
Intellectual human capital, corporate social innovation and sustainable development: a conceptual framework

Azlan Amran*, Lim Chia Yon
and Shaian Kiumarsi

Graduate School of Business,
Universiti Sains Malaysia,
Penang, 11800, Malaysia
Email: azlan_amran@usm.my
Email: lcy14_gsb036@student.usm.my
Email: shaian@usm.my
*Corresponding author

Amar Hisham Jaaffar

Institute of Energy Policy and Research (IEPRE),
Universiti Tenaga Nasional,
Pahang, 26700, Malaysia
Email: Ahisham@uniten.edu.my

Abstract: Corporate social innovation (CSI) is an emerging concept that is fundamental for 21st-century businesses. Human capital plays a vital role in firms that seek to pursue CSI goals. This study introduces a management control system as an approach to achieve strong sustainability in business and society through CSI. This paper seeks to examine the role of intellectual human capital in CSI. The paper finds that CSI has distinctive corporate research and development activities that can be applied to complex sustainability issues. The paper reveals that the sustainability of business and society is dependent on factors of intellectual human capital. The theoretical findings reveal that the nexus between intellectual human capital, CSI and the sustainability of business and society can be explained within the assumptions of the theory of the resource-based view (RBV). This paper offers an in-depth review of the relationship between sustainability-related intellectual human capital and CSI.

Keywords: intellectual human capital; CSI; corporate social innovation; RBV; resource-based view; leadership; management control system; sustainable development.

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Biographical notes: Azlan Amran is the Professor in Corporate Sustainability of Graduate School of Business of Universiti Sains Malaysia and Associate Fellow for Centre for Global Sustainability Studies in Malaysia.

Lim Chia Yon is currently a Lecturer at the Faculty of Accountancy and Business, Tunku Abdul Rahman University College. She is currently pursuing her PhD degree at the Graduate School of Business, Universiti Sains Malaysia. Her research interests include corporate sustainability and social innovation.

Shaian Kiumarsi is currently a Post-Doctoral Fellow at the Graduate School of Business, Universiti Sains Malaysia, where he received his PhD. His Bachelor's degree was in Computer Software Engineering, while he obtained Master's in Business Administration with a speciality in service science, management and engineering (SSME).

Amar Hisham Jaaffar is currently a Senior Lecturer and Research at the College of Business Management and Accounting (COBA) and a Research Fellow at the Institute of Energy Policy and Research (IEPRE), Universiti Tenaga Nasional, Malaysia.

1 Introduction

In recent decades, many corporations have engaged in a large number of activities that address social and environmental issues. The idea of corporate social responsibility (CSR) has experienced a rapid expansion among businesses because of its fundamental impact on the well-being of society. Nonetheless, some corporations are still trapped because they use the outdated method of value creation that emerged in the last few decades. A large number of them are stuck in a 'socially responsible' mindset, as they consider social issues to lie at the periphery, rather than giving them core or strategic attention (Porter and Kramer, 2011). Corporations are under pressure to reconsider their businesses as a result of the complexity of social issues as well as the growing expectations of their stakeholders. It has become necessary for corporations to use a proactive technique to handle issues of sustainability because of growing environmental risks and societal problems. Violo (2018) stated that, out of the 25 companies worldwide that practise CSI, the 'Sustainable Living Brands' (Lifebuoy, Comfort, Dove, and Ben & Jerry's) of Unilever Plc experienced over 60% growth in business performance in 2016. These brands also grew 50% faster than other business and product lines in the firm. Basically, the goal of Unilever Plc is to double its business size, and the firm is also seeking to reduce the associated environmental impact. Global reports show that many multinational firms have now shifted from corporate social responsibility to corporate social innovation (CSI) in their business outcomes and strategic initiatives (Perkmann et al., 2011; Spiess-Knafl et al., 2015). The practice of CSI is now common among pharmaceutical firms and computer and software firms. For instance, GlaxoSmithKline and Microsoft now have innovative products designed through university partnership and knowledge resource collaboration (Jali et al., 2017). In the USA, CottonConnect, a cotton company, obtained 40% of its total profitability in 2014 through 'Bio Cotton', its sustainable cotton, and the company aims to use 100% sustainable cotton by 2020 (World Economic Forum & Wyman, 2016). It is necessary to use a new approach to handle intractable and complex sustainability issues, and social innovation, whose purpose is to provide novel solutions that will effectively and sustainably address social needs and problems, has emerged as a result (Phills et al., 2008). According to Edwards-Schachter et al. (2012), social innovation prompts an appraisal of the 'hidden

nature' of innovation, whereas Pol and Ville (2009) opined that social innovation represents any novel ideas that have the potential to improve the quantity or quality of life.

In essence, the social context has a positive influence on innovation, regarded both as a vehicle for generating economic value and as a potential tool for creating social value (Gabriela, 2012). Despite the existence of a large number of research studies on business innovation, the context of social innovation has not been thoroughly researched (Phillips et al., 2015). Therefore, Barczak (2012) recommended an in-depth investigation into social innovation, citing the increasing number and diversity of social problems. Mulgan (2006) claimed that the majority of the fundamental innovations in the next few decades could be modelled in terms of social innovation. Hence, researchers' discussions on the social innovation paradigm emphasise grassroots innovation, social entrepreneurship, bottom-of-the-pyramid innovation, social business and disruptive innovation (Adrian et al., 2014; Baumann et al., 2006; Seelos and Mair, 2005; Seyfang and Smith, 2007). A common characteristic of definitions of social innovation, irrespective of the framework used or the different disciplines within which the concept is discussed, is that the innovation should lead to social well-being (Ümarik et al., 2014). Accordingly, social innovations are considered as new processes, products and techniques that creatively and sustainably provide a better solution to a social demand (Unceta et al., 2016).

