Integrated Reporting: The Case of Intangible Capital Information

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Abstract

This paper examines the reporting on intangible capital (IC) in annual reports, focusing on its extent and the trends within integrated corporate reporting. Using a comprehensive reporting index, we found that Qatari listed companies reported IC to an extent of 0.408, on average, from 2008 to 2020. This is a relatively high figure if compared to some earlier studies. External intangible capital demonstrated the highest reporting levels, while human capital had the lowest. Significant differences were observed across various IC categories, with notable increases in total IC, external intangible and human capital reporting, while internal intangible capital reporting decreased over the same period. As Qatar transitions to a knowledge-based economy (KBE), these findings are crucial, highlighting the relative advance in IC reporting among Qatari companies. These insights are valuable for regulatory and professional bodies that are aiming to develop IC reporting guidelines or to adopt the International Integrated Reporting Framework, enabling comprehensive IC information that aids stakeholders to assess company performance and value creation, enhancing transparency and confidence in the capital market. For companies, understanding their IC reporting practices helps to identify strengths and weaknesses to meet stakeholders' needs better, and to support Qatar's economic transformation into a KBE. This pioneering study employs a comprehensive reporting index to capture a wide range of IC information, contributing significantly to the current IC reporting literature, particularly within the Gulf Cooperation Council context.

Keywords: Integrated Reporting, Intangible Capital, Internal Intangible Capital, External Intangible Capital, Human Intangible Capital, Extent, Trend.

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1. Introduction

Intangible Capital (IC), which is also known as intellectual capital, has gained significant attention in the knowledge-based economy due to its essential role in value creation and strategic success for companies (Mouritsen et al., 2004; Ousama and Fatima, 2012). IC encompasses intangible assets and resources that enable companies to generate wealth and value (Brooking, 1996; Stewart, 2000). Recognizing its importance, many companies, in both developed and developing countries, have begun to identify, measure and report their IC, as it significantly contributes to their value creation processes. Stakeholders, including both preparers and users, increasingly demand IC information, due to its utility in decision-making (Ousama et al., 2011a; Abou Ghaida et al., 2016). This demand is supported by evidence of IC information's impact on market value (market capitalization) (Abdolmohammadi, 2005; Ousama et al., 2011b), leading companies to report IC through various mediums, such as IC reports, integrated annual reports and corporate websites.

IC can be classified into three main categories: internal intangible capital, external intangible capital and human intangible capital. Internal intangible capital includes organizational routines, culture, management philosophy, technological infrastructure (e.g., information systems, software, databases), techniques, R&D, quality, and procedures (Bontis, 1998; Sanchez et al., 2000; Guthrie et al., 2006; Ousama and Fatima, 2012). External intangible capital involves resources that are linked to external entities, e.g., customers, suppliers, creditors, partners, company image, and stakeholder loyalty (Sanchez et al., 2000; Canibano et al., 2002; Olsson, 2004; Johanson et al., 2006; Ousama and Fatima, 2012). Human intangible capital pertains to the company's human resources (e.g., employees' professionalism, ability and effectiveness), to enhancing productivity through accumulated knowledge, skills, learning capacity, teamwork ability, loyalty and employee satisfaction (Kamoche, 1996; Sanchez et al., 2000; Abeysekera and Guthrie, 2005; Vergauwen et al., 2005; Ting and Lean, 2009; Ousama et al., 2012; Chowdhury et al., 2018).

Among the Gulf Cooperation Council (GCC) countries, Qatar's economy demonstrated the highest GDP growth, of 11.9% on average, between 2005 and 2015 (IMF, 2016). Historically dependent on oil and gas resources, GCC economies, including Qatar, have recognized the necessity of diversifying their economies. Consequently, the Qatari government introduced the Qatar National Vision (QNV) 2030, which aims to transition the economy towards becoming a knowledge-based one (KBE) (QNV, 2008). The QNV 2030 is built on pillars of human, social, economic and environmental development, with economic development focusing on creating a competitive and diversified economy that ensures a high standard of living for all its people, both now and in the future (QNV, 2008). Achieving sustainable development and a high standard of living by 2030 is one of the primary goals of this vision, with the capital market expected to play a crucial role in this transformation. The Qatar Stock Exchange (QSE), which began with fewer than 20 listed companies, had grown to 43 listed companies by 2013 and continues to attract local and international investors.

In Qatar, Abou Ghaida et al. (2016) found that stakeholders (i.e., company managers and credit managers in banks) perceive IC information as useful for decision-making purposes. This finding motivates the current study to explore IC reporting in Qatar, specifically examining whether Qatari listed companies report their IC resources and addressing stakeholders' demand for such information. Additionally, there is a notable gap in studies examining IC reporting in Qatar. This study thus aims to investigate the extent of ICR in annual reports in the period from 2008 to 2020 and to analyze the trends in relation to ICR within this timeframe. The research questions addressed are: (1) What is the extent of ICR in the annual reports of companies listed on the QSE between 2008 and 2020? (2) Is there a significant improvement in the extent of ICR in their annual reports from 2008 to 2020?

Previous ICR studies have highlighted the need to explore IC information reporting in rapidly growing emerging economies, such as Qatar, thereby justifying the current study's focus. This pioneering study examines the IC reporting practices of Qatari listed companies using a comprehensive reporting index consisting of 101 IC items, thus providing a broad perspective on IC information over a 13-year period. The study's inclusive approach, encompassing all the companies listed during the sample period and enhances the generalizability of its findings.

Understanding current IC reporting practices, including their extent and trends, is valuable for regulatory bodies, for listed companies and for other stakeholders in Qatar. The findings are beneficial for regulatory bodies, e.g., the Qatar Financial Market Authority and QSE, as well as for professional bodies, e.g., the Qatari Association of Certified Public Accountants, which may adopt the International Integrated Reporting (IR) Framework developed by the International Integrated Reporting Council (IIRC) to enhance IC reporting, transparency and confidence in the capital market. For Qatari listed companies, understanding their ICR practices can help to identify strengths and weaknesses, enabling them to better meet stakeholders' needs for IC information. Ultimately, improving transparency and confidence in the capital market will contribute to the transformation towards a KBE, as envisioned in QNV 2030. This study also adds to the existing body of knowledge, particularly in ICR literature, by employing a comprehensive measure of ICR.

2. Literature Review

A substantial body of research has examined IC reporting. Appendix 1 provides a comprehensive and detailed review of this literature over a 24-year period, covering studies conducted between 2000 and 2023. These studies span both developed countries (e.g., Australia, Canada, Denmark, France, Germany, Italy, New Zealand, Netherlands, Norway, Portugal, Spain, Sweden, the UK, USA) and developing countries (e.g., Bahrain, Bangladesh, China, Hong Kong, India, Malaysia, Sri Lanka, South Africa). The majority of these studies have focused on the extent of IC reporting and its categories (e.g., Guthrie and Petty, 2000; Beaulieu et al., 2002; Bozzolan et al., 2003; Goh and Lim, 2004; Bukh et al., 2005; Strikova et al., 2006; White et al., 2007; Schneider and Samkin, 2008; Striukova et al., 2008; Davey et al., 2009; Oliveira et al., 2010; Whiting and Woodcock, 2011; Singh and Kansal, 2011; Liao et al., 2013; Uyar, 2013; Abhayawans and Azim, 2014; Low et al., 2015; Wang et al., 2016; Garanina and Dumay; 2017; Lim et al., 2017; Santis et al., 2018; Birindelli et al., 2020; Mawardani & Harymawan, 2021; Nicolò et al., 2021). In addition to the extent of IC reporting, some studies have explored its quality (e.g., Guthrie et al., 2006; Yi and Davey, 2010; Husin and Olesen, 2012; Wagiciengo and Belal, 2012; De Silva et al., 2014; Low et al., 2015; Wang et al., 2016) and trends (e.g., Olsson, 2004; Abeysekera and Guthrie, 2005; Abdolmohammadi, 2005; Oliveras et al., 2008; Nurunnabi et al., 2011; Ousama and Fatima, 2012; De Silva et al., 2014; Lim et al., 2017). Comparative studies among countries have also been conducted (e.g., Vergauwen and Alem, 2005; Vandemaele et al., 2005; Jing et al., 2006; Guthrie et al., 2006; Salvi et al., 2020; Bryl et al., 2022). Another significant area of research is the link between IC reporting practices and firms' financial or economic performance (e.g., Bontis et al., 2018; Salvi et al., 2020; Vitolla et al., 2020; Zhang et al., 2021).

