

# A Conceptual Framework on Circular Business Models in the Textile and Clothing Industry

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## Abstract

*The circular economy is a basic alternative to the linear economic framework of take-make-consume-dispose. This linear model seeks to preserve the greatest value of products and materials. The transformation to a circular economy is not only necessary, but also evolving into a social and economic model. Instead, the circular model aims to cut resource inputs to the economy by minimizing the usage of new materials for manufacturing and expanding the lifetime of existing products. The Indian textile and apparel industries are the fastest growing and the most promising areas that fall under the larger textile industry. Implementing innovative business models in the textile and garment industry is thus a difficulty that the industry faces. To comply with the principles of the circular economy, manufacturers, particularly those in quickly emerging industries, will need to establish innovative business models. This study explains the advantages of adopting a circular economy in textile and clothing industry.*

**Key Words:** Circular Economy, Business Models, Environmental Benefits, Textile and Clothing, Zero Waste

## 1. Introduction

The circular economy concept is a new approach of establishing relationships among sectors, customers, and natural resources. The circular economy is a regenerative economy that seeks to conserve the maximum value of goods and resources. This method should result in a closed system that allows for long-

term reuse, refurbishment, re-manufacturing, and recycling of goods and materials. Presently, the transition to a circular economy is not only essential, but also emerging into an economic and social paradigm. The majority of research is focused on waste, resource consumption, and environmental effect, with little emphasis on economic and business aspects. Without pointing to economic and business benefits, this type of study may restrict firms' transition to the circular economy due to a lack of knowledge and motivation.

## 2. Literature Review

**Voicu D et al (2022)** provided extensive empirical evidence on circularity solutions used by the top fast fashion firms. Six worldwide players' sustainability reports were examined using a full value chain circular model. Product design, virgin raw material extraction and processing, textile and material production, manufacturing, auditing and certification, packaging and retail, customer use, post-consumer garment collection, recycling fibres and materials, partnerships, and transparency are the eleven stages of this model. The findings are presented in five phases of implementation: strategies, research and development, large-scale implementation, quantitative indicators, and objectives. According to the report, prominent companies in this industry developed a complicated system to reduce their environmental effect while applying strict rules in their upstream supply chain. These businesses educate their clients about circularity and encourage consumers to recycle or reuse. The current contribution presents numerous configurations of circular models as applied by

prominent fashion shops, in addition to providing practical examples of strategy, product, and process design. Given that fast fashion is commonly perceived as having a negative influence on the environment, the findings have important implications for theory, management, and standard-setting.

**Coscieme et al (2022)** studied the European Commission has identified textile manufacturing and consumption as a priority product-value chain in its 2020 Circular Economy Action Plan. The Action Plan envisions a European Union strategy for sustainable textiles in a circular economy, with the goal of generating markets for circular textile goods, services, and business models. According to the **European Environment Agency (EEA)** and its **Topic Center on Waste and Materials in a Green Economy (ETC/WMGE)**, consumption of clothing, footwear, and household textiles in Europe is the fourth highest category of environmental and climate impacts from a consumption and life cycle perspective. The fashion sector accounts for more than 60% of overall textile consumption, and apparel is anticipated to be the most important application of textiles in the future. A revolution in fashion production and consumption is required to allow a sustainable and circular textiles system. This transition necessitates innovation in business-model design, technology, and social behaviours, as well as the implementation of specialised policy, education, and behavioural change enablers. The study provides a methodology in this Brief Report to map and progress the implementation and scaling of circular business models. This is demonstrated by investigating four distinct circular business-model approaches for fashion and textiles, including models based on product durability, access models based on renting, leasing, and sharing, garment collecting and resale, and material recycling and reuse. Study discussed enablers based on technical and social breakthroughs and legislation, behavioural change, and education for each business model type.

**Dano et al (2020)** demonstrated the potential of Slovak textile and clothing producers, in accordance with the transition to the new economic model, with a focus on incorporating new circular business models into their activities, the benefits and drawbacks of this

procedure, and the limitations of incorporating new business models into the activities of entities operating in Slovakia’s textile and clothing industry.

