

**SMART ANALYTICS, ARTIFICIAL
INTELLIGENCE AND
SUSTAINABLE PERFORMANCE
MANAGEMENT IN A GLOBAL
DIGITALISED ECONOMY**

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**SMART ANALYTICS, ARTIFICIAL
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A GLOBAL DIGITALISED ECONOMY**

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FOREWORD



As a Professor of Marketing, sustainability is very close to my heart. I am deeply involved and engaged with research and teaching in the areas sustainable marketing and consumption. And it is a well-known fact that the development of a digital economy will have a major and far reaching impact on the sustainable development of an economy and society. Hence, a book addressing sustainability in critical areas of business and management certainly spiked my interest.

Dr Pallavi Tyagi, one of the lead editors of this book, is a dear friend and colleague, for whom I have immense respect, and faith in her credibility to address a topic of such strategic importance with alacrity and confidence. Along with her co-editors, Dr Pallavi has put together a book which encompasses certain very critical areas of sustainable performance management in a global digital economy.

There is immense potential benefits for society and the environment as a result of digitalisation which provides access to an integrated network of unexploited big data. As digital technologies disrupt one sector after another, many companies are actively embracing digital transformation. Interestingly, the accelerating rate of digital transformation on economic performance is quicker under low market turbulence. In contrast, when market turbulence is high, higher digital transformation is associated with worse environmental performance. The development of smart systems connected to the internet of things can generate unique opportunities to strategically address challenges associated with the United Nations Sustainable Development Goals (SDGs) to ensure an equitable, environmentally sustainable, and healthy society. This perspective describes the opportunities that digitalisation can provide towards building the sustainable society of the future. Improving our future readiness entails redirecting capital towards sustainable companies, governments incentivising sustainable activities, customers exhibiting a preference for sustainable products and services and employees demanding sustainable leadership. To meet expectations, businesses today need to align their digital transformation with sustainability objectives.

COVID-19 pulled back the curtain on our vulnerabilities to myriad global risks. The pandemic forced most organisations to accelerate their digital transformation initiatives and move towards creating sustainable digital enterprises where organisations put people and the planet at the core of their digital transformation strategies. There was evidence of improved resilience, better operational performance and business success among companies that invested in sustainability. These companies witnessed their sustainable indices outperforming their parent benchmarks. In recent years, there has been a proliferation of technological advances, often described under the umbrella term Industry 4.0. These technological advances have had the effect of dramatically changing the way firms operate resulting in a massive improvement of their performance and thereof, productivity. A wealth of advanced technologies and systems such as artificial intelligence (AI), smart systems, smart cities, predictive analytics, blockchain, autonomous vehicles, big data, and internet of things increasingly change not only the companies that adopt them but also the context within which this adoption take place.

AI is a wide ranging tool that enables people to rethink how we integrate information, analyse data, and use the resulting insights to improve decision-making and thus transforming every walk of life. AI will prove to be a huge game changer. It could contribute up to \$15.7 trillion to the global economy in 2030, which would be more than the current combined output of China and India. Of this, \$6.6 trillion is likely to come from increased productivity and \$9.1 trillion is likely to come from consumption side effects. While some markets, sectors and individual businesses are more advanced than others, AI is still at a very early stage of development overall. From a macroeconomic point of view, there are therefore opportunities for emerging markets to leapfrog more developed counterparts. The business world today is experiencing increased competition which further needs much more rapid and sophisticated information and data analysis. These requirements effectively challenge performance management to support better the decision-making processes. This is where business or data analytics can play an all-encompassing and important role. Business analytics is an emerging field that can potentially extend the domain of performance management to provide an improved understanding of business dynamics and thus lead to a better decision-making process.

Smart Analytics, Artificial Intelligence and Sustainable Performance Management in a Global Digitalized Economy is a collection of 15 chapters, written by authors from across the world and drawn from a multitude of distinct disciplinary backgrounds, ranging from banking to gender diversity, accounting to human resource development and cybersecurity to e-governance. This book could be used as a good reference book for those interested in sustainability and digital economy.

The chapters in the book have been curated to offer timely and relevant information. This book is an excellent read as it offers views on sustainability through so many disciplinary lenses. Thus, a significant contribution of this book is to stimulate the readers to undertake the task of incorporating sustainability

thinking into their own disciplines and thereby deepening and further extending the existing knowledge base on sustainability.