The findings from prior studies indicate that companies disclose information related to their intangible capital and resources, suggesting that they believe this information is useful to stakeholders (Ousama et al., 2011a; Ousama et al., 2011c; Abou Ghaida et al., 2016; Wang et al., 2016). However, the extent of IC reporting has been found to vary. Some studies have identified a relatively low amount of IC reporting (e.g., Guthrie and Petty, 2000; Bontis, 2002; Norhaiza et al., 2004; Bukh et al., 2005; Guthrie et al., 2006; Whiting and Miller, 2008; Ousama and Fatima, 2012), while others have reported higher levels (e.g., Beaulieu et al., 2002;

Bozzolan et al., 2003; Zuliana, 2007; Wang et al., 2016). Much of the early literature characterized IC reporting as discursive and quantitative (e.g., Guthrie and Petty, 2000; Guthrie et al., 2006; Yi and Davey, 2010; Ousama and Fatima, 2012). In recent years, however, studies have increasingly focused on the quality of IC reporting (e.g., Yi and Davey, 2010; Liao et al., 2013; Low et al., 2015; Wang et al., 2016; Lim et al., 2017; Vitolla et al., 2020), indicating improvements in the quality of disclosed IC information. Additionally, recent studies have examined the online disclosure of IC through platforms such as university websites, Twitter, and other digital sources (e.g., Rossi et al., 2018; Nicolò et al., 2021; Bryl et al., 2022).

Previous research has reported that external intangible capital is the most frequently disclosed category, while internal intangible capital is the least disclosed, with human intangible capital falling in between. This trend may be due to companies considering the disclosure of their internal intangible capital as being potentially disadvantageous from a competition standpoint. Interestingly, the literature shows mixed results regarding the comparison of IC reporting practices in developed and developing countries, with no clear pattern favoring either group. This suggests that companies recognize the value and utility of IC information to stakeholders, regardless of geographic location.

Reviewing previous literature on IC reporting reveals that the number of items used in reporting indices ranges from 12 to 88, except for Ousama and Fatima (2012), who utilized a comprehensive index of 101 items. The current study adopts this comprehensive index in order to capture a broader spectrum of IC reporting. Moreover, while most studies have examined IC reporting trends using a two-year approach, exceptions include Abdolmohammadi (2005), Vandemaele et al. (2005), and Bukh et al. (2005). This study employs a multiple-year analysis approach, covering a 13-year period. Prior research indicates that companies worldwide acknowledge the need to disclose more IC information. However, there is a notable gap in examining IC reporting in fast-growing emerging economies, like Qatar's. This study therefore examines the extent of, and trends in, IC reporting in the annual reports of Qatari listed companies over 13 years, using a comprehensive reporting index.

3. Research Methodology

The study employs a multiple-year analysis approach, focusing on companies listed on the QSE over a 13-year period from 2008 to 2020. This timeframe was selected to observe trends in IC reporting over time. As of 2008, there were 42 listed companies, representing 100% of the publicly listed companies on the QSE. Listed companies were chosen due to their size and the likelihood of their investment in IC, which makes them more prone to reporting IC information. Additionally, the annual reports of these companies are readily available on the Stock Exchange website, thus facilitating data collection.

The period from 2008 to 2020 was chosen in order to meet the research objective of examining the trends in IC reporting. The starting year, 2008, was selected due to the significant economic growth experienced in Qatar following the 15th Asian Games in Doha in 2006. This growth affected the financial market, the Stock Exchange and listed companies, making it likely that these companies would disclose IC information. Additionally, 2008 marked the launch of QNV 2030, the aim of which is to transition the country to a KBE. It was expected that listed companies would begin investing in knowledge and IC resources and would consequently disclose this information.

Data were gathered from 546 of the annual reports of the selected listed companies over the 13-year period. The extent of IC reporting was measured using a reporting index adopted from Ousama and Fatima (2012). This comprehensive index consists of 101 IC reporting items (ICR), thus providing a broader scope within which to capture IC information in annual reports, if compared to other indices, which have a maximum of 88 items. The index is divided into three main categories: internal intangible capital reporting (IICR) with 35 items, external

intangible capital reporting (EICR) with 30 items, and human intangible capital reporting (HICR) with 36 items.

A content analysis approach was applied so as to score the reporting index, using a sentence coding system, where a score of 0 was assigned if the IC item was not disclosed and 1 if it were disclosed. This procedure aligns with the methodologies of prior IC reporting studies (e.g., Goh and Lim, 2004; Abeysekera and Guthrie, 2005; Bukh et al., 2005; Li et al., 2006; White et al., 2007; Ousama and Fatima, 2012). Scoring was conducted manually by research assistants, and a random sample of five companies was re-scored by the principal researcher to check for discrepancies. No significant differences were found between the two sets of scores.

The extent of reporting is a ratio that is measured by dividing the total score of the recorded IC information items found in the annual report by the total IC information items in the reporting index (Ousama and Fatima, 2012). The formula for measuring the extent of ICR is as follows, where TARSj represents the total actual reporting score for company j and TNRIj represents the total number of reporting items for company j:

$$ICR_j = TARS_j / TNRI_j$$

This same procedure was applied when measuring the reporting of the IC categories (i.e., IICR, EICR and HICR).

4. Findings and Analysis

4.1 Extent of IC reporting

The descriptive statistics presented in Table 1 summarize the pooled data over the 13-year period for the variables ICR, IICR, EICR and HICR. The results indicate that the ICR had a mean score of 0.408, with a range from 0.267 to 0.634 and a standard deviation of 0.065. These findings suggest that, on average, Qatari listed companies reported approximately 41% of IC-related information in their annual reports. This is a significant observation, indicating that Qatari listed companies are earnest about disclosing their IC information, aligning their practices with those that are observed in other countries, such as Australia, China, India, Malaysia, New Zealand and Sweden. This alignment is probably driven by the perception that IC information is valuable for stakeholder decision-making (Abou Ghaida et al., 2016) and to demonstrate its contribution to value creation.

This level of IC reporting in Qatar appears to be higher, if compared to several prior studies. For instance, Bukh et al. (2005) in Denmark, White et al. (2007) in Australia, Whiting and Miller (2008) in New Zealand, and Ousama and Fatima (2012) in Malaysia, reported average IC reporting extents of 22%, 15%, 26%, and 24%, respectively. By contrast, the extent of IC reporting in the current study is lower than the findings in other studies are, such as those of Beaulieu et al. (2002) in Sweden, Bozzolan et al. (2003) in Italy, Zuliana (2007) in Malaysia and Wang et al. (2016) in China and India, with average IC reporting percentages of 59%, 51%, 53%, 79%, and 90%, respectively. These differences may stem from country-specific factors, as some nations, like Sweden, are more advanced in their IC reporting practices.

Despite the relatively higher level of IC reporting in Qatar, the findings reveal that 59% of IC information is still not being reported. This underscores that, overall, the extent of IC reporting in Qatari listed companies' annual reports can be considered low. This echoes earlier findings, from which studies consistently reported a low extent of IC reporting (Jing et al., 2007). The limited extent of IC reporting in Qatar is probably due to several factors, including the nascent stage of IC awareness and integration into reporting practices, which is common in developing countries.

Another intriguing finding from Table 1 is the minimal variation in IC reporting among the Qatari listed companies. This is evidenced by the close minimum and maximum mean scores and the small standard deviation. This homogeneity suggests a relatively consistent approach to IC reporting across companies, possibly influenced by regulatory environments and similarities in corporate governance practices within the region.

The overall results indicate a positive trend in IC reporting among Qatari companies, which is driven by an awareness of its importance for stakeholder engagement and value creation. However, there is still substantial room for improvement. Enhanced regulatory frameworks and corporate governance practices could further elevate the extent and quality of IC reporting, ensuring that it meets the evolving needs of the various stakeholders. Such advances may play a pivotal role in achieving the objectives that are outlined in QNV 2030, particularly in transitioning to a KBE knowledge-based economy.

Table 1: Descriptive statistics results of IC reporting

	ICR	IICR	EICR	HICR
Mean	0.408	0.422	0.538	0.286
Median	0.415	0.443	0.566	0.257
Std. Deviation	0.065	0.099	0.171	0.087
Minimum	0.267	0.194	0.200	0.142
Maximum	0.634	0.638	0.879	0.623

Note: Total observations = 546.

Table 1 also presents the mean extents of the reporting on the different IC categories. The mean reporting extents for IICR, EICR and HICR were 0.422, 0.538 and 0.286, respectively. This indicates that external intangible capital had the highest extent of reporting, while human intangible capital had the lowest. The prominence of external intangible capital reporting aligns with findings from many previous studies (e.g., Guthrie and Petty, 2000; April et al., 2003; Goh and Lim, 2004; Vandemaele et al., 2005; Striukova et al., 2008; Ousama and Fatima, 2012; Wang et al., 2016), which also identified external intangible capital as being the most frequently reported IC category. However, this result contrasts with some other studies, which found internal intangible capital to be the most reported category (e.g., Low et al., 2015; Lim et al., 2017).

