From Values to Value: The Commensuration of Sustainability Reporting and the Crowding out of Morality

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Abstract

Drawing on extensive case study evidence, this study unpacks sustainability reporting's evolution from a moral values-based practice towards a financialized value-based one. We argue that this transition can be seen as a commensuration project and we examine the dynamics of this process. We find that increased levels of commensuration have moved sustainability reporting away from a focus on moral responsibility (i.e. 'doing the right thing') to a focus on strategic value creation for the firm. We theorize this crowding out of morality as a process of amoralization supported by the rigid cognitive framing of social and environmental issues (objectification) and the monetized coordination of relevant social interactions (marketization). We outline implications of our analysis for the scholarly debate on sustainability reporting and commensuration.

Keywords

Commensuration; corporate responsibility; integrated reporting; morality; sustainability reporting

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1. Introduction

A sustainability report is defined by the Global Reporting Initiative (2016, p. 3) as an "organization's practice of reporting publicly on its economic, environmental, and/or social impacts, and hence its contributions – positive or negative – towards the goal of sustainable development". A peripheral practice just over 10 years ago, today of the largest 250 companies in the world 93% publish a sustainability report (KPMG, 2015) and over 9000 companies worldwide (Corporate Register, 2016). What emerged as a normatively inspired safeguard against the unaccountability and non-transparency of powerful firms (Gray, 1992; Gray, Owen, & Maunders, 1988) has by now evolved into a practice that is linked strongly to shareholder value (Buhr, 2007; Gray, 2006, 2010; Spence, 2007; Wheeler & Elkington, 2001). Prior work has analysed sustainability reporting typically as a purposive and strategic practice for legitimation and stakeholder management (e.g. Aerts & Cormier, 2009; Cho & Patten, 2007; Cooper & Owen, 2007; Deegan, 2002; Deegan & Blomquist, 2006) or as the result of institutional pressures towards conformity (e.g. Adams & Larrinaga-Gonzalez, 2007; Bebbington, Higgins, & Frame, 2009; Contrafatto, 2014; Larrinaga-González, 2007). We suggest that the rise of sustainability reporting and its increasing emphasis on measurement, standardisation and comparability can be explained by conceptualizing it as a commensuration project.

Commensuration, viewed as "the process whereby different qualities are measured with a single standard or unit" (Samiolo, 2012, p. 383) transforms qualities into quantities and differences into sameness (Espeland & Stevens, 1998). Scholars have argued that the effects of commensuration relate to its potential to recreate social worlds (Espeland & Sauder, 2007), its considerable disciplinary power (Sauder & Espeland, 2009), the erasure of uncertainty (Quinn, 2008), and more generally the creation of markets (Kolk, Levy, & Pinkse, 2008;

Levin & Espeland, 2002). Surprisingly little attention has been devoted to the relationship between commensuration and morality. As Espeland & Sauder (2007, p. 36) remark, "we do not typically associate ethics with measurement." The objective of this paper is to study sustainability reporting as a project of commensuration and to thereby analyse its relationship to moral reflection. More precisely, we aim to (a) better understand how different dimensions of commensuration have influenced different phases of sustainability reporting and (b) what implications this influence had on actors' ability to engage in moral reflection.

To study these aspects we draw on a qualitative study of the history of sustainability reporting in the Netherlands, which has been one of the frontrunners in adopting this practice (KPMG, 2011b; PwC, 2012). We use a form of historical narrative analysis (Ansari & Phillips, 2011; Leblebici, Salancik, Copay, & King, 1991) to map the sequences of events (Greenwood & Suddaby, 2006) that took place as sustainability reporting commensurated. Drawing on 98 semi-structured interviews and secondary data, we sequentially identify four phases: proto commensuration marks the first period of environmental reporting; technical commensuration takes over as reporting expands into triple bottom line reporting, and finally the latest phase towards integrated reporting is characterized by value and cognitive commensuration.

Our main argument is that increased levels of commensuration have moved sustainability reporting away from a focus on moral responsibility (i.e. 'doing the right thing') to a focus on strategic value creation for the firm. We theorize this slow but steady crowding out of morality as a process of amoralization (Crane, 2000). Our analysis shows that the commensuration of reporting contributed to an amoralization of sustainability due to the rigid cognitive framing of social and environmental issues (objectification) and the monetized coordination of relevant social interactions (marketization). Our findings contribute to the literatures on commensuration as well as sustainability reporting. We extend the literature on

commensuration by showing that measurement can significantly narrow down our appraisal of how value is understood. It favours a situation in which instrumental and economic notions of value dominate at the expense of other ways of knowing. Commensuration not only has an ability to transform what it measures (Espeland & Sauder, 2007; Espeland & Stevens, 1998; van der Vlist, 2016), but it also has potentially morally corrupting effects. We believe that these insights help to further clarify the relationship between morality and commensuration on a theoretical and practical level, especially as we discuss how proto-commensuration helped to overcome seemingly incommensurable aspects. We also extend the critical literature on sustainability reporting, which has pointed to the limited understanding of value creation in this context (see e.g. Gray, 2006, 2010). We provide one possible explanation for why and how reporting developed from a peripheral (moral) values-based practice into a strategic (financial) value-based practice. We show that the crowding out of moral concerns and the resulting narrow definition of value can cause 'ethical blindness' among those actors concerned with reporting. Such blindness can alter the rationalization underlying important decisions (e.g., regarding report scope) and hence advocate those values that can be made commensurate at the expense of other, yet not less important, aspects.

Why should we care about these arguments? We believe that our analysis and the resulting arguments matter, because they show that commensuration's amoralizing effects can lead to a number of problems. If reporting is mostly understood as being about information that is 'material' and somehow linked to firm value, the scope of disclosure is limited significantly. It becomes easy to overlook and obscure ethical dilemmas because there is no business case for addressing them. It also becomes more difficult to understand and assess the moral dimension of those indicators that are included into a report. Such effects can potentially result in moral disengagement and make moral evaluation more difficult. Much

like bureaucracy, commensuration can 'free' people from moral reflection and judgement (see also Bauman, 1993).

The paper proceeds by discussing the literature on commensuration and describing its main dimensions. Next, we explain our data collection and analysis methods, and provide more details on our case of Dutch sustainability reporting. The following section presents a narrative account of the main phases of sustainability reporting and the various dimensions of commensuration that can be identified throughout this process. We then discuss how these insights can help to explain the crowding out of morality in the context of reporting; this discussion focuses on how commensuration, reporting, and amoralization interact. Finally, we discuss the implications of our findings for the commensuration and sustainability literature and address possible areas for future research.

2. Commensuration

2.1 The concept of commensuration

Commensuration "is a way to reduce and simplify disparate information into numbers that can easily be compared and this transformation allows people to quickly grasp, represent, and compare differences" (Espeland & Stevens, 1998, p. 316). It reduces the relevance of context and puts a value on and makes calculable and comparable what used to be incomparable. Commensuration thereby underpins the development of rationality and is a mechanism to study the emergence and objectification of practices (e.g. Huault & Rainelli-Weiss, 2011; Levin & Espeland, 2002; Quinn, 2008; Zelizer, 2005). It has been used to analyse a whole range of phenomena including academic rankings (Sauder & Espeland, 2009), peer reviewing (Lee, 2015), pension systems (Peeters, Verschraegen, & Debels, 2014), cost-benefit analyses (Lohmann, 2009; Porter, 1995; Samiolo, 2012), the creation of new markets (Huault & Rainelli-Weiss, 2011), and the emergence of carbon accounting and disclosure (Kolk et al.,

2008). Commensuration is part of a growing importance and influence of markets, comparability, transparency and accountability in a society where measurability and reality increasingly coalesce (see e.g. Meyer, Boli, & Thomas, 1994; Porter, 1995; Power, 1997).

