Integrated reporting: exploring supervisory board members' perspectives on the motives, drivers and benefits

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Abstract

Purpose – The purpose of this paper is to explore the perceived benefits of integrated reporting (IR) and factors influencing the motives that supervisory board members (SBMs) have for advocating a change towards IR implementation.

Design/methodology/approach – An exploratory survey study was conducted to investigate the influence of external market conditions, internal organizational conditions and observed benefits on the motivation to advocate IR adoption in companies that have not yet implemented IR. A unique set of survey data from 62 SBMs of Dutch companies was used for analysing the propositions derived from IR literature and based on institutional theory, legitimacy theory and diffusion of innovation theory.

Findings – The respondents indicated to be supportive of IR adoption. SBMs who had experienced the implementation of IR observed that IR offers benefits. Their motives for advocating a change towards IR in companies that had not implemented IR were influenced most by the observed benefits in IR companies. SBMs only involved in companies that had not adopted IR are motivated to support IR adoption to a similar extent. These findings suggest that directly observed benefits by SBMs need to exceed a considerable minimum level before these SBMs are more motived to advocate IR than their peers who have not witnessed the implementation of IR and that experiences are shared across companies. The motivation of both groups is influenced by external market conditions but not by internal organizational conditions.

Practical implications – The findings have implications for potential IR adopters and institutions promoting the further diffusion of IR as they emphasize the need for tangible benefits of IR and confirm that sharing good practices and benefits of IR can provide a catalyst for IR adoption. The findings contribute to the understanding of the motivation of SBMs as an important organizational condition for implementing IR as this study provides insights in the factors that drive this motivation of key actors influencing the decision to implement IR. Furthermore, the finding that these factors predominantly comprise tangible results and external market conditions is relevant from an organizational change perspective.

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Social implications – Understanding the mechanisms of IR-adoption decisions provides a relevant basis for deploying programmes promoting IR as a general reporting standard. This could provide society and a broad range of stakeholders with access to information incorporated in integrated reports. It could ultimately have a major impact on society by improving decision-making and increasing the long-term sustainability of organizations and their relations with stakeholders.

Originality/value – This study provides preliminary empirical evidence concerning the perspectives of SBMs on their motives for advocating IR, based on a unique sample from a country that has been involved with IR from its start.

Keywords Integrated reporting, Supervisory board members, Benefits of integrated reporting, Integrated thinking, Survey

Paper type Research paper

1. Introduction

The financial crisis of 2007–2009 served as a catalyst for stakeholders to demand that companies increase the transparency of their external reporting, while pushing companies to measure and manage non-financial performance (De Villiers *et al.*, 2017a; IIRC, 2013). Companies responded by publishing sustainability and corporate social responsibility (CSR) reports, but these separate reports have nevertheless failed to provide a comprehensive view of the performance of companies (Bernardi and Stark, 2018; Velte and Stawinoga, 2017; Frías-Aceituno *et al.*, 2014). To reconcile the reporting demands of all stakeholders, the International Integrated Reporting Council (IIRC) has developed a principle-based framework for integrated reporting (hereinafter, IR) (IIRC, 2013). The IR framework is gaining increasing support from regulators, business executives and scholars and companies are increasingly adopting IR as their primary form of reporting (Rinaldi *et al.*, 2018; De Villiers *et al.*, 2017b; Dumay *et al.*, 2015).

Although scholars have long advocated the use and purpose of IR (De Villiers *et al.*, 2017b; Eccles and Krzus, 2010), academic empirical research on factors influencing the adoption of IR and its proposed merits is still scarce (Reimsbach *et al.*, 2018; Rinaldi *et al.*, 2018; De Villiers *et al.*, 2017a). Little attention has been paid to the expected organization-specific benefits that drive the motivation to implement IR, evidence of the effects of IR adoption on information quality, accountability, sustainability and business performance is limited, and the few studies on these organization-level impacts of IR adoption have produced heterogeneous results (Reimsbach *et al.*, 2018; Dumay *et al.*, 2017).

The primary aim of our exploratory survey study is to explore the motives that Supervisory Board Members (SBMs) have for advocating the implementation of IR in the organizations that they supervise. We use institutional theory and legitimacy theory to explore the drivers and motives for IR adoption. This is done by using the diffusion of innovation (DOI) theory to describe how the concept of IR diffused and how this change is advocated by SBMs. The perspectives of SBMs provide a relevant lens, as their priorities include reporting their firms' results to external stakeholders, monitoring long-term value creation and maintaining the license to operate by realizing the required return on all capitals distinguished by IR. SBMs can play an important role by influencing the decision of executive directors to adopt IR in their organizations, both in a two-tier board structure as well as a one-tier board structure, who are therefore both included in our sample. This study provides insight in the extent to which external market related conditions and internal organizational conditions drive the motivation of SBMs as key actors influencing the decision to implement IR.

The survey was held amongst active and candidate[1] members of the supervisory boards of (not)-for-profit organizations in The Netherlands that had started applying IR (hereafter: IR-companies) and that had not (non-IR-companies). The Dutch perspective is relevant, given that The Netherlands was one of the first countries to engage in IR activities on a large scale. Of the 40

companies worldwide joining the IIRC Pilot Programme, eight were Dutch (IIRC, 2011b), and more than one third of all Dutch listed companies were already working on IR in 2015 (IIRC, 2015). Furthermore, at the time of our survey, the second revision of the Dutch Corporate Governance Code (CGCMC, 2016) had recently been released, increasing emphasis on the creation of long-term value for stakeholders as the main priority of companies and their (non)-executive directors, as well as operationalizing long-term value creation and comprehensive risk management as the main pillars of the Code. The Code recognizes IR as a key concept for reporting on the realization of this priority, which has therefore been embedded in many corporate governance codes (Mähönen, 2020). We cannot rule out country-specific elements in our empirical findings, although the organizations of our respondents will not be only exposed to homogeneous local market conditions because of, among others, international cooperation and trade, industry specific legislation and other conditions and international authorities and communities of stakeholders.

The 62 respondents constituted a distinctive and relevant group, most of whom indicated that they were familiar with the concept of IR. Because the concept of IR can be interpreted in different ways (Robertson and Samy, 2015; Gibassier *et al.*, 2018), we ensured the consistency of IR interpretation between respondents. Our respondents showed supportive of the adoption of IR. Respondents of IR-companies claimed to have observed benefits in their own professional practice. They identified these benefits as the main motives to advocate the adoption of IR in non-IR-companies. Nevertheless, these respondents and the respondents of non-IR-companies expect benefits from IR to a similar extent, suggesting that a minimum level of directly observed benefits is required to motivate the former to advocate IR to at least a similar extent as the latter, and that experiences with IR are shared across companies. Both groups of respondents identified external market conditions as determining factors for their motivation to support IR adoption. We found no support for the expected influence of internal organizational conditions.

Our exploratory study is the first to provide empirical support for claims concerning motives for and impacts of IR. Our study can be used by practitioners to substantiate assumptions and expectations concerning the impact of adopting IR when preparing the decision to change towards the adoption of IR and managing IR implementation projects. The insights also suggest relevant pathways for further academic research. By using the empirically supported insights based on expectations that are formed using institutional theory, legitimacy theory and diffusion of innovation theory, the study contributes to the emerging body of literature that investigates drivers and motives for IR adoption, IR practices and its diffusion (Higgins *et al.*, 2014; Stubbs and Higgins, 2014; Lodhia, 2015; Steyn, 2014; van Bommel, 2014).

2. Literature review, theoretical framework and proposition development

2.1 Theoretical framework

Researchers have drawn from multiple, complementary, theories to study the adoption and diffusion of IR, such as stakeholder theory (Frías-Aceituno *et al.*, 2013b; Vaz *et al.*, 2016; Girella *et al.*, 2019), legitimacy theory (Steyn, 2014; Lai *et al.*, 2016), signalling theory (Frías-Aceituno *et al.*, 2014; Girella *et al.*, 2019) and practice theory (Lodhia, 2015). To study the perspectives of SBMs on IR and to explore the motivations and drivers of IR adoption, we use institutional theory, legitimacy theory and diffusion of innovation (DOI) theory. Institutional theory is used to explore external determinants such as financial systems, legal systems and country determinants (Frías-Aceituno *et al.*, 2013b, 2014; García-Sánchez *et al.*, 2013; Jensen and Berg, 2012; Vaz *et al.*, 2016; Girella *et al.*, 2019) and to study the adoption and diffusion of IR based on the pressure applied to them from the political, financial, educational, cultural and economic institutions. Institutional theory assumes that

organizations operating in similar institutional environments, will show similar corporate behaviour (DiMaggio and Powell, 1983; Campbell, 2007; Matten and Moon, 2008). Kılıç *et al.* (2021) find that institutional environment determines the adoption of IR and corporate behaviour. It is thus expected that organizations in similar environments would show comparable behaviour towards the adoption of IR, implicating that the institutional environment impacts the diffusion of IR.

Oktorina *et al.* (2021) recognize the gap between literature, which supports the benefits of IR and the use of the concept in practice, and use the DOI theory to study determinants of IR disclosure quality. DOI theory can be used as a basis to study the factors that either hinder or promote the diffusion of an innovation (Rogers, 2003). Diffusion is considered to be the process by which an innovation is communicated through certain channels over time among the members of a social system (Green *et al.*, 2009) and has widely been used to study the diffusion of new accounting concepts (Malmi, 1999; Bjørnenak and Olson, 1999; Geroski, 2000; Perera *et al.*, 2003). Rogers (2003) identified three fundamental requirements for diffusion to take place: an innovation to be diffused, potential adopters and a communication to spread the idea. In case of IR, the concept itself is the innovation to be diffused, potential adopters are the organizations and the communications are spread by the IIRC as well as, a/o, SBMs. If SBMs "adopt" a new innovation as seemingly something of interest for the organization they supervise, this can contribute to the diffusion of the innovation because of the advocating role they can play. They can also play a role in communication on innovations, as often they supervise multiple organizations. The motivation of SBMs to adopt IR can thus play a key role in the diffusion of IR. This makes the insight in the drivers of their motivation to adopt IR relevant in explaining or predicting the diffusion of the concept. The original premise in diffusion theory is that diffusion takes place because of the benefits or efficiencies gained through adoption (Malmi, 1999), although Abrahamson (1991) elaborated on this "efficient-choice" premise with the fads and fashion theory, indicating that more aspects than just benefits and efficiencies could lead to the diffusion of innovation, such as legitimacy reasons as further explained by legitimacy theory. Key is that the adoption of innovation comes with change, and as Sangster (1996) states, it is thus necessary that at some point there is an individual who is convinced that change is desirable and is able to advocate it. In this study, we view SBMs as potential "change agents" and use their perspectives on IR to explore the motivations and drivers of IR adoption.