Conversely, human intangible capital had the lowest reporting extent in this study, which is consistent with prior research (e.g., Bozzolan et al., 2003; Jing et al., 2006; Guthrie et al., 2006; Wang et al., 2016; Lim et al., 2017) which identified human intangible capital as the least reported IC category. However, some other studies have reported internal intangible capital (e.g., Abeysekera and Guthrie, 2005; Wong and Gardner, 2005; Whiting and Miller, 2008) and external intangible capital (e.g., Low et al., 2015) as being the least reported categories.

The results suggest that Qatari listed companies tend to report more extensively on external intangible capital, if compared to internal intangible capital and human intangible capital. One possible reason for the higher reporting of external intangible capital is that Qatari companies may view information about innovations, technology investments, R&D, quality, problem-solving capacities, and management philosophies as providing a competitive edge. Conversely, they may consider disclosing information on human intangible capital, such as employee satisfaction, evaluations, capacities, abilities and development plans, as being potentially detrimental to their competitive position. By focusing more on external intangible capital, Qatari listed companies highlight elements that project technological advancement and business acumen, thus potentially attracting investors and stakeholders who are interested in innovative practices and technological forefronts. The cautious reporting on human intangible

capital may also reflect concerns around exposing strategic human resource initiatives that might be leveraged by their competitors.

The descriptive analysis, presented in Table 2, was conducted on a yearly basis, providing insights into the mean extents of ICR, IICR, EICR and HICR from 2008 to 2020. The results depict variations in reporting levels across these categories, ranging from 0.366 to 0.462 for ICR, 0.459 to 0.338 for IICR, 0.406 to 0.677 for EICR and 0.235 to 0.351 for HICR, during the period specified. Noteworthy trends emerged from the analysis, with internal intangible capital being reported as registering as the highest for the years 2008 to 2015, before transitioning to external intangible capital reporting becoming dominant in the subsequent years, from 2016 to 2020. The consistent position of human intangible capital reporting as being the lowest throughout the period underscores a potential area on which companies may need to focus more attention in terms of disclosure and reporting practices.

These findings signify a shift in reporting focus over the years, indicating a strategic evolution in how Qatari listed companies communicate their intangible assets. The increased emphasis on external intangible capital reporting in the later years may reflect a strategic realignment towards showcasing partnerships, market positioning and technological advances. On the other hand, the sustained lower levels of human intangible capital reporting suggest a possible area for improvement in transparency in relation to aspects such as employee development, satisfaction and overall human resource strategies.

By analyzing the yearly variations in reporting emphasis, Qatari companies can better understand the evolving landscape of IC disclosure and tailor their reporting strategies to effectively communicate the value and strategic directions of their intangible assets. This nuanced view of yearly reporting trends could inform future reporting practices, aligning them closely with stakeholder expectations while fostering transparency and trust in the marketplace.

Table 2: Descriptive statistics results for the years 2008-2020

	Year	ICR	IICR	EICR	HICR
Mean	2008	0.366	0.459	0.406	0.235
Std. Deviation		0.061	0.075	0.124	0.042
Mean	2009	0.376	0.472	0.426	0.234
Std. Deviation		0.060	0.079	0.125	0.043
Mean	2010	0.376	0.470	0.430	0.234
Std. Deviation		0.058	0.075	0.123	0.039
Mean	2011	0.381	0.476	0.436	0.237
Std. Deviation		0.060	0.076	0.124	0.042
Mean	2012	0.385	0.479	0.450	0.234
Std. Deviation		0.057	0.064	0.126	0.043
Mean	2013	0.376	0.470	0.430	0.234
Std. Deviation		0.058	0.075	0.123	0.039
Mean	2014	0.380	0.474	0.431	0.240
Std. Deviation		0.055	0.074	0.118	0.040
Mean	2015	0.381	0.475	0.432	0.238
Std. Deviation		0.057	0.076	0.116	0.039
Mean	2016	0.450	0.292	0.719	0.379

Std. Deviation		0.027	0.045	0.046	0.055
Mean	2017	0.442	0.340	0.685	0.340
Std. Deviation		0.029	0.047	0.040	0.069
Mean	2018	0.446	0.314	0.723	0.344
Std. Deviation		0.032	0.047	0.046	0.066
Mean	2019	0.483	0.428	0.741	0.418
Std. Deviation		0.068	0.105	0.058	0.111
Mean	2020	0.462	0.338	0.677	0.351
Std. Deviation		0.029	0.068	0.111	0.073

Note: Total observations each year = 42.

Further analysis was conducted to assess the potential statistical differences in reporting across the different IC categories, namely, IICR, EICR and HICR. The results of the paired sample t-test on the pooled data are presented in Table 3. The outcomes indicate notable statistical variances in reporting among the IC categories. This underscores the fact that Qatari listed companies adopt diverse approaches in reporting different types of IC information, thereby furnishing stakeholders with detailed insights into the company's value creation processes. Moreover, individual year analyses - spanning the initial, middle and final years - were also carried out to test for significant differences, with the outcomes depicted in Table 4. These specific-year assessments align with and reinforce the findings from the pooled data and descriptive statistics. Notably, the results further emphasize statistically significant disparities in IC reporting across the years, which is indicative of evolving reporting practices and the strategic communication of intangible assets by Qatari listed companies.

Table 3: Significant differences in the reporting of IC categories

	Mean	Std. Deviation	Std. Error Mean	t	Sig.
IICR & EICR	-0.115	0.225	0.009	-11.947	0.000
IICR & HICR	0.136	0.151	0.006	21.008	0.000
EICR & HICR	0.251	0.133	0.005	44.064	0.000

Table 4: Significant differences in the reporting of IC categories for some individual years

	Mean	Std. Deviation	Std. Error Mean	t	Sig.
IICR2008 & EICR2008	0.053	0.110	0.017	3.132	0.003
IICR2008 & HICR2008	0.224	0.081	0.012	17.938	0.000
EICR2008 & HICR2008	0.170	0.116	0.017	9.520	0.000
IICR2014 & EICR2014	0.042	0.110	0.017	2.525	0.016
IICR2014 & HICR2014	0.233	0.074	0.011	20.287	0.000
EICR2014 & HICR2014	0.190	0.117	0.018	10.524	0.000
IICR2020 & EICR2020	-0.339	0.159	0.024	-13.841	0.000
IICR2020 & HICR2020	-0.013	0.104	0.016	-0.859	0.015
EICR2020 & HICR2020	0.325	0.137	0.021	15.346	0.000

4.2 Trends in IC reporting

Table 2 illustrates the trends in IC reporting and its categories over the sampled period. It reveals a progressive increase in the mean extent of ICR from 0.366 in 2008 to 0.462 in 2020. This upward trajectory is in line with findings from numerous previous studies that document a positive trend in IC reporting over time, for instance, Olsson (2014) in Sweden, Abeysekera and Guthrie (2005) in Sri Lanka, Abdolmohammadi (2005) in the USA, and others. The results signify that Qatari listed companies have indeed amplified their IC reporting efforts in their annual reports in the period 2008 to 2020, which is potentially indicative of their commitment to the national initiative of transitioning to a KBE outlined in QNV 2030. This escalation in IC reporting probably mirrors increased investments in knowledge and IC resources by these companies, resulting in more robust reporting practices.

Likewise, Table 2 displays an upward trend in mean values for EICR and HICR, from 0.406 and 0.235 in 2008 to 0.677 and 0.351 in 2020, respectively. In contrast, IICR experienced a decrease over the same period. The decline in internal intangible capital reporting raises interesting insights, as one might expect Qatari listed companies to disclose more internal intangible resources and capital. This deviation could potentially stem from companies perceiving reporting on internal intangible capital as exposing competitive vulnerability, thus prompting strategic discretion in this domain.

Subsequent statistical analyses were conducted to ascertain if the observed increases in IC reporting and its categories were statistically significant over the entire period. The results in Table 5 affirm significant differences in the escalation of ICR, EICR and HICR between 2008 (the initial year) and 2020 (the final year). By contrast, there was a noticeable decrease in the IICR during this same period. These significant fluctuations highlight the dynamic nature of the reporting practices of Qatari listed companies and they underscore the strategic shifts in the disclosure of various facets of companies' intangible assets over time.

