence and without them value creation is impossible while the second ones have only some degrees of influence in its activities (Clarkson, 1995). Their impact depends on three attributes: *power*, that is the ability of stakeholders to impose their will on others; *legitimacy*, which relates to the right of stakeholders to use power with regard to a claim made upon the firm; and *urgency*, i.e. to what extent stakeholder's claims call for immediate attention (Mitchell et al., 1997).



1. *Company stakeholders*

Stakeholder theory is important to explain CSR because it suggested a new perspective on the management models of corporations in which strategy is developed by taking into consideration a boarder set of interests and by making check and balances between them. The CSR has been object of studies also in institutional economics and social disciplines. According to the *legitimacy theory*, the firm operates on the basis of a social contract with the society and needs the social approval on its strategy to gain some rewards and to ensure the firm survival. Following this approach, approval is guaranteed by conforming to the social norms present in the business environment. This is made not only as a consequence of stakeholder power, but also because certain practices are taken for granted, or “the way things should be done”. Gray et al. (1995) underline that legitimacy theory and stakeholder theory have many points of touch and that substantially they examine the same phenomenon in two

different dimensions: while legitimacy theory discusses the expectations of the society in general, stakeholder theory focuses on particular groups within the society.

Here the research path has mostly investigated how disclosure is used to communicate corporate social initiatives to the public. Studies suggest that companies active in this front have better corporate governance ratings, improved investor appeal and reputational gains (Milne & Patten, 2002). This is true especially for public owned companies since they are more exposed to social scrutiny and hence have greater legitimacy needs (Arvidsson, 2010). The advantages for companies of implementing CSR would stem from the trusting relationship built with stakeholders. If stakeholders perceive that their relations with the company is fair and is based on principles of justice, they are more likely to share nuanced information regarding their utility functions, thereby increasing the ability of the firm to better allocate its resources. Moreover, an increased flow of information between the parties would help the firm to react promptly in case of sudden changes in the external environment. (Harrison et al., 2010).

However, the advantages coming from the implementation of the CSR in the management of the business are not easy to reach, on the contrary they require conspicuous investments whose return is highly uncertain and may be realized after several years. Many firms decide to deal with CSR only because market leaders are doing so, with the concrete risk of engaging in various programs that lack of a real logic behind. This happens frequently in companies where the CSR programs are initiated and run in an uncoordinated way by the middle management without the active involvement of the CEO (Rangan et al., 2015). The same authors observed that CSR activities are typically divided among three level of practice:

1. The first level includes all the programs that basically focus on philanthropy like donations of money, support for employee volunteering etc. These programs are not designed to produce profits or to improve the business performance so their positive effects are limited to a better perception of the company in the eyes of stakeholders.
2. The second level instead consist of programs whose scope is to improve the efficiency or the effectiveness of the company operations and, at the same time, they are conceived to deliver social and environmental benefits. Examples can be sustainability initiatives to reduce waste production or investments in the workforce to increase productivity. These programs are different than those classified level one because they can have a positive impact on the P&L in the form of increased revenues or reduced costs.

3. The third level is reached when the company design a business model that specifically addresses to a social or environmental challenge. In Unilever for example, the expansion of the branded products in the developing market of India hasn't been promoted through their usual wholesaler and retailer distribution channel, but by recruiting local women to sell door-to-door in their villages. Here the firm has taken action on activities at the core of its business model and has adapted them to the social needs of that particular market in a win-win relationship with its stakeholders.

The above classification is not exhaustive and the borderlines between the three levels are blurred, however it is still helpful in order to have an insight of the way CSR could be managed by corporations. There is a conservative scenario where CSR is faced with a passive approach (level 1/2), at the same time there are other realities where CSR is pursued and it is an integral part of the company culture (level 3).

Going through the substance of the CSR initiatives and assessing the extent of their effects is outside of the scope of the present essay. Nevertheless, this background is useful for understanding the content of the non-financial disclosure and how it can interrelate with the traditional financial information provided to investors.

## 1.2 Non-financial disclosure

With the increased adoption of the CSR principles by companies and the higher sensibility towards the environmental challenges, it has become crucial how to communicate corporate goals achieved in these areas to stakeholders.

In general, this type of disclosure is not mandatory, so companies are free to choose both the method and the content to be published; however most of them prefer to implement a set of rules established by an accounting organization. There are several possible standards that can be applied since different institutions have took the challenge in trying to create a general accepted framework but, at the moment, none of them prevailed, even if some initiatives have been more successful than others.

A common trend that is gaining a foothold in this field is the tighter integration between financial and non-financial information. Until some years ago, the ESG information was primarily presented in a stand-alone report or shown in a fragmented way on the company websites, without any connection with the operational performance and the relative financial metrics. Nowadays instead, sustainability reporting is evolving to include information on all bottom line dimensions of performance over the long-term horizon. This pattern is confirmed by the 2017 survey of KPMG on Corporate Responsibility reporting, that investigates the

ongoing development on CSR disclosure. The research sample is formed by two different groups: a leading group named G250, which refers to the world's 250 largest companies by revenue based on the current Fortune 500 ranking; and a follower group called N100, which includes a worldwide sample of 4.900 companies comprising the top 100 by revenue in each of the 49 countries where the study has been carried out. Statistics reveal that 78% of the G250 group show ESG information on their annual financial reports, confirming they believe on the usefulness of these data for investors. The percentage is increasing steadily year after year since the late 90s. Among the N100 group, the underlying trend is also one of growth, with the rate of companies disclosing ESG information on annual reports of 60%. This means that N100 companies continue to catch up with the G250. The same study reveals that the GRI Framework is the most commonly used standard while the Integrated Reporting Framework is still adopted by a minority of companies, even if the portion of the research sample that specifically labels its report as "integrated" is slowly but regularly increasing. The GRI was formed in 1997 by the United States-based non-profits Ceres (formerly the Coalition for Environmentally Responsible Economies) and Tellus Institute, with the support of the United Nations Environment Programme (UNEP). Today the GRI is an independent non-profit organization based in Amsterdam which collaborates with many international organizations and private firms for the development of the sustainability reporting standards. Over the last 20 years different versions of the standards have been released; the last one, "G4 Guidelines", will be soon replaced by a new one from July 2018. Continuous updates are necessary for two main reasons: first of all, to include all the relevant topics of interest for all the possible type of organizations; secondly to improve the draft of the guidelines as well, by collecting the feedback from the final users. The standards consist of a general part, where the reporting principles are presented and where it is explained how to disclose the contextual information about the organization's profile and strategy; and a topic-specific set of standards, which contains recommendations on how to report information about the organization's impact on selected economic, environmental and social topics. These are the three macro-categories of performance according to the GRI Framework. Under each area there are several sub-categories of topics regulated with their own specific standards on which the companies are required to disclose only if the related matter is deemed to be material. Another initiative that is worth mentioning is the Framework on sustainability reporting created by the Sustainable Accounting Standard Board, an independent organization based in San Francisco whose mission is to enhance the efficiency of the capital markets by fostering high quality disclosure of material sustainability information that meets investor needs.

The SASB approach is very similar to that one of the GRI since they are both founded on the concept of materiality. However, while the GRI Framework gives more freedom in choosing the material topics object of disclosure, the SASB Framework is stricter because the standards to be applied depends on the industry sector where the company belongs. To better categorize companies that share similar resource intensity, as well as sustainability risks and opportunities, the SASB has created the Sustainable Industry Classification System, a tool that helps to assign every type of organization to one and only one industry sector for which a topic-specific set of standards is meant to be used. In this way, it is the SASB itself that establishes the material matters and the relative metrics to be shown for an appropriate compliance with the rules of the Framework. Even if this approach is rigorous and conservative, it is more difficult to implement in practice than the GRI one for the reason that the selection of the industry sector is not as straightforward as it may seem. Many firms operate simultaneously in completely unrelated markets, with very different dynamics governing them, as it is the case for the multinational firms. Here the definition of the industry sector would be more effective if it is done at the business unit level, where the performance is measured and compared with competitors, rather than at the corporate level. In substance, there is a mismatch between the level where the standards would be optimally applied and the level where the disclosure is prepared for the public.

Also the GRI Framework hasn't been exempt from critics. Among the most problematic aspects of the GRI's reporting model is the focus on "internal organizational performance". Many authors have underlined the non-holistic approach of the Framework, which fails to produce a disclosure where it is clear the nature of the interactions between the company and the external environment (e.g. Gray & Milne, 2002; Henriques & Richardson, 2004). These authors claim that sustainability reporting needs "[...] a detailed and complex analysis of the organisation's interactions with ecological systems, resources, habitats and societies, and interpret this in the light of all other organizations' past and present impacts on those same systems". Another argument against the GRI Framework is the absence of integrated indicators that is, the Framework does not encourage reporters to weigh and understand indicators' relative values, or combine them into numerical indexes and visual diagrams (Davidson, 2005; OECD, 2004). Integration is important because it encourages sustainable decision making, it helps in identifying mutually supportive benefits and in better judging the trade-offs between the different sustainability dimensions (Gibson, Hassan, Holtz, Tansey & Whitelaw, 2005).

The weaknesses of the GRI Framework are, at the same time, the motives that have prompted the formation of the International Integrated Reporting Council (IIRC), a global coalition of

regulators, investors, companies, standard setters, accounting professions and NGOs which has an ambitious objective: align capital allocation and corporate behaviour to the wider goals of financial stability and sustainable development through the cycle of integrated reporting and thinking.

The IIRC was funded in 2009 by the Prince's Accounting for Sustainability Project (A4S), an organization on sustainable accounting promoted thanks to an initiative of the HRH Prince of Wales, and the GRI itself. From the joint efforts of all the international partners involved, the 12<sup>th</sup> September 2011 the IIRC has emanated its first discussion paper, named "Towards Integrated reporting – Communicating Value in the 21<sup>st</sup> Century", addressed to everyone who might have been interested in improving corporate communication towards investor, both academics and companies as well. The same year the IIRC began a Pilot Programme made of over 90 businesses (among them: Unilever, Coca-Cola, Microsoft, Hyundai and HSBC) in order to underpin the development of the International Integrated Reporting Framework. The spirit of this new workshop can be summarized with the words of Paul Druckman, CEO of the IIRC, who said: *"We call the Pilot Programme our 'innovation hub' – made up of people who want to push the boundaries just a little bit further, to challenge, or at least question orthodox thinking, and to acknowledge the importance of reporting to the way our organizations think and behave"*. The consultations concluded at the end of 2013, when the IIRC published the final document of the Integrated Reporting Framework and today over 1500 international companies explicitly label their report as integrated according to the IR Framework while much more actually adopt its principles.

A detailed analysis of the IR Framework together with the discussion of the relevant literature will be provided in chapter 2 and 3.

### 1.3 Legislative requirements on sustainability reporting

Generally, the disclosure of sustainability information is not mandatory by law, however some exceptions exist or rather we are gradually assisting to an increasing interest of regulators on this matter.

The first country that has enthusiastically embraced the road towards the integrated reporting is South Africa. Since 2010, all the companies listed in the Johannesburg Securities Exchange (JSE) must draw up their annual report following the rules of the integrated reporting framework or, if they choose not to apply them, they must provide an explanation of the reasons behind it. Such a radical stance of the South African government is due to a targeted policy on corporate governance whose scope is to reduce the deep distrust in institutions and corporations that persist in the society after the relatively recent establishment of a full



democracy.

Even if this is an isolated case, also in the rest of the world the legislators are taking the first steps in regulating and standardizing this accounting discipline.

In Europe, for example, with the introduction of the directive 2014/95/EU, all the listed companies, banks and insurance companies, must disclose certain information on the way they operate and manage social and environmental challenges and, from 2018 onwards, they are required to include non-financial statements in their annual reports.

Actually, before of the emanation of the aforementioned directive, some European countries had already included laws in favour of sustainability reporting in their legislation:

- In United Kingdom, in 2006, the *Company Act* required listed companies to disclose on non-financial information in their Directors' Report. A subsequent amendment in 2013 introduced the obligation to disclose such information in a separated report named "*Strategic Report*" with the broader sense of supporting investors in the valuation of the risks and opportunities over the medium/long term.
- In France, the *Grenelle II Act* that came into effect in 2012, required all the listed companies and the companies with revenues higher than 400 millions of euro, to report the performance of a certain number of ESG indicators with the provision "comply or explain". In addition, the disclosure is subject to third-party assurance.
- In Germany the *German Sustainability Code* was conceived as a voluntary tool for all the companies who wanted to disclose on their sustainable practices and it includes 27 KPIs selected from the GRI standards and the EFFAS (European Federation of Financial Analyst Societies).
- In Denmark, under the CSR Action Plan 2008-2012, the Danish Parliament has adopted an amendment to the Danish Financial Statements Act, in which it became mandatory for the biggest companies the publication of their policy on social responsibility issues in the "management review" of the annual report.
- In Sweden, since 2009, all the State-owned companies must prepare a sustainability report according to the GRI Framework.

The directive 2014/95/EU entered into force the 1<sup>st</sup> January 2017 and it is based on the joint work of the European Parliament and the Commission who identified the need to harmonise and standardise the multiple situations present before, where some countries were further ahead on the topic than others. This is fully consistent with the possibility for the Member States to add improvements by means of the national law but always respecting the

fundamental principles dictated by the EU. According to this new reporting requirements, all the large companies incorporated in the EU, must submit ESG disclosure either within the annual report or as a separate filing published with the management report or made available on the company's website. It is left significant flexibility in choosing the Framework to be applied between the ones that are recognized internationally as the United Nations Global Compact, ISO 26000, the OECD Guidelines for Multinational Enterprises or the GRI. Although no official guidelines exist, the directive identifies a minimum content which is expected to be disclosed for compliance:

- The company's business model;
- Information about the company's due diligence process and the composition of its board of directors
- Outcomes of the company's policies and risks associated with its operations;
- Non-financial key-performance indicators regarding the environmental impact, the respect of human rights and employees matters
- Anti-corruption and anti-bribery practices

Moving overseas the situation is quite different. In USA, companies subject to the Securities and Exchange Commission (SEC) filing requirements may be asked to disclose material sustainability information in the Form 10-K depending on certain circumstances. In relation with this topic, the SEC has emanated the *Commission Guidance Regarding Disclosure Related to Climate Change* (February 2, 2010) and has recently amended the federal security laws to impose disclosure obligations regarding certain types of human rights. Additional requirements may arise at the state/local level. For example in California, manufacturers and retailers doing business in its territory with annual revenues above 100\$ million must disclose their actions to eradicate slavery and human trafficking in their supply chain.

Similarly in Australia, both the Commonwealth and the state/territory legislation address certain aspects of relevance to corporate responsibility, however such legislation covers only specific subject matters and does not constitute a sustainability reporting framework.

All the aforementioned initiatives gradually promoted by the legislators and the security exchanges of all over the world witness the increasing importance of sustainability reporting and the need to introduce standards where the willingness of organizations still determine the content of the non-financial disclosure.

In the next chapter it will be presented the contribution of the IR Framework to this cause and how it has been welcomed by the financial community.

## 2. The <IR> Framework

### 2.1 The guiding principles

The integrated report is a form of synthetic disclosure addressed to the financial investors which aims at giving a holistic picture of how the company is able to create value over the medium/long term.

The integrated report is written in compliance with the International <IR> Framework, a set of accounting rules that establishes the *Guiding Principles* and the *Content Elements* governing the overall content of the report. What distinguishes the IR from other kind of non-mandatory reports is the integrated thinking approach. Its purpose is not only to add more information to the traditional financial one but is to make one step further that is to explain the interdependences between the wide range of factors impacting on the company strategy and the way they influence the value creation. This principle, known as *connectivity of information*, is the hearth of the integrated reporting and can be expressed in numerous dimensions:

- Connectivity between the content elements (business model, governance, risk and opportunities, etc.) see par. 2.2;
- Connectivity between time periods (past, present, future);
- Connectivity between the financial capital and other form of capitals (human, natural, social);
- Connectivity between quantitative and qualitative information to enhance the representation of the company and its business.

The <IR> Framework adopts a principle-based approach without the prescription of a minimum necessary content in terms of quantitative indicators and monetary metrics. Instead the driver chosen to tailor the perimeter of the report is the *Materiality rule* which allows a sufficient degree of flexibility for accomplishing both the need of comparison between companies and the differences in the relevant matters for the various industry sectors. Not all the relevant matters are indeed material: the Framework requires to apply judgment in screening only those that substantively affect the value creation process according to the magnitude of their effects and the their likelihood of occurrence.

If the company were to disclose all the relevant matters related to all the category of stakeholders without making any priority between them, the report would result too long and this is against the principle of *Conciseness*.

Another important cornerstone is the principle of *Reliability and completeness*. Reliability means that the integrated report needs to be free from material errors and this can be reached by implementing an appropriate audit system with mechanisms of internal assurance as well as review from outsiders. In the context of the integrated reporting it becomes particularly critical since much of the information treated is future-oriented. Information about the future is by definition uncertain but it cannot be left aside, being the outlook of the report the medium-long term. On the contrary it should be analysed in depth to show, for example through sensitivity analysis, the most probable outcomes and how results would change by modifying the underlying assumptions.

Completeness instead means that the content of the integrated report cannot be biased positively but it should include also risks and weaknesses of the company, bad events occurred during the year and their relative impact on performance. This principle is meant to mitigate the usual trend of company disclosure to put much more emphasis on positive information than negative one.

Lastly, the principle of *Consistency and comparability* assures that the data disclosed can be compared over time and between competitors within the same industry sector. High level of comparability between integrated reports can be achieved by the use of benchmark data, such as industry or regional benchmark or by presenting the information in the form of ratios.

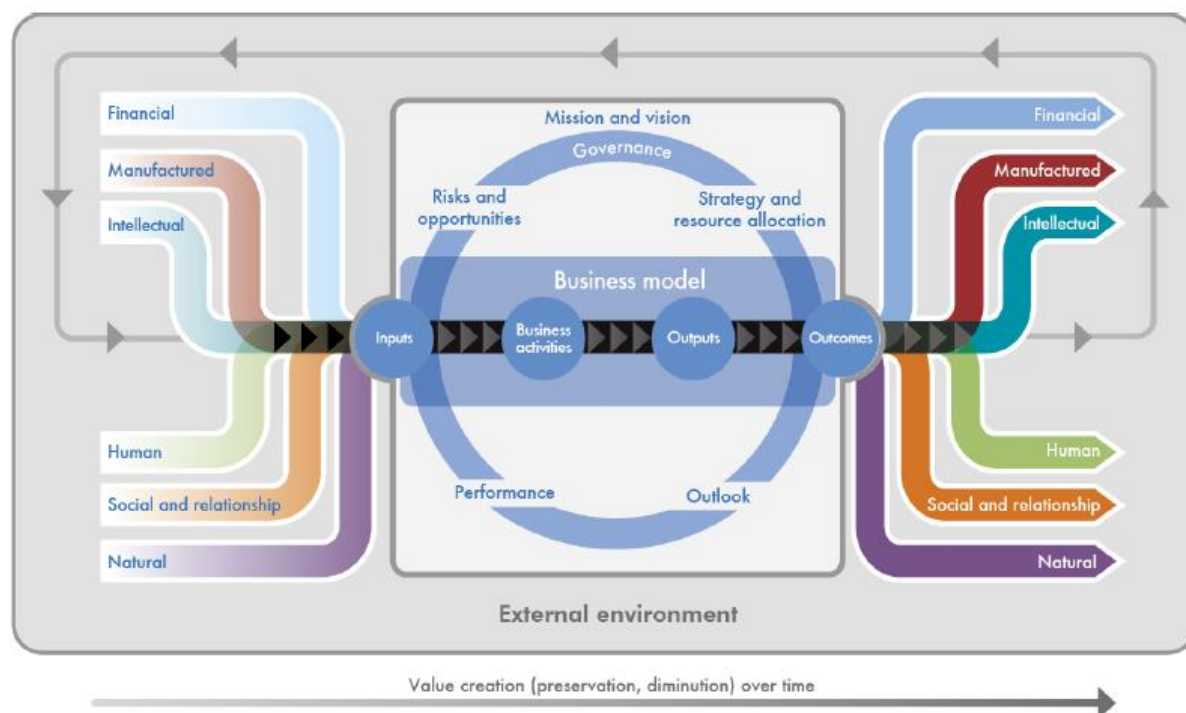
## 2.2 The content elements

As mentioned above the purpose of the integrated report is to explain how an organization is able to create value over the long term. In order to do so, the IR Framework has identified a list of elements that usually play a role in the value creation process and that are common to every type of company. Of course these elements don't have to be seen separately but, following the principle of connectivity of information, they must be conceived altogether, according to the interdependness existing between them. What is important to highlight is that the content elements are not under the same level of control for the business: some of them exist as direct consequences of management decisions whereas for others the link with external factors is stronger. All of them however, in their own way and with different intensity during the company existence, contribute to the creation or the destruction of value and their relative importance is ever changing.

The IR Framework presents the content elements following the scheme shown in figure 2. In this representation the company operates within the external environment by setting its mission and vision i.e. its objectives for the future and how to reach them. The *external environment* is the first content element and it includes everything that is not part of the

business itself, from the macroeconomic conditions and the market forces to the political context and in general the society. All these factors, although being beyond the organization boundaries, can have a huge impact on its strategy so it is critical to draw a clear picture of them. The second content element, *governance*, requires to disclose about the leadership structure, thus the composition of the board and its remuneration but also the procedures in place to take the strategic decisions and its approach to risk management.