Commensuration is a transformative process that has the potential to affect both objects and subjects (e.g. Espeland & Stevens, 1998; Samiolo, 2012). Importantly, it limits and systematizes the amount and complexity of information to process, which reduces uncertainty by obfuscating tensions between the metric and the underlying empirical reality (Quinn, 2008) and helps to facilitate trust and control (Fligstein, 1998; Levin & Espeland, 2002; Porter, 1995). Prior research has examined various consequences of commensuration, the primary one arguably its potential to facilitate market creation. Levin and Espeland (2002) analysed the various dimensions of commensuration required to create a market for sulphur dioxide emissions and MacKenzie (2009) showed how different greenhouse gases were made commensurable in order for carbon markets to function. Espeland and Sauder's (2007; 2009) work on law school rankings also discussed the subjectification and reactive power of rankings by explaining how commensuration influenced behaviour in law schools to recreate social worlds as actors self-discipline to internalize the pressure of rankings.

Whatever the exact outcomes, commensuration is a difficult and at times controversial process as it helps to establish what is considered of value and importance but at the same time it also marks what is considered irrelevant and gets silenced. While O'Mahoney et al. (2013) highlighted the importance of commensuration for the commodification of management knowledge, they also showed that commensuration facilitated the construction of boundary objects that fenced off alternative disparate perspectives. Similarly, Fligstein (1998) maintained that particular power relations become normalized through commensuration, whereas others get silenced. This shows that in reality not all values can easily be made commensurate. Examples are the market for human genetic material (i.e. eggs and sperm),

where a value is put on the fundamental building blocks of a human life which goes beyond the limits of commensuration for some (Almeling, 2011), the creation of a secondary market for life insurance in the face of considerable moral ambivalence (Quinn, 2008) or attempts at creating carbon markets (Kolk et al., 2008; MacKenzie, 2009).

These examples highlight the potentially erosive effect of commensuration. Whereas efficient markets, rankings, tests, social and statistical categories depend on standardization between disparate elements that reduces the relevance of context, questions remain about the tensions between commensuration's formal rationality and ethical systems (Povinelli, 2001). Commensuration is typically not associated with ethics as it highlights neutrality, objectivity and rationality. This veil of formal rationality obfuscates commensuration's potential moral complications, which warrants further study (Espeland & Sauder, 2007; Espeland & Stevens, 2008). Our study contributes to and extends discussions at the intersection of commensuration and morality.

2.2 Dimensions of commensuration

The commensurative work that takes place can be classified into three distinct dimensions: technical, cognitive and value commensuration (e.g. Kolk et al., 2008; Levin & Espeland, 2002). *Technical commensuration* is concerned with "measuring or classifying specific characteristics or practices more accurately" (Levin & Espeland, 2002, p. 126). On the one hand this has a mechanical aspect. For instance, Levin and Espeland (2002) mention how in athletics the refinements in measuring the speed of sprinters, (finishing) times, electronic starting guns all are technical contributions that ultimately ease the commensuration of the performance of athletes. In their respective studies on carbon disclosure Kolk et al. (2008) and MacKenzie (2009) discuss the technicalities of commensurating different greenhouse gases. They discuss the technical work involved in establishing the global warming potential (GWP)

for the various greenhouse gases, thereby translating different gases into a common unit of CO_2 equivalents. They show that in addition to the need for proper physical equipment and technologies to set up accurate measurements, also a social factor comes into play to reach consensus. That is, in the example of Mackenzie (2009, pp. 443–447), it was not only crucial to rely on measurement devices and complex natural science to establish a GWP for HFC-23 (a refrigerant) to translate it into CO_2. This technical commensuration also included a long process of negotiating and coming to a mutual understanding of a 'correct' method of measurement and thus a final GWP.

Value commensuration typically, but not necessarily, involves a pricing or monetary component. This is achieved through attempts to quantify or even monetise key performance indicators from the sustainability spectrum, but also by combining disparate elements and (e)valuating firms through rankings and ratings. The aim is to ease valuations by integrating different values into a common metric. For instance, prices have been attached to a tonne of CO_2 (MacKenzie, 2009), air pollution (Levin & Espeland, 2002), and weather risks (Huault & Rainelli-Weiss, 2011), but also non-monetary scales such as academic rankings are an instrument of quality evaluation (Sauder & Espeland, 2009). Value commensuration attempts to adjudicate between conflicting values and reconcile and appease their differences by constructing an overarching metric. It is arguably the most visible aspect of commensuration and can be situated as a sub-process of the broader literature on (e)valuation (see e.g. Lamont, 2012) in its effort to create equivalence among different meaning systems and types of value (see e.g. Fourcade, 2011 on money and nature).

Finally, *cognitive commensuration* is a "more tacit cultural accomplishment, it involves reclassifying the world in terms of categories that align more closely with the new metrics" (Levin & Espeland, 2002, p. 126). This dimension of commensuration shapes how we understand and assign meaning to the world and categorise it. Developing a common

understanding or discourse of the general responsibilities of firms and determining the elements belonging to its sustainability realm are examples. Previous studies have typically seen cognitive commensuration as a consequence of new metrics. Levin and Espeland (2002, p. 126) use the example of double-entry bookkeeping that gave rise and meaning to the entity capital. Commensuration thus determines what we see and value and how we understand the world. What has been less recognised is that rather than follow, cognitive elements may also be necessary to ignite other dimensions of commensuration. For example, Huault & Rainelli-Weiss (2011) analyse in their study the failed attempt to develop a European weather derivatives market. The authors contend that firms and weather derivatives market promoters could not construct a shared problem and fitting solution that would serve the common interest and in this absence technical and value commensuration remained problematic.

To date, systematic analyses of these different dimensions of commensuration have been relatively scant: only two studies have explicitly addressed these dimensions. Kolk et al. (2008) studied whether commensuration had sufficiently progressed to come to meaningful greenhouse gas reporting through the work of the Carbon Disclosure Project (CDP) and Levin and Espeland (2002) looked at the creation of a futures market for air pollution. Our study will refer to these dimensions to clarify their order in the context of sustainability reporting and also to discuss how these dimensions relate to amoralization.

3. Methods

3.1 Site selection and case significance

To understand the commensuration of sustainability reporting we focus our analysis on the organisational field that has formed around sustainably reporting (see e.g. Etzion & Ferraro, 2010; Kolk, 2010; Larrinaga-González, 2007; Levy, Brown, & De Jong, 2010). Actors in this field include: businesses, NGOs, governmental agencies, professional services firms,

institutional investors, and standard setters such as the GRI (located in Amsterdam). We focus the research on sustainability reporting in the Netherlands, keeping in mind its embeddedness in a wider global environment. The Netherlands has been one of the frontrunners in reporting (KPMG, 2011b). Following Jennings and Zandbergen (1995), we focus on a specific country since fields of sustainable practices are often local in character (see also Adams & Kuasirikun, 2000; Kolk, 2005) and reporting picked up momentum in the late 1980's when the first separate reports came out. By 2015, 82% of the Dutch largest 100 companies published sustainability reports and the country was a frontrunner in integrated reporting (KPMG, 2015).

