



REPORT

# Rethinking the Digital Shift for Weavers and Handloom Collectives: Opportunities and Challenges in India's Handloom Sector

MARCH 2024



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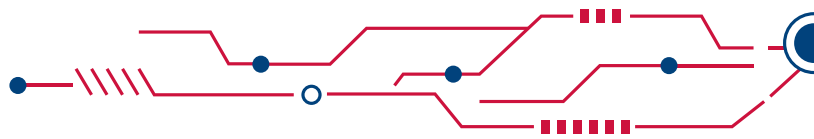
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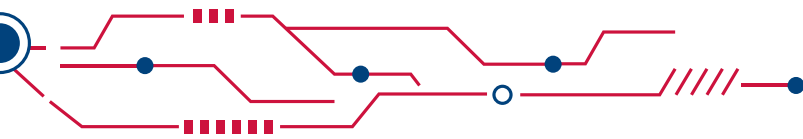


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# Abbreviations

AI	:	Artificial Intelligence
AOE	:	Alternative Ownership Enterprise
AIACA	:	All India Artisans and Craftworkers Welfare Association
B2B	:	Business to Business
B2C	:	Business to Consumer
CMH	:	Creative Manufacturing and Handmade
CSR	:	Corporate Social Responsibility
D2C	:	Direct to Consumer
GDP	:	Gross Domestic Product
GOI	:	Government of India
GST	:	Goods and Service Tax
HCM	:	Handmade and Craft-led MSMEs
ICT	:	Information and Communication Technology
MSME	:	Micro, Small, and Medium Enterprises
NEFT	:	National Electronic Funds Transfer
NGO	:	Non-Governmental Organization
NFHS	:	National Family Health Survey
NPO	:	Non-Profit Organization
OBC	:	Other Backward Castes
PWCS	:	Primary Weavers Cooperative Society
RTGS	:	Real Time Gross Settlement
SC	:	Scheduled Caste
SDGs	:	Sustainable Development Goals
SHG	:	Self Help Group
ST	:	Scheduled Tribe
UPI	:	Unified Payments Interface



# Executive Summary

India sits at the cusp of a creativity and culture-led manufacturing revolution. A significant player in this is the nation's vast and diverse handloom sector that offers a ready foundation to build the future of sustainable textile value-chains. The sector engages close to 2.6 million weavers, one million allied workers and three million families. The sector also supports livelihoods for traditionally underserved and marginalized communities; about 67 per cent handloom weavers belong to Scheduled Caste, Scheduled Tribe and Other Backward Classes. Women make nearly 72 per cent of the total workforce (Handloom Census, GOI, 2019). The handloom sector is not only a key contributor to Indian exports but also presents many opportunities for economic growth, supply chain diversification and a climate-smart future.

While handloom textiles are increasingly finding favor across board, the much-needed backend infrastructure that is designed for efficiency, transparency, and inclusion is missing. Collectivization in the sector continues to play a critical role in organizing an informal and disaggregated artisan and weaver workforce. Yet, the weavers and their collective enterprises struggle with challenges – access to living wages, information asymmetries, access to government schemes and networks, and climate induced setbacks – that hinder their growth and a profitable business trajectory. However, accelerated digital adoption across the country presents many opportunities to bridge the gaps in information, access and market linkages for India's artisans, weavers and collective enterprises.

This research is an attempt to understand the present landscape of collective enterprises in India's handloom sector and the state of digital adoption. The study draws on insights and data collected from 309 collective enterprises and 1236 weavers from across four states – Assam, Tamil Nadu, Uttar Pradesh, and West Bengal. The survey findings were substantiated with in-depth qualitative interviews with 40 weavers from across the four states and 20 key informant interviews with experts across academia, social entrepreneurs, activists and gender experts.

Ultimately, the research explores how collective enterprises can act as key intermediaries in enhancing digital adoption among communities in the handloom sector and thereby aid the creation of networked ecosystems needed for inclusive and green production.



## Key Findings

### 1. Weavers' Socio-demographic Representation

The average **age of the weavers in the sample is 45 years** and the majority of the weavers (**70 per cent**) are above 40 years in age. About **66 per cent** of the **weavers belong to socially and economically marginalized groups** such as Other Backward Class (OBC), Scheduled Caste (SC) and Scheduled Tribe (ST). Among 1236 weavers, **22 per cent of weavers have never attended school.**

### 2. Understanding the Collective Enterprises' Characteristics

**45 per cent** of the 309 collective enterprises in our sample have a turnover of less than INR 10 lakhs (~ USD 13K) per annum. **91 per cent of collectives from Assam fall in this lowest turnover bucket, followed by 49 per cent in Uttar Pradesh.**

Overall, across the collective enterprises in the four states, **only 31 per cent of them have women in the leadership positions.** However, Assam boasts of higher female representation in leadership roles in handloom collectives at **77 per cent.** This is followed by Tamil Nadu where **48 per cent** of collectives' leadership positions are held by women. Conversely, Uttar Pradesh, and West Bengal exhibit concerning low levels of female inclusion in terms of leadership in collectives at **two per cent** and **six per cent**, respectively.