At the core of this figure there is the *business model* of the organization. This content element



## 2. The IR Framework value creation process

needs particular consideration since it gives insights of how the various capitals and inputs are combined through the company operations to make profits. A good business model is built with both visual representation and narrative flow in order to be as effective as possible. Here the objective is not to write down a list of what resources are transformed and what products or services are sold, but is to focus on the uniqueness of the value proposition proposed in the marketplace.

Hand in hand with the business model, the *strategy* of the organization is another key element in the Framework. The strategy tells about the competitive advantage which differentiates the company from competitors. Usually it is not a problem to disclose about the strategy when we are referring to the past, but without doubt it is so when we look at the future for the reason that it could reveal tactical moves to competitors, giving them the opportunity to retaliate. In

this situation the Framework allows the company to find the desired balance between the necessity of hiding some information that might harm competitiveness and the rules established by the guiding principles.

Even a sound business model and a winning strategy should always be under management monitoring because *risks and opportunities* can arise over time. This content element requires the company to identify the most probable changes in act and to explain the way it is going to face them. Its importance is further stressed by the presence of another content element, *outlook*, asking for continuous review of all the components of integrated reporting and their relative interactions in the light of future developments.

To conclude it should not be forgotten that this kind of disclosure is realized with the primary purpose of giving a taste of the company performance, financial and non, to investors. *Performance* is a content element in the sense that it would be impossible to express value creation without any quantitative indicators and without any measurement system in place. This is a key topic in the present dissertation so it will be further developed in the next chapters.

### 2.3 The Capitals

The IR Framework recognizes that the existence of all organizations depends on various forms of capitals and requires to consider all of them during the value creation assessment.

The capitals are described as “*stock of value that are increased, decreased or transformed through the activities and outputs of the organization*”, so their value is not fixed over time but always change due to the flow between and within the capitals.

A brief description of the different categories of capitals is given at paragraph 2.15:

- *Financial capital*: this is the capital provided by shareholders and creditors to fund the company operations;
- *Manufactured capital*: it includes the physical objects employed in the production processes such as buildings, equipment and the infrastructure;
- *Intellectual capital*: under this category fall the knowledge-based intangibles, for example patents, copyrights, licenses but also the company “know-how”;
- *Human capital*: this category refers to the competencies, capabilities and the experience of the employees, their loyalty with the organization and their alignment with its ethical value;

- *Social and relationship capital*: this is a very wide category which includes the key relationship with stakeholders being them customers, suppliers or the social community;
- *Natural capital*: it comprises all the renewable and non-renewable resources belonging to the environment which are directly or indirectly affected by the company activities.

The Framework provide the above classification to ensure that the organizations does not overlook any form of capital, however it is also specified that not all of them are equally important for all type of organizations. It is left to the company judgement the selection of the interactions with capitals that are sufficiently important to become part of the integrated report according to the principle of materiality. In addition, it is also underlined that the report should not be prepared following precisely the categorization of capitals but rather evidence must be given to the main interdependencies and trade-offs between them and how they ultimately contribute to the creation of value.

### 3. Literature overview

As explained in the previous chapters, the Integrated reporting movement has evolved through four continuous, overlapping phases over the last 15 years (Eccles, Krzus, Ribot; 2015). Along this time, the integrated reporting movement has been codified by accounting experts, tested by pioneer companies in their annual reports, institutionalized by the South African government and it has also been object of review and criticism by academics, practitioners and consultants.



3. Phases of the IR Framework development

In this part of the present dissertation, the most relevant literature on the argument will be examined, with a particular focus on the possible benefits of this practice as well as the costs of its implementation and the trends that are arising for the future.

One of the first question that comes into mind when thinking about integrated reporting is whether its existence is really useful for investors or not: does it really help in understanding the value creation of a company over the long-term?

George Serafaim, Associate Professor of Business Administration at Harvard Business School, tried to answer to this question in its paper “*Integrated reporting and Investor Clientele*”, where he studied how companies that adopt the integrated reporting practice are able to attract an higher number of long-term oriented shareholders than other companies.

The point of start of his work is the theory of information asymmetry between the company management and shareholders whereby these last bear the cost of the information gap implied by their position of “principals” in the relationship with the management. According to his basic hypothesis, long-term investors are more likely to buy and hold shares in companies that



provide more information about their long-term prospects since for them such information is likely to be useful both when assessing the value of the firm and monitoring management over time. Thus, companies that practice integrated reporting are signalling their willingness to share more information about their future prospects and as a consequence they counteract the negative effects for investors of the information asymmetry. This of course can work only if investors perceive the integrated report as a useful tool for assessing the value of their investments. In order to prove so, the author has constructed a sample of companies collecting data on integrated reports from a division of Thomson Reuters called ASSET4, a multinational mass media and information firm, which is specialized in “providing objective, relevant, auditable and systematic sustainability information and investment analysis tools to professional investor who integrate ESG data into their traditional investment analysis”.

ASSET4 elaborates quantitative data from the integrated reports published by companies into a composite score through the use of an algorithm. The score ranges from 0 to 100, where low results are assigned to reports with some ESG information disclosed, but not fully integrated with financial information, whereas high results are assigned to reports with a high level of interconnection between financial and non-financial information. In addition, the statistic model includes a variety of accounting and stock market data to control for the differences in firm dimension, leverage, earnings/dividend yield, book-to-market ratio etc., and it includes also firm-fixed effects to control for any unobservable firm-invariant characteristic. The other key variable of the model, i.e. the holding period of the investor base, is measured with data from Thomson Reuters as well and it is given by the difference between the percentage of a company’s shares that are held by long-term investors and the percentage of the shares that are held by speculators. The result of the regression against the aforementioned variables reveals a positive correlation between high scores of the ASSET4 index and longer holding period of companies shares, suggesting that companies practicing IR have a more long-term oriented investor base. In the attempt to establish also the direction of the causality, the author has included in the model the time dimension by calculating one-year and three-years differences in all variables and he has discovered that changes in IR lead to changes in the investor base, rather than the other way around. The last interesting research question of the paper investigates what parts of the integrated report are more important for investors to assess value creation. In the chapter dedicated to the integrated reporting Framework, it is explained how it is made by three main parts: the Content Elements, the Capitals and the Guiding Principles. By performing a content analysis on the integrated reports of the sample, the author has created three variables that express these three components, always adopting the methodology of the score indexes, and these variables have been regressed against the

holding period of the investor base. Results show that the coefficient on Content Elements was positive but only marginally significant, while the coefficients on Capitals and on Guiding principles were both positive and significant. The meaning behind it is that the disclosure about the capitals is of particular importance for investors, but it is not sufficient: only by respecting the rules of materiality and of connectivity of information the integrated report becomes a powerful instrument to evaluate the future prospects of the company. Apart from its usefulness, many academics wondered if investors perceive a real difference between the integrated report and other forms of sustainability reporting that are already widely spread as a supplement to the traditional financial disclosure.

An important contribution to this matter comes from a research paper of Markus Arnold and Alexander Bassen (University of Hamburg, 2012) who carry out an experiment on how investors process ESG information and integrate them into their judgments. The authors noticed that sustainability reports are usually issued by companies later than financial reports, with the consequence that investors are likely to assess the two kinds of information separately. This may be a problem because other previous research on investors' behaviour, has shown that financial statement users tend to anchor on their first judgement about the company value, so when they later assess the sustainability report, they underreact to ESG information (Amir and Ganzach, 1998). In contrast, an integrated report may serve as a debiasing instrument with regard to these anchoring effects, since an integrated report leads to the simultaneous assessment of both types of information.

The experiment has involved 65 European investment professionals, most of them sell-side analysts or portfolio managers, without any specialization on sustainability valuation. Participants were asked to evaluate an international manufacturer of electrical tools and appliances in two opposite situations: a first case with good financial and bad ESG performance and a second case with bad financial and good ESG performance. Information was given both simultaneously, by providing an integrated report, and separately, with a financial statement followed by a sustainability report at a later stage.

Results show that investors produced asymmetric valuation only in the second case, where bad financial information was followed by good ESG performance. Specifically, in the first case participants who assessed financial and non-financial information separately produced virtually identical valuations of those participants who assessed the integrated report. In the second case instead, participants who received the information separately anchored their valuation on the financial statement judgement and none of them adjusted it after receiving the ESG information. This experiment proves that, despite identical information content, investors who received the ESG information in a standalone report concluded with lower

valuations than investors who used integrated report.

Another research filed focused on studying the integrated reporting phenomenon from the company perspective, in particular to understand if there are some internal characteristics or external factors that can make a company more suitable for the adoption of this practice.

Past researches on corporate disclosure has found a number of factors accounting for the content and the format of corporate reporting: in general company size, industry classification, growth opportunities and profitability are the most commonly used predictive variables. Starting from these findings, Frias-Aceituno et al. (2012) elaborated a statistic model to study the effect of the aforementioned variables on the development of the integrated reporting movement.

The sample is made by the 2000 largest international companies according to the Forbes Global 2000 list, covering around 20 different countries and 23 activity sectors. The period analysed is the three-year period 2008-2010. In their model the dependent variable is numerical and takes the value 0 when the company issues only a financial statement, value 1 if a CSR report is also published, value 2 when the company prepares an integrated report.

The independent variables are SIZE, measured by the logarithm of total assets, PROFITABILITY, measured by the return on asset ratio, GROWTH, measured by the market to book value ratio of corporate assets and CONCENTRATION, which represents the degree of rivalry in the industry and it is measured by the Herfindahl index.

The results of the regression reveal a positive and significant effect of the variable SIZE and of the variable PROFITABILITY, on the level of integrated reporting. This may suggest that bigger companies, since they are more exposed to the market and to the society as whole, receive a greater pressure to disclose information and are more sensible with respect to their public image. Similarly, profitable companies are more willing to dedicate resources to the implementation of the integrate reporting because it helps to better communicate their actions to the public. The variable GROWTH instead, although being strictly connected with the dimensions of size and profitability, doesn't show any significant relation with the level of integration between financial and non-financial information. In counter-trend with the other variables, CONCENTRATION has a significant negative relation with the dependent variable and this can be explained by the monopoly theory. Some prior researches (among all Harris, 1998) have proved that in less competitive industries companies are less likely to disclose segment reporting information because they try to protect their abnormal profits, which may be undermined if strategic information is revealed.

Always concerning the same topic, another paper from A. Lai et al. (University of Verona, 2014) found that the adoption of integrated reporting is strongly correlated with high level of

ESG disclosure ratings. The research was made on 104 international business firms, half of them actually members of the IIRC Pilot Program in 2013, for which there was availability of Bloomberg's data about the quality of the non-financial disclosure.

The results suggest that only firm already committed to sustainability disclosure and with a good level of transparency adopted the IR Framework, in stark contrast with who claimed that companies applying these kind of standards do it so only to repair specific legitimacy threats (e.g. Clarkson et al., 2008; Mahoney et al., 2013). To corroborate this point, the same authors tested if companies belonging to environmentally sensitive industries were more likely to adopt the Framework than other companies. The result of the regression rejected this hypothesis so it can be reasonably concluded that the Framework is not an instrument used by companies to legitimate their strategy.

### 3.1 Benefits, costs and criticisms

As it is the case with all business practices, a great deal of the debate is around the analysis of the benefits that could be possibly achieved and the costs that are necessarily implied.

At a recent Global Business Ethics Symposium promoted by the University of Bentley, a group of panelists made of members of the IIRC, executives in firms who have adopted integrated reporting and consultants, were interviewed about their experience with the integrated reporting. The first benefit on which they agreed is a better understanding of value creation, resulting in a more informed, a thus better, decision making. A deep knowledge of the business dynamics and of the interconnections between the multiple elements of the business is a pre-condition, if the company wants to foster innovation and improve its performance. This may seem obvious but the interview revealed how, with the adoption of the IR, some companies were drowning their business model for the first time (L. Roberts, personal communication, May 19 2014).

A second benefit is that the effort to produce the report requires the collaboration between different companies' departments and this is likely to increase understanding and communication across the organization. A smoother flow of information between the departments can lead to better resource allocation and consequently cost reduction, especially in big corporations (A. Blanco, personal communication, May 19 2014).

Third, the integrated report enhance the measurement of business areas that were previously unexamined. This is helpful for management because it can reveal hidden margin for improvement and so new business opportunities that can unlock additional growth.

Although the benefits may seem significant they don't come for free, on the contrary the implementation of this reporting standard is costly and these costs are not "probable" but

100% sure. Usually, the company doesn't have internal know-how to implement the framework alone but needs the support of a consulting firm, both at the beginning, when the report is written, and at the end, when external review may be needed in order to provide assurance to investors. Consultancy is necessary also to train the employees involved in the corporate disclosure process and the representatives of the various business functions. Lastly, the collection of high quality data for an integrated report is a never-ending and time-consuming process. It is necessary to account for substantial investments in data collection, storage and analysis systems to ensure the quality of the information disclosed.

The debate on the costs and on the benefits of integrated reporting demonstrates that the adoption of the Framework has an impact not only towards investors but also inside of the organization, so it is important to understand how organizations adjust their procedures to accommodate this practice.

Stubbs and Higgins (2014) address this topic by studying the reporting mechanisms of early adopters of integrated reporting in Australia through in-depth and semi-structured interviews of their management. The sample is made by 15 companies belonging to four different industry sectors (financial, industrial, property and transport) identified from the website of the Australian Securities Exchange as among the "best practice" in this field. According to their findings, while precursors of IR are trying to change their processes and structures, it cannot be said that these changes has stimulated a real innovation in the disclosure practices, but rather an incremental change of what was already in place with sustainability reporting. A common form of incremental change can be seen in the broadening of the business functions involved in the reporting process, however in none of the companies examined the ownership of the integrated reporting process shifted from the sustainability or communications groups to the financial or strategic areas. Moreover, there was no evidence of changes in the intangible elements of the companies such as core beliefs, values, norms or mission/vision. This would mean that integrated reporting hasn't succeeded in the attempt to re-focus the attention of the organizations on the stewardship of all capitals.

The lack of incisiveness of the Framework is perhaps one of the most important critics that comes from the academic community. In effect, the International Association for Accounting Education and Research (IAAER) has identified and reported to the IIRC three main issues around its approach (Cheng et al., 2014):

- *The focus on providers of financial capital*

The IR Framework clearly states at paragraph 1.7 that "*The primary purpose of an integrated report is to explain to providers of financial capital how an organization*

*creates value over time*". The crucial point is that the word "value" can assume different meanings, according to the perspective from which value is measured. Two possible alternative interpretations are "value to shareholders", that is the traditional definition of value in business accounting, or "value to stakeholders", if a wider set of interests is taken into consideration. This dual interpretation is recognized by the Framework at paragraph 2.5, however shortly after it is stated: "*Providers of financial capital are interested in the value an organization creates for itself. They are also interested in the value an organization creates for others when it affects the ability of the organization to create value for itself, or relates to a stated objective of the organization (e.g. an explicit social purpose) that affects their assessments*".

From this formulation of the meaning of value, it can be concluded that the IR Framework adopts an investor perspective. Although it is recognized that financial value is not the sole source of value, it is also clear that all the other forms of value become relevant only when they affect the organization profitability and its objectives (John Flower, 2014). This view is somehow against the concept of sustainability, where value cannot be measured from the company standpoint but needs to be accounted including also the needs of the society.

- *The trade-offs between capitals*

Some academics claims that the concept of stock and flow of capitals have not been defined clearly. The Framework do recognize the existence of different type of capitals (notably financial, manufactured, human, intellectual and natural capital), however at paragraph 2.18 it is also written that an organization "*may categorize the capitals differently*". This would lead to inconsistencies between the representations of capitals across the integrated reports published by companies. In addition, there would be a fallacy in the concept of trade-offs between capitals. The Framework at paragraph 4.56 requires to disclose the trade-offs "*between capitals or components of a capital*" as well as "*between capitals owned by the organization and those owned by others*". Concerns have been risen about the real feasibility of this requirement beyond narratives, given the lack of comparability between the measurement systems of the different type of capitals.

- *The assurance of integrated reports*

The assurance is a major challenge because, at the present stage of development of the integrated reporting, there is no consensus around what a "true and fair" integrated report is. Some academics even question whether the present formulation of the Framework provides suitable criteria and appropriate subject matter to allow for

assurance at all (Eccles et al., 2012). Another debate questions whether the assurance of information contained in the integrated report can be conducted without assurance of the underlying processes as well.

Another weakness of the Framework is the complete absence of rules regarding the disclosure of quantitative information. At paragraph 1.10 it is written: *“the Framework does not prescribe specific key performance indicators, measurement methods or the disclosure of individual matters. Those responsible for the preparation and presentation of the integrated report therefore need to exercise judgement, given the specific circumstances of the organization”*.

This choice, although it is in line with the principle-based approach of the Framework, seems to give too much freedom on such a critical topic, to the extent it seems that the IIRC is reluctant to place any onerous reporting obligations on the firm’s management (John Flower, 2014).

### 3.2 Future Agenda

Since its publication in 2013, the IR Framework has not undergone any modification from its final draft and today, 8 years later, organizations are still applying the same rules without any significant update or improvement. In spite of this, academics and standard setters have suggested numerous possible changes to the current version of the Framework.

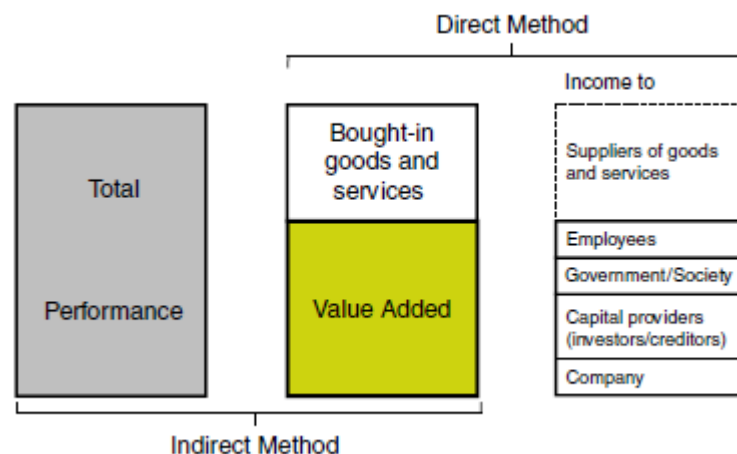
In general terms, many advocates to a greater focus on the sustainability issue (among all Brown and Dillard, 2014; Flower, 2014; and Morros, 2016). At the early stage of the integrated reporting movement this was one of the main focal point and in fact, in the Press Release of 2010 announcing the IIRC foundation, the word “sustainability” or “sustainable” or “sustain” was mentioned 4,3 times per page. In the second official publication, i.e. the Discussion paper of 2011, the number of mentions per page dropped to 1.2, until the final release of the Framework where the word “sustainability” appears only once in the entire document (Flower, 2014). A re-focus on sustainability would align better the IR Framework with its objective of encouraging a radical change on “business as usual” practices (Brown and Dillard, 2014).

Another general suggestion is to make the IR Framework requirements compulsive.

Currently, at paragraph 1.17 it is stated: *“Any communication claiming to be an integrated report and referencing the Framework should apply all the requirements identified in bold italic type unless the unavailability of reliable information or specific legal prohibitions results in an inability to disclose material information; and disclosure on material*

*information would cause significant competitive harm*”. This rule is not very stringent since only 19 of the Framework’s 168 paragraphs are set in bold italic type and all of these are formulated in very broad terms that impose no specific reporting obligations (Jordi Morros, 2016). In this way it is left too much discretion to the company management in picking selected topics where disclosure is easier or more favourable.

For what concerns the absence of specific provisions regarding performance measurement, Alex Haller and Chris Van Staden (2014) propose to integrate the Framework with the Value Added Statement (VAS), which they argue would be a “[...] *practical, effective efficient as well as reliable and therefore useful reporting instrument that complements and represents the concept of IR*”. The VA is the macroeconomic tool used by the Census of Production system for measuring the level of economic wealth in all the developed countries (the so called “National Product”). In 1975, the Accounting Standards Steering Committee proposed the adoption of the VAS as part of the annual report and shortly after other accountancy bodies opened to this possibility, although today Brazil is the only country where the presentation of a VAS is mandatory by law for publicly traded companies. The VA can be calculated in a simplified way as the sum of the net income with the “remuneration costs”, i.e. the remuneration that the company guarantee to all the stakeholders other than investors.



#### 4. The value added statement

For example, the remuneration to the employees would be the one related to benefits, bonuses and pension premiums while the remuneration to the society includes donations, social activities, etc. This approach however suffers from numerous limitations. Among all, the VAS does not account explicitly the impact of the natural capital and this is against the IR principle requiring to consider the effect of the company activities on all categories of capital.

Moreover, sometimes there are situations in which it is not easy, if not impossible, to express



the remuneration costs in monetary terms. For these reasons the VAS proposal has never been implemented and today the IR Framework still lack of a structured methodology for value assessment.

## 4. Research questions

The scope of the present essay is to analyse how companies disclose their non-financial performance by means of the integrated report prepared in compliance with the IR Framework.

As it is explained in the previous chapter, one of the main critics moved against the IR Framework is the absence of specific guidelines regarding the disclosure of quantitative information. In my opinion, this point needs to be analysed with closer attention since it may seem odd for a Framework whose scope is to enhance the understanding of the value creation processes, the absence of structured rules for outlining practical instruments where investors can base their valuations.