2.2 Factors, benefits and motives of integrated reporting adoption

To study the perspectives of SBMs on IR adoption, we conducted an extensive review of English-language literature from the year in which the IIRC was founded (2010) onwards, as retrieved through EBSCOhost, ABI/Inform and Google Scholar, searching for keywords (e.g. "integrated reporting", "integrated thinking", "IIRC") and combinations with "impact", "benefit", "motive" and their synonyms. Our study also covers the impacts and benefits of or motives for CSR or ESG (environmental, social and governance) efforts, as reported in studies that also support the relevance of these aspects for IR (Jensen and Berg, 2012; Fasan *et al.*, 2016; García-Meca and Pucheta-Martínez, 2018; Lueg *et al.*, 2016). For example, Sierra-García *et al.* (2015) report that the likelihood of deploying IR significantly depends on issuing an assured CSR report.

Our study was enhanced by the elaborate literature review by Velte and Stawinoga (2017). They distinguish between market-level research, organization-level research and individual-level research, identifying theoretically supported factors that drive the implementation and quality of IR, market reactions to IR implementation and increased IR quality, and potential benefits to the reporting organization. Building on this categorization, we subdivide factors that theoretically drive or motivate IR adoption into external market conditions (Fasan *et al.*, 2016; Frías-Aceituno *et al.*, 2013b; Jensen and Berg, 2012) and internal organizational conditions

(Frías-Aceituno *et al.*, 2013a; 2014). We categorize the theoretical benefits of IR found in literature into connectivity benefits (Steyn, 2014; García-Meca and Pucheta-Martínez, 2018) and performance benefits (Maniora, 2017; Mar Miralles-Quiros *et al.*, 2017).

2.3 External market conditions

External market conditions revolve around the societal, institutional and economic conditions of the countries in which companies operate (Jensen and Berg, 2012). Fasan *et al.* (2016) and Vitolla *et al.* (2019) group these conditions into five categories: political/legal, financial, education/labour, cultural and economic. We added supporting evidence from other sources and rearranged the conditions to arrive at the societal, institutional and economic conditions listed in Table 1.

2.3.1 Societal conditions. Societal conditions of countries include diversity, collectivism, employee protection and union strength, along with the involvement of firms in the training and development of employees. In countries with more feminine cultures and a greater focus on self-expression, concepts like diversity and well-being are more important than they are in masculine cultures, thereby decreasing the relative importance of financial reporting and increasing the importance of IR (Girella *et al.*, 2019; García-Sánchez *et al.*, 2013; Jensen and Berg, 2012). García-Sánchez *et al.* (2013) and Vaz *et al.* (2016), and, later, Girella *et al.* (2019) show that the level of collectivism in a society influences the degree of IR adoption as the sharing of information by companies is valued more in countries characterized by collectivist values than in individualistic societies. Jensen and Berg (2012) find support for the claim that the extent to which companies are involved in employee training and development is associated with IR adoption, as well as for the expectation that high levels of employee protection and strong unions will enhance the relevance and quality of integrated reports (Fasan *et al.*, 2016).

Categories Jensen and Berg (2012)	Categories Fasan *et al.* (2016)	External conditions as discussed per category in Jensen and Berg (2012) and Fasan *et al.* (2016)	New category*
Political	Legal	- Civil law	b. Institutional
		- Investor protection	b. Institutional
		- Employee protection	a. Societal
Financial	Financial	- Market orientation	c. Economic
		- Ownership concentration	
Education/ Labour	Education/ Labour	- Expenditures on education	a. Societal
		- Strong trade unions	
Cultural	Cultural	- National Corporate Responsibility index	a. Societal
		- Self-expression (not included in Fasan *et al.*, 2016)	b. Institutional Excluded
		- Secular-rational values	
Economic	Economic	- Economic development	c. Economic

Notes: The categorization of external conditions is based on Jensen and Berg (2012) and Fasan *et al.* (2016). We have classified expenditures on education as a societal condition, since Jensen and Berg (2012) and Fasan *et al.* (2016) choose to look at this aspect from a nation-wide perspective. Ownership concentration is classified as an economic condition, as both sources classified it as an element of the larger financial system that leads its actors to invest in companies, taking an external rather than an internal perspective. * The external condition "Level of collectivism" (García-Sánchez *et al.*, 2013) has been added to category 2. Institutional

Table 1. Categorization of external conditions

2.3.2 Institutional conditions. Companies in countries with civil-law systems tend to be more accommodating of the needs of various groups of stakeholders, offering more incentives for IR adoption (Frías-Aceituno *et al.*, 2013b) and enhancing the quality of IR disclosure (Fasan *et al.*, 2016). In contrast, Jensen and Berg (2012), VA *et al.* (2016) and Rivera-Arrubla *et al.* (2017) find no significant relationship between the legal system and IR disclosure, while Frías-Aceituno *et al.* (2013b) report that countries that strictly enforce local laws and regulations have higher degrees of IR adoption.

Countries with higher scores on the National Corporate Responsibility Index have been shown to have higher rates of IR adoption (Jensen and Berg, 2012) and higher-quality IR disclosure (Fasan *et al.*, 2016). Also, the level of shareholder protection in countries is expected to be positively related to the quality of IR disclosure and adoption, as reporting requirements are likely to be stricter in countries with strong shareholder protection. According to empirical evidence reported by Jensen and Berg (2012), however, shareholder protection is negatively related to IR adoption, and the results reported by Vaz *et al.* (2016) are inconclusive regarding the influence of investor protection on IR adoption.

2.3.3 Economic conditions. In market-based economies, companies are more reliant on shareholders for capital. This dependency increases shareholder power, enabling them to demand more exhaustive reports, thus increasing IR adoption and the quality of IR disclosure (Fasan *et al.*, 2016; Jensen and Berg, 2012). Conversely, the concentration of ownership in a company is negatively associated with the likelihood that the company will publish integrated reports, as well as with the quality of its IR information (Fasan *et al.*, 2016; Jensen and Berg, 2012). Finally, countries with higher levels of economic development exhibit a higher degree of IR adoption and IR disclosure quality (Fasan *et al.*, 2016; Jensen and Berg, 2012), although these results are not supported by Vaz *et al.* (2016), who find no support for such a relationship between economic development and IR adoption.

2.4 Internal organizational conditions

Existing literature identifies a variety of enterprise and corporate-governance characteristics as internal organizational conditions that could drive the adoption of IR. Frías-Aceituno *et al.* (2013a) report a positive relationship between the size and diversity of the board of directors and the production of integrated reports. Although Kiliç and Kuzey (2018) support their findings regarding board diversity, they find no significant support for the influence of board size or board independence on disclosure. This is opposite to the results of Girella *et al.* (2019), who find that board size positively impacts the voluntary adoption of IR, while board diversity does not significantly impact the voluntary IR adoption. Frías-Aceituno *et al.* (2014) and Kiliç and Kuzey (2018) show that company size is positively related to the integration of corporate information through IR, as IR can lower agency costs by improving information disclosure. This finding is not supported by Vaz *et al.* (2016). Similarly, IR can serve as a signalling mechanism for more profitable firms or for firms with higher growth opportunities to attract investors and lower their cost of capital. Although the findings of Girella *et al.* (2019) and Frías-Aceituno *et al.* (2014) confirm the positive relationship between firm profitability and IR, the latter does not confirm a relationship between a firm's growth opportunities and IR. Kiliç and Kuzey (2018) find no support for the impact of a firm's profitability on IR disclosure.

Frías-Aceituno *et al.* (2014) further argue that the likelihood of adopting IR depends on the industry, as companies tend to adhere to industry standards in terms of reporting. They however only find little evidence to support this hypothesis, as later confirmed by Kiliç and Kuzey (2018). This is in contrast to the results reported by Rivera-Arrubla *et al.* (2017) and by Vaz *et al.* (2016), who find that the industry does influence the likelihood of applying IR.

Furthermore, Frías-Aceituno *et al.* (2014) show that companies experienced in the preparation of sustainability reports are more likely to adopt IR. In contrast, Rivera-Arrubla *et al.* (2017) find no support for the relationship between IR disclosure and GRI reporting. Finally, the assurance of sustainability information has been shown to have a positive influence on the likelihood of adopting IR (Sierra-García *et al.*, 2015; Rivera-Arrubla *et al.*, 2017), although this influence is not supported by the study of Vaz *et al.* (2016).

2.5 Organizational benefits

The academic literature on IR attributes many benefits to the adoption of IR (Vitolla *et al.*, 2019), although previous research has indicated that these presumed benefits are not always substantiated with evidence (De Graaff *et al.*, 2021). The IIRC promotes many of these organizational benefits as positive effects of IR adoption, dividing them into two categories: connectivity benefits and performance benefits. Connectivity benefits are defined as altering the ways in which companies interact with their stakeholders, while performance benefits alter the performance of companies. For classification of the benefits in either connectivity or performance benefits, we used of Velte and Stawinoga (2017), whose market level of analysis using stakeholder theory and legitimacy theory corresponds with the connectivity benefits, and whose organizational level of analysis using institutional theory and resource dependence theory corresponds with the performance benefits.

2.5.1 Connectivity benefits. One fundamental promise of IR is that it will generate more concise and balanced reporting on performance. In practice, however, companies with weaker social or financial performance tend to report less concisely on social topics (Melloni *et al.*, 2017). According to Abraham and Shrives (2014), once individual companies institutionalize disclosure, managers become reluctant to adjust such disclosures, thus potentially negating the potential of IR to change corporate reporting. Companies adhere to their own "tried and tested" reporting formats, and stakeholders are likely to perceive any shift to a less comprehensive report as a negative signal. As reported by Maniora (2017), companies using IR or stand-alone ESG reporting exhibit greater awareness regarding ESG issues internally. This is because such reporting changes corporate values, thereby increasing corporate awareness and focus regarding ESG issues.

Simnett and Huggins (2015) note that IR implementation drives companies to formulate their value-creation processes clearly, thereby enhancing employee awareness and engagement, which is supported by Mio *et al.* (2016). In addition, Burke and Clark (2016) report that IR improves communication across departments.

The greater (perceived) transparency provided by IR can enhance a company's reputation and image (Robertson and Samy, 2015). García-Meca and Pucheta-Martínez (2018) find that CSR reporting and board composition can affect reputation and stakeholder relations. Greater transparency also affects the ways in which companies interact with stakeholders, as the total volume of information disseminated is more relevant to the entire population of stakeholders, thereby increasing their engagement with the company and improving relationships between the company and its stakeholders (Burke and Clark, 2016; Mio *et al.*, 2016; Steyn, 2014).

Finally, IR can serve to overcome shortcomings of traditional financial reporting and CSR reporting (Lodhia, 2015). Traditional (financial) reports are typically ill-suited for reflecting a company's ethical and social values, and separate CSR reports fail to integrate these aspects into business performance (Higgins *et al.*, 2014).