### 3. State of Digital Adoption

**On an average, collectives across four states are able to leverage a mere two out of 11 digital tools the study asked about.**

#### Digital Infrastructure

- **72 per cent** of weavers have access to smartphone either in the form of ownership or shared access in the household.
- Only **33 per cent** of weavers have a personal smartphone. There is a significant difference in smartphone ownership between male (**38 per cent**) and female (**28 per cent**) weavers.
- Only **25 per cent** of collectives have access to the internet.

#### Digital Payments

- A meagre **six per cent** of weavers use any digital payment methods.
- Only **19 per cent** of collectives use digital payment applications.

#### Use of WhatsApp for Marketing, Networking & Communication

- Only **31 per cent** of 1236 weavers use WhatsApp.

#### Use of Social Media Platforms for Business

- Only **15 per cent** of weavers use social media platforms like Facebook and Instagram.
- Only **seven per cent** of collectives have a website.

*Despite the importance of social media platforms in advocating for and crafting narratives in the handmade sector, its use among the weavers remains poor. Among weavers with less than INR 10,000 (~USD 121) income per month from weaving and allied activities, only 33 per cent reported to adopt digital behavior compared to 52 per cent among weavers earning more than INR 10,000.*

## 4. Barriers to Digital Adoption

### **Struggle for decent wages remains the primary concern for weavers and collective enterprises which influences digital adoption**

- The median monthly income from weaving and allied activities is **INR 6,000 (~ USD 73)**.
- **70 per cent** of weavers reported low wage as a major challenge that they experience in their profession.
- Membership to co-operative societies does not guarantee higher income

*Poverty among the weaving communities remains the biggest barrier to digital adoption. Weavers are unable to afford smartphones, even when they do, it is difficult to have an active internet package.*

### **Limited access to digital infrastructure, and low level of digital literacy continue to be a significant barrier in digital adoption among weavers and collective enterprises**

- Only **two per cent** of weavers in our sample have participated in any digital training.

*Lack of access to adequate digital infrastructure and digital literacy and discomfort in using digital are two major barriers that prevent collectives from using digital to its full potential.*

### **Lack of next-generation participation is a barrier to adoption of new digital tools among weavers and collective enterprises**

- **70 per cent** of the weavers mapped across the four states are 40 years and above in age. Advancing age poses a challenge to acquiring new digital skills or seeking alternative livelihoods.

### **Intersectionality of gender and marginalized identities create barriers to equitable digital adoption**

Women weavers who are advanced in age, belong to marginalized caste groups, and have low levels of education, are less likely to participate in digital adoption:

- Women weavers are half as likely compared to men weavers to adopt digital behaviors.
- Likelihood of adopting digital behavior reduces drastically as weavers' age increase compared to weavers in the age group of 18-29 years.
- Weavers belonging to socially marginalized caste groups - SCs and STs- are less likely to adopt digital tools compared to the general category weavers.

### **Lack of awareness and access to information around government-led initiatives impedes digital adoption at scale**

- Only **five per cent** collectives adopted e-commerce as a sales channel for handloom products.

*The information asymmetry and awareness gaps on the policy initiatives undertaken to promote online selling and marketing of handloom products produced by primary weavers' cooperative society prevents them from taking advantage of the available schemes of the government to promote their sales.*

### **Lack of partnerships with ecosystem actors and market access players breaks the potential bridge to digital adoption**

- Only **two per cent** collectives have partnerships with any NGOs/Social Businesses.
- Only **nine per cent** collectives have collaborated with Amazon/Flipkart.

## 5. Opportunities for Digital Adoption

Majority of the collectives demonstrate optimism towards digital adoption. **58 per cent** of the collectives believe that digital tools can help in the operations and functioning of the collective. They are likely to adopt digital behavior if given the right support and handholding. The diverse stakeholders including government, social businesses, not for profit organizations, market players can play a role to design equitable and accessible pathways to digital adoption for the weavers and their collective enterprises.

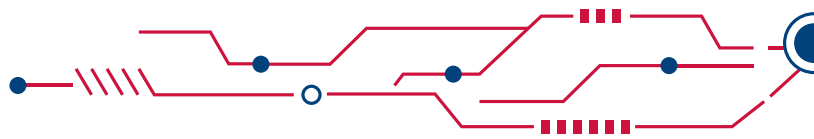
## Recommendations

Responsive policy directions customized to unique needs of communities across the handloom value chain can drive the much-needed digital shift for weavers and collective enterprises. This can be achieved by:

- Incentivizing low-cost digital infrastructure and tech solutions for rural weaving communities
- Strengthening the back-end with digital by incentivising public-private partnerships
- Backing culturally sensitive approaches and weaver-friendly platforms to ensure 'ease of going digital'
- Building an enabling legal environment to catalyze market-ready collectives
- Aligning national and regional strategies to deliver digital-first, single-window access
- Prioritizing inclusion of women, youth and marginalized communities by adopting holistic approaches to digital adoption



Photo Credit: Eisha Choudhary



# I. Introduction

Creative and cultural industries are widely acknowledged as a powerful engine of socio-economic impact and sustainable development. According to pre-pandemic forecasts, they were poised to drive almost 10 per cent of global GDP by 2030 (Buchoud, 2022). In India alone, emerging sectors in the cultural economy will account for INR 160 lakh crores (USD 2 trillion) by 2030 (NICEorg, 2021).