Taking a closer look to the IR Framework, even if it's true that there is no explicit step-by-step procedure on performance measurement, there are several paragraphs where the topic is addressed implicitly. First of all, at paragraph 1.11 it is clearly stated that *“it is not the purpose of an integrated report to quantify or monetize the value of the organization at a point in time, the value it creates over a period [...]”*. From this sentence it is possible to understand that the IR Framework doesn't require companies to come up with a final number representing their value. By taking this approach, the IR Framework recognizes the impossibility to express in monetary terms all the value created or destroyed by organizations. In contrast, the IR Framework suggest a generic combination of quantitative and qualitative information, where “quantitative” substantially means KPIs and monetized metrics while “qualitative” refers to visual representations and narratives.

A Key Performance Indicator (KPI) is a measurable value that demonstrates how effectively a company is achieving a business objective and it is usually employed by the company management to check the progress of its strategy. KPIs can be expressed using a wide range of units of measurement, both financial and non-financial, and even in combination between them.

The IR Framework does not prescribe any specific KPIs however their inclusion in the integrated report is highly recommended. At paragraph 4.31 it is written that information about performance may include *“quantitative indicators with respect to targets and risks and opportunities, explaining their significance, their implications, and the methods and*

*assumptions used in compiling them*". In addition at paragraph 4.53, the IR Framework gives a list of characteristics that should be respected in preparing KPIs:

- They should be relevant to the circumstances of the organization;
- Aligned with the metrics employed by the company management;
- Expressed in the form of ratios;
- Focused on the matters which are considered material for the organization;
- Presented with the corresponding targets to achieve or with future projection for at least two periods forward;
- Presented in a consistent way with the results obtained in the previous periods to show trends, regardless of whether the trend is favourable or unfavourable;
- Consistent with generally accepted industry or regional benchmarks;
- Explained through narratives in order to provide the relevant underlying assumptions and the reasons for significant variations from targets, trends or benchmarks.

The suggestion of using KPIs can be deduced implicitly also from the guiding principles of the IR Framework. If correctly implemented, they allow for comparison between similar companies and across time periods thus permitting compliance with the principle of consistency and comparability. Furthermore, they give the possibility of combining the use of financial and non-financial information in synthetic metrics to express the company effects on the various capitals and this is in line with the requirements imposed by the principle of connectivity of information and conciseness. About this, paragraph 4.32 says: *"KPIs that combine financial measures with other components (e.g., the ratio of greenhouse gas emissions to sale) [...], may be used to demonstrate the connectivity of financial performance with performance regarding other capitals. In some cases, this may also include monetizing certain effects on the capitals."*

The IR Framework does not mention explicitly any other measurement instrument to assess the company non-financial performance and even the inclusion of KPIs in the integrated report is not mandatory. This is one of the reasons why the actual draft of the IR Framework has raised the scepticism of some academics, who are worried for the consequences that the excessive discretionary implied by the generic formulation of the rules might have on the quality of the disclosure.

In the light of the above considerations, I decided to investigate whether this concern is effectively a danger or not. In order to do so, I selected twenty-six companies who have adopted the IR Framework and I analysed their integrated reports for the year 2016. The

objective of the analysis is to investigate how companies disclose about their non-financial performance with a particular focus on the way KPIs are employed both alone and in combination with qualitative information. Specifically, the present essay will try to answer to the following research questions:

- Do companies effectively measure their non-financial performance by using KPIs and what are the capitals that are mostly represented and measured by them?
- Is information provided by KPIs useful for investors and are there any company characteristics related with the implementation of the best reporting practices?

These questions will be answered through an empirical analysis of the KPIs shown in the integrated reports of the sample which will be carried out with a mix of descriptive statistics and qualitative analysis. As it was explained in the previous chapters, what really differentiate the integrated report from other form of sustainability disclosure is the holistic approach that can be reached by following the Guiding Principles of the IR Framework. High compliance with the Guiding Principles has found to be positively correlated with long-term oriented investor base (ref. to pag. 20-21) meaning that, only when the rules of materiality and of connectivity of information are respected, the report becomes helpful for readers who want to better understand how value is created, while just adding more information to the traditional financial one is useless. Starting from this point, my research will try to analyse the contribution of KPIs to the representation of the value creation processes by investigating if the disclosure of quantitative information in the integrated report is made in compliance with the guiding principles of the Framework and, in particular, with the principles of materiality and of connectivity of information. The adherence to these principles will be measured through two compliance indexes based on the definitions of materiality and of connectivity given by the IR Framework. These indexes will be used to detect the best reporting practices among those disclosed by the sample of company. The last step will be trying to understand if there are some company characteristics that are related with the results of the tests, for example the company dimension, its performance on the capital market and its performance on the sustainability issues involving the natural, human and social capital. In this case, the analysis will involve the results of the compliance indexes and other financial information referred to the sample of companies.

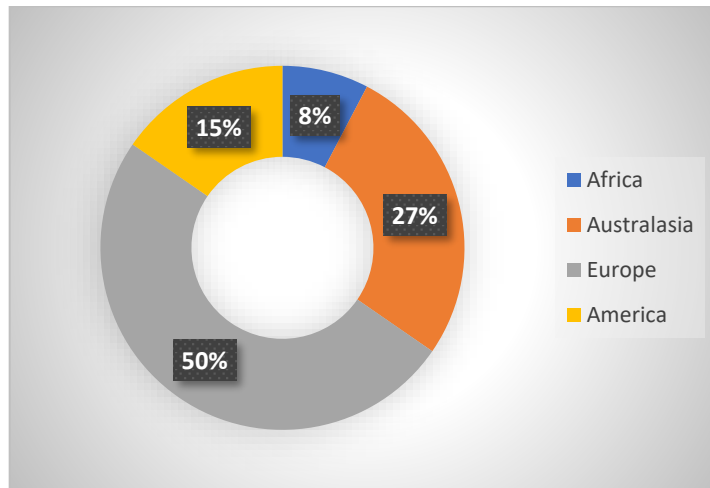
## 5. Research Methodology

### 5.1 The sample

The research sample is made of 25 companies selected from the IR examples database available on the integrated reporting website (<http://integratedreporting.org/>). The database contains numerous integrated reports that have been recognized as leading practices by a reputable awards process or through benchmarking. At the present time, the website identifies 522 different companies as official integrated reporters, so the sample represents around 5% of the population. Among the companies chosen, around 65% of the sample is composed by the World's Biggest Public Companies according to the Forbes Ranking, as it is possible to see from the table below.

Company	MKT CAP	Forbes #
Ricoh	5,8	1202
Toshiba	8,3	817
Coca-cola HBC	9,4	1443
Fujitsu	12,5	460
Entergy	13,7	874
Portash Corp	14,2	1262
Ferrovial	14,9	769
Panasonic	26,2	221
Unicredit	33,3	496
ENI	58,2	431
AXA	60,8	27
National Australian Bank	65	100
Diageo	71,2	261
AstraZenaca	75,2	176
Itaù Unibanco	79,2	38
Novo-Nordisk	88,2	375
SAP	119,7	178
Gold fields		n.d.
M&S		n.d.
Masisa		n.d.
Munich Airport		n.d.
Pirelli		n.d.
Sanford		n.d.
The Crown estate		n.d.
Vodacom		n.d.

The sample is made of companies from all over the world even if the largest part is settled in Europe. This reflects quite well the current situation where the European continent is the one with the higher number of IR adopters.

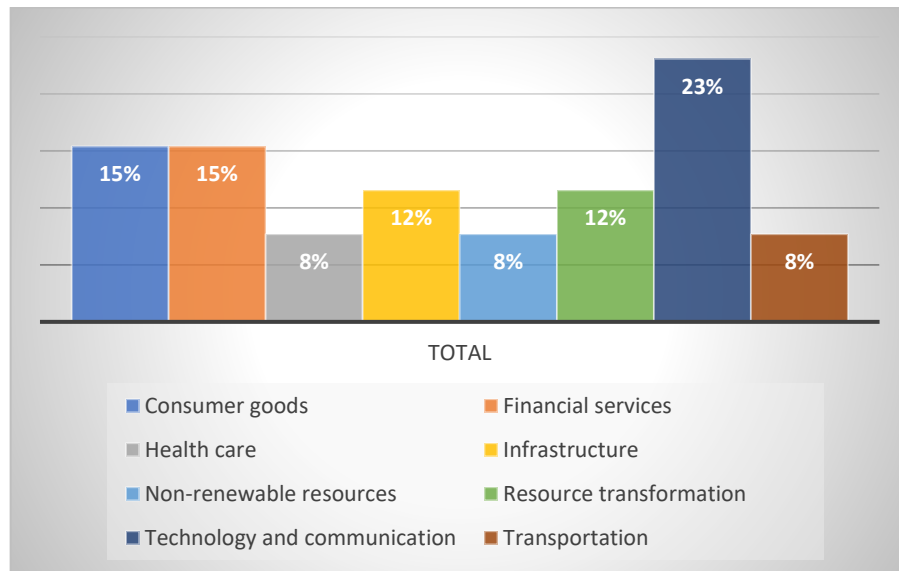


#### 5. Geographical distribution of the sample

The selection was made also to include companies belonging to different industry sectors and located in different positions across the value chain. For the purpose of the present work, the companies are classified according to the Sustainable Industry Classification System of the SASB which, as explained before, it helps in categorizing companies with similar resource intensity as well as sustainability risks and opportunities. Unlike other industry classification systems, the SICS does not only use sources of revenue to assign companies into specific sectors and industries but instead it considers a wide range of factors which contributes to a company market value beyond its financial performance. The tool is freely available on the company website (<https://www.sasb.org/>). The SICS classification is the following:

- Health Care: biotechnology & pharmaceuticals, medical technology, health care providers;
- Financials: banking & investment banking, specialty finance, insurance;
- Technology & Communications: technology, semiconductors, telecoms, internet media & services;
- Non-renewable resources: oil & gas, coal, metals & mining, construction materials;
- Transportation: automobiles, air/marine/land transportation;
- Services: consumer services, hospitality & recreation, media;
- Resource transformation: chemicals, industrials;
- Consumption: food, beverages, tobacco, retailers, apparel & textiles;
- Infrastructure: Utilities, waste management, engineering & construction services, real estate.

This classification is very important because on the basis of the categories above the materiality test will be conducted. Table 6 below shows how companies are distributed between the various industry sectors.



6. Sustainable Industry Classification System of the sample

The majority of the companies belongs to the Information Technology industry, followed by the consumer goods sector and the financial services. Another important part of the sample is divided among infrastructure and manufacturing while only a few companies come from health care, non-renewable resources and transportation.

## 5.2 First research question

The first research question investigates whether the companies of the sample includes KPIs in their integrated reports and, if it is so, what are the capitals that are mostly represented and measured through the use of KPIs. In order to answer this question, raw data were collected by analysing the integrated reports of the sample. The full list of the data collected for every company can be found on the Appendix. Of course, only the quantitative information that respects the criteria suggested by paragraph 4.53 of the IR Framework (ref. to pag. 28-29) was considered as KPI and became part of the analysis. In addition, since the present essay is focused on the non-financial performance, all the quantitative information related to the financial capital and to the manufacturing capital was disregarded.

The analysis confirmed that companies disclose several non-financial KPIs even if this requirement is not mandatory to define a report as “integrated”. In fact, the research revealed a total of 49 different performance indicators with an average of around 14 KPIs per report.

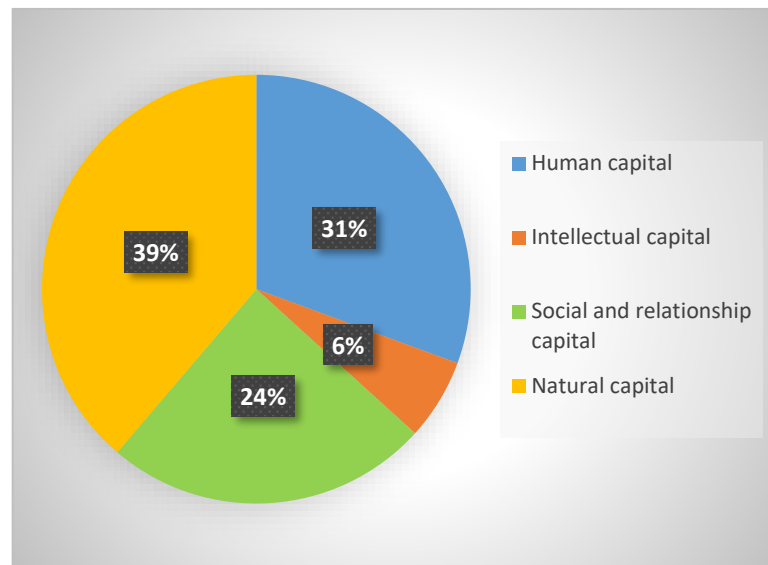
The details about the average number of KPIs found in the integrated reports of the sample are shown on the table below.

Company	Human capital	Intellectual capital	Social and relationship capital	Natural capital	TOTAL
Itaù Unibanco	9	0	6	9	24
Ferrovial	8	1	3	11	23
Sanford	9	0	5	6	20
Gold Fields	8	0	2	8	18
Coca-Cola HBC	5	0	5	7	17
Novo-Nordisk	4	1	4	8	17
Unicredit	8	1	1	7	17
Munich Airport	7	0	1	8	16
National Australian Bank	7	1	6	1	15
Vodacom	6	0	4	5	15
SAP	5	2	2	5	14
Astra Zenaca	6	2	1	4	13
AXA	5	0	3	5	13
Pirelli	4	1	2	6	13
Potash Corp	5	0	3	5	13
Ricoh	5	2	2	4	13
ENI	4	1	2	5	12
Diageo	2	0	2	7	11
Entergy	4	0	3	4	11
Masisa	5	0	2	4	11
The Crown Estate	6	0	2	2	10
Fujitsu	2	1	0	6	9
Panasonic	1	1	0	5	7
Toshiba	0	1	2	3	6
M&S	3	0	1	1	5
<b>AVG.</b>	<b>6,9</b>	<b>0,5</b>	<b>3,5</b>	<b>6,8</b>	<b>17,8</b>

This number alone however is quite meaningless because it is not possible to predict in advance what is the right number of KPIs that an integrated report should have. The choice is unique to each company and obviously depends on its strategy. Moreover, in this case it is not even a matter of quantity but rather of quality of the KPIs disclosed: giving the reader multiple performance measures without explaining their implications does not aid transparency at all so the situation needs to be judged case by case.

To proceed with the analysis, the KPIs were divided into different categories according to the capitals for which they are deemed to measure the performance. This exercise revealed how

the natural, human and social capital are almost equally represented, with the natural capital being the one with the higher number of indicators, while the intellectual capital is left far behind.



7. KPIs distribution among the capitals

In the next paragraphs, every category will be examined separately with the aim of understanding what are the specific indicators that are most commonly used to measure the performance for each type of non-financial capital. To conclude this section, some final considerations will be made on the main findings of the analysis.

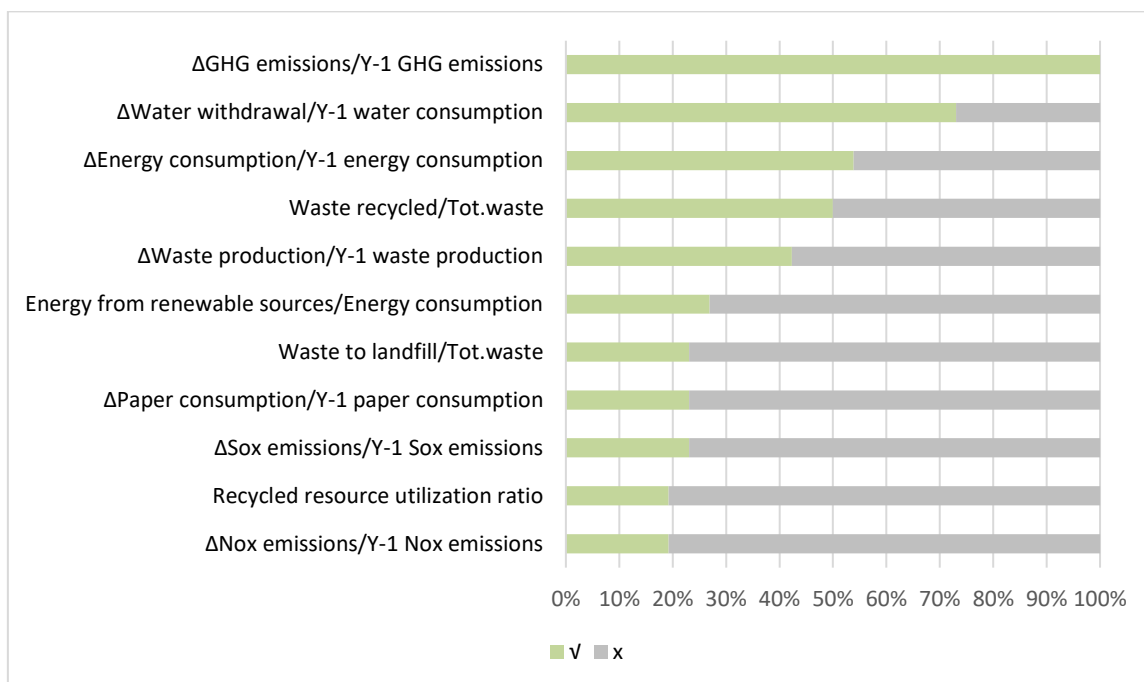
#### *Natural capital*

As pointed out before, the natural capital is the one with the higher number of performance indicators disclosed, around 39% of the total. This result is encouraging, since it reflects an increased interest of companies in improving the management of the natural resources. Table 8 shows the list of the top 10 KPIs reported for this category of capital, counting how many companies actually adopt them.

In the side table instead, all the KPIs collected for this category of capital have been grouped in sub-categories according to the issue they are addressing. The sub-categories identified are air pollution, water consumption, energy consumption and waste management. A residual category named “other” includes few KPIs that were disclosed by just 3 companies or less. The initial observation is that all of the companies examined disclose the ratio of the greenhouse gas emissions versus the emissions of the year before, making air pollution the first area where companies test their non-financial performance. This is also the only KPI that was



found in all the integrated reports of the sample.



#### 8. Top 10 KPIs on natural capital

Micro-category	%
Air pollution	28%
Water consumption	17%
Energy consumption	18%
Waste management	31%
Other	6%

A minority of companies belonging to the highest pollutive sectors (for example transportation and resource transformation) gives also the details about the NO<sub>x</sub>/SO<sub>x</sub> emissions and the equipment HFC-free employed in the production processes. The second ranked indicator is the one related to water withdrawals, i.e. the freshwater taken from the ground or from water surfaces and conveyed to a place of use, followed shortly by the ratio of the energy consumption over the result of the previous year. In addition to this information, some companies further deepen the analysis by disclosing the percentage of energy that comes from renewable resources, as well as the percentage of water that is replenished for a second use. The waste management area, instead, is the one with higher variety of indicators. Many companies disclose not only the total amount of waste produced, but also the percentage of hazardous and non-hazardous waste and give details on the amount of the waste recycled or diverted to landfill.

By considering the ranking in table 8, it is possible to acknowledge that the most disclosed KPIs are indeed measuring the performance of companies in very critical areas of interests for the wealth of the environment: climate change, water scarcity and energy consumption are among the Sustainable Development Goals of the United Nations so their importance is

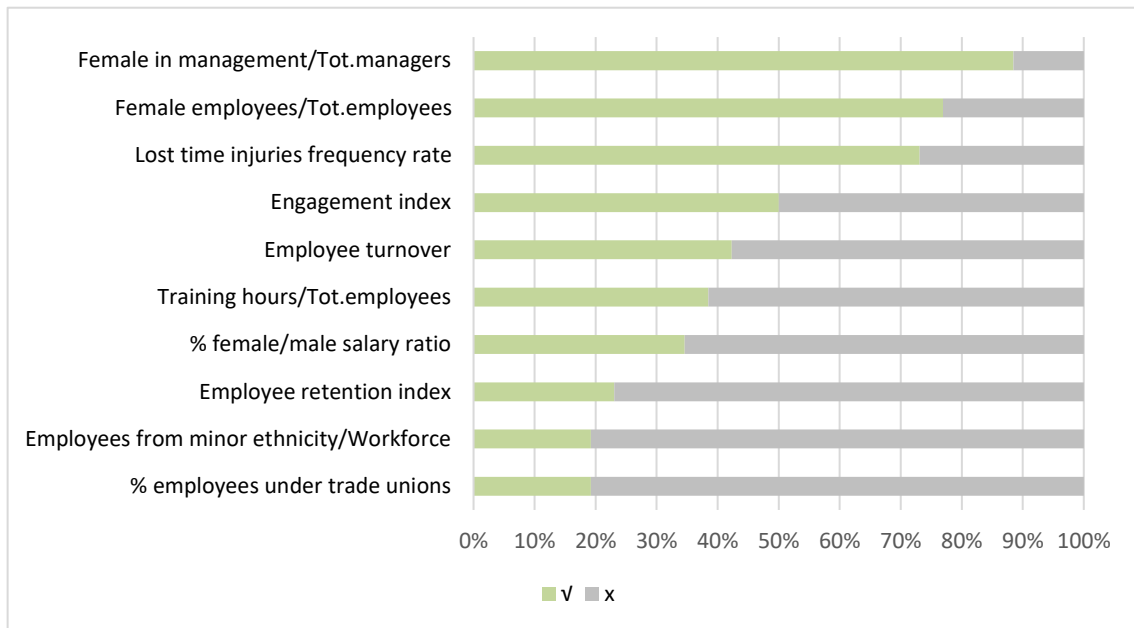
recognized internationally. In particular for what concern the climate change, in 2015 195 countries signed the Paris Agreement, whose scope is to reduce the green-house gas emissions and, by doing so, to keep the global temperature rise below 2 degrees Celsius above pre-industrial levels. Before of this agreement, the Kyoto Protocol had the same objective, even if the number of countries actively involved was limited to the industrialized ones. With these agreements in place, many countries had to set their targets regarding the future reduction of the green-house gas emissions and consequently, companies belonging to certain industry sectors started to face new limitations on their pollutive activities. Probably, this explains why the KPI regarding the green-house gas emissions is so widely adopted and monitored. In the same way, the energy efficiency issue is strictly connected with the climate change, since 60% of the green-house gas emissions comes from energy production and reducing the carbon intensity of energy is a key objective in long-term climate goals. With regards to water, at the moment there are no international agreements limiting its consumption, however this problem has a direct impact in the life of human beings, more than climate change has, and some cities have already faced rationing measures due to its scarcity, that's why the topic receive such a high attention.