Social innovation conducted at the level of a business is known as CSI. Basically, CSI refers to any innovative activities that combine a distinctive set of corporate assets in partnership with assets from other sectors in order to co-create advanced solutions to handle complex social, economic and environmental issues that influence the sustainability of business and society (Mirvis et al., 2016). The concept of CSI was introduced by Rosabeth M. Kanter from Harvard Business School, who suggested that corporations could utilise social issues as a learning laboratory to identify unsatisfied societal needs (Kanter, 1999). Barczak (2012) stated that there was a need to explore social innovation further within organisational settings. Globally, human capital has been studied in relation to CSI (Abdulai, 2019; Abugre and Anlesinya, 2019; Arora et al., 2019; Yeşil and Doğan, 2019). In sub-Saharan Africa, there is still a great emphasis on CSR rather than CSI. According to Abugre and Anlesinya (2019), there is a positive relationship between CSR and societal development (measured as economic value, reputational business value and human capital value) among multinational companies in sub-Saharan Africa. In contrast, in a study in Asia, Chin et al. (2019) studied human capital as a mediating role between corporate universities and CSI in Chinese firms. Chin et al. (2019) found a positive link between corporate university training and employees' innovative behaviour, because such training motivates employees to have innovative ideas for business and societal sustainability. Although the authors recognised the role played by the universities, they also found that such corporate partnerships may not be effective for small and medium firms whose profit levels and size are smaller than those of their multinational counterparts. Inconsistent and mixed results are reported for US firms. For instance, Arora et al. (2019) found that external inventions and collaborations with universities are common in large US firms, to the detriment of their internal research, indicating that human capital does not seem to be important for CSI in large US firms. Arora et al. (2019) further reported that although US start-up firms are beginning to engage in commercialisation, such external innovation has divided the innovative labour, which has a negative effect on innovation diversity. The findings of Arora et al. (2019) that external innovation is detrimental to innovation diversity reveal

that less emphasis has been placed on human capital for internal research. A study in the EU shows that, despite a large number of studies on companies' innovation through human capital in the EU countries and their partners, there is still only a small amount of research on the obstacles to the implementation of CSI and the mechanisms to promote it (Pot et al., 2016).

There are gaps in the literature and inconsistent results about the relationship between intellectual human capital and CSI. Research that uses company reports is limited to discovering the patterns of attitude, competence, creativity, effectiveness and development that help to achieve CSI for a sustainable business and a sustainable society. This calls for the use of questionnaires to capture employees' perspectives. Few studies have examined the role of a change agent (i.e., leadership) to drive CSI practice. Some studies have examined the impact of leadership on innovation, but the inconsistent findings in the leadership–innovation nexus imply that there is a missing link, such as the impact of an implementation system like a management information system. In order to fill these gaps, the objectives of this paper are:

- to establish whether intellectual human capital has a direct impact on CSI
- to test whether the relationship between intellectual human capital and CSI is mediated by leadership
- to discover whether an implementation strategy such as a management information system improves CSI for a sustainable business and a sustainable society.

Since CSI is thought to be a potential instrument for attaining shared value (Baker and Mehmood, 2015; Jaeger-Erben et al., 2015), it is essential to conceptualise CSI so as to provide greater insights into the interpretation of social innovation at the business level. An adequate understanding of the components of CSI, as well as the way in which the societal and environmental expectations of stakeholders can be attained, could guide and influence a corporation's social innovation processes. Consequently, this paper provides a theoretical foundation for the conceptualisation of the construct of CSI. Moreover, the role of intellectual human capital in promoting CSI within the social innovation process has not been thoroughly explored. This paper develops a CSI research framework to determine the influence of sustainability-related intellectual human capital on CSI, using the resource-based view (RBV) as the underlying theoretical foundation.

The framework presents some contributions that differ from past studies on human capital and CSI. First, while past studies have provided evidence that CSI can be achieved through corporate partnership (Jamali et al., 2011; Lin, 2019; Mirvis and Googins, 2018), the basis for this study is that CSI can be achieved through distinctive corporate research and development carried out by the firm's intellectual human capital (its employees). Second, the sustainability of the business and society is dependent on the competence, creativity, development and retention of the firm's employees. Third, while past studies failed to look at how a strategy of CSI could be implemented, this paper introduces a management control system as a moderating variable to improve CSI outcomes. Fourth, while much of the prior literature studied the linear relationship between human capital and CSI (Alt et al., 2015; Bontis et al., 2005; Dakhli and De Clercq, 2004), this study extends the findings on linear or direct effects to an indirect effect through the mediating role of leadership.

2 Literature review

A survey of the literature on social innovation reveals that social innovation encompasses three dimensions, namely those of formalisation, change processes and social outcomes (Choi and Majumdar, 2015). Looking at the dimension of formalisation, social innovation could have several different forms (e.g., a product, a production process or technology). It could also take the form of an idea, a principle, a social movement, a piece of legislation or an intervention, or some combination of these (Phills et al., 2008). Social innovation suggests that the change in the product, concept, process or system is aimed at creating new social value (OECD, 2011). The dimension of change processes describes social innovation in terms of ends and means (Hubert, 2010). Furthermore, Gabriela (2012) proposed that social innovation comprises changes in diverse approaches that alter existing practice. It could also be considered as actions whose purpose is to transform the social relationships at the foundation of social problems (Bouchard, 2012). The dimension of social outcomes emphasises the measurable outcomes or results as well as the demonstrated changes caused by social innovation. According to Pol and Ville (2009), social innovation denotes the creation of new ideas that have a positive influence on the quality and quantity of life. They added that the creation of a better future is the ultimate goal of social innovation. CSI is a concept that depicts the utilisation of social innovation as a strategy by a corporation.