Regards
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CHAPTER 1

A REVIEW OF BUSINESS MODEL DISCLOSURES IN INTEGRATED REPORTING

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ABSTRACT

Purpose: This chapter aims to identify and evaluate the various components of business model disclosures in an Integrated Report and ascertain how the notion of business model is perceived among practitioners.

Need for the Study: According to previous research, the International Integrated Reporting Council's (IIRC) objective of improving corporate reporting by encouraging organisations to disclose their business model has not found the desired recognition. Therefore, the study elaborates on the various components of business model reporting and their implications on corporate reporting in general.

Methodology: A review of literature was conducted to identify and analyse research based on business models and their disclosures in integrated reporting. A narrative review was undertaken for selected literature.

Findings: The findings suggest that most large-sized organisations use integrated reporting for impression management and are not inclined to disclose too much about their business models for fear of competition. There is still a lack of clear understanding of what a business model should entail.

Smart Analytics, Artificial Intelligence and Sustainable Performance Management in a Global Digitalised Economy

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Practical Implication: This study adds to the research on business model disclosures in integrated reporting. Voluntary disclosure and a better understanding of such disclosures will prepare organisations of all sizes and industries for an event when Integrated Reporting becomes statutory.

Keywords: IR; corporate reporting; integrated reporting; business model; qualitative study; information disclosure protocol

1. INTRODUCTION

Over the last decade, corporate reporting has experienced a systemic change and innovation in integrated reporting. IR combines an organisation's information regarding its strategy, governance, risk, opportunities and performance. In addition, the economic, social and environmental context is also presented, which stems from the historic growth of the company's financial and non-financial reporting activities. Organisations need to respond to stakeholder demands. However, stakeholder requirements are dynamic and evolve, so we must change how we communicate. Historically, stakeholders have mainly been interested in financial accounts. With changes in how organisations interact with the various external and internal environment and their actors, non-financial characteristics such as governance systems and impact on social and environmental factors are also attracting the interest of stakeholders. The relevance and credibility of traditional financial reporting have come into question, and information about the organisation's sustainability in the future is being sought. Consequently, this has led to increasing demand for a detailed and integrated version of a corporate reporting model which provides insight into both the financial and non-financial information in a meaningful, concise and cohesive manner leading to the idea of 'integrated reporting'.

According to (IIRC, 2021), IR is a method based on integrated thinking adopted by organisations wherein they actively consider the relationships between various functional units and the capital used or affected in the business operation. Moreover, an integrated report sheds light on the organisation's value creation over time and the elements involved in said value creation. An integrated report is a brief account of an organisation's vital aspects of strategy, governance, performance and opportunities, considering the external environment context. Value generation in various time frames (short-, medium-, and long-term) as a result of these organisational aspects is also reported. Therefore, an integrated report describes how an organisation creates, preserves or erodes value over time, and this process does not happen in isolation, that is, by or within the organisation. The organisation's external environment, relationships created and developed with stakeholders and other resources affect the value creation process.

According to (IIRC, 2013b), the business model (BM) is the organisation's core. Various capitals are the inputs transformed into outputs in the form of products, services, by-products or waste as part of business activities. Therefore, the BM informs about the value creation process, the types of resources and their

use, enabling the various stakeholders to assess the organisation's value creation ability and long-term profitability. Its main components of BM, as described by (Bek-Gaik & Surowiec, 2022), are:

- Organisation profile: what the organisation does, its structure and the industry/sector it operates in?
- Organisation's business strategy: key aspects to be considered.
- Value chain: where is the organisation positioned in the value chain and its dependence on various inputs and outputs?
- Financial performance: what role does the BM play in organisational profitability and revenue generation?
- Value Creation: how does value creation happen when an organisation's inputs and outputs, business activities and relationships with stakeholders come together?
- How do the organisation's inputs, outputs, business activities, and stakeholder relationships lead to value creation?

Considering the importance of business models as a vital part of integrated reporting, this chapter aims to explore the following research questions through a review of existing literature:

RQ1: What is the current state of research on business model disclosures in integrated reporting?

RQ2: How have organisations reacted to business model disclosures in integrated reports?

The chapter is structured as follows: The introduction section, as mentioned above, is followed by the literature review. Analysis and findings in the way of presenting the key findings of the papers reviewed will be followed by a detailed discussion, direction for future research and conclusion.