Sustainability reporting is a salient case study and a good example of commensuration. At its core, reporting is concerned with providing an account of the state of affairs in the organisation. The inclusion of sustainability aspects in what used to be only financial accounts makes it important to turn these allegedly unrelated aspects in an understandable and comparable format. Putting social and environmental aspects into indicators, ratings, rankings and hard bottom-line financial figures makes sustainability reporting a salient commensuration project with various spheres claiming (in)commensurability (Espeland & Stevens, 1998). A financial/economic rationale is often set against a social/environmental one and these different conceptions of what is important lead to a moment in which the question of what is (of) value comes to the fore. This transparency allows for good theoretical development and offers an exemplary case as subject positions are often contested and "transparently observable" (Eisenhardt, 1989, p. 537; Yin, 2009).

3.2 Data collection

We use various sources of data. Triangulating the data sources enhances trustworthiness (Lincoln & Guba, 1985) and makes it possible to gather information about actors'

experiences, practices and reasoning as well as see the data in a historical context (Yin, 2009). First, to get familiar with the field, test the appropriateness of the case and determine prospective interviewees we closely read various documents and archival records (see Table 1). This resulted in a first list of interviewees whom were contacted. After this, a snowball sampling technique was applied based on recommendations of interviewees (Bryman & Bell, 2007). This approach made it possible to efficiently concentrate on contacting field actors with desired characteristics fitting the framing of the study, more akin to theoretical sampling (Strauss & Corbin, 1998). Most prospective interviewees had multiple years of experience. In order to get a rounded overview of the various subject positions present in the field and to prevent selection bias we selected interviewees from various disciplines and positions in the field. The potential problem of non-representativeness was minimised by actively keeping track of the category of actors interviewed (Malhotra & Birks, 2003).

INSERT TABLE 1 AND 2 ABOUT HERE

Interviews were conducted between 2011 and 2016. The process was continued until after 98 interviews a saturation point had been reached (both theoretically and empirically). Table 2 provides an overview of the background of the interviewees. Interviews allow for an account of current and historical events that provides information on actions, motives, strategies and their explanations (Malhotra & Birks, 2003). Interviews were semi-structured and in total just over 100 hours in length. Interviews were tape recorded, with the exception of seven where extensive notes were taken, and transcribed. These seven interviews were included in the open coding but not in the subsequent rounds of coding. For interviews that discussed the more distant history of reporting extensive prior research was conducted (based on internet search, documents, information from previous interviewees). This was done in

order to ask specific questions, assist interviewees in structuring their thoughts and memories, come up with counterfactuals in case required to test their statements, and ultimately limit the risk of retrospective bias (Eisenhardt & Graebner, 2007; Morris, 1981). Various other data sources were consulted as well (see Table 2). Articles in main Dutch business and general newspapers, government reports, legislation on sustainability reporting, publications of professional service firms, reports and statements of NGOs and investors, academic publications, and sustainability reports of companies were consulted. These data sources provided contextual reading and familiarization with the field, but also a form of checks and balances for the emerging dimensions and categories based on the coding of the interviews. We also created document summary forms (Ansari & Phillips, 2011) that could later be used for coding alongside interview transcripts. Finally, we attended several workshops and conferences on sustainability reporting. Various stakeholders attended these field events. These events allowed us to gain further insights into the reporting field and commensuration practices and also offered the possibility to test and refine emerging themes.

3.3 Data analysis

We rely on a historical narrative analysis, an approach taken in previous studies (Ansari & Phillips, 2011; Etzion & Ferraro, 2010; Leblebici et al., 1991; Scott, Ruef, Mendel, & Caronna, 2000) that "presents an account of the linkages among events as a process leading to the outcome one seeks to explain" (Roth, 1988, p. 1). We combine this approach with a temporal bracketing strategy that works well to analyse our eclectic process data and show "how actions of one period lead to changes in the context that will affect action in subsequent periods" (Langley, 1999, p. 703).

We first coded our data around questions of the 'who, when, why, what and how' of sustainability reporting. Through this more exploratory open coding (Strauss & Corbin, 1998)

we coded events, actors and the activities they engaged in, intentions and justifications for reporting, as well as audiences. This expansive first coding round was only minimally driven by theory and largely inductive. It took place as the interviews were being conducted, marking a continuous iterative process between interviews, data analysis, and emerging theoretical constructs. It resulted in a large number (200+) of a diverse range of 1st order concepts (Gioia, Corley, & Hamilton, 2013).

Second, we reread all document forms and interview transcripts, analysed assigned codes, but now trying to trace how reporting emerged and subsequently gained momentum and spread. Recurrent references to the need for, criticism of and moves towards standardisation, comparability, quantification, monetisation and financialization were noticeable. Practices such as rankings, ratings, benchmarks, and performance indicators came up frequently as well. This warranted a more theoretical explanation, even more so because as reporting's development progressed this tendency seemed to get stronger. At this point in the data analysis, when a stronger theoretical grounding was called for, we followed Gioia et al (2013, p. 23) when they argue that "upon consulting the literature, the research process might be viewed as transitioning from ''inductive'' to a form of ''abductive'' research, in that data and existing theory are now considered in tandem (Alvesson & Kärreman, 2007)".

Third, we consulted the commensuration literature since it appeared from the various codes that commensuration was potentially a process that was at play. The data was thus again analysed and (re)coded, this time zooming in on commensuration aspects. By consulting the data and informants we identified examples of commensuration and these were classified along the dimensions of value, cognitive and technical commensuration. Inductively, we found a new dimension ('proto commensuration') that preceded the other three dimensions. We then tracked the occurrences of these dimensions throughout the history of reporting to see whether there was temporal variation. The analysis suggested that the various types of

commensuration developed differently over time (see also Tables 3 and 4). Four distinctive phases emerged in which the commensuration took place against a background of shifts in type of reports, purpose of reporting, dominant actors involved as well as recurring critique on reporting. An overview of these phases and their specific characteristics was iteratively discussed and validated throughout the interviews.

4. Findings

Our analysis is structured around four main phases of reporting. These phases should not be treated as abrupt and absolute demarcations, but rather as transition periods in which one dominant phase gets taken over by a new one. Throughout these phases a change in dominating commensuration dimensions can be seen. Table 3 offers a summary and Table 4 additional details and supporting empirical evidence.

INSERT TABLES 3 AND 4 ABOUT HERE

4.1 Phase 1 (<2000): Environmental reporting (proto-commensuration)

Our findings suggest that before technical commensuration work could be fruitfully undertaken, it was necessary to establish a meaning system in which previously unconnected aspects (e.g. business practices and corporate sustainability) started to become related concepts. This required bringing together previously disparate elements, i.e. a reframing (Rao, 1998) of a prior logic, so that a moral issue can turn into an issue of importance from a business point of view. Various actors were involved here, "but in the early stages most had a very ethical and normative viewpoint" (Investment analyst). Civil society and the Dutch government emphasized the moral failings of firms and the need for these firms to become more responsible, accountable and transparent. Both actors called for more robust reporting.

