

# Towards achieving SDGs through integrated reporting in Malaysian public universities

Malaysian  
public  
universities

Nor Farizal Mohammed

*Faculty of Accountancy, Accounting Research Institute (HICoE),  
Universiti Teknologi MARA, Shah Alam, Malaysia*

Radziah Mahmud

*Faculty of Accountancy, Universiti Teknologi MARA, Puncak Alam, Malaysia*

Md. Shafiqul Islam

*Department of Business Administration, East West University,  
Dhaka, Bangladesh, and*

Norhayati Mohamed

*Faculty of Accountancy, Accounting Research Institute (HICoE),  
Universiti Teknologi MARA, Shah Alam, Malaysia*

Received 24 August 2021  
Revised 13 February 2022  
8 March 2022  
16 June 2022  
6 October 2022  
Accepted 24 October 2022

## Abstract

**Purpose** – The recent development in integrated reporting (<IR>) demonstrated a potential government tool for decision-making in allocating resources and developing sustainable policies for higher education institutions. This paper aims to examine the extent of the disclosure level of <IR> content elements in the annual reports of Malaysian Public Universities (MPUs). Additionally, the relationship between the disclosure level of <IR> content elements and the specific characteristics of MPUs is investigated.

**Design/methodology/approach** – The study performed descriptive statistics analysis for each component of <IR> content elements. This idea is achieved by examining the annual reports of MPUs between 2016 and 2018. The relationship was also investigated using ordinary least squares, fixed effect and lagged models.

**Findings** – The findings showed an increasing trend in the disclosure level of <IR> content elements in MPUs' annual reports, supported by institutional theory. Furthermore, RUs exhibited a significant positive relationship with the disclosure level of <IR> content elements, whereas university size and report conciseness are insignificant variables.

**Originality/value** – The study adds to the body of knowledge in public sector accounting and has significant implications in the industry. This implication is specific to achieving sustainable development goals within the context of a developing country, paving avenues for further MPU reporting studies.

**Keywords** Integrated reporting, Institutional theory, Malaysian public universities, SDGs, Public sector

**Paper type** Research paper

## 1. Introduction

The quality of financial reporting has been the interest of researchers as its outcomes play a critical role in decision-making, monitoring, control and delivering accountability to



The authors acknowledge the financial grant from the Accounting Research Institute, UiTM, a Higher Institution Centre of Excellence (HICoE), Ministry of Higher Education Malaysia.

International Journal of  
Sustainability in Higher Education  
© Emerald Publishing Limited  
1467-6370  
DOI 10.1108/IJSH-08-2021-0344

stakeholders. Notably, transparency is one of the governance tools in developing strategies to achieve sustainable development goals (SDGs). Thus, a holistic document that integrates various components of information concerning an organisation may enhance accountability and transparency (Manes-Rossi, 2018). In recent years, integrated reporting (<IR>) has emerged as a new milestone in the financial reporting environment. <IR> is concerned with conveying a comprehensive message on an organisation's strategy, governance, performance and prospect in the context of its external environment. This idea leads to value creation for short, medium and long-term [International Integrated Reporting Committee (IIRC), 2016].

The <IR> not only focuses on profit and financial position but also aims to provide insight into a company's resources and relationships, known as capital. Furthermore, this concept divulges how the company interacts with the external environment and these capitals to create value. The International Integrated Reporting Council (IIRC) focuses on six capitals, i.e. financial, manufactured, intellectual, human, social and relationship, followed by natural capitals. These capitals cannot work in a silo. IIRC (2013) suggested that organisations adopt integrated thinking in translating these interdependent capitals into business strategies to create value. Overall, the IIRC anticipated the <IR> initiative to meet government demands, allowing the public and stakeholders to appraise financial and non-financial information in a single comprehensive document (De Villiers *et al.*, 2014). Therefore, <IR> sustains integrated thinking practices, increases transparency and demonstrates value creation (IoDSA, 2016). The original conceptions and principles of the <IR> framework remained vivid and intellectually demanding, as indicated by approximately 2,500 organisations in over 70 countries currently using the framework (IIRC, 2021).

Public sector accounting concerns financial matters, accountability and transparency in providing useful information for decision-making. However, studies on <IR> concerning public sector organisations are scarce despite their suitable adoption in this sector (Tirado-Valencia *et al.*, 2020). A significant number of public resources are allocated to public universities, and thus, universities must be accountable for stewarding resources for the public. Therefore, strategies for public universities must be carefully planned and monitored because they may attract the interests of many stakeholders. Higher education is crucial for sustainable development as a development agent or a means of growing the countries' human capital. Hence, the reporting frameworks are critical in enhancing an organisation's value creation (Adams, 2017).

In Malaysia, 20 public universities fall under statutory bodies shaped by Acts of Parliament. Five universities are classified as research universities (RUs): the University of Malaya, Universiti Kebangsaan Malaysia, Universiti Sains Malaysia, Universiti Putra Malaysia and Universiti Teknologi Malaysia. Others are non-research universities (NRUs) focusing on technical, management, defence, Islamic and comprehensive education. All these universities, except for the International Islamic University of Malaysia, must report the outcomes of public fund usage to the Parliament. Every year, public universities prepare audited financial reports, which are part of annual reports to be tabled in the Parliament (Perbendaharaan Malaysia, 2021).

Over the years, the focus of reporting has grown to encompass areas beyond financial performance. For instance, the reporting now includes key performance indicators (KPIs) achievements. The KPIs are monitored by the Ministry of Higher Education (MoHE), focusing on the holistic aspects of universities (MoHE, 2017a). For example, these public universities report specific initiatives that KPIs do not cover, showcasing the soft aspects of universities' achievements, i.e. the outreach programmes' outcomes towards students and

communities. Thus, public universities should focus on producing holistic, entrepreneurial and balanced graduates. This idea will be in tandem with the aspiration of Shift #1 of the Malaysia Education Blueprint 2015–2025 (Higher Education), which embraces the concept of integrated thinking and <IR>. Notably, the monitoring of MPU offers institutional pressure on the reporting behaviour of these institutions.

<IR> is a string from the sustainability reporting evolution that previously began with triple-bottom-line reporting, which later emerged as social and environmental reporting. The last decade has seen sustainability reporting evolving into the <IR> approach. [Fonseca et al. \(2011\)](#) attempted to understand the status of sustainability reporting in Canadian higher education institutions (HEIs). The study took samples from the most significant 25 universities by enrolment and used the global reporting initiatives (GRI) framework with 56 indicators. It was found that less than 30% of HEIs in the sample disclose sustainability performances. Further research was suggested to create awareness of a reporting environment where valuable and meaningful sustainability reports will be produced for sustainability-oriented decisions.

Universities' efforts towards sustainability reporting are fragmented instead of being integrated, and hence full benefit is elusive. For instance, an investigation of the GRI reporting standards in European universities revealed a low rate of adoption and inconsistent sustainability reporting during the initial years of adoption ([del Mar Alonso-Almeida et al., 2015](#)). Hence, future studies should divulge the impact of sustainability reporting on universities and society. Meanwhile, a case study on Italian universities' social and environmental reports was manually analysed by developing a content analysis approach ([Moggi, 2019](#)). The results demonstrated the need for an appropriate framework of sustainable development in HEIs. However, a comprehensive report was difficult to assure, and comparison was evident from the analysis due to various applied standards.

From the perspective of sustainability reporting above, the current study is a response to their calls to address this research gap. This idea can be achieved by examining HEIs' reporting from a comprehensive sustainability reporting approach, or <IR>. Furthermore, this work addresses the demand from prior researchers to conduct further investigations in <IR> due to its relatively new developments ([Adams, 2017](#); [De Villiers et al., 2017](#)). Studies on the reporting environment of Malaysian HEIs are lacking. As a developing country that strives to put its universities on the global map, Malaysia differs from the context of western countries. Our study addresses this gap by extending the examination of <IR> disclosure level in the annual reports of HEIs in the UK ([Hassan et al., 2019](#)), the study of <IR> of HEIs in Europe ([Brusca et al., 2018](#); [Iacuzzi et al., 2020](#); [Mauro et al., 2020](#); [Aras et al., 2021](#)) and the recent comparison of <IR> of South African and Japanese universities ([Sun et al., 2022](#)). The current study examines the disclosure of <IR> content elements in the annual reports of Malaysian public universities (MPUs) following [Hassan et al.'s \(2019\)](#) approach. This research also examines the relationship between the disclosure level of <IR> content elements and the specific characteristics of MPUs: RUs or NRUs, university size and report conciseness. Other control variables examined are liquidity, leverage and efficiency variables.

This research contributes to the current literature on public-sector accounting, specifically regarding public universities. It also has practical implications by offering recommendations to enhance the reporting landscape of public universities in accomplishing the SDGs. Accordingly, the findings are significant to indicate the extent of MPUs in adopting the <IR> framework. Additionally, the institutional theory and <IR> can be explained from the HEIs' perspective in a developing country. The article is categorised as follows: Section 2 reviews the literature and explains the hypothesis

development. Meanwhile, Section 3 provides the research methodology, and Section 4 discusses the results, concluding with Section 5.