Table 5: Significant differences in the reporting of IC between 2008 and 2020

	Mean	Std. Deviation	Std. Error Mean	t	Sig.
ICR2020 & ICR2008	0.096	0.067	0.010	9.347	0.000
IICR2020 & IICR2008	-0.121	0.082	0.012	-9.582	0.000
EICR2020 & EICR2008	0.271	0.180	0.027	9.737	0.000
HICR2020 & HICR2008	0.116	0.091	0.014	8.217	0.000

4.3 One-Way ANOVA

One-way ANOVA was conducted to assess the variation arising from the differences between the yearly means of ICR, IICR, EICR and HICR, along with the variation within each year and the total variance in the dataset. The outcomes of this analysis are detailed in Table 6. The results indicate statistically significant variances between the yearly means of ICR and its distinct categories (IICR, EICR, HICR), as evidenced by the f-values which yielded p-values of less than 0.05 (specifically, $p = 0.000$ for ICR, $p = 0.0010$ for IICR, $p = 0.000$ for EICR and $p = 0.000$ for HICR). These findings highlight the significant discrepancies in the yearly means of IC reporting and its categories across the period from 2008 to 2020. The statistical significance of these differences underscores the evolving trends in the ways in which Qatari listed companies report on intangible capital and the varying emphases that are placed on different aspects of intangible capital across the years considered are highlighted.

Table 6: One-way ANOVA of the ICR and its categories

		Sum of Squares	df	Mean Square	F	Sig.
ICR	Between Groups	0.865	12	0.072	26.018	0.000
	Within Groups	1.476	533	0.003		
	Total	2.341	545			
IICR	Between Groups	2.642	12	0.220	42.503	0.000
	Within Groups	2.761	533	0.005		
	Total	5.404	545			
EICR	Between Groups	10.217	12	0.851	77.534	0.000
	Within Groups	5.853	533	0.011		
	Total	16.070	545			
HICR	Between Groups	2.397	12	0.200	59.298	0.000
	Within Groups	1.796	533	0.003		
	Total	4.193	545			

Following the significant ANOVA results, the study conducted Tukey HSD (Honestly Significant Difference) post-hoc tests to identify specific years that display significant differences from others. The Tukey HSD test clusters years into subsets in which the mean scores are not statistically distinct within each subset. Years sharing the same mean value column are deemed statistically similar. The examination results for ICR, shown in Table 7, revealed three subsets with mean scores that did not significantly vary from each other but were similar. The first subset encompasses years 1, 2, 6, 3, 7, 8, 4 and 5, with mean scores spanning from 0.366 to 0.386. Subsequently, the second subset comprises years 10, 11, 9 and 13, exhibiting mean scores ranging between 0.443 and 0.463. Finally, the third subset features years 11, 9, 13 and 12, with mean scores falling between 0.446 and 0.484. Notably, years 9, 11 and 13 were observed in both the second and third subsets, signifying their lack of significant differentiation with the means in those subsets.

Moreover, the statistical significance levels for Subsets 1, 2 and 3 were determined as 0.884, 0.876, and 0.058, respectively. As all p-values exceeded 0.05, the means within each subset were deemed non-significantly different, indicating homogeneity within those subsets. Consequently, the findings suggest that the mean scores for companies' intangible capital reporting in years 1 through 8 are notably similar and they are lower if compared to years 10 through 13. The standout performance of year 12, characterized by a significantly higher mean score of 0.484 for intangible capital reporting, is noteworthy, distinguishing it from the preceding years (1 through 8).

Table 7: Tukey HSD Tests of the ICR

Year	Subset for alpha = 0.05		
	1	2	3
1	0.366		
2	0.376		
6	0.376		
3	0.376		
7	0.380		
8	0.381		
4	0.381		
5	0.385		

10		0.442	
11		0.446	0.446
9		0.450	0.450
13		0.462	0.462
12			0.483
Sig.	0.884	0.876	0.058

In Table 8, the outcomes of the test for IICR are displayed, revealing two distinct subsets. Subset 1 comprises years 9, 11, 13 and 10, with mean values ranging from 0.292 to 0.341. On the other hand, Subset 2 consists of years 12, 1, 6, 3, 2, 7, 8, 4 and 5, in which mean values vary from 0.429 to 0.480. Notably, no overlap was observed between Subset 1 and Subset 2. Both subsets displayed no significant differences in IICR across these years, as indicated by the respective significance values of 0.104 for Subset 1 and 0.068 for Subset 2. As both p-values exceeded 0.05, this suggests that the mean values within each subset were not significantly distinct.

Years 9, 11, 13 and 10 exhibited lower IICR mean scores, ranging from 0.292 to 0.341, with statistically similar mean values, thus implying no substantial variance in IICR among these years. Conversely, years 12, 1, 6, 3, 2, 7, 8, 4 and 5 demonstrated higher IICR mean scores, which ranged from 0.429 to 0.480, with similar statistical outcomes within this group. Consequently, a notable distinction in IICR between the two subsets emerged, showcasing a higher level of internal intangible capital reporting in Subset 2 years, if compared to the Subset 1 years. This disparity underscores varying intensities of reporting on internal intangible capital among the listed companies across different years.

Table 8: Tukey HSD Tests of the IICR

Year	Subset for alpha = 0.05	
	1	2
9	0.292	
11	0.314	
13	0.338	
10	0.340	
12		0.428
1		0.459
6		0.470
3		0.470
2		0.472
7		0.474
8		0.475
4		0.476
5		0.479
Sig.	0.104	0.068

Table 9 outlines the outcomes of the test for EICR, where results mirror the IICR analysis with two distinct subsets. Subset 1 comprises years 1, 2, 6, 3, 7, 8, 4 and 5, showcasing lower mean EICR values that range from 0.406 to 0.451, indicating a trend towards reduced reporting in these years. Conversely, Subset 2 encompasses years 13, 10, 9, 11 and 12, with higher mean EICR values that range from 0.678 to 0.742, signifying elevated reporting levels during these years. Notably, there was no overlap observed between Subset 1 and Subset 2. Both subsets exhibit statistically similar mean EICR values across the respective years, demonstrating no significant disparities within each subset. The levels of significance for Subset 1 and Subset 2 were determined to be 0.769 and 0.201, respectively. These results, with

p-values exceeding 0.05, indicate an absence of noteworthy differences in mean EICR values within each subset.

The distinctiveness in mean EICR values between Subset 1 and Subset 2 reinforces the observation that the years that fitted in Subset 1 yielded significantly lower EICR scores if compared to those in Subset 2. The external intangible capital reporting scores for years 1, 2, 6, 3, 7, 8, 4 and 5 thus consistently depicted lower levels. In contrast, years 13, 10, 9, 11 and 12 exhibited notably higher EICR.

Table 9: Tukey HSD Tests of the EICR

Year	Subset for alpha = 0.05	
	1	2
1	0.406	
2	0.426	
6	0.430	
3	0.430	
7	0.431	
8	0.432	
4	0.436	
5	0.450	
13		0.677
10		0.685
9		0.719
11		0.723
12		0.741
Sig.	0.769	0.201

In Table 10, the outcomes of the test for HICR are presented. These identify three distinct subsets. Subset 1, comprising years 3, 2, 5, 6, 1, 4, 8 and 7, exhibited lower mean HICR values that ranged from 0.234 to 0.241. By contrast, Subset 2, which includes years 10, 11, 13 and 9, showcased higher mean values that ranged between 0.340 and 0.380, indicating superior reporting levels during these years. Subset 3, consisting of years 9 and 12, demonstrated the highest mean HICR values at 0.380 and 0.419, respectively. Notably, year 9 appeared in multiple subsets with statistically similar mean scores, thus throwing light on the homogeneity in reporting across those groups.

The analysis revealed statistically similar mean HICR values within each subset, which was supported by Significance Levels of 1.000, 0.093 and 0.101 for Subsets 1, 2 and 3, respectively. These values, with p-values exceeding 0.05, indicated no significant discrepancies in mean HICR values within the subsets. Consequently, companies' external intangible capital reporting scores were distinctive, with lower characterizations in years 3, 2, 5, 6, 1, 4, 8 and 7, and higher scores in years 10, 11, 13 and 9. Notably, years 13, 10, 9, 11 and 12 emerged with markedly higher HICR scores, highlighting their strong performance in human intangible capital reporting. Years 9 and 12 were particularly distinguished by exhibiting the highest levels of human intangible capital reporting.

Table 10: Tukey HSD Tests of the HICR

Year	Subset for alpha = 0.05		
	1	2	3
3	0.234		
2	0.234		
5	0.234		
6	0.234		
1	0.235		
4	0.237		
8	0.238		
7	0.240		
10		0.340	
11		0.344	
13		0.351	
9		0.379	0.379
12			0.418
Sig.	1.000	0.093	0.101

5. Conclusion

This study undertook an in-depth analysis of Intangible Capital Reporting's extent and trends within the annual reports of Qatari listed companies across a 13-year period from 2008 to 2020. Prompted by the seminal findings of Abou Ghaida et al. (2016), which underscored the perceived value relevance of IC information among Qatari stakeholders in their decision-making processes, this research sought to bridge the gap by investigating the actual prevalence of such information in the integrated corporate reporting practices of Qatari firms. In light of the limited existing studies on intangible capital reporting in Qatar, this study stands as one of the pioneering initiatives attempting to unveil the current landscape among the intangible capital reporting practices of Qatari listed companies. Employing the complete population of listed companies in Qatar from the initial sample year of 2008 has facilitated a comprehensive understanding, interpretation and generalization of the study's findings.

