

**Topic № 6**  
**TEXTILE MANAGEMENT,**  
**MARKETING AND**  
**SUSTAINABILITY**



# BUSINESS MODELS IN THE FASHION INDUSTRY FOR TRANSITION TO A CIRCULAR ECONOMY

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## Introduction

The fashion industry has turned into a complex, fragmented, global system in the last 3 decades. In its essence, this industry is constantly stimulating consumption of "fashion" and discarding the old things. The emergence of the business model "fast fashion" has increased the introduction of trends leading to the premature end of an existing product's life. This naturally has had a negative impact on the environment and people at the bottom of the supply chain - garment and textile manufacturers. Exhaustion of resources and irreversible environmental changes have provoked a new understanding of efficiency, namely resource efficiency and a regenerative circular economy.

## Content

This paper aims to identify and examine opportunities for the fashion industry to adapt to the circular economy. Moreover, it also aims to discuss how different principles of circular economy can be used when identifying and evaluating opportunities related to sustainable development. Theoretically the study rests on the new business models that recently has gained attentions regarding efforts to transition towards a circular economy. By highlighting and extending the idea of business model innovation and new fashion business models for circular economy it concludes with the trends in fashion businesses these days.

## Conclusion

Complex social and environmental issues require specific life cycle tools that take into account the environmental impact of a product or process. Conventional methods to address waste, sustainability and resource efficiency are based on symptoms; they do not refer to continuous and rising consumption levels. To do this, we need to: rethink production and consumption; develop sustainable fashion design education; work with customers about the new way of thinking. Design plays a key role in this system change, but fashion industry needs new strategies and business models to help transition to a circular economy.

**Keywords:** fashion industry, circular economy, business model

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# MODELLING AND CONTROL OF TEXTILE PRODUCTION PROCESSES BY GENERALISED NETS

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The purpose of this paper is to apply theory of generalized nets for developing a conceptual model for control of textile production processes. The following approaches are proposed: assessment of the technological and ecological characteristics of the processes; detection of wrong/false steps of cloths production and estimation of time stabilization of the processes, applying algorithms for their control.

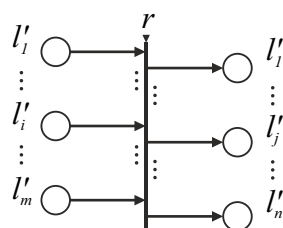
The main textile production processes include processing of raw materials and garmenting/finishing from fibre to ready-made product; evaluation of machine and labour productivity; evaluation of ecological or social characteristics of processes and products; technologies and quality control of the produced goods.

The control of the textile production is a mandatory procedure, if this production has to be competitive on the domestic and international market. The modelling of processes by generalized nets includes monitoring and control of the status of productions and their environment, as well of raw material sources.

Assessments of the processes on the different production elements have been proposed to be described by the use of generalized nets models, with the use of specialized models for the separate processes, on which the methodology algorithm is based. The model could be used as an element for simulation and control of knitting and sewing production for the purpose of its qualitative and ecological improvement.

This paper offers a proposition of a conceptual model, based on the theory of generalized nets for control of textile production processes in simulative and real conditions for production of different textile goods based on its quality and ecological characteristics, leading to productivity increase.

The concept of the generalised nets is developed by Bulgarian mathematician Attanassov, and based on him the generalised net is based on transitions; their common description is shown on **Figure 1**.



**Figure 1**

A generalised net consists of transitions  $Z = (L', L'', r)$ , where  $L' = \{l'_1, l'_2, \dots, l'_m\}$  and  $L'' = \{l''_1, l''_2, \dots, l''_n\}$  are ending nets with inputs and outputs, and  $r$  is a correlation coefficient.

Concrete solutions have been found for describing the assessments of the different productions, which contribute to avoiding the problems of the separate steps- "begin of pipe" principle. This is leading to increasing the competitiveness of goods and enterprises and savings of resources.

The developed conceptual model for modelling and control of textile production processes offers to the Bulgarian specialists a tool for estimation of the production and ecological characteristics of different goods. It suggests targeted interventions in simulated or real conditions before investment decisions, innovations and equipment upgrade according to customers' requirements or the strategy of the textile company.