## 2. Literature review

### 2.1 *Prior studies of integrated reporting in higher education institutions*

The goal of sustainable development has been a trend in social and environmental reporting, also known as various terms: social, corporate social and corporate social responsibilities reporting. Eventually, this term evolved into sustainability reporting, concerned with environmental and social information, compared to annual reports, which primarily focus on financial information. However, obtaining a thorough picture of an organisation's sustainability strategies is problematic when these reports are compartmentalised. The critics of these environmental and social reports characterise them as reports with information overload due to their verbose and sophisticated representation. Consequently, <IR> is accepted globally as a type of future reporting for sound decision-making, including HEIs reporting.

HEIs are an integral part of this sustainable value creation within a broad society and, on a global scale, play a pivotal role in creating intellectually sound citizens. This idea results in a knowledge-based economy, reflecting its unique story in value creation. <IR>, as a reporting framework, enables an organisation to tell the story of value creation (IoDSA, 2016). The presence of this sustainability culture is embedded within the management of universities (Adams *et al.*, 2018). In their report, the British Universities Finance Directors Group (BUFDG) reinforced a similar sentiment by clearly pointing out HEIs' crucial role in creating sustainable value for their stakeholders (BUFDG, 2016). Moreover, the report shows that HEIs have a unique place in society, exhibiting varied contributions towards leadership, innovation, creative thinking and national value creation. However, these contributions are often diminished in their traditional communications with society (BUFDG, 2016). Thus, this communication gap is where <IR> can be introduced as a timely intervention for HEIs, suggesting a transparent disclosure of value-creation activities to stakeholders and society. In the UK, professional bodies have observed that the HEI sector presents an active engagement to support the adoption of the <IR> framework in report preparation (BUFDG, 2016).

Extant literature shows that the research area addressing <IR> in HEIs is still in its infancy. Nevertheless, there has been growing interest in <IR> as a part of sustainability reporting evolution in recent years. <IR> is considered a medium of reporting for universities to disclose economic, social and environmental risks and opportunities (RO) through research. The research comprises areas such as climate change, water, food security, increased inequality, poverty and recent phenomena of refugee populations (Adams, 2018). Integrated thinking fosters innovative collaborations, such as interdisciplinary research, enhancing the outlook of universities in society *vis-à-vis* value creation. The author clarified that the challenge for universities is not a unique set of guidelines like sustainability reporting but a cautionary focus on the quality and quantity of reports.

In this regard, a study on Spanish HEI, specifically at the University of Cádiz (UCA), compared the reports of UCA in line with the IIRC framework (Brusca *et al.*, 2018). The analysis unfolded the insufficient connection between capital and integrated thinking, separated from the university's reports. Hence, the authors recommended <IR> as a further step towards sustainability in HEIs, such as UCA. In 2020, there is an influx of interest regarding the disclosure level of <IR> content elements for HEIs. For instance, a review was conducted on Italian public-funded universities' social and sustainability reports. This

review was used to investigate the extent to which <IR> content elements are disclosed (Mauro *et al.*, 2020). Remarkably, significant heterogeneity exists in the disclosure pattern as their analysis unfolded, and a growing interest was noted. The authors urged the need to improve organisation accountability and identify policymakers and managers as integral parts of this transformation. The observation that <IR> may support universities to shift their focus from traditional departmental silo-thinking to value creation is a critical comment in their study. Meanwhile, Fissi *et al.* (2021) analysed sustainability dimensions at the University of Florence. The sample university integrated sustainability reporting within the accountability system, albeit its full implementation of strategic planning is absent. The authors revealed insufficient funding as the primary pitfall behind the full implementation of sustainability policies on campuses where teaching and research are put into practice.

Integrated thinking and reporting are further investigated by Aras *et al.* (2021), who evaluated the <IR> practices of Yildiz Technical University (YTU), a public university in Turkey. This study aligned with the IIRC framework to uncover the potential of <IR> in enhancing value for HEIs' stakeholders. The authors focused on two aspects of the concerned university's <IR>. Firstly, the YTU <IR> framework was compared with the IIRC <IR> framework content elements. Secondly, the former was compared with the IIRC <IR> guiding principles. The findings revealed YTU's aim to address material sustainability issues for the stakeholders' attention following an integrated thinking approach. Moreover, the <IR> framework has helped YTU spell out its strategic footprints with a holistic understanding of the value creation in HEIs.

There is an ongoing debate on the HEIs' ability to tell their value-creation stories via integrated reports (Sun *et al.*, 2022). In this sense, two Japanese and three South African universities were compared in terms of their <IR>-related disclosures based on the 2019 integrated reports. The study used the institutional theory and suggested that Japanese universities must work on narrating their value creation "stories" rather than disclosing quantitative and qualitative information. Additionally, enhancing the "integration" of such information should be of prime concern. Meanwhile, a comparatively higher <IR> quality was observed in the sample annual reports of South African universities than in the Japanese universities. The authors suggested that the sample universities of the two countries learn innovative reporting practices from leading firms, such as publishing Web-based integrated reports.

The public and non-profit sectors are further explored to observe the extent of <IR> framework adoption as a vehicle through which dialogical accounting and accountability models can be used. This use is specifically observed via the conversation process with the broad stakeholders of society (Pärl *et al.*, 2022). The importance of clear communication of non-financial information was noted, and the research recommended <IR> as an effective tool in this process. Regarding the analysed reports, the authors observed the initial steps towards <IR> and dialogical communication in the educational sector. The most popular categories include business model, strategy and resource allocation (SRA) and value creation, where the sample public and non-profit sector organisations disclose <IR>-related issues. Accordingly, they suggested that <IR> implementation along with the dialogical communication concepts, reap the benefits of carefully observing organisations' internal and external environments.

Various researchers are riveted in examining <IR> content elements in the HEIs of the UK market. For example, a study examined the extent of disclosure of <IR> content elements in the integrated reports of HEIs in Scotland, Northern Ireland and Wales (Adhikariparajuli *et al.*, 2021). Positive trends were found from HEIs to increase their <IR> content elements significantly over the sample period. The study also noted a positive

correlation between the <IR> framework adoption and the institutions' governing board size with the <IR> content element disclosure. Another study was conducted on the UK's HEI characteristics linked with the <IR> content elements (Hassan *et al.*, 2019), revealing an increase in the content in their annual reports. Apparently, this trend reflects the evidence of institutionalising integrated thinking in the decision-making process of UK HEIs.

Hassan *et al.* (2019) supported the premise that established universities (pre-1992) tend to disclose more <IR> content elements than recent institutions (post-1992) in the UK. This observation implies that the older universities used <IR> and integrated thinking to remain contemporary. This finding implies that older institutions are using <IR> and integrated thinking to remain contemporary within their stakeholder community encompassing the alumni, prospective students, employers and, in turn, opening new competitive market environments. Ntim *et al.* (2017) revealed that 130 UK HEIs in 2012 showed 44.02% index scores, comparable with Hassan *et al.*'s (2019) index scores from 47% in 2013–2014 to nearly 70% compliance in 2015–2016.

The literature review above suggests further exploring the <IR> concept to achieve sustainability in HEIs (Adams, 2018; Brusca *et al.*, 2018). The review demonstrates the concepts of integrated thinking, strategic decision-making and value creation, driven by the public with the <IR> production by HEIs (Mauro *et al.*, 2020; Fissi *et al.*, 2021; Aras *et al.*, 2021). Furthermore, the institutional theory is adapted in the above studies, such as Hassan *et al.* (2019), who examined UK HEIs and a comparative study on the <IR> quality of South African and Japanese universities by Sun *et al.* (2022). Other studies on <IR> in HEIs included the context of European markets, such as Spain, Italy and Turkey. Therefore, the literature review demonstrates the opportunity for the current study to examine the <IR> disclosure level in a developing country, Malaysia, in achieving the SDGs.

The disclosure level of <IR> content elements is yet to be examined in the annual reports of HEIs in Malaysia, primarily based on the institutional theory following Hassan *et al.* (2019) and Sun *et al.* (2022). This literature review reveals that most studies examined <IR> content elements in annual reports, which are unnecessarily called integrated reporting. An organisation's integrated thinking can be seen with the level of this concept in the reporting medium, whether they are called annual reports or integrated reports (Mähönen, 2020). The review indicates the terms used to examine the reporting issue, namely, <IR> content elements, <IR> quality and <IR> disclosure level. This study uses the term "disclosure level of <IR> content elements", referring to Hassan *et al.* (2019) and Adhikariparajuli *et al.* (2021) in examining annual reports.

## 2.2 Malaysian public universities' reporting

Limited studies were conducted concerning the MPU annual reports despite their critical role in ensuring the sustainability and excellence of Malaysia's higher education system. The Malaysian education system has highlighted the action to enhance transparency and accountability through reporting for public universities. This concept is emphasised in Shift #5, Financial Sustainability in The Malaysia Education Blueprint 2015–2025 (Higher Education). <IR> is a voluntary approach encouraged by regulators for organisations in Malaysia (MIA-ACCA, 2016; MCCG, 2021).

