Sustainability performance disclosures: the impact of gender diversity and intellectual capital on GRI standards compliance in Uganda

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Juma Bananuka and Stephen Korutaro Nkundabanyanga
Department of Accounting, Makerere University Business School, Makerere University, Kampala, Uganda
Twaha Kigongo Kaawaase
Department of Accounting, Makerere University Business School, Makerere University, Kampala, Uganda and Department of Audit and Assurance, Sejjaaka Kaawaase & Co. Certified Public Accountants, Kampala, Uganda, and
Rachel Katoroogo Mindra and Isaac Newton Kayongo
Department of Finance, Makerere University Business School, Makerere University, Kampala, Uganda

Abstract

Purpose – The purpose of this study is to examine the extent of and impact of gender diversity and intellectual capital on compliance with Global Reporting Initiative (GRI) sustainability reporting standards by Uganda manufacturing companies.

Design/methodology/approach – Data were collected from manufacturing firms in Uganda using a questionnaire survey to find out their perception of compliance with the GRI standards. Data were analyzed using statistical package for social sciences, Microsoft Excel and smart partial least squares structural equation modeling (PLS–SEM).

Findings – The results indicate that on average, manufacturing firms in Uganda comply with GRI sustainability reporting standards to the extent of 59%. The results further indicate that manufacturing companies comply more with the GRI 200 (economic performance disclosures) to the extent of 63% as compared with 55% for GRI 300 (environmental performance disclosures) and 58% for GRI 400 (social performance disclosures). The results also indicate that intellectual capital has a significant impact on the GRI-based sustainability performance disclosures in Uganda. However, board gender diversity has no significant effect. In terms of the control variables, only firm size is significant, while firm age, capital structure and auditor type are not.

Originality/value – This study provides first time evidence of the extent of compliance with the GRI sustainability reporting standards using evidence from Uganda – an African developing country. This study widens the understanding of the usage of GRI standards in the preparation of sustainability reports by manufacturing firms in an emerging economy. This study also provides first-time evidence on the role of gender diversity and intellectual capital in GRI-based sustainability performance disclosures using evidence from Uganda's manufacturing sector.

Keywords Sustainability performance disclosures, Global reporting initiative, GRI sustainability Reporting standards, Intellectual capital, Board gender diversity, Uganda

Paper type Research paper

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1. Introduction

Companies whose sustainability performance disclosures (SPD) comply with the Global Reporting Initiative (GRI) sustainability reporting standards are more profitable (Yang *et al.*, 2021). This is because they cut costs of production, are more likely to be awarded contracts or win tenders from especially the developed world and the local environmentally sensitive organizations, may not pay fines especially those related to disposal of hazardous waste and may be favored by funding institutions that are sustainability sensitive such as African Development Bank. GRI-based sustainability reports are more likely to improve company image/reputation among several stakeholders (Dissanayake, 2021), especially regulators and employees and such may attract more qualified employees. Whereas compliance with GRI standards is voluntary, it helps organizations to contribute toward the achievement of Sustainable Development Goals (SDGs). In some jurisdictions, such as Uganda, sustainability reporting awards have been introduced, and as such, companies whose sustainability reports comply with the GRI standards stand high chances for winning such awards, which contributes to publicity of such companies locally and internationally.

The purpose of this study is to examine the extent of and impact of gender diversity and intellectual capital on compliance with GRI sustainability reporting standards by Uganda manufacturing companies. There are several studies on the extent and determinants of compliance with GRI-based SPD standards (e.g. Orazalin and Mahmood, 2020; Girella *et al.*, 2021; Zahid *et al.*, 2020; Gnanaweera and Kunori, 2018). There are also literature review studies on SPD whose focus is not entirely on the determinants of GRI-based SPD standards but rather a general collection of all studies on sustainability performance-related disclosures. For example, in a literature review study of 186 studies, Fifka (2013) found that the key literature-based determinants of corporate social responsibility reporting are firm size, industry sensitivity, managerial attitudes and external factors such as stakeholder pressures. In another literature review study of 48 studies on the determinants of sustainability reporting practices (SR), Dienes *et al.* (2016) found that firm size, media visibility, ownership structure and corporate governance structure are key determinants of SR. Orazalin and Mahmood (2020), using evidence from Kazakhstan, found standalone reporting, reporting language, profitability, firm size, auditor type to be positive and significantly associated with the GRI-based SR, while firm age and leverage were negatively associated with SR. Using evidence from Malaysia, Zahid *et al.* (2020) found gender diversity, firm size and profitability to be positive and significantly associated with sustainability disclosures, while firm age was not. Similarly, using evidence from Japan, Gnanaweera and Kunori (2018) found that sustainability performance has no association with the sustainability disclosure levels, while large firms disclose more sustainability information than small ones. Girella *et al.* (2021) used evidence from Eurostoxx-listed companies and found that board size and board independence are positive and significant determinants of compliance with GRI standards when the firm prepares both an integrated report and sustainability report, but board size and board meetings are not significant when the firm prepares only a sustainability report.

However, existing studies have a number of limitations. First, majority of the studies employ content analysis methodologies (e.g. Orazalin and Mahmood, 2020; Gnanaweera and Kunori, 2018; Girella *et al.*, 2021). Whereas content analysis studies are objective, they contribute more to theory than practice (Tauringana, 2021a; Belal and Momin, 2009). On the other hand, perception-based studies are superior to content analysis studies in terms of their contributions to practice (Tauringana, 2021a). This is because, managerial perception-based studies document the direct motivations for SPD, unlike content analysis studies that document the indirect motivations for SPD (Tauringana, 2021a, b; Belal and Momin, 2009). We thus argue that, the results from content analysis studies

have limited policy implications because they indicate support from existing theories. By undertaking perception-based studies, we may find out other reasons why companies comply or do not comply with GRI standards.

Second, existing studies have not investigated the impact of gender diversity and intellectual capital on perceived compliance with GRI standards using perceptions. Available perception-based studies (e.g. Tauringana, 2021a; Tumwebaze *et al.*, 2021; Thoradeniya *et al.*, 2015) do not investigate the impact of gender diversity and intellectual capital on GRI-based SPD. Further, extant content analysis studies provide evidence from other contexts other than Uganda (e.g. Injeni *et al.*, 2021; Cicchiello *et al.*, 2021; Zahid *et al.*, 2020; Arayssi and Jizi, 2016). In all, of these studies, gender diversity has been found to be significantly associated with SPD. Such results may not be generalized to Uganda where only 33% of the women in Uganda are employed in the manufacturing sector (Uganda Bureau of Statistics, 2019). This increases their (males) chances of being included on the boards of several organizations, given the expertise gained from such employment. Given that women have less chances of being appointed as board members, it is unclear as to whether gender diversity can have a significant influence on SPD. In the Ugandan context, it is also unclear whether intellectual capital, as conceptualized by Inkinen *et al.* (2017), in terms human, structural, relational, renewal, trust and entrepreneurial capital has a significant effect on GRI-based SPD. This is because SPD requires a great amount of knowledge and expertise. The Institute of Certified Public Accountants (2021) indicates that it has so far trained over 3,000 Ugandans and about 8,000 Ugandans are still undertaking their courses. This approximately represents less than 1% of the total population of Uganda as of 2014 National Housing and Population Census that indicated a population of 34.6 million.

Finally, this study focuses on Uganda's manufacturing firms because they are known to pollute the environment. For example, the average particulate matter (PM 2.5) as at February 2021 in Uganda was at 75 micrograms per cubic meter, which is three times higher than the World Health Organization (WHO) cut off (Abet, 2021). This explains the increase in air pollution-related illnesses, which are now second to Malaria at 26.9% of all the outpatient department attendances in the country during the financial year 2017/2018 (National Environmental Management Authority, 2019). It then becomes difficult for policy makers to formulate any viable policies or laws to mitigate such negative effects of manufacturing firms' activities without their sustainability reports that reflect the actual environmental, social and economic performances. Manufacturing firms were also considered for this study because they underwent training in 2016 on how to measure and report greenhouse gas emissions (see Tauringana, 2021a) and also received further training in 2019 on how to prepare sustainability reports based on GRI sustainability reporting standards.

We used a questionnaire survey where the respondents were chief finance officers, management accountants and heads of internal audit. The chief finance officers completed the entire two phases of the questionnaire (Phase 1 questionnaire captured issues on control variables, gender diversity and intellectual capital, while Phase 2 of the questionnaire captured issues on the dependent variable). The rest of the respondents completed only Phase 1 of the questionnaire. We obtained responses from 121 manufacturing firms. The results suggest that manufacturing firms in Uganda disclose more of economic performance (68%), followed by social performance (58%) and lastly environmental performance (55%). On average, manufacturing firms in Uganda comply with the GRI standards to the extent of 59%. The results further indicate that intellectual capital is significantly associated with GRI-based SPD, while gender diversity has no effect. In terms of control variables, only firm size is significantly associated with GRI-based SPD, while

firm age, capital structure and auditor type are not significantly associated with GRI-based SPD.

This study makes the following contributions. First, this study contributes to perception-based studies on sustainability reporting (e.g. Tauringana, 2021a; Tumwebaze *et al.*, 2021; Thoradeniya *et al.*, 2015). Perception-based studies document the direct managerial motivations for the improved SPD, unlike those panel data studies that rely on information whose intention of its inclusion in a report is not known. This study responds to such calls by previous studies (e.g. Orazalin and Mahmood, 2020; Tauringana, 2021b) by examining the extent and determinants of GRI sustainability reporting standards issued in 2016 using evidence from Uganda. This study further contributes to studies on the determinants of sustainability reporting (e.g. Orazalin and Mahmood, 2018; Bhatia and Tuli, 2017; Dienes *et al.*, 2016; Dissanayake *et al.*, 2019) by providing an initial empirical evidence on the level of compliance with the GRI sustainability reporting standards. The key actors in sustainability reporting may use this study results to refocus on how best all entities can prepare sustainability reports based on the GRI sustainability reporting standards. This study suggests that the global bodies such as the United Nations and World Bank mandate all their member countries to adopt the GRI sustainability reporting standards, while the International Financial Reporting Standards (IFRS) foundation either remains committed to financial reporting or merges with the GRI.

The next section is literature review. Under this section, we review previous studies on the determinants of SPD, and this is followed by a review on the extent of compliance with sustainability reporting standards/guidelines in other jurisdictions. We end this section with hypotheses development. Section 3 is methodology, while Section 4 is results. Section 5 is discussion of findings, while Section 6 is summary and conclusion.

2. Literature review and hypotheses development

2.1 Literature review

The only study that has specifically examined the extent of compliance with the GRI (2016) standards is that by Abu Al-Haija *et al.* (2021), which found that there were more social performance disclosures compared to economic and environmental performance disclosures. The majority of studies that explore the GRI sustainability reporting compliance are too general and do not explore to what extent firms comply with particular standards. For example, Tilt *et al.* (2021) found that 269 (17%) of the companies studied in 22 African countries, excluding Uganda, due to lack of data produced some form of sustainability report in at least one of the three years (2014–2016) where only 131 (8%) companies reported on all the years. Tilt *et al.* (2021) found that out of the 36 standalone sustainability reports, 19 of these were GRI citing (about 53%). Tilt *et al.* (2021) did not establish the levels of compliance with each GRI guideline. Other studies use the volume of a sustainability report to assess whether, over time, the increase in the volume of sustainability or annual reports is seen as an improvement in SR (e.g. Böhling *et al.*, 2019). Most of these available studies investigate compliance with GRI guidelines (G1, G2, G3 and G4). For example, Böhling *et al.* (2019) found that the disclosed information in the sustainability reports did not fully comply with the GRI G4 guidelines in the Argentina's mining companies. Slacik and Greiling (2020) found that the coverage of sector-specific indicators provided in the GRI G4 guidelines are not fully complied with by global electric utility companies. Boiral and Henri (2017) found that mining organizations whose reports were uploaded on the GRI website did not comply with all the GRI G3 guidelines. This is because, according to Boiral and Henri (2017), the G3 and the subsequent GRI G4 guidelines were many. Further, in another study of sustainability key performance indicators and the GRI, Dissanayake (2021) found that the key performance

indicators provided by the GRI standards are many, which means that there are bound to be compliance problems. This study, therefore, closes the existing literature gaps and provides avenues for future research by investigating to what extent manufacturing firms comply with GRI sustainability standards.