Firms responded to this appeal by bringing together business thinking and sustainability concerns. Some started to recognize the potential benefits of reporting, but most still saw reporting largely as a moral exercise: "When I started working on sustainability it was more like: you need to do good. You have to do business decently and ethically. You have to show that in your management and also report on it" (Partner, Big Four). We label this dimension of the commensuration process: *proto-commensuration.* It functions as a precondition for commensuration as it aims to connect previously unconnected aspects. Various factors explain the early rise of sustainability (then environmental) reporting and the proto-commensuration attached to it.

First, the position of the firm was put into question with moral issues being raised around corporate responsibility, business ethics, accountability and transparency. For instance, the World Commission on Environment and Development's (WCED) published its influential report *Our Common Future* on solutions to global environmental problems in 1987 and the 1992 Earth Summit's plan of action Agenda 21 (1992, p. art. 30.10), contained a recommendation urging firms "to report annually on their environmental records, as well as on their use of energy and natural resources". In the Netherlands, the first Dutch Environmental Policy Plan was published in 1989 and the Environmental Protection Act stated that starting from 1999 around 300 companies (heavy polluters) were required to report to regulatory agencies and the general public. The underlying message to firms was: "You ought to be doing this. You have a responsibility to address these issues" (Consultant).

Second, in the wake of high-profile environmental and social scandals (e.g., Shell, Nike, Chiquita, ABN Amro), "you saw firms first being attacked by NGOs, they had to disclose more and more information" (Interview, investor). NGOs increasingly started to question the failing morals of firms and demanded better corporate conduct, disclosure being part of that as "it is a step towards sustainability. It pressures firms to start thinking and

reflecting on matters they have never thought about before, which sets things into motion" (NGO). According to a civil servant of the time, the reasoning behind it was quite morally inspired, as "you go to a company and tell them that CSR is a very moral issue and that it is actually your moral obligation to pursue these environmental goals".

Responses of firms differed, as "firms were not used to disclose information that had no, or a very limited, financial component. They found that soft and irrelevant" (CEO, MNC). Some resisted and argued: "we should not start doing this! We put too much responsibility upon ourselves" (Consultant). Others contained that in a changing society "firms simply are expected to behave in a certain way, and rightfully so. An aspect of this is a more ethical form of business in which there is a place for accountability and reporting" (Sustainability manager). Some firms started to consider the potential benefits of the 'moral firm' already.

Overall, the notion that firms needed to be held accountable for their environmental (and later also social) impact and be transparent about that took hold. Previously disparate elements started to be connected as business practices, sustainability, transparency and accountability were regarded as sides of the same coin. Still, "at first reporting was a lot about doing good, giving something back to the world" (Consultant). Moreover, how to exactly combine these elements remained less clear, as "there was no set format that could measure success" (NGO). Published reports were typically vague and primarily focused on the environment, offering easy accusations of insincerity and greenwashing. According to a GRI employee of that time, corporate reports would typically signify the idea of things being "just wonderful, everything is great! And then of course the investors and the NGOs are like this is rubbish! Come on! This is crap! And the companies actually said well, tell us what you want". This stipulated the need for a more robust and substantive framework for reporting.

4.2 Phase 2 (2000-2008): Triple bottom line reporting (technical commensuration)

As firms increasingly started to wonder "What is the scope, what are we talking about? What are the themes? What are the KPI's?" (Sustainability manager), the key development in the second phase was the emphasis on technical commensuration through the development of indicators. The work of standard setting bodies and consultants started to give the rather complex and messy sustainability reporting some hands and feet. Reporting's focus started to shift; it was less about doing good and more about building a business case. One informant, a Big Four partner, captured the new spirit for firms as "[s]ustainability is a topic that is important in the world. That's no ethics or morality. It is simply that if I don't pay attention now, I'll have a problem later on." The business community "was starting to understand the business value of sustainability as a matter of reputation, as a matter of brand, as a matter of attracting talent ... So they had a business mind, what's the business case?" (Academic). There was a strong notion that reporting "had to become formalised and was expected to be concrete, measurable, comparable and quantifiable" (Civil servant). Technical commensurative work was required to remove uncertainty around reporting and make it more concrete and manageable.

Consultants became more powerful as they tried to further drive the business case discourse and professionalise reporting. One civil servant recalled that "at that point in time consultants got a boosting function. … They actively approached corporates with the idea: 'should you not start doing something about sustainability'". As consultants saw market potential with these newly reporting firms looking for guidance, according to some this "reflects the mainstreaming of the issue. It says that there's recognition that these are issues that need to be worked on, and that there's money to be made in it" (NGO).

Standard setting happened most clearly through the development of the GRI reporting guidelines, a project that required extensive technical commensuration. The reasoning of the guidelines was "instead of having 50 different standards, let's all come together and try to create a global consensus among major stakeholders over what should be expected regarding environmental health and safety and social and economics" (NGO). The work of the GRI had a considerable technical dimension as it aimed to develop indicators that were concrete and quantitatively measurable. The development of indicators was typically done in working groups in which different stakeholders discussed indicators. Disagreements were common, yet typically agreement could be reached as a more neutral rather than normative/prescriptive stance on indicators was sought so that "all stakeholders ultimately could live with it" (NGO).

Economic indicators were relatively easy to agree upon as these were for a large part firmly established in financial accounting traditions. For environmental and in particular social aspects things were less straightforward. As a GRI employee of the time recalled, an important aspect was tapping into existing knowledge by "trying to involve technical expertise with some of the people who are familiar with financial reporting, assurance issues". Furthermore, environmental indicators were borrowed from more established institutions such as the International Standards Organization (ISO). Notwithstanding agreement that "especially on the social side we need to make it more comparable because it's too soft and too mushy" (Sustainability manager), the development of indicators for social aspects remains up to this day more controversial than the development of environmental indicators: "The problem was that the people in the social groups weren't used to metrics and did not know how to design them or what they will do for you" (Sustainability manager).

The work of the GRI was instrumental in advancing technical commensuration and was further reinforced by the technical work undertaken by indices and rankings such as the Dow Jones Sustainability Index (DJSI), the FTSE4Good Index, the Dutch Transparency

Benchmark, and the Council for Annual Reporting's publication of its Annual Reporting Guideline 400. Before these could become instruments of company comparison and performance (e)valuation, technical commensuration was required. The technical work of these initiatives at times overlapped. As a GRI employee recalled: "we did take very seriously the FTSE4Good and the same with the DJSI and worked very hard to try to capitalise on the inroads they were making with companies on transparency ... we tried to make reporting as easy as possible by mapping where possible, mapping the overlapping indicators ... and we had a deal and we said 'hey look, can we get you to say to firms 'yes, we'll accept your GRI report'"". This diffused a specific conception of what comprised a sustainability report.

However, technical commensuration also invited non-reflective reporting by blindly following guidelines. A sustainability manager commented: "GRI has been a great help … when we made our first sustainability report it was very nice to have some point of reference. Back then it was simply tick-the-box of the indicators". Reporting by ticking boxes and following rankings and benchmarks ran the risk of not anchoring it to the core of the business, as "sustainability will only be really relevant when it is a strategic theme that is managed by the Board of Directors so you will have to restrict the number of indicators" (Consultant).