MPUs must prepare annual reports that holistically describe organisations, though they are not obligated to adopt the <IR> framework (Perbendaharaan Malaysia, 2021; MoHE, 2017b). The approach is in line with Moggi (2019), who investigated social and environmental reporting in Italian HEIs, even though no Italian law mandates the practice. The institutional pressure is still apparent, even though the voluntary nature of this



practice. The disclosure level of <IR> content elements in the MPUs' annual reports indicates the extent of their readiness to adopt the <IR> framework.

The public education research context is not ignored in global <IR> research despite being in the developing stage. In Malaysia, the MPUs' annual reports are largely under-examined by researchers despite the critical role of MPUs as agents for economic growth or moulding human capital. Thus, our study delves into the extent of MPU reporting towards the <IR> framework. The variables in this study prompt its importance to be conducted in a developing country striving to place its public universities in the global ranking. Therefore, the classification of RUs and NRUs are vital factors in examining the coercive pressure effect of institutional theory, specifically on the disclosure extent in reporting.

Additionally, prior studies and local context have been considered when choosing the variables to be examined. A study proposed that the extent of voluntary disclosure made by UK HEIs is significantly affected by their characteristics of governance and executive structures (Ntim *et al.*, 2017). However, as a variable, the number of governing boards in the regression model was insignificant in Hassan *et al.* (2019). Despite the vital link between governance factors and the extent of voluntary disclosure (Ntim *et al.*, 2017), the situation may differ in developing countries such as Malaysia. The preliminary examination demonstrated minimal board governance disclosure in MPUs' annual reports, and the number of board members is primarily 11 across most MPUs. The effective role of board governance in MPUs is documented in the Green Book under the University Transformation Programme (MoHE, 2017a). However, the annual reports indicate little information regarding board governance practice. The role of board governance in reporting is not explicitly described in the Green Book (MoHE, 2017a). The board governance behaviour in MPUs aligns with mimetic isomorphism, where organisations tend to copy the practice of other organisations, such as western universities. This idea is done by having board governance without indicating their clear roles in reporting practices. Thus, the current study posits that MPU boards do not have a significant role in reporting, and thus, are excluded from the model for investigation. Nevertheless, the board governance disclosure is examined under the disclosure of <IR> content elements.

Universities in Malaysia vary in size, and RUs are large-sized in terms of total assets. The size of universities can also be represented by the number of students. The public universities in Malaysia are established with a specific purpose; for instance, the Universiti Teknologi MARA was established to enhance the economy of indigenous ethnic groups. This notion was under the National Economic Policy in 1971, later named the National Development Policy in 1991. For such a large university, with substantial funding and specific expectations, coercive isomorphism can explain the pressure by the government and society for improved information quality. Coercive institutional forces stem from the HEIs' performance funding (Larrán *et al.*, 2016). Institutions may vary in their policies and practices in response to the funding performance requirements. Thus, the size of universities is a crucial factor to be examined concerning the disclosure level, conciseness, a vital spirit of <IR> and the future reporting style. The research intends to provide evidence that disclosure quality does not equate to information length.

### 3. Theory and hypothesis development

This study adopts institutional theory to explain the behaviour of MPUs in disclosing information in annual reports following Hassan *et al.*'s (2019) approach. Using this institutional theory by DiMaggio and Powell (1983), the research explains how organisations such as MPUs adopt certain practices and policies. Examples of these policies include disclosing information to the public via annual reports due to institutional

isomorphism stemming from coercive, normative and mimetic pressures. Coercive isomorphism describes a process in which one organisation relies on another, resulting in changes in organisational behaviour (DiMaggio and Powell, 1983). Stakeholders, such as governments, the public, regulators, employees and the media, scrutinise the information released. These monitoring responsibilities pressure organisations to adopt the <IR> reporting framework. Institutional pressures are frequently associated with legitimacy purposes, where changes are adopted to meet societal expectations.

Normative isomorphism arises from formal education (i.e. universities), which is related to professional organisations that promote and conduct training for information preparation (DiMaggio and Powell, 1983). Meanwhile, mimetic isomorphism is an idea that pushes first-time reporters to discover role model corporations to model their reports. This approach results in changes in behaviour, such as the adoption of <IR> reporting framework in disclosing information. Larrán *et al.* (2016) highlight an example of mimetic isomorphism. The study explains how Spanish universities imitate top-tier universities in implementing sustainability strategies, albeit with mission and vision confusion.

Hassan *et al.* (2019) contended that institutional theory is used in firm-specific studies and the within-industry context. Higher education in the UK has seen the emergence of coercive isomorphism in adapting new structures, i.e. <IR> framework, which appeases external expectation and obtains legitimacy due to institutional pressure (Hassan *et al.*, 2019). The same theory was implemented in another study, revealing a significant association between the code law orientation and the institutional quality with the <IR> of Fortune 500 companies (Kılıç *et al.*, 2021).

### 3.1 Research universities

The role of RUs is to emphasise research and innovation activities supported by highly competent academics and competitive student admissions. These institutions are anticipated to perform in their intellectual discoveries and become models of Malaysian universities in research and knowledge advancement. Additionally, they are envisioned to be financially stable and able to generate their income and commercialise their research products. The Malaysian government classifies 20 MPUs into clusters of RUs and NRUs in the National Higher Education Strategic Plan Beyond 2020. The strategy was implemented with an aspiring vision to include two RUs among the top 100 world universities (Sheriff and Abdullah, 2017). In the Quacquarelli Symonds 2021 World University Rankings, five Malaysian RUs are ranked among the world's top 200 (NST, 2020). The focus on a knowledge-based economy and research and development agenda parallels the country's vision to become a high-income nation. Thus, RUs must behave as such to portray an image of a world-class university.

The institutional theory describes how individuals and organisations can create, maintain and change institutions through various mechanisms (Meyer and Rowan, 1977). As critical institutions in the country, RUs can transform institutions through various mechanisms, including communication channels, i.e. annual reports. This theory clarifies how firms respond to institutional norms and the environments they operate, influencing the behaviour of a business (Camilleri, 2018). Precisely, the environment may comprise stakeholders, governments, regulatory authorities, non-government organisations and other organisations. Consequently, their responses reward them legitimacy among stakeholders (Beck *et al.*, 2015).

The organisations' interactions with various parties are required in the integrated thinking approach, reported under the integrated report framework. Therefore, institutional theory offers promising ways of investigating how RUs provide information in their annual



reports on public concerns. This phenomenon is because they are influenced by the ethos, voluntary principles, policies and programmes of institutions (Camilleri, 2018). The reporting that includes <IR> content elements sits between the paradigm of organisations' voluntary engagement and their social responsibilities. Organisations' institutional context is reflected in the reporting, given that <IR> remains a voluntary approach (De Villiers *et al.*, 2017; Camilleri, 2018). Accordingly, RUs are perceived to disclose <IR> content elements as they often receive coercive pressure from socio-political forces. These approaches are reflected in the disclosure in annual reports. Hence, the study posits the following hypothesis, *H1*:

*H1.* A positive relationship exists between RUs and the disclosure level of <IR> content elements.

### 3.2 Organisation size

The institutional theory explains how organisations respond to the pressure of surroundings, thereby disclosing information to obtain legitimacy from various stakeholders (Camilleri, 2018). Organisation size is anticipated to positively influence financial reporting due to the organisations' complexity, diversification and large-scale economic production. Others include accessibility to new technologies, cost-effective resources and political advantage (Watts and Zimmerman, 1979). Larger organisations are more exposed to public scrutiny and pressured to behave responsibly; thus, they possess a more substantial stakeholder base than smaller organisations (Cowen *et al.*, 1987). Moreover, these organisations elicit more attention and will do what is necessary to legitimise their actions (De Villiers and Van Staden, 2006).

Organisation size is a significant predictor of firm-level reporting disclosure (Busco *et al.*, 2019). In the context of <IR>, it was found that size is related to producing integrated reports rather than financial reports or sustainability reports (Frias-Aceituno *et al.*, 2014). Similarly, a positive relationship was found between institution size, depicted by total assets and the disclosure of <IR> content elements for UK higher education (Hassan *et al.*, 2019). In line with prior studies, the study proposed the following hypothesis:

*H2.* A positive relationship exists between university size and the disclosure level of <IR> content elements.

### 3.3 Conciseness

The <IR> framework is intended to provide understandable and connected information in a concise manner (IIRC, 2013). Thus, conciseness is a critical element in <IR>, allowing users to understand an organisation's strategy, governance, performance and prospect (Manes-Rossi, 2018). On top of conciseness, balance and other guiding principles, such as completeness and comparability, are required. However, adapting the balance to this concept is challenging, i.e. a study of four organisations revealed three lengthy reports which are not based on the conciseness principle due to the requirement for detailed information (Manes-Rossi, 2018). Nevertheless, an organisation in Warsaw is found to devote considerable effort to conciseness. The data were presented using various graphics in an understandable format in a 68-page report (Manes-Rossi, 2018).

