

A framework of sustainable business models

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Abstract

Objectives: To develop a framework of Sustainable Business models by using the existing research contributions of academicians and practitioners. The framework can serve as a tool to identify opportunities in sustainability.

Methods/Analysis: The sustainable business model types identified from past research have been analyzed and classified and a pruned list provided. Similar models were grouped together, some reclassified on the basis of outcomes and a few were given specific descriptions. The framework of sustainable business models which consists of 21 models is presented with its potential impact on sustainable outcomes.

Findings: A list of 30 business models found originally in the research publications were categorized under four types of impact produced on sustainability. An examination of the models led the present researcher to believe that some archetypes /models found were too broad in their coverage and some models were similar. Hence the broad ones were made specific, and models that were similar were grouped into a single cell with the researcher's contribution identified. The framework can be used by managers and practitioners to make choices about the models that are appropriate to them. The framework of sustainable business models lists 21 models.

Application/Improvements: Considerable amount of overlaps in the models have been eliminated and simplified and thus offers a compressed list of choices which may be consulted by managers and practitioners.

Key words: Framework, Sustainable business models, sustainability benefits.

1. Introduction

Arise in corporate awareness and action with regard to sustainability is gradually reshaping businesses. Corporates are adopting sustainable business models which are helping them integrate the three dimension of sustainability - environmental, social and economic. Sustainable business models that have the ability to transform industries and act as catalysts of larger systemic change, are in great demand today.

The importance of sustainability cannot be underscored. Consumption by the World's population in 2007 was reported to have been 1.5 earths [1]. Earth's natural capital is defined as the world's stocks of natural assets. Adding to this woe is the prediction that the growing population of the world is expected to reach 9 billion by 2050, economic growth rates in many parts of the world are already going upwards and therefore an increasing pressure on natural resources is likely to be felt even more intensely.

Companies which respond to the challenge of depleting resources by offering solutions which reduce the impact of these effects will be better off than those who will continue with business as usual. The innovation opportunities to tackle sustainability are presented in the Sustainability Driven Innovation Matrix [2]. Sustainable business models have the power to transform businesses and help achieve positive results in environment, social and governance areas. Business Models appear promising as they are more likely to bring about systemic changes than just product design [3]. Product design greatly benefits sustainable consumption and if design embodies psychosocial factors considered desirable by a target market there is greater scope to influence the consumption side of business [4].

Managers must have a good understanding of the sustainable business models if their organizations are to thrive. Academic research has offered insights on sustainable business models and frameworks classifying some of these. However, we believe there is need to present a framework which integrates the research on sustainable business models for practitioners and managers which explicitly lists the main benefits derived out of sustainable business models whether it is environment, finance, social or a combination thereof.

A Business Model refers to the way a firm operates and how it creates value for its consumers and delivers it. There have been sustainable business model frameworks and typologies presented by researchers in the past [3, 5, 6,

and 7]. An attempt here is made to integrate these separate views into a single framework called: A framework of sustainable business models.

The two questions this research paper answers is what are sustainable business models and can an integrative framework be used to incorporate the model types identified by researchers and the sustainability benefits these offer.

The article is organized as follows. In the next section on literature review we define and discuss the notion of business models and sustainable business models. We examine the sustainable business model types and frameworks advocated by researchers [3, 5, 6, and 7]. The results sections provide the analyses of frameworks and models and suggest a sustainable business model framework. This framework presented can be used by a manager to explore opportunities in sustainability with specific or broad ranging effects. A discussion and conclusion also follow.

Sustainable business models are in a state of evolution and hence one cannot claim to have covered all of the types. The list of models may further be updated.

1.1. Business models

A business model is about how a company does its business. Specifically it covers: value creation for the customers, value design and delivery and value capture for the company and its stakeholders. Researcher [8] stated that “a business model describes the rationale of how an organization creates, delivers, and captures value”.

Researcher [9] defines business models as ‘stories that explain how enterprises work’. Accordingly it answers certain questions: Who is the customer? How do we make money? What underlying economic logic explains how we can deliver value to customers at an appropriate cost? A business model is about how an organization earns money or profit by identifying and creating value for customers. These are among well recognized ways of defining business models.

1.2. Sustainable business model

Sustainable business models cover the triple bottom line impact. Apart from economic benefit, a sustainable business model is expected to deliver on social and environmental sustainability. These models therefore demand different relationships with stakeholders, new ways of thinking about customers, suppliers, technologies, operations and waste, new ways of engaging communities in order to deliver sustainable outcomes.

1.3. Circular business models

Circular Business Models are a more specific way of meeting the sustainability challenges. As identified by [7] these models consist of the use of resource loops, four value creation bases and *five distinct business models*. Circular models aim at conserving resources for as long as possible by adopting production methods and encouraging the use of goods in distinct ways. Resources are circulated through closed loops and often times the useful life of products and components is stretched through repair, reuse, remanufacturing and recycling.