Through a meticulous assessment utilizing a comprehensive reporting index, the study revealed that, on average, Qatari listed companies disclosed 41% of intangible capital information in their annual reports during the 2008 to 2020 period. Moreover, the analysis highlighted a consistent pattern wherein external intangible capital reporting surpassed human intangible capital reporting in prevalence, with the latter exhibiting the lowest coverage. The progressive increase that was observed in the extent of intangible capital reporting, external intangible capital reporting and human intangible capital reporting was noteworthy, juxtaposed as it was against a decline in internal intangible capital reporting over the same time frame.

The findings depict Qatari listed companies as being proactive in capturing and disseminating intangible capital information through which to augment transparency regarding value creation, with the aim of catering to the diverse stakeholder information needs. By offering practical insights, this study guides Qatari listed companies in evaluating and refining their intangible capital reporting practices and in advocating the adoption of the International Integrated Reporting Council's IR Framework to elevate current intangible capital reporting standards. This framework, by enhancing reporting practices, will aid companies in conveying value propositions to their diverse user groups and in comprehensively assessing corporate value. This, in turn, contributes to the bolstering of transparency within the Qatari capital market in preparation for the transition to becoming a KBE.

Acknowledging the significance of these insights, this study identifies areas for future research endeavors, urging a deeper exploration into the quality of intangible capital reporting practices and the potential impact of intangible capital reporting on market valuation and capital costs. By addressing these aspects, future research might offer a more nuanced understanding of the dynamics that are at play within the Qatari corporate landscape, thus augmenting the existing body of knowledge in the field of intangible capital reporting.

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Appendix 1: A Summary of the IC Reporting Literature between 2000 and 2023

Study/ Country	Objective(s) of the Study	Research Method			Main Findings of the Study
		Sample & Year(s)	Analysis Technique(s)	Measurement of IC (Framework of IC)	
Guthrie and Petty (2000) **Australia**	• To examine the extent (amount and type) of ICR.	• Top 20 listed companies. • Year 1998.	• Content analysis based on (0,1,2 & 3) coding system. • Descriptive statistics.	• **24** attributes of IC {based on Sveiby's (1997) framework}.	• Mean of ICR per company was 8.9. Minimum was 2 and Maximum was 17. • Disclosure within categories: 30% for internal, human capital and 40% for external capital. • ICR was disclosed in a qualitative form. • IC was inconsistently disclosed.
Brennan (2001) **Ireland**	• To examine the extent of ICR. • To examine the differences between book and market values of the sample.	• 11 Irish knowledge-based listed companies. • Year 1999.	• Content analysis based on (0 &1) coding system. • Descriptive statistics.	• **24** items of IC {adopted from Guthrie, Petty, Ferrier and Well (1999) and Guthrie and Petty (2000) frameworks which are based on Sveiby's (1997) framework}.	• Level of ICR by Irish companies was low. • Market values of 9 companies (out of 11) did exceed book values. • Hidden values (IC) ranged from 57% to 93%.
Williams (2001) **United Kingdom (UK)**	• To examine ICR practices during the period 1996-2000. • To determine the relationship between ICR, company's IC performance and 5 control factors (firm size, industry, listing status, ROA and leverage).	• 31 listed companies • 5 years' annual reports (1996-2000).	• Content analysis (word search). • Descriptive statistics. • Wilcoxon matched-pair signed rank test. • T-test. • Multiple regression.	• **50** IC disclosure items {developed from the literature}.	• The extent of ICR increased during the Period 1996-2000. • There were differences in the extent of ICR between companies. • IC performance had some influence on the the extent of ICR (negative). • Listing status, industry type, and leverage were significant whereas firm size and ROA were not.
Bontis (2002) **Canada**	• To examine the ICR related terms in the annual reports.	• 10,000 Canadian companies. • Year not stated.	• Content analysis (term or word search). • T-test.	• **39** IC related items {developed from the literature}.	• Only 7 out of 39 terms were disclosed. • 68 out of 10,000 companies disclosed at least 1 term. • There was no significant difference between companies disclosing and not disclosing IC

terms.

Beaulieu *et al*., (2002) **Sweden**	• To determine the extent of ICR. • To identify factors influencing the disclosure of IC.	• 30 public listed Companies. • Year 1998.	• Content analysis based on (0, 1,2,3 & 4) coding system. • Descriptive Statistics. • Pearson Correlations. and ANOVA test.	• **53** items {Based on Brooking's (1996) Framework}.	• The average score of overall ICR was 59%. • Disclosure within categories: highest was human resources (21%) and lowest was intellectual property (7%). • Size and industry type (R&D industry) were significant whereas profitability was not.
April *et al*., (2003) **South Africa**	• To examine the extent of ICR in the annual reports (as one of the objectives of the paper).	• 20 largest listed companies. • Year not stated.	• Content analysis based on (0 &1) coding system. • Descriptive statistics.	• **24** items of IC {adopted from Guthrie *et al*. (1999) and Brennan (2001) frameworks which is based on Sveiby's (1997) framework}.	• Mean of reporting overall IC for all companies was 43%. • Disclosure within categories: 40% external, 30% internal and 30% human.
Bozzolan *et al*., (2003) **Italy**	• To examine the extent of ICR. • To identify the determinants of ICR.	• 30 non-financial listed companies. • Year 2001.	• Content analysis based on (0, 1 & 2) coding system. • Descriptive statistics. • Chi-square test. • OLS regression.	• **22** items {adopted from Guthrie and Petty's (2000) framework which is based on Sveiby's (1997) framework with some modifications}.	• Mean of overall ICR was 51. Minimum was 0. and Maximum was 113. • Disclosure within categories (mean / %): (25 / 49) external, (15 / 30) internal and (11/ 21) human. • Industry and firm size were statistically significant.
Olsson (2004) **Sweden**	• To examine the disclosure of IC (type, amount, trend, and differences) in annual reports of retail companies (daily goods and fashion).	• 15 companies (11 are listed). • 2 years between 1998 & 2002.	• Content analysis based on (0 &1) coding system.	• **72** items {based on Sveiby's (1997) framework with major modifications}.	• ICR by daily goods companies was higher than fashion. • Amount of ICR in 2002 was higher compared to 1998. Thus, the extent of ICR has increased.
Goh and Lim (2004) **Malaysia**	• To examine the ICR in the annual reports.	• Top 20 profit-making public listed companies in Bursa Malaysia. • Year 2001.	• Content analysis based on (0 &1) coding system.	• **24** attributes of IC {based on Sveiby's (1997) framework}.	• The ICR in the annual reports of Malaysian companies was highly qualitative rather than quantitative. • Disclosure within categories (%): 41.4% external capital, 36.6% internal capital (35.2% infrastructure assets and 1.4% intellectual properties) and 21.9% employee competence.

Vergauwen and Alem (2005) **France, Germany & Nether-Lands**	• To examine and compare the disclosure of IC related terms in the annual reports of French, German and Dutch listed companies.	• 89 (37 French, 28 German and 24 Dutch) listed companies. • Years 2000& 2001.	• Content analysis (term or word search). • Descriptive statistics.	• **38** IC related items {adopted from Bontis's (2002) framework}.	• 23 out of 38 terms were disclosed. • The average of disclosing IC terms was significantly different between countries: France 1.51 & 1.54, Germany 1.50 & 1.35 and Netherlands 1.13 & 1.0 for the years 2000 and 2001, respectively.
Abeysekera and Guthrie (2005) **Sri Lanka**	• To examine the trend of ICR in the annual reports.	• Top 30 listed companies. • Years 1998/1999 and 1999/2000	• Content analysis (frequency and line count). • Descriptive statistics.	• **45** IC related items (within 3 categories: external, internal and human capital).	• Overall ICR increased over 2-years. • External capital increased, human capital was maintained, internal capital decreased. • The most disclosed category was external, then human capital, followed by internal capital. • There was a lack of a framework and consistent approach for disclosing IC.
Wong and Gardner (2005) **New Zealand**	• To examine the nature and extent of ICR. - To analyse whether the industry type has influence on the extent of ICR.	• 60 listed companies on NZSX (30 high technology and 30 traditional). • Year 2003.	• Content analysis based on (0 & 1) coding system. • Descriptive statistics.	• **18** items {based on Guthrie and Petty (2000) and Guthrie, Petty, Yongvanich and Ricceri (2004)}.	• The extent of ICR was: 48% for external capital, 31% for human capital and 21% for internal capital. • The industry type had no influence on the extent of ICR in the annual reports.
Ordoñez de Pablos (2005) **India**	• To study the Indian IC reports. • To compare between Indian IC reports and European IC reports.	• 3 companies. • Year 1997, 1998 & 2001.	• Content analysis.	• Not stated.	• IICR presents a qualitative style and does not focus on specific characteristics or combine a qualitative and quantifying style as EICR. • IICR was an independent report. • IICR length was much longer than EICR.