Within CMH, the fiber - textiles - apparel value chain has a distinct first-mover advantage given India's 3000-year-old textile tradition. In recent years, with the global rise in the demand for sustainable apparel, handloom textiles have become an integral part of the garment supply chains.

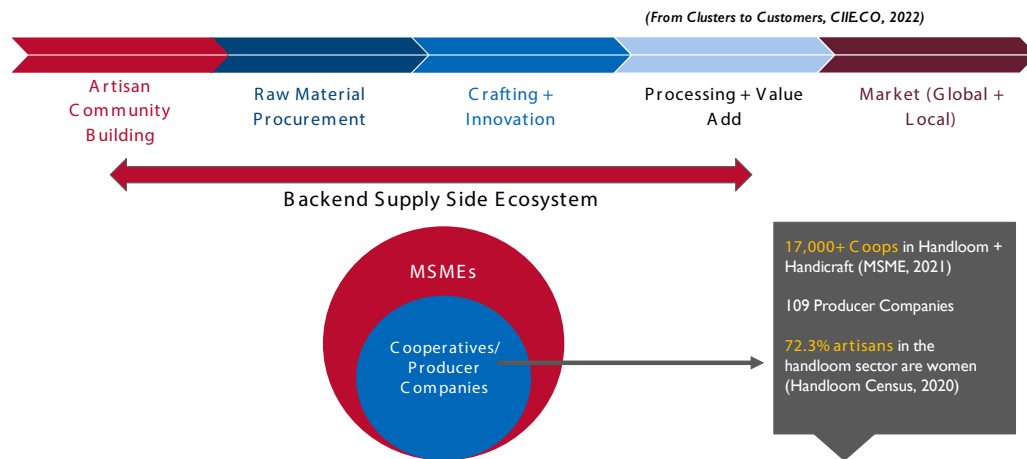
Handloom fabrics are deeply intertwined with the lifestyle and knowledge systems of India's diverse communities. Across the country, the colors, patterns, motifs and designs are passed down from generation to generation, and speak to the uniqueness of a region - its history and its cultural heritage. Beyond its cultural significance, India's handloom sector offers the foundation on which the future of sustainable textile production can stand. Here are some reasons why:

India sits at the cusp of a creativity and culture-led manufacturing revolution led by its many micro, small, and medium-sized enterprises (MSMEs). Many of them operate within the Creative Manufacturing and Handmade (CMH) ecosystem that employs decentralized, often non-automated modes of production rooted in creativity, culture and craftsmanship, and encompasses a wide range of economic activities across the farm-to-consumer value chain, including small-batch production and boutique manufacturing, while relying heavily on renewable agricultural inputs (Powered by People, 2021; Business of Handmade, 2023).

**a. Inclusion and Livelihood:** According to the Fourth Handloom Census (2019-20), India's handloom sector engages close to 2.6 million weavers, one million allied workers and three million families. The sector also supports livelihoods for traditionally underserved and marginalized communities; about 67 per cent of handloom weavers belongs to Scheduled Castes, Scheduled Tribes and Other Backward Castes. Women make nearly 72 per cent of the total workforce in the sector (Handloom Census, GOI, 2020).

**b. Contribution to Trade and Exports:** The sector is a significant contributor to Indian exports, with an estimate of USD 229M worth of exports between April 2021 and February 2022 (Handloom Export Promotion Council, 2022). For many years now, India has been exporting cotton, jute, and silk and has become the 6th largest exporter of textiles and apparel globally (CII, 2023). The major countries that import of handloom products from India are the USA, UAE, Spain, the UK, Italy, Australia, France, Germany, Netherlands and Greece (Handloom Export Promotion Council, 2022). More recently, American retailer Patagonia, known for its outdoor recreational clothing, launched an exclusive khadi handwoven collection which was made by 117 artisans based in Gujarat, India (NEST, 2023).

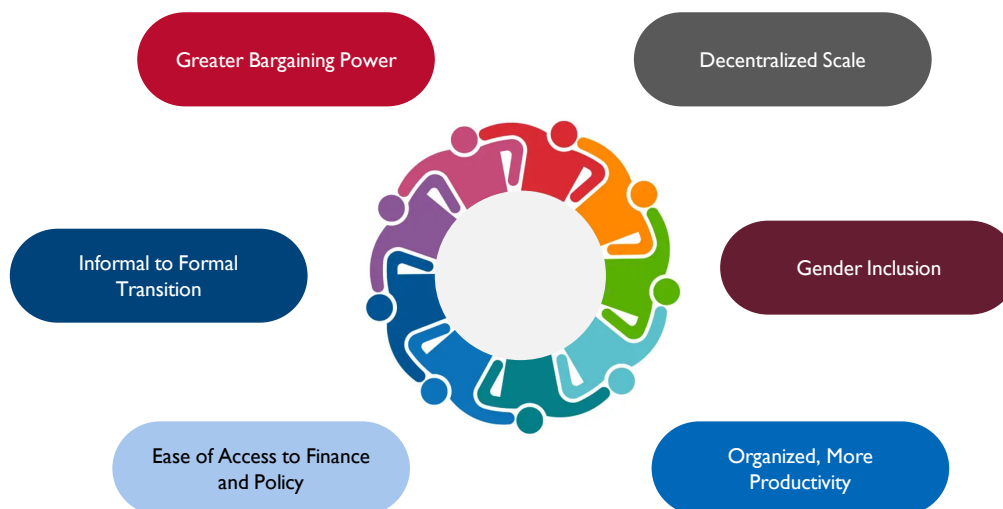
**c. Building the Foundation for a Climate-Smart Future:** Traditional craft and weaving techniques are rooted in resource optimization, waste minimization, sustainable material usage, and energy-efficient processes. India's handloom sector offers a ready foundation for innovation around nature-based solutions, circularity, biodiversity conservation, and approaches that are fundamentally more sustainable. India's rich repository of natural raw materials - cotton, bamboo, hemp, water hyacinth, jute - also offers many opportunities for economic growth and supply chain diversification.