As earlier indicated, there are several studies on the determinants of SPD. Some of these studies are GRI based (e.g. Injeni *et al.*, 2021; Tilt *et al.*, 2021; Jain *et al.*, 2021), while others use other measures of SPD such as disclosure indices obtained from other studies and reporting frameworks (e.g. Khan *et al.*, 2021; Cicchiello *et al.*, 2021; Kumar *et al.*, 2021). We also note that majority of the studies use content analysis methodologies (e.g. Injeni *et al.*, 2021; Tilt *et al.*, 2021; Zahid *et al.*, 2020), while very few studies employ perception based studies (e.g. Tumwebaze *et al.*, 2021; Tauringana, 2021b; Mahmood and Uddin, 2021; Yusoff *et al.*, 2019; Thoradeniya *et al.*, 2015). According to exiting literature reviews of the determinants of SPD, firm size, firm age, gender diversity, capital structure and governance-related variables have been found to be significant. Other determinants of SPD such as sustainability performance (Hummel and Schlick, 2016; Herbohn *et al.*, 2014), management characteristics (Xiao and Shailer, 2021; Thoradeniya *et al.*, 2015), regulatory and GRI guidelines (Khan *et al.*, 2021), stakeholder initiatives/engagement (Mahmood and Uddin, 2021; Kaur and Lodhia, 2018), sustainability accounting (Kaur and Lodhia, 2018) and social media (Manetti and Bellucci, 2016) also exist. The findings of these studies together with their methodologies are presented in Table 1.

2.2 Hypotheses development

2.2.1 Board gender diversity. The resource-based view suggests that firms with superior internal resources and capabilities have a competitive advantage over those firms without (Barney, 1991, 1995). This is possible especially if the internal resources and capabilities are unique, not substitutable, valuable and rare. Barney (1995) indicates that the internal resources include financial, physical, human and organizational assets. These internal resources can be used to improve organizational processes such as GRI-based sustainability reporting. Such internal resources include human resources such as the female directors. The composition of directors of a company in terms of gender is key toward improvement in sustainability reporting. This is because female directors differ from male directors in terms of personality, communication and leadership styles, are ethically sensitive and socially responsible than the male directors (Cicchiello *et al.*, 2021; García-Sánchez *et al.*, 2019). The inclusion of a single female director on the board for male-dominated firms can make a significant difference (Cicchiello *et al.*, 2021; Zaichkowsky, 2014). Therefore, firms with internal resources such as diversity of directors in terms of gender are more likely to prepare sustainability reports that comply with GRI standards than those with only male directors.

According to García-Sánchez *et al.* (2019), female directors possess a narrative character, which is ideal for sustainability reports. However, such sustainability performance reports may not be precise (García-Sánchez *et al.*, 2019). García-Sánchez *et al.* (2019) found that female directors are positively and significantly associated with sustainability reporting using evidence from 12 countries. Cicchiello *et al.* (2021) found that board gender diversity is positively and significantly associated with sustainability reporting. Mahmood and Orazalin (2017) found board gender diversity to be significantly associated with the quality of sustainability information among firms in the oil and gas sector in Kazakhstan. Using evidence from Malaysia, Zahid *et al.* (2020) found gender diversity to be positive and significantly associated with sustainability disclosures. Similarly, using evidence from Sri Lanka, Mudiyanselage (2018) found female directors to be positively and significantly associated with sustainability disclosures. In another study,

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Khan *et al.* (2021)	Regulatory guidelines, standardized reporting formats, corporate social performance, firm size, leverage, profitability, sales growth, institutional ownership, foreign ownership, firm age, government ownership, financial inclusion index	• Bangladesh • Listed banks on the Dhaka Stock Exchange • 209 firm-year observations (2002–2014) • Secondary data	Disclosure index	• Positive and significant associations between regulatory guidelines, standardized reporting formats, corporate social performance, firm size, engagement in financial inclusion activities and sustainability reporting quality • Negative and significant association between firm age and sustainability reporting quality • No significant association between profitability, sales growth, institutional ownership, foreign ownership, government ownership and sustainability reporting quality
Injeni *et al.* (2021)	Board gender diversity, audit committee independence, block ownership and the presence of foreign ownership, regulatory pressure and promotional efforts of regulatory and professional bodies, sector type, size, profitability	• Kenya • 53 firms listed on the Nairobi Stock Exchange • 419 firm-year observations between 2010 and 2018 • Secondary data	Disclosure index developed from GRI	• Positive and significant association between board gender diversity, audit committee independence, block ownership, presence of foreign ownership, sector type, firm size, regulatory pressure, promotional efforts by professional bodies and disclosures of sustainability information • No significant association between leverage, profitability and disclosures of sustainability information
Tilt *et al.* (2021)	Norms and customs, politics and regulations, government and accountability, resources	• Sub-Saharan Africa • Panel data and interviews • Both primary and secondary data	Disclosure index developed from GRI G4 guidelines	Institutional influences are key to promotion of SR in Sub-Saharan Africa
Mahmood and Uddin (2021)	None	• Pakistan • 28 listed companies • Interviews • Primary data	Economic, social and environmental as conceptualized under GRI guidelines	Multi-stakeholder initiative, environmental reporting awards are key for variations in SR in Pakistan
Tauringana (2021a)	Expertise, time, training, legal requirements, stakeholder pressures, awareness, positive attitude, negative attitude, resources availability, training and support for free, company size, ownership structure, company age	• Uganda • 194 members of UMA • Questionnaire survey • Primary data	Binary scale/ dichotomous variable	• Positive and significant associations between resources, positive attitude training and support for free training, company size and SR adoption • Negative and significant associations between ownership structure, negative attitude, awareness level and SR adoption • No significant association between time, stakeholder pressure, legal requirements, company age and SR adoption

Table 1.
Determinants of SPD

(*continued*)

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Uyar *et al.* (2021a, b and c)	Sustainable stock market	• Global • 113 country-year observations • Secondary data	Disclosure index developed from GRI	Positive and significant association between sustainable stock market and SR. Sector type (private sector) moderates the relationship between sustainable stock market and SR
Tauringana (2021b)	None	• Literature review	Not Applicable	Training, legislation, issuing of guidance, stakeholder pressure, awareness campaigns, market and public pressure were identified as the literature perception based determinants of SR practices
Tumwebaze *et al.* (2021)	Audit committee effectiveness, internal audit function, firm age, auditor type, firm size	• Uganda • 48 financial services firms • Questionnaire survey • Primary data	Disclosure index developed from GRI 2016 Standards	• Positive and significant associations between audit committee effectiveness, internal audit function and SR practices • No significant associations between firm size, firm age, auditor type and SR practices
Girella *et al.* (2021)	Board independence, board size, board meeting frequency, information asymmetry, financial constraints, growth opportunities	• Listed firms on Eurostoxx 600 • 2,103 firm-year observations between 2015 and 2018 • Secondary data/ content analysis	Dichotomous variable based on GRI	• Board size and board independence are positive and significant when the firm prepares an integrated report and/or both integrated and sustainability report • Board size and board meetings are not significant when a firm prepares only a sustainability report. Growth opportunities, financial constraints and information asymmetry have no significant associations with SR • Information asymmetry, financial constraints, growth opportunities have a negative moderating effect between board characteristics and SR
Uyar *et al.* (2021a, b, c)	Governance quality, voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, control of corruption	• 252 countries (world) • Secondary data	Number of sustainability reports produced	Overall governance quality is significantly associated with SR tendency. Voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption have significant explanatory power on SR. There are variations in the explanatory power of political instability on SR

(*continued*)

Table 1.

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Cicchiello *et al.* (2021)	Gender diversity, board size, board age, CEO duality, firm size, industry type	• Asia and Africa • 366 companies whose sustainability reports are found on the GRI data base • Secondary data	Dichotomous variable	• Positive and significant association between board gender diversity, board age, industry type, firm size, financial performance and SR practices • No significant associations between board size, CEO duality and SDG SR
Kumar *et al.* (2021)	Company size, company age, free cash flow capacity, government ownership, GRI usage, financial leverage, profitability, industry type	• India • 75 listed non-banking companies • Secondary data/ content analysis	Disclosure index	• Positive and significant associations between company size, age, industry type, free cash flow capacity, government ownership, GRI usage and the extent of corporate sustainability disclosure • Negative associations between financial leverage, profitability and sustainability disclosure practices
Jain *et al.* (2021)	Isomorphic forces/social contagion, media attention	• Global financial services sector • 951 financial services firms • GRI database (secondary data)	Disclosure index developed from GRI	Isomorphic forces and media attention were behind the adoption of GRI-based SR practices
Ottenstein *et al.* (2021)	EU regulation	• European Union • 905 treated firms from the EU28 + 2 countries • Refinitiv ESG database	Dichotomous variable	The EU directive on non-financial information influences the quantity and quality of SR
Thoradeniya *et al.* (2021)	Organizational factors, individual factors, institutional pressures	• Sri Lanka • 15 listed and 14 non listed companies in Sri Lanka • Interviews • 33 top and middle-level managers • Primary data	Economic, social and environmental indicators as defined by GRI	Both organizational factors (top management support, employee support, data management, reputation and organizational culture), individual factors (manager's mindset and will power, manager's knowledge and manager's skills) and institutional pressures, especially those related to regulation and the GRI principles are important in influencing SR in developing countries
De Micco *et al.* (2021)		• Italy • 1 case study company • Both interview and document review • Both primary and secondary data	Economic, social and environmental as defined by the GRI	Stakeholder engagement and data management scarcely affect SR. Communication of sustainability principles, employees' involvement, routinization and institutionalization of SR practices and management commitment were the main efficient mechanisms used by Estra to propel her SR practices

Table 1. (*continued*)

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Uyar *et al.* (2021a, b and c)	Governance structure, social development, environmental development	• GRI disclosure database • Secondary data	Binary	Governance structure and environmental development are more critical for increased disclosure of sustainability information in the tourism sector than social development
Haladu and BinNashan (2021)	Environment al policy, profitability, financial leverage, board size, firm age, market to book value ratio, firm size	• Nigeria • 218 companies on the Nigerian Stock Exchange both primary and secondary data	Disclosure index developed from GRI G4 guidelines	• Negative and significant associations between financial leverage, board size, firm size and SR. Positive and significant associations between firm age and SR practices • Positive and insignificant associations between profitability, market to book ratio and SR. Environmental policy moderates the relationship between corporate attributes and SR practices
Andrades Peña *et al.* (2020)	Firm size, access to internet, economic capacity, political ideology, reputation	• Spain • 99 public hospitals • Secondary data	Disclosure index	• Positive and significant association between firm size, access to internet, political ideology, reputation and sustainability disclosures • No significant association between economic capacity and sustainability disclosures
Modugu (2020)	Company size, profitability, industry sensitivity, liquidity, leverage	• UAE • 32 listed firms on Dubai financial market • Secondary data	Disclosure index	• Positive and significant association between company size, liquidity and SR. Negative and significant association between industry sensitivity and SR • No significant association between profitability, leverage and SR
Qian *et al.* (2020)	Stakeholder pressures	• Indo-Pacific region (Indonesia, Bangladesh, Philippines, Vietnam, Sri Lanka) • Primary data	Binary variable	Regulatory and normative stakeholder pressures drive SR. Large-sized firms and those with overseas presence have better SR practices
Buallay and Al-Ajmi (2020)	Audit committee (AC) attributes (financial expertise, AC meetings, AC independence, AC size), bank size, bank age, auditor type	• Gulf Cooperation Council countries • 59 banks • Secondary data	Disclosure index developed from GRI	• Positive and significant associations between AC independence, AC size, AC meetings, bank size, bank age, auditor type and SR. • Negative and significant association between financial expertise and SR practices

(*continued*)

Table 1.

