THE FUTURE OF INTERNET CORPORATE REPORTING – CREATING THE DYNAMICS FOR CHANGE IN EMERGING ECONOMIES: A THEORETICAL FRAMEWORK AND MODEL

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Abstract

This study aims to develop a generic framework for the adoption of Internet corporate reporting (ICR), in developing countries, and to test the applicability of this framework by undertaking an empirical study in a developing country, namely Jordan. The key literature focuses mainly on economic-based theories in explaining different ICR practices as a voluntary disclosure channel. The theoretical foundation underpinning the study integrates several of these disclosure frameworks with innovation diffusion theories. A questionnaire survey was conducted among 150 CEOs and CFOs of companies, with usable websites, listed on the Amman Stock Exchange. Based on managers' evaluation, four factors were further identified as significant contributors to ICR adoption, namely cost-benefit balance, management commitment, internal technology readiness, and users' attention. Given the lack of an overarching theoretical framework for studying ICR, this study presents an assessment framework for ICR adoption, which enables managers to evaluate the current status of a company in respect of three aspects of readiness to engage in ICR, these being: organisation, technology, and environment.

Keywords: Internet Corporate Reporting, ICR, Website Reporting, Financial Reporting

1. INTRODUCTION

Advancements in internet and web technologies have profoundly changed the communicative characteristics of companies' reporting practices over the past two decades (Al-Htaybat, 2011; Mokhtar, 2017). The internet, as a worldwide electronic medium, enables companies to communicate a vast amount dynamic financial and non-financial information to current and potential stockholders, and to do so frequently, quickly, and in a timely, useful and cost-effective manner (Debreceny et al., 2002; Beattie and Pratt, 2003; Jones and Xiao, 2004; Mohamed et al., 2009; Cordery et al., 2011). Additionally, information disseminated on a company's website can be accessed from all kinds of users all over the world (Debreceny et al., 2002; Bowrin, 2015).

Nowadays, the dissemination of corporate information via companies' websites has become an established and common practice in developed countries (Fisher and Naylor, 2016), but developing countries are still lagging behind in this respect (Al-Hayale, 2010; Oyelere and Kuruppu, 2012). Studies that have been recently conducted in developing countries have indicated the low propensity of ICR utilisation. For example, the adoption of ICR stands at only 22% in Oman (Mohamed et al., 2009), 16% in Turkey (Bozcuk et al., 2011), 38% in Morocco and 28% in Tunisia (Henchiri, 2011), 38% in Jordan (AbuGhazaleh et al., 2012a), 26% in Bahrain (Desoky and Mousa, 2013), 46% in Saudi Arabia and Oman (Basuony, 2014). Importantly, patterns of online disclosure practices which are valuable as investor information, remain below ambitions in those countries (Oyelere and Kuruppu, 2012).

Closer investigation of relevant research on ICR adoption, reveals that studies have been performed mainly into two waves. Initially, the focus was intensively on the situation within the developed world (e.g. Lymer, 1997; Lymer and Tallberg 1997); Gowthorpe and Amat, 1999), whereas recent and

contemporary attention is widely paid to developing countries (e.g. Henchiri, 2011; Al-Htaybat, 2011; AbuGhazaleh et al., 2012a, b). This explicitly indicates that issues of ICR adoption are no longer matters of interest for developed countries, where studies have found that firms have been largely taking advantage of website technology as channels of communication with stakeholders. However, those issues are of particular importance in developing countries where companies are less frequent in utilising such initiatives (Al-Hayale, 2010; Oyelere and Kuruppu, 2012). This raises the questions of why firms in developing countries are reluctant to exploit the benefits of such communication means, and what in particular motivates their reluctance.

The ICR literature provides valuable insights about the possible determinants and factors that influence the voluntary choices of companies towards internet reporting adoption and practices, such as firms' general characteristics, and corporate governance (Xiao et al., 2004). However, it does notably, rely heavily on conventional disclosure literature in identifying the influences of internet reporting adoption and practices, and simultaneously it closely adheres to economics-based theories (agency, signalling, capital needs, and legitimacy theories) as the theoretical foundation for addressing the ICR phenomenon. This approach suggests some limitations of the current literature, especially where the nature of internet reporting is different from the nature of printed reporting. Given that internet reporting emerged as a result of the development of technological innovations, it follows that all obstacles that may hinder the diffusion and adoption of new innovations, such as technological readiness, management willingness, environment preparedness and organisation attributes, should be considered when investigating the adoption and prevalence of internet disclosure.

Since the early nineties, the enhancement of disclosure and transparency has received greater attention by controlling and regulatory agencies in Jordan, in an attempt to improve stock market efficiency and attract foreign investment. Alongside this effort, Jordan has been increasingly utilising Information and Communications Technology (ICT) pillars such that now the country has become one of the most important technology centres in the Middle East (Al-Hayale, 2010). Lately, acknowledging its advantages, the Jordan Securities Commission (JSC) has guided listed companies in Jordan to voluntarily use their websites to promote disclosure and transparency. Nevertheless, similar to the situation in other developing countries, ICR is still in its infancy in Jordan (AbuGhazaleh et al., 2012a).

From the above discussion, it can be seen that several factors have a bearing on the determinants of ICR adoption and practices and that these need to be investigated in depth in order to remove barriers to the effective implementation of ICR. In this respect, there are factors relating to the company that is known to play an important role when it comes to corporate reporting in general, and ICR in particular, such as for example, new technological evolutions that theoretically support the adoption of ICR, but which nonetheless, are dependent upon the readiness of organisations and indeed countries generally, for such initiatives. To the best of the researcher's knowledge, no comprehensive research has yet addressed these factors empirically, and consequently, this study seeks to explore the technological, organisational, and environmental factors that might affect ICR adoption in a developing country, namely Jordan. Additionally, the study seeks to identify the determinants of various disclosure practices evident within organisations as indicated on their corporate websites.

Following this introduction to the study, Sections 2 and 3 are presented to provide an overview of the relevant ICR literature and to present a critical review of it. Sections 3 and 4 respectively present the development of the theoretical framework, and the research methods adopted. Section 6 reports and discusses the results of the analysis and Section 7 concludes the paper.

2. LITERATURE REVIEW

Addressing the determinants of ICR adoption has been early and equally interesting, for both developed and developing countries, being tacked for instance in the UK by Marston and Leow (1998), in Ireland by Bernnan and Hourigan (1999), and in Malaysia by Hassan et al. (1999) This is perhaps due to the fact that ICR practices in these countries were at minimal levels in the early stages, and hence these researchers' efforts were directed towards studying the adoption and non-adoption of ICR.

These early waves of research essentially addressed various companies' attributes as determinants of ICR adoption. The size, profitability, leverage, and industry sector were the most common predictor variables used to identify companies' adoption status. For example, in addition to the above studies, those by Craven and Marston (1999) in the UK, Ettredge et al. (2002) in the USA, Ismail (2002) in Qatar, Saudi Arabia and Bahrain, Joshi and Al-Modhahki (2003) in Bahrain and Kuwait, Oyelere et al. (2003) in in New Zealand, Rodrigues and Menezes (2003) in Portugal, and Mendes-Da-Silva and Onusic (2014) in Brazil, all used this approach. However, in over 118 listed Canadian companies, Trabelsi and Labelle (2006) also found another predictor variable, that being the desire of companies to minimise litigation risk and to respond to investors' demands. Indeed, this delivery of incremental information content on companies' websites was mainly associated with this motivation.

Later, some studies included certain aspects of ownership and governance structures as potential motives towards the voluntary choice by firms to adopt ICR. However, while Momany and Al-Shorman (2006) provided evidence of the significance of ownership structure in the online disclosure presence in the Jordanian context, Al-Shammari (2007) failed to find such evidence in Kuwait. Likewise, Barako et al. (2008) found that in a sample of Indonesian firms, ownership structure, board, and audit committee independence had no significant explanatory power in respect of the use of ICR. More recently, in an international analysis of ICR adoption among 44 developed and developing countries, Ojah and Mokoaleli-Mokoteli (2012) concluded that macro-environment variables, namely technology infrastructure, financial market structure and political structure all positively affected the

propensity for ICR adoption when the ownership structure was controlled. Further, as micro-environment factors, the desire for more profitability and fewer needs for financing needs, were seen to reduce the value in using corporate websites as a means of communicating with investors.