### *Human capital*

The human capital boasts numerous KPIs as well, around 31% of the total. Again, the KPIs were divided in sub-categories according to the specific issue covered and were ranked according to their frequency of adoption. Table 9 shows the results obtained for this category of capital.

The performance on human capital is measured by companies across different dimensions. The most represented area includes all the KPIs related to employee diversity and inclusion, with gender inequality being without doubt the first issue of the list. Three out of the top ten KPIs address women's opportunities in the workplace, while the diversity in the sense of minor ethnicity is only marginally considered. In the second area of interest it is possible to find all the KPIs that try to measure the employees' loyalty to the organization and its culture/ shared value. Here the most used KPI is the employee engagement index, a ratio designed to measure the extent to which employees contribute their discretionary effort to the firm. This KPI is highly arbitrary because it is based on data taken from surveys where employees are asked to answer different questions about their effort and enthusiasm in running their daily activities. Of course, every survey is likely to have different set of questions and different methods of calculation of the results, so the comparability across organizations is very low. A similar indicator adopted by a minority of companies is the employee retention index,

which measures the employees' intent to leave the organization in the short-term and their actual job search behaviour.



#### 9. Top 10 KPIs on human capital

Micro-category	%
Diversity/inclusion	43%
Safety	16%
Loyalty	26%
Development	11%
Others	5%

Also this index is typically based on survey tests and it is usually disclosed together with other statistics like the employee turnover and the absenteeism rate. The third ranked KPI is the lost time injury frequency rate, a measure of the employees' safety in the workplace. It is calculated as the

number of on-the-job injuries that force a person to stay away from work at least for one shift over the total amount of hours worked by the workforce in a specified time period. This KPI is particularly critical for certain industry sectors where people works in production plants, while other companies not directly subject to this risk prefer to disclose the number of fleet accidents over the total amount of kilometres travelled by its employees. An area, instead, that receives only a marginal representation is the one referred to the employee growth and skills development. Less than half of the sample discloses the number of training hours per employee and just a few companies add more information about the job enlargement, for example by showing the internal mobility rate or the number of expatriate employees. This is surprisingly considering that the majority of the companies analysed belongs to the service sector where the human capital is one of the most important strategic resources.

### Social and relationship capital

The social and relationship capital has on average a slightly lower number of performance indicators disclosed in the integrated report, notwithstanding the fact that within this category of capital fall a higher number of interrelations with stakeholders. In fact, if the human capital is solely focused on employees in the same way as the natural capital is focused on the environment, in the social and relationship capitals the performance is measured against more parties, notably the customers, the suppliers and in general the society as a whole. The KPIs found in the integrated reports of the sample well reflects all of these micro-categories, as it is possible to see from the side table. In addition, table 10 shows the top five KPIs according to the number of companies that actually adopt them.



10. Top 5 KPIs on social and relationship capital

Micro-category	%
Society	44%
Customers	36%
Suppliers	17%
Others	3%

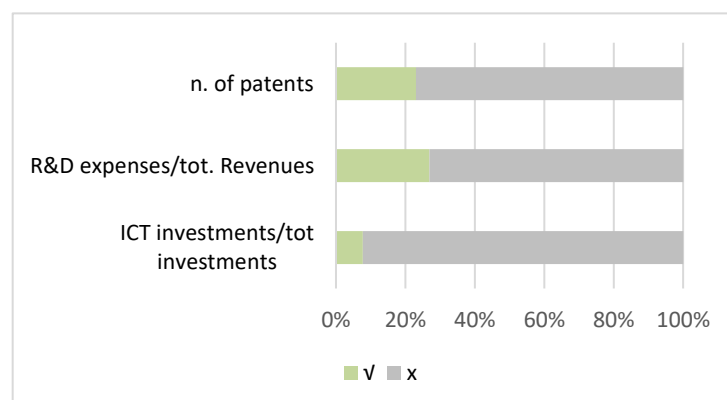
The most disclosed KPI is the percentage of net profits devolved as contributions to the communities in the form of donations, charitable giving and sponsorships. Usually these expenses do not increase the company value directly, but they can eventually improve its reputation and its public image. A similar KPI is the number of employees involved in volunteering activities for the community on behalf of the company. The stakeholder relationship measured with the higher variety of indicators is the customers one. This area is extremely important because it is strictly correlated with the revenue growth. Increasing sales does not always mean happy customers, that's why assessing satisfaction and loyalty is crucial. Here the most used KPI, which is also the second of the ranking, is the customers satisfaction rate, a ratio based on survey questions about the customer experience

with the company's products or services. Usually this KPI is disclosed in combination with the net promoter score, an index which measure the percentage of customers who would recommend a product, service or brand to other people. The net promoter score was developed by Bain & Company/Satmetrix and it is protected by trademark, so its method of computation is unique. Instead for what concern the customer satisfaction rate there are different ways to calculate it, however industrial benchmark exists as well as recommendation from international bodies (for example the MASB – Marketing Accountability Standards Board). In some integrated reports the relation with customers is investigated also in negative terms by disclosing the year to year change in the number of customers complaints and products recalls. The last micro-category in terms of representation refers to the company relationship with its suppliers. This area is left on the background since less than 20% of the KPIs under the social and relationship capital are dedicated to the matter. From the analysis of the integrated reports of the sample it seems that companies interpret the disclosure on suppliers in “sustainable” terms. In fact, the most used KPIs are the percentage of suppliers screened with ESG analysis and the percentage of suppliers from the local communities. Although being useful, this information is not very indicative of the company performance with its suppliers and other indicators, such as the average length of the business relationships, the number of strategic partnerships or the dependence from third-parties, would be much more relevant.

### *Intellectual capital*

The last category of capital analysed is the intellectual capital. Only 6% of the total amount of KPIs disclosed belongs to this category and around 55% of the companies doesn't include any of them in their integrated reports. Table 11 below shows the KPIs found and their frequency of adoption.

The most disclosed KPI is the percentage of research and development expenses over revenues, usually set as a target that the company wants to maintain or increase over a time period.



Few companies calculate also the percentage of investments allocated for the refreshment of the technological assets. Finally, the companies belonging to the IT and health care sectors provide data on the number of registered patents.

The analysis seems to reveal a huge information gap on the intellectual capital with respect to the other types of capital presented before, however there are at least two reasons that could explain it.

First of all, the definition of intellectual capital given by the IR Framework is slightly different from the original one well known in economics, where for intellectual capital is meant the intangible value of a whole business, covering its people, its relationships and everything that is left when employees go home (Edvinsson, Malone; 1997). This definition is accepted by many authors, among all Brooking, 1996; Skandia, 1998; Petrash and Lynn, 1998. Considering this perspective, the intellectual capital is a wider concept that includes the human capital, the structural capital and the relational capital altogether, as everything that gives to an organization a competitive advantage not explicitly accountable in the balance sheets (Stewart, 1997). In the IR Framework instead, the human capital and the relational capital are defined apart, as stand-alone concepts, while the intellectual capital definition is restricted to the supportive non-physical infrastructure, processes and procedures that allow the functioning of all organizations. It is important to underline that the IR Framework choose this categorization only for convenience and that in any case it is not considered binding for the preparation of an integrated report.

Even by acknowledging this mismatch in the definition of intellectual capital, the fact remains that its representation through KPIs is less effective than the one reached with other forms of capital. A possible explanation for this is to be found in the difficulty to express relevant information in those matters without revealing the strategy at the base of the competitive advantage itself. This would give to competitors the possibility to copy or retaliate and it could potentially attract new players in the market. Moreover, the problem relies also in the reliability of the information that would be eventually disclosed because the value of intangible assets is notably very difficult to measure.

### 5.3 What about materiality?

The results of the analysis conducted on the integrated reports of the sample shows that the companies investigated make a quite extensive use of KPIs and that almost all of the capitals are to some extent represented. The analysis revealed also that there are some KPIs with a high frequency of adoption: the green-house gas emissions and the female presence in management are examples of universally adopted metrics but there are many other KPIs that

appear in several reports, for example the water consumption, the percentage of profits devolved to the communities, the lost time injury rate etc. The KPIs observed can have both a positive or a negative significance so their potential for assessing the company effects on the capitals is very high.

At this stage of the present work, the following step is trying to understand if the KPIs disclosed in the integrated reports are measuring the performance on material matters, i.e. matters that affects the ability of the company to create value over the medium-long term. The materiality principle, together with the connectivity of information, is a founding principle of the Integrated Reporting Framework and it has been object of a deep discussion which concluded with the publication of a Background Paper exclusively focused on the materiality rule. As it has been explained in chapter 2, all the companies applying the Integrated Reporting Framework should disclose only the material matters so understanding the materiality determination process is of crucial importance to evaluate the degree of compliance with the guiding principles of the Framework.

According to the IR Background Paper the materiality determination process should consist of three different phases. The first phase requires companies to identify the relevant matters, where the concept of relevance assumes different meanings depending on whether financial information or sustainability information is considered. Since the present work studies the measurement of non-financial performance, the focus will be on the concept of relevance for sustainability disclosure which states that a matter is relevant if it affects the capitals owned by the company or owned by third parties. In determining the relevant matters, companies should consider not only internal factors, but also other factors external to the organization, including macro and micro economic changes, market forces, technological changes, social and environmental challenges. Where appropriate, companies may engage with key internal or external stakeholders with the aim of understanding their interests, concerns and future expectation about their role in the society. Not all the relevant matters will be considered material, in fact the second phase of the materiality determination process consists in establishing the importance of the relevant matters according to the magnitude of their effects and their likelihood of occurrence in order to screen only the matters that has the potential to substantively influence the company value assessment. For this phase the IR Background Paper requires companies to consider, at minimum, quantitative and qualitative factors; financial, operational, strategic, reputational and regulatory perspectives of the effects; the area of the effects (internal and external); and the time frame of the effects (short-medium-long). Lastly, in the third phase companies should prioritize the important matters and tailor the draft of the report by reserving a more prominent and detailed discussion to those with the

greatest effect on the organization's ability to create value. In this phase the quantification of the effects on the capitals through financial and non-financial measures becomes very helpful for establishing a top list.

The materiality determination process clarifies the concept of materiality and it is formulated in very general terms so that it can be applied to all the types of organizations. The result of the process instead will be always different because every organization is unique and exists under specific circumstances. Even if this is true, it is also the case that companies belonging to the same industry sector are likely to share the same material issues because they are exposed to the same external context. This is reasonable and it should be considered in a transparent reporting process also because often investors approach the company valuation by expecting to find some industry specific information in the public reports. So, by considering the concept of materiality at an industry-based level as a proxy, it is possible to understand if the KPIs disclosed by the company sample are likely to measure the performance on material topics. In particular, this test wants to verify if the absence of more specific recommendation in this regard, as it is instead with other sustainability accounting standards, may undermine the usefulness of the integrated report for evaluating the company performance.

The aforementioned test is directly tied with the second research question which investigates whether and how the KPIs contribute to explain the value creation process of organizations. By definition, KPIs can serve this purpose only if they are measuring performance on material matters and, consequently, only if the materiality guiding principle is respected. Their explanatory power is further increased when they are well connected with other type of information, being it financial information, narratives or visual representations explaining the link with the overall company strategy. When the materiality principle and the principle of connectivity of information are respected, it is proved empirically that this form of disclosure can be helpful for long-term oriented investors. This second aspect will be further investigated in the next chapters.

#### 5.4 Second research question

As mentioned above, the second research question will try to discuss the role of the KPIs in the non-financial value assessment. On the previous section, the integrated reports of the sample were analysed to find out if companies actually disclose the KPIs and what are the categories of capitals mostly represented by them. The second step is trying to understand if this quantitative information is really valuable and how it can enhance the representation of the companies' results beside of the traditional financial performance. This question is addressed in two different way:



- First of all, the KPIs collected in the first part of the analysis are further investigated in the light of the materiality principle. Since it is reasonable to assume that the companies belonging to the same industry sector are likely to share the same material issues, the analysis will not be made report by report but instead it will be carried out at an industry level. The instrument assisting this process is the Materiality Map of the Sustainability Accounting Standard Board (SASB) that establishes, for every industry sector, the issues with the highest probability of being material for the relative companies. This instrument will be presented in the next paragraph.
- After that, the review comes back at a company level to verify the compliance with the principle of connectivity of information. In this part, the integrated reports of the sample are investigated to find how companies combine the use of KPIs with other financial measures or monetary metrics and how quantitative and qualitative information can be integrated to show the company strategy. This scope will be accomplished with a qualitative analysis of the best reporting practices.

At the end of this second part, the final conclusions will be drawn by showing the contribution of the present dissertation to the argument as well as its limitations.

#### 5.4.1 Materiality test

The evaluation of the role of the KPIs in the integrated report cannot ignore the assessment of the materiality principle. Although the Integrated Reporting Framework leaves to the company judgement the choice of the material matters to disclose, it is also suggested to follow, when possible, industry benchmarks. This prescription comes from the principle of consistency and comparability, which asks to make appropriate checks and balances between the customization of the report and the investor need for generally accepted metrics.

Establishing the material matters for a given industry is not easy, that's way the Materiality Map of the SASB will be taken as a reference. This instrument is particularly suitable for the scope because the sustainability standards of the SASB and the IR Framework have many points of contacts. They are both based on the materiality principle, which is defined in very similar terms and they both consider investors as the primarily audience for their reports. In addition, they are built around the same capitals: also the SASB principles adopts the natural, social and human dimensions while the intellectual capital is replaced with another category, named Business Model & Innovation, which is very similar for general topic content.

The SASB approach accounts for five different factors to determine if a given issue is material:

- the likelihood that the company performance on the topic might have an impact on its financial condition and its investment risk;
- how an emerging regulation on a certain issue may influence the company actions by forcing the internalization of costs associated with compliance or, on the contrary, by creating new opportunities for business expansion and product innovation;
- how the peer actions and the disclosure of certain sustainability issues may create investor pressure for higher standards in the whole sector;
- the possibility that other categories of stakeholders could rise concerns on the company activities causing a loss of the licence to operate, reputational damage, changes in customer demand or disruptions to business viability;
- the likelihood that the technological change may cause a market disruption and create new sources of competitive advantage.

In practical terms, an issue is material if it has an impact on more than 50% of the companies belonging to the same industry sector. The Materiality Map lists all the material issues for every industry sector and indicates also where the issue will show its effects, i.e. if it will affect the company revenues, costs or the assets and liabilities.

The materiality test is conducted on a sector-by-sector basis following the SICS classification system (ref. to pag.31) and it is run on the KPIs collected to answer the first research question. For every industry sector, the material issues are defined on the basis of the Materiality Map of the SASB, then it is verified which of the KPIs collected for every company actually measure the non-financial performance on those material issues. To provide a measure of compliance with the materiality principle, an index will be calculated as follow:

- if the company discloses at least one KPI for a given material issue it will receive one point;
- if the company does not disclose any KPI for a given material issue it will receive 0 points.

The maximum number of points that a company could potentially receive correspond to the number of material issues for its industry sector. Finally, the total amount of points obtained are divided for the total number of material issues and multiplied for one-hundred in order to obtain a score expressed in percentage.

$$\text{COMPLIANCE INDEX} = \frac{\text{sum of the material issues where at least one KPI is disclosed}}{\text{tot. number of material issues}} \times 100$$

This score allows to aggregate the results and to obtain a ranking among the industry sectors. In the next paragraphs, the materiality test will be conducted on every industry sector.

### *Health-care*

The first industry sector to be analysed is the health-care sector, in particular two pharmaceutical companies will be taken as a reference, Astra-Zeneca and Novo Nordisk. This industry is driven by research and development so the companies belonging to this sector are dependent on a skilled workforce to create new products, conduct clinical trials and then launch successful products in the market. The ability of the firms to attract and retain employees is crucial for maintaining a competitive advantage because there is a limited talent pool and the competition for employees is fierce. On the other side, the pharmaceutical companies need strong intellectual property protection to ensure returns on their investments. The regulatory procedures associated with these protections create expectations on the society that the medications are safe, accessible and affordable. In fact, one of the main challenges of this sector is spreading the consumption of medicines around the world, especially in emerging countries, through pricing frameworks that account for different levels of economic development and health care needs. Another main feature of this sector is the presence of a strict regulation concerning the industrial processes and the customer safety. Pharmaceutical companies who fails to manage quality in these areas are susceptible of significant fines and revenue losses due to manufacturing stoppages and products recalls. Not of least importance, the drugs production requires significant use of energy, water and material inputs, with a considerable impact on the external environment. Pharmaceutical companies are exposed to fluctuations in the costs of these key inputs so the firms who are able to implement efficiency plans for the future and, by doing so, to reduce the dependence on finite resources, are likely to increase their value. The impact on the environment is not limited to the consumption of resources but it is extended also to the production of waste. In the effort to reduce the amount of pharmaceuticals that persist in the environment after ingestion or improper disposal, the legislator may increase the firms' responsibilities with new regulation on this issue. Taking into consideration the industry characteristics mentioned above, the SASB has identified the following material topics on which the company sample will be tested:

- For the human capital, the analysis will consider the KPIs disclosed on employee recruitment, development and retention;
- For the intellectual capital, the lifecycle impacts of products and services;

- For the social capital, the focus will be on access and affordability, customer welfare and product quality and safety;
- For the natural capital, it will be assessed the presence of KPIs on energy, water and waste management.

The results of the materiality test are shown on the table below.

<b>MATERIAL ISSUES</b>	<b>Astra-Zeneca</b>	<b>Novo Nordisk</b>
<i>Energy management</i>		<b>X</b>
<i>Water and wastewater management</i>	<b>X</b>	<b>X</b>
<i>Waste and hazardous materials management</i>	<b>X</b>	<b>X</b>
<i>Access and affordability</i>		<b>X</b>
<i>Customer welfare</i>		
<i>Recruitment, development and retention</i>	<b>X</b>	<b>X</b>
<i>Lifecycle impacts of products and services</i>	<b>X</b>	<b>X</b>
<i>Product quality and safety</i>		<b>X</b>
<b>COMPLIANCE INDEX</b>	<b>50%</b>	<b>88%</b>

#### 12. Materiality test on the health care companies

As it is possible to see from table 12, the companies of the sample show different degrees of compliance with the materiality principle. While Novo Nordisk reaches a high compliance index by disclosing KPIs in almost all of the material issues, Astra-Zeneca left some of them without quantitative metrics in support. In particular, there are three areas where Novo Nordisk gave more useful information about the non-financial performance: energy management, access and affordability and product quality and safety. The performance on energy management is expressed by disclosing the KPIs already presented in paragraph 5.2, i.e. the ratio of energy consumption over the previous years and the percentage of energy that comes from renewable resources. The same is true for the other material topics on natural and human capital. For these KPIs it has been demonstrated how they are widely adopted by numerous companies of the overall sample. What appears to be more sector specific is the part related to the product quality and its accessibility. In this area Novo Nordisk provide additional information by disclosing the percentage of products that are sold below the average market price and the number of product recalls. None of the companies, instead, disclose any KPIs on customer welfare, even if this topic is likely to be material. This does not mean that the topic is not addressed in the integrated report of the sample, but simply that the information provided is merely qualitative and it doesn't go beyond narratives.

## *Financials*

The next industry category to be analysed is the financial sector, which comprises four different companies, i.e. Unicredit, National Australian Bank, Itau Unibanco and AXA. Again, the issues that will be considered for the materiality test are derived from the industry characteristics and from the external factors that had a major impact on the industry dynamics. In particular in the financial sector, the event that have brought the most important changes over the last years is the recent financial crisis. If before of the crisis there has been a period in which the banking activities were deregulated, nowadays the banking sector is under the scrutiny of local and international regulators. Financial institutions have been criticized for their reliance on government funds and for unethical behaviour. This has caused a loss of trust of the clientele with the consequent risk of reputational damage and now financial institutions are struggling to regain the social licence to operate. The expectation towards the financial sectors are multiples. First of all, to assure financial inclusion and to maintain the privacy and security of the customer data. Most importantly, the financial institutions are required to enhance the transparency of the financial products sold and to provide fair advice to their customers. Fairness is required also in marketing activities and promotional campaigns. However, the expectations of society do not just relate to a more sustainable management of the financial risk, in fact the financial sector is expected also to play a role in supporting the international development goals by facilitating the transition to a green and low carbon economy. This can be reached through the integration of the environmental, social and governance risk factors in investment management and advisory. Another key characteristic of the financial sector is the reliance on high skilled human capital for making investment decisions, attracting and retaining customers, and managing the company risks effectively. The companies who are able to implement good human resources strategies have also higher chances to increase the value created for shareholders. Given the above characteristics of the financial sector, the topics considered for the materiality test will be mostly shifted towards the human and the social capital:

- For the human capital, the analysis will consider the KPIs disclosed on employee recruitment, development and retention;
- For the social capital, it will be assessed the presence of KPIs related to the customer relationship in terms of access and affordability, privacy and fair marketing. In addition, it will be investigated if there are quantitative indicators for measuring the level of integration between ESG and financial criteria in investment decision making.