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Amidjaya and Widagdo (2020)	Corporate governance, foreign ownership, family ownership, digital banking, firm size, government ownership	• Indonesia • 31 listed banks • Panel data/secondary data	Disclosure index developed from GRI	• Positive and significant association between corporate governance, government ownership, firm size, foreign ownership, family ownership and SR. • No significant association between digital banking and SR. The existence of foreign ownership among banks does not strengthen the corporate governance role in improving SR practices. Family ownership weakens the influence of corporate governance on SR practices
Karaman *et al.* (2020)	Green logistics performance, corporate governance	• 117 countries • Secondary data	Dichotomous variable	Positive and significant association between green logistics performance and SR. Corporate governance is a significant moderator in the relationship between green logistics performance and SR
Correa-Garcia *et al.* (2020)	Ownership concentration, ownership type, board size, board independence, foreign orientation, business group's age	• Latin America • 324 non-financial companies • Secondary data	Dichotomous scale/ dummy variable	• Negative and significant association between ownership concentration and SR quality • Positive and significant association between ownership type (foreign ownership), board size, business group age and SR quality • Negative association between foreign orientation and SR quality • No significant association between board independence and SR quality
Jamil *et al.* (2020)	Board independence, board capital, compliance with code of corporate governance, control variables (firm size, industry, profitability, financial leverage)	• Malaysia • 755 listed firms • Secondary data	Disclosure index developed from GRI G3 guidelines	• Number of sustainability related training attended by the board of directors and the proportion of the directors with sustainability-related experience improve the quality of SR • Positive and significant association between firm size, profitability and SR • No significant association between board independence, financial leverage and SR. Industry type was significant in 2010 but insignificant in 2014 with SR
Ong and Djajadikerta (2020)	Corporate governance	• Australia • Secondary data/ content analysis	Disclosure index	Positive and significant associations between proportion of independent directors, multiple directorships, female directors (gender diversity) and sustainability disclosures

Table 1. (*continued*)

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
García-Sánchez *et al.* (2020)	CEO managerial ability, corporate social responsibility performance	• 28 countries with more bias to the USA and UK companies • 956 international firms (6,442 firm year observations) • Secondary data/ content analysis	Disclosure index developed from GRI	• Positive and significant relationship between CEO ability and sustainability disclosures • Corporate social responsibility performance mediates the relationship between CEO ability and sustainability disclosures
Orazalin and Mahmood (2020)	Standalone sustainability reporting, reporting language, leverage, cash flow capacity, profitability, size, age and auditor type	• Kazakhstani • 53 companies listed on the Kazakhstani Stock Exchange • 146 firm-year observations (2013–2015) • Secondary data/ content analysis	Disclosure index developed from GRI	• Positive and significant associations between standalone reporting, reporting language, profitability, firm size, auditor type and SR practices of Kazakhstani companies • Firm age and leverage are negatively associated with SR practices • No significant association between cash flow capacity and SR practices
Zahid *et al.* (2020)	Boardroom gender diversity, firm age, firm size, profitability	• Malaysia • 878 firm-year observations • Secondary data/ content analysis	Disclosure index	• Positive and significant associations between women directors, gender diversity, firm size, profitability and sustainability disclosures • No significant association between firm age and sustainability disclosures
Chang *et al.* (2019)	Country of origin, Islamic values, territorial extent, government ownership, organizational culture (mission/vision), equator principle, profitability, liquidity	• Global • 100 financial institutions • Secondary data	Disclosure index developed from GRI G4	• Positive and significant association between organizational culture, Islamic values and SR quality. Firms in developed countries and those that are privately owned have higher quality sustainability reports as compared to their counterparts • Equator principle (regulatory pressure issue) is significantly associated with SR quality and moderates relationship between Islamic values and SR quality
Dissanayake *et al.* (2019)	Company size, GRI usage, ownership structure, industry affiliation	• Sri Lanka • 84 publicly listed companies • Secondary data/panel data analysis	Uses number of words on economic, social and environmental disclosures	• Positive and significant associations between company size, usage of the GRI guidelines and SR • Weak positive associations between ownership structure, industry sector and SR
García-Sánchez *et al.* (2019)	Female directors	• Global (12 countries) • 273 firm-year observations • Secondary data	Balance, conciseness, clarity, comparability and reliability of information	Positive and significant associations between female directors and SR. Female directors are associated with less precise sustainability reports

(*continued*)

Table 1.

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Kılıç *et al.* (2019)	Sustainability performance, size of the aviation industry, trade openness	• Global • Aviation industry • Secondary data	Binary scale/ dichotomous variable based on whether the company uploads the GRI-based report or not	Positive and significant association between trade openness, size of the economy, industry type, sustainability performance and GRI-based SR
Yusoff *et al.* (2019)	Stakeholder pressures, isomorphism	• Malaysia • One Malaysian listed company • Semi-structured interviews • Primary data	Economic, social and environmental performance	The coercive pressure is key in shaping SR practices, and this is followed by mimetic and normative pressures
Shafer and Lucianetti (2018)	Machiavellianism, stakeholder orientation, respondent age, respondent work experience	• Italy • 205 respondents • Questionnaire survey • Primary data	Social, environmental (perceptions based on Likert scale items)	• Negative and significant association between Machiavellianism and SR • Positive and significant association between stakeholder orientation, respondent age, respondent work experience and SR • Partial mediation of stakeholder orientation in the relationship between Machiavellianism and SR
Mudiyanselage (2018)	Board size, board independence, dual leadership, female directors, board ethnicity, board ownership, firm size, firm age, profitability, firm growth, firm leverage, industry type	• Sri Lanka • 100 companies listed on the Colombo Stock Exchange • 400 firm-year observations • Secondary data	Dichotomous variable	• Positive and significant associations between board size, board independence, female directors, firm size, firm age, profitability and sustainability disclosures • No significant association between dual leadership, board ethnicity, board ownership, firm growth, leverage, industry type and sustainability disclosures
Kaur and Lodhia (2018)	Stakeholder engagement, sustainability accounting	• Australia • 523 annual/ sustainability reports of 3 Australian local councils	Environmental, social and economic	The engagement of stakeholders improves sustainability accounting and reporting
Orazalin and Mahmood (2018)	Standalone reporting, firm age, auditor type, foreign ownership, reporting language, financial capacity, leverage, firm size, return on assets	• Russia • 54 publicly traded companies in the oil and gas industry • Secondary data/ content analysis	Dichotomous variable developed from GRI	• Positive and significant associations between standalone SR, firm age, foreign ownership, reporting language, auditor type and disclosure of sustainability information • No significant associations between financial capacity, leverage, firm size, return on assets and disclosure of sustainability information

Table 1. (*continued*)

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Gnanaweera1 and Kunori (2018)	Sustainability performance, firm size	• Japan • 85 Japanese companies listed on the Tokyo Stock Exchange (TSE) • Firm-year observations 2008 to 2014 • Secondary data	Disclosure index developed from GRI	Sustainability disclosure level and sustainability performance indicators have no strong association. Larger firms disclose more sustainability performance information as compared to small ones
Mahmood and Orazalin (2017)	Board characteristics (board size, board independence, board committees, board diversity)	• Kazakhstan • Top 30 oil, gas and mining companies listed on the Kazakhstan Stock exchange (KASE) • Secondary data involving 144 observations	Dichotomous variable with sub-indices on economic, social and environmental performance disclosures	• Positive and significant associations between board size, gender diversity, board committees and SR • No significant association between board independence and SR
Bhatia and Tuli (2017)	Firm size, firm age, firm nationality, IT advancement, industry type, profitability, leverage, growth and advertising intensity, board size, board independence sustainability disclosure	• India • 158 Indian listed companies • Secondary data/ content analysis	Disclosure index developed from GRI G3 guidelines	• Positive and significant associations between firm size, firm age, firm nationality, IT advancement, industry type and sustainability disclosures • Negative and significant associations between profitability, leverage, growth, advertising intensity and sustainability disclosure • No significant associations between board independence, board size and sustainability disclosures
Kuzey and Uyar (2017)	Firm size, industry type, leverage, profitability, liquidity, free cash flow, growth opportunities, ownership structure	• Turkey • 297 Turkish traded companies • Secondary data	GRI based. A binary scale (presence or absence of a sustainability report)	• Positive and significant associations between firm size, industry type (manufacturing sector) and SR practices • Negative and weak association between leverage and SR practices. Negative and significant association between liquidity (current ratio) with SR practices • No significant associations between profitability, free cash flow, growth opportunity, ownership structure and SR practices
Herremans *et al.* (2016)	Stakeholder relationships, stakeholder management	• Canada • Qualitative data (archival, observation and interviews) • Case study of one industry in Canada	Economic, environmental and social	Stakeholder engagement management has an effect on SR

(*continued*)

Table 1.

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Hummel and Schlick (2016)	Sustainability performance	• France, Germany, Italy, Spain, Sweden, Switzerland and the UK • 388 companies on Bloomberg European 500 index • Secondary data/ content analysis	Disclosure index	Superior sustainability performance is positively and significantly associated with sustainability disclosure to signal their superior performance to the market
Manetti and Bellucci (2016)	Social media	• Full manual qualitative approach • 332 worldwide sustainability reports for the year 2013	Disclosure index developed from GRI	Few organization use social media to engage stakeholders in SR
Dienes *et al.* (2016)	None	Literature review of 48 studies	Not applicable	Key drivers are firm size, media visibility, ownership structure, corporate governance structure. Other determinants such as profitability, capital structure, firm age or board composition do not show a clear tendency
Laskar and Maji (2016)	Financial performance	• India • 28 listed firms • Secondary data	Binary scale: 1 if there is a sustainability report, 0 if none	Positive and significant associations between sustainability disclosures and firm performance
Dissanayake *et al.* (2016)	Firm age, firm size, industry type, return on equity, report type (annual report or standalone sustainability report)	• Sri Lanka • 60 of the top 100 Sri Lankan publicly listed companies • Annual reports, separate sustainability reports and websites/ secondary data	Disclosure index developed from GRI G3 guidelines	• Positive and significant associations between firm size SR • No significant associations between return on equity, report type, firm age, industry type and SR
Arayssi *et al.* (2016)	Female directors, board independence, CEO duality, firm size (number of employees, total assets), board size	• Listed firms on the FTSE350 index • Secondary data	Disclosure index (environmental, social and governance)	• Positive and significant association between female directors, board independence, firm size, board average age, profitability (return on assets) and ESG disclosure • Negative and significant relationship between board size and ESG disclosures • No significant association between leverage, CEO duality and ESG disclosures
Al-Shaer and Zaman (2016)	Board diversity, board size, board meetings, reporting incentive (size, return on assets, book to market ratio, percent of closely held shares and percent of foreign sales), reporting behavior, reporting environment, industry type	• The UK • 333 listed firms on the FTSE350 • Secondary data	Dummy variable	• Positive and significant association between board diversity, board gender diversity, independent female directors, reporting incentive, reporting environment, board size and SR quality • No significant associations between reporting behavior, board meetings and SR quality

Table 1. (*continued*)

Author(s)	Independent variables	Country, sample and data	Measures of SPD	Findings
Thoradeniya *et al.* (2015)	Managers' attitude, managers' subjective norm, managers' behavioral intention, managers' religion	• Sri Lanka • A questionnaire survey of 959 listed and non-listed companies • Primary data	Economic, social and environmental measured based on a Likert scale – perception-based	Positive and significant associations between managers' attitude, manager's subjective norm, manager's behavioral intention, religion and intention to engage in SR practices
Herbohn *et al.* (2014)	Sustainability performance, size, strategic communication posture, stakeholder power	• Canada • Qualitative data (archival, observation and interviews) of one industry case study in Canada	Disclosure index	• Positive and significant association between sustainability performance, strategic communication posture, firm size and sustainability disclosures • Asset age is negatively and significantly associated with sustainability disclosures • No significant association between financial resources, stakeholder power and sustainability disclosures

Table 1.

Injeni *et al.* (2021) found a positive and significant association between board gender diversity and disclosures of sustainability information among firms listed on the Nairobi Stock Exchange in Kenya. Buallay *et al.* (2020) found that banks whose board constitute 25–50% women have better environmental, social and governance (ESG) disclosures. However, Buallay *et al.* (2020) further find that the composition of female directors on the board to the extent of above 50% negative returns to scale on ESG disclosures manifests. All the above studies have been conducted in other jurisdictions other than Uganda. To close this gap, we undertake this study to establish whether indeed such studies' results can be the same for Uganda. The following hypothesis is, thus, stated:

H1. Firms with boards dominated by female directors disclose more sustainability information based on the GRI sustainability reporting standards than those whose boards are dominated by male directors.

2.2.2 Intellectual capital. The impact of intellectual capital on GRI-based sustainability reporting can be explained by the resource-based view. Firms with internal resources such as human resources with knowledge and expertise in sustainability reporting are more likely to engage in the preparation of sustainability reports than those without. Tauringana (2021a) indicate that firms that lack internal resources and capabilities such as lack of expertise, lack of training and negative attitude toward sustainability reporting do not adopt SR. This means that firms with low levels of intellectual capital (IC) may not be in position to prepare sustainability reports that comply with GRI standards. Underpinned by the resource-based view, firms with high levels of IC are expected to have improved GRI-based SPD. Existing studies have not documented a relationship between IC and SPD, except for few studies such as those of Tauringana (2021a, b) whose study also focused on few elements of human capital (one of the six components of IC) to predict sustainability reporting adoption in Uganda. In other studies, Bananuka *et al.* (2019a, b) and Gunarathne and Senaratne (2017) document that the availability of human resources such as professional accountants can improve integrated reporting practices in developing countries. Studies have instead linked IC with financial reporting. For example, Tumwebaze *et al.* (2021) found that IC is significantly associated with adoption of

financial reporting standards. Similarly, Bananuka *et al.* (2019a, b) documented that IC is significantly associated with adoption of IFRS among Uganda's microfinance institutions. However, given that IFRS have become a tradition, the required level of IC may not be the same as that for SPD. Further, Bananuka (2020) found IC to be significantly associated with internet financial reporting among financial services firms in Uganda. Given the importance attached to IC, it is expected that firms with high levels of IC are more likely to have better SPDs than those without. The following hypothesis is, thus, stated:

H2. Intellectual capital is significantly related to SPD.