The other category of relevant studies seeking to identify facilitators of and barriers to ICR adoption includes those using contingency, institutional, and innovation diffusion frameworks as the main theoretical bases for their analysis. Xiao et al. (1996, 1997), for example, using contingency theory, found that the greater use of IT leads to more sophisticated internal and external financial reporting. However, this usage is subject to mediation by many contingent factors such as user type, firm size, gearing ratio, listing status, and management compensation plans. Still drawing on a contingency framework, Xiao et al. (2002) subsequently evaluated the different views of a number of experts about the immediate trends of website disclosure, suggesting that the future of online reporting is largely dependent upon several technological and non-technological factors. Building substantially on the research by Xiao et al. (2002), Jones and Xiao (2004) sought a consensus view from 20 UK experts on corporate reporting, to predict the determinants of future change of online reporting by 2010. Their findings established three possible perspectives on determinants of online reporting change by 2010, these being social determinism (social, organisational or behavioural factors), technological determinism or, based on the contingency perspective, a mix of technological and non-technological factors.

A study by Ashbaugh et al. (1999) in the USA, demonstrated that among the strongest incentives for the development of a corporate website was the need to maintain good communication with stakeholders and customers, and to match their competitors' practices. And in Gowthorpe's (2004) research into the incentives for ICR and the nature of what was reported, in smaller UK listed firms outside the FTSE 100, it was revealed that the involvement of top management (managing directors) served as the main driver in this respect.

More recently, three studies undertaken in Arab countries examined companies' reluctance to adopt ICR. Utilising diffusion of innovation and institutional theories, Aly (2008) in Egypt, and AbuGhazaleh et al. (2012b) in Jordan, investigated factors that lead to the decision not to create a website, and not to engage in online disclosure. Among the important findings coming from Aly's (2008) interviewees was that attitudes towards ICR are highly influenced by management style, culture, organisational culture, resistance to change, technical abilities, imitating rivals, and rules and regulations. AbuGhazaleh et al. (2012b) concluded that bridging the geographical divide with international shareholders, management support and responding to pressures of major stakeholders, serve as the fundamental incentives to adopt online reporting. Finally, Al-Hayale (2010) found several obstacles to maintaining online financial disclosure in Jordan, namely expertise, importance to company, regulation, management and government support, and high initial set-up costs.

3. A CRITICAL ASSESSMENT OF THE RELEVANT ICR LITERATURE

ICR is a voluntary channel of corporate disclosure (Oyelere and Kuruppu, 2012), which targets many information user groups (e.g. investors, creditors, and regulators) all with different needs and interests (Solmons, 1986). Thus, there is the substantial potential for conflict among users in respect of the relevance and materiality of information provided (Omar and Simon, 2011), and hence it is not easy to explain the multi-faceted phenomenon of disclosure through a single theory approach (Hope, 2003). Aly and Simon (2008) argue that three main theoretical frameworks are helpful in analysing voluntary corporate disclosure, these being those associated with economics, institutional change, and innovation diffusion. However, in the context of ICR, the economics-based theories, namely agency, capital needs, signalling, and legitimacy theories, have been the most cited (Debreceny et al., 2002; Mokhtar, 2017; Oyelere and Kuruppu, 2012).

However, one of the shortcomings associated with these economics-based theories is their main assumption that there is information asymmetry in the capital markets, and between the manager (agent) and the owner of the company (principal). According to these theories, reducing this information asymmetry can be achieved by enhancing the level of voluntary disclosure practices, something which can more easily be achieved by technological innovation and the presence of the internet. Nonetheless, this approach suffers from many limitations that perhaps mitigate its effectiveness in interpreting the various companies' practices of voluntary disclosure, particularly in less developed countries (Abdelsalam, 1999).

Another limitation of the economics-based theories is their assumption that financial markets are efficient. This suggests that all information about the company available in the capital market is directly experienced by the investors, and subsequently automatically reflected in the company stock prices (Ross et al., 2010). This assumption may not be applicable in the case of developing countries (Abdelsalam, 1999), where there is a lack of efficiency in the financial market, which may mitigate the signalling effect of the disclosed information (Leventis and Weetman, 2004). Given these understandings, Keane (1993) and Abdelsalam (1999) argue that the capability of the economic approach to explain the voluntary adoption of disclosure practices may not exist in emerging financial markets in developing countries, as the applicability of such theories is contingent upon two propositions: efficiency of the financial market, and rationality of investors in the market, that themselves may not exist in those contexts.

Yet a third criticism of the economics-based theories is their main focus, which is principally on the relationship between the managers and owners of the company. Such theories limit the incentives to managers to engage in voluntary disclosure in order to avoid conflict with the owners and limit the potential costs that any such conflict might incur. Consequently, the cost of capital is reduced and the value of the firm is increased. However, organisations in modern economies are not only responsible for

reporting their activities and being accountable to the owners (shareholders), but they are also obliged to answer to all stakeholders in society (Guthrie et al., 2006). Such responsibility to all these various such as creditors, governmental bodies, employees, suppliers, and others, constitutes the impetus that motivates managers to engage in different types of corporate disclosure practices, in order to discharge their accountability and gain legitimate status in society (An et al., 2011).

Studies founded on economic theories, do provide valuable insights about the possible determinants and factors that influence the voluntary choices of companies in respect of the adoption of internet reporting, in both developed and developing countries (Xiao et al., 2004). However, they do rely on the conventional corporate reporting in identifying the explanatory factors, and they do suggest that the same proposed factors that affect the traditional paper-based disclosure may also influence different practices of internet reporting (Al Arussi et al., 2009; Oyelere and Kuruppu, 2012). This might, therefore, be a cause of the failure to find evidence to support the relationship between some predicting factors and ICR practices. In this context, Oyelere et al. (2003) argue that the culture and environment of ICR are to some extent different from conventional paper-based reporting, a fact which might, in turn, reflect variations in structures of cost and benefits as well as the supply of, and demand for disclosure. Likewise, Xiao et al. (2004) argue that the unique attributes of ICR, such as high capacity, dynamicity, and information overload-related problems and others, should draw attention to different factors and determinants, other than those addressed to explain voluntary disclosure in the traditional paper-based environment. Xiao et al. (2004:197) also state that these attributes "suggest that adoption of this technological-based innovation may involve complex tradeoffs beyond the typical factors considered by the agency and signalling theories".

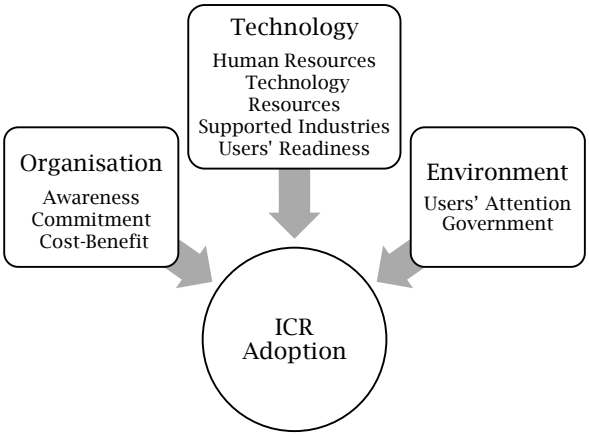
4. DEVELOPMENT OF THE THEORETICAL FRAMEWORK

After reviewing the literature, it is apparent that there is no comprehensive theoretical framework to investigate the adoption of ICR. Therefore, this study's initial aim is to build such a comprehensive model to do this. The framework generated takes into consideration the innovative nature of internet disclosure, as well as the fact that such disclosure is a voluntary means of communicating information. Hence, the study combines the findings from the innovation diffusion literature with those from the internet disclosure literature in an attempt to address the identified limitations and gaps in internet disclosure research. This allows for an inclusive study that empirically addresses the catalysts and hindrances to ICR adoption, something which has thus far, not been attempted in this way. The framework is therefore seen to rest upon the integration of multiple theories, these being innovation diffusion, information cost, stakeholder, and legitimacy theories.

As ICR is described as a multidisciplinary topic (AbuGhazaleh et al., 2012b), the study has recourse to information systems (IS) research and introduces the Perceived eReadiness Model (PERM) (Molla and Licker, 2005), which in itself has been adapted and extended to become appropriate for studying the context of ICR adoption. In the development of the inclusive framework for studying exogenous and indigenous factors that may influence e-commerce adoption in developing countries, those authors considered Diffusion of Innovation theory (DOI), and the Technology-Organisation-Environment model (TOE), in addition to reviewing existing related innovation adoption studies.