Abdolmoha-mmadi (2005) **United States of America (US)**	• To develop a framework of ICR (categories & items). • To examine the nature and extent of ICR. • To examine the trend of ICR. • To examine the industry difference and effects on ICR. • To examine the effects of ICR on company's market value.	• 58 companies. • A period of 5 years 1993-1997.	• Content analysis based on (0 & 1) coding system. • Descriptive statistics. • Analyses of variance. • Correlation. • T-test. • Regression.	• **58** IC items (within 10 categories: brand, competence, corporate culture, customer base, information technology, intellectual property, partnership, personnel, proprietary process, and R&D).	• The aggregate mean of ICR categories was 3.26. • There were significant differences for means of IC categories: brand was the highest mean (7.23) followed by competence (4.82), partnership (3.74). • The aggregate mean of ICR increased over the 5 years (from 3.06 to 3.52) although it was not statistically significant. • There were significant differences of industry effects on ICR. • There were significant differences between "new" (for brand, partnership) and "old" (for information technology, intellectual property) industries. • There was highly significant (at the 0.01 level) effect for ICR on market capitalisation
Vandemaele *et al*., (2005) **Sweden, Netherlands & the UK**	• To examine the extent of ICR in the 3 countries. • To examine the trend of ICR between the 3 countries. • To compare the extent and trend of ICR between the 3 countries.	• 60 large companies (20 Sweden, 20 Netherlands and 20 UK). • Years 1998, 2000, & 2002.	• Content analysis based on (0, 1 & 2) coding system. • Descriptive statistics. • T- test.	• **22** items {adopted from Guthrie and Petty's (2000) framework which is based on Sveiby's (1997) framework with some modifications}.	• Swedish companies have the highest ICR, followed by Dutch and British companies. • Disclosure within categories (for all countries and all years - %): 40% external, 30% internal and 30% human capital. • On average, ICR increased over the years, in the 3 countries.
Bukh *et al*., (2005) **Denmark**	• To examine the extent of voluntary ICR in the IPO prospectuses. • To examine the trend of ICR in the IPO prospectuses from the period 1999 to 2001. • To examine the determinants (Industry type, managerial ownership, firm size and firm age) of ICR in the IPO.	• 68 IPO prospectuses of companies listed on Copenhagen Stock Exchange. • Years from 1990 to 2001. .	• Content analysis based on (0 & 1) coding system. • Descriptive statistics. • Analysis of Variance (ANOVA). • Regression.	• **78** items {developed based on a thorough review of the literature. Divided into 6 categories: employee, customers, IT, processes, R&D, strategic statements}.	• The average of ICR in IPO prospectuses was 22%. • The highest average of ICR among the categories was for strategic statements and customers, both 28%. • The extent of ICR increased during the overall period within all categories. • Industry type and managerial ownership were statistically significant. Meanwhile, firm size and firm age were not statistically significant.

Petty and Cuganesan (2005) **Hong Kong**	• To examine the level and trend of voluntary ICR. • To examine the effects of time, firm size and industry type on the ICR.	• 53 listed companies. • Years 1992, 1998 & 2000.	• Content analysis based on (0,1,2&3) coding system. • Descriptive statistics. • Regression.	• **24** attributes of IC {based on Sveiby's (1997) framework}.	• The level of ICR was low but increased over time. • The time, firm size and industry type had effects on the extent of ICR.
Jing *et al*., (2006) **France, Spain, UK, Germany, Netherlands , Italy, Norway, Denmark &Sweden**	• To investigate ICR practices in the European counties. • To investigate the variations between different measurements of ICR.	• 9 banking and financial services companies in nine European countries (i.e. France, Spain, UK, Germany, Netherlands, Italy, Norway, Denmark, Sweden).	• Content analysis based on (0 & 1) coding system. • Descriptive statistics.	• **61** IC items {developed from literature. Divided into 3 categories: relational capital, structure capital, human capital}.	• French banks had the highest ICR and Danish Banks had the lowest. • ICR was varying within the study's sample • Disclosure of 3 categories were slightly above 30% of total ICR. • Structural capital was slightly higher than relational and human capitals. • IC information was found in all sections of the annual reports. • There was no significant difference between measures of ICR. But the measure as IC word count to total word count in annual reports showed different ranking within the sample.
Guthrie *et al*., (2006) **Hong Kong & Australia**	• To examine the extent of ICR. • To examine firm size as a determinant of ICR.	• 150 (50 Australia, 100 Hong Kong) • Year 2002	• Content analysis based on (0, 1, 2 & 3) coding system. • Descriptive statistics. • T-test. • Regression (for Australian data).	• **18** attributes of IC {adopted from Guthrie and Petty's (2000) framework which is based on Sveiby's (1997) framework}.	• Average of ICR per company was 13.2 for Hong Kong and 31.6 for Australia. • Disclosure within categories: 37%, 49% for external, 28%, 41% for internal, 35%, 10% for human for Hong Kong and Australia, respectively. • ICR was disclosed in a qualitative form. • IC was inconsistently disclosed. • Means of ICR for large companies were higher than small ones for both countries. • T-test for means for large and small companies: means were significant for overall and external for Australian data. Means were significant for overall and all categories of Hong Kong data.

					• Firm size was found to be statistically significant with extent of ICR (for Australia).
White *et al*., (2007) **Australia**	• To examine the extent of voluntary ICR. • To investigate the determinants (firm size, ownership, board independence, firm age and leverage) of voluntary ICR.	• 96 listed biotechnology companies. • Year 2005.	• Content analysis based on (0 & 1) coding system. - Descriptive statistics. - Correlation. - Regression.	• **78** items {adopted from Bukh *et al*. (2005), with same categories}.	• The average of ICR was 14.96%. • The highest averages of ICR among the categories were for strategic statements 4.78% and R&D 3.99%. The lowest were customers 1.44% and information technology 0.15%. • There were significant correlations between ICR and board independence, firm age, leverage and firm size. • Board independence, leverage and firm size were statistically significant. Meanwhile, ownership and firm age were not significant.
Lee el al. (2007) **Australia**	• To examine the extent and nature of ICR through the internet. • To examine the influence of four hospital characteristics on ICR.	• 128 hospital. • Four months in the last third of 2005.	• Content analysis based on (0 & 1) coding system.	• **85** items	• The extent of ICR was relatively low. • The quality of ICR was varied between IC sub-categories. • State location, designation as private or public, designation as specialised or general, designation as city or regional location statistically influence the ICR. Whereas, designation as network or non-network was not significant.
Omar (2008) **Bahrain**	• To examine the extent of voluntary ICR. • To investigate the determinants (board independence, leverage, firm age and firm size) of voluntary ICR.	• 39 listed companies. • Year 2006.	• Content analysis based on (0 & 1) coding system. • Descriptive statistics. • Correlation. • Regression.	• **78** items {adopted from Bukh *et al*. (2005), with same categories}.	• The average of ICR was 35.64%. • There were significant correlations between ICR and firm size and firm age. • Firm size was statistically significant. Leverage was statistically negatively significant. Meanwhile, board independence and firm age were not statistically significant.
Schneider and Samkin (2008) **New**	• To examine the extent and quality of ICR for the New Zealand local government sector.	• local government sector. • Year 2004/2005. • 82 annual reports.	• Content analysis based on a six-point (0,1,2,3,4&5) coding system. • Descriptive statistics.	• **26** IC items.	• The ICR by local government authorities was varied. • Internal capital category disclosure was the highest and human capital category was the lowest.

