

Technology as a Catalyst for Sustainable Entrepreneurship: Challenges and Opportunities

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ABSTRACT

The recent developments in the field of sustainable entrepreneurship increasingly acknowledge the transformative possibilities of digital technologies to neutralize the impact of societal and environmental challenges via innovative entrepreneurial mind set. However, as of now, the empirical research in the domain of digital sustainable entrepreneurship is dispersed and disjointed lacking the consolidation to move forward. This conceptual research aims to contribute to the field of sustainable entrepreneurship and business model research by discovering the role of digital technologies in creating socio-environmental value driven business models. This research explores the factors which work in cohesion and those which propose a potential challenge for the amalgamation of sustainability and digital technology. The intention is to achieve a deeper understanding of how to achieve sustainable development from an entrepreneur point of view. This research throws light on the components of sustainable business models having digital technologies at its core. Practical implications for sustainable entrepreneurs have also been discussed.

Keywords: Sustainability, Sustainable Entrepreneurship, Digitization, Digital Technology, Business Model

Contextual Background

Sustainable entrepreneurship is the concept wherein entrepreneurs explore the opportunities with the core ideology that does not destabilise the social and ecological environment (Shepherd and Patzelt 2011); and also strive towards fostering the balance between nature and economic activities (Parrish 2010). According to Schaefer et al., (2015) this emerging field has the untapped potential to create fundamental and radical change in the way business is operated. Hence, they pursue to merge the activities and processes which eventually lead to sustainable development along with attaining the economic leverage (Lans et al., 2014).

The crux of sustainable entrepreneurship is the innovation which aims to cater the large set of stakeholders working towards sustainable development goals.

As entrepreneurship has emerged as the most sought after solution to resolve big socio environmental issues like social, economic inequalities, micro and macro climate change (Gast et al., 2017; Howard-Grenville et al., 2014; Munoz and Cohen, 2017); sustainable entrepreneurs play

a vital role in coming up with innovative and financially viable business models which contribute towards meeting sustainable development goals by creating a strong impact on society (Bocken et al., 2014; Evans et al., 2017; Hahn et al., 2018; Munoz and Cohen, 2017). The biggest challenge faced by them is to cater to social, environmental and economic objectives simultaneously (Laasch, 2018) while creating appropriate value propositions for all stakeholders. Usually the financial objectives of the business model are difficult to match with social and environmental values of the business model (De Clercq and Voronov, 2011; Gregori et al., 2019). If these conflicts are not resolved at the design stage of business model, it leads to instability of business and hampers the intended value creation (Davies and Chambers, 2018).

Hence, it is very much required to study the successful business models in this domain to understand how various critical components are aligned perfectly to create the desired values outcomes (Hahn et al., 2018; Stubbs, 2017a; Teran-Yeppez et al., 2020). Recent research findings have established the belief that digitization has the potential to tackle the challenges faced by sustainable entrepreneurs (George et al., 2020; Parida and Wincent, 2019). This is based on the transformative capabilities offered by digital technologies which has altered the thought process of entrepreneurs interested in sustainable solutions (Nambisan, 2017; Seele and Lock, 2017; Stuermer et al., 2017). Digital technologies offer such novel prospects which open up new opportunities and enable designing and developing viable business models (Hinings et al., 2018; Holzmann et al., 2017; Nambisan et al., 2017; Tauscher and Laudien, 2018). The complete potential of synergies among sustainable efforts and digitization needs to be explored yet. An effort has been made to analyse this gap by analysing how digital technologies can lead to value proposition and value creation based on institutional logic in proposed business models (Gregori et al., 2019; Hahn et al., 2018; Stubbs, 2017b). It is basically a combination of institutional practices, beliefs and values which enable as well as restrict business decisions (Friedland and Alford, 1991; Thornton et al., 2012). According to this view, sustainable business models are supposed to be configured of various components such as value proposition and creation with the aim of achieving social, environmental and financial objectives (Laasch, 2018; Ocasio and Radoynovska, 2016). Also, it is thought that digitization has a unique relationship with sustainable business solutions. Research findings prove that digital technologies act as a catalyst in developing blended value propositions in terms of social, environmental, and economic value of business model, which further incorporates the practice of community development and involvement of all stakeholders.