2.1 Corporate social innovation

Although the diffusion of social innovation primarily occurs in organisations that have social aims (e.g., social businesses and social enterprises), some empirical studies have suggested that social innovation should be extended beyond the non-profit and for-profit sectors (Edwards-Schachter et al., 2012). Moreover, Mulgan (2006) contended that business innovation research appears to be relevant to social innovation. Social innovation becomes significant to big corporations as they grow. Some global institutions (e.g. the World Economic Forum) have suggested that more corporations should embark on CSI because it makes a significant contribution to the well-being of society. Based on the shared value concept, the World Economic Forum has claimed that social innovation occurs when corporations take the proactive step of designing and implementing business models capable of increasing income and bettering the quality of life of vulnerable or under-served communities, as well as the bottom-of-the-pyramid markets (Wyman, 2016).

The purpose of this paper is to bridge the gap and provide better insights into social innovation from the perspective of a business corporation. According to Kanter (1999), some corporations are gradually moving beyond corporate social responsibility to CSI. CSI could be considered as an innovation that is done with a ‘virtuous intent’ that extends far beyond the objective of the firm’s profitability (Bright and Godwin, 2010). It comprises any kind of innovative activity or action that combines a distinctive set of corporate assets in alliance with assets of other sectors for the purpose of co-creating advanced solutions to complex social, economic and environmental issues that influence the sustainability of business and society (Mirvis et al., 2012; Mirvis et al., 2016; Phills et al., 2008). The greatest challenge in understanding the concept of CSI is how to distinguish it from traditional CSR. Porter and Kramer (2011) introduced the concept of ‘shared value’, referring to a growing global movement to make societal impact an

integral part of a company's strategy. Because of this movement, traditional CSR activities have become less relevant. A large number of studies have corroborated the idea that CSI is different from traditional CSR activities (e.g. Kanter, 1999; Mirvis et al., 2016; Porter and Kramer, 2011; Saul, 2011; Varadarajan and Kaul, 2018).

The classification of innovation projects or activities simply as CSI could oversimplify the concept. This is because innovation is only genuinely considered as CSI if it includes certain elements such as a strategic investment that involves the use of core skills, encompasses internal and external collaboration, and aims to influence the sustainability of business and society. The majority of traditional CSR activities are rarely embarked upon using distinctive or unique business skills and capabilities (Kanter, 1999), whereas CSI is considered to be the result of a combination of the core skills of the corporation. Hence, CSI uses a wide range of corporate assets in order to address existing social challenges (Mirvis et al., 2016; Saul, 2011). It involves an initiative based on core competences that entails the utilisation of the core skills and best people of a corporation (Kanter, 1999).

Moreover, traditional CSR programs could be the outcomes of a philanthropic intention, whereas CSI signifies a strategic investment that is managed by a corporation in more or less the same way as other corporate investments (Mirvis et al., 2016). CSI therefore represents a greater strategic intention, since it encompasses the integration of social issues into the business agenda as well as the fashioning of a new business practice so as to create shared value (Kanter, 1999; Porter and Kramer, 2011; Saul, 2011). Besides, Cajaiba-Santana (2014) noted that social innovation is considered to be the outcome of the exchange of resources and knowledge by actors who are mobilised via legitimisation activities. Social innovation involves an interactive process that is shaped by knowledge sharing between different actors who have an impact on developments in specific areas with a view to meeting social needs (Phillips et al., 2015). It entails a deeper alliance or collaboration between various functions in a firm and with external parties, with a view to co-creating something new that offers solutions to social issues (Mirvis et al., 2016).

At the business level, a firm implements social innovation with the twin objectives of benefiting the firm and benefiting society (Varadarajan and Kaul, 2018). In essence, CSI represents a valuable instrument for achieving business competitiveness and sustainable development, as it provides novel value through the unlocking of the potentials of undervalued markets, customer segments, talent and relationships (Saul, 2011). CSI provides an opportunity for corporations to create a new source of revenue, so as to create a more socially relevant innovation system (Mirvis et al., 2016). As the societal needs of society and the community are addressed through the creativity and competences of the firm's human capital, the economic activities of society increase and trigger new product lines and services. Therefore, firms benefit from CSI as they can earn increased revenue for survival and competition (Cannon, 2000).

2.2 Corporate social innovation dimension

The basic difference between CSR and CSI is the performance variable. CSR focuses on the reputation of the company, whereas CSI focuses on society. For instance, through CSI, Japanese firms in the areas of health, education, social work, and other services made a crucial contribution to increasing employment in this sector from 23.4% in 1993 to 27.8% in 2003. Similarly, the contribution to social innovation by US firms rose

from 24.6% in 1993 to 27.5% in 2003 (Mulgan et al., 2007). Globally, Burt's Bees and Vodafone represent good examples of the 25 companies that adopt CSI. In order to attain higher and more competitive profits, Burt's Bees adopted a sustainable program known as the 'Greater Good Initiative'. The corporation empowers its employees in social outreach, natural wellness, leadership and environmental stewardship, with the ultimate purpose of achieving 100% employee engagement by 2020. As for Vodafone, the company introduced a distinctive business line for the purpose of achieving sustainable financial services in developing economies. At the end of 2018, sustainable financial services (via M-Pesa) provided an extra 18% in income for its subsidiary in Kenya, Safaricom (Violo, 2018).