The results of the materiality test for the sample of companies are shown on table 13.

In this case, there is a high degree of homogeneity between the companies examined. Almost all of the companies disclosed at least one KPI regarding customer access and affordability, employee management and ESG integration in investment decision, even if with some variation between the metrics chosen.

<b>MATERIAL ISSUES</b>	<b>Unicredit</b>	<b>National Australian Bank</b>	<b>Itaù Unibanco</b>	<b>AXA</b>
<i>Access and affordability</i>	X	X	X	
<i>Data security and customer privacy</i>				
<i>Fair marketing and advertising</i>				
<i>Recruitment, development and retention</i>	X	X	X	X
<i>Environmental, social impacts on assets &amp; operations</i>	X	X	X	X
<b>COMPLIANCE INDEX</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>	<b>40%</b>

13. Materiality test on the financial companies

For example, Unicredit express customer access and affordability by disclosing the percentage of bank branches settled in economic disadvantaged areas while National Australian Bank and Itaù Unibanco shows the percentage of underwritten loans labelled as “microcredit”. In the same way all of the companies give information about the amount of investment allocated to social and environmental funds, and their year-to-year returns and variations. These funds are usually formed by shares in companies from the renewable energy sector or in companies with very high scores of sustainability indexes. The main problem with these KPIs is their low degree of comparability because every financial institution applies its own ESG criteria to determine whether an investment can be included in this category or not. The situation instead is different with the KPIs on human capital since they tend to be very similar across the sample.

The analysis has not revealed any quantitative indicator about the customer privacy and the fair marketing practices, leaving two critical topics undisclosed. This is the reason why none of the companies of the sample have reached a high compliance index. In these areas, possible KPIs would have been the percentage of data security breaches involving customer’s personally identifiable information or the number of regulatory settlements associated with transparency disputes.

### *Resource transformation*

The materiality test on the resource transformation sector will be made by examining the integrated report of three manufacturing firms: Pirelli, Coca-cola HBC and Potash Corporation. These companies belong to very different industry sub-categories, however they share the common characteristic of serving mainly the business-to-business market.

In addition, although the differences in the underlying industry dynamics, the sustainability issues in the manufacturing sector tends toward the same direction, that is optimizing production efficiencies while minimizing the environmental impact and maintaining high standards of products quality and safety. This can be reached through a re-design of the industrial processes with the aim of maximising the resource utilization ratio and, by doing so, reducing the production of waste, which can be very costly to dismiss. At the same time, manufacturing firms are required to improve their energy management since purchased fuels and electricity account for a significant proportion of the total production costs. In this area the access to alternative sources of energy can play an important role in influencing both the costs and the reliability of the energy supply. Another critical aspect of the manufacturing sector is the purchase of raw materials and in general the supply chain management. Problems may arise with certain critical resources that have a low substitution ratio and can be found only on a few countries. Moreover, local and international regulators sometimes ask for minimum quality standards to assure customer health and safety. In the light of these considerations, it is important for manufacturing firms to choose appropriate suppliers, even by screening with ESG criteria on top of the usual cost analysis. The health and safety issue is critical also inside of firms because employees may be exposed to numerous risks of injuries due to repeated movements, inhalation of toxic emissions, or long-time exposure to hazardous substances. By pursuing a culture of safety inside of the firm, it is possible to reduce these risks and, as a consequence, avoid the costs coming from litigation, work disruption and insurance fees. The material issues selected for the test are the following:

- For the natural capital the focus will be on energy and waste management;
- For the human capital it will be verified if the companies of the sample disclose KPIs on employee safety and wellbeing;
- For the social capital the analysis will investigate how the companies of the sample express their relationship with customers and suppliers.

The results of the materiality test are shown on table 14.

The materiality test reveals positive results in the issues related with the natural and human

capital. In fact, all the companies of the sample disclose KPIs on energy and waste management by indicating the increase/reduction of energy consumption over the years and the total amount of waste produced, with additional details on the percentage of waste recycled or diverted to landfill. The same holds for the KPIs on employee safety and wellbeing: all the companies disclose the lost time injury frequency rate and Coca-cola HBC shows also the number of fleet accident per kilometres travelled.

<b>MATERIAL ISSUES</b>	<b>Pirelli</b>	<b>Coca-cola HBC</b>	<b>Potash Corp</b>
<i>Energy management</i>	<b>X</b>	<b>X</b>	<b>X</b>
<i>Waste and hazardous materials management</i>	<b>X</b>	<b>X</b>	<b>X</b>
<i>Employee health, safety and wellbeing</i>	<b>X</b>	<b>X</b>	<b>X</b>
<i>Product quality and safety</i>	<b>X</b>		
<i>Materials sourcing</i>			
<i>Supply chain management</i>	<b>X</b>		
<b>COMPLIANCE INDEX</b>	<b>83%</b>	<b>50%</b>	<b>50%</b>

#### 14. Materiality test on the resource transformation companies

Instead, the integrated reports of the sample lack of appropriate quantitative disclosure in the issues deemed to be material for the social and relationship capital. The only exception is the integrated report of Pirelli, where it is possible to find KPIs also on product quality and safety and on supply chain management. In fact, the performance on product quality and safety is measured disclosing the number of ISO product certification obtained while the management of the supply chain is expressed by giving information on the percentage of suppliers that meet certain ESG standards and on the percentage of suppliers that comes from the local community. The other companies of the sample address the customer relation through various KPIs measuring customer satisfaction and loyalty which, however, they are not useful for assessing the intrinsic properties of the products sold. A material topic where none of the companies has disclosed any KPIs is the one on material sourcing. Here possible KPIs would have been the percentage of materials purchased from conflict-free areas or the percentage of waste material that, instead of being dismissed, it is employed on the production process for a second time.

#### *Non-renewable resources and Infrastructure*

The companies belonging to the non-renewable resources sector and to the infrastructure sector will be tested together because they share the same material issues.

The sample is made by the following companies: ENI and Gold Fields from the non-renewable resources sector, together with Entergy and The Crown Estate from the



infrastructure sector.

These industries have in common the high impact of their activities on the environment and probably are those who are facing the most difficult challenges for what concern the management of the natural capital. In the last years there has been an emergence of new global threats such as climate change, water scarcity and resource constraints that have risen the attention of international organizations and communities around the activities of extractive firms and utilities providers. Companies in these sectors have a high degree of resource intensity so they may cause a wide range of environmental and social externalities. For what concern the environmental impact, one of the biggest issue is emission of air pollutants, including green-house gas emissions and other hazardous air pollutants, that have a very negative effect on air quality. In addition, companies in these sectors make an extensive use of water in their production processes. Even if water has typically been freely available, its supply is progressively shrinking due to increasing consumption from population growth and climate change so it is important to consider this risk in the business strategy. Another environmental impact caused by industries in the non-renewable resources sector is the impact on the natural habitats and on the animal species living in it. The activities of land exploration and drilling can significantly alter the ecosystem as well as the intensive processes of urbanization.

For what concern instead the impact on social capital, it is important for companies in these sectors to retain the license to operate and the acceptance of local communities. Companies rely on permits to extract resources or to build infrastructures from public and private lands and need the support of the local authorities to engage in potentially dangerous operations. If companies fail their approach with these stakeholders, they may face activities disruption with consequent loss of value for their shareholders. This issue becomes even more complicated when companies operates in conflicts zones, without general accepted institutions and protection of the international human-rights.

Finally, the last material issue involves the human capital and in particular the policy on health and safety of employees. In these sectors there is a high risk of occupational accidents due to flash fires, explosions or equipment malfunctioning so it is important to have in place appropriate emergency procedures. Moreover, employees may suffer from chronical diseases caused by long-time exposure to chemicals and other dangerous substances.

Based on the industry profile, the SASB has selected the following material issues:

- For the natural capital, it will be checked if the companies of the sample disclose KPIs on air quality, water management and biodiversity impact;

- For the social capital, the focus will be on community relations;
- For the human capital, it will be investigated the presence of KPIs on employee safety and wellbeing.

The results of the materiality test are shown on table 15.

MATERIAL ISSUES	ENI	Crown Estate	Gold Fields	Entergy
<i>GHG emissions</i>	X	X	X	X
<i>Air quality</i>	X		X	
<i>Water management</i>	X		X	X
<i>Biodiversity impact</i>	X		X	
<i>Community relations</i>	X	X	X	X
<i>Employee safety and wellbeing</i>	X	X	X	X
<b>COMPLIANCE INDEX</b>	<b>100%</b>	<b>50%</b>	<b>100%</b>	<b>67%</b>

15. *Materiality test on the non renewable resources and infrastructure companies*

Three out of the four companies examined have reached high compliance indexes, with two companies obtaining the highest possible result because at least one KPI was found in all of the material issues considered. This probably can be explained by the fact that these companies need more than others to create a good public image in order to justify their operations and maintain social acceptance. Another reason is that they simply cannot disregard sustainability considerations in their strategy, especially when dealing with the natural capital, because there are international agreements and regulations limiting their activities.

The KPIs disclosed in these material issues are between the most commonly used in the integrated reports of the overall sample and they have been already presented in paragraph 5.2. The two issues that are more sector-specific are the biodiversity impact, which is measured by the number of environmental accidents, and the community relations, which is measured by the percentage of revenues or net profits devolved to projects in favour of the local population and/or by the percentage of employees volunteering.

*Technology and communication*

The materiality test on the technology and communication sector involve the most numerous group of companies: the companies analysed are Ricoh, Fujitsu, Panasonic, Toshiba, SAP and Vodacom. This sector is characterized by a strong impetus to innovate so the competition between the market players is fierce. Only the companies that are able to keep the pace with the continuous changes of the industry environment are able to survive over the long term.

Given the high rate of innovation of this sector, one of the most critical capital to manage is the human capital. Technological firms compete to attract the best talent and, at the same time, struggle to retain the employee knowledge when they quit. This is one of the reasons why the companies of this sector invest considerable amount of money to protect their inventions through trademarks and patents. Another critical aspect of the human capital is the employee diversity and inclusion. Researches prove that hiring people with different background and skills can actually favour innovation and produce better-decision making. Technological companies face important challenges also in the management of the natural capital, in particular for what concern energy consumption and waste production. Energy is one of the key inputs in the production processes of hardware firms and electronic manufacturers but it is extensively used also by companies providing IT services, such as storage, datacentre etc. The critical aspect here is not only to pursue cost efficiencies but also to assure the supply of the input itself in order to prevent the disruption of customer services. Even more challenging, the management of waste should be carefully considered because technological companies use materials which can be very dangerous for the human health and for the environment if not correctly dismissed.

However recently the biggest material issue for the companies in this sector is without doubt the customer data security and privacy. This issue is relevant toward all the society: institutions who are interested in the protection of top-secret information, companies who want to protect strategic information and customer data, people in general who want to be defended against the risk of sensible data stealing. Cyberattacks are almost commonplace notwithstanding the fact that technological companies are investing considerable amount of money in security systems and insurances. Giving to investors material information on this topic can enhance their understanding of the value creation over the long term.

The materiality test has investigated the following areas:

- For the natural capital, it will be verified the presence of KPIs on energy and waste management;
- For the social and relationship capital, it is investigated whether the company sample discloses KPIs on data security and customer privacy;
- For the human capital, the focus will be on employee development and retention, as well as employee diversity and inclusion;
- For the intellectual capital, the lifecycle impact of products and service.

The results of the materiality test are shown in table 16.

As it is possible to see from table 16, there is a high level of variability among the compliance indexes of the sample. Only two companies reach the maximum score while three companies disclose KPIs on 50% of the material issues or less.

The high variability is also given by the fact that the group of companies analysed is bigger.

<b>MATERIAL ISSUES</b>	<b>Ricoh</b>	<b>Fujitsu</b>	<b>Panasonic</b>	<b>Toshiba</b>	<b>SAP</b>	<b>Vodacom</b>
<i>Energy management</i>	X				X	X
<i>Waste and hazardous materials management</i>	X	X	X	X	X	X
<i>Data security and customer privacy</i>	X				X	
<i>Recruitment, development and retention</i>	X				X	X
<i>Diversity and inclusion</i>	X	X	X		X	X
<i>Lifecycle impacts of products and services</i>	X	X	X	X	X	
<b>COMPLIANCE INDEX</b>	<b>100%</b>	<b>50%</b>	<b>50%</b>	<b>33%</b>	<b>100%</b>	<b>67%</b>

16. Materiality test on the technological companies

In the same way, the material topics are not equally represented among the company sample. For waste management, employee diversity/inclusion and product lifecycle it is possible to find KPIs in almost all of the companies examined, while for the other topics the measurement of performance is less common. Surprisingly, employee recruitment, development and retention and energy management, whose metrics are between those with the highest frequency of adoption in the overall sample, here they are represented below the average. The topic with the lowest number of KPIs disclosed is data security and customer privacy. Only Ricoh and SAP provide quantitative information on this matter by disclosing the number of ISO certifications obtained on data quality and security. Other possible KPIs would have been the number of security accidents occurred during the year and the amount of settlement fee paid in legal disputes.

### *Transportation*

The next sector to be analysed is the transportation industry and the materiality test will be conducted on the integrated reports of two companies, Ferrovial and Munich Airport.

In this sector, as it was the case for the companies working with non-renewable resources, the

most important challenge is the management of the natural capital. In fact, the transportation industry is responsible for an important part of the GHG emissions causing the climate change and for the emission on the atmosphere of nitrogen oxides and other volatile organic compounds that are dangerous for the human health. These emissions come from the combustion of petroleum-based fuels, so the biggest effort for the companies belonging to this sector is trying to increase the efficiency of vehicles in order to meet the more stringent emissions standards set by the regulators. The companies that will be able to innovate on the hybrid market by introducing more sustainable sources of energy are likely to strengthen their competitive position and to increase the value created for shareholders.

For what concern the human capital, historically this sector has suffered from difficult labour relations and it is the one with the highest number of strikes and conflicts between employers and employees. The vast majority of factory workers belongs to trade unions that, especially in the past, have shown strong bargaining power. Poor labour management can affect companies' ability to negotiate with unions and can lead to expensive work stoppages, that's why it is important to anticipate, when possible, employees' requests.

The last material issue for the transportation sector relates to the social and relationship capital, in particular to accident management and customer safety. The issue is particularly critical for collective transportation, where there must always be appropriate emergency procedures and where vehicles maintenance must follow law standards. Companies who fails to accomplish these duties with the aim of cutting costs may in turn face irreparable loss of reputation when tragic events occur together with huge fines and legal settlement costs.

According to the industry profile, the material issues will be the following:

- For the natural capital, it will be investigated the presence of KPIs on air quality and fuel management;
- For the human capital, the focus will be on labour relations;
- For the social and relationship capital, it will be verified if the companies of the sample disclose KPIs on accident and safety management

The results of the materiality test are shown on table 17 below.

<b>MATERIAL ISSUES</b>	<b>Ferrovial</b>	<b>Munich Airport</b>
<i>GHG emissions</i>	<b>X</b>	<b>X</b>
<i>Air quality</i>	<b>X</b>	<b>X</b>
<i>Fuel management</i>	<b>X</b>	
<i>Labour relations</i>		<b>X</b>
<i>Accident and safety management</i>		<b>X</b>

<b>COMPLIANCE INDEX</b>	<b>60%</b>	<b>80%</b>
-------------------------	------------	------------

*17. Materiality test on the transportation companies*

All the material issues are somehow addressed by the sample of companies, with the natural capital again being the area with the highest number of performance indicator disclosed. Both of the companies disclose quantitative information on air quality and GHG emissions, confirming that this topic is of primary importance for the transportation sector. Ferrovial however reaches a lower compliance index because it doesn't show any KPIs on labour relation and accident/safety management as, on the opposite, it is done by Munich Airport. For what concern labour relations, Munich Airport provide additional information by disclosing the percentage of employees under bargaining collective agreements, a KPI which is consistent with the content of the material topic but not very indicative of the company performance. Other more effective KPIs would have been for example the number of missing working hours due to employees strikes or the number of travels delayed or cancelled for the same reason. The performance on accident and safety management, instead, can be expressed with a wide range of different KPIs because the appropriate metrics to be adopted depends strictly on the type of mean of transport: Munich Airport, for example, measure its performance with the bird strike rate, being accidents with birds one of the possible danger for air transportation.

*Consumer goods*

The consumer goods sector is all made by companies working in the business to consumer market, from apparel to food including households, furnishing and retailers. The sample is made by the following companies: Sanford, Mark & Spencer, Diageo and Masisa. Even if the products categories are very different between them, usually the biggest players in this industry are not specialized in only one market, on the contrary they hold different brands in different products category so they are likely to be exposed to the same sustainability issues. Like the other industry sectors where companies work through production plants, also in the consumer goods sector the impact on the natural capital is measured against performance on energy and water management. For what concern waste management, the peculiarity of this sector is that the bulk of the waste produced does not come from the disposal of product itself when it approaches the end of its lifecycle, but rather it comes from product packaging, which usually it is bought from third companies to store the products sold or to carry them towards their destination. Product packaging is typically obtained from non-renewable petroleum and metal raw materials so, when it is dismissed, it is diverted to landfill causing negative

environmental effects. If the companies of this sector were to change their purchasing habits by pushing for eco-friendly packaging, in turns the packaging producers would be forced to adapt to the demand and the waste diverted to landfill would diminish. In this sense, consumer goods companies have a big responsibility in supporting the change towards a more sustainable consumption system. Together with product packaging, consumer goods company buy from third companies all the other key inputs, i.e. raw materials or finished products in case of retailers, so it is important to manage effectively the overall supply chain.

Another critical relationship for the companies belonging to this sector is the relationship with customers. Of course, this relationship is critical for all of the companies independently from the industry sector, however in the consumer goods industry it assumes a different meaning because much of the value created may come from brand loyalty in place of real product quality. For this reason, companies who are able to show higher rates of customer satisfaction and retention are more likely to create value for shareholders over the long term.

The material issues analysed in the consumer goods sector are the following:

- For the natural capital the focus will be on energy and water management and on product packaging;
- For the social and relationship capital it will be investigated the presence of KPIs on supply chain management and on customer loyalty.

The results of the materiality test are reported in table 18.

The only material issue measured through KPIs by almost all of the company sample is customer loyalty, which is expressed by means of the customer satisfaction rate and of the net promoter score. Performance measurement in all the other material issues is adopted by half of the company or less. Disclosure on product packaging is made only by Diageo, who gives details about the percentage of packaging by product weight and the percentage of recycled packaging.

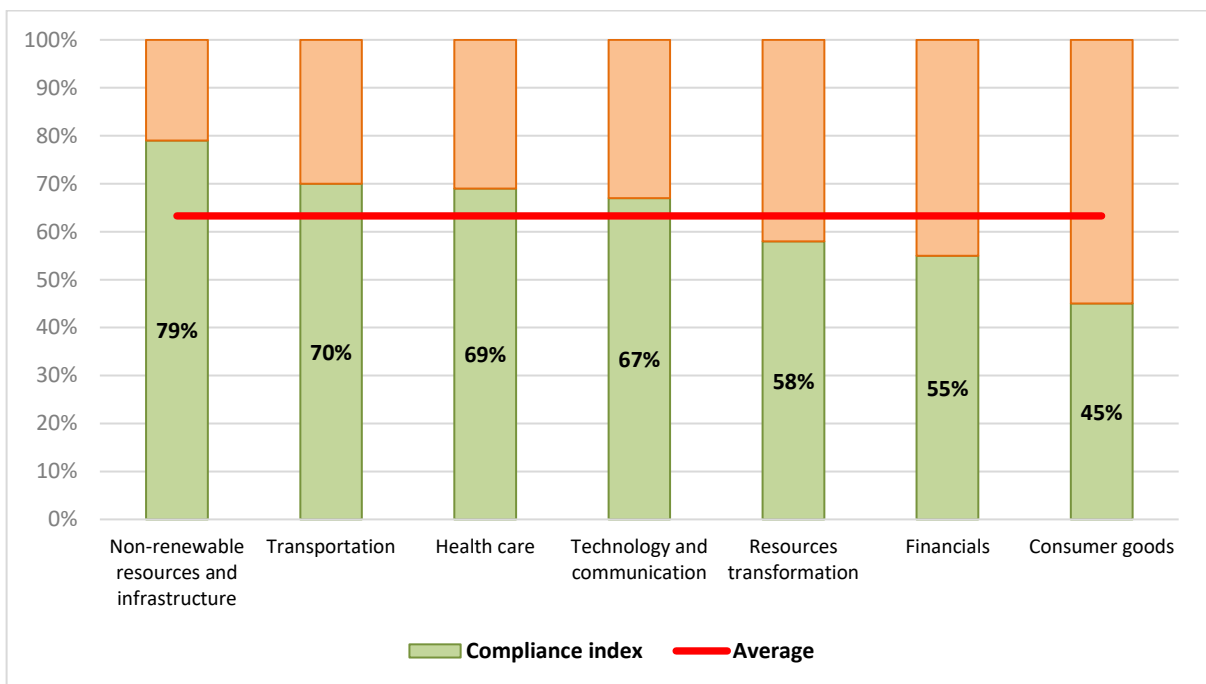
<b>MATERIAL ISSUES</b>	<b>Sanford</b>	<b>M&amp;S</b>	<b>Diageo</b>	<b>Masisa</b>
<i>Energy management</i>	X			X
<i>Water management</i>			X	X
<i>Product packaging</i>			X	
<i>Supply chain management</i>				X
<i>Customer loyalty</i>	X		X	X
<b>COMPLIANCE INDEX</b>	<b>40%</b>	<b>0%</b>	<b>60%</b>	<b>80%</b>

18. Materiality test on the consumption companies

All the other companies do not provide any quantitative indicator on this issue. Also for supply chain management there is only one company providing additional quantitative information, in this case Masisa, who discloses the percentage of suppliers screened with social and environmental criteria.