4.3 Phase 3 (>2009): Integrated reporting (value commensuration)

In the third phase, integrated reporting and the idea of 'shared value' rose in prominence as attempts were made to join together the financial and non-financial aspects of disclosure. Value commensuration through the development of strategic (and often monetised) KPIs, ratings, indices and integrated reports became important. Investors and accountants started pushing for a clearer link between sustainability aspects and firm value (creation). Captured succinctly by a CSR think-tank: "we can continue to improve reporting by fine-tuning these KPI's [technical commensuration], that is one big agenda, but to us the biggest agenda, while

you have to improve these, it is the connection with financial aspects that counts [value commensuration]. That is going to reconcile within the company the financial and non-financial to picture the real economy of your enterprise". Previously inconsequential non-financial sustainability aspects started to be seen as being of strategic importance to the firm. The changing purpose of reporting, in part also instigated by the financial crisis, can be characterised as follows: "Forget about the accountability of companies. If you like, forget about the company's own business case; let's talk about the efficient allocation of capital. Do investors have access to the kind of information in the right kind of format for them to be able to make correct valuations of companies?" (Civil servant).

In the Netherlands "slowly but surely the interest of investors has grown, and also the understanding that sustainability is not something that exists in and for itself, but that it is a way to assess the value of the firm" (Partner, Big Four). For instance, one investor noted the aim that "we can demonstrate for example that a company can show how increasing its employee engagement will drive in additional sales performance, you know, the causal relationship. Then that should be possible to integrate into your financial forecast as part of your coherent strategy". In effect, "now you see that the financial world is looking at it, and it suddenly becomes a lot more serious" (Consultant).

Accountants also got more involved. As a Big Four partner argued: "accountants have noticed that sustainability reports get ever closer to the core operations of the firm and therefore become also relevant for them ... they are starting to realise that non-financial information involves more than just sustainability and that it is important for the valuation of the organisation". Dutch Big Four accounting firms all started auditing integrated and sustainability reports, engaged in thought-leadership and organised seminars and workshops on integrated and true value reporting (e.g. Deloitte, 2011; KPMG, 2011a, 2012, 2014; PwC,

2012). Influenced by the logic of investors and accountants, sustainability reporting got increasingly linked with firm valuation and strategic value creation.

A salient commensuration example here was the International Integrated Reporting Council (IIRC) that was set up in 2010 and launched its reporting framework in 2013. IIRC defined an integrated report as a "concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term" (IIRC, 2013, p. 7). Although technical work was still required, integrated reporting was not primarily about developing technically valid and reliable indicators, but more about putting prices or values on these indicators: "[T]here need to be better ways in which one can either valorise non-financial performance or have better ways of, if you can't valorise, to actually put non-financial elements of key investment cases or unchanged management strategy in the operations of organisations" (NGO). The view took hold among various actors that "the only way to make sure sustainability or QHSE [quality, health, safety and environment] information has an impact within the firm is by letting it flow into the financial reports. After all, those reports are actually being read! So you will have to translate sustainability information into financial reports" (Investor). The effects of technical and value commensuration became increasingly visible in a fourth, and ongoing, phase that reveals cognitive commensuration.

4.4 Phase 4 (>2012): Integrated reporting (cognitive commensuration)

As reporting's commensuration continued, a particular understanding of the meaning of sustainability and what it meant to be a reporting company emerged. Firms increasingly started to pay attention to what was included into indicators and quantified, and diverted from what was not. This emerging dimension of cognitive commensuration, or "reclassifying the

world in terms of categories that align more closely with the new metrics" (Levin & Espeland, 2002, p. 126) further highlighted some tensions. Reporting, still driven by accountants and investors, increasingly became associated with (financial) value and a focus on material (i.e. strategically important) topics. This made sustainability more attractive to executives and investors, yet at the same time it also led to discomfort by other stakeholders as moral discussions were minimized. In essence, a scenario emerged in which "materiality of reporting was positioned against transparency. That is, some stakeholders argued that reporting ought to be about understanding better the performance of companies, whilst for other stakeholder groups it is more about the transparency and integrity of companies" (NGO).

Cognitive commensuration highlighted the standardization of the meaning of sustainability and sustainability reporting. A reporting company was one that showed how social and economic value went hand in hand. By focusing on material topics "they bring back sustainability in their reports to its strategic core, which also means that there is only one way to report, and that is integrated reporting" (Consultant). On the one hand, this led reporting to "develop from a kind of tick-the-box exercise towards reporting that is more relevant for the corporate strategy" (Investor). Even more than before "the ultimate goal of sustainability reporting and moreover integrated reporting is to evaluate and value the quality of the firm" (Investor). In order to achieve this there were "initiatives of many investors who are working on KPI development. So per sector they say that these ten or twenty indicators are simply financially relevant" (Consultant). The Sustainability Accounting Standards Boards (SASB) provided firms with industry-specific 'materiality maps' and thus an overview of material indicators.

The commensurative work undertaken positioned sustainability/CSR as "something that people in the top-level of the firm can understand. The general concept of CSR is too

broad and difficult if you will. But when you see that your transparency or CSR score goes from 60 to 70 than everybody understands that you have improved" (Consultant). With this strategic and financialised focus, sustainability had "become an easier message because rather than talking about sustainability, I mean I very, very rarely use that term, I go in to talk to clients and I will talk about risk, I will talk about opportunity, cost, and as a result of that you talk the language of business" (Partner, Big Four). Ultimately, the boundaries between business and sustainability started to disappear, or as one rating analyst argued: "I think that as long as, if you like, sustainability can be externalized and be something that is additive to, it can be called sustainability. Once it is integrated into the business people stop calling it sustainability". Sustainability turned into business-as-usual.

Commensuration resulted in a very specific, yet unavoidably partial, understanding of what it meant to be a reporting company. The value-driven understanding of sustainability reporting troubled critics. One sustainability consultant commented: "the topic of sustainability is currently being hijacked by the accountants, KPMG-type of people, and the raters and ISO-folks. I do understand where the desire comes from: clarity, measurability, thinking in absolute terms, yet it has limitations". The partiality of reporting's meaning became apparent when looking at NGOs: "… they of course didn't care about the business case, they cared about the case for responsibility and the moral basis for getting involved, accountability, transparency, what are their values, and they thought this [reporting] would be an instrument for advancing those values" (NGO). However, they found reporting to be co-opted by corporates without fundamentally changing their 'modus operandi' and thus morally corrupting. Risks loomed of firms neglecting to think about individual values and what sustainability meant to them. Instead, it became apparent that firms followed the guidelines, indicators, rankings and the omnipresent business case logic: "if you restrict yourself to

reporting the standardised information, and I think that is cause for concern, at least for me, then you risk that you stop the thinking" (Partner, Big Four).

5. Discussion

Our findings show that the different dimensions of commensuration supported sustainability reporting's journey from a practice concerned with moral values to a practice mainly focused on the creation of firm value. These results point to an interesting (and so far mostly neglected) effect of commensuration: the crowding out of morality. Early reporting practices served as a ground for moral reflections by firms and their stakeholders. Increasing levels of commensuration, however, rendered the moral nature of sustainability issues (and the attached ethical dilemmas) less visible. This crowding out process obscures that morality and the creation of financial value can potentially be incommensurable.