2.5.2 Performance benefits. The more clearly a company articulates its view on creating value, the better its management will be informed on the drivers of performance, resulting in superior decision-making (Maniora, 2017; Burke and Clark, 2016; Simnett and Huggins 2015;

Frías-Aceituno *et al.*, 2013a, 2014). Management has a clearer view on the resulting business risks and market opportunities, thus making companies more agile, ultimately improving business performance in the long-term (Simnett and Huggins, 2015; Maniora, 2017; Mar Miralles-Quiros *et al.*, 2017). In contrast, Steyn (2014) argues that IR is unlikely to cause companies to make significant alterations to their value-creation activities.

Frías-Aceituno *et al.* (2013a) find that integrating information in a single report facilitates decision-making and serves as an incentive for companies to restructure their information-gathering process by investing in an integrated management control system (MCS), ensuring more timely and comprehensive information as well as cost reductions due to increased efficiency (Simnett and Huggins, 2015; Mio *et al.*, 2016). Lee and Yeo (2016) demonstrate that IR reduces the costs of information processing, especially for firms with a high level of organizational complexity, and these results are in turn supported by García-Sánchez and Noguera-Gámez (2017), who report that IR adoption reduces the information asymmetry between management and capital markets, thus lowering the cost of capital. Also, Barth *et al.* (2017) find how IR quality is positively related to firm value; however, they find that this is not due to a lower cost of capital, but attributable to liquidity and expected future cash flows. Steyn (2014) finds that only a minority of companies have experienced cost reductions. One possible explanation could be the up-front investments involved in changing the MCS, which are expected to pay off in the long term (Mio *et al.*, 2016), combined with the delayed response to IR in the capital markets.

2.6 Propositions

For the influence of external market conditions, internal organizational conditions and the observed performance and connectivity benefits on the motivation of SBMs to advocate the adoption of IR, we formulate propositions relating to the factors explaining the motivation of SBMs to adopt IR (*P1a, P1b*), differences pertaining to the extent to which these factors contribute to the motivation of SBMs to adopt IR (*P2*) and the factor that is considered to be pivotal for the motivation of SBMs to adopt IR, the observed benefits (*P3*). Figure 1 visualizes the propositions.

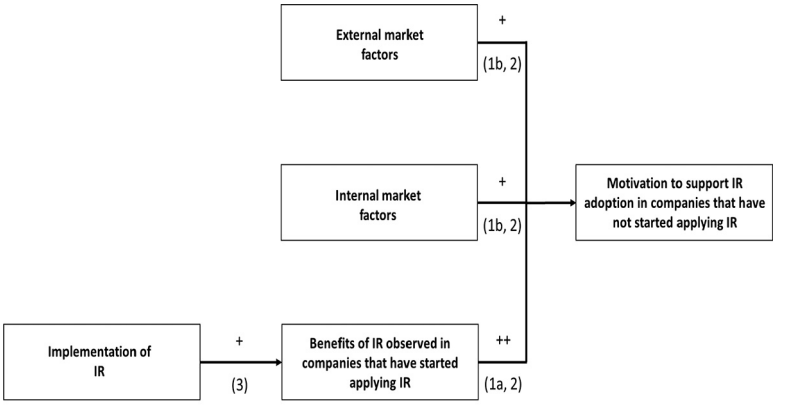

Figure 1.
Research model

Note: Corresponding proposition numbers in brackets

The motivation of SBMs to advocate IR is expected to increase with the benefits of implementing IR that they have observed in other companies, as the DOI theory predicts that the likelihood of adopting concepts is greater for those that have been proven in practice (Jung and Kieser, 2012). SBMs are in the position to be a vehicle for diffusing IR themselves as they often supervise multiple organizations and thus help communication among these regarding potentially observed benefits. As research in IR using institutional theory has shown, the degree of IR increases with the presence of certain external market conditions (Fasan *et al.*, 2016; Frías-Aceituno *et al.*, 2013b; Jensen and Berg, 2012), while other studies show how the presence of internal organizational conditions increases the degree of IR (Frías-Aceituno *et al.*, 2013a; 2014). Proposition *P1* is therefore as follows.

P1a. The motivation of SBMs to advocate the adoption of IR by non-IR-companies increases with the benefits of IR implementation that they have seen achieving by IR-companies.

P1b. The motivation of SBMs to advocate the adoption of IR by non-IR-companies increases with the extent to which external market conditions and internal organizational conditions support the application of IR.

Although some research shows how institutional factors affect the adoption of IR, Robertson and Samy (2015) argue that institutional theory is not suitable to explain why some organizations adopt radical changes and others do not. Rogers (2003) identified five factors that contribute to the rate of diffusion of innovations: relative advantage, compatibility, complexity, trialability and observability. The observation of benefits of IR by the promotors of change, the SBMs, would therefore accelerate the rate of adoption of IR. Awareness of these benefits can increase the relative advantage of IR. Also, SBMs are being expected to focus predominantly on the company's performance in terms of long-term value creation and its relationships with external stakeholders[2]. Given this predominant focus on creating long-term value, the essential aim of IR to extend the focus on creating shareholder value to the creation of long-term value for all stakeholders (Coulson *et al.*, 2015; later confirmed by Mähönen, 2020), and in light of preliminary evidence of the influence of IR on the creation of economic value (Serafeim, 2015; Lee and Yeo, 2016; Maniora, 2017), the innovation of IR would be perceived by SBMs as compatible as it is consistent with existing values, past experiences and the needs of the advocates of change. We therefore expect that the decision to adopt IR is influenced most by the observed (performance and connectivity) benefits of IR and, to a lesser extent, by external market conditions and internal organizational conditions. To this end, we formulate *P2*.

P2. The observed performance and connectivity benefits of IR adoption experienced by SBMs have a stronger effect on the motivation to advocate IR than do external market conditions and internal organizational conditions.

Finally, in line with the DOI theory, companies adopting IR expect to gain benefits from doing so as diffusion of innovations takes place because of the benefits or efficiencies gained through adoption (Malmi, 1999). Although studies have supported the realization of the benefits expected due to the adoption of IR (Azam *et al.*, 2011; Burke and Clark, 2016; Lee and Yeo, 2016), others have indicated that some benefits might manifest only in the long term (Maniora, 2017; Mio *et al.*, 2016). Given that our sample comprises experienced SBMs, most of whom had been serving their companies for years, we formulate *P3*.

P3. SBMs of companies that have implemented IR have observed benefits from the adoption of IR within these companies.

3. Methodology

3.1 Survey: respondents, questionnaire and variables

This exploratory research is based on a survey conducted between 26 April and 3 August 2016 amongst a population of 259 SBMs active in (not)-for-profit organizations and 142 candidate SBMs in The Netherlands. We address both types of organizations, as the IIRC vision is that IR and integrated thinking should become the standard for organizations in both the public and private sector (IIRC, 2013). After conducting a participating pre-test, the questionnaires were distributed through the SurveyMonkey tool. As there was no publicly assessable database or list of SBMs, we sought other sources. One source consisted exclusively of active SBMs and was obtained through the cooperation of a Big4 firm that organized "Leadership Meeting sessions for SBMs" between 2013 and 2015. The other source was obtained from a university that gave access to candidate SBMs who participated in an executive education track for future SBMs.

After having sent two reminders, we received responses from 44 active SBMs (response rate: 17.0%) and 18 candidate SBMs (12.7%). The total sample consists of answers from 62 respondents (15.5%). Women accounted for 21.7% of the respondents (candidate: 17.6%; active: 23.8%). The newness of IR could be a reason for the relatively low response rate. But although several studies observe higher response rates in surveys amongst business executives (Mellahi and Harris, 2016), our response rates are not uncommon for active electronic surveys (applying frequent reminders) without giving incentives (Wright and Schwager, 2008; Magro *et al.*, 2015; Pielsticker and Hiebl, 2020). As our study is exploratory, we do not require generalizable results, but outcomes representing the views of an authoritative panel.

The respondents constitute an experienced and knowledgeable panel. On average, respondents in our subsample of 44 active SBMs were in their mid-60s and had held 2.2 supervisory board positions (for-profit: 1.3; not-for-profit: 1.0), whereas the 18 candidate SBMs were in their early 50 s on average. Respondents in both subgroups indicated that they were fairly familiar with IR (average: 1.5 on a scale from 0 to 2). This self-assessment is confirmed as respondents recognized the primary purposes of IR (according to the IIRC) when asked whether IR pursues one or more of the following four purposes: long-term value creation (Simnett and Huggins, 2015; Reuter and Messner, 2015), combining financial and non-financial information (IIRC, 2011a; Eccles and Krzus, 2010), improved sustainability reporting (IIRC, 2011a) and/or reducing external reporting. On average, respondents selected 1.6 of these purposes, with 94.3% selecting at least one of the first two purposes, which are primary purposes of IR. Of this group, 62.3% selected only primary purposes, while 32.1% also selected a secondary purpose (one of the last two purposes). A few respondents (5.7%) selected only a secondary purpose of IR (see Table 8, Panel A).

Although we cannot rule out common differences between the interpretations of IR (Gibassier *et al.*, 2018; Robertson and Samy, 2015), the respondents clearly have an accurate grasp of the main goals of IR, and the backgrounds of the respondents suggest that the survey data are relevant to the aim of our study: to identify factors explaining the motives that informed SBMs have for advocating the adoption of IR.

The remainder of the questionnaire comprises five categories of questions. The first category concerns the extent to which SBMs had observed benefits within IR-companies. The meaning of benefits was clarified using a list of 14 potential benefits, relating to either performance or connectivity (Table 2). These benefits were obtained from the studies

reported in Table 4[3]. The questions in the second category ask respondents to indicate the extent to which they view each of these benefits as a motive to advocate the adoption of IR in non-IR-companies.

The third and fourth categories of questions ask respondents to indicate the extent to which they would expect external and internal factors to influence IR adoption. The meaning of these factors was clarified by distinguishing 11 external and 8 internal factors identified from prior research (Tables 3 and 4). The fifth category of questions concerns the background of the respondents and their knowledge of IR. These background features were also used as control variables.

Table 5 lists all variables used for capturing the responses to the questionnaire, along with their operationalizations and values. It also includes the survey questions and their reference numbers, as used throughout this study.

The first variables listed in Table 5 are the control variables addressed by Questions *A–G* (referring to Table 5). Questions *H–K* were set up as a matrix, and respondents were asked to score on a five-point Likert scale (horizontal dimension) for each sub-query (vertical dimension). To clearly distinguish between the options "strongly disagree" and "not applicable", they were presented as the first and last options in the questionnaire. Both "not applicable" and missing responses were treated as blanks for all questions.