Zealand					
Sonnier (2008) **US**	• To examine the level of ICR of high-technology companies and compare it with ICR of traditional sector.	• 284 listed companies (143 high-technology and 141 traditional sector) • Years 2000 & 2004.	• WordStat software. • Descriptive statistics. • T-test.	• **121** IC words and phrases.	• High-technology companies had a higher than traditional sectors companies in both years. • Customer capital, organisational capital, human capital, and intellectual property had the highest disclosure.
Whiting and Miller (2008) **New Zealand**	• To examine the extent of ICR. • To examine the relationship between the extent of ICR and the level of hidden value (difference between company's market value and book value).	• 70 listed companies. • Year 2003.	• Content analysis based on (0, 1 & 2) coding system. • Descriptive statistics. • Correlation. • Regression.	• **18** IC items.	• The average of ICR was 26%. • Disclosure within categories: 47% external, 33% human, and 20% internal capital. • Overall, there was no relationship between hidden values (IC) and extent of ICR. • For revaluing companies, there was a Positive relationship between hidden values (IC) and extent of ICR. • There was a positive relationship between hidden values (IC) and the extent of external ICR.
Striukova *et al*. (2008) **UK**	• To examine the practices of ICR among UK companies within wide range of corporate reports published (i.e. analyst presentation, annual report, annual review, CSR report, interim report, Preliminary report, web page and others).	• Listed companies at LSE from 4 sectors (i.e. information & communication technology (ICT)/ software, pharmaceuticals/ biotechnology, real estate/ utilities and retail).	• Content analysis based on (0 & 1) coding system. • Descriptive statistics.	• **20** items {based on Guthrie and Petty (2000) and Guthrie *et al*. (2004)}.	• ICR varied between companies with different size and sectors. • Most disclosed IC information was related to knowledge issues. • The averages of ICR within categories were: 61% for external capital, 21% for internal capital and 16% for human capital. • The highest average of ICR within sectors was for retail followed by pharmaceutical/ biotechnology, ICT/software and real estate/ utilities sectors, respectively. • A range of corporate reports in addition to annual reports were used to disclose IC information. • Average of ICR by document type (%): 33 web pages, 24 annual reports, 20 analyst

					presentations, 7 interim reports, 6 annual reviews, 5 prelim. reports, 2 others and 0.7 CSR reports.
Oliveras *et al*. (2008) **Spain**	• To examine the extent and trend of ICR.	• 12 companies. • Years 2000, 2001 & 2002.	• Concordance program. • Descriptive statistics. • T-test.	• **24** attributes of IC {based on Sveiby's (1997) framework}.	• The extent of ICR was limited. • The highest disclosure IC information was for external capital. • The was a significant increase in the extent of ICR over a three-year period.
Kamath (2008) **India**	• To examine the extent of voluntary trend of ICR in the communication and technology sector.	• 30 companies. • Year 2005-2006.	• Content analysis. • Frequencies.	• **39** IC terms.	• The extent of ICR was small. • Information technology companies disclosed more IC information than the communication companies. • The was a significant increase in the extent of ICR over a three-year period.
Davey *et al*. (2009) **Europe & North America**	• To examine the extent and nature of ICR of fashion companies.	• 30 fashion companies (15 European and 15 North American). • Year 2005.	• Content analysis based on a two-point (0&1) coding system. • Descriptive & percentage.	• **32** attributes of IC.	• The fashion companies disclosed more external capital information. • Brands, trademarks, distributions channels, and management processes were the highest disclosure. • The ICR was varied between European and North American companies.
Yi and Davey (2010) **China**	• To examine the extent and quality of ICR.	• 49 listed companies. • Year 2008.	• Content analysis based on (0,1,2,3,4 &5) coding system. • Descriptive statistics.	• **21** IC items.	• The extent of ICR was not high. • Most of IC information were reported in discursive rather than monetary or numerical terms. • The quality of ICR was not considered strong.
Oliveira *et al*. (2010) **Portugal**	• To analyse the voluntary ICR in the sustainability reports. • To test the associations between ICR and characteristics.	• 42 companies. • Year 2006.	• Content analysis based on a two-point (0&1) coding system. • Descriptive statistics. • Correlation. • Regression.	• **88** IC items.	• The extent of ICR in sustainability reports varied between companies (between 31%-67%). • Matters strategy, process, and human capital were the highest disclosed information. • Adherence to the Global Reporting Initiative

					(GRI) and listing status were significant, whereas firm size and type of industry were not.
Campbell and Abdul Rahman (2010) **UK**	• To examine the ICR of Marks & Spencer annual reports.	• Marks & Spencer Company. • Years 1978-2008 (31 years).	• Content analysis. • Frequencies.	• **17** IC items (subcategory).	• There was an increase in the ICR over the 31 years. • Narrative ICR had increased and factual ICR had decreased.
Joshi *et al*. (2011) **India**	• To examine the ICR of information technology companies.	• Top 20 information technology companies listed on the Bombay Stock Exchange. • Year 2007-2008.	• Content analysis. • Descriptive statistics & percentages	• **39** IC items.	• The extent of ICR was very low. • ICR was not consistent with a range of different types disclosure format. • There was no framework and guidelines for ICR.
Whiting and Woodcock (2011) **Australia**	• To examine the extent of voluntary ICR. • To examine the influence of firm characteristics on ICR.	• 70 listed companies. • Year 2006.	• Content analysis based on a two-point (0 & 1) coding system. • Descriptive statistics. • Correlation. • Regression.	• **18** IC items.	• The extent of ICR was low. • External capital was the highest disclosed category. • Industry type and audit were significant in influencing ICR, whereas ownership concentration, leverage and listing age were not.
Singh and Kansal (2011) **India**	• To investigate the extent of ICR. • To examine the correlation between IC valuation and ICR.	• 20 top pharmaceutical companies. • Year 2009.	• Content analysis based on a five-point (0,1,2,3&4) coding system. • Descriptive statistics. • T-test & Chi-squares. • Correlation.	• **24** IC items.	• The extent of ICR was low, narrative and vary among companies. • External capital was the highest disclosed category. • There was no significant correlation between IC valuation and ICR
Nurunnabi *et al*. (2011) **Bangladesh**	• To examine the extent of ICR of listed non-financial companies. • To investigate the effects of some firm characteristics on	• **90** listed companies. • Year 2008-2009.	• Content analysis based on a four-point (0,1,2&3) coding system. • Descriptive statistics.	• **63** IC items.	• There was a tendency of companies not to disclose IC information. • Firm size and industry type were significantly effect the ICR. • The ICR depended on the interest of the

	the ICR.		• Correlation. • Regression.		company.
Ousama and Fatima (2012) **Malaysia**	• To examine the extent of ICR. • To examine the trend of ICR in the annual reports.	• 91 listed companies. • Year 2002 and 2006. • 182 annual reports.	• Content analysis based on a two-point (0&1) coding system. • Descriptive statistics. • T-test.	• **101** IC items.	• The average of ICR were 22% and 24% for the years 2002 and 2006, respectively. • External capital disclosure was the highest category. • The extent of ICR had significantly increased between the period 2002 and 2006.
Wagiciengo and Belal (2012) **South Africa**	• To examine the extent and nature of ICR.	• Top 20 companies • Years 2002, 2003, 2004, 2005&2006.	• Content analysis based on a two-point (0&1) coding system. • Frequencies, count, and Percentage.	• **39** IC items (adapted from Abeysekera and Guthrie, 2005)	• ICR had increased over the five-year period. • Human capital disclosure was the highest Category. • There were variations in ICR between the companies. • Most of the ICR was located in the corporate governance and directors' report section.
Ahmed Haji and Mohd Ghazali (2012) **Malaysia**	• To examine the trend of extent and quality of ICR.	• 91 listed companies. • Years 2008, 2009 & 2010.	• Content analysis based on a two-point (0 &1) for the extent and a four-point (0,1,2&3) for coding system. • Descriptive statistics. • T-test. • ANOVA.	• **40** IC items.	• There was an overall significant increase in trend of the ICR. • External capital information was the highest category disclosure. • Human capital disclosure was significantly increased over time.
Joshi *et al*. (2012) **India & Australia**	• To examine and compare the extent of voluntary ICR of software and technology sector in India and Australia.	• Top 20 listed Software and technology companies. • Year 2007-2008.	• Content analysis. • Descriptive and frequencies. • T-test.	• 39 IC items.	• The extent of ICR was low in both countries. • The ICR was higher by Indian companies compared to the Australian ones.
Husin and Olesen (2012) **Malaysia**	• To analyse the quantity and quality of ICR.	• 30 listed companies. • Year 2008.	• Content analysis. • Descriptive. • Frequencies.	• **20** IC items.	• The use of theme was proposed as appropriate recording and counting unit for IC information combining narratives, numbers, and visual images.