The finding above is supported by Tirado-Valencia *et al.* (2020), who promoted using graphs, flow diagrams or narrative skills to communicate with audiences effectively. The number of pages in a report represents the value of the conciseness variable, and it is found

that no association was found between report length and integrated thinking (Tirado-Valencia *et al.*, 2020). This finding is consistent with previous studies, which claimed no link between the quantity and quality of disclosed information (Melloni *et al.*, 2017). Following prior studies, the number of pages represents the element of conciseness, and thus, the study posits the following hypothesis, *H3*:

- H3.* The number of pages is insignificantly related to the disclosure level of <IR> content elements.

## 4. Methodology

### 4.1 Sample selection

Malaysia currently has 20 public universities, though only 16 public universities were selected for this study between 2016 and 2018 due to the unavailability of annual reports. Despite the small sample size, it is comparable to previous research in this field (Melloni *et al.*, 2017; Kiliç and Kuzey, 2018; Manes-Rossi, 2018; Tirado-Valencia *et al.*, 2020). For example, a study investigated the integrated reports of 55 non-financial companies available in 2014 (Kiliç and Kuzey, 2018). Meanwhile, another study analysed 17 public sector enterprises between 2013 and 2017, resulting in 68 reports (Tirado-Valencia *et al.*, 2020).

Our exploratory study describes the proliferation of integrated thinking among public entities. Thus, the modest sample size is appropriate, where the findings can serve as pioneering insights for other public sector organisations, i.e. HEIs. Subsequently, data from MPUs' annual reports between 2016 and 2018 regarding university characteristics, control variables and disclosure level of <IR> content elements is collected. This research used Hassan *et al.*'s (2019) <IR> content elements, drawn from the IIRC <IR> framework in 2013.

### 4.2 Disclosure of <IR> content elements

Content analysis is frequently used in HEIs studies to analyse voluntary disclosure (Hassan *et al.*, 2019; Moggi, 2019). The content analysis concept expresses the need to acquire data through observation and analysis of the content or message of written texts. Content analysis is performed in research to construct replicable and valid inferences from texts to the contexts (Krippendorff, 2004; Moggi, 2019). The current research adopts Hassan *et al.*'s (2019) disclosure index to measure the disclosure level of <IR> content elements. The <IR> content elements are adopted based on the stipulated IR framework issued by IIRC in 2013 (Hassan *et al.*, 2019). This framework reference differs from Moggi (2019), who identified their disclosure category and aspect disclosed.

Eight content elements are used based on the IIRC framework: organisational review and external environment (OEE), governance (GVN), value creation model (VCM), RO, SRA, performance (PM), outlook (OLK) and basis for preparation and presentation (BPP) (IIRC, 2013). The details of disclosure items are influenced by previous literature, for instance, strategic management, environment estimate and stakeholder involvement (Lozano, 2011); non-financial information, strategy and linkage among various capitals (Sangiorgi and Sibone, 2017) and financial performance, governance, strategic planning and sustainability (Ntim *et al.*, 2017). The details of categories and subcategories are disclosed in Appendix 1 of Hassan *et al.* (2019, pp. 874–876). Particularly, organising the analysis based on categories and subcategories decreases confusion, diminishes options and eliminates unreliability (Moggi, 2019).

This study applies the weighted scoring method to determine the <IR> level index score, where each disclosure item is assigned a weight, allowing variation in the disclosure level (Hassan *et al.*, 2019). The findings are expected to be meticulous by using weighted indices, providing detailed qualitative and quantitative data on the disclosure of <IR> content elements. Furthermore, this study adheres to previous literature in assigning a weight to each disclosure item, in which <IR> links value creation to governance and strategy (De Villiers *et al.*, 2017). Integrated thinking provides connections on disclosure on strategy and resource allocation, risk and opportunity, followed by performance and outlook (Adams, 2017).

Integrated reports culminate in the development of integrated thinking and its contemplation. This study compares the disclosure of <IR> content elements, and the universities that connect content elements with past and prospects are assigned high scores. The total high disclosure index score indicates that organisations have adopted integrated thinking intensely. Table 1 presents the scoring system based on Hassan *et al.* (2019):

Previous studies have concentrated on manifesting content analysis, which centres on the surface by examining the frequency of words or sentences (Potter and Levine-Donnerstein, 1999). Holsti (1969) criticised content analysis primarily based on numerical processes and supported methods that can draw meaningful inferences. Subsequently, this approach has evolved into a latent content analysis, emphasising the text's meaning and interpretation (Potter and Levine-Donnerstein, 1999; Krippendorff, 2004). The current study applies the latent content approach, in which coders can use their judgements on the meaning of the given text (Kleinheksel *et al.*, 2020).

Based on the above, the researchers adopt the codes for <IR> content disclosure for HEIs, provided by Hassan *et al.* (2019) (Appendix 1). Two coders are used to interpret the content of identical materials and assign the score to ensure that the weighted scoring is reliable, as suggested by Potter and Levine-Donnerstein (1999) (Moggi, 2019). Before the analysis, coders are trained to assess content based on the specified standard. The data analysis is considered reliable if the two coders agree with the score (Potter and Levine-Donnerstein, 1999). However, the coders' subjective inferences are unavoidable in the latent content analysis (Potter and Levine-Donnerstein, 1999). Hence, meetings, discussions and comparisons are conducted during the coding process, ensuring that the scoring process agrees.

#### 4.3 University characteristics as independent variables

This research uses university characteristics as independent variables, including RU, size and conciseness. The classification into RUs or NRUs may influence the disclosure level of <IR> content elements. Moreover, prior university studies suggested that voluntary disclosure level may depend on organisation size. Thus, size is a critical variable measured

Score	Explanation
0	No disclosure
1	Descriptive disclosure without any link to strategy, governance, performance and prospect
2	Descriptive disclosure linked to strategy, governance, performance and prospect compared with past information
3	Descriptive disclosure is linked to strategy, governance, performance and prospect compared with past, current and future outlooks

**Table 1.**  
Scoring system

in this study using the natural log of total assets (TOTASSETS) (Hassan *et al.*, 2019; Busco *et al.*, 2019). Conciseness is another variable presented by the number of annual report pages (PAGES) (Tirado-Valencia *et al.*, 2020).

4.4 Control variables

Several control variables were included in this study, including grant amortisation rate, liquidity and leverage. The first variable, grant amortisation rate, is used to measure the funding obtained by universities. Universities with substantial funding are expected to exhibit a significant voluntary disclosure level (Ntim *et al.*, 2017). On the other hand, the liquidity position of universities may influence the disclosure level of <IR> content elements. Nevertheless, liquidity exhibits no significant relationship with university voluntary disclosure (Ntim *et al.*, 2017).

In the context of the final variable, public organisations with significant leverage tend to disclose more voluntary information than low-leverage public organisations (Laswad *et al.*, 2005). Meanwhile, it was found that leverage does not affect the voluntary disclosure level in universities (Gallego-Alvarez *et al.*, 2011). This study includes leverage measured as the debt-to-equity ratio in the model. Table 2 shows the measurements for dependent, independent and control variables.

4.5 Data analysis and model specification

The data analysis begins with descriptive statistics, correlation and regression analysis.

Variable	Acronym	Definition and Coding
Dependent Variable; Disclosure Level of <IR> Content Elements	<IR> DISC SCORE	<IR> DISC SCORE = Disclosure level of <IR> Content Elements' Score Following Hassan <i>et al.</i> (2019), it is based on eight primary themes, where each theme contains seven items. The themes are: (1) Organisational Overview and External Environment (OEE) (2) Governance (GVN) (3) Value Creation Model (VCM) (4) Risk and Opportunity (RO) (5) Strategy and Resource Allocation (SRA) (6) Performance (PM) (7) Outlooks (OLK) (8) Basis of Preparation and Presentation (BPP) 56 items (8 themes × seven items) exhibited a score threshold between 0 and 3, resulting in a total potential score of (56 × 3) 168
Independent Variables related to Higher Education Sector Characteristics	RU/NRU  TOTASSETS PAGES Control variables AMORT LIQUIDITY LEVERAGE	University classification where: 1 = RU (research university) 0 = NRU (non-research university) Log total assets Number of annual report pages  Log rate of grant amortisation Current ratio Total debt/equity

Table 2.  
Summary of  
measurements

The regression model is specified as follows:

$$\begin{aligned} \langle IR \rangle DISC SCORE_{it} = & b_0 + b_1 RU/NRU_{it} + b_2 TOTASSETS_{it} + b_3 PAGES_{it} \\ & + b_4 AMORT_{it} + b_5 LIQUIDITY_{it} + b_6 LEVERAGE_{it} + \varepsilon_i, \end{aligned}$$

where the variables are defined in Table 2 above.