#### 5.4.2 Results of the materiality test

Now that the compliance indexes have been calculated for all the companies of the sample, it is possible to establish the average of the scores for every industry sector in order to understand if the materiality principle is respected when dealing with the use of KPIs in the integrated reports. The results of this exercise are shown in table 19.



19. Results of the materiality test shown for industry category

First of all, it is possible to notice that, on average, companies do take into consideration the materiality principle when preparing their integrated reports and this is confirmed by the presence of quantitative performance indicators on the majority of the material issues identified by the SASB.

The average performance of the sample, however, hides a mixed situation among the industry sectors with 35% score difference between the highest and the lowest result. In particular, the sectors with the higher number of material issues related to the natural and human capital reach better compliance indexes than those who face an important part of their sustainability challenges on the social and relationship capital. Independently from the industry sector



considered, there are some material issues for which the non-financial performance measurement is still very weak:

- Customer welfare;
- Product access and affordability, as well as product quality and safety;
- Data security and customer privacy;
- Fair marketing and advertising;
- Supply chain management and material sourcing.

Just a few companies show quantitative information on these issues while for all the others the information disclosed does not go beyond narratives. The result is a flattening around some arguments where all the companies test their non-financial performance, even when this additional information does not provide any insights about the future prospects of value creation. A clear example is given by the financial sector: the companies belonging to this industry regularly disclose KPIs on the GHG emissions notwithstanding the fact that they don't work through production plants so their impact on air quality is supposed to be limited. On the contrary, just few KPIs are adopted on the social capital, where the most critical issues may arise but also where there may be the best opportunities to strengthen the competitive advantage. Similar examples can be found in the other industry sectors who obtained low results on the compliance index. When this happens, the integrated report risks to lose its potential for explaining the value creation processes beyond the traditional financial information and becomes more like another type of communication tool to justify the company activities. In this sense, the prescription of more stringent rules on the materiality principle may improve the quality and the usefulness of the information provided to investors.

### 5.4.3 Connectivity test

The materiality test has proved that the measurement of performance through KPIs, if correctly implemented, is able to enhance the compliance with the principle of materiality by explaining the magnitude of the company activities on the various capitals.

The compliance with the principle of materiality is necessary, but not sufficient, to prepare an integrated report according to the IR Framework. On top of this, companies are required to take a holistic perspective in describing the interdependencies between the various factors that affect their profitability and their survival over the long term. This requirement comes from the principle of connectivity of information which is the principal pillar of the IR Framework. As it was explained in chapter 2, the principle of connectivity of information can be expressed through different dimensions across the integrated report. There is a temporal dimension of connectivity where information about the actual performance is connected with the past results and with the future targets, but connectivity can be expressed also by connecting qualitative and quantitative information with the traditional financial information contained in the financial statements. Connectivity means also showing the trade-offs between the various categories of capital as well as showing the dynamic and systemic interactions between the content elements of the report.

In this section, the analysis will deepen this aspect by studying how KPIs can be employed in the integrated report to accomplish this principle and how this information can improve investors' understanding of the value creation processes.

The analysis is always based on the KPIs collected in the integrated reports of the sample. Since the aim of this part is assessing the compliance with the principle of connectivity of information, the results of the materiality test are disregarded and the research involves the overall KPIs observed, not only the KPIs that are released on material issues. In addition, since the principle of connectivity of information is not related with the Industry Classification System, the analysis is carried out at a company level.

The research methodology will be based on a mix of descriptive statistics and qualitative examples of the best practices taken from the integrated report of the sample.

In particular, the analysis will investigate the use of KPIs across these connectivity dimensions:

- Connectivity between the past, present and future: the intrinsic formulation of a performance indicator makes it particularly suitable for assessing performance results over time;

- Connectivity between performance and strategy: knowing how the company performed on a given sustainability issue can actually improve the information provided to investors, however this information become much more useful if it is contextualized with the company general strategy;
- Connectivity between financial and non-financial information: companies can link the results achieved on certain KPIs with the effects on the P/L or on the balance sheet elements;
- Connectivity between the various form of capitals: the various categories of capital are only theoretical and exist to ensure that organizations do not overlook any type of capital in describing how value is created. The IR Framework points out at paragraph 2.17 that these categories don't have to be seen separately, on the contrary it is important to reflect on the multiple trade-off implied in their natural conflicts.

The analysis is made always by using a score system that ends up with an indicative measure of compliance with the principle of connectivity of information for every company of the sample. According to my opinion, the principle of connectivity can be conceived in additive terms, in the sense that as many of these dimensions are explored in the integrated report, as much the disclosure becomes effective in the eyes of investors. For this reason, the score is formulated around the four connectivity dimensions and can assume a value from 1 to 4, being 4 the maximum result, which can be achieved if all of these dimensions are developed, and 0 the minimum results, if KPIs are shown in a stand-alone way without any connection with the other elements of the integrated report. To make the maximum score equal to 4, the points will be assigned in the following way:

- I assume that the four connectivity dimensions are equally important to judge whether information is well connected or not inside the integrated report. This means that an equal weight of  $\frac{1}{4}$  is given to all connectivity dimensions.
- Every connectivity dimension is judged separately. If at least one KPI is found to be connected through a given connectivity dimension, then the integrated report will receive one point. If none of the KPIs of the integrated report are connected through a given connectivity dimension, then the integrated report will receive zero point.
- The total score is given by the sum of points that the company receive for every connectivity dimension. Since the points assigned can be either one or zero, every connectivity dimension can receive at maximum one point and, consequently, the maximum potential score is four.

This score system is quite simplistic however adding more sophistication to the analysis is not likely to change dramatically the results of this test.

#### 5.4.4 Results of the connectivity test

The research methodology explained before has been applied to all the company of the sample and it has delivered the results shown on the table 20.

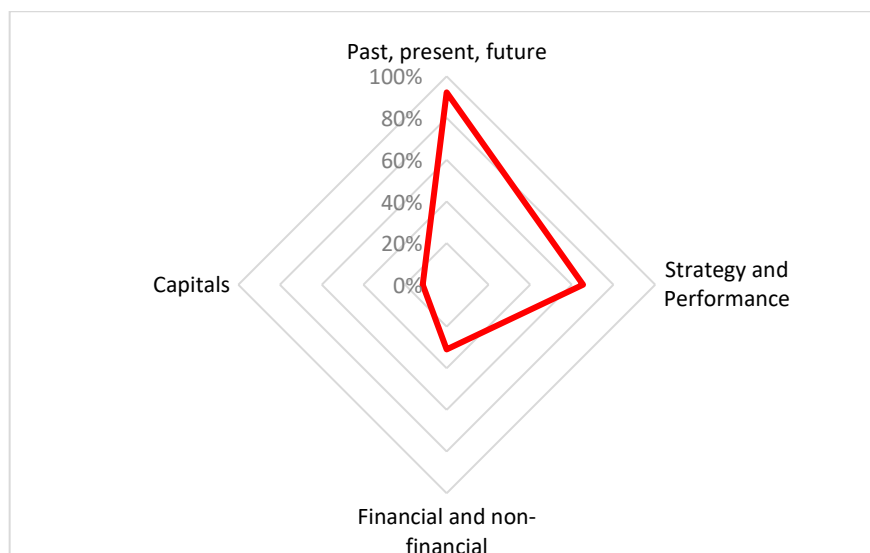
	Past, present, future	Strategy and Performance	Financial and non-financial information	Capitals	COMPLIANCE SCORE
<i>Unicredit</i>	1	1	0	1	<b>3</b>
<i>Coca-Cola HBC</i>	1	1	1	0	<b>3</b>
<i>AXA</i>	0	1	0	0	<b>1</b>
<i>Astra Zaneca</i>	1	1	0	0	<b>2</b>
<i>Diageo</i>	1	1	0	0	<b>2</b>
<i>Ferrovial</i>	1	0	0	0	<b>1</b>
<i>Itaù Unibanco</i>	1	1	1	0	<b>3</b>
<i>Fujitsu</i>	1	0	1	0	<b>2</b>
<i>M&amp;S</i>	0	1	0	0	<b>1</b>
<i>Masisa</i>	1	0	0	0	<b>1</b>
<i>Munich Airport</i>	1	1	0	1	<b>3</b>
<i>NAB</i>	1	0	0	0	<b>1</b>
<i>Panasonic</i>	1	0	0	0	<b>1</b>
<i>Potash Corp</i>	1	1	0	0	<b>2</b>
<i>Sanford</i>	1	1	0	0	<b>2</b>
<i>SAP</i>	1	1	1	1	<b>4</b>
<i>Novo Nordisk</i>	1	1	1	0	<b>3</b>
<i>Pirelli</i>	1	1	1	0	<b>3</b>
<i>Gold Fields</i>	1	0	1	0	<b>2</b>
<i>Vodacom</i>	1	1	0	0	<b>2</b>
<i>Entergy</i>	1	0	0	0	<b>1</b>
<i>Toshiba</i>	1	0	0	0	<b>1</b>
<i>ENI</i>	1	1	1	0	<b>3</b>
<i>The Crown Estate</i>	1	1	0	0	<b>2</b>
<i>Ricoh</i>	1	1	0	0	<b>2</b>
<b>TOTAL (%)</b>	<b>88%</b>	<b>65%</b>	<b>31%</b>	<b>12%</b>	

20. Connectivity test

The average score obtained by the sample is 2/4, which is the score given to around 50% of the company analysed. The remaining 50% is distributed almost equally among the 1/3 and 3/4 scores, with only one company reaching the maximum result (SAP). It is also possible to notice that, even by grouping the companies belonging to the same industry category, none of the sector stands out in terms of score obtained and this confirm that there is no reason to

analyse this guiding principle at an industry based level.

Another important consideration is that all the connectivity dimensions mentioned in the IR Framework were observed in the integrated reports of the sample, meaning that KPIs can be effectively employed to integrate the different types of information disclosed by companies. However, as it is possible to see from the graph below, not all the connectivity dimensions are equally explored by firms.



21. Results of the connectivity test

The vast majority KPIs are represented by showing their results over a 3 to 5 years-time period, allowing for connectivity between the past achievements of the company and the actual performance. On top of this, a good percentage of the sample, around 65%, clearly formulates the KPIs around the company strategy and compare the results obtained with the target KPIs defined by the company management. For what concern instead the other two connectivity dimensions, examples of best reporting practices do exist however they are much less common on the integrated reports of the sample. Around 30% of the companies estimate the effects of changes in their KPIs on the financial statements, and just 12% of the sample tries to explain the combined effects of changes in KPIs belonging to different sets of capital. This is not surprising at least for two reasons:

- The integration of quantitative information with financial information may not be that straightforward, on the contrary it requires appropriate valuation methodologies whose reliability highly depends on the underlying assumptions;
- The interdependences between the various sets of capitals and the possible cause-consequence effects of the company actions are so numerous and complex that it is very difficult to measure and represent them in a simple and understandable way.

In the next paragraphs, some real examples of the best reporting practices will be shown for all the connectivity dimensions found in the integrated reports of the sample.

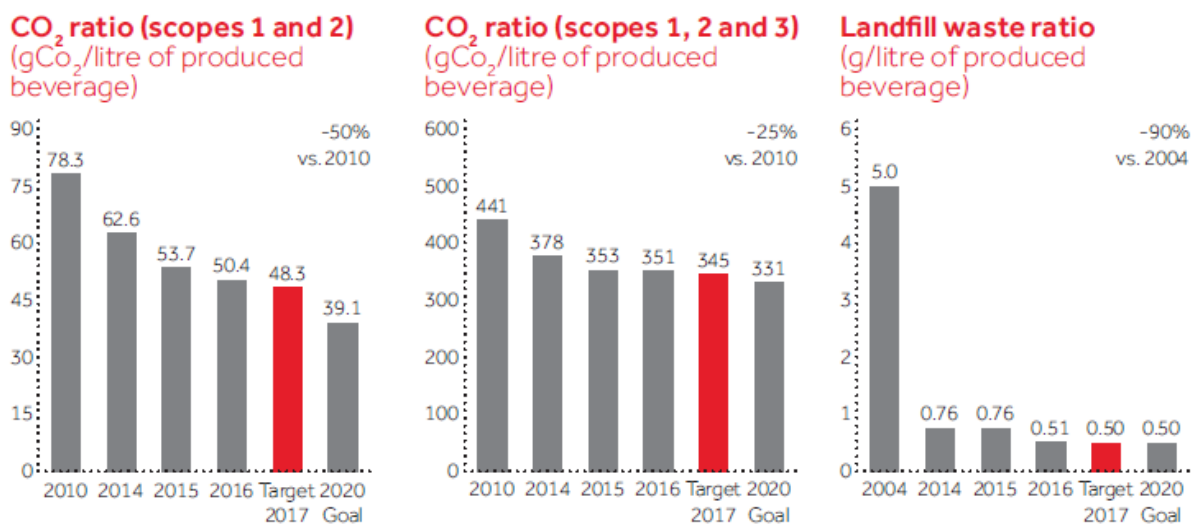
*Past, present and future*

The time dimension of connectivity is the most represented inside the integrated report of the sample, in fact 88% of the companies disclose their KPIs by comparing the results achieved on the current year with the past results and with the targets set for the future.

Without doubt, this connectivity dimension is really important for investors because it allows to evaluate the company performance over time. Also the traditional accounting principles require to disclose at least two years in the financial statements (the current and the previous), so the same thing should be reasonably done for the sustainability information.

The main difference with the financial accounting rules is that the information contained in the integrated report should be future oriented and this should be reflected also on the disclosure of KPIs.

The picture below shows an example of this connectivity dimension taken from the integrated report of Coca-Cola HBC.



22. KPIs on natural capital – Coca Cola HBC integrated report

As it is possible to see from the graphs above, Coca-Cola HBC show the results over a 10 years-time period (2010-2020) and the actual performance (2016) is compared with the past years, with the target for the next year and with the long-term period target set for 2020.

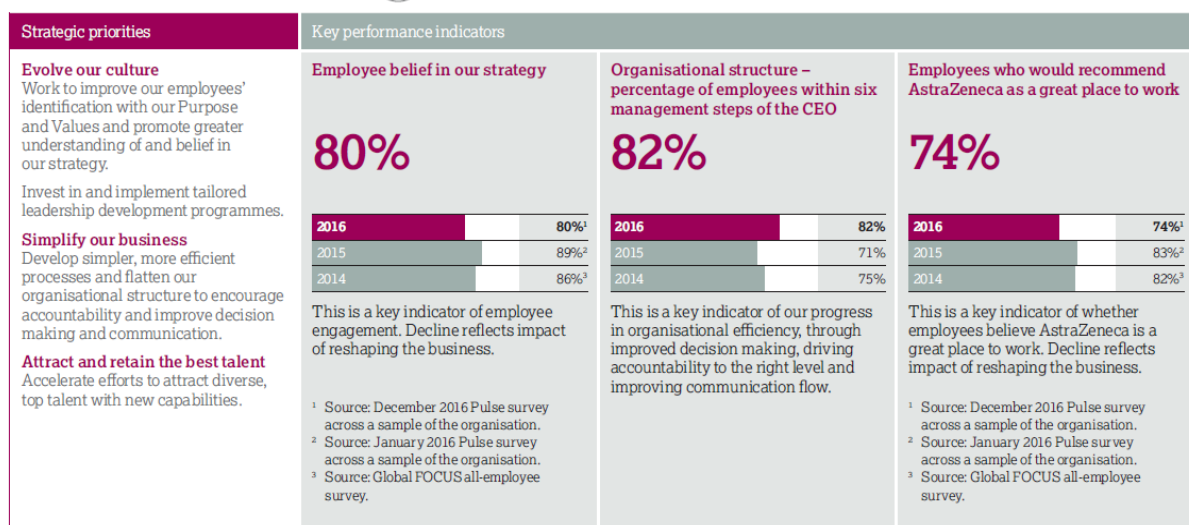
*Strategy and performance*

As explained in chapter 2, strategy and performance are two of the content elements where companies are required to make additional disclosure with respect to the traditional financial

statement. From the analysis of the integrated reports of the sample, it has been found that KPIs are frequently employed by companies to integrate information related to these content elements thanks to their twofold function: from one side, they are established by the company management to define the targets of the company strategy, from the other side they are constantly monitored over time to understand if the company is reaching its objectives and thus to measure performance.

An example of the interconnection between strategy and performance is taken from the integrated report of Astra Zeneca.

## Be a great place to work



23. KPIs on human capital – Astra Zeneca integrated report

In this representation Astra Zeneca sets out its strategic priorities for what concern the management of the human capital and, at the same time, shows how the company performed on the related KPIs making comparison with the results achieved in the past three years. The information provided to investors can further improve when the company states clearly what are the long-term objectives who wants to reach and shows how it is progressively approaching to the targeted KPIs. An example of this slightly different formulation of the connection between strategy and performance can be found on the integrated report of Sanford, as shown on the extract below.

Outcome 6 Protecting and enhancing environments				
<b>Environmental effects</b>	Minimise our impact on the environment when carrying out our business operation, avoid pollution or contamination of land, air and water and enhance the environment in which we operate through sound mitigation and management.	Maintain ISO14001 Environmental Management System certification across our operations. (S)	✓	<ul style="list-style-type: none"> <li>Maintained certification to ISO14001:2004.</li> </ul>
<b>Resource utilisation and efficiency</b>	Do 'more with less' by maximising efficient use of resources, including optimising the utilisation of all fish and mussels harvested and ensuring waste minimisation, re-use and recycling.	Increase waste diversion rate by 30%, from landfill to recycling. (S)	→	<ul style="list-style-type: none"> <li>Achieved 25% diversion rate for waste streams across Sanford operations.</li> <li>Through innovation, focus on increasing utilisation and/or value created from all fish and mussels harvested.</li> <li>100% recycling of mussel floats in Marlborough, with Sanford providing a recycling hub for all operators.</li> </ul>
		Achieve a 5% improvement in electricity eco-efficiency. (S)	→	<ul style="list-style-type: none"> <li>Achieved average 4% improvement in eco-efficiency across all operations, with a range of targeted ongoing initiatives implemented, from processing plants to offices and vessel operations.</li> </ul>
<b>Carbon reduction and offsetting</b>	Demonstrate our commitment to climate change response by actively reducing our energy consumption and emissions of greenhouse gases (GHG), and seeking to introduce low carbon solutions into our value chain where practicable.	Capture 100% of core energy intensity data. (S)	✓	<ul style="list-style-type: none"> <li>Significant improvements to data capture and reporting, with further streamlining planned for 2017.</li> <li>Low carbon roadmap initiated, providing basis for defining future plans to reduce GHG and carbon emissions going forward.</li> </ul>

✓ Achieved    → In Progress    ✗ Not Achieved

#### 24. KPIs on natural capital – Sanford integrated report

In this case, Sanford always explain what is the company strategy with respect to the natural capital, however, instead of showing the past results as it is done by Astra Zeneca, the company makes a comparison of the current achievements with the targeted KPIs set for the future. This second way to express the connectivity between strategy and performance is probably more in line with the IR Framework because it gives a better insight about the future prospects of value creation.

#### *Financial and non-financial information*

The connectivity between financial and non-financial information is one of the most important form of connectivity because it really allows to integrate the sustainability dimension into the traditional financial statement. Of course, it is impossible to fully convert in monetary terms the effects of the companies' activities on the various capital, however it is possible to isolate some of them in order to estimate how they are going to impact the company's wealth.

The analysis of the integrated reports of the sample has revealed what are the financial statements' line items involved in these estimations:

- Costs reduction due to the implementation of environmental policies on energy and waste efficiencies;



- Operating profits increase due to improved management of internal and external resources;
- Amount of investments necessary to realize a target objective on a given capital.

The example shown in table 25 is taken from the integrated report of Itaù Unibanco and it refers to the company plan for the reduction of water consumption. The KPIs that measure the performance against this target are the ratio of water consumption over the consumption of the previous year and the percentage of replenished water. In this case, the performance is measured not only by means of KPIs, but also by estimating the savings that are expected in the company P/L.

Initiative	Description	Consumption reduction (m <sup>3</sup> /year)	Savings (R\$/year)
Consumption reduction	Installation of flow reducers in the showers of the changing rooms.		
	Installation of double flush toilet valves, aiming at reducing consumption per use.	7,816.00	150,526.00
Collection and use of reused water	Use of reused water in the cooling towers of the Eudoro Villela building, the waterfalls of the Business Center and toilets.	9,458.00	181,292.00
	Facade cleaning: Reduction in the cleaning frequency, from four to two cleanings per year. It is worth mentioning that the water used for cleaning is reused water.	NM	NM
Shutdown of the data centers in the CAS (Campinas Alternate Center) and CAR (Raposos Administrative Center) buildings	With the construction of the new Mogi Mirim Data Center (CTMM), we could optimize our IT infrastructure and shut down the CAS and CAR data centers. This project was completed in 2016 and eliminated the consumption of water in these buildings.	51,601.00	1,936,264.54

25. KPIs on natural capital – Itaù Unibanco integrated report

The sample investigation has revealed that the natural capital is the only one for which companies are able to estimate the monetized effects of certain KPIs and no other example of saving estimation has been found for the other categories of capital. In addition, none of the companies of the sample has tried to estimate the effects of changes in KPIs on the company revenues. This probably can be explained by the fact that revenues increases are more difficult to measure reliably than cost savings because they depend on numerous factors outside of the company's control.