Connectivity benefits or motives	Performance benefits or motives
• More comprehensive, concise and balanced reporting	• Increased corporate accountability
• Greater awareness regarding ESG issues	• Improved internal processes
• Higher employee awareness and engagement	• Cost reductions
• Improved corporate reputation	• Superior decision-making
• Increased stakeholder satisfaction	• Improved risk management
• Improved stakeholder relationships	• Better identification of opportunities
• Differentiation from competitors	• Long-term value creation

Table 2. Benefits of and motives for implementing IR covered by the questionnaire

External market factors	Internal organizational factors
• Level of diversity in society	• Size and diversity of the Board
• Level of collectivism in society	• Level of Board activity
• Degree of employee protection and union strength	• Size of the company
• Contribution of firms in the development of employees	• Profitability of the company
• Presence of a civil law system	• Growth opportunities of the company
• Enforcement of local laws and regulations	• Business sector in which the company is active
• National Corporate Responsibility Index Score	• Application of GRI standards by the company
• Degree of shareholder protection	• Assured CSR report
• Level of market orientation	
• Level of concentration of company ownership	
• Strength of the economy of a country	

Table 3. External market factors and internal organizational factors covered by the questionnaire

Table 4.
Benefits and factors used in the survey

Survey question	Main themes per question	Literature source
1. Benefits of implementing IR as observed by respondents in companies that currently have implemented IR *and* 2. Motives of respondents for supporting the adoption of IR	Accountability of the company	Frías-Aceituno *et al.*, 2013b
	Better decision-making	Adams and Simnett, 2011; Ballou *et al.*, 2012; Dumay and Garanina, 2013; Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; Higgins *et al.*, 2014
	Better reputation	Ballou *et al.*, 2012; Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; Higgins *et al.*, 2014; Velte and Stawinoga, 2017
	Better stakeholder relations and satisfaction	Atkins *et al.*, 2015; Ballou *et al.*, 2012; Beer and Du Toit, 2015; Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; Lodhia, 2015; Steyn, 2014
	Cost reductions	Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; James, 2014; Simnett and Huggins, 2015
	Differentiation from competitors	Velte and Stawinoga, 2017
	Higher employee engagement	Simnett and Huggins, 2015
	Identification of opportunities	Ballou *et al.*, 2012; Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; Steyn, 2014
	Higher quality and better quantity of (holistic) reporting	Ballou *et al.*, 2012; Beattie and Smith, 2013; Brown and Dillard, 2014; Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; James, 2014; Melloni, 2015; Simnett and Huggins, 2015
	Improved risk management	Frías-Aceituno *et al.*, 2013b; Frías-Aceituno *et al.*, 2014; Reuter and Messner, 2015; Steyn, 2014
	Contribution to long term value creation and better performance	Higgins *et al.*, 2014; Reuter and Messner, 2015; Simnett and Huggins, 2015
	More awareness of and focus on sustainability and its impacts	Steyn, 2014
	Process enhancement and internal changes	Adams and Simnett, 2011; Atkins *et al.*, 2015; Brown and Dillard, 2014; Higgins *et al.*, 2014; James, 2014; Lodhia, 2015; Steyn, 2014; Simnett and Huggins, 2015
3. External factors enhancing IR implementation as perceived by the respondents	Higher education involvement	Jensen and Berg, 2012; Fasan *et al.*, 2016
	Civil law	Tiron-Tudor and Dragu, 2014; Frías-Aceituno *et al.*, 2013a; Jensen and Berg, 2012; Fasan *et al.*, 2016
	Higher degree of market orientation	Jensen and Berg, 2012; Fasan *et al.*, 2016
	Lower degree of ownership concentration	Jensen and Berg, 2012; Fasan *et al.*, 2016
	Strong employment protection	Fasan *et al.*, 2016

(*continued*)

Survey question	Main themes per question	Literature source
	Stronger economy	Tiron-Tudor and Dragu, 2014; Jensen and Berg, 2012; Fasan *et al.*, 2016
	Higher NCR index	Tiron-Tudor and Dragu, 2014; Jensen and Berg, 2012; Fasan *et al.*, 2016
	Higher diversity in society	García-Sánchez *et al.*, 2013
	Higher collectivity in society	García-Sánchez *et al.*, 2013
	Stricter legal enforcement	Frías-Aceituno *et al.*, 2013a
	Stronger investor community	Jensen and Berg, 2012; Fasan *et al.*, 2016
4. Internal factors enhancing IR implementation as perceived by the respondents	Assurance on CSR reports of the company	Sierra-García *et al.*, 2015
	Growth opportunities of the company	Frías-Aceituno *et al.*, 2014
	Size of the company	Frías-Aceituno *et al.*, 2014
	Activity of the Board of Directors of the company	Frías-Aceituno *et al.*, 2013a
	Setup of the Board of Directors of the company (e.g. size, gender)	Frías-Aceituno *et al.*, 2013a
	Sector within company operates	Frías-Aceituno *et al.*, 2014
	Application of GRI by the company	Frías-Aceituno *et al.*, 2014
	Profitability of the company	Frías-Aceituno *et al.*, 2014
5. Background questions on respondents	Age	
	Gender	
	Number of supervisory Board positions – Profit	
	Number of supervisory board positions – Non-profit	
	Familiarity with IR concept	
	Primary intention of IR concept	

Note: The table summarizes the benefits and factors used in the survey and their sources

Table 4.

Variable	Variable name	Values
Respondent number	*Resp*	1, . . . ,62
Age	*Age*	Answer options Question *A*: 1 (≤ 30), 2 ((30,40]), 3 ((40,50]), 4 ((50,60]), 5 (>60)
Gender	*Gender*	Answer options Question *B*: Female (1), Male (0)
Number of positions supervisory board member in profit segment	*SBPositionsProfit*	Answer options Question *C*: 1, 2, 3,. . .
Number of positions supervisory board member in non-profit segment	*SBPositionsNonprofit*	Answer options Question *D*: 1, 2, 3,. . .
Familiarity with IR	*IRfamiliar*	Answer options Question *E*: 0 (No), 1 (Not sure), 2 (Yes), Blank (NR†)
Purpose of IR concept in general	*P_<purpose>*	Answer options Question *F* for each *purpose* (improved sustainability reporting, long-term value creation, more concise reports, reporting both financial and non-financial performance, other): 0 (Not checked), 1 (Checked)
Number of generic purposes checked	P_{Number}	Sum of all purposes checked by respondent answering Question *G*
Benefits resulting from implementing IR as observed by respondents in companies that currently have implemented IR	*R_<benefit>*	Answer options Question *H* for each observed *benefit* summarized in Table 2: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly agree), Blank (N/A‡ or NR)
Total scores of performance-related benefits	$R_{Performance}$	Average of scores for *R_<benefit>* reflecting observed performance benefits (summarized in right column of Table 2)
Total scores of connectivity-related benefits	$R_{Connectivity}$	Average of scores for *R_<benefit>* reflecting observed connectivity benefits (summarized in left column of Table 2)
Total score of the benefits	R_{Total}	Average of all scores for *R_<benefit>*
Performance-related benefits observed by respondents in IR-companies and non-IR companies	$BEN_{Performance}$	Equals $R_{Performance}$ for *Imp* = 1 and 0 for *Imp* = 0
Connectivity-related benefits observed by respondents in IR-companies and non-IR companies	$BEN_{Connectivity}$	Equals $R_{Connectivity}$ for *Imp* = 1 and 0 for *Imp* = 0
Total benefits observed by respondents in IR-companies and non-IR companies	BEN_{Total}	Equals R_{Total} for *Imp* = 1 and 0 for *Imp* = 0
IR is implemented by organization(s) of the respondent	*Imp*	1 (Yes; worked for one or more IR-companies), 0 (No; worked for non-IR-companies only; only N/A responses on Question *H*)
Motives for respondents to support the adoption of IR	*M_<benefit>*	Answer options Question *I* for each motivating *benefit* (motive) summarized in Table 2: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly agree), Blank (N/A or NR)

(*continued*)

Table 5.
Variables and their values and sources

Variable	Variable name	Values
Total score of performance-related motives	$M_{Performance}$	Average of scores for $M\_<benefit>$ reflecting performance motives (summarized in right column of Table 2)
Total score of connectivity-related motives	$M_{Connectivity}$	Average of scores for $M\_<benefit>$ reflecting connectivity motives (summarized in left column of Table 2)
Total score of motives	M_{Total}	Average of all scores for $M\_<benefit>$
External factors enhancing IR implementation	$EF\_<factor>$	Answer options Question J for each external *factor* summarized in Table 3: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly agree), Blank (N/A or NR)
Total score of external factors	EF_{Total}	Average of all scores for $EF\_<factor>$
Internal factors enhancing IR implementation	$IF\_<factor>$	Answer options Question K for each internal *factor* summarized in Table 3: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly agree), Blank (N/A or NR)
Total score of internal factors	IF_{Total}	Average of all scores for $IF\_<factor>$

Notes: †: NR: no response; ‡: N/A: not applicable

Table 5.

Question *H*, which focusses on the benefits of implementing IR, as observed by the respondents in IR-companies they worked for, asked respondents to select "not applicable" for each sub-query if their companies had not yet implemented IR and, as a consequence, no benefits could have been observed. Questions *J* (external factors enhancing IR implementation) and *K* (internal factors enhancing IR implementation) refer to factors applicable to companies in general, and not only to the companies for which the respondents work. These questions were therefore open to respondents from non-IR companies as well.

For the sub-queries of Question *I*, which concerns the motives for supporting the implementation of IR, the option "not applicable" was selected 43 times. Most of these selections (42) were made by only three respondents, who also selected "not applicable" for all sub-queries of Question *H*. This suggests that these respondents selected "not applicable" to indicate that IR had not been implemented by their organizations.

Given the relatively large number of benefits, motives and conditions compared to the number of respondents, we constructed summary variables (composite measures) for the observed benefits of IR (Question *H*), motives for adopting IR (*I*), external market conditions (*J*) and internal organizational conditions (*K*). As reported in Table 5 (Values-column), we followed the common summarization approach of averaging the responses received for related sub-queries (Hair *et al.*, 2019, pp. 124, 160) after assessing the unidimensionality with exploratory factor analysis (EFA) and Cronbach's alpha reliability score (Hair *et al.*, 2019, pp. 160 – 163).