We theorize the crowding out of morality as a process of amoralization (Crane, 2000). Amoralization refers to the denial or neglect of moral status for sustainability-related questions; it is about not making certain social or environmental issues the subject of moral reflection (see also Bauman, 1993; Ten Bos, 1997). Our argument is not that the commensuration of sustainability reporting completely denies morality in corporations, but that the moral status of sustainability is marginalized and not much reflected upon. To advance the theoretical explanation of commensuration's effect on amoralization, we identified two mechanisms that explain how moral concerns around sustainability were sidelined over time: objectification and marketization.

5.1 Objectification

The objectification of sustainability issues made it easier for actors to obscure the moral dimension of social and environmental problems. Following McKinley (2011), we understand

objectification as a process through which certain phenomena achieve the status of things over time (see also Lane, Koka, & Pathak, 2006). The commensuration of sustainability reporting objectified relevant parts of social reality – that is, it turned subjective moral concerns around social and environmental problems into decontextualized indicators that were mostly linked to financial value. Consultants sensed an opportunity and started to promote reporting's business case and standard setters tried to provide reporting with 'hands and feet' through concrete guidelines and indicators. This technical commensuration created order out of chaos and made the complex practice more manageable and easier to understand for a larger audience. It also shifted the emphasis from more narrative accounts of firms' sustainability practices to formal codifications and countability (Hasselbladh & Kallinikos, 2000). The objectification of sustainability through reporting took away a lot of the tacitness and ambivalence related to social and environmental issues and instead created a simpler and seemingly rational and objective approach. The development of numerical indicators made it possible to know and judge sustainability without any access to detailed contextual particularities (Merry, 2011).

The objectification of sustainability also led to higher degrees of depersonalization. Research in social psychology suggests that depersonalization leads to a situation in which the moral status of something is either completely withdrawn or at least neglected more easily (Loughnan et al., 2010). Moral disengagement becomes easier because people feel less involved in ethical dilemmas when seeing sustainability through the lens of formal codifications and 'technical' indicators instead of semantically richer narrative accounts. Such moral disengagement is caused by the application of cognitive frames (Palazzo, Krings, & Hoffrage, 2012). People use such frames "to impose structure upon information, situations, and expectations to facilitate understanding" (Gioia, 1992, p. 385). Our study shows that commensuration influenced such frames (mostly through cognitive commensuration) and hence controlled which aspects of sustainability were emphasized and which ones were

obscured. The tools, indicators, standards, KPIs and measurement systems that resulted from technical and value commensuration shaped peoples' perception in a way that sustainability was increasingly framed in economic and instrumental terms.

One such frame is that addressing those sustainability issues that are positively linked to firm value is inherently moral (e.g., as highlighted by discussions around 'shared value' and the 'business case'). Prior research suggests that cognitive frames are rigid in the sense that people do not shift easily between them (Schoemaker & Russo, 2001). Cognitive frames, which are influenced by commensuration processes, are likely to be particularly rigid, as sustainability metrics contain higher levels of codification and thus lower levels of interpretative flexibility. Research on the sociology of numbers confirms this. Porter (1995), for instance, showed that indicators might be perceived as contingent at first; however, once they are in place they become resilient and take on a permanent existence as a form of knowledge.

5.2 Marketization

Our findings also demonstrate that marketization was a driving force of the amoralization of reporting through commensuration. Marketization refers to the "expansion of market coordination into non-market coordinated social domains" (Ebner, 2015, p. 369). Commensuration and the formation of markets are known to go hand in hand (Levin & Espeland, 2002). While our findings support this, as commensuration contributed significantly to the creation of a market around sustainability reporting, our results also show that commensuration enabled the spreading of a market system into a domain which some perceived as consisting of incommensurable issues. Following White (1981, p. 518), we understand markets as "self-reproducing social structures among specific cliques of firms and other actors who evolve roles from observations of each other's behaviour." Over time,

different forces and actors contributed to the formation of a market around sustainability reporting: Standard setters (like the GRI) provided a common language and benchmarks, while the Dutch government provided hard and soft regulatory measures. Investors and accountants refocused reporting to a more strategic core to merge sustainability into the business. Investors also increasingly demanded 'hard data' on sustainability (e.g., to manage responsible investment funds). Accountants, on the other hand, offered assurance services for firms' reports. Firms were motivated to demand assurance, as this often opened the door to participate in rankings and indices (e.g., the Dow Jones Sustainability Index). All of this contributed to the formation of a market for sustainability reporting.

The marketization of reporting supported the amoralization of sustainability. Much like objectification, marketization made it harder for firms and other actors to make sustainability the subject of moral reflection. In order to understand why this was the case we turn to Habermas's (1987) remarks on the 'colonization of the lifeworld'. Habermas (1987, p. 124) follows a two-level concept of society: the 'lifeworld' reflects the stock of knowledge that is the basis for everyday encounters in society and supports communicative action and moral reflection, whereas societal differentiation into different 'systems' (including the market system) allows for coordination within specific domains. While the lifeworld achieves coordination through mutual agreement on validity claims, systems operate according to their own logic (e.g., an economic logic for the market system). Habermas argues that in modern societies system integration dominates the effects of the lifeworld: the system starts to colonize the lifeworld insofar as the instrumental reasoning of the market system becomes so predominant that it enters the sphere of the lifeworld and limits the possibility to raise normative concerns (Habermas, 1987, p. 355).

Our case shows how the market system, which was created around sustainability reporting, started to enter actors' lifeworld and hence made instrumental reasoning the modus

operandi. More precisely, it was the monetization of social interactions around sustainability reporting that was driving the money-mediated market system into the domain of sustainability and made it more difficult to distinguish between what *is* (in an economical sense) and what *ought to be* (in a moral sense) (see also Espeland & Sauder, 2007). Monetization sidelined moral concerns in two ways: (1) by limiting reporting to those topics that could be framed in monetary terms (e.g., when standard setters called for focusing disclosure on 'material' sustainability issues that are relevant to firm value) and (2) by making social interactions around reporting subject to economic exchanges (e.g., when accountants 'sell' assurance or when investors 'buy' information on sustainability-related risks). These two developments made it more difficult to coordinate social interactions through means of communicative action and hence to allow for reflecting on moral concerns. For instance, commensuration enabled the integration of what investors have started to call ESG (economic, social governance) data into Bloomberg terminals and thereby embedded relevant issues into market transactions (e.g., valuation of companies). Bloomberg, however, collects this data from company sources and hence focuses on 'material' ESG information, while non-material sustainability issues are rendered invisible.

5.3 Implications and contributions

5.3.1 Commensuration

So far, the commensuration literature has discussed the role of morality mostly in the context of incommensurables. Ethical dilemmas are often perceived to include incommensurable values (i.e. it is not possible to compare the value of two things; see e.g. Raz, 1986). Our analysis complements and extends this discussion. We show that commensuration was a successful undertaking in the context of sustainability reporting because it crowded out moral concerns and thereby reduced the likelihood of long 'philosophical' debates about intangible

worth, which could have resulted in claims about incommensurability. Many social and environmental problems could potentially be seen as incommensurable, because they occur at the intersection of different institutional spheres where modes of valuing clash (Espeland & Stevens, 1998). Deep ecology thinkers have long claimed that it is impossible to express the protection of the environment in economic terms. Nature deserves to be protected for the sake of protecting it (Fourcade, 2011; Naess, 1989). Likewise, although scholars have argued that human rights should be measured in principle, they have also pointed out that the achievement of rights cannot be measured without running into ethical dilemmas (Merry, 2011). The commensuration of sustainability reporting helped to overcome the seemingly incommensurable nature of 'business' and 'sustainability' by replacing moral debate with technical expertise. It accommodated the value of labor rights, environmental rights, corruption, and human rights – some aspects of which cannot be legitimately expressed in relation to other valued things.