Table 1 Corporate social innovation dimensions

<i>Dimension/variable</i>	<i>Details</i>	<i>Source</i>
1 Strategic intent	Integration of social and eco-innovation into corporate goals and strategies	Googins (2013), Birchall et al. (2014), Herrera (2015)
2 Employee development	Application of practical problem-solving skills to daily needs	Jupp (2002), Odunlade (2017)
3 Government and NGO collaborations	Collaborations within the firm and external stakeholders	Googins (2013), Mirvis et al. (2016), Odunlade (2017)
4 Research and development	Increase in corporate assets	Davidson (2016), Birchall et al. (2014)
5 Social and eco-innovation	Investment in socially and environmentally relevant research and development	Googins (2013), Mirvis et al. (2016)
6 Sustainable social change	A business idea or model that solves specific social and environmental issues	Googins (2013), Strandberg (2015)

Social innovation processes therefore emerged because of growing expectations by stakeholders and the negligible growth encountered by firms, as well as the ineffectiveness of CSR to address challenges. Firms solved these challenges using a social innovation model (Mirvis et al., 2016). This view is supported by Iyer and Soberman (2016), who noted that firms' product innovations are determined by customers' preference for products that are considered to be environmentally and socially friendly. Through sustainable social change, CSI is a vital tool for reducing firms' environmental risks (Eisenhardt and Brown, 1998; Grossman and Helpman, 1994). Thus, it improves the supply chain while identifying and managing green customers (Auriac, 2010). The existence of strategic purpose, research and development, collaborations with government and NGOs, employee development, social and eco-innovation, and sustainable social change (as shown in Table 1) is necessary to address societal issues and problems, including poverty and unemployment (Odunlade, 2017).

2.3 Intellectual human capital

Human capital represents one of the fundamental components of organisational resources. According to Hsu and Wang (2012), corporations may not be able to assemble

and recreate their capabilities if they do not have a human capital endowment. Studies have highlighted three subsets of intellectual capital that are essential in an organisation's performance, namely human capital, social capital and organisational capital (Kang and Snell, 2009; Morris and Snell, 2011). Among these three kinds of intellectual capital, the main focus of this paper is intellectual capital or human capital at the organisational level. Basically, human capital refers to the knowledge and abilities of those employees who are essential to the activities of the organisation (Delgado-Verde et al., 2016). Moreover, Ployhart et al. (2006) stated that human capital is the aggregate of the skills, knowledge, abilities and other competencies of the workforce of an organisation. It consists of all the business capital implanted in its employees, namely their knowledge, experience, competence, attitude, skills, commitment and wisdom (Hsu and Fang, 2009). Generally, human capital is considered to encompass employees' skills, knowledge and competencies, even though Ployhart et al. (2011) claimed that human capital also encompasses personality and general cognitive ability.

Conventionally, the majority of sustainability-based innovations are characterised by vast levels of novelty, uncertainty and variety in the traditional market domain in which the firm often competes (Cainelli et al., 2015). Intellectual human capital is fundamental for the effective introduction of social innovation (a social innovation process), since such an innovation is by its nature knowledge-intensive (Mirvis et al., 2016). The individualistic perspective on social innovation suggests that social innovation is the outcome of the activities of visionary individuals who have the capacity to provide innovative solutions to their community's social issues or to issues that are not adequately handled by the local systems (Cajaiba-Santana, 2014). Moreover, many studies have corroborated the finding that human capital brings about a willingness to adopt social innovation. For instance, Schweitzer et al. (2015) revealed that technologically-reflective individuals have the capability to develop innovations that have a greater influence on society.

Thus, it is rational to assume that the human capital possessed by individuals enables them to identify and create a new business model or technique that can tackle social issues. Mulgan (2006) argued that social innovators usually possess a higher peripheral vision, and have the capability to identify ways to integrate unrelated methods and ideas. Unceta et al. (2016) declared that a large number of researchers favour the idea of social innovation indicators that are connected with the evaluation of features, motivation and contexts within which social entrepreneurs create their socially oriented activities. Marcy (2015) posited that it is the responsibility of a corporation's leaders to generate socially innovative ideas as well as to motivate or lead their employees to implement those ideas. The study added that it would be difficult for many social innovations to succeed without effective leadership.

2.4 Sustainable intellectual human capital dimensions

According to Becker (1964), human capital (HC) is a vital component of intellectual capital. HC is often seen as the only generative intangible (Ahonen, 2000), since an organisation's employees offer the organisation the required competencies, engage in customer relations, and provide the source of its intellectual property (Fincham and Roslender, 2003). Generally, most definitions of human capital conclude that human capital is associated with the competence of employees, and refer to their skills, knowledge, experiences and abilities (Roslender and Fincham, 2004). Therefore, it is

impossible to separate human capital from its bearers (Fernandez et al., 2000). The empirical literature (Lepak and Snell, 1999) has discussed the extent of the specificity and uniqueness of HC as well as the way in which a firm's specific HC knowledge can be developed. Moreover, generic HC is mainly acquired via individual efforts (e.g. education and experience) and is easily transferable across firms. Conversely, firm-specific HC occurs as a result of personal learning processes (Lepak and Snell, 1999) and is path-dependent (Barney, 1991). It is seen as the unique skills and competencies that individuals acquire within the setting of their professional activities. Most of the definitions of HC emphasise the individual facets of human capital, irrespective of the setting in which that capital is acquired or mobilised. Nonetheless, some scholars have argued that knowledge is socially constructed, and is derived from interactions with individuals (a concept known as social capital), and that it has an influence on the development of human capital (e.g., Coleman, 1988). Besides, Nahapiet and Ghoshal (1998) described social capital as the aggregation of the actual and potential resources implanted within an individual or social unit, that are available to society as a result of the network of relationships that the individual or social unit possesses. This study considers human capital as a construct on an individual level, meaning the knowledge, skills, expertise, abilities, experience, attitudes and personal networks of an individual.