3. Methodology

3.1 Study design, population and sample

Data were collected from manufacturing firms for a period of four months (October 2020 to January 2021). The study population was 1,049 manufacturing firms, which were members of the Uganda Manufacturers Association (UMA) by December 31, 2019. Of the 1,049 members of the UMA, others were service providers, while in other cases, were small manufacturing firms. Those firms in the service provision and those characterized as small were not considered in this study. The service providers were excluded because of their minimal impacts of their activities on the environment. Manufacturing firms were selected because of their nature of operations, that is to say they are known for generating carbon dioxide emissions, generation of waste and use the natural resources such as minerals and forests in the production process. The small manufacturing firms were excluded from the study because of their poor recordkeeping habits (Orobia *et al.*, 2013) and their lack of sufficient resources such as intellectual capital to prepare sustainability reports. The final population was, therefore, 588 manufacturing firms, from which 238 were sampled based on Yamane's formula. Based on Yamane's formula, the sample size is given by $n = N/(1 + N(e)^2$, where n is the sample size, N is the total population and e is tolerable error (5%). The tolerable error is a statistical identity associated with confidence levels. Simple random sampling was used to select the 238 manufacturing firms. Of the 238 sampled manufacturing firms, usable responses were received from 121 manufacturing firms, representing a response rate of 51%. Such low response rate is a result of the effects of the coronavirus pandemic, which called for a blending of both physical and online questionnaire. The sample characteristics are presented in Table 2.

In terms of gender, majority of the respondents were male at 64%, which suggests that there are few females occupying the offices of chief finance officers, management accountants and heads of internal audit. According to Uganda Bureau of Statistics (2019), females constitute 33% of all persons employed in the manufacturing firms. In terms age of the respondent, majority were in the age bracket of 36–45 years (about 50%), while only one respondent was above 55 years (about 1%). This is possibly because Ugandans in paid employment retire at 55 years, and in some cases, 60 years given that Ugandans' life expectancy is between 62 and 63 years (Uganda Bureau of Statistics (2016). In a study of sustainability reporting adoption using evidence from Uganda, Tauringana (2021a) found that out of 194 respondents, only two (about 1%) were aged 56 years and above. For education background, majority of the respondents had at least an undergraduate degree (about 70%), while the minority had a doctorate degree (about 1%). This may be as a result of lower levels of education among Ugandans. For example, according to the Uganda Bureau of Statistics (2016), only 30% of the Uganda's population had completed secondary education (post-primary education). This finding is also similar to Tauringana (2021a) who found that out of 194 respondents, only three (2%) had obtained doctorate degrees in Uganda's UMA members. We also found majority of the respondents had professional qualifications (about

Category		Frequency	Percent	Valid percent
Gender of the respondent	Male	88	64.2	64.2
	Female	49	35.8	35.8
	Total	137	100.0	100.0
Age of the respondent	35 years and below	50	36.5	36.5
	36–45 years	68	49.6	49.6
	46–55 years	18	13.1	13.1
	Above 55 years	1	0.7	0.7
	Total	137	100.0	100.0
Education background	Diploma	17	12.4	12.4
	Undergraduate degree	96	70.1	70.1
	Master's degree	23	16.8	16.8
	PhD	1	0.7	0.7
	Total	137	100.0	100.0
Professional qualification	CPA	64	46.7	46.7
	ACCA	47	34.3	34.3
	CIA	6	4.4	4.4
	CIMA	14	10.2	10.2
	Others	6	4.4	4.4
	Total	137	100.0	100.0
Length of service	Less than 5 years	74	54.0	54.0
	5–10 years	45	32.8	32.8
	11–15 years	15	10.9	10.9
	16 years and above	3	2.2	2.2
	Total	137	100.0	100.0
Unit of inquiry	Chief finance officer	51	37.2	37.2
	Chief Audit Executive	23	16.8	16.8
	Management accountant	63	46.0	46.0
	Total	137	100.0	100.0

Source(s): Primary data

Table 2.
Respondents' profile

96%), while only 4% did not have any accounting-related professional qualification. The Uganda's Accountants Act of 2013 requires any person interested in performing accounting-related job to be a member of the Institute of Certified Public Accountants of Uganda (ICPAU). For one to be a member of ICPAU, he or she must be a member of other professional bodies recognized by ICPAU or pass the qualifying examinations of ICPAU.

3.2 The questionnaire and variables measurement

The questionnaire was developed after reviewing existing literature on the study variables. These are presented in the conceptual framework indicated as Figure 1. Data on the dependent variable (SPD) were obtained through chief finance officers using a checklist in the form of a questionnaire. This was seen as a better option since manufacturing firms in Uganda are largely privately owned and not listed on the Uganda Securities Exchange, which makes it difficult to find their sustainability/annual or integrated reports online, except for few entities. The chief finance officers would indicate whether a given disclosure item was disclosed or not in their annual report/sustainability report or integrated report for the financial year ended 2019. The year 2019 was selected basically because the GRI G4 guidelines expired at the end of 2018, and it was expected that beginning 2019, firms would prepare their sustainability reports based on the 2016 GRI sustainability reporting standards, which became effective on July 1, 2018. The checklist had a total of 103 disclosure items. These disclosure items were derived from the 84 disclosure requirements. These disclosure requirements are found in the 33 GRI topic-specific

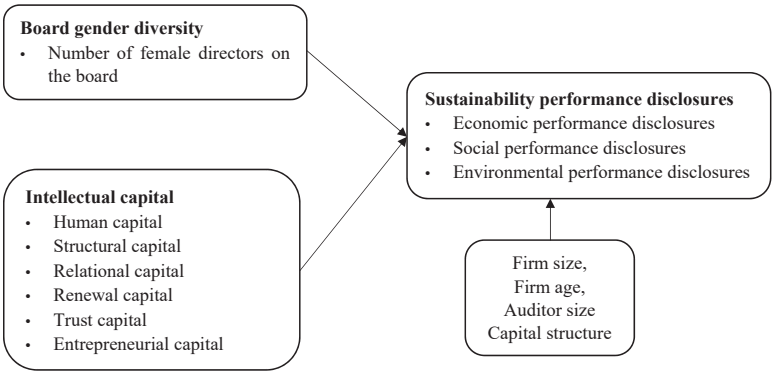

Figure 1.
The conceptual framework

standards. There are three sets of topic specific standards. These include economic, environmental and social performance disclosure standards. The details on the measurement of SPDs can be found in Table 3. Data on the independent variables (intellectual capital and board gender diversity) as well as control variables (firm size, firm age, auditor type and capital structure) were also collected using a questionnaire. The questionnaire on intellectual capital was designed on a six-point Likert scale. The operationalization of intellectual capital in terms of human, structural, relational, renewal, trust and entrepreneurial capital follows studies such as those of Inkinen *et al.* (2017) and Kianto *et al.* (2017). The measurement of all the study variables is indicated in Table 3.

We included in our study control variables, and this was because, according to Bartov *et al.* (2000), failure to control for the confounding factors may falsely lead to rejection of hypotheses when, in fact, they have been accepted. We also include control variables to minimize endogeneity problems in our data. We selected control variables such as firm size, firm age, auditor type and capital structure because they have been identified in previous studies as significant determinants of SPD. For example, Orazalin and Mahmood (2020) found that firm size is significantly associated with GRI sustainability reporting standards. Similarly, Dissanayake (2021) found that larger firms are at the forefront of sustainability reporting and are increasingly using the GRI guidelines in communicating sustainability information. Further, Tauringana (2021a) found company size to be a significant determinant of sustainability reporting adoption among manufacturing firms in Uganda. Also, Khan *et al.* (2021) found firm size and sustainability reporting quality to be positively and significantly associated. Finally, Palma *et al.* (2021) found company size to be positive and significantly associated with Web-based sustainability reporting. For firm age, Bhatia and Tuli (2017) found that firm age and sustainability reporting are positive and significantly associated. Further, Orazalin and Mahmood (2018) found firm age to be positive and significantly associated with SR among the Russian oil and gas companies. In terms of auditor type, Orazalin and Mahmood (2020) found that auditor type substantially influences the extent, nature and quality of SR of Kazakhstani companies based on the GRI guidelines. Similarly, Orazalin and Mahmood (2018) found that auditor type is influential in the dissemination of sustainability information among the Russian oil and gas companies. Finally, capital structure was found to be positive and significantly associated with SR (Dienes *et al.*, 2016).

3.3 Reliability, validity and confirmatory factor analysis

The questionnaire was subjected to reliability tests such as the Cronbach alpha reliability and the composite reliability (CR). According to Cronbach (1951), the Cronbach alpha coefficient (α) measures the degree to which inter-item reliability and consistency between the levels at

Global variable	Dimensions	Measurement	Definition	Sample item scales
SPD	Economic performance disclosures	A disclosure index of 20 items designed on a binary scale "YES" or "NO" adopted from GRI standards (2016). These are then converted into a six-point Likert scale by computing a percentage level of disclosure where the number of items disclosed was divided by the total number of required disclosures. Thus, 0–16.6% = 1; 16.7–33.3% = 2; 33.4–50.1% = 3; 50.1–66.7% = 4; 66.8–83.5% = 5 and 83.6–100% = 6	The organization's practice of reporting publicly on its economic, social and environmental performances in terms of both positive and negative impacts on the well-being of society to achieve sustainable development (GRI standards, 2016)	In our annual report, we disclose the revenues made
	Social performance disclosures	A disclosure index of 47 items designed on a binary scale "YES" or "NO" adopted from GRI standards (2016). These are then converted into a six-point Likert scale by computing a percentage level of disclosure where the number of items disclosed was divided by the total number of required disclosures. Thus, 0–16.6% = 1; 16.7–33.3% = 2; 33.4–50.1% = 3; 50.1–66.7% = 4; 66.8–83.5% = 5 and 83.6–100% = 6		In our annual report, we disclose the number of new employee hires
	Environmental performance disclosures	A disclosure index of 36 items designed on a binary scale "YES" or "NO" adopted from GRI standards (2016). These are then converted into a six-point Likert scale by computing a percentage level of disclosure where the number of items disclosed was divided by the total number of required disclosures. Thus, 0–16.6% = 1; 16.7–33.3% = 2; 33.4–50.1% = 3; 50.1–66.7% = 4; 66.8–83.5% = 5 and 83.6–100% = 6		In our annual report, we disclose the quantity of recycled input materials used
Board gender diversity	GENDER	Gender diversity is measured as a dummy assuming the value of 1 if the firm's gender composition on the board is largely ladies, and a value of 2 if the board is largely composed of gentlemen		This firm's board is largely comprised of ladies

(*continued*)

Table 3. Variable definitions and measurements

Global variable	Dimensions	Measurement	Definition	Sample item scales
Intellectual capital	Human capital	Respondents' mean rank of the 6 items of information included in the questionnaire on a six-point Likert scale	Intellectual capital as the sum of all the intangible and knowledge-related resources an organization uses to create value (Kianto *et al.*, 2017)	Our employees develop new knowledge
	Structural/ organizational capital	Respondents' mean rank of the 3 items of information included in the questionnaire on a six-point Likert scale		Our organization possess work methods and procedures in support of innovations like improvement in SPD
	Relational capital	Respondents' mean rank of the 3 items of information included in the questionnaire on a six-point Likert scale		Our employees frequently collaborate to solve problems related to sustainability performance
	Renewal capital	Respondents' mean rank of the 3 items of information included in the questionnaire on a six-point Likert scale		Our employees have acquired a great deal of important skills and abilities for improving sustainability accounting and disclosures
	Trust capital	Respondents' mean rank of the 5 items of information included in the questionnaire on a six-point Likert scale		The way our company operates is characterized by an atmosphere of trust
	Entrepreneurial capital	Respondents' mean rank of the 6 items of information included in the questionnaire on a six-point Likert scale		Risk-taking is regarded as a positive personal quality in our company
Firm size	SIZE	Firm size is measured as a dummy assuming the value of 1 if the firm's number of employees is between 50 and 100, a value of 2 if the firm's number of employees above 100		How many employees are in this firm?
Firm age	AGE	Firm age is measured as a dummy assuming the value of 1 if the firm has been in existence for at least 10 years and below, and a value of 2 if the firm has been in existence for more than 10 years		This firm has been in existence for
Capital structure	CAP	Capital structure is measured as a dummy assuming the value of 1 if the employs equity capital only, a value of 2 if it employs both debt and equity		This firm is financed by
Audit size	AUDIT	Audit size is measured as a dummy assuming the value of 1 if the firm is audited by the small and medium audit practices, and a value of 2 if the firm is audited by the big 4 audit firms		This firm is audited by
Constant	β_0			
Error term	ε_j			

Table 3.

which different items measuring the same variable attain consistent results. CR refers to the correlations between the latent variable and construct scores (Benitez *et al.*, 2020). Under smart partial least squares structural equation modeling (PLS–SEM), two reliabilities are

generated. The Cronbach α reliability and the CR. While Cronbach's α can be calculated based on the sample variance–covariance matrix, CR is based on factor loadings. Hair *et al.* (2019) explain that the CR of 0.7 is good enough, and this is the same with Cronbach α reliability. Hair *et al.* (2019) indicate that higher values generally indicate higher reliability. For this study, both the Cronbach α and CR threshold were met. The Cronbach α and CRs are presented in Table 4.