A quite different approach is adopted by SAP, who estimates how changes of the company KPIs may impact the company operating profits. An example of this estimation is shown in table 26 for the KPIs belonging to the natural and human capital.

Non-Financial Indicator	Increase in Operating Profit (€ million, non-IFRS)
Business Health Culture Index	80 to 90 (for a change by 1 pp)
Employee engagement	45 to 55 (for a change by 1 pp)
Retention	50 to 60 (for a change by 1 pp)
Carbon emissions	5 (for a reduction by 1%)

*26. Financial effects of changes in KPIs – SAP integrated report*

The results are achieved through a linear regression model that predict how the operating profits would change based on the historical trend of the company KPIs. This kind of valuation methodology suffers from being approximate and simplistic, however it is useful to represent the monetary effects of the company activities on the various capital without necessarily assign them to a specific line item of the P/L. For example, if we consider the KPIs adopted by SAP on the human capital, it could be difficult to establish the precise measure of the monetary effects that comes from increased revenues or comes from reduced costs. Higher employee engagement could be traduced with higher work productivity, and so tlower personnel expenses, but also with higher revenues due to an improved service to the company’s customers. In this sense, this kind of representation becomes useful when the monetary effects of certain KPIs are multiples.

*Connectivity between capitals*

The dimension of connectivity between capitals is the least disclosed by companies and only few examples were observed on the integrated reports of the sample.

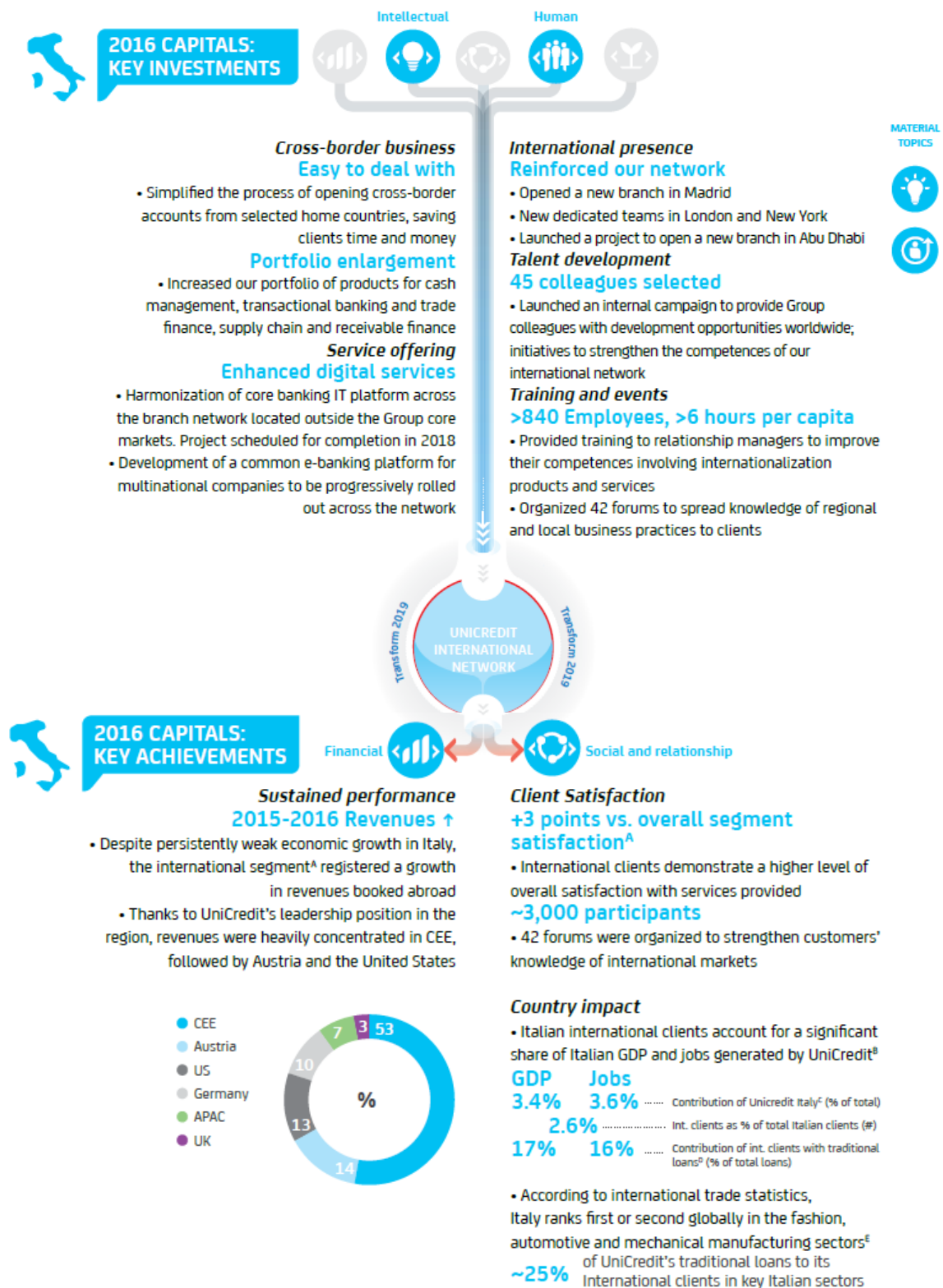
Usually the effects of the company operations on the various capital are analysed one-by-one, following the common economic practice to consider just one factor “all else being equal”.

The analysis of the sample reveals that connectivity between capitals is expressed in the following ways:

- by considering the cause-consequences effects of changes in KPIs belonging to different categories of capitals;
- by considering the combined effects of the company KPIs on the ability to increase the value created.

By the way, the connectivity between capitals has been observed to be always expressed through narratives rather than through monetized metrics.

An example of this form of connectivity is taken from the integrated report of Unicredit.



27. KPIs on human and intellectual capital – Unicredit integrated report

The above diagram represents the contribution of the different sets of capitals to the overall value creation process. Although being visually effective, it doesn't really provide additional insights on how the capitals interact between them and, despite the company's attempt to build a connectivity case study, it seems more a good way to summarize information. Another example comes from the integrated report of SAP, and it is shown in the picture below.

### Employee Retention

Employee retention is the ratio of the average headcount (expressed in full-time equivalents), minus employee-initiated terminations (turnover), divided by the average headcount, taking into account the past 12 months.

#### Capability Building > Employee Retention

According to the Global Workforce Study (2012) the "chances to advance the career" is the second-most important driver of employee retention.<sup>7</sup> By promoting and thus growing from within, SAP creates career opportunities for our employees. In turn, it is our expectation that this opportunity leads to an increase in employee retention.

#### Employee Engagement > Employee Retention

Since 2014, we have been using real data from SAP to analyze and prove the financial impact of employee engagement. We have been able to prove a significant positive correlation between employee engagement and employee retention.

#### Employee Retention > Growth

Meifert (2005) stated a clear relationship between employee retention and a company's revenue and margin.<sup>8</sup>

#### Employee Retention > Customer Loyalty

Koys (2001) has found evidence that employee turnover has a negative impact on customer satisfaction.<sup>9</sup> We believe this effect stems from the fact that experienced employees work more efficiently, have better product knowledge, and can build trusting relationships with colleagues and customers, so therefore have the ability to better serve customers' needs.

#### Employee Retention > Profitability

We have been using real data from SAP to analyze and prove the financial impact of employee retention. Now we can show what a change by one percentage point of employee retention would mean for SAP's operating profit, as detailed in the *Documenting Financial Impact* section.

### 28. KPIs on human and social capital – SAP integrated report

In this case, the company analyses the cause-consequences effects of KPIs belonging to the human and social capital on the company profitability. In particular, SAP assume that high rates of employee retention are able to increase the value created by boosting revenue growth thanks to its positive impact on customer loyalty. With respect to the representation provided by Unicredit, this scheme is more useful to understand how capitals are connected between them, however it still lacks of quantitative data in support of the assumptions disclosed.

In general, what it seems to be missing from the integrated reports of the sample is a structured analysis of the trade-offs between capitals. In fact, the examples observed always show the positive effects of the interdependences between capitals and never deepen the pros and cons of investing more in one capital than another.

Possible instruments that would support this type of disclosure are the sensitivity analysis and the scenario analysis. These instruments would be particularly suitable as integrated reporting tools because they allow to mitigate the uncertainty implied in future oriented information by showing how the results could change with a change of the underlying assumptions.

## 5.5 Materiality vs. connectivity

The results of the materiality and of the connectivity test should be considered separately because, as explained in paragraph 5.4.3, the compliance to the connectivity principle has been calculated considering the whole population of KPIs observed, not only the KPIs disclosed on material matters. Due to this approach, there are examples of companies who have performed well on the materiality test but who have obtained low results on the connectivity test and vice versa. Table 29 summarizes the results of the tests on the guiding principles obtained by the sample of companies.

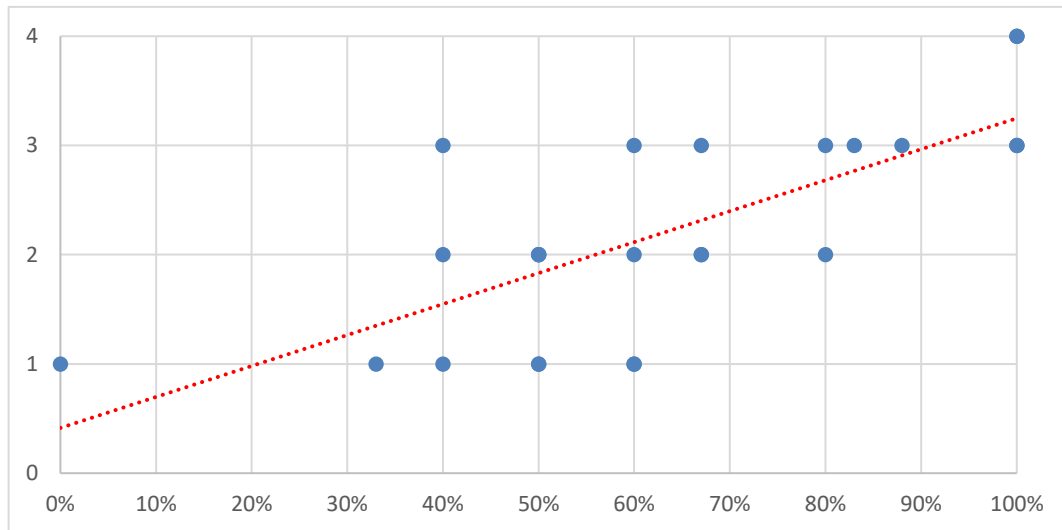
Companies	Materiality test	Connectivity test
<i>Unicredit</i>	60%	3
<i>Coca-Cola HBC</i>	67%	3
<i>AXA</i>	40%	1
<i>Astra Zeneca</i>	50%	2
<i>Diageo</i>	60%	2
<i>Ferrovial</i>	60%	1
<i>Itaù Unibanco</i>	40%	3
<i>Fujitsu</i>	50%	1
<i>M&amp;S</i>	0%	1
<i>Masisa</i>	80%	2
<i>Munich Airport</i>	80%	3
<i>NAB</i>	60%	1
<i>Panasonic</i>	50%	1
<i>Potash Corp</i>	50%	2
<i>Sanford</i>	40%	2
<i>SAP</i>	100%	4
<i>Novo Nordisk</i>	88%	3
<i>Pirelli</i>	83%	3
<i>Gold Fields</i>	100%	4
<i>Vodacom</i>	67%	2
<i>Entergy</i>	67%	2
<i>Toshiba</i>	33%	1
<i>ENI</i>	100%	3
<i>The Crown Estate</i>	50%	2
<i>Ricoh</i>	100%	3
<b>AVG.</b>	<b>63%</b>	<b>2,20</b>

29. Results of the materiality and of the connectivity test

Even if the tests have been run independently, it is interesting to observe if there is a relation between the two sets of results or if good and bad results show randomly. In order to assess this hypothesis, a correlation index has been calculated between the two sets of variables according to the formula below:

$$\text{Correlation (X,Y)} = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

where X and Y stands respectively for the results of the materiality test and the results of the connectivity test. The correlation index assumes a value of 0,73 so the variables are positively correlated. This is shown on graph 30, where it is possible to see that higher scores on the materiality test are usually followed by equally higher score on the connectivity test, even if some isolated exception exists.



30. Correlation between the materiality and the connectivity index

Another interesting question is trying to understand if the results of the tests are somehow related to some characteristics of the company sample, i.e. if there are some companies' features that allow to predict whether an integrated report is likely to be good or not.

Possible characteristics that could identify good integrated reporters are the following:

- Dimension: bigger operations implies a greater exposure to the public opinion in case of bad management of the companies' resources because the impact on the external environment is higher. As a consequence, those companies have a bigger communication issue towards the market and they are willing to invest more in order to improve it.
- Future expectations: the management of undervalued companies may want to improve the investors' perception of the companies' strategies, so they may be interested in increasing the effectiveness of the company communication tools;
- ESG performance: companies who are actual good ESG performers are likely to be also those who prepare the best integrated reports.

Those characteristics can be represented by the following variables:

- Revenues: the dimension of the companies' operation can be approximated by the annual turnover;
- P/E ratio: companies with a P/E ratio above the industry average are more likely to be overvalued and vice versa;
- ESG sustainability performance index: there are several financial companies who compute sustainability indexes to measure a company's commitment to its non-financial strategy. Among the possible choices, this part of the analysis will be based on the Sustainalytics index on ESG performance because it is constructed around the same categories of capital adopted by the IR Framework. The ESG Sustainalytics index assign to every company a score between 0 and 100 where 0 stands for bad ESG performance and 100 stands for optimal management of the sustainability issues.

The next step involves the calculation of the correlation between the aforementioned variables and the compliance indexes obtained from the materiality and from the connectivity test using the same formula shown on the previous page. The companies' revenues are taken from the integrated reports of the sample and refers to the year 2016. For what concern instead the P/E ratio and the Sustainalytics ESG indexes, those data are not disclosed on the integrated reports of the sample, so they have been collected from the website <https://it.finance.yahoo.com> where they are freely available. Also in this case the period of time taken as a reference is year-end 2016, in order to assure consistency between the overall set of data analysed.

Unfortunately, the P/E ratios and the Sustainalytics ESG indexes are not available for the full list of companies included in the sample and this constrains the current part of the analysis to a sub-set of the sample with 20 out of 25 companies.

Table 31 and 32 shows respectively the values of the financial variables involved and the results of the correlation among them.

	<b>Revenues (\$B)</b>	<b>P/E ratio</b>	<b>ESG index</b>	<b>Materiality test</b>	<b>Connectivity test</b>
<i>Unicredit</i>	29	5,64	73	60%	3
<i>Coca-Cola HBC</i>	7,4	23,43	71	67%	3
<i>AXA</i>	149,9	10,02	89	40%	1
<i>Astra Zeneca</i>	22,4	31,67	70	50%	2
<i>Diageo</i>	15,7	21,3	71	60%	2
<i>Ferrovial</i>	13,8	59,56	73	60%	1
<i>Itaù Unibanco</i>	62,3	10,5	75	40%	3
<i>Fujitsu</i>	37	12,58	76	50%	1



<i>M&amp;S</i>	13,6	19,22	80	0%	1
<i>NAB</i>	25,6	243,87	81	60%	1
<i>Panasonic</i>	72	12,45	65	50%	1
<i>SAP</i>	27,4	28,89	77	100%	4
<i>Novo-Nordisk</i>	17,3	19,03	83	88%	3
<i>Pirelli</i>	4,6	20,5	67	83%	3
<i>Vodacom</i>	3,74	12,49	71	67%	2
<i>Entergy</i>	11,1	31,26	66	67%	2
<i>Toshiba</i>	38,7	20,48	76	33%	1
<i>ENI</i>	75,5	16,39	82	100%	3
<i>Ricoh</i>	18,6	13,68	69	100%	3

31. Revenues, P/E ratios and ESG Sustainability index for the sub-set of the sample

	<b>Materiality test</b>	<b>Connectivity test</b>
<i>Revenues</i>	-0,19	-0,24
<i>P/E Ratios</i>	0,00	-0,29
<i>ESG index</i>	-0,13	-0,13

32. Correlation between the sets of financial variables and the results of the tests

As it is possible to see from table 32, all the correlation indexes are close to 0 or show just slightly negative values so we can conclude that there is no correlation between the results of the tests and the variables considered. Apparently, the company dimension or its performance on the capital market are completely unrelated with the quality of the integrated reports disclosed and the same holds for the company ESG index.

The overall results show a mixed situation, with a group of leading companies realizing high quality integrated reports and another group of companies who obtained low scores on both the connectivity and the materiality test. Since the correlation with the company characteristics supposed before is not verified, it is possible that there are other factors explaining this quality gap between the reports. For example, it is possible that low performers have adopted the Framework more recently, so they are still developing the internal capabilities to produce effective reports. Another explanation is that the new adopters are taking a passive approach to the IR Framework by simply replicating the metrics and the reporting tools disclosed on the existing integrated reports. This approach does not work with the IR Framework because the content of the report is not fixed as it is the case with the traditional annual report, but it changes depending on the material matters who affect the company ability to create value. Companies who are able to adapt the requirement of the report to their own challenges are those who are likely to produce better integrated reports.



## 5.6 Research limitations

The present paragraph is deemed to discuss the principal limitations of the research methodology employed in the present dissertation.

The first limitation comes from the fact that the materiality and the connectivity tests are both based on compliance indexes, whose calculation is subjective because it depends on the formulation of the index itself. For example, on the materiality test high scores have been assigned to the companies who disclosed KPIs on the materiality matters established from the SASB Framework. By doing so, the index clearly depends on the following assumptions:

- the SASB definition of the material matters for each industry category;
- how the companies are classified among the Sustainable Industry Classification System;
- how KPIs are categorized among the different sets of capital.

If the compliance index were not based on the SASB Framework, probably the results of the materiality test would have been slightly different. In the same way the connectivity test is based on the connectivity dimensions listed in paragraph 5.4.3 but a different criterion to judge the connectivity of information could have delivered different results.

Another limitation is given by the way in which the points are assigned to calculate the compliance indexes. For each material issue as well as for each connectivity dimension, the possible scores are either one or zero, meaning that the test is just assessing the presence of a certain information or not. This implies that the test is not considering the intrinsic quality of the information disclosed and, as a consequence, that high compliance indexes do not automatically mean good integrated reports with valid and useful additional information for investors. For example, in the materiality test a company receive one point every time at least one KPI is disclosed for a given material issue. In this situation it doesn't matter whether the company discloses just one performance indicator or ten different performance indicators for a given matter, since the score obtained will always be one. However, in the reality, there is a big difference between these two companies because the one who disclosed a higher number of KPIs is actually giving more information to investors. Unfortunately, the present research methodology is not able to bring out those differences.

Lastly, the materiality and the connectivity test don't go into the substance of the KPIs observed. A KPI is recognized as such, if it has the formal characteristics listed at paragraph 4.53 of the IR Framework (see chapter 4), notwithstanding the fact that, in practice, it is calculated by companies in reliable and transparent way.

Besides of the limitations caused by the research methodology, another critical aspect comes from the sample dimension, which includes just 25 companies, i.e. 5% of the reports officially recognized as “integrated” by the IIRC. Unfortunately, the analysis has revealed that the reports are not enough standardized, on the contrary it has been observed a high variability in the data collected. The high variability suggests that, probably, among the 95% of the company excluded from the analysis, there are other KPIs and other examples of best practices which were not included in the present work. This reduces the representativeness of the sample with respect of the total population.

The research limitations should be considered in the light of the research purposes. Since the scope is to analyse how, generally, companies use KPIs inside their integrated reports, it is necessary to adopt some type of categorization to trace back the reporting practices into a standard scheme. In this sense, the adoption of the SASB Framework to judge materiality it is very effective because it allows to shift from a company-based perspective, which is by definition subjective, to an industry-based perspective, where data can be aggregated to highlight trends. In addition, the formulation of the SASB Framework, as opposed to the IR Framework, it is very analytical in defining the categories of capitals and the KPIs belonging to them, to the point where there is little room for interpretation.

The connectivity test does not rely on other external support but it is completely based on the IR Framework definition of connectivity of information. For this reason, it may be more exposed to the interpretation of the guiding principle itself.

A good way to improve the research methodology includes the following adjustments:

- extend the number of companies included in the research sample;
- extend the time-period of the analysis to include more years of integrated reports’ publication to see if there is a development in the best disclosure practices;
- extend the compliance test to the other guiding principles of the IR Framework not considered in the present analysis.

In general, it hasn’t been found enough literature on the measurement of performance in the integrated report, nor on the disclosure of KPIs, that’s way this argument deserves to be further analysed in the future.

## Conclusions

The integrated reporting movement started to spread quite recently, so it is clear that companies are still moving their first steps in the preparation of this type of disclosure. The principle-based approach of the IR Framework does not help the development of consolidated and generally adopted reporting practices, on the contrary it leaves too much freedom in a field which is already subject to extensive interpretation. In particular, the absence of specific rules on non-financial performance measurement does not give to the IR Framework a stronger role among the other sustainability standards, like the GRI standards, which are more widely adopted.