Using digital technologies in business models captures value at multiple dimensions as it compliments functions and supports in scaling up social and environmental outcomes. Inventions done in the niche segment should have the scope to create positive outcomes at a large scale to be able to convert into sustainable innovations (Boons, Montalvo, Quist, & Wagner, 2013; Geels, 2010).

Sustainable entrepreneurs link their KRAs directly to the positive outcomes for the social and environmental causes and benefit to mankind and hence are able to create value for all the stakeholders in the process (Freudenreich, Lüdeke-Freund, & Schaltegger, 2019).

Despite the numerous challenges, Sustainable entrepreneurs face the biggest uncertainty in the form of whether their innovation can result into a successful business model (Schaltegger & Wagner, 2011; Kiefer, Del Río González, & Carrillo-Hermosilla, 2019).

In true essence, sustainable entrepreneurs work on such innovation which target market gaps and convert them into feasible business opportunities, replace unsustainable production and consumption practices and create value for all categories of stakeholders (Hockerts & Wüstenhagen, 2010;

Schaltegger, Lüdeke-Freund, et al., 2016). They are known for exploring and exploiting sustainable innovative ideas and convert them into viable business models (Schaltegger & Burritt, 2018).

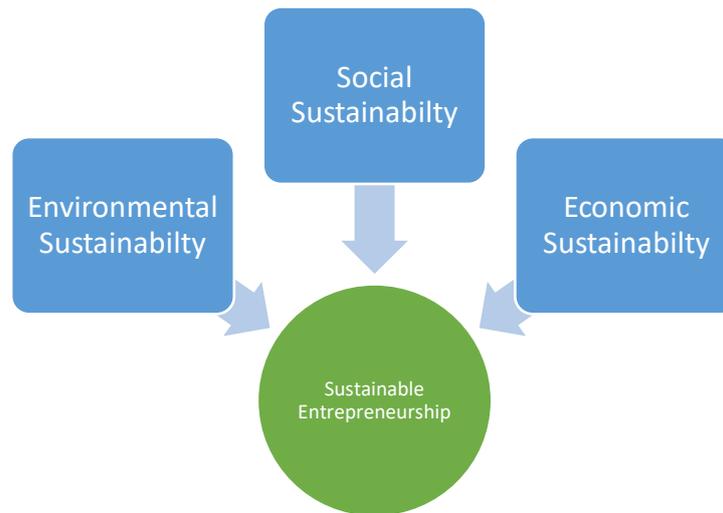


Figure 1: The Concept of Sustainable Entrepreneurship

The digital transformation process reveals new organisational arrangements which incorporate novel ideas, practices, values and structures (Hinings et al., 2018). These generally consist of widely acceptable and customizable digital solutions such as ERP and use of blockchain technology. Most often, such prominent innovations in digital domain have major influence on business models. Researchers believe that affordability and option of various modules of digital infrastructure widen their application and support entrepreneurs while creating, delivering and capturing value for all stakeholders (Holzmann et al., 2017; Tauscher and Laudien, 2018). Radical changes at the process design and operational level lead to revolutionary business models (Nambisan et al., 2017) which require drastically different leadership approach (Rialti et al., 2020). This paper contributes to the existing knowledge base in the field of sustainable entrepreneurship and business model research by identifying how digitization can be used to create more socio environmental value. Further insights on the topics have been provided in terms of challenges faced by sustainable entrepreneurs and factors within and between business model components which affect the smooth operations. This research adds to a deeper understanding of how entrepreneurs contribute to sustainable development by deliberating the complementarities and tensions of digital solutions and sustainable entrepreneurship. Practical implications for sustainable entrepreneurs have also been discussed.

Methodology

Conceptual outlines and frameworks provide the fundamental links between preliminary narratives of a phenomena (e.g., sustainable entrepreneurship; Cohen & Winn, 2007) and corresponding theories which substantially explain and predict these phenomena (e.g., when such entrepreneurs emerge; Hockerts & Wüstenhagen, 2010).

Meredith (1993) described the typical research cycle, as the stages of describing, explaining, and testing with the aim of creating and refining theory (Figure 1). This iterative process requires theoretical models and frameworks to progress phase wise (cf. Netter, Pedersen, & Lüdeke-Freund, 2019).