In general, Molla and Licker (2005) included four main imperatives in the PERM, which represent dimensions that are commonly addressed in IS research when conducting an investigation into IT-related innovation adoption issues. These imperatives are: managerial, organisational, technological, and environmental. One reason for the involvement of the PERM in the current study is the lack of inclusive framework in the internet disclosure literature for studying company practices in respect of the adoption and diffusion of innovations. As a generic and comprehensive framework, the PERM (Fathian et al, 2008) not only includes all the imperatives needed to examine the catalysts and obstacles to the adoption and diffusion of new innovations but also considers the effect of the interaction of these imperatives in one dynamic model. Moreover, the PERM was designed to investigate new technological innovation adoption in the context of developing countries (Molla and Licker, 2005). In this respect, Tan et al. (2007) point out that what distinguishes the PERM from other models is that it defines some of the variables in a way that takes the status of developing countries into account. Adapting the main dimensions of the PERM (Molla and Licker, 2005), this study suggests some factors that may affect the management decision to engage in ICR adoption. The proposed theoretical framework for the study consists of three main domains, namely organisation, technology and environment, as depicted in Figure 1, which also indicates the factors associated with each domain.

Figure 1. The theoretical framework of the study



4.1. Organisational domain

4.1.1. Awareness

Awareness can be referred to as the management perception of the organisation's total knowledge about elements of website reporting in the environment. This knowledge extends to information about partners, competitors, and government agencies, and it implies recognising different aspects relating to website reporting, particularly requirements, technologies, forms, costs and benefits. In fact, Rogers (1995) considers the knowledge about any innovation as a preliminary step in the process of making a decision to adopt or reject that innovation. He also highlights that in the knowledge stage, an organisation becomes informed about the presence of the innovation and looks for information about it. Thus, it is apparent that awareness about patterns of ICR in the environment represents a crucial factor in whether or not ICR is diffused and adopted. Clearly, organisations cannot implement website disclosure practices unless they have sufficient information about them.

Researchers like Joshi and Al-Modhahki (2003), and Al-Htaybat (2011) have attempted to address the effect of companies' level of awareness about the elements of ICR, on the practices of internet reporting in developing countries. They used timing issues, "online age", as a proxy for levels of companies' understanding and familiarity with ICR, and hence, their knowledge of the potential of ICR to improve corporate disclosure. Additionally, Al-Htaybat (2011) hypothesised that companies that have had more experience of operating their websites are more likely to be more knowledgeable about the advantages and applications of ICR. This is presumably due to the development, over time, of well-established infrastructures as well as a human capital expert in the various website technologies (Al-Htaybat, 2011).

4.1.2. Commitment

Commitment refers to the top management vision of ICR and the support given to such financial reporting initiatives. It also refers to the strategy adopted by the company leadership to master technological changes in order to improve disclosure approaches.

Building upon the propositions of DOI theory (Rogers, 2003), it is expected that an organisation will adopt the internet as an extra channel for disseminating corporate information if that action is seen as compatible with its current needs, existing values, and experiences. Thus, companies in Jordan are more likely to adopt ICR practices if they perceive a demand from information users for online disclosure, and also if these practices agree with their values as embedded in their disclosure policy and culture.

Disclosure choices and the adoption of new technology are very much driven by the interests of the top management of the company (Tarafdar and Vaidya, 2007). Internet reporting brings these two attributes together, representing, on the one hand, one form of voluntary disclosure, and on the other hand, is considered essential for the diffusion of new technology. Hence, any lack of success in securing the necessary support from top management may result in failure to adopt a strategy of corporate disclosure via internet technology. Molla and Licker (2005) and Troshani and Doolin (2005) suggest that the awareness and commitment of the top management are fundamental requirements in the adoption of new technologies, and this suggestion may be applicable in the context of ICR.

Moreover, managers are the core of the change process in organisations, and their attitudes towards new innovations such as ICR, are crucial in championing their adoption and implementation. This is especially true of developing countries, where businesses are mostly characterised by highly centralised organisational structures (Vreede et al., 1999). It is management commitment to an innovation that secures the allocation of needed funds for the adoption process to succeed (Tarafdar and Vaidya, 2007); hence, managerial champions are vital for the effective promotion and implementation of new technologies (Neufeld et al., 2007).

4.1.3. Cost-benefit balance

The cost-benefit balance reflects management's assessment of the perceived advantages and benefits of internet reporting relative to its potential costs, especially in the presence of printed and third party disclosure services.

In fact, both voluntary disclosure practices, and the implementation of new technologies are subject to top management's perception of there being an acceptable balance between the perceived costs and relative benefits and advantages (Gray et al., 1995; Oliver et al., 2005; Henchiri, 2011). The voluntary disclosure provides additional company information which can serve to bridge the gaps in mandatory disclosure (Omar and Simon, 2011). Nonetheless, information costs theory predicts that the manager's decision whether to disclose additional information or not, is part of the cost and benefit analysis and that the expected benefits of such disclosure must prevail over its cost (Levinsohn, 2001; Ferguson et al., 2002; Henchiri, 2011). In terms of technology, according to innovation of diffusion theory, if the perceived benefits of new technology, such as enhancing the competitive advantages and reducing compliance costs, outweigh its perceived costs, then it is more likely to be adopted (Rogers, 2003; Oliver et al., 2005; Cordery et al., 2011).

In spite of the existence of several advantages of ICR, like accessibility, interactivity and capacity etc., ICR does nonetheless, incur some additional costs concerned for example, with updating and maintenance, security programmes, licence rights, periodical repair, designing and programming fees, and total staff costs in respect of upgrading, maintaining and monitoring the company's website (Adams and Frost, 2006; Jones and Xiao 2004; Marston and Polei, 2004).

Consequently, Mohamed et al. (2009) argue that these unnecessary and additional costs associated with ICR are a burden on companies in developing countries, in which online reporting is not mandated, and merely represents a voluntary form of corporate disclosure; furthermore, ICR does not officially substitute for the mandatory hard copy annual reports. Oyelere and Kuruppu (2012) also argue that

such costs, among other issues, are responsible for limiting the wide diffusion of online financial disclosure in the Middle East.

4.2. Technology domain

The technology domain represents the management assessment of the extent to which technology pillars inside and outside the organisation assist in supporting the adoption of ICR. These pillars include the physical-technology infrastructure, human resources in the company, and technological development at the national level. In particular, the ICT infrastructure, industries supported by that infrastructure, and information users' readiness are important.

Corporate disclosure via the company website is different from traditional hard copy reporting since the technology represents the focal point of the company's attitude towards internet reporting adoption and utilisation. Companies and even countries differ in their technological readiness to host the new technologies, there being variations among them in terms of infrastructure, expert human capital, industries supported, and regulations (Molla and Licker, 2005; Doolin and Torshani, 2007; Tan et al., 2007). In this regard, Molla and Licker (2005) state that the challenges facing companies in developing countries are different from those in developed countries. They also demonstrate that businesses in developing countries suffer from the lack of availability of expert human capital, and well-established, low cost and affordable (ICT) infrastructure, in contrast to businesses in developed countries, where such facilities are relatively available. Furthermore, Molla and Licker (2005) highlight that the size of companies in emerging countries is generally small, meaning that they have less complex structures, which while facilitating the adoption and implementation of new IT systems, nevertheless also mean that they lack sufficient resources (financial and human) to manage such implementation effectively. Doolin and Troshani (2007) report this phenomenon, highlighting that the complexity of the firm structure may reflect the level of availability of qualified personnel who possess the expertise and knowledge that enable them to adapt to new changes brought by implemented technologies.

DOI theory also suggests that it is highly probable that an organisation will adopt the internet as an extra channel for disseminating corporate information if it is seen as compatible with its current needs, values, and experiences. Thus, companies in Jordan are more likely to adopt ICR practices, if they possess sufficient human and technological competencies to engage in such disclosure systems. In this respect, many researchers (e.g., Lodhia et al., 2004; Al Arussi et al., 2009; AbuGhazaleh et al., 2012b) argue that the availability of an IT department encourages companies to adopt ICR.

Technological preparedness varies among countries, and consequently, those countries' capabilities to host the new technologies will also be different (Molla and Licker, 2005; Doolin and Torshani, 2007; Tan et al., 2007). Technical abilities like infrastructure and industries supported by it, in addition to educated information users, may constitute substantial powers encouraging/discouraging the adoption of ICR. Xiao et al. (1997) Debreceny et al. (2002) and Ojah and Mokoaleli-Mokoteli (2012) all argue that the level of financial reporting via the internet is more likely to increase with the increase of internet penetration and IT availability and use in the country.

Likewise, a lack of availability and affordability of technology vendors of website technologies is more likely to impede the maintenance of corporate websites, and hence, the adoption of ICR. Also, according to DIO theory, the presence of vendors of website technologies aids in reducing the uncertainty surrounding emergent technological innovations. Overall, the level of technological development in the country might assist in mitigating the complexity of new technologies such as ICR, and make it easier to be observed and subsequently tried.