## 5. Results and discussion

### 5.1 Descriptive statistics

Table 3 presents the descriptive statistics for all variables. The eight themes are extracted based on IIRC's 2013 <IR> framework (Hassan *et al.*, 2019), presenting the theme's statistics on <IR> content elements. Notably, the <IR> disclosure level in Malaysian universities has considerable variation, indicated by a standard deviation of 10.748, which aligns with previous studies (Ntim *et al.*, 2017; Hassan *et al.*, 2019). Furthermore, the total disclosure of <IR> content element scores lies between 54 and 103 out of 168 potential scores. By comparison, the total level of disclosure of <IR> score in Hassan *et al.*'s (2019) finding is between 29 and 108.

The latent content is based on the coders' subjective interpretations of the two studies. Due to the nature of this analysis, the comparison of absolute scores is impossible despite the feasibility of running a trend analysis. The risk and opportunity theme for the <IR> content element suggests that the scores range between a minimum of zero and a maximum of 18. Based on the study's findings, Malaysian universities tend to disclose more on OEE, albeit less on GVN. Relative to Hassan *et al.*'s (2019) findings, the disclosures on GVN and OEE are similar in percentage, prompting MPUs to pay attention to governance practices.

Variable	Mean	STD	MIN	MAX	Skewness	Kurtosis
<i>Dependent variables</i>						
<IR> Disc Score	76.25	10.748	54	103	0.374	0.412
Theme (1) OEE	13.77	1.789	10	17	-0.453	-0.517
Theme (2) GVN	3.94	1.791	1	9	0.445	0.565
Theme (3) VCM	11.33	1.802	6	16	-0.0229	1.372
Theme (4) RO	7.98	3.166	0	18	0.276	1.943
Theme (5) SRA	11.94	2.245	2	16	-1.709	7.210
Theme (6) PM	10.35	2.217	7	17	0.557	0.413
Theme (7) OLK	9.67	2.708	4	17	0.443	0.203
Theme (8) BPP	7.27	2.331	2	14	0.404	2.183
<i>Independent variables</i>						
RU	0.310	0.468	0	1	0.835	-1.361
TOTASSETS	9.249	0.404	8.480	10.080	0.410	-0.143
PAGES	222.900	67.578	140	407	1.063	0.242
<i>Control variables</i>						
AMORT	-0.937	0.341	-1.40	-0.08	0.537	-0.115
LIQUIDITY	2.945	1.889	0.250	8.890	0.741	0.0520
LEVERAGE	54.389	27.189	6.980	93.040	-0.465	-1.187

**Notes:** STD: standard deviation; MIN: minimum; Max: maximum. The variables and themes above are specified in Table 2

**Table 3.**  
Descriptive statistics

Moreover, the standard deviation for the universities' total assets is only 0.404, indicating that size presents a small degree of variability.

The annual reports by Malaysian universities are considered lengthy, with average and maximum pages of 223 and 407, respectively. This sample has more average pages than that (184 pages) used by [Melloni et al. \(2017\)](#), who examined the 2013 and 2014 reports of the official IIRC Pilot Programme members. [Melloni et al. \(2017\)](#) highlighted that <IR> tends to be lengthier for firms with poorer financial performance. The skewness and kurtosis of all variables in the regression model suggest that the variables are normally distributed.

### 5.2 Analysis of the <IR> content elements by year

[Table 4](#) presents the analysis of the <IR> content elements between 2016 and 2018. The disclosure level of <IR> content elements has slightly increased over the period, exhibiting disclosure scores between 54 and 103. Malaysian universities typically present disclosure scores of 75, 73 and 82 in 2016, 2017 and 2018, respectively. Accordingly, the score represented 44.64% of the total in 2016, marginally decreased in 2017 to 43.45% and increased to 48.21% in 2018. Consistent with [Hassan et al. \(2019\)](#), our study supports the view that Malaysian universities are aware of the importance of <IR> disclosures.

Further observations on the disclosure level of <IR> content elements indicate mixed patterns. The disclosure scores for OEE, RO, PM and OLK declined in 2017 and increased in 2018, similarly shown in the total disclosure scores. In 2017, the disclosures on GVN declined, and the core remained constant in 2018. Nevertheless, an increasing pattern can be observed for VCM, SRA and BPP themes over the years. Markedly, the trend of most themes is similar to the findings of [Hassan et al. \(2019\)](#), except for GVN.

Comparing the thematic elements provides evidence that OEE has the highest disclosure level, whereas GVN has the lowest disclosure score. Malaysian universities are anticipated to disclose further general information about their OEE. Even though governance elements are crucial and being disclosed by universities, the lowest score for GVN suggests that the disclosure of the link between GVN and past and future strategies, performances and prospects remains lacking and insufficient. The universities examined in this research are public universities, which fall under government statutory bodies.

Based on institutional theory, a mimetic isomorphism is described as the adoption of a specific practice by mimicking the system in another organisation perceived as reputable or successful ([DiMaggio and Powell, 1983](#)). For example, MPUs imitate the practice of corporate organisations by having a board of directors despite the uncertain goal, resulting in less disclosure of governance practices. Our study supports the view that high disclosure levels of <IR> content elements indicates that the integrated thinking process has been incorporated in Malaysian universities, consistent with the findings of [Hassan et al. \(2019\)](#).

Coercive institutional pressures are supported by our research, indicating that Malaysian universities respond to IIRC guidelines. This idea ensures that the institutions comply with government regulations to meet the expectations of Malaysian society ([Adams et al., 2016](#)). Another aspect of institutional theory explaining the practice of <IR> disclosure is a normative isomorphism. In this case, preparers receive a similar form of training and the diffusion of knowledge among MPUs ([DiMaggio and Powell, 1983](#)).

[Table 5](#) presents the Pearson correlation for the variables in the regression analysis. The findings demonstrate a significant positive relationship between the disclosure level of <IR> content elements and the university classification. Similarly, the disclosure level of <IR> content elements is related to the PAGES. Meanwhile, the relationships between the disclosure level of <IR> content elements and other control variables are positive and



				Malaysian public universities
Variable	2016	2017	2018	
<IR> Disc Score				
Mean	74.81	72.69	81.25	
STD	9.690	8.616	12.304	
Min	54	59	55	
Max	95	94	103	
Theme (1) OEE				
Mean	13.88	13.31	14.13	
STD	1.928	2.024	1.360	
Min	10	10	12	
Max	17	16	16	
Theme (2) GVN				
Mean	4.44	3.69	3.69	
STD	1.896	1.621	1.852	
Min	1	1	1	
Max	9	7	7	
Theme (3) VCM				
Mean	10.94	11.19	11.87	
STD	2.265	1.559	1.455	
Min	6	9	9	
Max	16	15	14	
Theme (4) RO				
Mean	7.44	7.31	9.19	
STD	2.966	1.662	4.183	
Min	0	5	0	
Max	12	10	18	
Theme (5) SRA				
Mean	11.13	11.56	13.13	
STD	2.705	1.750	1.746	
Min	2	8	10	
Max	13	14	16	
Theme (6) PM				
Mean	10.56	9.94	10.56	
STD	2.529	2.048	2.128	
Min	7	7	7	
Max	17	14	17	
Theme (7) OLK				
Mean	9.81	8.63	10.56	
STD	2.509	1.928	3.306	
Min	5	4	5	
Max	14	12	17	
Theme (8) BPP				
Mean	6.62	7.06	8.13	Table 4. Breakdown analysis of <IR> disclosure score and each component by year
STD	2.125	1.692	2.895	
Min	2	3	3	
Max	10	10	14	

**Table 4.**  
Breakdown analysis  
of <IR> disclosure  
score and each  
component by year

insignificant. Accordingly, multicollinearity is not an issue in this study, presented by the relatively low correlations among variables (Hair *et al.*, 2013).

5.3 Correlation matrix

5.4 Regression analysis

Multiple regression analysis is conducted to examine the relationship between the disclosure level of <IR> content elements and the specific characteristics of MPUs. Table 6 presents the results as follows:

Table 6 presents the multiple regression results for the relationship between the disclosure level of <IR> content elements and the specific characteristics of MPUs. Using ordinary least squares (OLS) regression, the results for Model 1 indicate a positive and significant association between university classification (RUs/NRUs) and disclosure level of <IR> content elements ( $t = 2.841$ ). Thus, this study supports *H1*, where RUs are more likely

Table 5.  
Pearson correlation  
matrix

Variables	<IR> DISC						
	SCORE	RU/NRU	TOTASSETS	PAGES	AMORT	LIQUIDITY	LEVERAGE
<IR> DISC SCORE	1						
RU/NRU	0.415**	1					
TOTASSETS	0.144	0.363*	1				
PAGES	0.371**	0.146	0.237	1			
AMORT	0.251	0.360*	0.054	0.026	1		
LIQUIDITY	0.004	0.038	-0.071	-0.219	0.154	1	
LEVERAGE	0.018	-0.490**	-0.203	-0.333*	-0.578**	-0.203	1

Notes: \*\*Correlation is significant at the 0.01 level (two-tailed). \*Correlation is significant at the 0.05 level (two-tailed). The variables are specified in Table 5