The report [5] identified five circular business models that companies can leverage to improve resource productivity, generate additional revenues and enhance customer value and differentiation. Apart from providing significant economic benefits these models encourage businesses to explore new ways of forming partnerships with suppliers and connecting with customers. The models include Circular supplies, Resource recovery, Product life extension, Sharing platforms, Product as a service

Critique of circular business models

Circular business models not only help connecting with suppliers and customers in new ways, but also deliver economic and environmental benefits. The circular business models reveal a clear focus on resource productivity and efficiency.

1.4. Model behavior [3]

The research report [3] was aimed at developing an understanding of new business models and the innovations relating to new and established companies that were experimenting with sustainability. The research covered 87 company examples, and identified 20 distinct business models falling into five categories namely: environment, social innovation, financial innovation, base of the pyramid and diverse impact.

Models covering Environmental Impact include: Closed-Loop Production, Physical to Virtual, Produce on Demand, Rematerialization; Social Impact include: Buy One, Give One: Cooperative Ownership, Inclusive Sourcing: Retooling the supply chain to make a company more inclusive. Financing Innovation include: Crowdfunding, Freemium,

Innovative Product Financing; Base of the Pyramid include: Building a Marketplace, Differential Pricing, Microfinance, Micro-Franchise; and Diverse Impact include: Alternative Marketplace, Behavior Change, Product as a Service, Shared Resource.

Critique of [3]

The above categorization reveals a broad spectrum of models applicable in the real world. The models are also considered distinct, encompass five categories and hence can be considered comprehensive and useful.

1.5. Archetypes of business models [6]

Researchers [6] developed archetypes of sustainable business models. The archetypes are classified into higher order groupings: Technological, Social, and Organizational oriented innovations and further classified into eight others. The eight archetypes include:Maximize material and energy efficiency;Create value from ‘waste’; Substitute with renewables and natural processes; Deliver functionality rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; and Develop scale-up solutions. The researchers have mapped the examples they identified in theoretical and practical papers on to the eight archetypes and three higher order groupings.

Critique of [6]

The archetypes have been developed using theoretical concepts and practices from the business world. For each of the eight archetypes identified the researcher provides the possible impacts on value proposition, delivery and value capture making the analyses quite exhaustive.

However the archetypes are broad and all-encompassing.e.g. ‘Adopt a stewardship model’ covers a range of sustainable business models like: biodiversity, consumer care, ethical trade, transparency on environmental and social impacts, and resource stewardship. Further it has been identified as part of social impact rather than recognizing its broader impact to include the organization as well. Similarly a wide ranging archetype is self-sufficiency covering product life, behavioral change, education of consumer, demand management.

The question is should the categorizations be so broad that it is difficult to use when one is looking at opportunities to make specific impacts. Therefore we are suggesting that the models be specifically identified and the main benefit delivered indicated in a framework that integrates the research work of [3, 5, 6, and 7].

2. Methods

Research and practitioner articles published on the subject of sustainable business models types were identified and studied. A list of 30 models with their impact on sustainability benefits were identified from the past work. For the purpose of analyses models that were similar were grouped together and were classified on the basis of four benefits: environment, social, financial and mixed impact. Some models were reclassified on the basis of the four outcomes. A final list of 21 models was reached after the analyses.

3. Results and discussion

Table 1. 30 Sustainable Business Models (Based on [3, 5, 6, 7])

Key Sustainability Benefits				
Environment /Technological	Social	Finance	Diverse Impact	Organizational
Resource loops	Buy One, Give One	Crowdfunding	AlternativeMarketplace	Repurpose for society and environment
Circular supplies	Cooperative Ownership	Freemium	Behavior Change	Develop scale up production
Resource recovery	Inclusive Sourcing	Innovative Product Financing	Product as a Service	
Product life extension	Deliver functionality rather than ownership	Subscription Model	Shared Resource	
Sharing platforms	Adopt a stewardship model			
Product as a service	Encourage self sufficiency			
Closed-Loop Production				
Physical to Virtual				
Produce on Demand				
Re materialization				
Maximize energy and material value				
Create value from waste				
Substitute with renewable and natural processes				

A framework on Sustainable Business model has been developed by analyzing the past research work [3, 5, 6, 7]. Table 1 has the Sustainable Business Models identified by researchers [3, 5, 6, 7]. In order to develop the framework the past researchers' list of sustainable business models and the sustainability benefits were tabulated. It was observed that some of the models were similar.

Table 2 covers Sustainable Business Models as identified by the past researchers and grouped on the basis of similarity. All models considered similar are reported in one cell. There is considerable overlap in the models listed and some models which are the same appear under different benefit categories. Thus defying the basis of categorization. Hence a list is provided of different business models. Each cell covers similar models and each model appears under only one main category.