Debreceny et al. (2002) and Ojah and Mokoaleli-Mokoteli (2012) found through cross-country comparisons, that the technology infrastructure of a country significantly fosters firms' adoption of financial reporting on the internet. In addition, AbuGhazaleh et al. (2012b) have highlighted that one of the factors hindering the adoption of corporate websites for investor relations practices in Jordan, is the slow broadband connection, which inhibits the use of some applications.

4.3. Environmental domain

4.3.1. Users' attention

Users' Attention can be referred to as the management's perception of the extent of interest directed by corporate information users in ICR, the role of ICR in improving the firm's image, and ICR's importance in meeting the different needs of those users.

Organisations in the modern economy, according to stakeholder theory, are accountable to all stakeholders in society for their activities (Guthrie et al., 2006). The wide-ranging nature of these stakeholders (creditors, governmental bodies, employees, suppliers, and others) is a factor that motivates managers to engage in different types of corporate disclosure practices, to deliver their accountability and gain legitimate status in society (An et al., 2011).

Furthermore, the institutional change theory suggests that pressures exerted upon the company by trading partners within its supply chain (such as customers), may influence the adoption of technology (Cordery et al., 2011). In the case of ICR, the players in the supply chain are somewhat different. The users of corporate information - like debt and equity holders - may constitute a pressing power on the company to engage in online reporting. Therefore, consistent with the claims made by an institutional theory, companies are more likely to respond to the requirements of capital providers as a coercive source of change (Xiao et al., 2004).

4.3.2. Government

Government represents management's evaluation of government support and levels of effort spent by government in issuing regulations, such as for

example, e-crimes prevention laws that encourage the adoption of technological innovations such as ICR. The presence of such electronic crime laws may assist in protecting the security and integrity of the financial information published on company websites. Furthermore, government support involves the extent of assistance coming from the government and its institutions that promote ICR adoption, such as, the extent of encouragement by local controlling and financial bodies to engage in ICR.

Information disseminated over company websites is subject to alteration and omissions either internally (e.g. in the case when the manager intentionally wants to omit some facts and/or draw attention to certain information whilst hiding other details), or externally through, for example, unauthorised access to the company website by an external person (Xiao and Jensen, 2001; Mohamed et al., 2009). Consequently, the completeness of the financial information might be affected, thereby reducing its integrity and reliability.

In this respect, researchers like Jones and Xiao (2004) and Mohamed et al. (2009) argue that security exposure represents one of the most important challenges facing the integrity and reliability of the reported financial information via internet means. Such a challenge can be ameliorated by governments since they can take steps to strengthen security frameworks, and thereby promote the adoption of technological innovations such as ICR. This can be done by establishing a proper regulatory climate to facilitate the acceptance of technologies. Clearly, the existence of such a climate is an indication of a country's readiness to embrace technology.

The literature of diffusion of innovations has suggested government support as an important potential influencer in the adoption and prevalence of technological innovation (Xiao et al., 2004; Molla and Licker, 2005; Doolin and Torshani, 2007; Cordery et al., 2011). Certainly, Cordery et al. (2011) stress the role of government policies in exercising "push" power towards the adoption of XBRL for business reporting.

Furthermore, Institutional theory predicates that one form of institutional change happens due to "coercive isomorphism", brought about by the pressures placed upon an organisation by dominant parties in society, such as the government. This may occur via persuasion or straightforward imposition. In this context, Xiao et al. (2004) argue that companies might engage in ICR initiatives as a response to the mandates of government regardless of whether it is beneficial to them or not. In the Jordanian case, governmental agencies such as the ASE and the Central Bank of Jordan (CBJ) can bring about this kind of isomorphism in respect of the adoption of ICR among listed companies in the Kingdom, by mandating disclosure via corporate websites, or putting considerable effort into spreading knowledge about the need for voluntary adoption.

Such dissemination of knowledge and awareness is also integral to DOI theory which emphasises the role of "change agents" in adopting technological innovations in as much as those agents concern themselves with enhancing overall awareness. Clearly, the government can assume this role since through its responsible agencies, it has the means to encourage the adoption of ICR, which can be done by improving knowledge, and the disclosure and transparency climate, and by actively promoting the adoption of such disclosure means. Hence, the controlling and governmental bodies in Jordan, such as the ASE, should perceive themselves as valuable change agents that can prepare for ICR by creating the appropriate attitudes through the dissemination of knowledge and the provision of incentives and support.

5. RESEARCH METHOD

5.1. Questionnaire development

The development of the initial questionnaire resulted from a review of the DOI and disclosure theory and the outcomes of information obtained in informal interviews with academics. This questionnaire consisted of 52 items, two requiring general information, and the remainder being related to the factors included in the theoretical framework (see Appendix 1). Face validity was assured by discussing these items with a group of academic experts with appropriate experience and wide knowledge. Specifically, three were specialists in accounting, one in accounting information systems, and two in management information systems. Their role was to test the content validity of the instrument by ensuring the relevance of the items for each underlying factor, as well as to double- check on the wording and suitability of the questions devised. Once constructed, the questionnaire was distributed as a pilot to 17 CEOs, and 37 CFOs of listed companies in Jordan, but only 25 of these questionnaires were returned, despite frequent follow-up efforts over the telephone. Nonetheless, the validity of the questionnaire was assured after this exercise.

5.2. Data and sample description

Whilst aiming to acquire information from CEOs and CFOs of companies listed on the ASE, the criterion that only those companies with active websites were also imposed. This resulted in a total of 150 companies being identified as the sample for the study. The choice of CEO and CFO was made on the grounds that their position in the strategic management apex of their companies would increase the likelihood of their awareness of the current status in respect of the adoption and deployment of strategies of corporate reporting in their organisations. Additionally, they were considered to possess a level of knowledge about their firms' operations that would enable them to answer the survey questions intelligently.

The researchers began the fieldwork by preparing a directory of companies and including addresses, and names of their CEOs and CFOs. The contact numbers (private and/or business), fax details, and email addresses were sourced variously from databases (i.e., the ASE), websites, and personal contacts. The survey initially began by contacting scheduled respondents by telephone to gain their tentative consent to participate in the survey. In a few cases where the telephone number was absent, an email was sent asking for their contact numbers. During this initial introduction, many issues relating to the research were highlighted, specifically the identity of the researchers, the institution to which he

belonged, the purposes of the study, and its benefits to participants. Naturally, anonymity was confirmed, and participation was encouraged. These individuals were then asked for their preference in terms of delivery mode of the questionnaire (email, fax, or personal), and details in this respect were requested if they were not already held.

Eventually, due to some restrictions on accessibility, a total of 261 questionnaires were successfully distributed, of which 219 questionnaires were sent via email, 27 via fax, and 15 delivered personally. Follow-ups were made every two weeks, according to the time of distribution using reminder emails and telephone calls. In some cases, respondents asked for the emailed questionnaire to be resent via fax or to be handed personally or vice versa. This was due to some technical issues with the computerised version of the recipient mislaying the questionnaire that had already been received.

After serious follow-up efforts, 179 questionnaires were returned, giving a participation rate of 69% retention ratio, which is outlined in Table 1 that indicates the rates resulting from each delivery mode. Subsequently, five questionnaires were found to be unusable and eliminated, resulting in a final sample of 174 (64 CEOs, and 110 CFOs). It should be noted that the nature of the job, ranking within the company, and the country culture often makes it difficult to conduct research with Jordanian CEOs.

Table 1. Questionnaires distributed and response rate

Channel / *Questionnaire*	*Email*	*Fax*	*Personal*	*Total*
Distributed	219	27	15	**261**
Returned	155	16	8	**179**
Response Ratio	71%	59%	53%	**69%**
Unusable	2	2	1	**5**

5.3. Questionnaire validation

Having conducted the pilot study already reported, further procedures were undertaken once the responses were gained, to establish goodness of the measure.

5.3.1. Preliminary instrument reliability

The reliability test is conducted to measure the internal consistency of a research instrument across different items within a specific construct (Saunders et al., 2009). In this case, two reliability tests were conducted separately in respect of the sub-scales within the questionnaire (Field, 2009), which contained 50. These two tests were those to establish the alpha coefficients and the item-scale correlation.

The cut-off points of these tests are 0.7 for the overall Cronbach's Alpha coefficient of main factors. Additionally, any inter-item correlation value under 0.3 for a specific question or any variable if deleted, contributes to increasing the overall Alpha for a specific factor; then it should be dropped out (Field, 2009). In this study, all the factors achieved overall Alpha coefficients greater than 0.7. Surprisingly, for three questions, A4, A8, and C9, the inter-item correlation was found to be under 0.3 and hence, these were discarded, leaving 47 items for subsequent validity analysis.