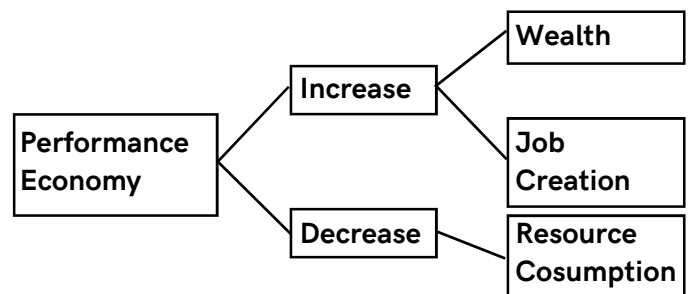
### 3. Concepts that Lead to a Circular Economy

#### 3.1. Performance economy

The economy has been divided into three categories: Stone Age, Industrial Economy, and Performance Economy. Goods or products have been characterised as bulk goods or smart goods based on the value they bring with the least amount of resources used. Bulk goods transactions were discovered in the Stone Age and Industrial economies, whereas smart goods transactions occurred in the Industrial and Performance economies. Bulk products are those that are kept, transported, and sold in vast amounts without packaging but have a low value, such as sand, gravel, and coal; smart goods are high-value commodities sold in small or specialised quantities, such as pharmaceuticals and enzymes. In the Industrial Economy, the risks or liabilities for quality and use are held by the customer or service provider. The burden of risk or liability has been moved from the customer to the producer in the Performance Economy.

The Performance Economy strives for employment development and improved resource utilisation. This may be accomplished through increasing the life span of goods, conserving materials, and substituting renewable resources for non-renewable ones. Thus, the fundamental goal of the performance economy is to grow income and employment creation while consuming fewer resources than the Stone Age and Industrial Economy.

**Figure.No. 1. Objectives of Performance Economy**



Source: Radhakrishnan (2022)

### 1.1. Cradle to Cradle Design Philosophy

Natural resources are developed with the idea of disassembly and reuse, with the goal of returning to the soil or parent population as biological or technological nutrients or resources.

Any organic material that can decompose into the natural environment and serve as food for microbiological life, thereby preventing pollution, is referred to as a 'biological nutrient'; inorganic or synthetic materials that have been manufactured, such as plastics, that can be reused many times with no/minimal loss in quality as a continuous cycle are referred to as 'technical nutrients.' The Cradle-to-Cradle Principle draws attention to potential for design innovation and creativity that benefit society and the environment.

### 3.3 Bio Mimicry

Many living species in nature confront the same issues as humans, but they are able to meet them through sustainable techniques, such as handling forces, moving water, creating colour, safe energy distribution, and connecting things. Nature, with its huge store of information, may serve as an example, a standard, and a mentor. Bio mimicry is a design tool that mimics the strategies adopted by nature or living creatures. Design inspiration from nature may be used to develop forms, processes, and eco systems.

### 3.4. Industrial Ecology

This method focuses on three areas: flows of materials and energy for industrial and consumer activities; the impact of these flows on the environment; and the economic, political, social, and regulatory impacts on resource flow, use, and conversion. Type I, II, and III eco systems are distinguished. The Type I eco system is linear and highly dependent on external resources, resulting in unlimited waste; the Type II eco system is partially cyclic, utilising limited energy and resources, resulting in limited waste; and the Type III eco system is cyclic, relying heavily on recycling and reuse, resulting in zero waste.

### 3.5. Natural Capitalism

Natural resources were bountiful during the commencement of the Industrial Revolution, but manpower was limited. Nowadays, the situation is inverted, with an abundance of people but a scarcity of natural resources and eco systems. It has been anticipated that the next Industrial Revolution would be oriented upon scarcity, and many businesses have begun to emulate the new business model—Natural Capitalism. Natural Capitalism's infrastructure is environmental quality. Environmental quality is built on technology that connects economics and ecology, on innovation and entrepreneurship, and on the connection of eco systems and the economy. Resource productivity conserves resources, reduces pollution, and gives meaningful employment to people all around the world.

### 3.6. Blue Economy Systems

The idea focused the integration and interdependence of many production systems by using the resources that are available in cascading systems—the waste of one production system becomes the input for the next system. Many organisations are recognised for lowering pollution levels through changes in industrial technology or procedures. Temporary remedies are insufficient, and additional methods to solve day-to-day challenges must be sought.