Table 6.  
Regression analysis

Variable	Model 1		Model 2		Model 3	
	OLS Coefficient	<i>T</i> value	Fixed Effect Coefficient	<i>T</i> value	Lagged Coefficient	<i>T</i> value
<i>Dependent variable: &lt;IR&gt; DISC SCORE</i>						
RU	10.518**	2.841	10.978**	3.491	10.938**	3.969
TOTASSETS	-0.288	-0.075	0.209	0.064	0.678	0.236
PAGES	0.031	1.239	0.027	1.261	0.41*	2.133
AMORT	8.527	1.624	8.384	1.882	7.032	1.702
LIQUIDITY	0.324	0.430	0.968	1.430	2.144**	3.180
LEVERAGE	0.135	1.688	0.156*	2.282	0.106	1.771
_cons	68.306	1.977	61.339*	2.080	48.559	1.898
<i>F</i> -value ( $X^2$ )	3.460**		4.326		9.748**	
<i>N</i>		48		48		32
$R^2$		0.336				0.701
Adj. $R^2$		0.239				0.629

Notes: The above table represents regression coefficients and *t* statistics in parentheses. Significance levels are \* $p < 0.05$  \*\* $p < 0.01$ . The variables are defined as follows: Disclosure level of <IR> content elements (<IR> DISC SCORE), University classification where RU = 1 = Research University and NRU = 0 = non-research university, Amortisation grant rate (AMORT), Total assets (TOTASSETS), Current ratio (LIQUIDITY), Liabilities ratio (LEVERAGE)

to provide more <IR> disclosure. The results parallel the institutional theory, describing the need for RUs to deliver information in annual reports to meet stakeholders' expectations.

The results above indicate that RUs display excellent prospects and knowledge of value creation, supporting the importance of <IR>. Thus, these institutions acquire the advantages of making sustainable decisions and disclosing critical information to their stakeholders through <IR> (Hassan *et al.*, 2019). Model 1 of Table 6 suggests a negative relationship between the size of Malaysian universities (TOTASSETS), albeit it is not statistically significant ( $t = 0.075$ ). The finding is consistent with Gallego-Alvarez *et al.*'s (2011) but contradicts Hassan *et al.* (2019) and Busco *et al.*'s (2019) findings. Thus,  $H2$  is unsupported, where no positive relationship exists between university size and the disclosure level of <IR> content elements.

The negligible effect on the relationship is due to similar pressure from stakeholders, regardless of the university size. Moreover, these institutions probably disseminate matching information in annual reports to impress stakeholders (Melloni *et al.*, 2017). On a similar note, Model 1 of Table 6 results reveal an insignificant relationship between report conciseness, measured by the PAGES and disclosure level of <IR> content elements ( $t = 1.239$ ). This finding is consistent with previous findings (Melloni *et al.*, 2017; Tirado-Valencia *et al.*, 2020).

Even though the length of annual reports represents the value of conciseness, the conciseness principle of <IR> may not necessarily be applied in preparing annual reports. Therefore, this study supports  $H3$ , that the number of pages is not significantly related to the disclosure level of <IR> content elements. Moreover, a reduced number of pages does not sacrifice the disclosure level of <IR> content elements. Conciseness should be promoted in future reporting trends.

### 5.5 Additional analyses

Two additional analyses were conducted in this study to determine the robustness of the results using OLS. Firstly, the fixed effect regression analysis is used to examine the relationship between MPU characteristics and the disclosure level of <IR> content elements. This analysis may consider a means for controlling for omitted variable bias when correlated with the selected variables used in OLS. Model 2 of Table 6 reports the fixed effect regression analysis results. The RUs presented a positive and statistically significant link with the disclosure level of <IR> content elements, though they exhibit an insignificant association with size and report conciseness. Our findings are not significantly influenced by potential endogeneity issues triggered by the omitted variable bias.

A lagged estimator is computed to furnish robust estimates on the effect of MPUs' characteristics on <IR> disclosure (Ntim *et al.*, 2017; Hassan *et al.*, 2019), where the results are tabulated in Model 3 of Table 6. A significant relationship with the disclosure level of <IR> content elements is only found in RUs, as in the OLS and fixed effect analyses. Nevertheless, the findings are perceivably robust to the possible endogeneity that may be triggered by simultaneity.

## 6. Discussion and conclusions

Implementing the <IR> framework in public sector organisations is essential as they must provide public services with accountability and foster social value creation. This study analyses the extent of the disclosure level of <IR> content elements in MPUs' annual reports over three years (2016–2018). Furthermore, the link between the disclosure level of <IR> content elements and the specific features of MPUs is investigated. The features include RUs versus NRUs, public university size, and report conciseness. The results

indicate that the number of <IR> content elements incorporated in the annual reports of MPUs has increased between 2016 and 2018. This observation suggests that organisations respond to institutional influences by disclosing additional information to gain legitimacy in the stakeholders' perception. The results imply the readiness of MPUs to adopt the <IR> framework in publishing their performance.

The disclosure level of <IR> content elements is positively related to RUs, consistent with Hassan *et al.*'s (2019) findings. This outcome lends credence to the institutional theory explaining changes in integrated content elements and how older universities exhibit higher disclosure levels of <IR> content elements. In this case, this study contributes to the theory where coercive isomorphism appears in the public sector, in which the government aims to increase the RUs' world ranking. The government's influence in regulating and financing RUs is monitored further by MoHE, the Ministry of Finance and other stakeholders. These monitoring tasks are a form of coercive isomorphism. In response to this matter, RUs improve their disclosure of <IR> content elements in exhibiting their efforts to achieve the government's mission, thereby obtaining legitimacy from other stakeholders.

Another notable finding is the insignificant association between the number of pages and the disclosure level of <IR> content elements. In this case, a limited number of pages does not impair the quality of <IR> content elements. Mimetic isomorphism appears in MPUs where they mimic the practices of other organisations for further disclosure without a clear goal of delivering quality information. Moreover, the exact isomorphism can be observed in the insufficient disclosure of board governance practices. Specifically, the board is established by imitating the practices of other organisations, albeit with uncertain aims, roles and practices. Given these points, our study recommends specific encouragement and guidelines on adopting the <IR> framework among MPUs. This adoption will drive integrated thinking in organisations and foster public value creation.

The findings lay the foundations for further research on quality reporting in public sector accounting, which researchers, particularly in Malaysia, largely ignore. The lack of concern on public sector reporting raises the issue of the effectiveness of the decision-making process for allocating government funds. This matter is critical, especially in allocating government funds, warranting future research on this subject. Nevertheless, our study has a limitation: the small number of observation data of MPUs. However, the MPUs' population is still represented as the research included all publicly accessible annual reports from MPUs between 2016 and 2018.

The upcoming research can be conducted qualitatively to obtain insights from preparers, regulators and users, from ministries or the public. The subject can be conducted on the acceptability of the <IR> framework in public sector accounting, particularly in public universities. Notably, our findings contributed to a growing body of knowledge in public sector accounting *vis-à-vis* public universities. These results exhibited practical consequences through recommendations, enhancing the reporting environment of public institutions towards achieving SDGs. However, the primary contribution of this analysis is to provide additional direct evidence on the effect of institutions on quality reporting, characterised by the <IR> content elements.

The first implication of this study suggests the need for public universities to adopt a <IR> framework, which drives integrated thinking in organisations, supporting public value creation. Moreover, RUs appear to report on <IR> disclosure more than NRUs due to pressure to perform in global rankings successfully. The <IR> system can help the government make better decisions, given its limited resources and public funding. Additionally, the government can develop more sustainable policies for public universities and receive better stakeholder feedback. However, achieving sustainable development necessitates a coordinated effort from the top down and must not entirely depend on MPUs.

The second implication indicates that our findings do not support the view that a higher number of pages correlates to a more significant quality of <IR> content elements. The reporting style must be modified to be more informative and concise, supported by technology and digitalisation. Hence, conciseness should be the primary focus of the future trend in public sector reporting. The findings from this study provide additional insights into the methods of moving forward with public university reporting, especially on integrated and concise reporting.