5.3.2. Instrument validity (principal component analysis)

Principal Component Analysis (PCA) was used to test the construct validity of the questionnaire. PCA is similar to factor analysis (FA) and researchers usually use the two terms interchangeably (Field, 2009; Pallant, 2011). Both PCA and FA aim to show the inter-correlations among a set of variables, in order to clarify the network of associations between the underlying variables (Field, 2009; Hair et al., 2010).

The suitability of FA and the degree of reliability of solutions yielded from a particular set of data can be assessed according to two main aspects: sample size, and the extent of the strength of interrelationships among the items that are included in the study tool (Pallant, 2011). In fact, a contradiction exists among scholars about the appropriate sample size required for FA (Field, 2009; Pallant, 2011), but somewhere between 100 and 200 is considered sufficient to produce a reliable factor solution, in the case of the average of common variance (communalities) of the variables around 0.5 or more (MacCallum et al., 1999). Un-tabulated results indicated that all variables, included in the survey's data set have a communality extraction of 0.75 and above. Hence, the current sample size (174 responses) can be considered suitable for FA. Additionally, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) (Kaiser, 1970) was used to evaluate the suitability of the current sample size. The KMO index varies from 0 to 1, with the better good of factors the closer to 1 the value becomes. According to Kaiser (1974), further factor extraction requires a value of 0.5. As shown in Table 2, the KMO value for the study data set is 0.8294, thereby supporting the suitability of the sample size for FA.

Table 2. The KMO measure and bartlett's test of sphericity

Kaiser–Meyer–Olkin measure of sampling adequacy (KMO)	0.8294	
Bartlett's test of sphericity	Chi-Square	3255.254
	Df	216
	Sig.	0.000

To assess the strength of interrelationships among variables, two statistical techniques can be used: inspection of the correlation matrix for the values above 0.30, and Bartlett's test of sphericity, which should be significant at 0.05 or less (Tabachnick and Fidell, 2007). The value of Bartlett's test of sphericity is significant at 0.000 ($p < 0.05$) as shown in Table 2. In addition, the visual inspection of the correlation matrix indicates that there are many variables correlated at 0.3 and above. Therefore, these results suggest that the data and sample criteria required to apply FA were satisfied, and further factor extraction could be performed.

5.3.2.1. Initial factor extraction

Many approaches exist to extract the factors from a specific data set, i.e., principal components, principal factors, maximum likelihood, etc. (Pallant, 2011). The principal components approach is adopted in this

study because its results are easy to interpret (Field, 2009; Pallant, 2011), and multicollinearity does not affect the findings or their interpretation (Field, 2009). The sample included 174 responses, each one containing 47 items (questions).

The results of PCA indicate that 11 factors generated from the extraction have an eigenvalue greater than 1, as shown in Table 3. These factors explained a total of 86.49% of the variance, while the inspection of the rotated component matrix reveals that three of the 11 extracted factors are single-item factors. These variables were dropped from further analysis (UA2, HR1, and HR3). Furthermore, variables TR3 and UR4 were omitted from the final questionnaire. The former load less than 0.5 in its hypothesised factor and the latter did not reach the cut-off loading value 0.5 with any extracted factor. Hence, this result suggests retaining eight factors containing 42 items, with a total explained variance of 77.61%.

Table 3. Total variance explained

Component	*Initial Eigenvalues*			*Extraction Sums of Squared Loadings*			*Rotation Sums of Squared Loadings*		
	Total	*% of Vari.*	*Cum. %*	*Total*	*% of Vari.*	*Cum. %*	*Total*	*% of Var.*	*Cum. %*
1	11.0	23.00	23.00	11.04	23.00	23.00	6.64	13.83	13.83
2	7.79	16.22	39.22	7.79	16.22	39.22	5.51	11.48	25.31
3	4.42	9.21	48.43	4.42	9.21	48.43	5.26	10.95	36.26
4	3.63	7.56	55.98	3.63	7.56	55.98	4.42	9.21	45.46
5	3.34	6.95	62.93	3.34	6.95	62.93	4.41	9.18	54.65
6	2.66	5.55	68.48	2.66	5.55	68.48	3.68	7.66	62.31
7	2.39	4.97	73.46	2.39	4.97	73.46	2.85	5.93	68.24
8	1.99	4.15	77.61	1.99	4.15	77.61	2.83	5.90	74.15
9	1.66	3.45	81.06	1.66	3.45	81.06	2.05	4.27	78.41
10	1.38	2.88	83.93	1.38	2.88	83.93	1.98	4.12	82.54
11	1.23	2.56	86.49	1.23	2.56	86.49	1.58	3.29	85.82

Note: Extraction Method: Principal Component Analysis. The following extraction techniques were implemented:
1. Kaiser's Criterion (eigenvalue rule) was applied;
2. Varimax rotation technique was used;
3. Missing data were treated using case-wise deletion.
In addition, the following inclusion/exclusion of factors and variables rules were used (Field, 2009; Hair et al., 2006; Pallant, 2011):
1. Only factors that realised eigenvalue 1 or more were retained for further analysis;
2. Retaining the variables only with a factor loading 0.5 or more for subsequent analysis, and dropping the variables otherwise;
3. The factors that load at 0.5 or above in two or more factors have been discarded from further analysis;
4. Dropping the factors with a single variable to enhance the model's parsimony.

5.3.2.2. Factor extraction

As mentioned earlier, the Varimax rotation technique was employed to extract the potential factors that may affect the phenomenon in question and to ascertain whether the variables, which are already theoretically assigned to the particular factor, are really loading under that factor or not. The results of the Varimax rotation are summarised in Table 4.

The results of the Varimax rotation indicate that variable C1 loads with Awareness variables, and indicates more relations with this group rather than with Commitment group. Furthermore, Technology related factors namely, Technology Resources (TR), Human Resources (HR), Supported Industries Readiness (SIR), and Users' Readiness (UR), which were initially theorised to be independent factors from each other, after eliminating HR1, HR3, UR4 and TR3, loaded later under only two categories above the specified cut-off edge. The first was called Internal Technology Readiness (ITR), which contains two factors (HR and TR) and six variables (TR1, TR4, HR4, TR2, HR2, and HR5). The second was named the External Technology Readiness (ETR), which combined two further factors (SIR and UR) containing eight items (SIR3, UR3, SIR2, SIR4, SIR1, UR2, UR1, UR5). In addition, All Users' Attention (UA) items, after removing UA2, loaded on the same factor as assumed. Instead, the C8 variable, which was supposed to be loaded with the Commitment factor, was found to load significantly with this factor. Finally, it can be indicated from the analysis that the variables of Government (G) factor divided into two new factors, contrasting with its expected original substance. Each group loaded more than the cut-off threshold, 0.5, independently. The first group was named Government Regulation (GR), and the second Government Support.

5.3.3. Final reliability

After validating the research instrument using principal component analysis, many items were eliminated and new factors emerged with new combinations of variables, as indicated earlier. Therefore, Cronbach's Alphas were established to determine the internal reliability of the final version of the questionnaire. The findings revealed that all factors were working well, indicating high values of Alpha, greater than 0.90. This result reinforced the internal consistency reliability of the final version of the research instrument. Additionally, it confirms the reliability of the questionnaire and its constructs in respect of its ability to precisely discriminate the level of differences among responses in the subsequent analyses.

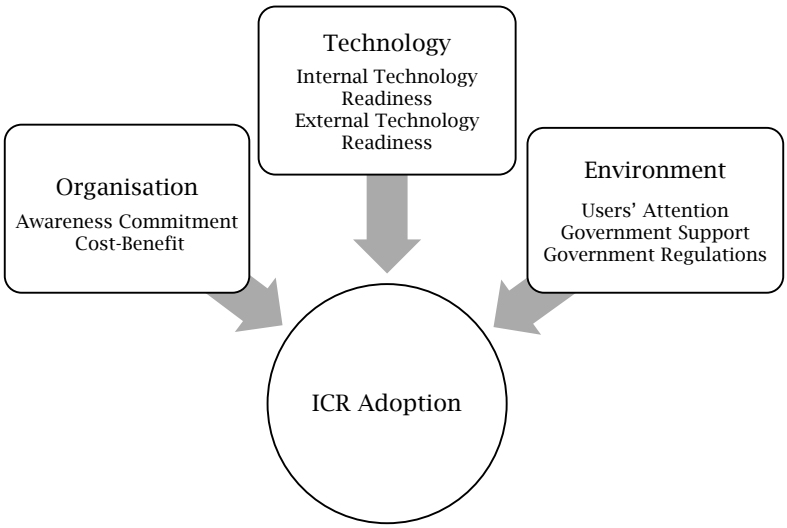
5.3.4. Revised theoretical framework

Following the reliability and validity analyses, a few amendments were made to the original theoretical framework for ICR adoption in developing countries. The results of PCA suggest maintaining the same three domains as those assembled in the original model of the study, but reducing the number of factors from 11 to 10, and arriving at a new configuration for some of the figures as depicted in Figure 2.