To tackle the complex issues and problems relating to nature, it is essential to consider these issues from the perspective of sustainable development. Therefore, this paper concentrates on the influence of skills, knowledge and competencies related to sustainability in the management of CSI. Salgado et al. (2018) proposed that the integration of knowledge domains and skills applies in the field of sustainability. Hence, knowledge and competencies in sustainability are important to attain sustainability. The competencies of an individual relating to sustainable development have gained increased attention in the literature over the past few years. A review of the literature indicates that scholars have begun to investigate the human capital, knowledge and competencies that are fundamental for sustainability (Linnenluecke and Griffiths, 2010; Sterling and Thomas, 2006; Tabassi et al., 2016; Wesselink et al., 2015; Wiek et al., 2011).

Furthermore, past research has highlighted the importance of the individual competencies that are needed to tackle sustainability challenges. For instance, Hesselbarth and Schaltegger (2014) identified emergent method, subject-specific, social and personal competencies as the crucial change agents of sustainability. These competencies enable individuals to solve real-world sustainability problems, and to identify and utilise opportunities within the context of education for sustainability. According to Thomas and Day (2014), past studies focused on diverse kinds of sustainability, namely capabilities (e.g., systems, critical, holistic and interdisciplinary thinking), effective outcomes (e.g., behaviours, ethics, values and attitudes), and big picture perspective (e.g., future thinking, participatory decision-making and action). Other characteristics include environmental advocacy and involvement in action, knowledge and information management, and critical reflection.

Regarding the competencies for sustainability, Wiek et al. (2011) highlighted five crucial kinds of competencies that enable graduates to handle complex sustainability problems. They include anticipatory, systems-thinking, strategic, normative and interpersonal competencies. Moreover, Sterling and Thomas (2006) identified eight vital sustainability-related competencies, namely: competence in placing value on the

environment, diversity and justice; competence in the knowledge of interrelated social, economic and ecological systems; competence in the knowledge of the principles of sustainable development; and competence in the knowledge of sustainability problems and issues. Others include competence in working across disciplines, competence in cooperative action and conflict resolution, and competence in taking action that leads to change (Table 2).

Table 2 Sustainable intellectual human capital dimension

<i>Dimension/ variable</i>	<i>Details</i>	<i>Source</i>
1 Employees' competence	Skills, qualifications, training, education and individual knowledge System thinking anticipatory, normative, strategic and interpersonal, knowledge, cooperative action and conflict resolution	Chen and Chen (2004), Gogan (2014), Užienė (2015), McElroy (2002), Chizari et al. (2016) Wiek et al. (2011), Sterling and Thomas (2006)
2 Employees' attitude	Teamwork, commitment to innovate, individual network	Chen and Chen (2004), Santos-Rodrigues et al. (2013), Mention (2012), Hashim et al. (2015)
3 Employees' creativity	Know-how and innovation, create value, capabilities to think	Chen and Chen (2004), Santos-Rodrigues et al. (2013), Ross (1997)
4 Employees' development	Agility to cope with the dynamic business environment, employee relations climate, development rate, training investment, and training cost	Baron-Cohen (2011), Provo (2016), Bontis and Fitz-enz (2002)
5 Employees' retention	Retention policy, compensation, succession and talent planning	Gogan (2014)
6 Employee effectiveness	Expense factor, revenue factor, income factor, and human capital ROI	Bontis and Fitz-enz (2002), Bhatt and Altinay (2013)

3 Underlying theories

In this section, we elaborate the conceptualisation of the variables identified in Sections 2.1–2.4, as well as highlight the management theory which supports the conceptual framework of the research. The conceptual framework of this present study focuses on intellectual human capital as a driver of CSI, which leads to CSI. The framework was supported by the theories of RBV and diffusion of innovation (DOI) (Rogers, 1962; Rogers and Seddon, 2003), albeit the framework does not exist in the literature. Moreover, the path relationship among the highlighted variables in the research framework is a novel idea in the literature used to examine the possible or available opportunities in this sector.

Basically, the RBV theory of the firm opined that firms create and maintain a distinctive bundle of resources which cannot be easily copied by their competitors. It states that the firm's source of competitiveness is the distinctive bundles of tangible

and intangible assets which are imperfectly imitable, valuable, rare and sustainable (Barney, 1991). The essence of the theory is to describe the way organisations preserve distinctive and sustainable positions in a competitive environment (Hoopes et al., 2003). The main idea of RBV theory is that competitions exist between organisations in terms of their capabilities and resources (Barney, 1991; Wernerfelt, 1984). Hence, the competitors of an organisation could be recognised through the resemblance of their resources, products, capabilities and substitutes (Peteraf and Bergen, 2003). In essence, a resource refers to anything which could be considered as a strength for an organisation (Wernerfelt, 1984), and it comprises any tangible or intangible asset which is semi-permanently tied to the organisation (Caves, 1980). Examples of resources are employee knowledge, abilities and skills; brand names; capital; machinery and technology; contracts; and efficient processes and procedures (Wernerfelt, 1984). Previous studies have also investigated the dynamic life cycle of resources and capabilities from birth to death (Helfat and Peteraf, 2003). The RBV opined that an organisation consists of physical, human and organisational resources (Barney, 1991; Amit and Schoemaker, 1993). The resources which are imperfectly imitable, valuable, rare, and imperfectly substitutable represent the primary source of sustainable competitive advantage in order to attain sustained superior performance (Barney, 1991).

Based on the RBV of the firm, we present a conceptual framework of CSI. According to the kernel of the RBV theory, the main drivers of an organisation's business value creation are its resources (Massey, 2016). This is because the resources of an organisation constitute the distinctive basis value that enables the corporations to formulate a strategy and allied activities that are capable of addressing certain market and needs. Conventionally, one of the fundamental aspects has been the connection between resource base and innovation (Barney, 1991; Wernerfelt, 1984). From the management tradition or perspective, researchers usually concentrate on tackling the influence of organisational resources on the corporations' innovative success. There is a general belief that all kinds of innovation normally originate from the corporation's resource base. For instance, researchers have emphasised the influence of organisational resources in sustainability-oriented innovation, with specific attention given to environmental innovation (Cainelli et al., 2015; Lee and Min, 2015; Leonidou et al., 2013).