In PLS–SEM, loading estimates (indicator reliability) are correlations between the construct scores and the corresponding observable variables (Schuberth, 2021). The loading estimates are expected to be significantly different from zero, and as such, closer to 1 (Hair *et al.*, 2020; Schuberth, 2021; Hair *et al.*, 2019). Scholars (e.g. Hair *et al.*, 2019; Henseler and Schuberth, 2020; Schuberth, 2021) recommend factor loadings/estimates of 0.708 to be good enough. However, Benitez *et al.* (2020) argue that the threshold for factor loadings as high as 0.708 is not as important as long as the construct validity and reliability criteria are met. It is argued that factor loadings of 0.708 and above mean that the construct explains more than 50% of the indicator's variance (Hair *et al.*, 2019; Sarstedt *et al.*, 2017). This study's measurement model for intellectual capital meets the threshold for the average variance extracted (AVE), though in few cases, the loading estimates/factor loadings were as low as 0.63 (Figure 2), which is acceptable according to Benitez *et al.* (2020).

Convergent validity is the extent to which the indicators belonging to one latent variable actually measure the same construct (Benitez *et al.*, 2020). It is indicated by the AVE. According to Fornell and Larcker (1981), AVE should exceed 0.5. The AVE indicates how much of the variance in the indicators is explained by the underlying latent variable (Fornell and Larcker, 1981). For this study, intellectual capital had an AVE greater than 0.5 (Table 4), which means that, all the retained items measure exactly what they are supposed to measure.

Discriminant validity is where two or more constructs are statistically different from one another. The common measurement criteria used are the Fornell–Larcker criterion and the heterotrait–monotrait ratio of correlations (HTMT). Since 1981, the Fornell–Larcker criterion for assessing discriminant validity has been extensively used until 2015 when Henseler *et al.* (2015) argued that the Fornell–Larcker criterion lacks a systematic examination of its efficacy for assessing discriminant validity, the use of cross loadings is more liberal and does not bring out the true picture of discriminant validity and does not rely on inference statistics. However, we still tested discriminant validity using the Fornell–Larcker criterion. The Fornell–Larcker criterion suggests that the square root of AVE of the study constructs and correlations between constructs be compared (Fornell and Larcker, 1981). From Table 5, it was found that the square root of AVE for each construct is higher than the correlations between constructs, and this means that there is discriminant validity among the study constructs. We also used HTMT values to further assess discriminant validity, as suggested by Henseler *et al.* (2015). HTMT is the mean value of the item correlations across constructs relative to the geometric mean of the average correlations for the items measuring the same construct (Hair *et al.*, 2019). According to Hair *et al.* (2019), HTMT should be less than 0.85 for conceptually different constructs and below 0.9 for conceptually similar constructs. For this study, the HTMT values were below 0.85, as can be seen in Table 6.

3.4 Common method bias/variance

This study largely employed procedural steps to avoid common methods variance but also statistically tested the presence of such bias using Harman's single-factor test. The respondents were assured that the information provided in the questionnaire is purposely for academic purposes. The respondents were assured that their information will not be shared

Latent variable	Manifest variables	Item scales	Factor loadings	α	Rho	CR	AVE
Intellectual capital				0.928	0.934	0.936	0.574
	Human capital	*HUM10*: Our employees continually learn from others	0.702				
		HUM3: Our employees have a high level of expertise	0.686				
		HUM5: Our employees develop new knowledge	0.730				
		HUM6: Our employees are able to focus on the quality of our reports	0.756				
		HUM7: Our employees are well educated compared to their peers in the industry	0.711				
		HUM9: Our employees undergo continuous training programs	0.716				
	Structural capital	*STC10*: Our organization possess work methods and procedures in support of innovations like improvement in SPD	0.789				
		STC2: Our company has tools and facilities to support cooperation between employees	0.666				
		STC9: Our company documents all the details of its projects to ease reporting	0.730				
	Relational capital	*REC11*: This organization is keen on developing long-term relationships with its stakeholders	0.631				
		REC2: Our employees frequently collaborate to solve problems related to sustainability performance	0.864				
		REC7: We get a lot of important information on how to prepare sustainability reports from external collaboration partners like ICPAU	0.787				
	Renewal capital	*REN1*: Our company has acquired a great deal of new and important knowledge adequate for improving sustainability performance	0.811				
		REN2: Our employees have acquired a great deal of important skills and abilities for improving sustainability accounting and disclosures	0.861				
		REN4: The operations of our company can be described as creative and inventive	0.795				
	Trust capital	*TCA1*: The way our company operates is characterized by an atmosphere of trust	0.757				
		TCA2: We keep our promises to our customers such as improved products	0.766				
		TCA4: Our company seeks to take the interests of its stakeholders into account in its operations	0.771				
		TCA5: The expertise of our company inspires trust in stakeholders	0.706				
		TCA6: The image and reputation of our company inspire trust in stakeholders	0.744				
	Entrepreneurial capital	*ECA1*: Risk-taking is regarded as a positive personal quality in our company	0.754				
		ECA2: Our employees take deliberate risks related to new ideas of improving sustainability accounting and reporting practices	0.739				
		ECA3: Our employees are excellent at identifying new business opportunities	0.740				
		ECA4: Our employees show initiative when it comes to sustainability performance reporting	0.796				
		ECA5: The operations of our company are defined by independence and freedom in performing duties	0.737				
		ECA6: Our employees have the courage to make bold and difficult decisions	0.753				

Source(s): Primary data

Table 4. Summary of loading estimates, validity and reliability tests for intellectual capital

with any other company or regulator. This was aimed at restoring confidence in the respondents so that they are honest in completing the questionnaire. Chief finance officers were encouraged to use their annual reports for the accounting period ended December 31,

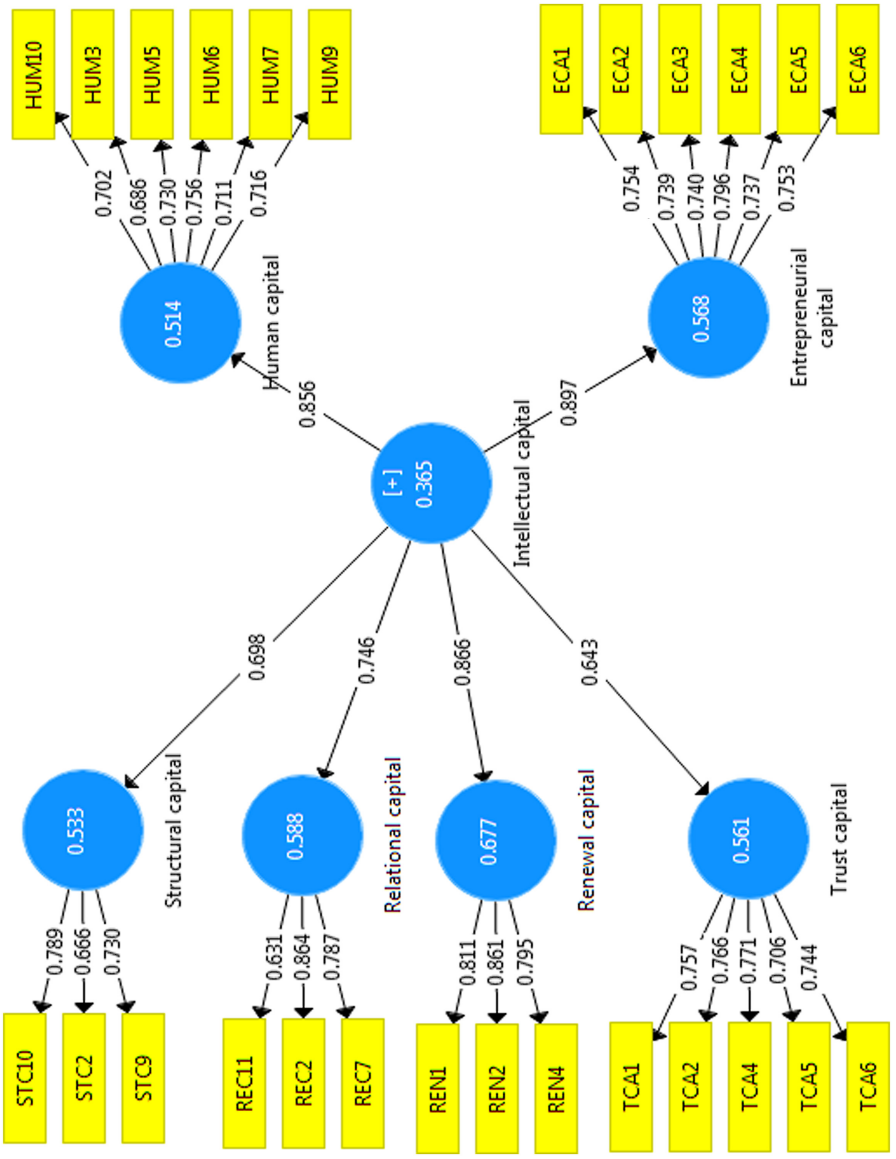

Figure 2.
Measurement model for Intellectual capital

2019/March 31, 2020, or June 30, 2020, depending on when their last financial year ended while completing the questionnaire on SPD. Lastly, the data collection exercise was split into two phases. Phase 1 concerned the collection of data on the independent variables, while Phase 2 involved data collection on the dependent variable. Statistically, the Harman's single-factor test results indicate that all questionnaire items for a given variable loaded on to one factor, and the variance explained is less than 50%. For example, intellectual capital was 23.92%. According to Podsakoff *et al.* (2003), Harman's single-factor test is recommended and commonly used to test for common methods bias in perception-based studies involving the use of questionnaires.

3.5 Model

This study uses the multiple regression model to explain the impact of board gender diversity and intellectual capital on GRI based SPD. The model is stated as follows:

$$\text{SPD} = \beta_0 + \beta_1\text{BOD} + \beta_2\text{IC} + \beta_3\text{SIZE} + \beta_4\text{AGE} + \beta_5\text{CAP} + \beta_6\text{AUD} + \varepsilon_j$$

where: SPD is sustainability performance disclosures; BOD is board gender diversity; IC is intellectual capital; SIZE is firm size; AGE is firm age; CAP is capital structure; AUD is auditor size; β is a constant; ε_j is an error term.

4. Results

4.1 Global Reporting Initiative sustainability reporting compliance levels

This study focused on the topic specific standards (GRI 200: Economic, GRI 300: Environmental and GRI 400: Social). The results indicate that manufacturing firms in Uganda comply with GRI sustainability reporting standards to the extent of 63% for economic performance indicators, 55% for environmental performance indicators and 58% for social performance indicators. Overall, the manufacturing firms in Uganda compliance

Table 5. Discriminant validity (Fornell–Larcker criterion)

Variable	1	2	3	4	5	6	7
Auditor type (1)	1.000						
Board gender diversity (2)	0.039	1.000					
Capital structure (3)	0.030	−0.138	1.000				
Firm age (4)	−0.053	−0.060	0.176	1.000			
Firm size (5)	−0.249	−0.039	−0.132	0.211	1.000		
Intellectual capital (6)	−0.056	−0.029	−0.104	0.214	0.159	0.603	
SPD (7)	−0.171	−0.051	−0.166	0.102	0.307	0.379	0.463

Table 6. Discriminant validity (HTMT ratio)

Variable	1	2	3	4	5	6	7
Auditor type (1)							
Board gender diversity (2)	0.039						
Capital structure (3)	0.030	0.138					
Firm age (4)	0.053	0.060	0.176				
Firm size (5)	0.249	0.039	0.132	0.211			
Intellectual capital (6)	0.111	0.130	0.131	0.228	0.180		
SPD (7)	0.230	0.154	0.290	0.184	0.329	0.493	

level with the GRI sustainability reporting standards is at 59%. The results are presented in Figure 3. The figures indicated on top of each bar are in percentages.