## References

- Adams, C.A. (2017), "Conceptualising the contemporary corporate value creation process", *Accounting, Auditing and Accountability Journal*, Vol. 30 No. 4, pp. 906-931, doi: [10.1108/AAAJ-04-2016-2529](https://doi.org/10.1108/AAAJ-04-2016-2529).
- Adams, C.A. (2018), "Debate: integrated reporting and accounting for sustainable development across generations by universities", *Public Money and Management*, Vol. 38 No. 5, pp. 332-334, doi: [10.1080/09540962.2018.1477580](https://doi.org/10.1080/09540962.2018.1477580).
- Adams, R., Martin, S. and Boom, K. (2018), "University culture and sustainability: designing and implementing an enabling framework", *Journal of Cleaner Production*, Vol. 171, pp. 434-445.
- Adams, C.A., Potter, B., Singh, P.J. and York, J. (2016), "Exploring the implications of integrated reporting for social investment (disclosures)", *The British Accounting Review*, Vol. 48 No. 3, pp. 283-296.
- Adhikariparajuli, M., Hassan, A., Fletcher, M. and Elamer, A.A. (2021), "Integrated reporting in higher education: insights from Scotland, Northern Ireland and Wales", *Social Responsibility Journal*, Vol. 17 No. 3, pp. 321-342, doi: [10.1108/SRJ-01-2019-0031](https://doi.org/10.1108/SRJ-01-2019-0031).
- Aras, G., Kutlu Furtuna, O. and Hacıoglu Kazak, E. (2021), "Toward an integrated reporting framework in higher education institutions: evidence from a public university", *International Journal of Sustainability in Higher Education*, Vol. 23 No. 2, pp. 426-442, doi: [10.1108/IJSHE-12-2020-0504](https://doi.org/10.1108/IJSHE-12-2020-0504).
- Beck, C., Dumay, J. and Frost, G. (2015), "In pursuit of a 'single source of truth': from threatened legitimacy to integrated reporting", *Journal of Business Ethics*, Vol. 141 No. 1, pp. 191-205.
- Brusca, I., Labrador, M. and Larran, M. (2018), "The challenge of sustainability and integrated reporting at universities: a case study", *Journal of Cleaner Production*, Vol. 188, pp. 347-354.
- BUFDG (2016), "Progress on the latest <IR> project", available at: [www.bufdg.ac.uk/resources/news/view?g=202eb51d-0903-4c1c-b3ab-9e2f1e27e7f9](http://www.bufdg.ac.uk/resources/news/view?g=202eb51d-0903-4c1c-b3ab-9e2f1e27e7f9) (accessed 23 May 2021).
- Busco, C., Malafronte, I., Pereira, J. and Starita, M.G. (2019), "The determinants of companies' levels of integration: Does one size fit all?", *The British Accounting Review*, Vol. 51 No. 3, pp. 277-298.
- Camilleri, M.A. (2018), "Theoretical insights on integrated reporting: the inclusion of non-financial capitals in corporate disclosures", *Corporate Communications: An International Journal*, Vol. 23 No. 4, pp. 567-581, doi: [10.1108/CCIJ-01-2018-0016](https://doi.org/10.1108/CCIJ-01-2018-0016).
- Cowen, S.S., Ferreri, L.B. and Parker, L.D. (1987), "The impact of corporate characteristics on social responsibility disclosure: a typology and frequency-based analysis", *Accounting, Organizations and Society*, Vol. 12 No. 2, pp. 111-122.
- De Villiers, C. and Van Staden, C.J. (2006), "Can less environmental disclosure have a legitimising effect? Evidence from Africa", *Accounting, Organizations and Society*, Vol. 31 No. 8, pp. 763-781.
- De Villiers, C., Hsiao, P.-C.K. and Maroun, W. (2017), "Developing a conceptual model of influences around IR, new insights and directions for future research", *Meditari Accountancy Research*, Vol. 25 No. 4, pp. 450-460, doi: [10.1108/MEDAR-07-2017-0183](https://doi.org/10.1108/MEDAR-07-2017-0183).
- De Villiers, C., Rinaldi, L. and Unerman, J. (2014), "Integrated reporting: Insights, gaps and an agenda for future research", *Accounting, Auditing and Accountability Journal*, Vol. 27 No. 7, pp. 1042-1067, doi: [10.1108/AAAJ-06-2014-1736](https://doi.org/10.1108/AAAJ-06-2014-1736).
- De Villiers, C., Venter, E.R. and Hsiao, P.C.K. (2017), "Integrated reporting: background, measurement issues, approaches and an agenda for future research", *Accounting and Finance*, Vol. 57 No. 4, pp. 937-959.

- del Mar Alonso-Almeida, M., Marimon, F., Casani, F. and Rodriguez-Pomeda, J. (2015), "Diffusion of sustainability reporting in universities: current situation and future perspectives", *Journal of Cleaner Production*, Vol. 106, pp. 144-154.
- DiMaggio, P.J. and Powell, W.W. (1983), "The iron cage revisited: institutional isomorphism and collective rationality in organization fields", *American Sociological Review*, Vol. 48 No. 2, pp. 147-160.
- Fissi, S., Romolini, A., Gori, E. and Contri, M. (2021), "The path toward a sustainable green university: the case of the university of Florence", *Journal of Cleaner Production*, Vol. 279, p. 123655, doi: [10.1016/j.jclepro.2020.123655](https://doi.org/10.1016/j.jclepro.2020.123655).
- Fonseca, A., Macdonald, A., Dandy, E. and Valenti, P. (2011), "The state of sustainability reporting at Canadian universities", *International Journal of Sustainability in Higher Education*, Vol. 12 No. 1, pp. 22-40, doi: [10.1108/14676371111098285](https://doi.org/10.1108/14676371111098285).
- Frias-Aceituno, J.V., Rodríguez-Ariza, L. and García-Sánchez, I.M. (2014), "Explanatory factors of integrated sustainability and financial reporting", *Business Strategy and the Environment*, Vol. 23 No. 1, pp. 56-72.
- Gallego-Alvarez, I., Rodríguez-Domínguez, L. and García-Sánchez, I.M. (2011), "Information disclosed online by Spanish universities: content and explanatory factors", *Online Information Review*, Vol. 35 No. 3, pp. 360-385.
- Hair, J.F., Ringle, C.M. and Sarstedt, M. (2013), "Partial least squares structural equation modeling: rigorous applications, better results and higher acceptance", *Long Range Planning*, Vol. 46 No. 1-2, pp. 1-12.
- Hassan, A., Adhikariparajuli, M., Fletcher, M. and Elamer, A. (2019), "Integrated reporting in UK higher education institutions", *Sustainability Accounting, Management and Policy Journal*, Vol. 10 No. 5, pp. 844-876, doi: [10.1108/SAMPJ-03-2018-0093](https://doi.org/10.1108/SAMPJ-03-2018-0093).
- Holsti, O.R. (1969), *Content Analysis for the Social Sciences and Humanities*, Addison-Wesley Pub. Co, Reading, MA.
- Iacuzzi, S., Garlatti, A., Fedele, P. and Lombrano, A. (2020), "Integrated reporting and change: evidence from public universities", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 32 No. 2, pp. 291-310, doi: [10.1108/JPBAFM-08-2019-0120](https://doi.org/10.1108/JPBAFM-08-2019-0120).
- Institute of Directors Southern Africa (IoDSA) (2016), "King IV report on corporate governance for South Africa", Institute of Directors, Johannesburg, available at: [https://c.ymcdn.com/sites/iodsa.site-ym.com/resource/collection/684B68A7-B768-465C-8214-E3A007F15A5A/IoDSA\\_King\\_IV\\_Report\\_-\\_WebVersion.pdf](https://c.ymcdn.com/sites/iodsa.site-ym.com/resource/collection/684B68A7-B768-465C-8214-E3A007F15A5A/IoDSA_King_IV_Report_-_WebVersion.pdf)
- International Integrated Reporting Committee (IIRC) (2016), "Journey to breakthrough", available at: [https://integratedreporting.org/wp-content/uploads/2017/07/IIRC\\_IR2016\\_IntegratedReport.pdf](https://integratedreporting.org/wp-content/uploads/2017/07/IIRC_IR2016_IntegratedReport.pdf) (accessed 27 May 2021).
- International Integrated Reporting Committee (IIRC) (2021), "IIRC publishes revisions to international <IR> framework to enable enhanced reporting", Retrieved 23 March 2021, available at: <https://integratedreporting.org/news/iirc-publishes-revisions-to-international-framework-to-enable-enhanced-reporting/> (accessed 27 May 2021)
- International Integrated Reporting Council (IIRC) (2013), "The international <IR> framework", International Integrated Reporting Council, London, available at: [www.integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IRFRAMEWORK-2-1.pdf](http://www.integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IRFRAMEWORK-2-1.pdf)
- Kiliç, M. and Kuzey, C. (2018), "Determinants of forward-looking disclosures in integrated reporting", *Managerial Auditing Journal*, Vol. 33 No. 1, pp. 115-144.
- Kılıç, M., Uyar, A., Kuzey, C. and Karaman, A.S. (2021), "Does institutional theory explain integrated reporting adoption of fortune 500 companies?", *Journal of Applied Accounting Research*, Vol. 22 No. 1, pp. 114-137, doi: [10.1108/JAAR-04-2020-0068](https://doi.org/10.1108/JAAR-04-2020-0068).
- Kleinheksel, A., Tawfik, H., Wyatt, T. and Winston, N. (2020), "Demystifying content analysis", *American Journal of Pharmaceutical Education*, Vol. 84 No. 1, pp. 127-137, doi: [10.5688/ajpe7113](https://doi.org/10.5688/ajpe7113).