3.2 Data quality and descriptives

In Table 6, we reproduce the *p*-values of the Bartlett sphericity test, the values of the Kaiser–Meyer–Olkin measure of sampling accuracy (MSA) for each of the composite measures, the outcomes of the EFA (number of factors with eigen values exceeding 1, the eigen values and

Variable†	$N^{\ddagger}$	Items	KMO-measure of sampling adequacy: overall (and range)	Bartlett sphericity p-value	# Factors with eigen value > 1 (all eigen values > 1)	# Factor loadings > 0.55 (for all factors)	Cronbach's alpha scale consistency
$M_{Performance}$	42	7	0.824 (0.783 – 0.879)	0.000	1 (2.891)	6	0.800
$M_{Connectivity}$	44	7	0.719 (0.654 – 0.782)	0.000	1 (2.301)	4	0.815
M_{Total}	41	14	0.773 (0.436 – 0.887)	0.000	2 (5.052; 1.785)	10 (10; 0)	0.880
$R_{Performance}$	18	7	0.588 (0.350 – 0.827)	0.000	2 (2.755; 1.138)	5 (5; 1)	0.761
$R_{Connectivity}$	18	7	0.676 (0.616 – 0.731)	0.131	1 (2.406)	5	0.741
R_{Total}	17	14	0.486 (0.221 – 0.764)	0.000	3 (5.832; 2.101; 1.140)	10 (10; 1; 1)	0.865
$BEN_{Performance}$	45	7	0.878 (0.792 – 0.973)	0.000	1 (6.563)	7	0.988
$BEN_{Connectivity}$	45	7	0.928 (0.911 – 0.950)	0.000	1 (6.658)	7	0.992
BEN_{Total}	44	14	0.856 (0.789 – 0.942)	0.000	1 (13.274)	14	0.995
EF_{Total}	38	11	0.717 (0.593 – 0.868)	0.000	1 (4.322)	9	0.867
IF_{Total}	42	8	0.834 (0.778 – 0.920)	0.000	1 (3.818)	8	0.864

Notes: Table 6 comprises the outcomes of evaluating the summarization of variables, using the criteria of *unidimensionality* and *scale consistency*. Unidimensionality is tested by Exploratory Factor Analysis (EFA), while Cronbach's alpha statistic is used for testing scale consistency. First, the appropriateness of applying EFA was evaluated using the values of the Kaiser–Meyer–Olkin (KMO) measure of sampling accuracy (MSA) and the p-values of the Bartlett sphericity test (fourth and fifth column). These values provide sufficient support for applying EFA. The outcomes of the EFA support the unidimensionality of the composite measures, except for R_i (based on the number of factors with eigen values exceeding 1, their values, the number of loadings exceeding 0.55 per factor with eigen value of 1 or higher). As the Cronbach's alpha values range from 0.741 to 0.991, the level of scale consistency can be considered good for all summary variables (Hair *et al.*, 2019, pp. 161; DeVellis, 2012, pp. 109–110). Variable names are explained in Table 5. †: M_i: Motivation to support IR in non-IR-companies; R_i: observed benefits in IR-companies by respondents who had worked for IR-companies; BEN_i equals R_i for respondents who had worked for IR companies, and 0 for respondents who had worked for non-IR-companies only (i relates to connectivity-related or performance-related motivation or observed benefits or their aggregates ('total'). EF_{Total} and IF_{Total} contain the average score on external and internal factors. Table 5 reports further details on the variables. ‡: Number of observations used for EFA

Table 6.
Statistics variable summarization

the number of loadings exceeding 0.55 per factor with eigen value of 1 or higher), and the Cronbach's alpha values.

The outcomes for the Bartlett sphericity p-values and the MSA values largely support the appropriateness of applying EFA, while the outcomes of the EFA support the unidimensionality of the composite measures, except for R. As the Cronbach's alpha values range from 0.741 to 0.991, the level of scale consistency can be considered good (Hair *et al.*,

2019, p. 161; DeVellis, 2012, pp. 109–110). The descriptive statistics of Table 7 reveal variation in the responses regarding the purpose of IR (captured by the variable *P*), with some respondents not seeing any of the purposes of IR and others seeing all of the purposes listed. Such variation can be observed for the observed benefits from implementing IR (variable *R*) and the perceived motivation for adopting IR (variable *M*).

The minimum sample size and the margin of error implied by the sample were assessed for each variable, using the sample standard deviation as proxy for the population standard deviation. For the purpose of this explorative study, the outcomes were used to determine the minimum sample size for each variable, assuming a 10% margin of error around the mean and a 95% confidence level. We also calculated the implied margin of error, given the sample size, mean and standard deviations (Doane and Seward, 2019, pp. 320–322). The results presented in Table 7 indicate that for the summary variables the sample size is sufficient to represent the group of SBMs who were invited to participate.

As indicated by the summary variables averaging the observed benefits in IR-companies of implementing IR (R_{Total}, $R_{Performance}$ and $R_{Connectivity}$), the means of the responses for the benefits exceed 3.60, thus providing preliminary evidence that, on average, the respondents did observe benefits from IR implementation in practice. About one-third (32.3%) of the 62 respondents (20) were working for IR-companies. The extent to which the respondents favoured the adoption of IR was represented by relatively high means (>3.60) for the summary variables M_{Total}, $M_{Performance}$ and $M_{Connectivity}$. The mean for the perceived external conditions (captured by EF_{Total}) is 2.67, and is exceeded by the mean for IF_{Total} (3.10).

The outcomes of the Shapiro–Wilk test (Table 7) provide no support for normally distributed variables, which is consistent with the skewness and kurtosis of most variables.

To assess the impact of the background of the respondents, we performed multiple parametric and non-parametric tests on the dependent variables. We checked whether the means and medians of *EF*, *IF*, M_i and R_i (i = *Connectivity*, *Performance* and *Total*) differ for

Variable	N	μ	σ	Min.	Max.	Skew-ness	Kurto-sis	Shapiro–Wilk p-value	Min(N) at 10% error	Impied Error	Implied Error%
P_{Number}	62	1.597	0.858	0.000	4.000	0.895	0.563	0.000	111	0.214	13.4
$R_{Connectivity}$	20*	3.644	0.806	1.000	4.714	−1.782	5.462	0.005	19	0.353	9.7
$R_{Performance}$	19*	3.729	0.506	3.000	4.429	0.021	−1.614	0.046	7	0.228	6.1
R_{Total}	20*	3.619	0.783	1.000	4.571	−1.934	5.997	0.003	18	0.343	9.5
$M_{Connectivity}$	47	3.625	0.706	1.000	4.857	−1.026	2.856	0.013	15	0.202	5.6
$M_{Performance}$	47	3.640	0.714	1.000	4.714	−1.369	3.630	0.000	15	0.204	5.6
M_{Total}	47	3.634	0.666	1.000	4.643	−1.378	4.417	0.000	13	0.190	5.2
EF_{Total}	44	2.668	0.722	1.000	4.667	−0.146	0.496	0.245	28	0.213	8.0
IF_{Total}	44	3.100	0.753	1.000	4.500	−0.890	0.829	0.029	23	0.222	7.2

Notes: †: M_i: Motivation to support IR in non-IR-companies; R_i: observed benefits in IR-companies by respondents who had worked for IR-companies; BEN_i equals R_i for respondents who had worked for IR companies, and 0 for respondents who had worked for non-IR-companies only (i relates to connectivity-related or performance-related motivation or observed benefits or their aggregates ('total'). EF_{Total} and IF_{Total} contain the average score on external and internal factors. P_{number}: the number of IR-purposes checked by respondents. Table 5 reports further details on the variables. *: Observations of SBMs that have observed IR implementation benefits in their IR-organizations

Table 7. Descriptive statistics summary variables and control variables

active and candidate SBMs and for positions in for-profit vs not-for-profit organizations and found no statistical support for differences.

3.3 Approach to exploring the propositions

We explore our propositions by analysing the extent of statistical support for the values and influences of the variables, as described by our propositions. First, we extend our analysis of descriptive statistics by providing additional descriptive statistics for the main variables of the propositions and by analysing their meaning in terms of the propositions. Second, we use explanatory statistics to assess the statistical support for the relationships represented by the propositions.

The additional descriptive statistics are presented in Table 8, at the level of response options for each of the main variables of our propositions.

As indicated by the descriptive statistics presented in Panel A, the respondents recognized the primary purposes of IR. As shown in Panel B, the majority recognized all of the benefits of IR that have been described in literature as motives for implementing IR, except for "cost reduction" (the only motive with an average score below 3 on the five-point Likert scale applied). The three motives with average scores exceeding 4 were "increased accountability of the company" (4.13, n = 45), "contributions to long-term value creation and better performance" (4.07, n = 45) and "greater awareness of and focus on sustainability and its impacts" (4.04, n = 46). Furthermore, the five motives with the highest scores also received the five highest scorings as benefits actually observed. Approximately one-third of the respondents (18, 19 or 20) had actually observed benefits in IR-companies they worked for. The theoretical benefits that motivate the respondents to advocate IR adoption most are also those that proved to have the greatest impact in practice. These findings are consistent with the propositions *P1a* and *P3*.

According to the respondents, internal factors provided stronger conditions for implementing IR (average score: 3.10) than did external factors (2.67). As indicated by the descriptive statistics displayed in Panel C of Table 8, the three factors that our respondents perceived as the strongest drivers of IR adoption were internal factors: "business sector in which the company is active" (3.47, n = 43), "size and diversity of the board of directors" (3.36, n = 44) and "level of board activity" (3.25, n = 44). The contributions of the leadership were perceived as important conditions for adopting IR, and interest in IR was perceived to depend on the type of business and the influence from society on the company's "license to operate". Only 8 of the 19 factors had average scores higher than 3.0. Although the outcomes reported in Panel C do not explicitly relate the internal and external factors to the respondents' motivation to advocate IR, the average scores for *IF* and *EF* reflect their views on the extent to which the factors drive the adoption of IR or provide the conditions for adopting IR. Assuming that the effectiveness of these factors could influence the motivation of SBMs to advocate IR implementation, the average scores for *EF* (2.67), *IF* (3.10), $R_{Connectivity}$ (3.64) and $R_{Performance}$ (3.73) are consistent with *P1a* and *P1b*.

We tested *P1a* and *P1b* by performing regression analyses to estimate a linear relationship between the motivation to support the adoption of IR (dependent variable) and the extent to which benefits were observed, and to which external and internal factors were deemed relevant by respondents (independent explanatory variables). The analyses were conducted for the connectivity and performance related motives and benefits separately and combined. Control variables were included to control for age, gender, number of SBM positions held in for-profit, number of SBM positions held in not-for-profit organizations, familiarity with the concept of IR and recognition of generic purposes of IR. The regression models used are represented by equation (1):

Panel A: Responses for variable Purpose (*P*)		(*n* = 53)	
Value/answer option; *: main purposes of IR (IIRC):		**# respondents confirming option**	**# respondents not confirming option**
Improve the quality of the external sustainability reporting		19 (35.8%)	34 (64.2%)
Enhance long term value creation for stakeholders*		31 (58.5%)	22 (41.5%)
Make external reports more concise		2 (3.8%)	51 (96.2%)
Report on both financial and non-financial performance*		32 (60.4%)	21 (39.6%)
Open-ended responses received:	"Informing stakeholders on results"*	1	N/A
	"Responses apply to health sector"	1	N/A
# respondents confirming one or more main purposes of IR		50 (94.3%)	3 (5.7%)
# respondents confirming only main purposes of IR		33 (62.3%)	20 (37.7%)