**Figure 1: The Handmade Value Chain: Illustrating Both Backend and Frontend of Supply Chain Management**

Increased global and local consumption of consciously produced textiles and apparel needs steady and resilient supply chains. While handloom textiles are increasingly finding favor across the board, the much-needed backend infrastructure (Figure 1) that is designed for efficiency, transparency, and inclusion is missing. Weavers and artisans are often located in hard-to-reach, rural geographies, and lack access to relevant information, networks, design support, and market linkages. This makes it harder for them to become market-ready and to demand value for their skills and products.

Collectivization in such a context can play a role in organizing an informal and disaggregated artisan/weaver workforce (Figure 2). Collectivization enables self-employed small producers or weavers to not only come together for access to resources, but also come closer and emerge as a multi-sectoral collective of producers, co-operating in production (Abrol, 2004).



**Figure 2: Role of Collectives in the Handloom Sector**

Historically, farm-based cooperative enterprises and their impact has been well documented. In the handloom sector; however, their impact, while significant, has not been a game-changer. Context-relevant digitalization, delivered via collective and cooperative enterprises, has the potential to break down physical barriers between weavers, sellers, and buyers (Majumdar et al, 2021) and bridge the gaps in information and market linkages to build a networked ecosystem. E-commerce platforms bridge the physical gap by expanding visibility beyond local markets. This will not only impact incomes in a positive way, but also foster cultural exchange of Indian

handloom for its unique creations. Further, digital tools like Instagram, Facebook, and WhatsApp give the weavers an opportunity to present their skills and cultural products, and impactful storytelling helps educate people about the process, time and effort put into the hand-woven products.

Digital literacy via online courses may also further enable weavers to adapt to new design skills, and business acumen. This opens doors to innovative services and products, expands market reach beyond local boundaries, and fosters greater efficiency across the production and distribution process. Adopting different digital tools, tailored to the needs of the community, aids in overcoming traditional limitations for securing livelihoods and ensuring that the cultural heritage thrives in the digital age.

Handloom collectives can not only be leveraged to deliver the benefits of digital adoption but collectivization can also enable workers to exercise greater control over the technologies that mediate their labor and materially, and as to how it affects their livelihoods. **Through this research we aim to explore how handloom collectives can act as intermediaries in enhancing digital adoption among the weavers.**



## 2. Literature Review

*“The co-operative model is positioned by advocates as an alternative business form capable of advancing economic democracy and social justice in the digital age.”*

**- Peuter, Verteuil, and Machaka (2022)**

### 2.1 India’s Collective Enterprises in the Handloom Sector

Collectivization as an act and as a legal form is not new to India. Collectives first emerged to streamline our farm-based production. Today, handloom collectives operate as both formal and informal entities. Most popular among them are Cooperative Societies, Self Help Groups, and more recently, Producer Companies. Collective enterprises are organizations owned and governed by their members, who share the profits and decision-making responsibilities. These could be governed under different acts and policies; however, the basic principles of the collectives remain similar.

**Table 1: Two Key Types of Collective Enterprises and their Characteristics**

Characteristics	Cooperative Society (CS)	Producer Company (PC)
Definition	A voluntary, autonomous association of individuals/producers operating under a single brand name to leverage collective-bargaining, sell products and share profits as per National Cooperative Development Cooperation (NCDC, 2023).	Under the Companies Act 2013 in India, farmer and artisan cooperatives are allowed to function as <b>corporate entities</b> known as Producer Companies or FPCs. Owned and governed by the shareholders, they are administered by professional managers; members are able to leverage collective bargaining to access financial and non-financial inputs/ services, and reduce costs.
Objective	Largely, the welfare of members and community development.	Profit-oriented
Members	Minimum of 15 members for registration.	Combination of ten or more individuals or producer institutions.
Government Control	Under the overall control of the state governments.	Autonomous with limited government control.
Borrowing Protocol	Restricted Borrowing - A registered society shall receive deposits and loans from persons who are not members only to such extent and under such conditions as may be prescribed by the rules or by-laws mentioned in the Cooperatives Society Act, 1912.	Freedom to apply for Funding, Investment.