The results on the compliance levels regarding the topic-specific standards are presented next. For economic performance indicators, GRI 201: Economic performance and GRI 204: Procurement practices have the highest compliance levels at 83%. The least complied with GRI standards are GRI 206: Anti-competitive behavior, GRI 202: Market presence and GRI 205: Anti-corruption at 33%, 50% and 50% respectively. The results are presented in Figure 4.

Environmental performance disclosures have eight GRI sustainability reporting standards. These standards have 30 disclosure requirements, which were split into 36 disclosure items in this study for easy understanding by the chief finance officers. Compliance with GRI 308: Supplier environmental assessment is the highest among the environmental performance indicators at 83%. The next highly complied with GRI sustainability reporting standards are GRI 301: Materials and GRI 302: Energy at 67%. Compliance levels with most of the GRI standards is at 50%, with the lowest being GRI 303: Water. Figure 5 presents the results.

In terms of social performance disclosures, the GRI sustainability reporting standards has a total of 19 standards with 36 disclosure requirements. The 36 disclosure requirements were further split into 47 disclosure items to enable clarity. Among the 19 GRI standards related to social performance disclosures, GRI 401: Employment, GRI 402: Labor/Management relations, GRI 405: Diversity and equal opportunity and GRI 413: Local communities were

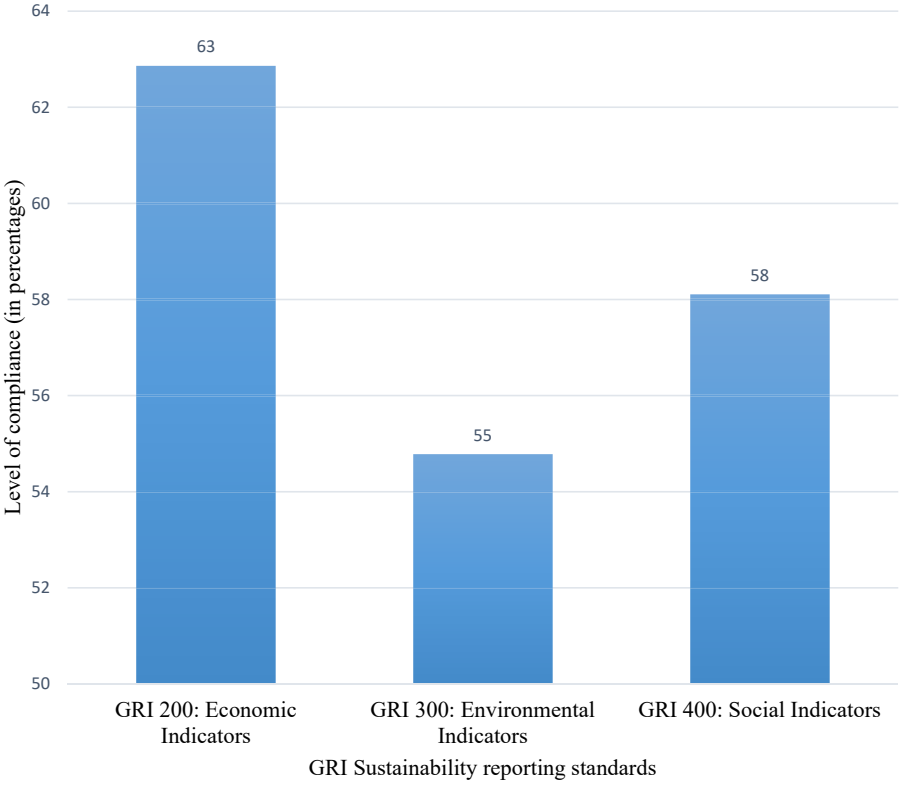

Figure 3.
A bar chart showing the overall level of compliance with GRI sustainability reporting standards

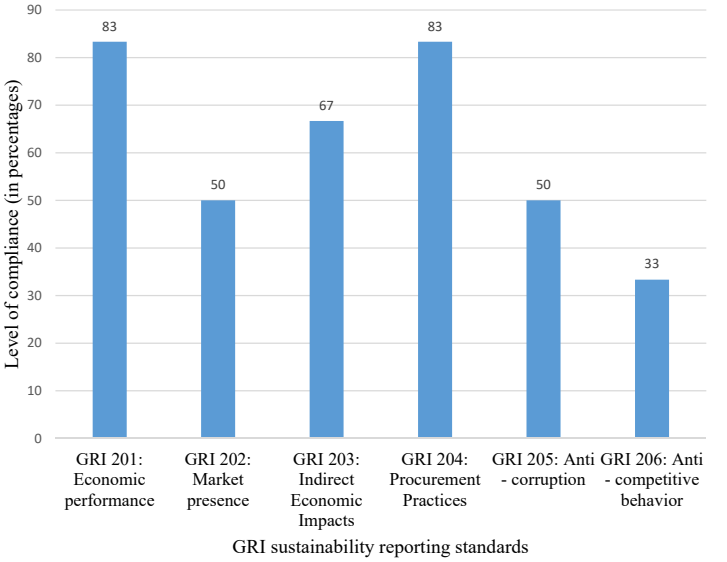

Figure 4.
A bar chart for economic performance disclosures based on GRI sustainability reporting standards 200: Economic

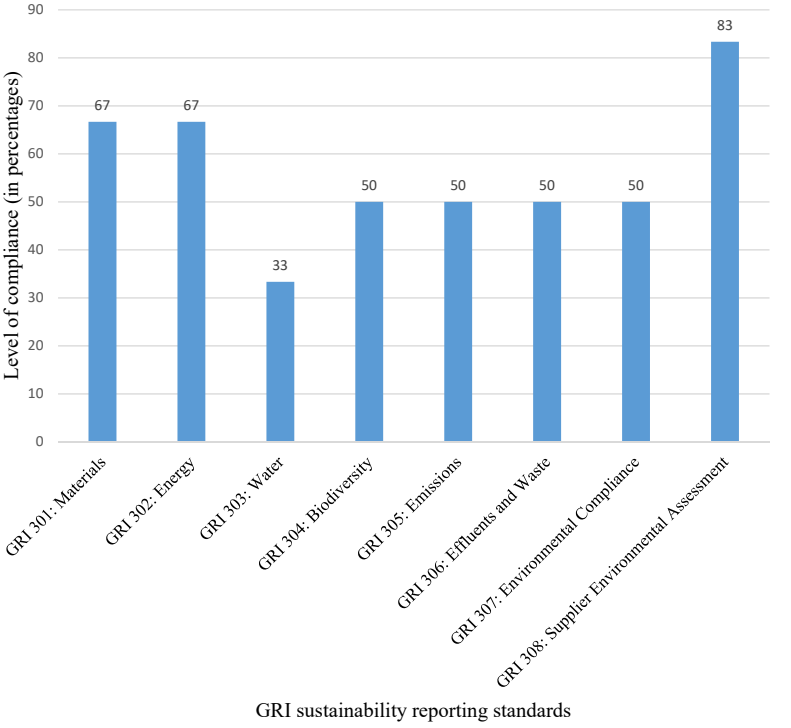

Figure 5.
A bar chart indicating environmental performance disclosures based on GRI sustainability reporting standards 300: Environmental

the most complied with by manufacturing firms in Uganda at 83%. Five standards (GRI 403: Occupational health and safety, GRI 404: Training and education, GRI 412: Human rights assessment, GRI 414: Supplier local assessment and GRI 416: Customer health safety) are complied with by manufacturing firms in Uganda to the extent of 67%. There are also standards whose level of compliance are as low as 33%. These standards include; GRI 406: Non-discrimination, GRI 409: Forced or compulsory labor and GRI 415: Public policy. The results on the compliance levels with respect to the GRI 400 standards are presented in Figure 6.

4.2 Descriptive statistics

The means and standard deviations are presented in Table 7. The mean value for SPD is 3.49, which translates into 58%, while the standard deviation is 0.83. This means that, manufacturing firms in Uganda at least prepare sustainability reports based on GRI up to 58%. This finding is closer to the earlier finding in Figure 2. The difference of 1% could be as a result of round off effects in the process of converting a binary scale to a six-point Likert scale. The standard deviation of 0.83 for SPDs means that there is some degree of consistency among the respondents on the existence of GRI standards in their firms. The mean and standard deviation for intellectual capital are 5.35 and 0.33, respectively. This means that intellectual capital exists in the firms studied, and respondents' agreement on the same is consistent given the closeness of standard deviation values to zero.

4.3 Correlation analysis results

The results of the Pearson correlation tests are presented in Table 8. Regarding our main study variables, the association between board gender diversity and SPD is negative and not significant ($r = -0.042, p > 0.01$). This means that a unit change in the composition of gender in terms of reduction in the number of males on the board will lead to a reduction in the SPD by 4.2%. Intellectual capital is positively and significantly associated with GRI-based SPD ($r = 0.344^{**}, p < 0.01$). This means that a unit increase in the level of intellectual capital will lead to 34% increase in the level of SPD. In terms of intellectual capital dimensions, we found positive and significant correlations between human capital and GRI-based SPD ($r = 0.290^{**}$, $p < 0.01$). Further, the correlation between relational capital and GRI-based SPD is positive and significant ($r = 0.255^{**}, p < 0.01$). Renewal capital and GRI-based SPD are positively and significantly correlated ($r = 0.323^{**}$, $p < 0.01$). Trust capital and GRI-based SPD are positively and significantly correlated ($r = 0.299^{**}$, $p < 0.01$). The correlation between entrepreneurial capital and GRI-based SPD is positive and significantly correlated ($r = 0.289^{**}$, $p < 0.01$). However, structural capital and GRI based SPD are positive but not significantly correlated ($r = 0.182^{*}$, $p < 0.05$). In terms of control variables, firm size is positively and significantly associated with GRI-based SPD ($r = 0.319^{**}$, $p < 0.01$). Other control variables such as firm age, auditor size and capital structure were not significantly associated with the GRI-based SPD. We also note that the dimensions of SPD (economic, social and environmental performance disclosures) highly correlate with SPD, and this is expected simply because they are conceptually related to each other. Hair *et al.* (2019) indicate that concepts that are conceptually related to each other can have correlations below 0.9. Therefore, the correlations between the dimensions of SPD and overall SPD are justifiable. This is the same case for intellectual capital and its dimensions.

4.4 Regression analysis results

We first ran the estimated PLS–SEM model to establish the extent of the relationship between the independent and dependent variables. This was followed by running the multiple

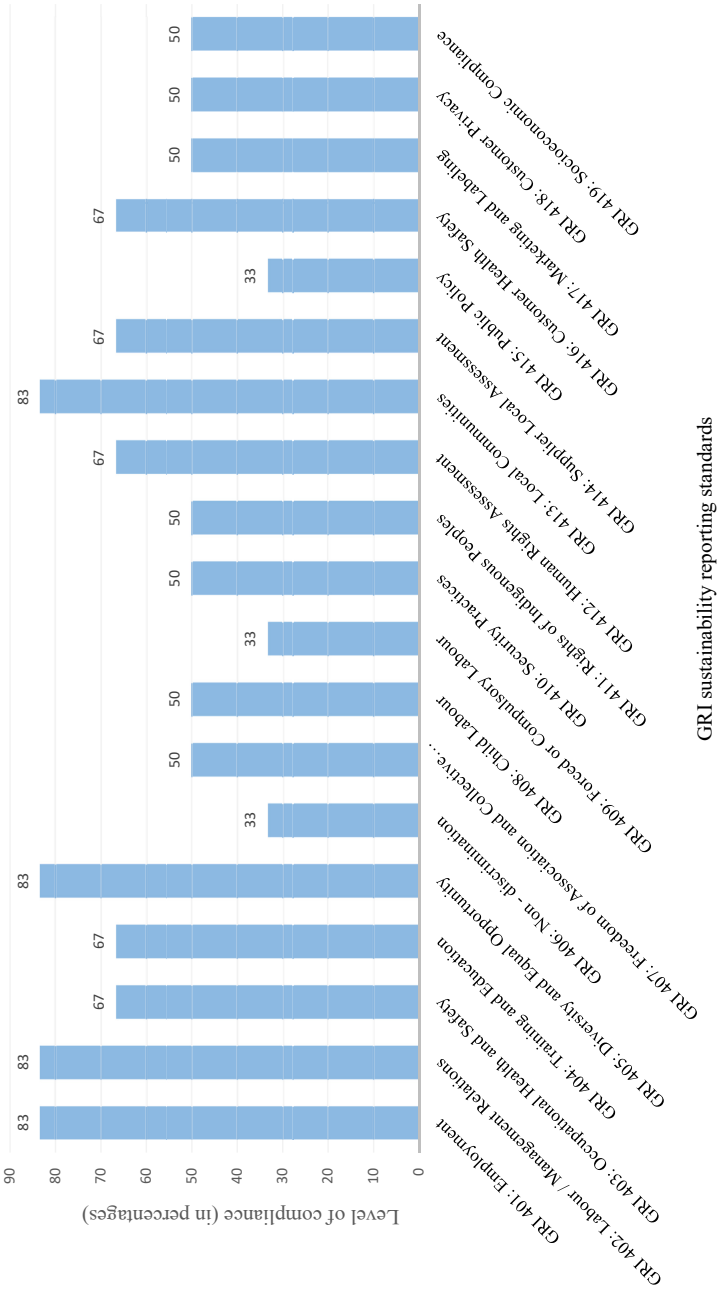

Figure 6.
A bar chart for social performance disclosures based on GRI sustainability reporting standards 400: Social