Panel B: Responses for variable Benefits (*R*) and Motives (*M*)	(*n* = 18 – 47)	
Value/answer option:	**Average score on 1 – 5 scale (*n*)**	
	*R**	*M*
Higher quality and better quantity of (holistic) reporting	3.84 (19)	3.50 (46)
More awareness of and focus on sustainability and its impacts	4.05 (19)	4.04 (46)
Better stakeholder relations	3.50 (20)	3.67 (46)
Better reputation	3.42 (19)	3.15 (46)
Differentiation from competitors	3.79 (19)	3.74 (46)
Higher employee engagement	4.16 (19)	3.91 (46)
Better stakeholder satisfaction	3.56 (18)	3.39 (46)
Total connectivity-related ($R_{Connectivity}$/$M_{Connectivity}$)	**3.64 (20)**	**3.62 (47)**
Better decision making	3.79 (19)	3.66 (47)
Identification of opportunities	3.95 (19)	3.91 (46)
Cost reductions	2.47 (19)	2.68 (44)
Contribution to long term value creation and better performance	4.06 (18)	4.07 (45)
Increased accountability of the company	4.26 (19)	4.13 (45)
Improved risk management	3.79 (19)	3.62 (47)
Process enhancement and internal changes	3.79 (19)	3.60 (47)
Total performance-related ($R_{Performance}$/$M_{Performance}$)	**3.73 (19)**	**3,64 (47)**

Panel C: Responses for external factors (*EF*) and internal factors (*IF*)	(*n* = 40 – 44)
Value/answer option:	**Average score on 1 – 5 scale (*n*)**
Level of diversity in society	2.69 (42)
Level of collectivism in society	2.86 (43)
Degree of employee protection and union strength	2.19 (43)
Contribution of firms in the development of employees	2.47 (43)
Presence of a civil law system	3.21 (43)
Enforcement of local laws and regulations	2.70 (44)
National Corporate Responsibility Index Score	3.14 (43)
Degree of shareholder protection	2.78 (41)
Level of market orientation	2.72 (43)
Level of concentration of company ownership	2.28 (40)
Strength of the economy of a country	2.40 (43)
Total external factors (*EF*)	**2.67 (44)**
Size and diversity of the Board	3.36 (44)
Level of Board activity	3.25 (44)
Size of the company	3.11 (44)
Profitability of the company	2.74 (43)
Growth opportunities of the company	2.64 (44)
Business sector in which the company is active	3.47 (43)
Application of GRI standards by the company	3.07 (42)
Assured CSR report	3.20 (44)
Total internal factors (*IF*)	**3.10 (44)**

Note: *Observations of SBMs that have observed IR implementation benefits in their IR-organizations

Table 8.
Descriptives for the responses per answer option

$$M_i = \beta_0 + \beta_1 \cdot Imp + \beta_2 \cdot BEN_i + \beta_3 \cdot EF + \beta_4 \cdot IF + \sum_{j=1}^{7} \beta_{4+j} \cdot CV_j + \varepsilon \quad (1)$$

where $i = \{Connectivity, Performance, Total\}$ and CV_j represents the six aforementioned control variables ($j = 1,..,6$) and an additional control variable for the difference between active and candidate SBMs ($j = 7$; $CV_7 = 1$ for active board members and 0 for candidates).

Equation (1) differentiates between respondents of IR-companies ($Imp = 1$) and the other respondents ($Imp = 0$). The extent to which respondents had observed benefits of implementing IR in their companies is represented by the variable BEN_i in equation (1). This variable equals R_i for respondents who had worked for IR-companies, and 0 for the other respondents. The alternative regression model with M_{Total} as the dependent variable and both $BEN_{Performance}$ and $BEN_{Connectivity}$ among the explanatory variables was not applied, as this specification yields a level of multicollinearity of these two regressors that is likely to substantially influence the reliability of the outcomes (VIF > 40).

The small sample puts a constraint on the number of (control) variables. We follow Doane and Seward (2019), Hair *et al.* (2019) and Cattell (1978)[4], who argue that a minimum sample size of 3–6 observations is required for each explanatory variable.

For *P1a* and *P1b* to be supported, all of the estimates for the coefficients β_2, β_3 and β_4 must be positive and statistically significant, while the relevant robustness tests must rule out the effects of heteroscedasticity (Breusch–Pagan), multicollinearity (VIF), nonlinearity (plots) and non-normally distributed residuals with means deviating from zero (histograms).

We tested *P2* by comparing the magnitude of the estimated coefficients. For *P2* to be supported, β_2 must exceed β_3 and β_4.

These relationships were tested using the *t*-test. Supporting *P3* requires that the regression analyses yield positive values for β_2 and that the medians of R_i significantly exceed 3.0, using the one-sample non-parametric Wilcoxon signed-rank test (as a consequence of the not normally distributed values for R_i) and the parametric one-sided one-sample *t*-test as robustness check.

4. Results

4.1 Correlation

In Table 9, we present the pairwise correlations between the relevant summary variables using Spearman's rank correlation coefficient ρ (this non-parametric statistic is used because the descriptives revealed non-normally distributed variables).

As expected, the average scores for the observed performance benefits ($R_{Performance}$), connectivity benefits ($R_{Connectivity}$) and the total performance benefits (R_{Total}) are strongly positively correlated with those representing the motives for supporting IR adoption ($M_{Performance}$, $M_{Connectivity}$ and M_{Total}), as all related values of ρ range from 0.625*** to 0.847***. This is consistent with *P1a*. The perceived external factors (the *EF* variables) are all significantly correlated with the motivation to support IR adoption, with ρ values between 0.441*** and 0.574***. These correlation coefficients indicate that external factors contribute to the motivation to support IR adoption, albeit to a lesser extent than the observed benefits. These findings are consistent with *P1b* and *P2*. The perceived internal factors (*IF* variables) have a highly significant positive but moderate correlation with $M_{Performance}$, a significant positive but low correlation with M_{Total} and only a weakly significant and low association with $M_{Connectivity}$. The internal factors have a weaker association with the motivation to support IR adoption than do the external factors.

Variable†		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. $R_{Performance}$	ρ	1.000										
	N	19										
	*Sign.**											
2. $R_{Connectivity}$	ρ	0.864***	1.000									
	N	19	20									
	Sign.	0.000										
3. R_{Total}	ρ	0.958***	0.968***	1.000								
	N	19	20	20								
	Sign.	0.000	0.000									
4. $BEN_{Performance}$	ρ	1.000***	0.864***	0.958***	1.000							
	N	19	19	19	46							
	Sign.	0.000	0.000	0.000								
5. $BEN_{Connectivity}$	ρ	0.864***	1.000***	0.968***	0.988***	1.000						
	N	19	20	20	46	47						
	Sign.	0.000	0.000	0.000	0.000							
6. BEN_{Total}	ρ	0.958***	0.968***	1.000***	0.996***	0.997***	1.000					
	N	19	20	20	46	47	47					
	Sign.	0.000	0.000	0.000	0.000	0.000						
7. $M_{Performance}$	ρ	0.770***	0.767***	0.814***	0.180	0.151	0.161	1.000				
	N	19	20	20	46	47	47	47				
	Sign.	0.000	0.000	0.000	0.231	0.310	0.281					
8. $M_{Connectivity}$	ρ	0.625***	0.752***	0.749***	0.222	0.218	0.217	0.676***	1.000			
	N	19	20	20	46	47	47	47	47			
	Sign.	0.004	0.000	0.000	0.139	0.141	0.143	0.000				

(*continued*)

Table 9.
Spearman's correlation coefficients

Table 9.

Variable†		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
9. M_{Total}	ρ	0.757***	0.830***	0.847***	0.224	0.210	0.213	0.886***	0.923***	1.000		
	N	19	20	20	46	47	47	47	47	47		
	Sign.	0.000	0.000	0.000	0.135	0.157	0.151	0.000	0.000			
10. EF_{Total}	ρ	0.439*	0.260	0.273	0.080	0.088	0.092	0.574***	0.441***	0.565***	1.000	
	N	19	20	20	43	44	44	44	44	44	44	
	Sign.	0.060	0.268	0.245	0.610	0.568	0.555	0.000	0.003	0.000		
11. IF_{Total}	ρ	0.414*	0.215	0.281	0.116	0.109	0.125	0.417***	0.286*	0.384**	0.723***	1.000
	N	19	20	20	43	44	44	44	44	44	44	44
	Sign	0.078	0.364	0.231	0.459	0.480	0.420	0.005	0.060	0.010	0.000	

Notes: †: M_i: Motivation to support IR in non-IR-companies; R_i: observed benefits in IR-companies by respondents who had worked for IR-companies; BEN_i equals R_i for respondents who had worked for IR companies, and 0 for respondents who had worked for non-IR-companies only (*i* relates to connectivity-related or performance-related motivation or observed benefits or their aggregates ('total'). EF_{Total} and IF_{Total} contain the average score on external and internal factors. Table 5 reports further details on the variables. *: Two-sided significance levels. *, ** and *** denote 10%, 5% and 1% significance levels, respectively

4.2 Exploring the propositions

The results of estimating three regression models are presented in Table 10, using the composite measures as reported in Tables 6 – 9 (scale A) and an alternative scale (scale B). The alternative scale is established by replacing missing data by 0, only when the same respondent included values for other subscales of the same variable. This applies to only 1.61% of the data. The estimates of the coefficients corresponding with the control variables are mostly not significant for the three models and the two scales. When they are[5], the outcomes for the main regressors are similar. The dummy variable that was added to control for differences between active and candidate supervisory members never reaches the 90% confidence level (all p-values > 0.10). The control variables were therefore left out.

The values of the adjusted R^2 and the highly significant F-values confirm adequate goodness of fit and significance levels of the estimated regression models. The significant values of β_1 and β_2 (in all six regressions) and β_3 (in five regressions) and insignificant value of β_4 indicate that the motivation of SBMs to advocate IR depends on the magnitude of the benefits (R_i) they have observed and external factors, but not internal factors. The outcomes are most significant for the combined model (i = *Total*) and for the model that leaves out the performance related motives and benefits (i = *Connectivity*), which is consistent with the significance of the influence of external factors and the insignificance of internal factors.

For respondents who have experienced benefits of IR in companies, $\beta_0 + \beta_1$ can be interpreted as the intercept, while the contribution of the observed benefits to their motivation is made explicit by β_2. This means that having experienced the implementation of IR in companies only adds to the motivation of SBMs to advocate the adoption of IR in other companies if R_i exceeds $|\beta_1/\beta_2|$[6]. In that case $\beta_1 + \beta_2 \cdot R_i > 0$, while $\beta_1 + \beta_2 \cdot R_i = 0$ for SBMs who have not experienced the implementation of IR. Therefore, the value of $|\beta_1/\beta_2|$ represents the threshold for the observed benefits that needs to be surpassed for SBMs to convert their experience with IR into advocating IR for other companies more than SBMs without having witnessed the implementation of IR would. The values of $|\beta_1/\beta_2|$ resulting from the outcomes reported in Table 10 are considerable as they range from 3.49 to 3.68 for scale A and from 3.58 to 3.62 for scale B. The averages of the actual responses captured by R_i are similar or debatably just slightly higher as they range from 3.62 to 3.73 for scale A (Table 7) and from 3.54 to 3.70 for scale B. The small differences between the thresholds for the observed benefits and the actual responses is consistent with the insignificance of the difference in motivation to advocate IR between the SBMs who had experienced IR in other companies and those who had not, as evidenced by the comparisons reported in Table 11. Table 11 also reveals that the level of motivation of both groups to advocate IR is substantial as the median of M_i significantly exceeds 3 ($p < 0.001$***). From these findings the conclusion can be drawn that SBMs who experienced IR are similarly or perchance just slightly more motivated to advocate IR just because they actually observed considerable benefits.