			• Correlation.		• The quantity and quality are related, however quality of IC information provides the most insights into the ICR behaviour used by companies.
Cordazzo and Vergauwen (2012) **UK**	• To examine the extent of ICR of biotechnology IPO. • To examine the relationship between ICR and firm-specific characteristics.	• 36 biotechnology IPO companies. • Year 2005-2007.	• Content analysis based on a two-point (0&1) coding system. • Descriptive statistics. • Regression.	• 78 IC items (adapted from Bukh *et al*., 2005).	• The extent of ICR was low. • Listing status, maturity and independence of the board were associated with ICR. Whereas, size and age of the company were not.
Liao *et al*. (2013) **China**	• To examine the extent and quality of ICR between the English and Chinese language versions in the annual reports of Chinese companies.	• 50 listed companies in Chinses Mainland and Hong Kong stock markets. • Year 2009.	• Content analysis based on a five-point (0-4) coding system. • Percentage. • Descriptive statistics. • ANOVA.	• **12** IC items.	• The Chinese version annual reports disclose more internal capital compared the English version.
Uyar (2013) **Turkey**	• To examine the nature and extent of human capital disclosure. • To examine the factors associated with human capital disclosure.	• 131 listed Companies in Istanbul Stock Exchange. • Year 2010.	• Content analysis based on a two-point (0&1) coding system. • Descriptive statistics. • Correlation. • Regression.	• **15** human capital items.	• The average of human capital disclosure was 32%. • There was a great difference in the extent of human capital disclosure among Turkish companies. • There was a significant relationship between human capital disclosure and industry type, firm size, audit firm, listing age. Whereas, profitability, leverage, independent directors, ownership diffusion were not.
De Silva *et al*. (2014) **New Zealand**	• To examine the trend of ICR.	• 93 listed companies. • Years 2004, 2007 and 2010.	• Content analysis based on a five-point (0-4) coding system. • Percentage.	• **19** IC items.	• There was an increase in the ICR between 2004 and 2010.

Abhayawansa and Azim (2014) **Bangladesh**	• To examine the of ICR of the Bangladeshi pharmaceutical companies.	• 16 listed companies. • Year 2006.	• Content analysis • Frequencies.	• **33** IC items.	• A greater extent of IC information was disclosed. • There was a great variation in the extent of ICR between the companies. • There was no consistent adopted framework for ICR.
Low *et al*. (2015) **New Zealand, Australia and UK**	• To examine the quality of voluntary ICR by universities.	• 90 universities (i.e. eight in New Zealand, 38 in Australia, 44 in UK). • Year 2011.	• Content analysis based on a six-point (0-5) coding system. • Descriptive statistics.	• **19** IC items.	• New Zealand and Australian universities disclosed more IC information than UK universities. • The quality of IC disclosure by New Zealand universities was higher than Australian and UK universities. • Internal capital and human capital were the highest categories of disclosure.
Wang *et al*. (2016) **China and India**	• To examine the extent and quality of ICR by IT companies.	• 40 listed companies (i.e. 20 Chinses and 20 India companies). • Year 2014.	• Content analysis based on a five-point (0-4) coding system. • Descriptive statistics. • Frequency.	• **15** IC items.	• Indian IT companies disclosed higher extent and better quality than Chinses companies. • External capital disclosure was the highest in both India and China. • Human capital was lowest in India and internal capital in In China.
Garanina and Dumay (2017) **US**	• To investigate the extent of ICR in initial public offering (IPO). • To examine the influence of ICR on post-issue stock performance.	• 154 technology listed companies in NASDAQ. • Year 2003-2013.	• Content analysis based on (0 & 1) coding system. • Descriptive statistics. • Regression.	• **79** IC items.	• **IPO** prospectuses contained significant amount of IC information. • ICR had a higher influence in post-issue stock performance.
Lim *et al*. (2017) **Australia**	• To examine extent and trend of the quality of ICR by biotechnology companies.	• 28 listed companies. • Year 2002, 2006, and 2010.	• Content analysis based on a four-point (0-3) coding system. • Descriptive statistics. • Paired sample t-test. • Chi-squared.	• **18** IC items.	• The highest quality disclosure was for internal capital and lowest was for human capital. • Internal capital and external capital lower the quality over the period of the study.

Rossi et al. (2018) **Italy**	• To find a new way to disclose IC in universities through their websites.	• 58 universities in Italy • Year 2017	• Theoretical framework developed by Low et al. (2015). • OLS regression method.	• **42** IC items.	• There is an extensive use of ICD via university websites for human and internal capital. • Internationality and online visibility positively affect ICD.
Bontis et al. (2018) **Italy**	• To provide empirical evidence on the relationship between IC and economic performance.	• 151 Social Cooperative Enterprises (SCEs) in non-profit sector. • Year 2016-2017	• Survey instrument. • Principal Component Analysis (PCA). • OLS regression.	• **13** IC items.	• Human capital positively influences economic performance. • Human and relational capital influenced mission-based performance positively. • Structural capital does not affect SCEs economic performance.
Santis et al. (2018) **Italy**	• To examine the ICD extent within IR.	• 45 financial services companies. • Year 2014-2016	• Content analysis with disclosure index developing a scoring sheet.	• **14** IC items.	• Firms align their IC disclosure with classifications from IC scholars. • Approximately 70% of the firms provide minimal information regarding IC components and value creation process.
Dey & Faruq (2019) **Bangladesh**	• To examine ICD practices and determinants.	• 30 firms in DS30 companies. • Year 2013-2017	• Content analysis. • Multiple regression analysis. • Spearman correlation.	• Exact items are not specified.	• Board independence and globally affiliated auditors have positive impact on ICD.
Rahman et al. (2019) **Bangladesh**	• To examine ICD practices and determinants.	• 21 pharmaceutical and chemical industries. • Year 2016-2017	• Content analysis. • Pooled cross-sectional method. • Multivariate regression analysis.	• **24** IC items.	• ICD is positively associated with firm size, leverage, and firm performance. • ICD is negatively associated with director ownership and institutional ownership.
Salvi et al. (2020) **Africa, Asia, Europe & Oceania**	• To examine the influence of ICD levels on cost of equity capital.	• 82 listed companies across 12 countries. • Year 2016-2017	• Content analysis.	• **33** IC items	• Negative relationship between ICD and cost of equity capital.

Vitolla et al. (2020) **27 countries**	• To examine the effects of board characteristics on ICD quality.	• 130 international companies.	• Content analysis. • Multiple linear regression model.	• **6** attributes.	• -Board characteristics like board size, independence, diversity, and activity have a significant positive relationship with the ICD quality.
Birindelli et al. (2020) **Italy**	• To investigate the ICD of healthy and distressed Italian banks.	• 6 listed Italian banks. • Year 2016-2017	• Content analysis and encoding techniques.	• 16 IC items. **79** sub-indicators.	• ICD was poor among the Italian banks. • The intensity of disclosure varied from healthy to distressed banks. Healthy banks showed more non-qualitative forward-looking information.
Zhang et al. (2021) **Vietnam**	• To examine the impact of IC on the financial performance.	• 108 financial firms and 41 pharmaceutical firms. • Year 2016	• Value Added Intellectual Coefficient (VAIC) model.	• **3** IC components within VAIC model.	• Linear relationship between IC and financial performance. • Structural Capital Efficiency (SCE) has adverse effect on ROA and beneficial effect on ROE. • Human Capital Efficiency has a stronger impact on ROA in financial firms and on ROE in pharmaceutical firms, and vice versa for SCE.
Mawardani & Harymawan (2021) **Indonesia**	• To examine the levels of IR disclosure in annual reports of non-financial listed companies.	• 936 public listed companies on the Indonesian Stock Exchange. • Year 2017-2018	• OLS regression analysis. • Content analysis.	• **92** keywords from **46** IC Items.	• Companies with a greater proportion of independent board members and a larger board size reveal a more extensive level of integrated reporting information.
Nicolò et al. (2021) **Italy**	• To examine the extent of online ICD.	• 117 Italian listed companies. • Year 2019	• Systematic coding framework based on Gunther and Petty (2000).	• 24 IC items.	• Companies use websites to meet stakeholders' information needs on strategic intellectual capital, especially external capital. • A majority of ICD is presented in narrative format. • Company size and board independence positively impact ICD extent and type. • Profitability affects the extent of online ICD positively.

Bryl et al. (2022) **15 countries-America, Europe & Asia**	• To examine ICD on Twitter and determine the main themes communicated to stakeholders.	• 60 of the world's largest companies on Twitter. • Year 2019	• Content analysis on over 42,000 tweets.	• **243** keywords.	• More than one-third of published tweets by the world's largest companies focus on IC. • Companies prioritize disclosing relational capital information, followed by human and structural capital. • Main IC themes disclosed include management philosophy, corporate reputation, and business partnering. • Tweets related to IC attract greater stakeholder interest and provoke more reactions. • There is inconsistency between the most intensively disclosed topics by companies and those that elicit the most vivid responses from stakeholders.
Dalwai et al. (2023) **Oman**	• To examine the impact of IC and corporate governance on the readability of annual reports.	• 30 listed financial firms in Muscat Securities Market. • Year 2014-2018	• Flesch Reading Ease and Flesch-Kincaid grade level index. • VAIC coefficient.	• **3** IC components within VAIC model.	• Reduced intellectual capital efficiency improves annual report readability for financial firms. • Banks exhibit a favourable connection between intellectual capital efficiency and Flesch Reading Ease. • Structural and capital employed efficiency have a negative impact on annual report readability. • Corporate governance factors like dispersed ownership and audit committee size contribute to easily readable annual reports, aligning with agency theory.