2. LITERATURE REVIEW

2.1. Integrated Reporting

Generally considered a particular form of corporate reporting, integrated reporting refers to several distinct reporting methodologies. The shared goal among all these techniques is to combine financial and non-financial data. Though they share common goals, significant distinctions persist between them. Many organisations combine financial and non-financial data in their reporting. However, they usually do not identify it as an integrated report as there is no conformity to a single reporting structure; each organisation has their nature and motivation for selecting reporting methods (Rowbottom & Locke, 2016). The need to fill the gaps in conventional financial statements and the increasing demand of stakeholders for evidence of the organisation's value creation process, social responsibility and long-term outlook is the reason for the birth of the concept of IR (Bek-Gaik & Surowiec, 2022).

It should also be noted that stakeholders' expectations surrounding the organisational reporting have evolved – investors now want more meaningful information that will allow them to create future projections on the organisation's development, particularly the declarations on how the organisation creates value (Haller & van Staden, 2014). Stakeholders may have unique information requirements. Some would be interested in how the organisation's future success is influenced by its corporate social responsibility and sustainability strategies and activities (M. Porter & Kramer, 2011). According to the literature, integrated reporting is the next step in the evolution of two corporate reporting trends that have appeared recently – sustainable development reporting and corporate social responsibility reporting (Bek-Gaik & Surowiec, 2022).

Four different reporting approaches are based on their focus on governance, level of integration and the target audience; King Report on Governance for South Africa, One Report, International Integrated Reporting Council (IIRC) and SASB 2013 guidelines and IIRC 2013 guidelines (Dumay et al., 2016). This chapter focuses on the IIRC's IR framework, which was issued in December 2013 and is one of the most recognised integrated reporting methods. The IIRC comprises accounting specialists, standard setters, businesses, non-governmental organisations (NGOs), investors, regulators, and academia. The network was formed to create a uniform reporting framework that would aid in integrating various prevailing reporting methodologies and provide clear direction to organisations.

2.2. IIRC Framework

Integrated reporting is a relatively new method of corporate reporting with the potential for financial and sustainability reporting. Traditional sustainability reports frequently include environmental, social, and governance (ESG) data. However, sustainability reporting lacks financial results of the organisation (Eccles & Serafeim, 2014). To overcome the unique weaknesses of financial and sustainability reporting, financial and ESG data was introduced in a sole business report, an integrated report (IIRC and SASB 2013).

The IR framework establishes the guiding principles and content elements that are the vital components of an integrated report.

2.2.1. The Guiding Principles

Seven guiding principles lay the foundation for preparing and presenting an integrated report. These are represented in Fig. 1.

2.2.2. Content Elements

According to the IIRC framework, there are eight content elements in an integrated report. Fundamentally interrelated and not mutually exclusive, these elements outline the organisation's external elements. These content elements are presented in Fig. 2.

<i>Strategic focus and future orientation</i>	<ul style="list-style-type: none"> •What is the organisation's strategy? •How does the strategy affect the organisation's ability to create value? •What are the uses and its effect on capital?
<i>Connectivity of information</i>	<ul style="list-style-type: none"> •How are the factors that affect the organisation's ability to create value over time combined or interrelated? .
<i>Stakeholder relationships</i>	<ul style="list-style-type: none"> •What is the nature and quality of the relationships with key stakeholders, and how well does the organisation understand and take into account their legitimate needs and interests?
<i>Materiality</i>	<ul style="list-style-type: none"> •What are the factors that significantly affect the organisation's ability to create value?
<i>Conciseness</i>	<ul style="list-style-type: none"> •Is only relevant information reported to keep it concise?
<i>Reliability and completeness</i>	<ul style="list-style-type: none"> • Does the report include all material information, be it negative or positive, to ensure balance and is without errors?
<i>Consistency and comparability</i>	<ul style="list-style-type: none"> • Is the information reported consistent over time to enable comparison with other organisations.