- 
- Krippendorff, K. (2004), "Reliability in content analysis; some common misconceptions and recommendations", *Human Communication Research*, Vol. 30 No. 3, pp. 411-433.
- Larrán, M., Herrera, J. and Andrades, F.J. (2016), "Measuring the linkage between strategies on sustainability and institutional forces: an empirical study of Spanish universities", *Journal of Environmental Planning and Management*, Vol. 59 No. 6, pp. 967-992.
- Laswad, F., Fisher, R. and Oyelere, P. (2005), "Determinants of voluntary internet financial reporting by local government authorities", *Journal of Accounting and Public Policy*, Vol. 24 No. 2, pp. 101-121.
- Lozano, R. (2011), "The state of sustainable reporting in universities", *International Journal of Sustainability in Higher Education*, Vol. 7 No. 3, pp. 243-255.
- Mähönen, J. (2020), "Integrated reporting and sustainable corporate governance from European perspective", *Accounting, Economics, and Law: Convivium*, Vol. 10 No. 2, pp. 1-46.
- Malaysian Code of Corporate Governance (MCCG) (2021), available at: [www.sc.com.my/api/documents/download.ashx?id=239e5ea1-a258-4db8-a9e2-41c215bdb776](http://www.sc.com.my/api/documents/download.ashx?id=239e5ea1-a258-4db8-a9e2-41c215bdb776)
- Manes-Rossi, F. (2018), "Is integrated reporting a new challenge for public sector entities?", *African Journal of Business Management*, Vol. 12 No. 7, pp. 172-187.
- Mauro, S.G., Cinquini, L., Simonini, E. and Tenucci, A. (2020), "Moving from social and sustainability reporting to integrated reporting: exploring the potential of Italian public-funded universities' reports", *Sustainability*, Vol. 12 No. 8, p. 3172.
- Melloni, G., Caglio, A. and Perego, P. (2017), "Saying more with less? Disclosure conciseness, completeness and balance in integrated reports", *Journal of Accounting and Public Policy*, Vol. 36 No. 3, pp. 220-238.
- Meyer, J.W. and Rowan, B. (1977), "Institutionalized organizations: formal structure as myth and ceremony", *American Journal of Sociology*, Vol. 83 No. 2, pp. 340-363.
- MIA-ACCA (2016), "Integrated reporting survey by the Malaysian institute of accountants (MIA) and the association of chartered certified accountants (ACCA)", available at: [http://integratedreporting.org/wpcontent/uploads/2016/09/MIA-ACCA-IR-survey-report\\_2016.pdf](http://integratedreporting.org/wpcontent/uploads/2016/09/MIA-ACCA-IR-survey-report_2016.pdf)
- Ministry of Higher Education (MOHE) (2017a), "Enhancing board governance and effectiveness, university transformation programme", Green Book, available at: [www.moe.gov.my/menumanajemen/media-cetak/penerbitan/university-transformation-programme/1465-unitp-green-book-enhancing-university-board-governance-and-effectiveness/file](http://www.moe.gov.my/menumanajemen/media-cetak/penerbitan/university-transformation-programme/1465-unitp-green-book-enhancing-university-board-governance-and-effectiveness/file)
- Ministry of Higher Education (MOHE) (2017b), "Enhancing academic productivity and cost efficiency, university transformation programme", Silver Book, available at: [www.moe.gov.my/menumanajemen/media-cetak/penerbitan/university-transformation-programme/1468-unitp-silver-book-enhancing-academic-productivity-and-cost-efficiency/file](http://www.moe.gov.my/menumanajemen/media-cetak/penerbitan/university-transformation-programme/1468-unitp-silver-book-enhancing-academic-productivity-and-cost-efficiency/file)
- Moggi, S. (2019), "Social and environmental reports at universities: a habermasian view on their evolution", *Accounting Forum*, Vol. 43 No. 3, pp. 283-326.
- New Strait Times (NST) (2020), "Malaysian research universities in top 200 of QS world university rankings", available at: [www.nst.com.my/education/2020/07/612296/malaysian-research-universities-top-200-qs-world-university-rankings](http://www.nst.com.my/education/2020/07/612296/malaysian-research-universities-top-200-qs-world-university-rankings)
- Ntim, C.G., Soobaroyen, T. and Broad, M.J. (2017), "Governance structures, voluntary disclosures and public accountability: the case of UK higher education institutions", *Accounting, Auditing and Accountability Journal*, Vol. 30 No. 1, pp. 65-118.
- Pärl, Ü., Paemurru, E., Paemurru, K. and Kiviso, H. (2022), "Dialogical turn of accounting and accountability integrated reporting in non-profit and public-sector organisations", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 34 No. 1, pp. 27-51, doi: [10.1108/JPAFM-11-2019-0178](https://doi.org/10.1108/JPAFM-11-2019-0178).
- Perbendaharaan Malaysia (2021), "Penyediaan dan Pembentangan Laporan Tahunan dan Penyata Kewangan Badan Berkanun Persekutuan", available at: <https://ppp.treasury.gov.my/makluman/pindaan/575>
- Potter, W.J. and Levine-Donnerstein, D. (1999), "Rethinking validity and reliability in content analysis", *Journal of Applied Communication Research*, Vol. 27 No. 3, pp. 258-284.
-

- Sangiorgi, D. and Sibone, B. (2017), "The disclosure of intellectual capital in Italian universities: what has been done and what should be done", *Journal of Intellectual Capital*, Vol. 18 No. 2, pp. 4354-4372.
- Securities Commission Malaysia (SCM) (2021), "Malaysian code of corporate governance (as at 28 April 2021)", available at: [www.sc.com.my/api/documentms/download.ashx?id=239e5ea1-a258-4db8-a9e2-41c215bdb776](http://www.sc.com.my/api/documentms/download.ashx?id=239e5ea1-a258-4db8-a9e2-41c215bdb776)
- Sheriff, N.M. and Abdullah, N. (2017), "Research universities in Malaysia: what beholds?", *Asian Journal of University Education*, Vol. 13 No. 2, pp. 35-50.
- Sun, Y., Ip, P.S., Arunachalam, M. and Davey, H. (2022), "From ivory tower to a storyteller of value creation: integrated reporting at Japanese and South African universities", *Journal of Intellectual Capital*, doi: [10.1108/JIC-01-2021-0008](https://doi.org/10.1108/JIC-01-2021-0008).
- Tirado-Valencia, P., Cordobés-Madueño, M., Ruiz-Lozano, M. and De Vicente-Lama, M. (2020), "Integrated thinking in the reporting of public sector enterprises: a proposal of contents", *Meditari Accountancy Research*, Vol. 28 No. 3, pp. 435-453, doi: [10.1108/MEDAR-03-2019-0458](https://doi.org/10.1108/MEDAR-03-2019-0458).
- Watts, R.L. and Zimmerman, J.L. (1979), "The demand for and supply of accounting theories: the market for excuses", *The Accounting Review*, Vol. 54 No. 2, pp. 273-305, available at: [www.jstor.org/stable/245516](http://www.jstor.org/stable/245516)

### Further reading

- La Torre, M., Bernardi, C., Guthrie, J. and Dumay, J. (2019), "Integrated reporting and integrated thinking: practical challenges", in Arvidsson, S. (Ed.), *Challenges in Managing Sustainable Business: Reporting, Taxation, Ethics and Governance*, Palgrave Macmillan, London, pp. 25-54.

### About the authors

Nor Farizal Mohammed is a research fellow at the Accounting Research Institute, Universiti Teknologi MARA (UiTM). She holds a PhD in Financial Reporting from La Trobe University, Australia. She is a fellow member of the Association of Certified Chartered Accountants (ACCA) and a Chartered Accountant of the Malaysian Institute of Accountants (MIA). Her main research interest is corporate reporting, corporate governance, Islamic accounting and accounting education. Nor Farizal Mohammed is the corresponding author and can be contacted at: [norfa783@uitm.edu.my](mailto:norfa783@uitm.edu.my)

Radziah Mahmud is a senior lecturer at Universiti Teknologi MARA Puncak Alam Malaysia. She earned her PhD from Universiti Teknologi MARA, Malaysia. She taught financial accounting and reporting courses in undergraduate and postgraduate programs. Her research interest areas are corporate reporting, corporate governance, capital structure, debt management issues and accounting education. She can be contacted at [radzi132@uitm.edu.my](mailto:radzi132@uitm.edu.my).

Md. Shafiqul Islam is currently working in the Department of Business Administration at East West University, Dhaka, Bangladesh. An innovative faculty in the accounting discipline, Mr. Islam is a gold medalist from the Department of Accounting and Information Systems, University of Dhaka, Bangladesh, and he is the National first Runners Up of the IDLC Finance Olympiad 2018. His research interest lies in but is not limited to integrated reporting, integrated thinking, accounting data analytics and intellectual capital disclosure. His email address is [fbsshuvo@gmail.com](mailto:fbsshuvo@gmail.com)

Norhayati Mohamed is currently the Deputy Director (Postgraduate and International) at the Accounting Research Institute (ARI), a National Higher Institution Centre of Excellence (HiCoE). She holds a PhD in Accounting from Universiti Putra Malaysia. She has been involved in many research relating to public universities in Malaysia, such as analysing the performance of Public Universities Holding Companies and their Subsidiaries and financial performance and the Development of the New Funding Model for Public Universities. She can be reached at [norha614@uitm.edu.my](mailto:norha614@uitm.edu.my).

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