The issues that the Linear Economy encountered resulted in the development of new technologies, which eventually gave rise to the Circular Economy and the extractive paradigm has been turned into a regenerative one, with an emphasis on economic, environmental, and societal advantages, as well as innovative designs that incorporate recycling, reuse, and zero waste. The textile sector has expanded rapidly and has seen varying levels of productivity and economic development. The textile sector has made a significant contribution to the economy in terms of foreign exchange revenues and job creation. As a result, the industry's influence should be examined in order to comprehend the distinctions between linear and circular economies, as well as the industry's progress toward the circular economy (Radhakrishnan, 2022).

#### 4. Textile and Clothing Industry in India

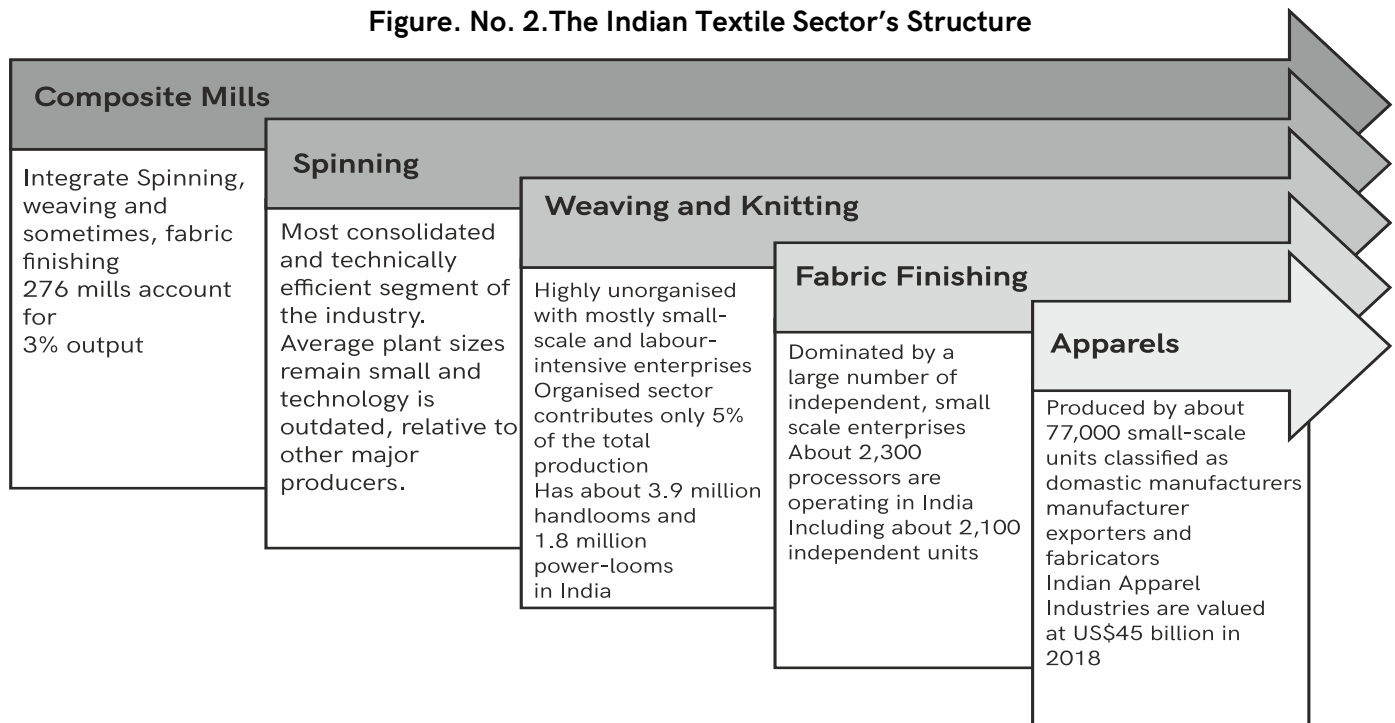
The textile and apparel sector in India is critical to employment creation and the 'Make in India' initiative. According to Economic Survey 2019-2020, textile industries employ 45 million people directly and 60 million in allied sector. However, with a greater emphasis on yarn and fabric to final goods, potential applicants' abilities and qualities are likely to alter. Tamil Nadu employs around one-quarter of the entire labour force in this industry, making it the highest by proportion of any Indian state, followed by Gujarat, Karnataka, Maharashtra, West Bengal, and Punjab. The Indian Textile and Apparel Industry are mostly made up of small-scale non-integrated spinning, weaving, and knitting, fabric finishing, and apparel-making businesses. In contrast, large scale mills with contemporary technology and machinery that integrate spinning, weaving, and, in some cases, fabric

finishing dominate the textile business in industrialised nations.