Fig. 1. Seven Guiding Principles for Preparation and Presentation of an Integrated Report. *Source:* Adapted from IIRC Report (2021). <https://www.integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReportingFramework.pdf>

<i>Governance</i>	<ul style="list-style-type: none"> •How is the value creation ability of the organisation over various periods of time supported by its governance structure?
<i>Business Model</i>	<ul style="list-style-type: none"> •Defining the organisation's business model.
<i>Risk and Opportunities</i>	<ul style="list-style-type: none"> •What are the specific risks and opportunities that affect the organisation's value creation and how are they dealt with?
<i>Strategy and Resource Allocation</i>	<ul style="list-style-type: none"> •What is the organisation's plan for the future?
<i>Performance</i>	<ul style="list-style-type: none"> •To what degree has the organisation been able to achieve its strategic objectives for the period and what are its outcomes in terms of effects on the capitals.
<i>Outlook</i>	<ul style="list-style-type: none"> •What are the challenges the organisation is likely to face in pursuit of its strategy and what are the potential implications for its business model and future performance?
<i>Basis of Presentation</i>	<ul style="list-style-type: none"> •What information should be included in the report and is materiality of information evaluated??

Fig. 2. Content Elements to be Included in the Integrated Report. *Source:* Authors conceptualisation. Adapted from IIRC Report (2021). <https://www.integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReportingFramework.pdf>

The central theme of an integrated report is reporting on how an organisation creates, preserves and erodes value over a period (short, medium, and long). Dependent on various resources, this process is influenced by factors within the organisation, the external environment, and relationships created with stakeholders. The resources are referred to as ‘capitals’ and are categorised as financial, manufactured, intellectual, human, social and relationship, and natural (IIRC, 2013b). The capitals are value stocks that increase, decrease or transform due to the organisation’s operations and outputs.

2.3. *Categorisation and Description of the Capitals*

Section 2C of the IIRC framework elaborates on categorising and describing the various capitals. They are presented in [Table 1](#).

2.4. *Business Model*

‘Business Model’, as a word became prevalent during the 1990s e-commerce boom. Generally used to characterise new ways of ‘doing business’, business models as a core element of an organisation’s strategy flourished since the growth of the internet.

As a result, the phrase has come to be widely used to characterise the new ways of ‘doing business’ that have flourished since the growth of the internet.

Much of the ambiguity around business models in management literature arises because most researchers conceptualise business models differently ([Linder Jane & Cantrell Susan, 2000](#); [Nielsen & Bukh, 2011](#)).

A business model is how an organisation conceptualises its strategy, objective, and interactions with stakeholders to express its fundamental business logic ([Osterwalder et al., 2005](#)). Therefore, examining the ideas and connections leads

Table 1. Categorisation and Description of Various Capitals.

Capitals	Description
Financial	Pool of funds obtained from various internal and external sources, available to an organisation for use in the production of goods or provision of services
Manufactured	Physical infrastructure like buildings, equipment used by the organisation for production of goods or provision of services. These are either created by other organisations or manufactured by reporting organisation for sale/retention for own use
Intellectual	Organisational knowledge based intangible capital which includes patents, copyrights, software rights, licenses, company procedures, protocols or systems
Human	Employee skills, abilities, experience and motivations that drive organisational innovation
Social and relationship capital	Relationships developed and built with organisation’s key stakeholders and social license to operate an organisation
Natural	All renewable and non-renewable environmental resources and processes that support the current or future prospects of an organisation

Source: Authors conceptualisation. Adapted from [IIRC Report \(2021\)](#). <https://www.integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReportingFramework.pdf>

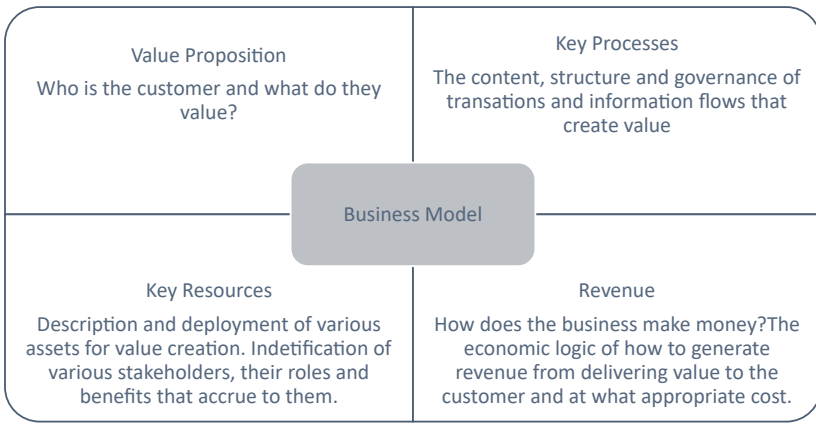


Fig. 3. Various Components of a Business Model. *Source:* Authors conceptualisation. Adapted from Johnson et al. (2008).

to a simplified depiction and explanation of value creation, how it is done, and the financial implications.