Since CSI is considered as a facet of sustainability-oriented innovation, it could be argued that the viewpoint of RBV is applicable to CSI. Due to its complexity and dynamism, the success of CSI depends on the corporations' resources and competencies (Sanzo-Perez et al., 2015). According to the RBV context, human capital is seen as a crucial resource (Barney, 1991), and superior knowledge and skills are expected to improve the outcomes of the firm (Datta and Iskandar-datta, 2014). For instance, the ability of a corporation to innovate is closely connected to the intellectual capital, i.e., it is the capacity to effectively use its knowledge and resources (Subramaniam and Youndt, 2005).

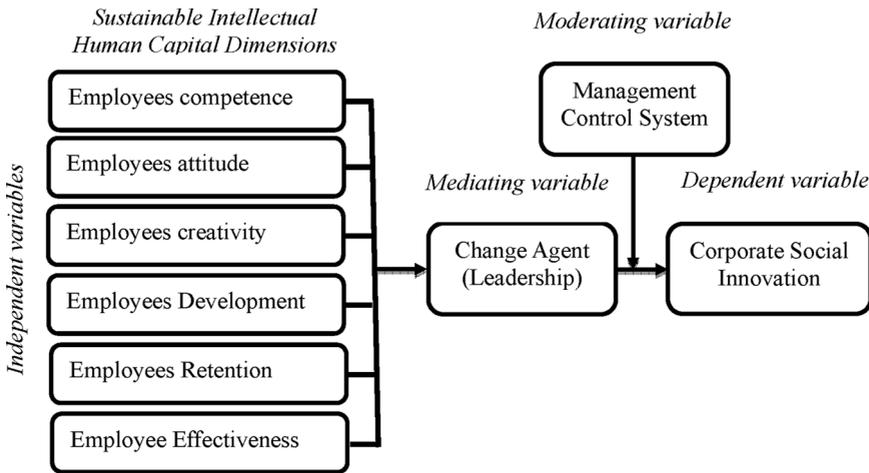
4 Conceptual research framework (will be added by Al-Amin at later stage)

The importance of intellectual human capital on corporate responsibility rests on the argument of Razafindrambinina and Kariodimedjo (2011) that corporate responsibility is a result of certain conditions that are responsible for the firm's level of corporate social

power. The authors argued that corporate social responsibility represents a firm’s top organisational needs, and for the firm to engage in any CSR activities, it must first fulfil its intellectual capital. Thus, CSR is conditioned on the level of a firm’s intellectual human capital. Therefore, the goal to design and implement CSI depends on the intellectual human capital of the company to create firm value and sustainable business and society.

Figure 1 presents the conceptual framework developed in this study based on the review of literature in Sections 2.1–2.4. In the framework, the dependent variable (DV) is CSI, the explanatory variables (IV) are the characteristics of human intellectual capital, whereas change agent (leadership) is the mediating variable (MV). Since social innovation is considered as an asset for sustainable development (Hubert, 2010), it is imperative to identify the factors that drive it. CSI is often seen as the outcome of a complex and interactive process; hence, sustainability-related human capital could be perceived as the foundation for the effective introduction of CSI. Some theoretical and empirical studies (e.g., Kato et al., 2015; Subramaniam and Youndt, 2005) have stressed the influence of human intellectual capital on the innovative performance of an organisation. As the popularity of sustainability practices increases, it is fundamental to gain insights into the knowledge and skills which should be possessed by employees and managers in order to manage sustainability-related innovation. There is a consensus among scholars that intellectual human capital (e.g., knowledge, skills and abilities) plays a fundamental role in facilitating sustainability initiatives (Cavicchi et al., 2017).

Figure 1 Sustainable intellectual human capital, change agent and corporate social innovation



According to Metcalf and Benn (2013), effective or successful implementation of corporate sustainability or CSR necessitates leaders or managers who have the abilities and emotional intelligence to think through complex problems, and adaptively manage complex problem-solving. By the literature in a healthcare setting, Cavicchi et al. (2017) opined that intellectual capital management could play a vital role in shifting toward sustainability. The study developed a model of sustainable intellectual capital for healthcare organisations, in response to the recommendation that the relationship between sustainable development strategy and intellectual capital should be investigated.

Responding to a suggestion by Allee (2000), the study extended the conceptualisation of intellectual capital within the setting of sustainable development.

Basically, individuals occupy a central role (especially in the absence of ready-made structures) in implementing corporations' sustainable development (Siebenhüner and Arnold, 2007). The aggregation of sustainability-related human capital provides the corporation with better insight into sustainability issues. This will enable them to understand the way to explore or exploit knowledge and skills within the areas of sustainable development. Moreover, one of the most fundamental tools to attain a successful sustainability-oriented corporation is to possess a change agent for sustainability within the organisation. This change agent is the actor who deliberately solves ecological and social problems using entrepreneurial techniques so as to bring sustainability management into organisational practice with a view to facilitating sustainable development (Hesselbarth and Schaltegger, 2014).

Mulgan (2006) posited that social change is motivated by high individual innovators who have the capacities to communicate complex ideas in a practical way so as to attain desirable results. The study added that social change is influenced by millions of individuals and several intellectual and organisational leaders. Hence, a large number of social innovations have been driven by these broader movements. According to this viewpoint, intellectual human capital (e.g., sustainability-related knowledge, competencies and skills) plays a vital role in CSI. Recently, Doyle and Kathryn (2016) investigated the role of individual cognition in the implementation of shared value. The study recommended that personal knowledge creation (i.e., individuals routine practices or engagements that offer them objective thought patterns and emotions) is capable of resolving tensions in the simultaneous creation of economic value and social benefit. Hence, it could be rationally argued that human capital has an effect on sustainability-based strategy implementation. This is because, human capital influences critical thinking ability, problem-solving and the consideration and selection of strategies. Besides, sustainability-related competencies enhance the capacity of the corporation to balance the creation of social value and financially driven goals.