Our analysis also extends the literature on commensuration by highlighting a so far neglected dimension: proto-commensuration. While current studies on the different dimensions of commensuration (Kolk et al., 2008; Levin & Espeland, 2002; MacKenzie, 2009) highlight the necessity of technical, value and cognitive commensuration, we show that proto-commensuration precedes any technical commensuration work by relating so far unconnected aspects. In our case, proto-commensuration was inevitable, as it helped to overcome the seemingly incommensurable nature of sustainability and economic reasoning. While technical commensuration contains technical work in terms of measuring sustainability issues and to design relevant devices (MacKenzie, 2009), proto-commensuration involves the work of overcoming a certain cognitive distance – i.e. a distance that has previously even prevented the discussion of the possibility of expressing two issues in relation to each other. We believe that proto-commensuration is particularly important in commensuration processes

that deal with seemingly incommensurable things, such as when the intrinsic value of nature or human rights is at stake (Taylor, 1981). In our case, proto-commensuration laid the foundation for the subsequent crowding out of moral concerns and hence deserved special attention.

5.3.2 Sustainability reporting

Our study also extends the literature on sustainability reporting by discussing the overlooked link between information disclosure and ethical decision-making (for an exception see Williams & Adams, 2013). Our findings show that sustainability reporting emerged into a practice that may favor a certain degree of 'ethical blindness' – that is, "the inability of a decision maker to see the ethical dimension of a decision at stake." (Palazzo et al., 2012, p. 325) We suspect that in most cases such blindness is unconscious and that actors are not aware that they may even divert from their own individually held values (Tenbrunsel & Smith-Crowe, 2008). Sustainability reporting involves a number of decisions (e.g., on reporting scope and content) and the disclosed information also informs decisions by other actors (e.g., investors). Ethical blindness can change the nature of these decisions, as it makes actors refrain from moral reflection and to rather focus on taken-for-granted tools and indicators.

We do not believe that blindness will *ipso facto* lead to unethical decisions; this remains an empirical question that can only be addressed in the context of specific organizations. However, we believe that ethical blindness can help actors to sideline 'uncomfortable' reflections about the moral status of the reported social and environmental issues (e.g., moral obligations vis-à-vis employees). While organizations cannot fundamentally change reporting tools like GRI, they can encourage a certain level of moral imagination (Johnson, 1993) to influence how actors apply these tools. In the context of

sustainability reporting such imagination could be about envisioning the potential harm or benefit that is connected to the information disclosed with regard to a certain indicator. It could also be about envisioning the potential effects of information that was not deemed material enough to be included into the report.

Our results also contribute to the literature on sustainability reporting by showing the relevance of a fundamental (yet not sufficiently debated) question: what and who is sustainability reporting for (see also Gray, 2006)? Even though our study does not provide a direct answer to this question, it shows that there is an imbalance between an increasing domination of a managerialist understanding of reporting (which often protects the status quo in terms of companies' operations) and the declining importance of an approach that takes individual values and moral questioning seriously. If we conceive of sustainability reporting as yet another way to enhance firm value, then the current direction of disclosing social and environmental information is satisfactory. However, if we understand reporting as a way to hold firms accountable for the full spectrum of their sustainability impacts (both positive and negative) and omissions, we may be in need of reform. The latter approach challenges the very pillars of current corporate practices and hence would be unattractive to investors and corporate strategists, but it would broaden our understanding of what it means to create 'value' (Gray & Bebbington, 2000).

6. Conclusion

This study showed that four dimensions (proto, technical, value, cognitive) impacted the commensuration of sustainability reporting and that these four dimensions had different relevance throughout the evolution of reporting. We argued that commensuration moved reporting from an initial concern with moral values to a more instrumental concern with firm value. We theorized this crowding out of morality as a process of amoralization, which was

driven by the rigid cognitive framing of social and environmental issues (objectification) and the increasingly monetized coordination of relevant social interactions (marketization). Our study is by no means an attempt to excuse unethical behaviour. Rather, it shows the necessity and possibility to study the 'ethics of commensuration' in more detail. We believe that such a discussion is critical, not only because commensuration is a prevalent phenomenon but also because it spreads into different spheres of life. In our case, the commensuration of reporting has created effects that are increasingly relevant in other societal domains. NGOs, for instance, are asked to attach specific (often financial) indicators to measuring their work in order to meet standards of evidence-based funding. Similarly, commensuration enters the legal sphere as sustainability reporting is increasingly influenced by regulation (e.g. the EU directive on non-financial reporting) and actors such as the Dutch State face litigation over taking insufficient action against climate change. Also legally different qualities are pulled together for comparison (see e.g. Ng & He, 2017) and this asks for a better understanding of the process and effects of legal commensuration.

The presented results need to be viewed in context. Our study is concerned with the commensuration of social and environmental issues. Typically, these issues attract less clarity and hence more discussion regarding the elements that require commensuration. In the case of sustainability the connection between values and value is notoriously difficult to establish (Bermiss, Zajac, & King, 2013). This ambiguity is not present in all cases of commensuration. The described interactions between commensuration, reporting, and amoralization are most likely to arise when claims about incommensurables are strong, for instance "at the borderlands between institutions, where what counts as an idea or normal mode of valuing is uncertain, and where proponents of a particular mode are entrepreneurial" (Espeland & Stevens, 1998, p. 332). Future research needs to show in how far the insights from this case study and the underlying mechanisms also hold for less contentious commensuration

processes. Such research can ask questions such as: Does proto-commensuration only appear when seemingly incommensurable aspects are at stake? In how far does the role of cultural assumptions about money in social relations influence the valuation of sustainability?

To further extend research on how amoralization and commensuration interact we need to know more about how mundane practices related to commensuration influence moral disengagement. Our analysis operated at the field level and hence it was not concerned with the role of specific practices. In order to gain more insight into this 'how' question of commensuration, insights derived from the institutional work literature could be beneficial (Canning & O'Dwyer, 2016; Lawrence & Suddaby, 2006). Such research could questions such as: Which institutional practices frame and channel demands for the monetary valuation of sustainability issues? In how far are relevant practices deliberately framed as being 'morally neutral'? How do actors create new ways of visualizing sustainability issues (e.g., Excel sheets), and what effects does this have on their moral engagement with an issue?

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Table 1 Overview of interviewees

Actor group	Number of interviewees	Actor group	Number of interviewees
Civil servants	11	Reporting firms	23
NGO (pressure groups, think-tanks, GRI)	24	Academics	5
Investment community (e.g. investors; analysts, rating agencies)	13	Professional services firms (e.g. consultants; accountants)	22

Table 2 Overview of data sources

Type of data	Detail of source	Amount of data	Data analysis
Interviews with field informants	Interviews with firms, civil society, investors/raters, consultants, accountants, policy officials, academics.	98 interviews (approx. 100 hours)	Transcribed interviews, analysed and coded the material. Through iterative analysis of data and literature the main phases, themes and commensuration work emerged
Archival and documentary material	Newspaper articles of Dutch press, consultancy reports, NGO studies, government legislation and reports; investor statements	3100 pages	Contextual reading and field familiarization. Setting up event history database; background for interviews; enhanced credibility and further validation of interview data interpretations; document summary forms.
Conferences and workshops	e.g., Dutch Annual Seminar CSR Reporting; Seminar Integrated Reporting: 'Measuring is knowing'; Roundtable Sustainable KPI's; Seminar True Value	30 pages	Notes from discussions, informal meetings and presentations reviewed. Helped to understand the commensuration practices and gain better practitioner perspective on commensuration and discuss proposed theoretical constructs and relations.