Table 4. Rotated component matrix

Factors / Variables	1	2	3	4	5	6	7	8	9	10	11
A3	0.934	-0.116	0.079	0.027	0.100	0.131	0.181	0.083	-0.041	-0.019	-0.033
A2	0.930	0.082	0.071	0.15	0.066	-0.068	0.02	0.069	-0.056	0.178	-0.016
A6	0.898	0.054	-0.08	0.258	-0.052	-0.121	0.113	0.025	-0.055	0.098	-0.045
A1	0.850	-0.101	0.139	0.173	0.126	0.128	0.301	0.115	-0.028	-0.023	-0.082
A7	0.817	0.131	0.251	0.059	0.112	0.091	0.106	0.328	-0.118	-0.044	-0.059
A5	0.765	-0.053	-0.396	0.022	-0.046	-0.266	0.105	-0.136	0.163	0.047	0.165
A9	0.650	0.190	0.003	0.393	-0.021	0.275	-0.107	0.075	0.012	-0.261	0.259
C1	0.576	0.217	0.072	0.423	0.046	0.225	0.146	0.300	0.174	-0.15	0.127
SIR3	0.021	0.929	0.022	0.147	0.098	-0.014	-0.147	-0.012	-0.068	0.025	0.116
UR3	-0.062	0.909	-0.020	0.110	-0.013	0.053	-0.073	0.205	0.084	0.069	0.074
SIR2	0.141	0.877	-0.011	-0.023	0.02	0.009	0.011	-0.003	0.184	-0.032	-0.025
SIR4	-0.109	0.866	0.086	0.014	0.227	0.103	0.006	0.108	-0.268	0.051	0.062
SIR1	0.162	0.787	0.076	0.014	0.166	0.274	0.116	0.205	0.142	-0.219	-0.106
UR2	-0.055	0.713	-0.087	-0.118	0.318	-0.024	-0.040	0.157	-0.129	0.006	0.110
UR1	-0.093	0.634	0.003	-0.094	0.155	0.084	0.060	0.180	-0.197	0.010	0.063
UR5	0.187	0.584	0.272	0.135	0.382	-0.092	-0.288	0.300	-0.093	0.056	0.136
TR1	0.037	-0.073	0.866	0.096	0.331	0.298	0.035	0.312	-0.234	-0.051	-0.218
TR4	0.245	-0.091	0.853	0.045	0.147	0.358	0.009	0.289	-0.221	-0.163	-0.391
HR4	0.024	0.266	0.741	0.221	0.401	0.138	-0.203	-0.182	0.265	-0.089	0.260
TR2	0.279	0.091	0.728	-0.049	0.226	-0.010	-0.167	0.381	-0.173	-0.036	0.005
HR2	0.235	0.276	0.702	0.227	-0.172	-0.212	-0.030	0.387	0.339	0.478	-0.058
HR5	-0.079	0.200	0.621	0.123	0.331	0.225	-0.449	-0.028	0.041	-0.452	0.043
C6	0.170	-0.259	-0.026	0.844	0.111	-0.208	0.068	-0.099	0.091	-0.099	0.047
C4	0.107	0.284	-0.058	0.803	0.213	-0.178	-0.010	-0.020	0.071	0.035	-0.348
C5	0.180	-0.041	0.117	0.793	-0.172	-0.048	-0.058	0.045	-0.036	0.156	0.044
C3	0.433	0.027	0.019	0.722	0.145	0.023	-0.136	-0.087	-0.132	-0.199	0.179
C7	0.278	0.075	0.034	0.590	-0.198	-0.106	0.504	0.217	-0.101	0.024	0.213
C2	0.514	0.097	0000	0.521	0.262	0.230	0.175	0.268	0.035	-0.207	0.110
UA4	-0.100	0.039	-0.008	0.027	0.881	-0.126	-0.024	0.152	0.178	-0.228	-0.059
UA3	0.075	-0.059	-0.182	0.031	0.829	0.025	-0.094	-0.05	-0.088	0.043	0.004
UA5	0.189	0.080	0.114	0.082	0.816	0.085	-0.239	-0.214	0.056	0.133	0.021
UA1	-0.173	0.058	0.200	-0.267	0.758	-0.196	-0.165	-0.234	-0.116	0.062	-0.059
C8	0.062	0.429	-0.123	0.383	0.635	0.047	0.174	0.410	-0.135	-0.078	0.167
G6	0.018	0.007	0.176	0.052	-0.015	0.852	-0.129	0.241	0.021	0.187	-0.161
G4	0.121	0.374	0.024	-0.008	-0.302	0.748	-0.196	-0.230	0.085	-0.04	0.093
G5	0.252	-0.035	-0.168	-0.204	-0.058	0.717	-0.197	0.011	0.167	-0.315	0.034
CBB1	0.317	0.062	0.082	0.200	0.021	-0.429	0.881	-0.423	0.369	-0.07	-0.311
CBB3	0.218	-0.050	-0.114	0.035	-0.254	-0.053	0.872	-0.014	0.111	-0.022	-0.064
CBB2	0.367	-0.175	0.141	0.006	-0.152	-0.130	0.773	-0.118	-0.16	0.019	-0.037
TR3	0.276	0.412	0.172	0.004	-0.046	-0.225	0.062	-0.012	-0.174	-0.15	0.127
UA2	-0.159	0.274	0.160	-0.005	0.062	0.078	-0.043	0.154	0.127	0.877	0.060
G1	-0.061	0.072	0.013	-0.253	0.281	0.312	0.238	0.793	-0.145	-0.153	0.110
G2	0.118	0.158	-0.028	-0.237	0.067	0.332	-0.018	0.775	0.188	-0.337	0.110
G3	0.182	0.172	0.085	0.228	-0.171	0.419	-0.085	0.492	0.274	0.128	-0.198
HR1	0.235	0.225	0.262	0.171	0.002	0.094	-0.074	0.381	0.818	0.218	0.050
UR4	0.164	0.460	0.382	0.207	0.143	-0.008	-0.152	0.216	0.081	0.064	0.255
HR3	0.143	0.380	0.362	0.021	-0.091	0.127	0000	0.103	0.069	0.017	0.655

Figure 2. Revised theoretical framework for the study



6. STATISTICAL ANALYSIS

This section reports the results of the discriminant analysis to determine the factors that might contribute significantly to companies' decisions to adopt or not adopt ICR.

6.1. Discriminant analysis

Discriminant analysis is considered a proper statistical technique to distinguish among two or more groups using multiple predicting factors and is based on average scores of their arithmetic means (Hair et al. 2010; Field, 2009). It can also be utilised when using non-metric dependent (categorical) and metric independent variables (continuous).

In this study, discriminant analysis was performed to ensure that the predicting factors were able to distinguish between the adopters and non-adopters of ICR. Eight predicting factors were generated from FA, these being: Awareness, Commitment, Cost-Benefit Balance, Internal Technology Readiness, External Technology Readiness, Users' Attention, Government Regulation, and Government Support. These factors have five-point Lickert-scales ranging from 1 (strongly disagree) to 5 (strongly agree). On the other hand, the dependent variable is a dichotomous variable that takes two values; 0 if the company is a non-adopter of ICR, and the value 1 if the company is an adopter of ICR.

6.1.1. Assumptions of discriminant analysis

In order to ensure that the results of the DA are at the same degree of power and robustness, its statistical assumptions – equality of dispersion, multivariate normality and multicollinearity - should be satisfied (Hair et al., 2010). The Box's M was 76.51 and F = 2.615, accompanied by an insignificant probability (sig. =0.09). Whilst the Box's M shows insignificant results (sig. > 0.05), this indicates that the null hypothesis of equality of groups' covariance is accepted, and hence the equality of dispersion condition is fulfilled. Furthermore, un-tabulated results indicate that all values of kurtosis and skewness are within an acceptable range for all factors. This indicates that the assumption of normality of distribution is met for all independent factors, and for each sub-sample of the study. Moreover, to determine whether any two independent factors are multicollinear or not, the value inflation factor (VIF) and the tolerance values were analysed. Results show that the data does not suffer from a multicollinearity problem, since all VIFs of the factors were less than the stated cut-off value, suggesting that the multicollinearity does not form an obstacle to implement the discriminant analysis for the dataset of this study.