There are several reasons why this paper focuses on top-level managers, even though there are other members of a corporation. First, the empirical literature contended that top-level managers determine strategic decisions (Wiersema and Bantel, 1992), aggressive moves (Augier and Teece, 2009) and innovation (Hoffman and Hegarty, 1993; Marcy, 2015). People who have broad sustainability-related knowledge could be more proactive in interpreting sustainability issues and consider them as opportunities rather than threats. Thus, the intellectual human capital of top-level managers has an influence on their capabilities to identify new practices as well as their willingness to adopt it. The knowledge and competencies of top-level managers, particularly in the spheres of sustainability are essential for them to easily identify opportunities from social innovation with a view to incorporating the shared value concept into the business agenda.

Moreover, it is the responsibility of the top-level managers to articulate the mission of the corporation, motivate the employees to share and utilise knowledge related to sustainability. Therefore, top-level managers could communicate strong signals through these process about the emphasis of the corporation on social innovation. Because the issue of sustainability is not a routine job, competencies related to sustainability are important for developing the appropriate techniques of achieving sustainable solutions (Wesselink et al., 2015). Hence, managers and leaders are important in achieving shared value, as well as developing novel knowledge and new skills. Examples of such skills

include the greater or deeper appreciation of the needs of the society, a better understanding of the accurate foundation of the productivity of a corporation, as well as the capabilities to collaborate with external partners (Porter and Kramer, 2011). From such context, this study contends that individuals who possess greater intellectual human capital of sustainability have a greater likelihood of engendering social innovation. Hence, this study opines that intellectual human capital promotes CSI.

In their discussion on how human capital could affect societal innovation, Dakhli and De Clercq (2004) argued that the combination of educational attainment, physical well-being and the economic resources of the firms' employees could result in societal innovation. Places and regions with firms that have a high level of human capital would be economically successful due to the expertise and skills of human capital of the firms than areas with firms whose human capital are low in expertise, knowledge and competencies to identify business and societal problems that would trigger societal innovation (Maskell and Malmberg, 1999). Herrigel (1996) supported the claim that societies which enjoy economic prosperity, social innovation and entrepreneurial vitality are firms that use their human capital to interact with the society on what products and services are needed. Through the expertise, attitude and competence of human capital, they can carry out a sustainability SWOT analysis to ensure a good network between the business and the society. Therefore, the firm's human capital enhances and increases societal productivity level. Thus, an increasing level of economic activity would be achieved. As the economic activity increases, Cannon (2000) stated that the needs of the society would increase simultaneously, thus influencing firms to be more innovative by establishing new processes and product lines that would address increasing societal needs and complex business challenges.

Figure 1 indicates that the firm's human capital can achieve corporate performance and sustainable success, and the firm's competitiveness. The CSI could help a firm's managers to take different strategic decisions in what types of product lines and information and supply processes could influence the sustainability of the business and society. The importance of CSI may address the degree and sources of innovation that could drive business and societal sustainability. Incremental innovation, radical innovation, innovation generation and innovation adoption are different facets of CSI that could drive the long-term business and societal sustainability. Prior literature has linked the degrees, type and sources of CSI to sustainable success (Subramaniam and Youndt, 2005; Mattera and Baena, 2015; Dost et al., 2016).

The importance of intellectual human capital on CSI has been well documented. However, much of the literature in this area failed to justify how intellectual human capital could affect CSI and how CSI could be improved, thus leaving both a mediating and moderating gap in organisational behaviour studies. Using a conceptual review of related literature, this study proposes leadership as a change agent that mediates between intellectual human capital and CSI. It also introduces a management control system as a moderating factor to firms' leaders implement shared visions and values on CSI towards achieving a sustainable business and society. The literature used in this paper is among the most well cited and researched in the fields of organisational behaviour, innovation and sustainability.

5 Discussion

In this paper, we have argued that CSI is influenced by factors of intellectual human capital that are mediated by a change agent, leadership. The extant literature has shown that human capital is important for innovation (Iturrioz et al., 2015; Dost et al., 2016; Kianto et al., 2017; Thrassou et al., 2018). However, these studies have failed to examine how or why intellectual human capital affects CSI for the sustainability of a business and society. According to Arena and Uhl-Bien (2016), if firms are to win the talent war for achieving CSI, they must build, validate and design leadership competency and development programs. This suggests one of the possible ways in which intellectual human capital could affect CSI. The implication is that leadership is a change agent that can bring about better innovation outcomes, especially those related to the sustainability of the business and society. It appears that CSI is, first, dependent on the human phenomenon within complex firms. The successful sustainability of a business and society in a human context is achieved through leadership styles that ensure an interplay between competence, creativity, attitude and employee development. Innovative behaviour is influenced by the role of the firm's leadership in empowering employees and making them more creative and able to identify societal and business problems (Krog and Govender, 2015), while also developing them to design possible methods to solve and sustain complex business situations. Prior studies have used different mediating variables (such as affective commitment, knowledge management capacity, psychological empowerment, and shared values) for the nexus between human capital and innovation (Camelo-Ordaz et al., 2011; Chen and Huang, 2009; Foss et al., 2011; Huang and Liu, 2019), but many of these mediators depend strongly on the role of the firm's leader.