Variable	*n*	Min	Max	Mean	Std. Deviation
SPD	121	1.30	5.33	3.49	0.83
Economic performance disclosures	121	1.33	6.00	3.77	0.88
Social performance disclosures	121	1.11	5.53	3.49	0.94
Environmental performance disclosures	121	1.13	6.00	3.29	1.16
Board gender diversity	121	1.00	2.00	1.86	0.34
Intellectual capital	121	4.38	6.00	5.35	0.33
Human capital	121	4.00	6.00	5.13	0.52
Structural capital	121	4.67	6.00	5.50	0.40
Relational capital	121	4.33	6.00	5.32	0.51
Renewal capital	121	4.00	6.00	5.21	0.55
Trust capital	121	5.00	6.00	5.68	0.34
Entrepreneurial capital	121	3.83	6.00	5.14	0.57
Control variables					
Firm size	121	1.00	2.00	1.55	0.50
Firm age	121	1.00	4.00	3.01	1.12
Capital structure	121	1.00	2.00	1.50	0.50
Auditor type	121	1.00	2.00	1.74	0.44

Source(s): Primary data

Table 7.
Descriptive statistics

regression analysis using SPSS. We present the estimated PLS–SEM model first in Figure 7, and this is followed by the multiple regression results in Table 9, and finally, the hypothesized relationships as obtained from SmartPLS in Table 10.

The estimated PLS–SEM model (Figure 7) indicates that the path coefficients between intellectual capital and its dimensions were positive and statistically significant. Also, the path coefficients between SPD and its dimensions were positive and statistically significant. For the main study variables, it was found that the path coefficients between intellectual capital and SPD are positive and statistically significant. However, the path coefficients between gender diversity and GRI-based SPD were found negative and not significant. In terms of control variables, the path coefficients between firm size and GRI-based SPD are positive and significant. Other control variables such as firm age, auditor size and capital structure have their path coefficients with GRI-based SPD not significant.

The multiple regression analysis ran through SPSS as seen in Table 9 results indicate that board gender diversity and GRI-based SPD are negative and not statistically significant (standardized $\beta = -0.043$). This means that H1, which states that firms with boards dominated by female directors disclose more sustainability information based on the GRI sustainability reporting standards than those whose boards are dominated by male directors, is not supported. The results further indicate that intellectual capital is positive and significantly associated with GRI-based SPD (standardized $\beta = 0.283$). This means that H2, which states that intellectual capital is significantly related with SPD, is supported. In terms of control variables, firm size and SPD are positive and significantly associated. This means that larger firms disclose more sustainability information as compared with smaller firms. Firm age, capital structure and auditor size are negative and not significantly associated with SPD. These results are comparable to those obtained from the SmartPLS software. For example, in Table 10 (SmartPLS output), the relationship between board gender diversity and SPD is negative and not significant ($\beta = -0.04$; $p \leq 0.622$). The results further indicate that there is a positive and significant association between intellectual capital and SPD ($\beta = 0.328$; $p \leq 0.00$). For control variables, firm size is significantly related with SPD ($\beta = 0.217$; $p \leq 0.01$). Firm age and SPD are negative and not significantly associated ($\beta = -0.003$; $p \leq 0.97$). Capital

Table 8.
Pearson correlation coefficients for the main study variables and control variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SPD (1)	1															
Economic performance disclosures (2)	0.675**	1														
Social performance disclosures (3)	0.823**	0.528**	1													
Environmental performance disclosures (4)	0.805**	0.549**	0.507**	1												
Board gender diversity (5)	−0.042	0.008	−0.094	0.017	1											
Intellectual capital (6)	0.344**	0.151	0.204*	0.447**	−0.023	1										
Human capital (7)	0.290**	0.089	0.160	0.449**	0.022	0.840**	1									
Structural capital (8)	0.182*	0.136	0.093	0.181*	−0.077	0.729**	0.501**	1								
Relational capital (9)	0.255**	0.109	0.110	0.355**	0.019	0.795**	0.622**	0.521**	1							
Renewal capital (10)	0.323**	0.150	0.247**	0.384**	−0.036	0.875**	0.692**	0.569**	0.587**	1						
Trust capital (11)	0.299**	0.098	0.226*	0.197*	−0.125	0.616**	0.360**	0.487**	0.377**	0.477**	1					
Entrepreneurial capital (12)	0.289**	0.137	0.149	0.479**	0.033	0.873**	0.716**	0.500**	0.620**	0.758**	0.445**	1				
Firm size (13)	0.319**	0.145	0.240**	0.299**	−0.039	0.159	0.167	0.073	0.131	0.165	0.122	0.095	1			
Firm age (14)	0.104	−0.007	0.119	0.083	−0.060	0.208*	0.224*	0.094	0.149	0.220*	0.132	0.152	0.211*	1		
Capital structure (15)	−0.204*	−0.058	−0.188*	−0.001	−0.138	−0.093	−0.046	0.012	−0.038	−0.134	−0.226*	−0.046	−0.132	0.176	1	
Auditor size (16)	−0.181*	−0.101	−0.152	−0.117	0.039	−0.068	−0.041	−0.138	−0.078	−0.046	−0.134	0.052	−0.249**	−0.053	0.030	1

Note(s): **Correlation is significant at the 0.01 level (two-tailed)
*Correlation is significant at the 0.05 level (two-tailed)
Source(s): Primary data

structure and SPD are negative and not significantly related ($\beta = -0.106$; $p \leq 0.29$). For the relationship between auditor size and SPD, the results show that these are not significantly related ($\beta = -0.094$; $p \leq 0.32$). Auditor size and SPD are negative and not significantly associated.

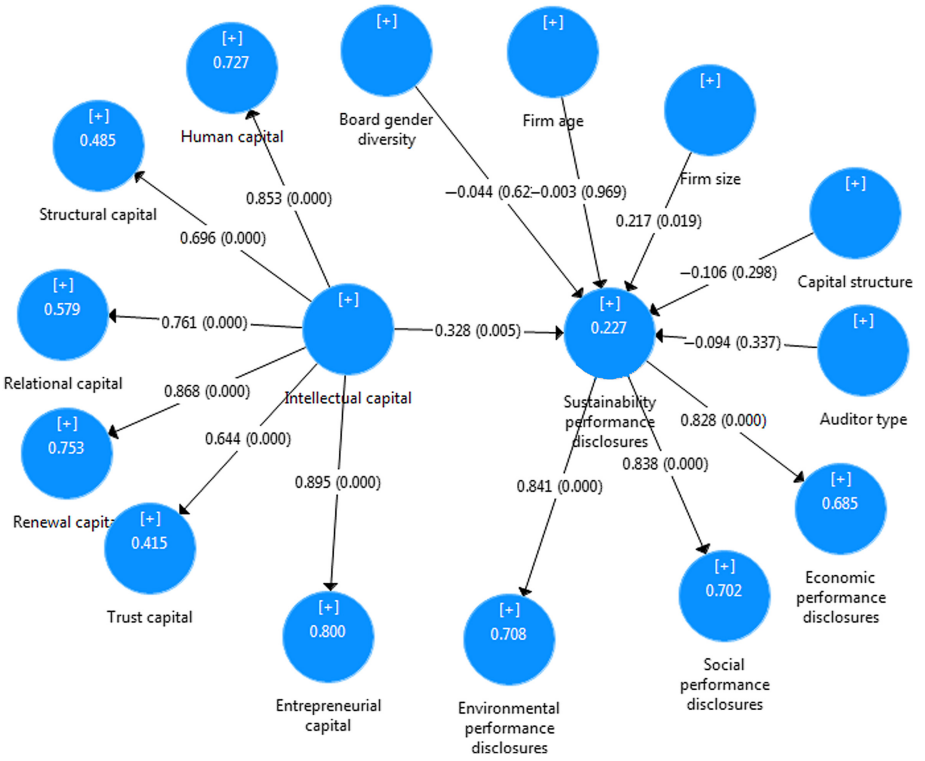

Figure 7.
The estimated PLS model

Variable	Unstandardized coefficients *B*	Unstandardized coefficients Std. error	Standardized coefficients Beta	*t*	Sig	Collinearity statistics Tolerance	Collinearity statistics VIF
(Constant)	1.443	0.219		2.152	0.010		
Board gender diversity	−0.131	0.253	−0.043	−0.519	0.605	0.976	1.025
Intellectual capital	0.760	0.231	0.283	3.295	0.001	0.929	1.077
Control variables							
Firm size	0.465	0.185	0.223	2.512	0.013	0.864	1.157
Firm age	0.017	0.082	0.018	0.201	0.841	0.876	1.142
Capital structure	−0.324	0.182	−0.154	−1.777	0.078	0.909	1.101
Auditor type	−0.234	0.203	−0.098	−1.153	0.251	0.936	1.068

Note(s): $R = 0.470$; $R^2 = 0.221$; adjusted $R^2 = 0.180$; Model $F = 5.395$**; Durbin–Watson = 2.181
Source(s): Primary data

Table 9.
Multiple regression analysis

Based on the PLS–SEM results, overall, board gender diversity, intellectual capital, firm size, firm age, auditor type/size and capital structure explain 18.6% (adjusted R-square = 0.186) of the variance in SPD of manufacturing firms in Uganda. However, based on the regression analysis results from SPSS, we found that our independent variables explain 18% (adjusted R-square = 0.180), which is comparable and acceptable. Given the smaller sample size of 121 manufacturing firms, we interpreted our results based on the adjusted R-square, as previous empirical and methodological scholars such as Kaawaase *et al.* (2020) and Field (2009) suggest.

5. Discussion

The present study results indicate that board gender diversity has no significant impact on the GRI sustainability reporting standards, which is contrary to our earlier argument that firms with internal resources such as female directors on the board will have better SPD than those out. This result contradict the resource-based view advanced by Barney (1991), which suggests that firms with internal resources and capabilities have a competitive advantage than those without. This result means that whether the board has female directors or not, it does not mean anything significant in terms of SPD among manufacturing firms in Uganda. This study results contradict a number of previous studies (e.g. Cicchiello *et al.*, 2021; García-Sánchez *et al.*, 2019; Zahid *et al.*, 2020). Cicchiello *et al.* (2021) found that board gender diversity is positively and significantly associated with sustainability reporting. This is the same for García-Sánchez *et al.* (2019) who found that female directors are positively and significantly associated with more sustainability disclosures. Also, Zahid *et al.* (2020) found that gender diversity is significantly associated with sustainability disclosures. The result that gender diversity has no impact on GRI-based sustainability reporting in Uganda can be explained by the fact that there are more males (about 77%) employed in the manufacturing firms as compared to 33% of females employed in such firms (see Uganda Bureau of Statistics, 2019). This explains why there could be fewer women on the boards of manufacturing firms.