The estimates of the regression models did not support the proposition that perceived internal factors contribute significantly to the motivation to advocate IR, as the corresponding values of β_4 are insignificant (corresponding p-values are well above 10%). Therefore, the outcomes of the regression analysis provide support for *P1a*, while *P1b* is only supported for *EF* but not for *IF*. The p-values obtained from the one-sided t-test for comparing β_2 with β_3 and β_4 (Table 10) provide support for *P2*.

Support for *P3* is provided by significantly positive estimates for β_2 and medians for R_i which significantly exceed 3 at the 1% significance level (Table 12). The robustness tests based on the t-tests (not tabulated) yielded similar outcomes.

Table 10.
Results estimating regression model

Parameters for explaining dependent variable (M_i)	Prediction	Model 1 Equation (1) *i = Connectivity*		Model 2 Equation (1) *i = Performance*		Model 3 Equation (1) *i = Total*	
		Scale A	Scale B	Scale A	Scale B	Scale A	Scale B†
β_0 (*Intercept*)	np	2.941***	2.944***	2.157***	2.579***	2.776***	2.839***
t-value		9.56	9.07	6.67	7.72	10.29	10.35
p		0.000	0.000	0.000	0.000	0.000	0.000
β_1 (*Imp*)	$\lvert\beta_1/\beta_2\rvert \leq R_i$	−3.941***	−3.056***	−1.358	−2.042**	−3.813***	−3.184***
95% conf. interval		−5.019 - −2.863	−4.018 - −2.094	−3.039 - 0.322	−3.916 - −0.168	−4.781 – −2.844	−4.005 - −2.362
t-value		–7.40	–6.43	–1.64	–2.21	–7.96	–7.84
p		0.000	0.000	0.110	0.034	0.000	0.000
VIF†		14.59	9.28	37.47	35.26	15.31	9.47
β_2 (*BEN*$_i$)	+	1.068***	0.851***	0.389*	0.571**	1.035***	0.880***
95% conf. interval		0.785 – 1.352	0.596 – 1.107	−0.055 - 0.834	0.070 – 1.072	0.778 – 1.292	0.660 – 1.100
t-value		7.63	6.74	1.77	2.31	8.15	8.08
p		0.000	0.000	0.084	0.027	0.000	0.000
VIF†		14.53	9.38	37.59	35.59	15.25	9.61
β_3 (*EF*)	+	0.341**	0.221	0.542***	0.365**	0.347**	0.290*
95% conf. interval		0.012 - 0.670	−0.138 - 0.580	0.204 - 0.881	0.004 - 0.725	0.057 - 0.636	−0.016 - 0.596
t-value		2.09	1.25	3.24	2.05	2.42	1.92
p		0.043	0.220	0.002	0.047	0.020	0.063
VIF†		2.80	2.82	2.63	2.74	2.81	2.87
β_4 (*IF*)	+	−0.061	0.038	0.031	0.044	−0.007	0.018
95% conf. interval		−0.373 - 0.250	−0.300 – 377	−0.270 - 0.332	−0.298 - 0.386	−0.282 - 0.267	−0.269 – 305
t-value		−0.40	0.23	0.21	0.26	−0.05	0.13
p		0.692	0.819	0.836	0.796	0.959	0.900
VIF†		2,73	2.82	2.69	2.89	2.75	2.85
Adjusted R^2		58.84%	52.17%	47.03%	31.12%	64.12%	62.14%
N		44	44	43	43	44	44
F		16.37***	12.73***	10.43***	5.74***	20.21***	18.65***

(*continued*)

Parameters for explaining dependent variable (M_i)	Prediction	Model 1 Equation (1) i = *Connectivity*		Model 2 Equation (1) i = *Performance*		Model 3 Equation (1) i = *Total*	
		Scale A	Scale B	Scale A	Scale B	Scale A	Scale B†
Mean VIF†		8.66	6.08	20.09	19.12	9.03	6.20
Max. Condition number†		19.88	18.45	23.96	23.52	20.11	18.16
Breusch–Pagan (p)		0.490	0.475	0.082	0.141	0.302	0.854
$p(\beta_2 < \beta_3)$ (one sided *t*-test)		0.001*** (strong support for $\beta_2 > \beta_3$)	0.003*** (strong support for $\beta_2 > \beta_3$)	0.710 (Indecisive)	0.251 (indecisive)	0.000*** (strong support for $\beta_2 > \beta_3$)	0.001*** (strong support for $\beta_2 > \beta_3$)
$p(\beta_2 < \beta_4)$ (one sided *t*-test)		0.000*** (strong support for $\beta_2 > \beta_4$)	0.000*** (strong support for $\beta_3 > \beta_4$)	0.090* (support for $\beta_2 > \beta_4$)	0.041** (support for $\beta_2 > \beta_4$)	0.000*** (strong support for $\beta_2 > \beta_4$)	0.000*** (strong support for $\beta_2 > \beta_4$)

Notes: This table reports the outcomes of estimating three model variants of the regression model expressed by equation (1), explaining the motivation to support IR implementation in non-IR-companies (M_i) by actually observed benefits in IR-companies (BEN_i), external factors (*EF*) and internal factors (*IF*) and control variables. The variants relate to connectivity-related and performance-related motives and observed benefits (Models 1 and 2) and their aggregates (Model 3). For each of the model variables two scales are used, scale A and scale B. Scale A is established by only averaging the observations as received (reported in Tables 6 – 9). Scale B is established by replacing missing data by 0, only when the same respondent included values for other subscales of the same variable. This applies to 1.61% of the data. For all three model variants and two scales the outcomes provide evidence for the predicted influence of benefits observed by respondents in IR-companies (BEN_i) on the motivation to support IR implementation in non-IR-companies, while the predicted influence of external factors (*EF*) is evidenced by five of the six regressions. The outcomes for the predicted influence of internal factors (*IF*) are not significant. The results provide support for a higher influence of observed benefits than external and internal factors, although the outcomes for Model 2 are indecisive for the comparison between the coefficients of *BEN*, and *EF*. Note: †: Although some of the VIF values are high (>10), substantial multicollinearity influences are not expected as the outcomes for i = *Total* have VIF-values below the commonly accepted upper limit (10, referring to Doane and Seward, 2019, p. 577; Hair *et al.*, 2019, p. 316) and are similar to the results for other model variants with higher VIF-values. Furthermore, the maximum condition numbers suggest that our findings did not suffer from excessive multicollinearity as their recommended upper limit commonly varies between 15 and 30 (Belsley *et al.*, 1980; Judge *et al.*, 1982, p. 621; Greene, 2012, p. 130; Hair *et al.*, 2019, p. 313). *, ** and *** denote 0.10, 0.05 and 0.01 significance levels, respectively

Table 10.

Parameter	N	Compared with	N	Outcomes test z	p†	*Conclusion*
Median of $M_{Performance}$ for which $Imp = 1$	20	Median of $M_{Performance}$ for which $Imp = 0$	27	−0.011	0.991	Medians are not significantly different
Median of $M_{Connectivity}$ for which $Imp = 1$	20	Median of $M_{Connectivity}$ for which $Imp = 0$	27	−0.302	0.762	Medians are not significantly different
Median of M_{Total} for which $Imp = 1$	20	Median of M_{Total} for which $Imp = 0$	27	−0.226	0.821	Medians are not significantly different
Median of $M_{Performance}$	47	3.0		4.805	0.000***	Median significantly exceeds 3.0
Median of $M_{Connectivity}$	47	3.0		4.802	0.000***	Median significantly exceeds 3.0
Median of M_{Total}	47	3.0		5.055	0.000***	Median significantly exceeds 3.0

Notes: The table reports the results of comparing the motivation to advocate IR between respondents working for companies that have implemented IR and respondents who had worked for non-IR-companies only. The results distinguish between the scores for performance-related motives ($M_{Performance}$), the scores for connectivity-related motives ($M_{Performance}$) and their aggregate scores (M_{Total}). The results reported here relate to scale A only. The outcomes for scale B are similar. Scale A is established by only averaging the observations as received (reported in Tables 6 – 9). Scale B is established by replacing missing data by 0, only when the same respondent included values for other subscales of the same variable. This applies to 1.61% of the data. The outcomes support a substantial motivation to support IR implementation, which is not different for the two categories of respondents. *, ** and *** denote 10%, 5% and 1% significance level, respectively. †: the reported values for p result from applying the non-parametric Wilcoxon rank-sum test for two independent samples (Mann–Whitney) and the one sample Wilcoxon rank-sum test

Table 11.
Comparison of medians of the motivation to adopt IR

Parameter	N	Compared with	Outcomes test z	p†	*Conclusion*
Median of $R_{Performance}$	19	3.0	3.772	0.000***	Median significantly exceeds 3.0
Median of $R_{Connectivity}$	20	3.0	3.124	0.002***	Median significantly exceeds 3.0
Median of R_{Total}	20	3.0	3.156	0.002***	Median significantly exceeds 3.0

Notes: The table reports the results of evaluating the level of observed benefits. The results distinguish between the scores for performance-related observed benefits ($R_{Performance}$), the scores for connectivity-related benefits ($R_{Performance}$), and their aggregate scores (R_{Total}). The results reported here relate to scale A only. The outcomes for scale B are similar. Scale A is established by only averaging the observations as received (reported in Tables 6 – 9). Scale B is established by replacing missing data by 0, only when the same respondent included values for other subscales of the same variable. This applies to 1.61% of the data. The outcomes support a substantial level of observed benefits of implementing IR. Here, the results for scale A are reported. Similar results are obtained for scale B. *, ** and *** denote 10%, 5% and 1% significance level, respectively. †: the reported values for p result from applying the one sample Wilcoxon signed-rank test

Table 12.
Comparison of medians of the observed benefits from adopting IR

4.3 Results robustness checks

Some of the VIF values warn for influences of multicollinearity. We do not expect that our results suffer from these influences because of the similarity of inferences to be drawn from the regression outcomes with high levels of multicollinearity and the outcomes for $i = Total$ using scale B. The latter have VIF values lower than 10, which is commonly accepted as the upper limit (Doane and Seward, 2019; Hair *et al.*, 2019). Nevertheless, we also assessed the condition numbers. The maximum condition numbers reported in Table 10 suggest that our findings did not suffer from excessive multicollinearity as their recommended upper limit commonly varies between 15 and 30 (Belsley *et al.*, 1980; Judge *et al.*, 1982; Greene, 2012; Hair *et al.*, 2019).