##### 4.1. The Indian Textile Sector's Structure

Large scale mills with advanced technologies and machines that incorporate spinning, weaving, and, sometimes, fabric finishing dominates the textile sector in developed nations such as North America and Western Europe. This enables for greater efficiency and the usage of process by-products in-house. The Indian Textile and clothing Industry, on the other hand, were extremely fragmented. It is mostly made up of small-scale non-integrated spinning, weaving, and knitting, fabric finishing, and clothing manufacturing businesses. This distinct sector structure in India is mostly the product of government tax, labour, and other restrictions that have favoured labor-intensive, small-scale enterprises while discriminating against larger size firms (ASSOCHAM, 2018).

Figure. No. 2. The Indian Textile Sector's Structure



Source: The Textiles and Apparels Industry contributing to make in India, ASSOCHAM

##### 4.2. Important challenges faced by the Indian Textile and Clothing Industries

Due to structural deficiencies, the Indian textile and apparel sector has a variety of issues, including a highly fragmented business, a lack of product diversity, a restricted customer base, and inefficient productivity when compared to rivals (China, Bangladesh, Vietnam, etc). Cotton is a major component of textile and apparel

exports. Due to a variety of socioeconomic circumstances, the price of cotton yarn produced in India is among the highest in the world.

### 4.3. Scope for Circular Economy

The garment and textile business is extremely fragmented, with many MSME companies. Furthermore, there is a limited pace of technological advancement, and the industry is still heavily labour intensive. Because the sector is dispersed, it lacks collective bargaining strength and is exposed to intense competition. The circular economy presents a unique potential for MSME enterprises **Textile and Clothing** sector, as it will not only help build new businesses

focused on closed-loop manufacturing and provide services such as collecting, recycling, sorting, and so on both inside clusters and outside of clusters. Following the ideas of the circular and closed-loop manufacturing paradigms will assist small firms in connecting with global value chains, as well as better coordinating with other businesses to aggregate their goods and services for greater competitiveness. According to the Economic Survey of India (2019-20), the use of e-commerce to connect handicrafts firms with worldwide customers is also mentioned; online aggregation would be a feasible option for MSME clusters to market their products.