IC is positive and significantly associated with GRI-based SPD. This finding means that manufacturing firms need to improve their IC if they are to improve their SPD. This can be done through attraction of employees knowledgeable in the most recent corporate reporting practices such as SPD. In our factor analysis results, we found that human capital, trust capital and entrepreneurial capital had more factor loadings as compared to other capitals (see original questionnaire in Table A1). This means that human resources with knowledge, experience and skills in sustainability-related issues improve SPD. Also, human resources who are cognizant with the adverse effects of poor sustainability information disclosures or no disclosures understand the risk associated with the failure in such disclosures. Therefore,

Table 10.
Direct path coefficients and hypothesized relationships

Hypothesized path	Hypothesis	β	μ	SD	T statistics	p values
Board gender diversity → SPD	H1: Not supported	−0.044	−0.046	0.090	0.493	0.622
Intellectual capital → SPD	H2: Supported	0.328**	0.323	0.117	2.798	0.005
Control variables						
Firm age → SPD	No hypothesis	−0.003	−0.003	0.083	0.038	0.970
Firm size → SPD	No hypothesis	0.217**	0.220	0.092	2.355	0.019
Auditor type → SPD	No hypothesis	−0.094	−0.098	0.096	0.979	0.327
Capital structure → SPD	No hypothesis	−0.106	−0.108	0.102	1.042	0.298

Note(s): R^2 = 0.227; adjusted R^2 = 0.186
**Regression coefficient significant at 0.01 level
Source(s): Primary data

such human resources are entrepreneurial since they consider risk-taking as a positive personal quality and take deliberate risks related to new ideas of improving sustainability accounting and reporting practices. Entrepreneurial human resources show initiative when it comes to sustainability performance reporting and have the courage to make bold decisions regarding improvements in SPD. Trust capital is key because, once customers do not trust company processes and activities/products, they may not provide market for them, especially in the situation where the public sector has some significant levels of corruption. Therefore, organizations may have instill a culture of trust among their employees and customers. The manufacturing firm and its employees ensure that customer promises such as timely quality supplies are fulfilled. The manufacturing firm ensures that its employees have the necessary expertise to inspire trust among the various stakeholders. Also, manufacturing firms seek to consider the interests of the various stakeholders in their operations. Further, the image and reputation of the manufacturing firm inspire trust in the various stakeholders. Such trust can be depicted in the level of SPD.

The finding that IC is significantly associated with GRI-based SPD is consistent with the resource-based view, as suggested by Barney (1991). This study results are consistent with previous studies such as Tauringana (2021a) who found that expertise, training and attitude toward sustainability reporting are critical for sustainability reporting adoption in Uganda. Previous studies such as those of Gunarathne and Senaratne (2017) indicated that availability of qualified accountants is critical for the diffusion of integrated reporting. Also, the finding that IC is positively associated with GRI-based SPD is in agreement with Bananuka *et al.* (2019a) who found lack of resources such as human resources to explain the slow progress of adoption of integrated reporting among listed firms in Uganda.

In terms of the extent of compliance with GRI standards, the present study results indicate that there are more disclosures related to economic performance indicators than the social and environmental indicators. Environmental performance disclosures are the lowest. This situation is worsened by the continuous establishment of manufacturing firms in wetlands in Uganda, which has led to the reduction of the wetland area from 15.5% in 1994 to 13.5% in 2018 where even the remaining wetland, 4% is degraded (National Environmental Management Authority, 2019), yet wetlands are known for purifying water. Compliance with GRI standards related to social activities is at 58%. Whereas this is not the best, it can be noted that with the establishment of the Uganda Human Rights Commission and the government resolution to have a Member of Parliament representing workers, there is more pressure exerted on to companies in terms of improved welfare for staff, and this eventually maybe the reason for more disclosures related to social performance of manufacturing firms. The finding that economic performance disclosures of companies comply with the GRI standards means that, since most of the firms are privately owned, most of the manufacturers are more interested in how much profits have been made.

For GRI 200 series, economic performance, disclosure on items such as profits made, revenues made, operating costs of the firm and the dividends paid are higher. This can be explained by the fact that, Uganda through her regulator of accountancy – ICPAU – adopted the IFRS in 1997, and as such, the disclosure of such information is easier. The shareholders have much interest in understanding how much dividends will be paid to them. The next finding is that for procurement practices under GRI 204. With the increased vigilance of shareholders to curb corruption in firms, shareholders encourage external parties such as auditors to be critical on the procurement issues. For GRI 300 series, there are more disclosures related to environmental assessment, and this is because the Uganda National Environmental Act of 2019 requires companies to carry out an environmental impact assessment, especially when undertaking projects that involve the environment such as construction activities. For GRI 301: Materials, the disclosure is slightly higher because in the preparation of financial statements, the cost of materials used in the production process is

disclosed, and as such, it may be easier to provide further disclosures on materials. Likewise, the cost of energy is disclosed since this is still part of utilities that are disclosed under International Accounting Standards 1: Preparation and presentation of financial statements. Surprisingly, water is less disclosed, and this maybe because Uganda is endowed with plenty of water, and its cost is low. In terms of GRI 400 series, employee hires, management relations, diversity and equal opportunity and local communities are higher as compared to other disclosure matrices such as public policy. This is because the government of Uganda emphasizes gender balance.

6. Summary and conclusion

This study aimed to establish the extent to which manufacturing firms in Uganda comply with the GRI standards. This study also aimed to examine the impact of gender diversity and IC on GRI-based SPD. Through a questionnaire survey, responses were obtained from 121 manufacturing companies in Uganda. The results indicate that there are more disclosures related to economic performance than the social and environmental performance. In terms of the main focus of the paper, the results indicate that board gender diversity has no significant impact on GRI-based SPD, while IC has a significant impact on SPD. In terms of control variables, firm size is significantly associated with GRI-based SPD while firm age, capital structure and auditor type are not.

This study has several implications for the academic community, society, the regulators and standard setters. This study adds to the existing literature on GRI-based sustainability reporting standards. For example, in Tauringana (2021a) study on the sustainability reporting adoption, it was disclosed that sustainability reporting was measured in terms of a manufacturing firm indicating whether they prepare sustainability reports or not. Whereas Tauringana (2021a) earlier reported that 80% of the firms in Uganda prepare sustainability reports, the compliance level with GRI sustainability reporting standards is only 59%. Therefore, the issue may not be whether companies prepare sustainability reports, but rather the extent to which these reports comply with the applicable reporting framework. This study results contribute to previous studies on the determinants of GRI-based SPD (e.g. Cicchiello *et al.*, 2021; Tauringana, 2021a; Tumwebaze *et al.*, 2021; Orazalin and Mahmood, 2018) by documenting that board gender diversity has no impact on GRI-based SPD, while IC has a significant impact. This study results also contribute to perception based studies (e.g. Tauringana, 2021a; Tumwebaze *et al.*, 2021; Thoradeniya *et al.*, 2015). Our study results extend the resource-based view by explaining the impact of gender diversity and IC on GRI-based SPD using evidence from Uganda where the GRI standards compliance levels had earlier not been investigated.

This study is also useful to standard setters such as the GRI and IFRS Foundation. This study results indicate that there are still low compliance levels. This means that the standard setters could halt the development of more standards but rather aim to lobby international bodies such as the United Nations and World Bank to require their members to adopt the GRI sustainability reporting standards. The study results also mean that the IFRS Foundation could focus largely on financial reporting or merge with the GRI to further refine the GRI standards to include the assurance standards. The IFRS Foundation would leave the work of standards development for the preparation of sustainability reporting to Global Sustainability Reporting Standards and instead focus on developing the assurance standards for sustainability reporting. Also, the accountancy profession could think about adopting the GRI sustainability reporting to enable firms prepare such reports. Whereas the ICPAU encourages sustainability reporting through organizing the Financial Reporting Awards where an award of the best sustainability reporting company is organized, the ICPAU, in addition to their annual SR and inclusion on their syllabi sustainability reporting,

could require all companies in Uganda to prepare sustainability reports as this will help the country in achieving the UN SDGs.

This study was conducted in Uganda's manufacturing firms, and it is possible that the GRI sustainability reporting standards in other sectors or contexts may be higher or low since sustainability reporting is context-specific. Future studies could focus on the GRI compliance levels by companies in other sectors in Uganda and in other national settings. Still, this study's results are based on a small sample (121 manufacturing firms), and therefore, such results should be interpreted with caution. However, we used adjusted *R*-square to interpret our results. Future studies may, therefore, involve larger samples, and their results could be compared with the current study results. Further, this study model explains only 18% of the variances in SPD, which means that there are more determinants of SPD that have not yet been investigated. However, we used those variables that either had been studied partially, for example, intellectual capital, and those variables that are common in literature. Some more suggested determinants could include management control systems, institutional pressures and sustainability accounting practices among others.

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Appendix

Table A1. Intellectual capital questionnaire items before confirmatory factor analysis

A	*Human capital*						
1	Our employees are highly skilled at their jobs such as preparing sustainability performance reports	1	2	3	4	5	6
2	Our employees are highly motivated in their work	1	2	3	4	5	6
3	Our employees have a high level of expertise in sustainability accounting and disclosures	1	2	3	4	5	6
4	Our employees are widely considered the best in our industry	1	2	3	4	5	6
5	Our employees develop new knowledge in sustainability accounting and reporting	1	2	3	4	5	6
6	Our employees are able to focus on the quality of our sustainability performance reports	1	2	3	4	5	6
7	Our employees are well educated compared to their peers in the industry	1	2	3	4	5	6
8	Our employees are able to find simple solutions for more complex problems	1	2	3	4	5	6
9	Our employees undergo continuous training programs in sustainability accounting and disclosures	1	2	3	4	5	6
10	Our employees continually learn from others regarding sustainability accounting and reporting	1	2	3	4	5	6
B	*Structural capital*						
1	Our firm has efficient and relevant information systems to support business operations	1	2	3	4	5	6

(*continued*)

2	Our company has tools and facilities to support cooperation between employees	1	2	3	4	5	6
3	Our company has a great deal of useful knowledge in documents and databases	1	2	3	4	5	6
4	Existing documents and solutions are easily accessible	1	2	3	4	5	6
5	Our company documents knowledge in manuals and databases	1	2	3	4	5	6
6	Organizational processes are contained in formal documents and systems	1	2	3	4	5	6
7	Our company uses intellectual property like copyrights as a way to store knowledge	1	2	3	4	5	6
8	Our firm protects knowledge and key information to avoid loss of information if key people left	1	2	3	4	5	6
9	Our company documents all the details of its projects to ease reporting	1	2	3	4	5	6
10	Our organization possess work methods and procedures in support of innovations	1	2	3	4	5	6
C	*Relational capital*						
1	Different units and functions within our company understand each other well	1	2	3	4	5	6
2	Our employees frequently collaborate to solve problems related to sustainability performance	1	2	3	4	5	6
3	Internal cooperation in our company runs smoothly	1	2	3	4	5	6
4	Our company and its external stakeholders understand each other well	1	2	3	4	5	6
5	Our company and its external stakeholders frequently collaborate to solve problems	1	2	3	4	5	6
6	Cooperation between our company and its external stakeholders runs smoothly	1	2	3	4	5	6
7	We get a lot of important information on how to prepare sustainability reports from external collaboration partners such as ICPAU	1	2	3	4	5	6
8	Customer feedback guides our activities such as improved packaging of products	1	2	3	4	5	6
9	We are well aware of our customers' needs such as quality products	1	2	3	4	5	6
10	Our company sustainability performance reporting practices bring added value to our stakeholders	1	2	3	4	5	6
11	This organization is keen on developing long-term relationships with its stakeholders	1	2	3	4	5	6
D	*Renewal capital*						
1	Our company has acquired a great deal of new and important knowledge for SPD	1	2	3	4	5	6
2	Our employees have acquired a great deal of important skills and abilities	1	2	3	4	5	6
3	Our company can be described as a learning organization	1	2	3	4	5	6
4	The operations of our company can be described as creative and inventive	1	2	3	4	5	6
E	*Trust capital*						
1	The way our company operates is characterized by an atmosphere of trust	1	2	3	4	5	6
2	We keep our promises to our customers such as improved products	1	2	3	4	5	6
3	We fulfill our agreements with our customers	1	2	3	4	5	6
4	Our company seeks to take the interests of its stakeholders into account in its operations	1	2	3	4	5	6
5	The expertise of our company inspires trust in stakeholders	1	2	3	4	5	6

(*continued*)

Table A1.

6	The image and reputation of our company inspire trust in stakeholders	1	2	3	4	5	6
F	*Entrepreneurial capital*						
1	Risk-taking is regarded as a positive personal quality in our company	1	2	3	4	5	6
2	Our employees take deliberate risks related to new ideas of improving sustainability accounting and reporting practices	1	2	3	4	5	6
3	Our employees are excellent at identifying new business opportunities	1	2	3	4	5	6
4	Our employees show initiative when it comes to sustainability performance	1	2	3	4	5	6
5	The operations of our company are defined by independence and freedom in performing duties	1	2	3	4	5	6
6	Our employees have the courage to make bold and difficult decisions	1	2	3	4	5	6

Table A1.

Corresponding author
Juma Bananuka can be contacted at: jbananuka@mubs.ac.ug