**Keywords:** textile, model, generalised nets, control.

UDC33

# THE ROLE OF CLUSTERS FOR INNOVATIVE BUSINESS DEVELOPMENT

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Collaboration today has acquired new dimensions, often leading to intensive knowledge flows for creating successful technological or organisational innovations. Globalization, together with rapid technological changes, create uncertainty for businesses. One consequence of this uncertainty is that companies are becoming increasingly dependent on participation in strategic alliances, industrial networks, clusters, and so on. They go beyond the boundaries of organizations as a mechanism for creating new knowledge and innovation as a basis for further competitive advantages. This imposes new working conditions and requires more flexibility in managing, decentralizing and implementing external and internal relationships between different stakeholders.

The present research examines the ways in which innovations originate and spread within the clusters. The subject of the study is knowledge-based clusters and, in particular, the Silk cluster as a cluster practice, with the main focus on the peculiarities of the process "knowledge - innovation - commodity". The literature review provides answers to research issues as: what is the nature of the organizational networks and what are the main drivers for their success? Attention is drawn to the types of networks used in practice, focusing on clusters. Methodological features of the knowledge - innovation - commodity process are summarized by defining phases, dimensions, industrial aspects, prerequisites, and barriers to knowledge-based clustering.

The Bulgarian experience in building clusters is explored in details based on the case of the Textile Cluster Silk. Bulgaria ranked first in Europe and eighth in the world producing raw silk per capita in the years before 1990. Nearly 20 years later, our country came to a complete decline in silversmithing and silkworm, which had become a traditional livelihood. There are many reasons behind this trend, but the main one is that the state has completely turned back on this branch. Thus, Bulgaria became a white spot on the world map for the production of silk. Today, however, with a lot of efforts, enthusiasm, serious investments and modern know-how, Textile Cluster Silk is trying to revive this production.

For the revival of the ever-prospering textile industry in Bulgaria, which by definition provides many jobs, it is necessary to restore the production of textile raw materials - cotton, silk, wool. This idea now has two important allies. The first is the outflow of the world demand of artificial fabrics and their replacement with natural ones. The second is related to special incentives at European level for enhancing the production of the cotton and silkworms in order for the national government to achieve a higher level of diversification of the supply sources of these strategic raw materials.

**Keywords:** knowledge, innovation based clusters, Textile Cluster Silk.

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REGIONS OF BULGARIAN TEXTILE CLUSTER SILK



# UNLEASHING THE POTENTIAL OF SERVITIZATION IN A SHARING ECONOMY CONTEXT: INSIGHTS FROM THE TEXTILE INDUSTRY

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Services are used in the manufacturing process and in the manufacturing value chain and have an important role in the profitability of the manufacturers. In low tech sector of textiles and clothing the input of business services is an important driver to increase the efficiency and effectiveness of the value chain management and thus been able to meet the challenges of globalization through the management of international supply chains. Additionally, the intensive penetration of disruptive technologies changes traditional manufacturing firms. One of the results of this trend is the slow but steady increase of the share of services in the input of final production of manufacturing companies. Servitisation is a function of the developed abilities of manufacturers to offer services and its development is also associated with the transition from consuming goods to consuming services.

The ecosystem of textile and clothing industry changes as well steadily upon the consumer's more environment friendly and collaborative behavior. This change and the turmoil penetration of digital platforms encourage the development of sharing economy generally functioning through systems of (1) Redistribution of markets; (2) Product Service System; (3) Collaborative Lifestyles Platforms.

The present paper deals on conceptual level with the issue about the crucial role of designers of the PSS in textile and clothing industry to achieve higher performance, significant environmental gains and to provide value in use to the customer while functioning in the sharing economy. The continuing development of sharing economy calls for the attention of the design community how and what role could the designers play in a changing consumer behavior environment which is more environmentally and social friendly. While exploring the impacts of SE on servitisation the study reveals the role of the stakeholders within the design process of PSS in textile and clothing industry. This research creates a conceptual framework for the mechanisms through which the core systems of functioning of the sharing economy encourage the release of the potential of the servitisation in textile and clothing sector.

The paper reveals that the shift to sharing economy and being servitised create vital relationships between manufacturer in this sector and the clients and thus enhance the client's trust and his loyalty, and boost the innovation processes within the manufacturer. The need of offering of eco-efficient services further enhance the impact of sharing economy on textile production driving manufacturer to add services to their offer and thus unleashing the potential of servitisation.

**Keywords:** servitisation, sharing economy, design, textile industry, stakeholders

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