Table 2. Sustainable business models grouped on the basis of similarity

Key Sustainability Benefits				
Environment/ Technological	Social	Finance	Diverse	Organizational
Resource loops [7] Closed-Loop Production [3] Maximise energy and material value [6]	Buy One, Give One [3]	Crowdfunding [3]	Alternative Marketplace [3]	Repurpose for society and environment [6]
Circular supplies [7] Substitute with renewables and natural processes [6]	Cooperative Ownership [3]	Innovative Product Financing [3] Freemium [3]	Behavior Change [3]	Develop scale up production [6]
Resource recovery [7] Create value from waste [6] Re materialization [3]	Inclusive Sourcing [3]		Product as a Service [3] Deliver functionality rather than ownership [6]	
Product life extension [7]			Shared Resource [3] Subscription Model [3] Sharing platforms [7]	
	Adopt a stewardship model [6]			
	Encourage self-sufficiency [6]			
Physical to Virtual [3]				
Produce on Demand [3]				

Table 3 shows the Framework of sustainable Business Models. It has the models with the main benefit categories. These benefit categories were borrowed from [3]. Further it suggests merging of benefit categories: Diverse impact [3] and Organizational [6] with the title Mixed. Thus we suggest four main categories of sustainable benefits: Environment, Social, Finance and Mixed. We decided to drop models identified under Bottom of the Pyramid category. Further some of the archetypes as identified by [6] were considered too broad. These were made specific by going to the original table by [6] which listed the archetypes and models. Some models were also reclassified based on the main benefit.

The Framework of Sustainable Business Models integrates the work of the past researchers. It identifies 21 models after removing overlaps. Further the original models identified as examples under respective archetypes of [6] are retained as they appear more concrete and clear with a specific intent. The Behavior change model by [3] has been reclassified in the impact category Social. Thus such similar changes were carried out.

Table 3. The Framework of 21 sustainable Business Models*

Key Sustainability Benefits			
Environment	Social	Finance	Mixed
Resource loops [7] Closed-Loop Production [3] Maximise energy and material value [6]	Buy One, Give One [3]	Crowd funding [3,6]	Alternative Marketplace [3]
Circular supplies[7] Substitute with renewables and natural processes[6]	Cooperative Ownership [3,6]		Collaboration [6]
Resource recovery[7] Create value from waste[6] Re materialization [3]	Inclusive Sourcing [3]	Freemium[3] Innovative Product Financing [3,6]	Product as a Service[3] Deliver functionality rather than ownership[6]
Product life extension[7,6]	Consumer Education [6]		Social enterprise [6]
Physical to Virtual [3]	Behavior Change[3,6]		Biodiversity Protection [6] Social and biodiversity regeneration [6]
Produce on Demand [3,6]	Consumer Care and Health[6]		Open Innovation [6]
			Shared Resource[3] Subscription Model [3] Sharing platforms [7]

Table 4. The framework of 21 sustainable business models compressed

Main Sustainability Benefit			
Environment	Social	Finance	Mixed
Closed-Loop Production	Buy One, Give One	Crowdfunding	Alternative Marketplace
Substitute with renewables and natural processes	Cooperative Ownership	Innovative Product Financing	Collaboration
Resource recovery	Inclusive Sourcing		Product as a Service
Product life extension	Consumer Education		Social enterprise
Physical to Virtual	Behavior Change		Social and biodiversity regeneration
Produce on Demand	Consumer Care and Health		Open Innovation
			Shared resources

Table 4 shows the framework of 21 sustainable business models compressed and proposes a single description for each cell and aims at reducing the overlaps of all sustainable business models.

3.1 Discussion

Sustainable business models are already altering the business landscape and companies are able to capitalize on the new opportunity for growth and expansion. The paper integrates several models proposed by researchers and

proposes a list of 21 models to drive sustainability outcomes. The tabulated results can be used to discover opportunities and examine the broad outcomes available.

There are quite a few research questions that may be pursued further to this.

Research needs to be undertaken on what makes sustainable business models successful. Researchers [10] identified six features or characteristic of business models which are keys to success. They suggest that if at least three are present the model is more likely to succeed. Most of the features identified are similar to circular business models identified by [5]. These include closed loop, pay per use and sharing assets; a few appear different: agility and personalization. However one needs to identify features of sustainable business models which lead to success.

This study was based on the literature review which implies limitations. Further research could therefore focus on empirical verification and the applicability of the Sustainable business models in various business settings.

4 Conclusion

The framework of sustainable business models can serve as a tool for managers to consult on opportunities for sustainability. It is a much more parsimonious list and yet comprehensive as it enhances the understanding of the models beyond the list suggested. Many other models identified by other researchers have been added to enhance the framework.

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