Table 3 Summary of four phases of sustainability reporting

Reporting phase	Environmental Reporting (<2000)	Triple bottom line Reporting (2000-2008)	Integrated Reporting I (2009<)	Integrated reporting II (2012<)
Commensuration dimension	Proto-commensuration	Technical commensuration	Value commensuration	Cognitive commensuration
Purpose	Creating awareness; putting reporting on the map; moral framing and an add-on to business-as-usual	Business case (efficiency, risk & reputation)	Strategic value creation (growth, innovation, competitive advantage, shared value); valuation	
Main actors	Civil society; state	Standard setters and consultants	Investors and accountants	
Critique	Reporting too moral and vague practice for 'values-driven tree-huggers'	Reporting as a mindless tick-the-box exercise	Reporting impoverished because of ignoring incommensurables	Restrictive and narrow meaning of reporting

Table 4 Phases and dimensions of sustainability reporting's commensuration

Phase 1 - Environmental reporting (<2000)				
Dominant commensuration dimension	**Main aspects**	**Representative data**	**Significance**	**Main actors**
Proto-commensuration: "everybody was trying to find out: What is sustainability and what does it mean for reporting? Can we actually report? What do we have to report on and how? ... Real missionary work" (sustainability manager)	Publication of reports linking the state of the environment with corporate behaviour (e.g. Agenda 21 & Brundtland) Push for corporate (environmental) accountability and transparency in society Emergence of sustainability as a logic of 'license to produce' through regulation with a role for transparency Moral undertone of reporting	"Sustainability is broadly shared and considered as important. Particularly sustainability in the broad sense: don't do things that harm the next generation. The Brundtland definition of sustainability" (CEO MNC) "I think sustainability reporting, the concept has been a beneficiary of movements and pressures that are driving business or signalling business that transparency is not an option any longer, it's really an expectation and you must respond to it" (NGO) "Here you talk about a relation primarily with the government: license to produce. It's about regulation, permits and compliance. If you do well, you can go about your business, if you don't follow the rules you will get a fine or lose your permit" (sustainability manager) "Sustainability was very moral, as in that you were morally obliged to pursue these sustainability goals and reflect and report on them" (civil servant)	Reporting a primarily morally inspired practice as a reclassification of the outlook of the future and the role of corporations in society and their responsibilities towards accountability and transparency takes place. Emergence of a meaning system in which both corporate sustainability and transparency start to play a role. This brings together formerly disparate elements to create the ground for further commensuration.	**Civil society/state:** "The societal pressure was very strong. From NGO's in particular and the government, investors far less" (consultant)
Phase 2 – Triple bottom line reporting (2000-2008)				
Dominant commensuration dimension	**Main aspects**	**Representative data**	**Significance**	**Main actors**
Technical commensuration:	GRI guidelines and expansion of	"They went through a kind of teenager situation where they became almost obese with their	Emergence of dominant guidelines for reporting and demarcations of what	**Standard setters and consultancies:** "Of course, the

"let's all come together and try to create a global consensus among major stakeholders over what should be expected regarding environmental, health and safety and social and economics" (sustainability manager)	indicators Development of indices, benchmarks and national accounting standards	KPI's. Fine, it is a normal child or teenage disease, every organization goes through that type of thing" (NGO) "The call for standards and all increases also from companies themselves. They get more and more requests for data and questionnaires etc. on various topics. It is more efficient to have standards for that so they do not drown in requests with various requirements (rating agency)	sustainability reporting entails and how to measure its aspects. Sophistication of indicators and measurement techniques.	work of consultancies pushes this further as well, as does the direction that for example the GRI provides" (civil servant)
Phase 3 – Integrated reporting I (2009<)				
Dominant commensuration dimension	**Main aspects**	**Representative data**	**Significance**	**Main actors**
Value commensuration: "The main objective is to move towards the so called integrated report. It is how enterprises can picture the real economy and value the enterprise by better linking and even integrating financial and non-financial performance" (NGO)	Development of KPI's linked to value-added by firms Ratings and rating agencies gain prominence Rise of integrated and impact reporting	"It'd be very useful if there was one figure that immediately makes clear: this company you have to buy … but that does not exist yet. It's a challenge for companies and investors I think to find indicators in the environmental, social and sustainability areas that are reliable enough and also timely enough to use in more quantitative processes" (investment specialist) "There's a lot of confusion in the marketplace about what is sustainability and what is ESG and what is SRI … so they're like, 'Well I want a ranking that tells us what the most responsible investments are' and that's quite a subjective thing. But if you can get that criteria given to you in the form of a rating or anything, you can just say, 'I don't have to think about it'" (rating agency) The main objective is to move towards the so called integrated report. Because what is the real	Demarcation between financial and non-financial and between sustainability and more mainstream traditional reporting becomes increasingly blurred. Valuation of firms takes on-board sustainability criteria which thus have to be simplified and quantified in order to make them measurable and comparable.	**Investors/accountants:** "Slowly but surely the interest of investors has increased, together with the belief that sustainability cannot be seen on its own, but as a valuation pillar for a firm" (partner Big 4); "with the integrated reporting there will be a real strong push from the accounting industry" (NGO)

		agenda? It is how enterprises can picture the real economy and value the enterprise by better linking and even integrating financial and non-financial performance (NGO)		
	Reported data gets treated as a valuation instrument	"this will become sort of the norm because it will show a fully integrated report around all the business risks … and they will be quantified around providing a value of that risk or opportunity" (partner Big 4)		
Phase 4 – Integrated reporting II (2012<)				
Dominant commensuration dimension	**Main aspects**	**Representative data**	**Significance**	**Main actors**
Cognitive commensuration: "You of course also assume that a report in compliance with certain sustainability guidelines or standards is a good report and that the reporting firm itself is a good and sustainable company because they follow these guidelines" (consultant)	Standardization of the meaning or definition of sustainability (e.g. rankings creating the reality of sustainability's meaning)	"we summarize this as follows: we want to be in the Top 3 of sustainability. Top 3 on the sustainable asset management van de Dow Jones. We claim that this is our value and values-strategy" (sustainability manager).	Helps to make actors see the world differently through the metrics that were constructed, yet at the same time creates a more partial, and contested, understanding of sustainability and sustainability reporting that evades moral discussion.	**Idem phase 3.**
	Shared understanding of what it actually means to be a company that reports on its sustainability performance	"I see firms that are just starting out with reporting and they immediately want to attain the highest reporting levels. They think they are doing very well since they following indicators and ultimately get a certain score or so" (sustainability consultant)		
	Material sustainability aspects integrated into / captured by business strategy	"I think in ten years or so we will not even talk about sustainability or CSR. It will have been completely integrated in doing business, just business as usual and the normal way to operate as a firm" (sustainability manager)		