Influences of heteroscedasticity can be ruled out (given the Breusch–Pagan p-values reported in Table 10 that allow retaining the null-hypothesis of homoscedastic residuals). Also impacts of non-normally distributed residuals and non-linearities are expected to be negligible based on visual inspection of the relevant plots and histograms. Furthermore, we applied robust errors and bootstrapping and obtained similar outcomes.

4.4 Discussion

The results of our exploratory study indicate that, on average, active and candidate SBMs expect benefits from IR implementation. Our study demonstrates in line with DOI theory and institutional theory that the motivation of SBMs who witnessed the implementation of IR to support the implementation of IR depends on the actually observed benefits and external market conditions. Moreover, observed benefits had a stronger effect on their motivation than did these external factors. External factors also contribute to the motivation of SBMs of non-IR-companies to be supportive of the adoption of IR. Contrary to previous research (Frías-Aceituno *et al.*, 2013a, 2014; Sierra-García *et al.*, 2015), found no evidence supporting the expected impact of internal organizational conditions on the motivation to advocate IR. This is consistent with the less significant results for performance related motives and benefits compared to connectivity related motives and benefits.

In line with previous empirical evidence, this study demonstrates that the adoption of IR is seen as yielding benefits for companies, thereby affecting their interactions with stakeholders, employees and customers (as argued by García-Meca and Pucheta-Martínez, 2018; Lodhia, 2015; Maniora, 2017; Melloni, 2017; Mio *et al.*, 2016; Simnett and Huggins, 2015; Steyn, 2014) and enhancing business performance (as argued by Burke and Clark, 2016; Frías-Aceituno *et al.*, 2013a; 2014; García-Sánchez and Noguera-Gámez, 2017; Lee and Yeo, 2016; Mar Miralles-Quiros, 2017; Mio *et al.*, 2016; Simnett and Huggins, 2015; Steyn, 2014). In addition, these benefits are observed in practice and quite pronounced (given that the median response was significantly above 3). In light of the fact that IR is a relatively new concept that is not yet broadly applied, these results suggest that the manifestation of its benefits need not take as long as suggested in the literature (Maniora, 2017). An effective implementation approach can arguably ensure manageable lead times (Burke and Clark, 2016). In this regard, it should be noted that our survey data contained no clear indication of when IR had been implemented in the respective companies or how long it had taken for the benefits to materialize. If the respondents' companies had implemented IR well before the survey, the benefits are likely to have been visible in practice, even despite significant lead times.

The outcomes of our analyses suggest that the benefits of IR adoption that the respondents had actually observed in other companies have a strong positive influence on their motivation to advocate IR. This is in line with DOI theory and the notions of Rogers (2003) and Jung and Kieser (2012), who respectively argue that the observation of benefits affect the rate of diffusion, and that companies are more willing to adopt management concepts that have proven effective.

To a certain extent, the notions of Jung and Kieser (2012) are also challenged by our study, referring to the considerable minimum level of observed benefits of IR an SBM who experienced IR is expected to require before advocating IR for other companies to at least a similar extent as SBMs who have not. According to our sample, this threshold level is reached and nominally even slightly exceeded, meaning that the SBMs who have experienced IR are equally or at best only slightly more motivated to support IR.

In line with institutional theory, this study supports prior findings that the motivation to adopt IR is positively affected by external market conditions (Frías-Aceituno *et al.*, 2013b; García-Sánchez *et al.*, 2013; Jensen and Berg, 2012), although for the cases representing IR-companies these effects are smaller than those of the observed benefits of IR. This supports the notion by Robertson and Samy (2015) that the institutional environment in itself not necessarily explains the diffusion of innovations such as IR. These results can be explained by the limited ability of companies to influence external conditions. External factors can also be expected to have indirect effects on the motivation to advocate IR. As argued in Section 2, societal factors influence the values prevailing in the marketplace, which in turn drive stakeholder needs (García-Sánchez *et al.*, 2013). To satisfy the needs of stakeholders, companies may thus be compelled to adopt IR, thereby improving their connectivity with stakeholders.

Our findings can be explained by three factors. First, previous research has generally focused on stand-alone analyses of internal conditions and the benefits of IR implementation, focusing primarily on factors associated with IR implementation *ex post*. The effect of these factors on the motivation to advocate IR has not been investigated explicitly.

Second, some level of interdependency can be expected between external and internal conditions. For example, size and the growth opportunities of companies may be affected by the strength and development of the economies in which the companies are active. This possibility is supported by the significant correlation that we found between internal and external factors, which could reflect shared underlying drivers.

Third, some benefits are likely to be relevant for all companies, regardless of internal and external conditions. Improved decision-making, risk management and opportunity identification, together with cost reductions, can serve as strong incentives for all companies to adopt IR, regardless of company size, current profitability or other internal conditions.

Finally, our findings suggest that the level of motivation to advocate IR is hardly dependent of whether the respondents have experienced the implementation of IR themselves or not. This could imply that the respondents only involved in non-IR-companies also considered information on benefits of IR from other companies. This result suggests that the examples set by other companies serve as motives for companies to implement IR, whether directly observed or informed about by e.g. other SBMs. This latter implication is consistent with the findings of Dienes and Velte (2016), which support the influence of the networks of SBMs on CSR reporting practices.

5. Conclusions, limitations and future research

5.1 Conclusions

This study examines the influence of external market conditions, internal organizational conditions and actually observed benefits on the motivation of SBMs to advocate the adoption of IR.

Our study reveals that experienced SBMs expect benefits of adopting IR and perceive that their motivation to advocate IR is driven by external conditions. For SBMs that have actually witnessed the implementation of IR this motivation is stronger associated with the benefits of IR actually observed. Although this is consistent with the theory that proven benefits of new concepts drive their adoption, we also find that the level of motivation is similar for SBMs

who had witnessed the implementation of IR and those who had not. Based on our data, it takes considerable benefits before the motivation of the latter is exceeded by the motivation of the former. The considerable level of motivation we find for both groups reveals that, according to the respondents, the actually observed benefits are considerable as well.

Finally, the analysis of both organization-level and market-level factors reveals that, according to the respondents, internal factors do not serve as a motivation for the implementation of IR. This perception is contrary to prior research. One explanation for this difference could be that these factors may either interact with or be mediated by the benefits of IR. These factors might therefore be associated with IR adoption (as indicated by previous research), while not actively serving as motives for advocating IR implementation. At the same time, however, it seems intuitive that decision-makers should be most easily convinced to alter existing reporting standards if some benefit can be derived from doing so. If these benefits are largely independent of internal conditions, these conditions should logically have no significant influence on the motivation to implement IR. Further research is required to verify this suggestion.

SBMs constitute an important organizational body of the company and can play an important role in initiating or blocking the change towards IR implementation. This study therefore has several practical and social implications. The findings contribute to the understanding of the motivation of SBMs as an important organizational condition for implementing IR and adds to the emerging body of literature that investigates drivers and motives for IR adoption, IR practices and its diffusion (Higgins *et al.*, 2014; Stubbs and Higgins, 2014; Lodhia, 2015; Steyn, 2014; van Bommel, 2014). The results support the notion by Robertson and Samy (2015) that although institutional factors do play an important role in IR adoption, these factors in itself cannot explain the diffusion of IR. This study also adds to the DOI theory by confirming the importance of observed benefits for diffusion and how the observation of these benefits by change promotors could accelerate the adoption of an innovation such as IR. From a practical perspective, it could provide a basis for a more sophisticated business case for IR. From an organizational change perspective, the business case could focus on the presence of external factors, while the absence of certain internal factors could be treated as less of an issue. The potential of IR as a reporting standard that is associated with benefits legitimizes the decision of companies to adopt IR, and supports the IIRC and other institutions in promoting multi-capital reporting and the dissemination of IR. This directly relates to the social implications of our results, as our findings provide support for the cross-company sharing of experiences on the implementation and the benefits of IR as the strongest motivator available for advocating IR adoption. Such cross-company sharing could serve as a mechanism for convincing external stakeholders. As motivation for the adoption of IR increases, society will gain access to connected, multi-capital information which could potentially improve the long-term viability of organizations and their relations with stakeholders as well as decision-making by providers of financial capital and stakeholder.

5.2 Limitations and future research

The study is subject to several limitations. First, the empirical findings are based on a small sample of 62 respondents. Second, the survey did not gather information concerning when the companies had implemented IR. It is therefore impossible to draw any inferences about the lead time and time lag between the implementation of IR and the manifestation of the resulting benefits. A third limitation could be that the survey contains only scores for benefits observed by respondents from IR companies. We were not able to analyse influences of indirect information. Finally, it should be noted that, because the survey was conducted in 2016, it may

be subject to selection bias, as IR was a new concept at the time. The IR companies in the survey are therefore likely to have been the companies with most to gain from IR.

The results of our study, and its limitations, suggest several avenues for future research. First, a larger sample size could provide a deeper understanding of the specific benefits that most strongly drive the motivation to implement IR. A follow-up study into the specific roles of the items underlying the composite measures would therefore be a useful angle to pursue, identifying the extent to which the motivations for advocating IR adoption are subject to change over time and whether these changes differ between executives who have experience with IR-companies and those who have not, or between for-profit and not-for-profit organizations. Second, future studies should be conducted on how observed benefits interact with external and internal factors, thereby enhancing understanding concerning whether and how these factors drive the motivation to advocate the adoption of IR. Third, valuable insight could be gained by comparing our results from The Netherlands to the opinions of SBMs in other countries, especially given the knowledge that such comparison could yield with regard to external market conditions and how they affect motivation to adopt IR. Finally, further research on best practices for IR implementation and the development of an implementation roadmap could advance the dissemination of IR as a general reporting standard.

Notes

1. The sample of SBMs consisted of individuals who were already fulfilling a non-executive role ("active SBMs") and experienced professionals who were on track to fill such a role in the near future and who had participated in learning programmes designed for SBMs ("candidate SBMs").
2. Corporate Governance Code Monitoring Committee (2016).
3. A review of these studies can be found in De Graaff *et al.* (2021).
4. Following the most relaxed guideline of Cattell (1978), a model with nine explanatory variables (equation 1) should be based on a minimum of $n = 27$ observations.
5. This applies to one moderately significant case and five weakly significant cases. The former case concerns the addition of control variable P_{Number} in the regression analysis for i = *Performance* using scale B. The corresponding p-value amounts to 3.5%. For the other five cases, the p-value ranges between 5.6% and 9.2%. These cases concern the control variable P_{Number} in the regression analysis for i = *Performance* using scale B, *Gender* in the analysis for i = *Connectivity* using scale A, and *SBPositionsNonprofit* in the analysis i = *Performance*, *Connectivity* and *Total* using scale B.
6. Recall that $BEN_i = R_i$ when $Imp = 1$.

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