**Figure. No. 3. The Inputs, Stages and Output of Circularity in the Fashion Industry**

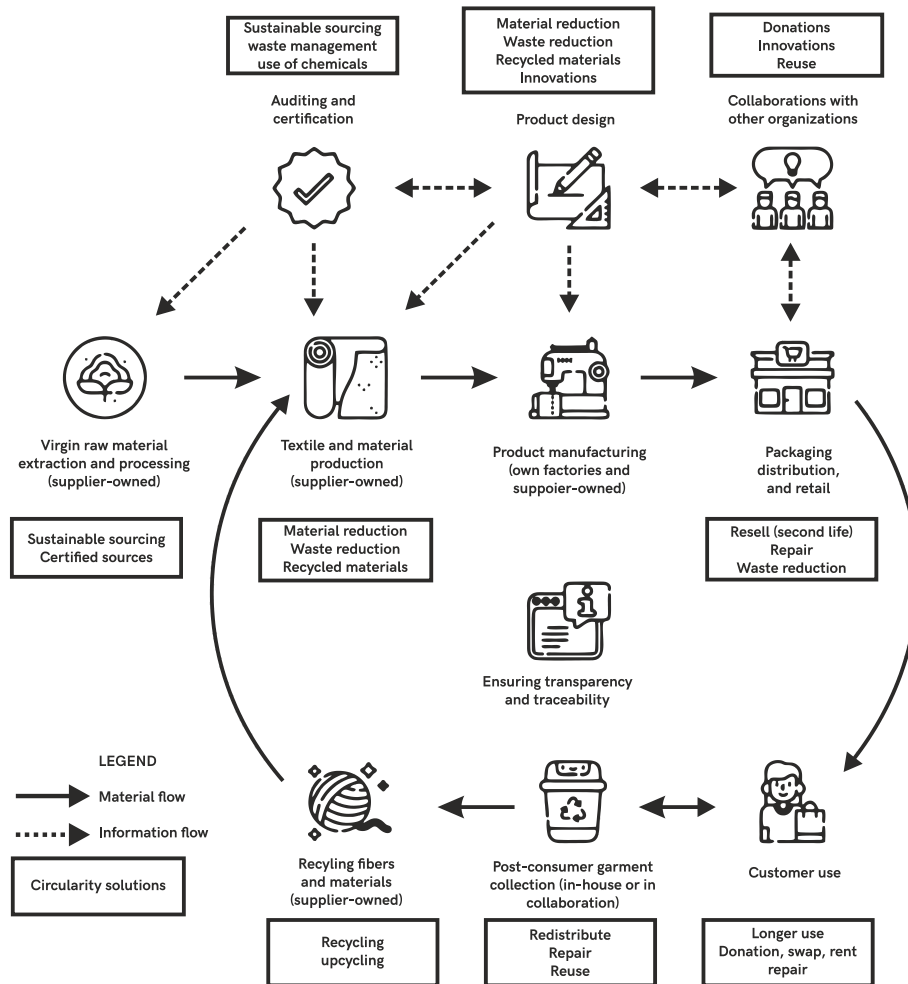


Fig. 1. The inputs, stages and outputs of circularity in the fast fashion industry.

Source: Voicu et al. (2022)

#### 4.4. Expected Benefits from a Circular Textile and Clothing Sector

The garment and textile business in India contributes to wide spread pollution, which must be addressed in order for India to maintain its international competitiveness. Globally, the fashion industry, particularly fast fashion, is under intense criticism owing to its negative environmental and ecological implications. Given the growing demand for visibility and customer awareness in developed nations, the industry is beginning to investigate strategies to control and mitigate its negative consequences. The concepts of circular economy provide a potential alternative. In contrast to a linear system of take-make-dispose; the Circular Economy is an economic system in which resources and energy cycle in loops and remains within the value chain. Material is reduced, reused, recycled, and repurposed in a circular economy.

Indian manufacturers and suppliers stand to earn significantly if they proactively adopt good practices, innovate through circular business models and methods, and prepare to be a part of the global change. Some of these benefits are listed below.

**Figure. No. 4. Benefits of Adopting Circular Business Model**

<p><b>Improved access to Western markets</b></p>	<p><b>controlled by high quality standards and human rights laws</b></p> <p><b>Product differentiation may be achieved by exhibiting best</b></p>	<p><b>practises (climate and socially conscious)</b></p> <p><b>Improve brand value by cultivating goodwill among many stakeholders.</b></p>
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Source: Hari and Mitra (2022)

It is vital to emphasise that brands and retailers may help to promote the move from the linear paradigm of take-make-dispose to more circular designs, practises, and business models. Furthermore, in order to complete the shift to circularity, consumers must

be encouraged to engage in responsible consumption. Rental, recycling, and reuse business models should be encouraged. Such consumer tendencies and preferences are already visible. Needless to add, technology and innovations will be critical to the development of eco-systems, cost reduction, quality development, and material redesigns, highlighting the shift to circularity.

The circular economy has the potential to transform Indian suppliers and manufacturers. However, global talks on the circular economy must be contextualised for India. India is a significant producer and consumer of textiles and clothing; hence any circular economy intervention must be tailored to the needs of Indian value chain participants (Hari and Mitra, 2022).

#### 5. Conclusion

As the industry gets disaggregated, an integrated strategy is required to facilitate the transition to a circular economy. Every cluster must implement best practises in water, energy, and other areas critical to circularity. Because most manufacturing units are micro and small, this is challenging at the individual business level; cluster management authorities and organisations must be involved in the transition, and shared infrastructure must be developed. For the textile and clothing sector to enhance environmental and social performance, as well as competitiveness and market access, a methodical, human-centered transition to a circular economy is required. Adopting a circular economy has a strong commercial justification; Opportunities for recruiting foreign and local sources of sustainable financing are increasing, particularly as the Government of India develops a framework for Sustainable Finance in India. To build an enabling environment for circularity, continued and consistent assistance from diverse sectors of government at all levels is needed.

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