Another problem with the prior literature is its methodological shortcomings. Some studies examined human capital and innovation practices using a company and time series data approach (Dakhli and De Clercq, 2004). Some limitations to this approach are important for future research and practical implications. There is evidence that the intellectual aspect of human capital exerts more influence on organisational growth than its physical aspects (De Clercq et al., 2009). As a result, the behavioural element of human capital is much more important for the firm's sustainability success. For example, tacit social pressures on employees may stifle innovation and prevent them from deviating from established practice (DiMaggio and Powell, 1983). An exploration of the behavioural importance of a firm's intangible assets may be significant if the firm manager is to change a belief system that does not encourage creativity and innovative behaviour. Thus, scholars have documented different behavioural factors of intellectual human capital, including employees' competence, creativity, effectiveness, attitude, retention, and development (Hsu and Fang, 2009; Ployhart et al., 2011).

In today's business environment, firm managers must look beyond company reports to measure the impact of human capital on CSI. To ensure that CSI achieves the goal of the sustainability of the business and society, managers need to examine the behaviours, attitudes and perceptions of their employees towards sustainable success. There have been inconsistent findings in studies of human capital and innovation that use company reports. According to Damanpour and Daniel Wischnevsky (2006), the use of company data to capture human capital and innovation (i.e., looking at such measures as patent costs) has limited the study of different antecedents of intellectual human capital and social innovation. Secondary and company data measuring factors of intellectual human

capital such as attitude and creativity are unavailable. The use of company data in past studies to capture innovation has contributed to the low level of the in-depth exploration and analysis of the degrees, types and sources of social innovation (Murat Ar and Baki, 2011; Subramaniam and Youndt, 2005). This study contributes by using another methodological approach to measure the different antecedents of intellectual human capital and CSI. Data on intangible assets such as employees' competence, attitude and retention can be captured through questionnaires after applying a reliability and validity test (Dost et al., 2016). For example, while Murat Ar and Baki (2011) found a positive relationship between human capital and innovation across 59 different countries using data from the World Development Report, Subramaniam and Youndt (2005), using a survey approach, found that human capital had a negative effect on the radical, innovative capability of 93 organisations in the US. Since intellectual human capital describes the intangible features of human capital (Bontis et al., 2005), the use of a survey method to capture the behaviours, attitudes, and perceptions of a firm's human capital can reduce the gap in the literature findings on human capital (Tseng and James Goo, 2005; Podsakoff et al., 2012; Raineri, 2017). Another intriguing extension of the literature on social innovation and sustainable development would be to explore the multidimensional aspects of human capital, and the behavioural antecedents of human capital and innovative behaviour, through a survey that can help shape and understand the strategic directions of firms in relation to the sustainability of their businesses and society.

Moreover, one missing link in past studies is the variable of implementation. Although many studies have linked human capital to social innovation (Dost et al., 2016; Kianto et al., 2017; Thrassou et al., 2018), evidence of what strategy should be used for the implementation of intellectual human capital is missing. This gap in the organisation behaviour literature is also seen in the inconsistent findings on the relationship between leadership and innovation (Elrehail et al., 2018; Hou et al., 2019; Zuraik and Kelly, 2019). This study identifies the use of a management control system (MCS) as an implementation strategy for firm leaders who wish to achieve CSI that sustains the business and society. An MCS is used by managers to alter procedural patterns when change is needed and required (Simons, 1995), and enables employees to seek creative and innovative opportunities to solve complex problems relating to business and society (Chenhall and Moers, 2015). An MCS is a belief system that serves to disseminate the values of sustainability of the business and society through sustainability plans and policies (Alt et al., 2015), and leaders can use it to share the values of sustainable innovative goals through organisational stewardship attributed to the leader (Wijethilake et al., 2018).

Although there is increasing attention to social innovation in the literature on organisational studies, the absence of a theoretically motivated operationalisation or conceptualisation of social innovation at the business level has inhibited various types of research on CSI. Hence, it is suggested that future studies should contribute to the increasing literature on social innovation through the development and validation of a measure of social innovation within the context of a corporation. More precisely, future studies should determine the differences between CSI, traditional CSR and global innovation. Although this paper has examined a corporation's internal competences, more research is needed to cover external factors (e.g. institutional factors). Moreover, it may be necessary to conduct empirical studies to determine the connection between intellectual human capital and CSI. In this regard, rigorous testing of the suggested

framework with exploratory research and a large-scale survey may be necessary. It is also suggested that future studies should examine CSI as a source of competitive advantage (Herrera, 2015). It may also be necessary to determine the link between CSI, firm performance and firm competitiveness. Since social innovation elements or variables are different across settings and relationships, it is also recommended that future studies explore cross-cultural studies across industries. Moreover, future researchers could conduct a longitudinal study to determine a causal relationship between intellectual human capital and CSI. In this present paper, a change agent (leadership) was considered as the only mediating variable. Hence, future research could utilise more mediating variables (e.g. the voice of the employee, commitment and supervisory role) in the link between sustainable intellectual human capital and CSI.

6 Conclusion

The findings of this conceptual paper offer significant implications for firm managers who wish to utilise their human capital resources as an internal capability that can sustain survival and competition within the industry to which the firm belongs. The paper can give managers insights into how to empower employees to ensure that they enhance their capital (i.e., their expertise, skills, knowledge, interpersonal relationships, communications, and knowledge acquisition culture) to expedite innovation characterised by sustainability, growth, value, competition and survival. Researchers could also benefit from this study in that the sustainability of a business and society is a function of intellectual human capital and CSI. This paper creates a new direction for studies into what determines the sustainability of a business and society by examining non-financial measures rather than solely the commonly emphasised financial indicators (such as return on investment) that ignore a firm's value and societal goals. This study could also benefit researchers and scholars in the field of supply chain management and operations management by examining how intellectual human capital activities could sustain efficient supply chain management and information systems of a firm through the inclusion of CSI.

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