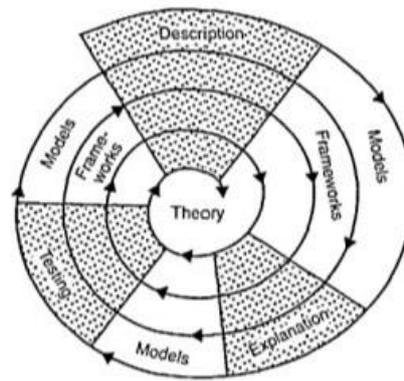


Figure-2 Research Cycle (Meredith, 1993)

Conceptual research though accused of lacking evidence and rigour of empirical research, is crucial to understand a new phenomenon, eliminate ambiguity and consolidate the available knowledge and leads to formulation of theory. Most of the research on sustainable entrepreneurship so far mainly explores the core dimensions and various themes related to the topic. Hence, there is a scope of conceptual models and frameworks which include the scope of digital technologies in sustainable business models. This research aims to bridge the above-mentioned gap. This research paper is based on thorough literature review on the topic and aims to assimilate the available knowledge with the aim to identify the key dimensions which contribute towards a robust business model. For this purpose, the authors have looked into the potential of digital technologies in order to resolve the sustainability issues, when incorporated in the business model. The next step of this conceptual research will be to develop testable hypotheses based on the deeper understanding achieved.

Discussion

Sustainable entrepreneurs are recognised as socially and environmentally conscious individuals striving to solve multifaceted societal problems (Hockerts and Wüstenhagen 2010; York and Venkataraman 2010; Zahra et al. 2009). However, the challenges faced by SE (Sustainable entrepreneurs) while establishing and then running their businesses are still to be understood completely. Most of these challenges arise due to divergent goals of creating social value and private value (Pinkse 2015, Pacheco et al. 2010; Santos 2012).

Challenges for Sustainable Entrepreneurs

The main aim of sustainable entrepreneurs is much broader and complex as they try to explore possible opportunities to resolve social and environmental concerns while balancing out the personal as well as community's collective interests (Groot and Pinkse 2015).

a) Imperfect Market Conditions

Firstly, SEs have to deal with imperfect market conditions (Cohen and Winn 2007; Dean and McMullen 2007; Groot and Pinkse 2015; Pacheco et al. 2010) as their efforts to protect the natural environment often result in low potential for value creation. While, serving hugely unmet societal needs, such as providing nutrition and safe sanitation to slum dwellers and under privileged communities, reduces the scope of value creation as recipients do not have sufficient means to repay for the services offered (DiDomenico et al. 2010).

b) Unfavourable Policy Structure

Also, SEs have to channelize a lot of efforts towards changing the existing policy structure and rules. This need is emphasised by Groot and Pinkse (2015) in case of clean-energy technologies. Groot and Pinkse (2015) illustrate the growth of electric vehicles when there was lack of suitable

infrastructure and renewable energy faced fierce competition from wrongly priced regular energy sources. Hence, it is imperative for sustainable entrepreneurs to become politically and socially active to be able to influence changes at institutional level. A noteworthy example in this regards is Ray Anderson, late founder and CEO of Interface Inc. He tapped on the opportunity by reducing his organization's ecological externalities and revolutionised the floor covering industry. He realised that regulations regarding climate change and usage of natural resources were inadequate. His contribution was to significantly exceeding regulatory norms and be the pioneer to influence policy makers (Anderson, 2011).

c) Data Privacy issues

Sustainable entrepreneurs have to also look into data privacy issues while incorporating digital solutions to back up their business idea. It is indeed required to build the trust among all stakeholders and ensure the long-term association of customers. It is imperative to ensure that data security measures are inbuilt at the design stage of digital solutions used for supporting the business models.

d) Need of extensive knowledge base

Another important dimension is that SEs are expected to have a broad knowledge base so that they can work around the market imperfections and adverse institutional environment (De Marchi 2012; Marin et al. 2015). SEs are expected to acquire external and internal domain knowledge and cooperation from all stakeholders (Marin et al. 2015)

Sustainable Entrepreneurship Model

SEs leverage innovation keeping sustainability in mind to design their processes, products and business models. They are either driven by objective of sustainable development or an untapped opportunity to set up a business. From a holistic viewpoint, sustainability comprises economic, cultural, social and environmental domains with equal emphasis on each domain.