In a cooperative set-up, the society provides raw materials and design inputs to the weavers who are registered members of the society. Weavers give the finished product to the society which then markets and sells it through different channels – retail shops, apex marketing agencies and so on. Weavers are given money for the product, and the profits of the cooperatives are shared among the members. Through the cooperative institutions, governments would channel subsidies and other welfare schemes and would, in return, expect political gains.

Existing legal frameworks, which typically swing between the for-profit or the not-for-profit dichotomy, allow very little room for impact-led, hybrid structures to operate effortlessly (Business of Handmade, 2023). From a financing or investment perspective, the gray areas on legal structures - what is allowed and what is not under what structure - makes it harder to adopt a growth-oriented lens when it comes to the diversity of collectives in India. In many cases, allowances also haven't been made for new-age, technology-led cooperatives to become active market players. In Karnataka, back in 2016, there was no provision available for cooperative entities to apply for a taxi aggregator license. This was eventually fixed at the policy level in 2020 (Sasidharan and Krishna, 2023).

Many experts including academicians, activists, social entrepreneurs believe that handloom cooperatives, in particular, have failed to act as democratic structures; often they are reduced to mere vote banks that no longer prioritize business growth for weaver members.

## 2.2 Policy Efforts Aiming Digital Adoption Within Weavers and Collective Enterprises

The Government of India has rolled out various schemes for the welfare of weavers and the handloom sector over time. However, decentralized governance, restricted access to data, and lack of information on policies targeting digital adoption pose challenges for the handloom sector to digitalize. The division of responsibilities among various ministries and states results in challenges related to resource distribution, policy execution, and data gathering. The Ministry of Textiles, office of the Development Commissioner (Handlooms) are the core governing bodies along with the Ministry of Micro, Small, and Medium Enterprises (MSME) laying schemes for the handloom sector. At the state level, departments of industries and District Industries Centres (DICs), Khadi and Village Industries Commission (KVIC) and Khadi and Village Industries Board (KVIB) play vital roles in operationalizing policies and programs for the same.

While there is no specific policy that acts as an umbrella for digitalization efforts in the handloom sector, some initiatives such as Digi-Bunai, under the Ministry of Electronics and Information Technology (MeitY), feature the role of digital tools in capacitating weavers for improved performance. The Digi-Bunai is an open-source weaving tool that aids weavers in the pre-loom loading processes of design creation, graph generation, and punching the jacquard cards for weaving, along with the ability to digitally view the garment in different colors and sizes even before beginning the actual weaving process. Other initiatives include the onboarding of weaver collectives on the Government E-Marketplace (GeM) for centralized procurement of goods and services across different government departments. The launch of the India Handloom Brand scheme under the aegis of the Ministry of Textile is another flagship decision to support the weavers and expand opportunities for the handloom sector. The Central Cottage Industries Corporation (CCIC) on-boarded to Open Network for Digital Commerce (ONDC), to expand its market presence and meet the demand of handicraft and handloom products on different buyer apps on the network. CCIC handicrafts and handloom products are available for purchase on the ONDC network (Ministry of Textiles, GOI, 2023). Other major initiatives targeting the digital integration of the artisans/weavers and collective enterprises include the launch of the commerce platform, and e-saras, an e-commerce mobile app for selling handicrafts and handlooms particularly by rural women artisans.

In 2020, the All-India Handloom Board was dismantled, which for many felt like a void in national-level coordination and leadership. The current policy approach only partially addresses the sector's multifaceted challenges, including inconsistent budgetary support and limited access to digital tools and infrastructure. Further, to understand the policy landscape on weavers' cooperatives, the newly formed Ministry of Cooperation aims to revive and strengthen India's cooperative movement, and has the potential to act as an important facilitator. An important development that the Ministry of Cooperation has undertaken is the review of the National Cooperation Policy. The government has invited several stakeholders to contribute to the formulation of the revised policy.

This report seeks to provide recommendations that can aid the revised National Cooperation Policy to emphasize micro and macro-level interventions needed by the weavers and their collective enterprises.

## 2.3 Role of Social Businesses, NGOs, Marketplaces and Intermediaries in Catalyzing the Digital Shift in India's Handloom Sector

Often, programmatic pathways designed by ecosystem actors and intermediaries prioritize the digital shift as a key part of training and support delivered to artisans and weavers. Institutional efforts like Tata Trusts' Antaran program, the Handloom School in Maheshwar, Somaiya Kala Vidya in Gujarat, the Indian Institute of Craft and Design in Jaipur, the Digital Empowerment Foundation, and programs run by Creative Dignity and All India Artisans and Craftworkers Welfare Association (AIACA) are few notable ones.

AIACA is supporting craft-based enterprises and artisan clusters with technology that includes tool upgradation, low-cost/eco-friendly technology, and training on using digital tools<sup>1</sup>. Antaran, an initiative from Tata Trusts, had launched online tutorials on its Antaran Knowledge Centre YouTube channel on various aspects of production planning and business development (sales record making, proforma invoice making, billing and sales analysis). More recently, networks like Creative Dignity<sup>2</sup> have sought to create data banks and digital databases to showcase profiles of several artisans/weavers and connect them with potential buyers and are building digital training modules for people working with artisans in a bid to help smaller artisans and businesses make use of digital marketplaces and new buyers.

