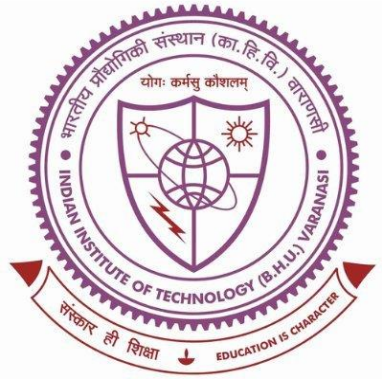
STRATEGIC PLANNING AND MANAGEMENT OF AN INDIAN HANDLOOM SECTOR



Thesis submitted in partial fulfillment for the
Award of Degree

Doctor of Philosophy

By

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DECLARATION BY THE CANDIDATE

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Meghavatu Krishna Prasanna Naik

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LIST OF ABBREVIATIONS

AHP	Analytical Hierarchy Process
AR	Augmented Reality
CI	Consistency Index
CR	Customer Requirements
CoR	Consistency Ratio
CW	Cooperative-society Weavers
GI	Geographical Indication Mark
HM	Handloom Mark
ISM	Interpretive Structural Modeling
IW	Independent Weaver
MCDM	Multiple Criterion Decision Making
MICMAC	Cross-Impact Matrix-Multiplication Applied To Classification
MSD	Musculoskeletal Disorders
MW	Master Weavers
QFD	Quality Function Deployment
QR	Quick Response Code
RI	Random Index
SM	Silk Mark
TR	Technical Requirements

PREFACE

The Indian handloom sector is the second-largest unorganized sector in India in terms of employment. Handloom products have a rich history and have been praised internationally for their remarkable styles, aesthetics, artistry, and dexterity. India stands as the largest global producer of handloom products, accounting for 95% of hand-woven fabric supplied to international markets. India's handloom sector is widespread, with its presence in twenty-seven states and four union territories, contributing to product diversity related to each state and territory, integrating its creations with its own distinct cultural, traditional, and custom influences. According to the estimate of the third national handloom census, 2009-10, there were 43.3 lakh weavers in India. According to the fourth handloom census 2019-20, it provides employment to the 35.2 lakh weavers. The reduction in the number of weavers can also be observed in the Varanasi handloom sector. According to the Aggarwal (2003) study, two lakh handloom weavers were in the Varanasi handloom sector. Wood (2014) observed that there were 1 00,794 weavers engaged in the handloom sector, whereas as per the handloom census of 2021, the number of weavers in the Varanasi district is 51,217 (Handloom census, 2021).

In the Handloom sector, the revival and support of existing handloom weavers is an important, challenging task. The present work attempts to study the various issues related to the handloom sector and its weavers of different structures.

Chapter 1 introduces the Indian handloom sector, including the weavers' strength, the share of fabric production, sources of sales, and the types of looms used. Additionally, this chapter discusses the Varanasi handloom sector, its weaver structure, and the current state of the Varanasi handloom sector.

Chapter 2 provides an exhaustive literature review of the seven concepts related to handloom. These are i) Challenges of Handloom sector weavers, ii) Customer requirements for the handloom sector, iii) Omnichannel marketing for the handloom sector, iv) Augmented reality for the handloom sector, v) Certification of Handloom products, vi) Facility location for Handloom weavers vii) Musculoskeletal Disorder of Handloom weavers.

Chapter 3 presents the challenges faced by handloom weavers and the prioritization of their importance according to the weavers' structure. The Analytical Hierarchy Process (AHP) method was used for this purpose. The chapter reveals that different structures of handloom weavers (namely, 1. Independent weavers, 2. Master Weavers, and 3. Cooperative Society Weavers) will have different levels of importance for the challenges. For example, customer reachability is a major issue only for Master Weavers (MW) and Cooperative-Society Weavers (CW), while Independent Weavers (IW) face raw material-related issues as the top challenges. Similarly, CW and MW face the migration of weavers as another top challenge, while IW has a long return on investment. In order to mitigate the risks associated with these challenges, there is a need to focus on different strategies for different structures of handloom weavers rather than using strategies usually designed for the entire weaver community.

Chapter 4 addresses the problem identified in Chapter 3 as "Lack of information regarding customer preferences" faced by all three structures. This chapter identifies customer requirements and proposes strategies to fulfill these with the help of Quality Function Deployment (QFD) and the AHP. The issue of "strong demand for authentic handloom products" was found to be the top requirement with others as "Price of the product," "Fabric," "size and color" etc. To meet these customer requirements, handloom weavers must provide certification for their products, which should include silk mark

logos, handloom marks, and geographical indication marks. Additionally, they need to employ an online marketing strategy to bypass intermediaries and reduce product costs. Another crucial technical factor is the store location, which enhances accessibility for customers and fosters seller loyalty. Establishing a network of stores in high-footfall areas will enable weavers to sell their products directly, reducing the middleman's role. Online marketing and sales are another strategy that the weavers can adopt. In these contexts, the government's role becomes pivotal.

Chapter 5 and Chapter 6 address the problem presented in Chapter 4, which is the customer requirement for online marketing. This is achieved by embracing new technologies such as omnichannel marketing and Augmented Reality marketing within the handloom sector. Government support and policies play a pivotal role in facilitating the adoption of these new ideas and opportunities, ultimately influencing the adoption of technology and enhancing workforce competitiveness. To mitigate the impact of barriers, it is imperative for the government to create policies that involve frequent communication with weavers to address regulatory issues.

Chapter 7 addresses the problem introduced in Chapter 4, i.e., the certification of handloom products. This chapter provides various methods for identifying genuine handloom products, such as weaving undetachable silk marks, handloom marks, geographical indication marks, and quick response codes on handloom products. Various customer requirements have been analyzed for each identified strategy using the QFD approach with AHP. A novel strategy of “Weaving of QR code and logos” was highlighted as the one that will fetch the requirement of genuine handloom products. The next step of the QFD process was also implemented to find the fabric and color combinations for designing and weaving QR codes and logos on the product. Such a novel approach to weaving QR code is of the first kind and was implemented successfully on a special product

known as “Banarasi Sari”. Many samples of QR codes were weaved using various combinations. Out of these combinations, QR codes with golden and silver zari were found to be working well.

Chapter 8 addresses the problem introduced in Chapter 4, which is store location. The proximity of stores to tourist destinations enhances access to handloom products, thereby increasing product demand, work availability, and, ultimately, weavers' profits. To achieve this, a facility network was designed using the K-Means clustering and Elbow method. Such kind of facility design not only increases the direct contact of the customer but also helps the weavers implement AR and Omnichannel types of technology.

Chapter 9 addresses one of the major problems highlighted in Chapter 3, namely the health of weavers. Weaving is a tedious task that requires weavers to sit on a plain plank or seat for more than eight hours, often in various working postures. Due to these conditions, the health of weavers is adversely affected. This chapter aims to identify Musculoskeletal Disorders (MSD) pain in different parts of the weavers' bodies,design a new seat tailored to pit loom weavers using anthropometric data, and validate the designed seat by comparing MSD pain levels before and after its implementation of such new design seat/plank.

Chapter 10 provides a summary of the research work and concludes the outcome of the research undertaken. It also presents the scope for further research that can be undertaken in the future as an extension of the present work.