a) Blended value propositions

Research uncovers the fact that entrepreneurs depend on digital technologies to create blended value propositions for all their stakeholders. Digitalisation helps to catalyse the process of value creation in terms of combining social, environmental and financial worth for their stakeholders. The fundamental advantage of adopting digital technologies is their ability to make sustainable practices more extensively accessible, available and achievable. Sustainable Entrepreneurs value technology as the most powerful tool to effectuate effective outcomes. They strongly feel that in spite of having technology, our society is still far behind to use it for simplifying our day to day lives. It is crucial to find ways to amalgamate, balance and standardise core values to design a sustainable business model (Bocken et al., 2014; Laasch, 2018). Digital technologies when used selectively and judiciously have the potential to improve efficiency and convenience, lower the costs, lead to sustainable ways of living while providing balanced value propositions.

Digital technologies can support the simultaneous progress in socio environmental and financial domains. This further emphasises the importance of using technological advancements for sustainable business models (George et al., 2020).

Digital modes specifically work on building efficient and effective seamless connections and fill the gap of demand and supply, and hence as an outcome social, environmental and financial objectives are met in a better way.

Digital marketplace has an added advantage of enhanced convenience to procure sustainable products as most of times these alternatives are not available in local market. It saves the Sustainable entrepreneurs the challenge of identifying, assessing and ultimately purchasing the environment friendly raw material for their business.

Smartphones and web applications offer an unparalleled advantage of accessing and analysing user data and suggesting better sustainable alternatives to their needs. These apps simultaneously work towards creating more awareness of available environment friendly solutions and improve their accessibility and ultimately act as a catalyst for creating the desired values propositions.

b) Integrative value creation

The successful Sustainable Entrepreneurs also focus on building community involvement to tackle socio environmental challenges. This can be done by creating effective information portals, online platforms, networking and communication modes using digital technologies. Sigma uses this approach to facilitate civilian participation towards public environmental projects via building strong online community.

Digital solutions offer another unique advantage of scalability which entrepreneurs can use effectively for tackling socio environmental issues. Digital components of business models facilitate the customer interactions in terms of their requirements and opinions which helps to improve the products and services offered. Most of the digital apps come with the possibilities of customisation and inbuilt expansion for new products and can easily be adapted to new markets (e.g., Epsilon, Zeta).

Review of cases in this domain show that sustainable entrepreneurs educate and increase awareness about sustainable alternatives, which is an additional benefit of their business models. This is called value spillover as the benefit achieved reaches far beyond the immediate target group and impacts all stakeholders leading to enhanced socio environmental outcomes. This spillover is often achieved with the support of digital media in the form of social media, interactive websites, blogs and networking activities on respective platforms and development of strong online communities.

Practical implications

Technological advancements in digitization can significantly contribute in achieving sustainable development goals (Seele and Lock, 2017). However, the prospective ways to achieve the same still need lot of exploration, mainly in the area of sustainable entrepreneurship models having financial viability. Digital technologies have the potential to align all the components required to create viable business models. They are effective when incorporated at the design stage of business models. However, this field of study requires lot of empirical research so that the potential of digital technologies can be explored fully. This would encourage the entrepreneurs who intend to create financially sustainable business models. Sustainable entrepreneurs can start with configuring the core components such as blended and integrative value propositions and creation in their novel sustainable business model. For instance, they can emphasise on use of digital modes for forming of active communities that channelize individualistic contributions and combine the effects of multiple factors towards achieving common objective. This, ultimately can leverage the process of value creation in terms of socio environmental impact through collaborative activities which achieve spillover effect.

It is a challenging task to create viable business models which are composed to various value propositions in perfect alignment and only digital technologies possibly cannot solve it in entirety.

While exploring the potential of digital technologies, Sustainable Entrepreneurs should focus on complexities involved. Technological advancements in digitization surely improve accessibility and connectivity but can also counteract social and environmental objectives. Though digital technologies have the potential to offer reliable solutions but cannot claim to be a game changer when used in isolation. Based on this conceptual analysis, it is suggested to adopt an unbiased and analytical approach when evaluating the integration of digital solutions in any business model.

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