In one of their reports, *Improving Livelihoods of Rural Weavers through Digital Training (2020)*, Digital Empowerment Foundation (DEF) highlighted that 91 per cent of the weavers benefitted from their work and were able to sell more products online. Further, 72 per cent of weavers' income increased by using social media for their business. These statistical figures point to a significant role that not-for-profit organizations can play in digital upskilling and connecting weaving communities to the digital world.

Global marketplaces like Amazon and Flipkart have sought to leverage the rush towards onboarding artisanal products through their Amazon Karigar and Flipkart Samarth initiatives. By providing access to a global market and potentially a wider reach to the customer base, these e-marketplaces are training the co-operatives to formalize their operations, streamline inventory and level up the marketing of their products. Amazon has partnered with the Council of Handicrafts Development Corporations (COHANDS), the apex body of 30 central/state governments' handicrafts and handloom development corporations to support over 50,000 artisans and weavers in over 100 craft clusters (Prerna M, 2022).

The last ten years have seen an emergence of high-impact, craft-led social businesses and startups. These are not only bringing together disaggregated communities but also actively bridging the digital divide. Market actors like Kaarigar Clinic and Karghewale for example provide end-to-end support to makers, weavers and artisans in critical areas such as design, market access, finance, schemes, and more, leveling the playing field for a digital shift among the new generation.

### Backend Digitalization

Larger organizations like Jaipur Rugs are using digitalization to streamline their backend processes. The company's ERP system digitally connects the dispersed workforce and also helps weavers-turned-managers track the production cycle in real time. More recently, Artificial Intelligence (AI) has been used to streamline and decode the complex design process of the Talim carpets in Kashmir. While the weaving of the carpet still remains an analog process, the design and creation of the talim code using AI-generated software has not only reduced the production time of the carpet from a few months to six weeks but also opened up opportunities to create new and custom designs. Rug Republic, a carpet brand producing 15,000 carpets a month, is even experimenting with new technologies to monitor moisture levels during the washing and drying of carpets (Gupta, 2024).

## Frontend Digitalization

GoCoop, one of the early online marketplaces to directly connect weavers, collectives and clusters to the consumer, is developing digital literacy and design training pathways to bring e-inclusion to many in their network. Lal 10, an online B2B e-commerce platform, uses a tech-first approach to bring rural and semi-urban MSMEs into the digital fold; their technology solution is streamlining key components of digitization – access to finance, raw materials, market intelligence, and more. Reshamandi, a B2B marketplace, has identified a unique market gap and is leveraging technology to digitize the natural fiber supply chain by connecting farmers, reelers, weavers and retailers on one platform. A young cohort of innovative start-ups are no doubt reshaping the consumer-facing, front-end. Start-ups like Karagiri, MySilkLove, and Okhai are a few examples focused on digitizing the front end.

## 2.4 Gender and Marginalized Communities, Handloom Sector and Digitalization

Women constitute 72 per cent of the total handloom workers (GOI, Handloom Census, 2019). Yet, their position and status in the sector remain subservient, and their work is often invisible. They are not included in decision making and are treated as subordinates who need supervision from male family members (Pande, 2016). In most states, they work part-time or as allied workers. Women's contribution to the production cycle, while significant, remains undervalued and unrecognized (Business of Handmade, 2021). Activities like spinning yarn and warping – where the yarn is wrapped around a beam - attaching the yarn to the loom, and final packaging fall within the woman's domain.

Despite the benefits of collectivization, there are only a few cooperatives in India owned and managed by women. While there are over 8,54,300 cooperatives in India, only 2.52 per cent of these cooperatives solely comprise women (International Co-operative Alliance Asia Pacific 2021).

The gendered division of labor in traditional societies often confines women to the domestic sphere, limiting their mobility and access to education. This, in turn, affects their access to digital literacy and technology, further widening the digital gender divide. According to GSMA Consumer Survey 2022, 72% of adult women own or are main users of mobile phone compared to 81% among adult male population. This leads to a gender gap of 11% in mobile phone ownership, whereas the gender gap is significantly higher (40%) when it comes to internet usage as 52% of adult male population and 31% of adult women uses internet (GSMA- Mobile Gender Gap Report, 2023). The reasons for this gap are many - rural-urban divide resulting in different access, poverty, and discrimination due to prevailing patriarchal norms in the society. Weaving communities are largely located in rural parts of the country. The low level (25 per cent) of rural women's usage of the internet (GOI, MoFHW, 2021), highlights their exclusion from the digital ecosystem.

To bridge this digital gender gap, countries like Germany and Sweden have adopted a feminist development policy that lays emphasis on the three R's approach - rights, resources and representation (GIZ, S2023). A feminist development policy that uses the intersectionality framework adheres to addressing existing discriminations against women and other marginalized groups. In terms of digital transformation, it seeks ways to "shape and transform the digital present into a more equitable future for all" (Gahren *et al.*, 2023).

To speed up the gender inclusion in digital transformation that India is aiming for, a feminist action framework that looks at the intersection of gender, digital technology and development is needed to close the barriers impeding women's and other marginalized groups' equitable participation in the digital ecosystem. Gurusurthy and Chami (2017), explain this as a framework based on the following:

*Right to Access Digital Technologies* - a gender-just conceptualization will be one where the "access is universal and affordable, unconditional and equal, unfettered, that is, without social control in the form of community/household level policing/online vigilantism that curtails women's access, and meaningful, whereby access enables an expansion of strategic life choices for women, without posing threats to their bodily integrity, informational privacy or personal autonomy."