The present work focused on this aspect by analysing the role of KPIs in the integrated report of 25 companies officially recognized by the IIRC as integrated reporters. Apparently KPIs are the only quantitative instruments mentioned explicitly in the IR Framework to measure non-financial performance, that's why they have been taken as reference for the analysis. The first step of the research was trying to understand if companies actually disclose KPIs in their integrated reports and what are the capitals that are mostly represented by them. The results revealed that companies make quite an extensive use of KPIs in their integrated reports and that non-financial performance is measured against all forms of capitals, even if with some differences among the various categories. In fact, KPIs have been found to be especially suitable for measuring performance on the natural and on the human capital, where a lot of different metrics were observed with a good level of standardization between companies. Also the social capital is well represented, even if there is a higher variability among the KPIs disclosed by the sample. The only exception is the intellectual capital, where the disclosure of KPIs is made almost exclusively by companies belonging to high innovative sectors, as pharmaceuticals and ITC companies.

The second step of the research was trying to understand if this type of information could be potentially valuable for investors, who are the principal beneficiaries of this type of disclosure. According to the guiding principles of the IR Framework, the information is valuable if it is material, i.e. if it is related to matters which are able to substantially affect the company's value creation processes. In addition, since the distinctive characteristic of the IR Framework is the attempt to integrate financial and non-financial information, another feature that makes information valuable for investors is its degree of connection with the other elements of the report, in order to realize a holistic picture of how value is created.

Taken into consideration the guiding principles of the IR Framework, the research has investigated the integrated reports of the sample to find out if the KPIs are disclosed in

compliance with these fundamental principles.

The results of this analysis are multiples. First of all, it has been observed that the materiality principle is only partially respected: the research has revealed a flattening around some arguments where all the companies test their non-financial performance, even when this additional information does not provide any insights about the future prospects of value creation. Secondly, it has been observed that companies struggle to comply with the principle of connectivity of information. If the time dimension and the connectivity between strategy and performance are represented through well consolidated practices, it is also true that connectivity between financial and non-financial information and connectivity between capitals are shown just in a few reports.

In general, the results show a mixed situation, with a minority of reports which are very effective in explaining the value creation processes beyond simple narratives and with other reports that seems more a communication tool to justify the company activities.

Given this gap between the quality of the reports observed, the last step was trying to understand if there are some company characteristics that are related with the disclosure of the best reporting practices, for example the company dimension, its performance on the capital market and on the sustainability issues related to the social, natural and human capital.

Unfortunately, the analysis has not revealed any correlation between the quality of the reports and those variables, so the hypothesis has been rejected. It is possible that the best integrated reporters are simply the companies who have joined the IR Framework since its beginnings and so they have developed more experience in the preparation of the report.

At the present state of art, it cannot be denied that the IR movements hasn't completely succeeded in its attempt to increase the quality of the non-financial information provided to investors.

Improvements should come from the IIRC in first place. Since the publication of the original release in 2013, the formulation of the IR Framework has never been adjusted to accomplish the practice of its adopters. The IR Framework itself is only theoretical and it has never provided practical tools for its implementation, on the contrary the whole burden of creating the reporting practices has been placed in the shoulders of the first adopters who took part to the Pilot Program. The Integrated Reports Database is a good tool for providing advice, however it is not sufficient for improving the areas where the reporting practices are still weak. Possible improvements to the IR Framework may come in the following way:

- increasing the number of provisions to be respected in order to define a report as integrated;

- creating a special section of the IR Framework with specific rules dedicated to the measurement of non-financial performance;
- creating practical tools for realizing the connectivity between the various components of the integrated report.

Until the IR Framework won't evolve, it is unlikely that the quality of the integrated reports increases and, as a consequence, the quality of non-financial information provided to investors.

## Bibliography

Alberto Incollingo, 2014. *Le prime esperienze di bilancio integrato* – G. Giappichelli Editore, Torino

Aleksandra Dobkowski-Joy and BerthBrockland, 2013. *Innovation and experimentation in the merging of ESG and financial disclosure* – Framework-llc.com

Alessandro Lai, Gaia Melloni e Riccardo Stacchezzini, 2016. *Corporate Sustainable Development: is integrated reporting a legitimization strategy?* – Business Strategy and the Environment 25 (pp. 165-177)

Alex Haller, Chris van Staden, 2014. *The value added statement: an appropriate instrument for integrated reporting* – Accounting, Auditing & Accountability Journal Vol 27 Iss. 7 (pp. 1190-1216)

Astra Zeneca Annual Report 2016: <https://www.astrazeneca.com/investor-relations/annual-reports/annual-report-2016.html>

AXA Integrated Report 2016: <https://group.axa.com/en/newsroom/publications/integrated-report-2016>

Carol Adams, Brad Potter, Prakash J. Singh, Jordi York, 2016. *Exploring the implications of integrated reporting for social investment* – The British Accounting Review 48 (pp. 283-296)

Charl de Villers, Leonardo Rinaldi, Jeffrey Unerman, 2014. *Integrated reporting: Insights, gaps and an agenda for future research* – Accounting, Auditing & Accountability Journal, Vol. 27 Iss 7 (pp. 1042-1067)

Coca-Cola HBC Integrated Annual Report 2016: <https://coca-colahellenic.com/en/investors/reports/>

Cornelia Beck, John Dumay, Geoffrey Frost, 2015. *In pursuit of a “Single Source of Truth”: from Threatened Legitimacy to integrated reporting* – Journal of Business Ethics, Springer Science

Diageo Annual Report 2016: <https://www.diageo.com/en/investors/financial-results-and-presentations/annual-report-2016/>

EFFAS The European Federation of Financial Analysts Societies, 2009. *KPIs for ESG: A Guideline for the Integration of ESG into Financial Analysis and Corporate Valuation – DVFA Version 1.2*

ENI Integrated Annual Report 2016: [https://www.eni.com/docs/en\\_IT/enicom/publications-archive/publications/reports/reports-2016/Integrated-Annual-Report-2016.pdf](https://www.eni.com/docs/en_IT/enicom/publications-archive/publications/reports/reports-2016/Integrated-Annual-Report-2016.pdf)

Entergy Corporation Integrated Report 2016: <http://www.energynewsroom.com/latest-news/entergy-corporation-releases-2016-integrated-report/>

Ferrovial Integrated Annual Report 2016: <https://www.ferrovial.com/en/ir-shareholders/financial-information/annual-report/>

Fujitsu Group Integrated Report 2016:  
<http://www.fujitsu.com/global/about/ir/library/integratedrep/2016/>

Giacomo Boesso, Kamalesh Kumar, 2007. *Drivers of Corporate voluntary disclosure: A framework and empirical evidence from Italy and the United States – Accounting, Auditing & Accountability Journal*, Vol. 20 Iss 2 (pp.269-296)

Gold Fields Ltd Integrated Annual Report 2016:  
[https://www.goldfields.com/reports/annual\\_report\\_2016/index.php](https://www.goldfields.com/reports/annual_report_2016/index.php)

IIRC The International Integrated Reporting Council, 2013. *The International IR Framework*

IIRC The International Integrated Reporting Council, 2013. *Materiality: Background paper for IR*

Impronta Etica, 2013. *La redicontazione non finanziaria in Europa: ricognizione delle principali iniziative normative promosse dagli stati*

Indra Abeysekera, 2013. *A template for integrated reporting – Journal of Intellectual Capital*, Vol. 14 Iss 2 (pp. 227-245)

Itaù Unibanco Integrated Report 2016: <http://www.itaubank.com.br/annual-report/integrated-reporting>

Jedrzej George Frynas, Camila Yamahaki, 2016. Corporate social responsibility: review and roadmap of theoretical perspectives – *Business Ethics: A European Review* 25

- Jenna Burke, Cynthia E. Clark, 2016. *The business case for integrated reporting: insights from leading practitioners, regulators and academics* – Business Horizon 59 (pp. 273-283)
- John Dumay, Cristina Bernardi, James Guthrie, Paola Demartini, 2016. *Integrated reporting: A structured literature review* – Accounting Forum 40 (pp. 166-185)
- Jordi Morros, 2015. *The integrated reporting: A presentation of the current state of art and aspects of integrated reporting that need further development* – Omnia Science, Intangible Capital (pp. 336-356)
- John Flower, 2015. *The international Integrated Reporting Council: A story of failure* – Critical Perspectives on Accounting 27 (pp. 1-17)
- Judy Brown, Jesse Dillard, 2014. *Integrated reporting: On the need for broadening out and opening up* – Accounting Auditing & Accountability Journal, Vol 27 Iss. 7 (pp. 1120-1156)
- Kasturi Rangan, Lisa Chase, Sohel Karim, 2015. *The Truth about CSR* – Harvard Business Review (pp. 41-49)
- KPMG, 2016. *Reporting unico: riflessioni e prospettive*
- KPMG, 2017. *The road ahead: Survey of Corporate Responsibility Reporting*
- Kristyna Havlova, 2015. *What integrated reporting changed: the case study of early adopters* – Procedia Economics and Finance 34 (pp. 231-237)
- Mandy Cheng, 2014. *The international Integrated Reporting Framework: Key issues and future research opportunities* – Journal of International Financial Management & Accounting 25
- M&S Annual Report 2016: <https://corporate.marksandspencer.com/annualreport>
- Markus Arnold, Alexander Bassen, Ralf Frank, 2012. *Integrating Sustainability Reports into Financial Statements: An experimental study* – University of Maastricht
- Masisa Integrated Annual Report 2016: [http://www.memoriamasisa.com/en/wp-content/themes/consulting/pdfs/MASISA\\_2016\\_eng.pdf](http://www.memoriamasisa.com/en/wp-content/themes/consulting/pdfs/MASISA_2016_eng.pdf)
- Munich Airport Integrated Report 2016: [https://report2016.munich-airport.com/fileadmin/16/PDF\\_EN/Integrated-Report-2016-EN.pdf](https://report2016.munich-airport.com/fileadmin/16/PDF_EN/Integrated-Report-2016-EN.pdf)



National Australian Bank Annual Review 2016:

<https://www.nab.com.au/content/dam/nabrwd/About-Us/shareholder%20centre/documents/2016-annual-review.pdf>

Novo Nordisk Integrated Report 2016:

<https://www.novonordisk.com/sustainability/performance/Integrated-reporting.html>

Panasonic Annual Report 2016: <https://www.panasonic.com/global/corporate/ir/annual.html>

Paolo Perego, Steve Kennedy, Gail Whiteman, 2016. *A lot of icing but little cake?* – Journal of Cleaner Production 136 (pp. 53-64)

Pirelli Annual Report 2016:

[https://www.pirelli.com/mediaObject/corporate/documents/common/investors/annual-report-2016/ENG\\_Pirelli\\_AnnualReport\\_08\\_FINAL\\_12-18/original/ENG\\_Pirelli\\_AnnualReport\\_08\\_FINAL\\_12.18.pdf](https://www.pirelli.com/mediaObject/corporate/documents/common/investors/annual-report-2016/ENG_Pirelli_AnnualReport_08_FINAL_12-18/original/ENG_Pirelli_AnnualReport_08_FINAL_12.18.pdf)

Potash Corporation Annual Report 2016:

[http://www.annualreports.com/HostedData/AnnualReports/PDF/NYSE\\_POT\\_2016.pdf](http://www.annualreports.com/HostedData/AnnualReports/PDF/NYSE_POT_2016.pdf)

Ricoh Integrated Report 2016: <https://www.ricoh.com/sustainability/report/>

Robert Eccles and George Serafeim, 2013. *The performance frontier* – Harvard Business Review (pp.50-60)

Sanford Annual Report 2016: <https://www.sanford.co.nz/investors/reports-1/company-reports/2016/2016-annual-report/>

SAP Integrated Report 2016: <https://www.sap.com/integrated-reports/2016/en.html>

The Crown Estate Integrated Annual Report 2016: <http://www.thecrownestate.co.uk/en-gb/our-business/integrated-annual-report/>

Toshiba Annual Report 2016:

[https://www.toshiba.co.jp/about/ir/en/finance/ar/ar2016/tar2016e\\_or.pdf](https://www.toshiba.co.jp/about/ir/en/finance/ar/ar2016/tar2016e_or.pdf)

Unicredit Group Integrated Annual Report 2016:

[https://www.unicreditgroup.eu/content/dam/unicreditgroup-eu/documents/en/sustainability/sustainability-reports/2016/2016-Integrated-Report\\_interactive\\_13042017.pdf](https://www.unicreditgroup.eu/content/dam/unicreditgroup-eu/documents/en/sustainability/sustainability-reports/2016/2016-Integrated-Report_interactive_13042017.pdf)

Wendy Stubbs, Colin Higgins, 2014. Integrated reporting and internal mechanisms of change  
 – Accounting, Auditing & Accountability Journal Vol 27 Iss. 7 (pp. 1068-1089)

## Appendix

	ICT investments/ tot investments	R&D expenses/ tot. Revenues	n. of patents
Astra Zenaca	x	√	√
AXA	x	x	x
Coca-Cola HBC	x	x	x
Diageo	x	x	x
ENI	x	√	x
Energy	x	x	x
Ferrovial	x	√	x
Fujitsu	x	x	√
Gold Fields	x	x	x
Itaù Unibanco	x	x	x
M&S	x	x	x
Masisa	x	x	x
Munich Airport	x	x	x
National Australian Bank	√	x	x
Novo-Nordisk	x	√	x
Panasonic	x	x	√
Pirelli	x	√	x
Potash Corp	x	x	x
Ricoh	x	√	√
Sanford	x	x	x
SAP	x	√	√
The Crown Estate	x	x	x
Toshiba	x	x	√
Unicredit	√	x	x
Vodacom	x	x	x

### 1. KPIs on intellectual capital

	Engagement index	Training hours/Tot.employees	Female employees/Tot.employees	Female in management/Tot.managers	% female/male salary ratio	Lost time injuries frequency rate	Absenteeism rate	Employee turnover	Employee retention index	Fleet accidents/M km travelled	Internal mobility rate	% employees under trade unions	Employees from minor ethnicity/Workforce	Minimum wage ratio
Astra Zenaca	√	x	√	√	x	√	x	√	x	√	x	x	x	x
AXA	√	√	√	√	x	x	x	x	x	x	√	x	x	x
Coca-Cola HBC	√	x	x	√	x	√	x	x	√	√	x	x	x	x
Diageo	√	x	x	x	x	√	x	x	x	x	x	x	x	x
ENI	x	√	x	√	√	√	x	x	x	x	x	x	x	x
Entergy	x	x	√	√	x	√	x	x	x	x	x	x	√	x
Ferrovial	√	√	√	√	x	√	√	√	x	x	√	x	x	x
Fujitsu	x	x	√	√	x	x	x	x	x	x	x	x	x	x
Gold Fields	x	√	√	√	√	√	x	√	x	x	x	x	√	√
Itaù Unibanco	x	√	√	√	√	√	√	√	x	x	√	√	x	x
M&S	√	x	√	√	x	x	x	x	x	x	x	x	x	x
Masisa	√	x	√	√	x	√	x	x	x	x	x	√	x	x
Munich Airport	x	√	√	√	x	√	x	√	√	x	x	√	x	x
National Australian Bank	√	x	√	√	√	x	x	√	√	x	x	x	√	x
Novo-Nordisk	x	√	x	√	x	√	x	√	x	x	x	x	x	x
Panasonic	x	x	x	√	x	x	x	x	x	x	x	x	x	x
Pirelli	x	√	√	x	√	√	x	x	x	x	x	x	x	x
Potash Corp	√	x	√	√	x	√	x	√	x	x	x	x	x	x
Ricoh	x	x	√	√	x	√	x	√	√	x	x	x	x	x
Sanford	√	x	√	√	x	√	√	√	√	x	x	√	√	x
SAP	√	x	√	√	x	x	x	x	√	x	x	√	x	x
The Crown Estate	x	√	√	√	√	√	x	√	x	x	x	x	x	x
Toshiba	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Unicredit	√	√	√	√	√	√	√	x	x	x	√	x	x	x
Vodacom	√	x	√	√	√	√	x	x	x	x	x	x	√	x

## 2. KPIs on human capital

	ΔGHG emissions/Y-1 GHG emissions	ΔEnergy consumption/Y-1 energy consumption	ΔPaper consumption/Y-1 paper consumption	ΔWaste production/Y-1 waste production	Waste recycled/Tot.waste	Waste to landfill/Tot.waste	Energy from renewable sources/Energy consumption	ΔSox emissions/Y-1 Sox emissions	ΔNox emissions/Y-1 Nox emissions	Water replenished/Water consumption	Equipment HFC- free/Tot.equipment	Recycled resource utilization ratio	ΔFuel consumption/Y-1 fuel consumption	n. of eco-friendly products/Product portfolio	Down Jones sustainability index ranking	% of coal combustion by- product recycled	n. of environment accidents	ΔWater withdrawal/Y-1 water consumption	Hazardous waste/Tot.waste
Astra Zeneca	√	x	x	√	x	x	x	x	x	x	x	x	x	x	√	x	x	√	x
AXA	√	√	√	x	x	x	√	x	x	x	x	x	x	x	x	x	x	√	x
Coca-Cola HBC	√	√	x	x	√	√	x	x	x	√	√	x	x	x	x	x	x	√	x
Diageo	√	x	x	x	√	√	x	x	x	√	√	√	x	x	x	x	x	√	x
ENI	√	x	x	x	x	x	√	√	x	x	x	x	x	x	x	x	√	√	x
Enteryg	√	x	x	x	x	x	x	x	x	x	x	x	x	x	√	√	x	√	x
Ferrovial	√	√	√	√	√	x	√	√	√	x	x	√	√	x	x	x	x	√	x
Fujitsu	√	x	x	√	√	x	x	√	√	x	x	x	x	x	x	x	x	√	x
Gold Fields	√	√	x	x	x	x	x	√	√	√	x	x	√	x	x	x	√	√	x
Itaù Unibanco	√	√	√	√	√	√	x	x	x	√	x	√	x	x	x	x	x	√	x
M&S	√	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Masisa	√	x	x	√	x	x	√	x	x	x	x	x	x	x	x	x	x	√	x
Munich Airport	√	x	√	√	√	x	x	√	√	x	x	x	x	x	x	x	x	√	√
National Australian Bank	√	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Novo-Nordisk	√	√	x	√	√	√	√	x	x	x	x	x	x	x	x	x	x	√	√
Panasonic	√	x	x	x	√	x	x	x	x	x	x	√	x	√	x	x	x	√	x
Pirelli	√	√	x	x	√	x	x	√	√	x	x	x	x	x	x	x	x	√	x
Potash Corp	√	√	x	√	x	x	x	x	x	x	x	x	x	x	x	x	√	√	x
Ricoh	√	√	x	√	x	x	x	x	x	x	x	√	x	x	x	x	x	x	x
Sanford	√	√	x	x	√	x	x	x	x	x	x	x	√	x	x	√	√	x	x
SAP	√	√	√	x	x	√	x	x	x	x	x	x	x	x	x	x	x	√	x
The Crown Estate	√	x	x	x	√	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Toshiba	√	x	x	√	x	x	x	x	x	x	x	x	x	x	x	x	x	√	x
Unicredit	√	√	√	√	√	√	x	x	x	x	x	x	x	x	x	x	x	√	x
Vodacom	√	√	x	x	√	x	√	x	x	x	x	x	√	x	x	x	x	x	x

### 3. KPIs on natural capital

	Contributions to communities/Net profits	Employee volunteering/Workforce	Δ customers complaints/Y-1 customers complaints	Customer satisfaction rate	Suppliers screened with social-environmental criteria/Tot.suppliers	Net promoter score	Investments covered by ESG analysis/Tot. Investments	Local suppliers/Tot.suppliers	Employees trained on anti-corruption policies/Tot.employees	Social responsible products/Product portfolio	ΔN.of products recall/Y-1 products recall	Others
Astra Zenaca	√	x	x	x	x	x	x	x	x	x	x	x
AXA	x	√	x	x	x	√	√	x	x	x	x	x
Coca-Cola HBC	√	√	√	√	x	x	x	x	x	x	x	√
Diageo	√	x	x	x	x	x	x	√	x	x	x	x
ENI	√	x	x	√	x	x	x	x	x	x	x	x
Entergy	√	√	x	√	x	x	x	x	x	x	x	x
Ferrovial	x	x	√	√	√	x	x	x	x	x	x	x
Fujitsu	x	x	x	x	x	x	x	x	x	x	x	x
Gold Fields	√	x	x	x	x	x	x	√	x	x	x	x
Itaù Unibanco	√	x	x	√	√	x	x	√	√	√	x	√
M&S	x	x	x	x	x	x	x	x	x	√	x	x
Masisa	x	x	x	√	√	x	x	x	x	x	x	x
Munich Airport	√	x	x	x	x	x	x	x	x	x	x	√
National Australian Bank	√	√	√	x	√	√	x	x	x	√	x	√
Novo-Nordisk	√	x	x	√	√	x	x	x	x	x	√	√
Panasonic	x	x	x	x	x	x	x	x	x	x	x	x
Pirelli	√	x	x	x	x	x	x	√	x	x	x	x
Potash Corp	√	x	√	√	x	x	x	x	x	x	x	x
Ricoh	√	√	x	x	x	x	x	x	x	x	x	√
Sanford	√	x	√	√	x	√	x	x	x	x	√	x
SAP	x	√	x	x	x	√	x	x	x	x	x	√
The Crown Estate	x	√	x	√	x	x	x	x	x	x	x	x
Toshiba	√	x	x	x	x	x	x	x	x	√	x	x
Unicredit	√	x	x	x	x	x	x	x	x	x	x	√
Vodacom	√	x	√	x	√	√	x	x	x	x	x	x

#### 4. KPIs on social capital