6.1.2. Results of discriminant analysis

Table 5 exhibits the group statistics generated from the ANOVA test to identify any significant differences between the means of the groups relating to each independent factor. If the differences between groups' means are not significant in respect of any of the predictors, there is no point in proceeding further with DA (Hair et al., 2010). The mean scores of five of the eight factors were, in fact, found to be significantly different between adopters and non-adopters of ICR. These factors were: Commitment, Cost-Benefit Balance, Internal Technology Readiness, External Technology Readiness, and Users' Attention. These findings indicate that all or at least some of these five factors will serve as the best discriminator between those two groups.

Table 5. Test of equality of group means

Status of ICR Adoption / *Factors*	*ICR Adopters*		*ICR Non-Adopters*		*Wilks' λ*	*F*	*Sig.*
	Mean	*Std*	*Mean*	*Std*			
Awareness	4.2484	0.71487	4.1362	0.84785	0.987	0.710	0.919
Commitment	3.5641	0.57749	2.3534	0.80531	0.581	124.288	0.000
Cost-Benefit Balance	3.7051	0.47743	2.3195	0.88244	0.526	155.273	0.000
Internal Tech. Readiness	3.5288	0.7355	3.1745	1.03579	0.764	16.474	0.012
External Tech. Readiness	4.4396	0.47692	4.1538	0.42015	0.811	5.587	0.049
Users' Attention	3.8872	0.43196	3.4875	0.59032	0.674	24.907	0.000
Government Regulation	3.5641	0.71936	3.4896	0.60977	0.997	0.547	0.461
Government Support	1.9574	0.72536	1.8854	0.69388	0.991	0.612	0.911

Note: the acceptable level of significance for differences between groups means is a sig.<0.05

The discriminant function demonstrates the overall power of the model fit in explaining the variation between adopters and non-adopters of ICR using the study predictors. As outlined in Table 6, only one discriminant function was produced, indicating a significant (Sig. < 0.000) relationship between all predicting factors and these groups, which explained 68.8% of the variance between adopters and non-adopters of ICR.

A further analysis of the structure matrix was undertaken in order to identify the relative importance of each discriminating factor in explaining the variability between the grouping factors. Scholars strongly recommend using discriminant loadings produced by the structure matrix in reporting the results of discriminant analysis instead of using other techniques such as standardised discriminant weights, because it is easier and more accurate in results interpretation (Hair et al., 2010). Discriminant loadings represent the Pearson correlation of each predictor with a Z score of the discriminant function, thus reflecting the level of sharing among the variances between that predictor and this function (Hair et al., 2010). Similarly, they are analogous to factor loadings produced in factor analysis. By recognising the marginal contribution of each factor in the discriminant function, the researcher is capable of identifying the relative magnitude of a specific factor in a discrimination process.

Like any correlation test, ranges between -1 and 1 are the limits of discriminant loadings. Hair et al.

(2010) and Field (2013) recommend using ±0.4 as a cut-off value to gain a substantial interpretation of the discriminant analysis. Information summarised in Table 7 illustrates that all factors loaded positively, but only four factors exceeded the positive edge of the stated criterion, namely Cost-Benefit Balance 0.640; Commitment 0.572; Users' Attention 0.456; and Internal Technology Readiness 0.401. Surprisingly, all these factors (exception Users' Attention) are related to the internal company conditions. This result indicates that only these four factors contribute significantly to ICR adoption in the Jordanian context.

Table 6. The discriminant function

Eigenvalues				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.205	100	100	0.829
Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.312	195.67	8	0.000

Note: 1. Canonical discriminant functions were used in the analysis; the section on Eigenvalues gives information on the produced discriminant functions from the analysis. The number of generated discriminant functions is the number of categories in the study minus one. The study was applied in only two categories, namely adopters and non-adopters, therefore only one function is produced;

2. The percentage of total variance explained between groups is calculated using the square root of the canonical correlation value (0.829)2, which represents the multiple correlations between the discriminant function and the independent factors;

3. The section on Wilks' lambda demonstrates the degree of significance of the yield discriminant function appearing in the upper section. In this study, it shows a greatly significant function (sig. <0 .000). Wilks' lambda also indicates the proportion of not explained variability between groups. Moreover, it represents the opposite side of the squared canonical correlation. Hence, in this case, 31.1% of total variance is unexplained.

Table 7. Structure matrix

Factor	***Loadings***
Cost-Benefit Balance	0.640
Commitment	0.572
Users' Attention	0.456
Internal Tech. Readiness	0.401
External Tech. Readiness	0.165
Government Regulation	0.115
Government Support	0.038
Awareness	0.016

Note: the significant factors in discriminant function are those with loadings equal 0.4 or above

Finally, the study engaged in a classification phase based on the generated discriminant function. The rows in Table 8 represent the observed groups, and the columns reflect the predicted groups. The cross-validated classification is displayed because it usually yields more reliable and accurate results than the original classification (Hair et al., 2010). The correct percentage of classifications is the diagonal percentage of the cases.

Overall, the results from Table 8 show that 92% of companies in the sample were correctly classified into adopters or non-adopters of ICR. The non-adopters group was classified more precisely than the adopter's group, with a level of accuracy reaching 94.8% and 88.5% respectively. The overall ratio of the predictive classification power to the discriminant function is also referred to as the 'hit ratio'. To determine the level of the predictive accuracy of the hit ratio, chance-based measures should be employed (Hair et al., 2010)[1].

Table 8. Results of cross-validated cases' classification

Cross-validated the classification	***Status of ICR Adoption***	***Predicted Group Membership***		***Total***
		non-ICR adopters	***ICRs adopters***	
Count	non-ICR adopter	91	5	96
	ICR adopter	9	69	78
Percentage	non-ICR adopter	94.8%	5.2%	100%
	ICR adopter	11.5%	88.5%	100%

Note: 92.0% of Cross-validated grouped cases correctly classified.

To accept the classification resulting from analysis, the hit ratio should exceed either of the chance criteria (the proportional and maximum) or both of them by at least 25%. The hit ratio actually exceeded both of them by around 42% and 37% respectively. Hence, the predictive accuracy of the classification function is considered substantial.

7. FINDINGS AND DISCUSSION

The findings suggest that only four factors significantly contribute to ICR adoption, these being ranked according to their importance as follows: Cost-Benefit Balance, Commitment, Users' Attention, and Internal Technology Readiness.

1The maximum and proportional chance criteria are computed as follows (Hair et al., 2010):

The maximum chance criterion=$\frac{largest\ group\ in\ the\ study\ sample}{total\ sample\ of\ the\ study}$

So, in this study the $C_{MAX} = \frac{non-adopters\ of\ ICR\ (96\ observations)}{total\ sample\ (174\ observations)} = 0.551$;

The proportional chance criterion= P2 +(1-P)2
Where
P = the proportion of firms in the smallest group
1-P = the proportion of firms in the largest group
Therefore, in this study $C_{PRO} = 0.43.9^2 + (1\text{-}0.551)^2 = 0.50$

The findings of discriminant analysis locate Cost-Benefit Balance at the top of the pyramid, indicating a high contribution to the discriminating power of the function. Thus, this factor appears as the best predictor that drives companies' decisions whether to adopt ICR or not. Companies in Jordan tend to undertake ICR practices if they are convinced that the advantages of doing so outweigh the perceived costs. Otherwise, non-adopters of ICR generally consider ICR to generate additional costs that do not qualify the yield benefits. This result is consistent with the findings of Al-Hayale (2010) and AbuGhazaleh et al. (2012b), who concluded that one of the reasons behind not adopting online reporting in Jordan, apart from initial and on-going costs, is the lack of acceptance of its importance to their companies. Al-Hayale (2010) further added that there has been a common perception among companies in Jordan that ICR needs complicated technologies, costing money and time, which perhaps do not justify its use. Additionally, AbuGhazaleh et al. (2012b) argue that companies in Jordan are most likely to avoid incurring additional costs by engaging in ICR due to the presence of financial disclosure through the websites of the ASE, SDC and JSC.

Furthermore, the findings of the study indicate that levels of top management support in the implementation of new technological changes associated with disclosure practices on the internet play a crucial role. This factor was ranked as the second best predictor contributing significantly to the discrimination of adopters from non-adopters of ICR in Jordan. This finding is in line with results of Aly (2008) in Egypt, and Al-Hayale (2010) and AbuGhazaleh et al. (2012b) in Jordan. They argue that such a result can be attributed to the culture in Arab countries, which is highly characterised, according to Hofstede (1980; 1991), by uncertainty avoidance and power distance. Uncertainty avoidance relates to procedures and rules that are deliberate to reduce risks and uncertainties as well as to a general intolerance of abnormal initiatives and ideas. Power distance refers to the centralisation in the decision making in the organisation. Both characteristics fundamentally contribute to reducing the propensity towards adopting disclosure practices via the means of the internet (Al-Hayale, 2010).