*Right to Knowledge in the Network Age* - must include the “right to access, produce and preserve diverse online and non-commodified forms of knowledge (especially from the standpoint of race, gender, sexual orientation and geography).”

*Right to Development in the Network Age* - In the network age, the right to development for women and gender minorities must include their “right to participate in, contribute to, and enjoy economic, social, cultural and political development in the networked global socioeconomic order, in a manner that enables the full realization of all human rights and fundamental freedoms.”



Photo credit: Eisha Choudhary

# 3. About the Study

In the context of the growing potential of India's creative manufacturing and handmade ecosystem, in combination with gender equality and rights-based approaches, the report focuses on the participation and exclusion of weavers and the collective enterprises in India's handloom ecosystem from the ambit of digitalization.

This study is an attempt to understand the present landscape of collective enterprises in India's handloom sector in response to the government's call for the digitalization of MSMEs across different manufacturing and service sectors. It highlights the different initiatives taken by the government to safeguard the interests of weavers and brings forth the gaps that are yet to be addressed.

## 3.1 Objectives of the Study

The present study aims to:

- Explore the role, challenges and opportunities of digital adoption among weaver cooperatives and producer companies in the handloom sector.
- Analyze the gender gap and systemic barriers to digital adoption within weaver cooperatives and producer companies.
- Suggest policy measures that can bring about a behavioral change in the status of digital adoption among weaver cooperatives and producer companies in the handloom sector.

## 3.2 Research Questions

The present study aims to answer the following research questions:

- What is the state of digital adoption among weavers and the handloom collectives in India?
- What are the challenges faced by weavers and primary weavers' cooperatives and producer companies in the handloom sector in adopting digital tools?
- How do gender and marginalized identities influence the digital adoption among weavers and their collectives in the handloom industry?
- What are the opportunities, policy and program level interventions required to promote digital adoption among weavers and the handloom collective enterprises?

## 3.3 Study Site

For the selection of states, we have looked at the Fourth All India Handloom Census (2019-2020) data. Based on the high concentration of weaver households (out of total 31.45 lakhs households engaged in weaving and allied activities) and handloom collective enterprises (out of total of 5,457 units), we selected the following four states:

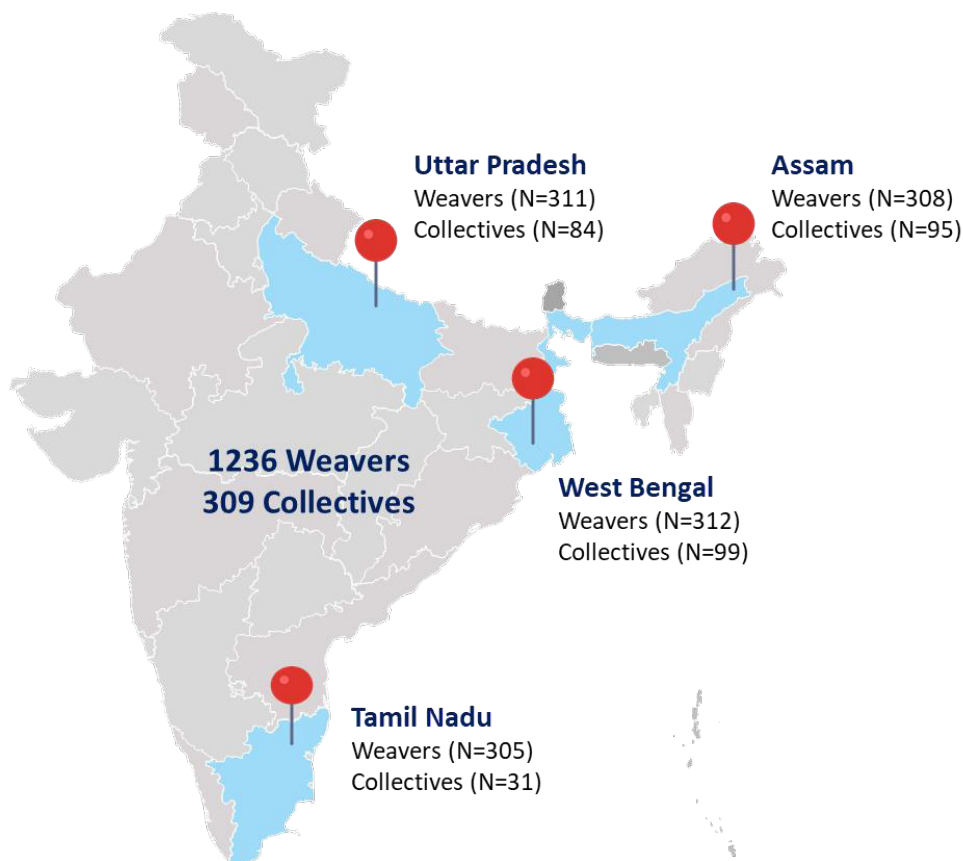
State	Weaver Households (in Lakhs)	Handloom Collectives*
Assam	12.69 (40.4%)	1709 (31.3%)
Tamil Nadu	2.09 (6.7%)	801 (14.7%)
Uttar Pradesh	1.31 (4.2%)	432 (7.9%)
West Bengal	5.42 (17.2%)	170 (3.1%)

\* Includes co-operative societies, units run by Government/corporations, producer groups, private companies, and any other types of collectives.