The authors conducted a review of 15 previous studies on business models in various contexts (Amit & Zott, 2001; Bocken et al., 2014; Casadesus-Masanell & Ricart, 2010; Cavalcante, Kesting, & Ulhøi, 2011; Chesbrough, 2002; Fiskén & Rutherford, 2002; Johnson, Christensen, & Kagermann, 2008; Magretta, 2002; Morris, Schindehutte, & Allen, 2005; Novak, 2014; Osterwalder et al., 2005; Rasmussen, 2007; Singleton-Green, 2014; Teece, 2010; Timmers, 1998; Zott & Amit, 2010), and identified the typical components of a business model. These are presented in Fig. 3.

2.5. Business Model in IR

According to IIRC (2021), an IR is a concise communication on how an organisation's strategy, governance, performance, and prospects contribute to creating value in the short, medium, and long term. The IR Framework's goal is to 'assist businesses in determining how best to share their unique value creation narrative in a meaningful and transparent manner' (IIRC, 2021). According to the Framework (see Fig. 4), an integrated report provides insights into the organisation's vital external factors, what relationships exist among resources used and how they are affected by the organisation. Furthermore, insights into business model interactions with the external factors, resources and relationships that result in the creation and maintenance of value over the long term are revealed (Dameri & Ferrando, 2022).

2.5.1. Value Creation Through the Business Model

- Inputs

The primary inputs are identified in an integrated IR report. It also demonstrates how such inputs are related to the capital on which the organisation relies or

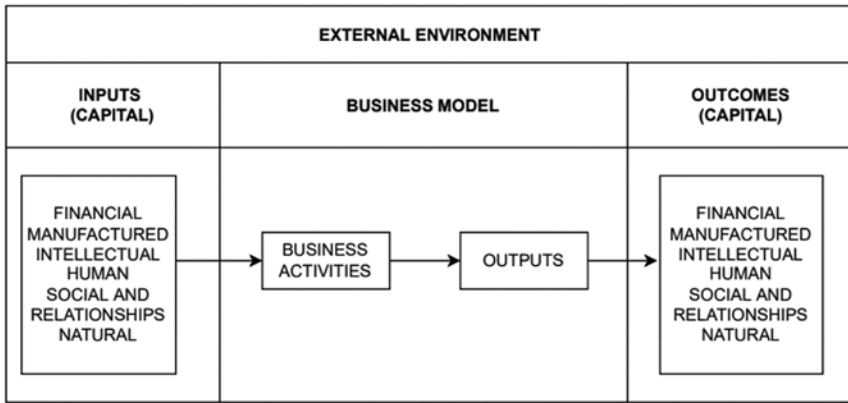


Fig. 4. IIRC Business Model Framework. Source: Authors conceptualisation. Adapted from Business Model Background Paper for IR (2013). https://www.integratedreporting.org/wp-content/uploads/2013/03/Business_Model.pdf

serve as a source of uniqueness for the organisation, to the extent that they are essential in understanding the business model's robustness and resilience. The six capitals indicate potential business model inputs: each is either direct input or an indirect input. The IIRC framework differentiates capital into the following: Manufactured capital; Human capital; Intellectual capital; Natural capital; Social (and relationship) capital

- Business Activities

At the heart of the BM are business operations that strive to produce value results through the usage and/or transformation of inputs into outputs. Independent of the outputs, business actions can directly impact BM outcomes.

- Outputs

Outputs are often defined as items and services designed to produce revenue for the organisation. However, additional outputs, such as waste and other by-products, may be considered.

- Outcomes

An integrated report discusses the significant implications for capital arising from an organisation's business operations and outputs. Outcomes are capital's internal and external repercussions due to an organisation's business operations and outputs. Outcomes might be intrinsic to an organisation or extrinsic. The items and services created by an organisation and the wastage or by-products that increase or decrease an organisation's overall value are called outputs. Identifying and reporting outcomes, particularly external outcomes, necessitates that companies