Aly (2008) emphasises that the decision to engage in ICR practices should be made by the top managerial apex in the company (the chairman). She further explains why the non-adoption of ICR in Egypt is based on the idea that the organisational structure of companies is mostly tall (a centralised structure), which is quite the wrong type of structure to provide the flexibility demanded by the acceptance of new technological changes. Likewise, AbuGhazaleh et al. (2012b) also identified centralisation as an obstacle to the implementation of ICR in the Jordanian context.

Moreover, if those involved in strategic management believe that the adoption of corporate reporting practices online will contribute to enhancing the image and reputation of the company among corporate information users, then they are more likely to adopt it (Al-Hayale, 2010). In other words, if the management believes that users of the firm's information will not give any attention to online efforts, then they will not bother to engage in such practices. In this context, Ashbaugh et al. (1999) and AbuGhazaleh et al. (2012b) concluded that improving communications with stakeholders constitutes one of the main motives for companies to undertake online disclosure. AbuGhazaleh et al. (2012b) also pointed out that Jordanian companies are more likely to establish a web presence for investor relations, in order to enhance their corporate image among stakeholders.

In line with these findings, the results of the current study indicate that Jordanian managements' views of the extent of users' attention to online reporting, definitely contributed to the decision as to whether to adopt ICR or not. This factor ranks third in the differentiation between adopters and non-adopters of ICR in Jordan. Therefore, if a manager perceives that ICR practices are expected by stakeholders, then s/he is more likely to adopt them, and vice versa.

Finally, the readiness of the firm in respect of its internal technological capacity emerged as an important determinant of ICR adoption in Jordan. That said, it is seen as the least significant factor, barely exceeding the cut-off point. This can be explained by the fact that Jordan has achieved a strong position in respect of its technological development, and companies, therefore, encounter fewer problems that are seen in other developing countries, regarding technological hardware and the human expertise to capitalise upon it. However, the result does indicate that such internal competencies do largely contribute to the adoption status of ICR by firms listed on the ASE. This finding is supported by the results obtained by of Aly (2008) in Egypt, and Al-Hayale (2010) and AbuGhazaleh et al. (2012b) in Jordan.

8. CONCLUSION

To capture the perceived factors – organisational, technological and environmental – that may contribute significantly to ICR adoption, a questionnaire survey was conducted among CEOs and CFOs of companies listed on ASE. Factors were proposed based on the review of disclosure and innovation of diffusion literature. After the refinement done to the theoretical framework of the study, eight predictor factors were generated for further analysis, namely Awareness, Commitment, Cost-Benefit Balance, Internal Technology Readiness, External Technology Readiness, Users' Attention, Government Regulation, and Government Support. Discriminant analysis was performed, ensuring that the predicting factors were able to distinguish between the adopters and non-adopters of ICR. The findings suggest that that internal company factors such as the trade-off between costs and benefits, level of management commitment and support, and readiness of technology inside the company are all major contributors towards ICR adoption. In addition, the management view of the importance of ICR for information users and their attention to it is also a crucial external factor that hinders or catalyses ICR adoption.

Although the two innovation diffusion theories (DOI and institutional change), and the two disclosure theories (stakeholder and information cost theories) were incorporated, it can be seen that the DOI was the main contributor to the explanations reached. Specifically, the DOI's interest in explaining tendency

towards an innovation based on its perceived attributes was shown to be useful, as it is plausible to consider the compatibility of ICR with current needs, values and experiences as an explanation of the impact commitment levels, and internal technology readiness in encouraging the adoption of ICR. In contrast, the findings do not support assumptions of the DOI theory regarding the impact of awareness and external technology readiness. Additionally, it was found that Jordanian managers mostly prioritise the need to achieve a balance between perceived costs and benefits when they consider whether to disclose information on their company websites and what exactly to publicise. This behaviour is in line with information cost theory and the DOI theory (relative advantages). Likewise, it was seen that Jordanian managers often evaluate the levels of attention shown by stakeholders to online reporting when deciding whether or not to invest time and money in the practice. This behaviour can be seen to coincide with that predicted by stakeholder theory (in terms of discharging accountability) or indeed as a response to coercive pressures in the environment such as capital providers (institutional change theory). However, the role of government, regulation and support, as a coercive source of institutional change was not supported by the findings of the current study.

It should be remembered that this study's investigation into ICR adoption and practices among listed companies has been restricted purely to the Jordanian context, and consequently, attempts to generalise beyond that situation may not be fruitful. That said, the theoretical model used within the study could be used in other emerging economies, and the generality of the Jordanian findings may be confirmed to a wider sample.

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Appendix A. Table

Table A. 1. Research instrument (the questionnaire)

Awareness (A):
A1. Our company is aware of internet reporting applications that are common in our industry sector.
A2. Our company recognises the costs and benefits of internet reporting.
A3. Our company recognises the opportunities and threats of internet reporting.
A4. Internet reporting is well known in our company at different levels.
A5. Financial department is aware of all requirements of internet reporting.
A6. Our company has a good understanding of most of the common presentation technologies of internet reporting such as PDF, EXCEL, XML and HTML.
A7. Our company perceives the advantages and disadvantages of internet reporting in comparison with printed reporting.
A8. We believe that a company in our industry that is engaging in internet reporting would gain a competitive advantage.
A9. Our company is familiar with different types of internet reporting.
Commitment (C):
C1. Our company has a clear vision on internet reporting.
C2. Top management is committed to communicating disclosure culture throughout the company.
C3. Our disclosure culture supports different forms of voluntary disclosure.
C4. Our company encourages internet reporting practices.
C5. Our company draws plans to improve disclosure quality.
C6. Our company supports any new technological development that improves disclosure practices.
C7. Internet reporting has great concerns at apex managerial level in the company.
C8. Our company perceives the importance of the internet reporting to satisfy multiple needs of all company's stakeholders.
C9. Our company promotes of the internet reporting as a voluntary disclosure practice to discharge the accountability to company's stakeholders.

Cost-Benefit Balance (CBB):
CBB1. We believe that the benefits of internet financial reporting are greater than printed financial reporting in comparison with their costs.
CBB2. Our company believes that the benefits of internet reporting outweigh its costs.
CBB3. We believe that internet reporting creates additional costs that can be avoided in the presence of other disclosure sources such as printed and third parties reporting services.
Human Resources (HR):
HR1. Staff in the financial department have appropriate IT skills
HR2. Staff in the financial department have sufficient knowledge that enables them to engage successfully in internet financial reporting
HR3. Staff in the IT department are capable of dealing with most IT problems.
HR4. Staff in IT department have a good knowledge to implement and maintain online application systems.
HR5. In general skills of our staff assist in engaging successfully in internet reporting.
Technology Resources (TR):
TR1. Our company is well computerised.
TR2. We have a computerised accounting information system.
TR3. Our company is well linked with a computerised network such as Local Area Network (LAN)
TR4. We have reliable, speed and high internet connectivity.
Supported Industries Readiness (SIR):
SIR1. We believe in the availability of IT services' providers in the country who are specialists at installation, maintaining and updating website systems.
SIR2. We believe in the availability of institutions in the country that provide IT training services
SIR3. Our country possesses an efficient and reliable telecommunication infrastructure.
SIR4. Internet services in our country are affordable to all parties.
Users' readiness (UR):
UR1. We believe that the users of the company information are computer literate.
UR2. We believe that the users of the company's information are connected to the internet.
UR3. We believe that the users of the company information are familiar with internet navigation.
UR4. We believe that the users of the company information have the necessary skills to engage in financial analyses' techniques using the figures available on the company's website.
UR5. In general, the users of the company information are e-ready to deal successfully with internet financial reporting outputs.
Users' attention (UA):
UA1. We believe that a company that does not undertake internet reporting practices will be evaluated negatively by corporate information users.
UA2. We feel the pressures that are applied by corporate information users to disclose financial information via the company's website.
UA3. Internet financial reporting improves the company's image throughout corporate information users.
UA4. We believe that the company's website represents one of the main information sources for the corporate information users.
UA5. We believe that corporate information users are concerned with getting the necessary information from the company's website.
Government (G):
G1. We believe that there are effective laws to prevent internet crimes.
G2. We believe that there are effective laws to protect financial information published on the internet from improper manipulation.
G3. We believe that the legal environment is appropriate to engage in internet reporting.
G4. The government demonstrates a strong commitment to promoting internet corporate reporting.
G5. Financial and controlling bodies in the country encourage the internet corporate reporting practices.
G6. Governmental bodies devote a lot of efforts to enhance the awareness of internet reporting practices among companies in the country.