Considering this data, and to have a diverse sample from different regions, four states – Assam, Tamil Nadu, Uttar Pradesh, and West Bengal were selected for the present study as these states reflect the diversity of handloom craft, concentration of weavers and handloom collectives along with gender representation and distinct geographical regions - north-east, south, north, and east.

Within these four states, three districts per state were selected based on the presence of handloom clusters, and collective enterprises and accessibility:

- Assam: Nagaon, Kamrup, Nalbari
- Tamil Nadu: Coimbatore, Erode, Salem
- Uttar Pradesh: Varanasi, Barabanki, Chandauli
- West Bengal: Nadia, Murshidabad, Hooghly



**Figure 3: Selected States and Sample Size for the LEAD Handloom Sector Digitalization Survey (October-November, 2023)**

## 3.4 Methodology

The study employed a mixed methods approach, combining quantitative and qualitative data collection techniques, to comprehensively capture the challenges and opportunities faced by weavers and collectives.

### Quantitative Data Collection

Structured questionnaires were used to conduct surveys at two levels:

- a. *Handloom Collectives*, including primary weavers' cooperative societies and producer companies, participated in the survey. For the selection of handloom collectives, we obtained the list of collective enterprises from District Handloom Offices in the selected states. In some districts, in the absence of a sampling frame of collectives, purposive and snowball sampling techniques were used for the selection of collectives.
- b. *Individual Weavers*, both registered members of collectives and independent weavers, participated in the survey. Weavers were approached either through cooperative societies or through door-to-door surveys, employing non-probability sampling techniques like purposive and snowball sampling. For the survey with the individual weavers, a quota sampling technique was used to ensure equal representation of male and female weavers<sup>3</sup>.

### Qualitative Data Collection

- a. *In-depth Interviews (IDIs)*: We conducted in-depth qualitative interviews with 20 men and 20 women weavers using interview guides. The sample was spread equally across four states (i.e., five men and five women in each state) for representation of diverse backgrounds and experiences. Purposive sampling was used to select participants, ensuring gender, age and regional balance.
- b. *Key Informant Interviews (KIIs)*: In addition to the IDIs, we also conducted a total of 20 key informant interviews with experts across academia, social entrepreneurs, activists and gender experts to understand the landscape of India's handloom sector. These key informant interviews helped in shaping the study and documenting the prospects of the handloom sector.

## 3.5 Inclusion and Exclusion Criteria for Collectives and Weavers

The total sample for the study includes 309 collective enterprises and 1236 weavers from the four states. The following inclusion-exclusion criteria are used for selecting handloom collectives and weavers:

- Collective enterprises that are registered either as a primary weaver's cooperative society or as a producer company working directly with weavers and have been operational for at least five years have been selected for the study. Societies that act only as promotion or marketing agents were excluded from the survey.
- Cooperative societies and producer companies operating only in the handloom sector were eligible. Collectives using power looms were excluded.
- Weavers who are registered as members of the cooperative society, producer company, were included. Some non-registered members were also included for comparison.

The map in Figure 3 provides a snapshot of the sample, and sample size for each state. The sample size of collectives in Tamil Nadu is low compared to other states due to challenges in procuring information from the district offices.

### 3.6 Limitations of the Study

- For the two quantitative primary surveys with the weavers and the cooperative societies, we often had to resort to convenience sampling methods in the absence of sampling frames in selected states. Even after multiple meetings with the state and district level handloom officials we could not obtain a list of collectives. This may act as a hindrance to having representative sample from the selected states; hence, our findings may not entirely reflect the population level status for the handloom sector.
- In the absence of sampling frames of collectives within a state and a list of weavers, we have surveyed weavers and collectives as and when we got access to them. As the two surveys did not happen in any specific order, it was not possible to link the collectives with the weaver members. This limited our quantitative analysis in mapping the benefits trickling down from the cooperative societies to the respective weaver members.
- The study could locate only a few producer companies operating in the handloom sector across the states mapped. Since producer companies are a relatively newer legal form, there were very few producer companies that could be located in the selected districts across the four states.
- The total number of collective enterprises in Tamil Nadu is limited to 31, that is much less as compared to the other states that may not be enough to generate reliable estimates. Despite making repeated requests to the Handloom department and concerned officials, we could not acquire the list of cooperative societies and producer companies during the data collection timeline.
- Partnerships of the cooperative societies with Amazon and Flipkart were only explored while partnerships with ecosystem enablers or social businesses were not explored in detail in our survey questionnaire.
- The study's scope is limited to exploring the role of collective enterprises and thus does not lay much emphasis on the role of middlemen and master weavers in the weaving and allied activities across the states.



Photo Credit: Eisha Choudhary



# 4. Analysis and Findings

In person quantitative surveys were administered with handloom weavers and collective enterprises to understand the challenges faced by them. It also explores the enablers and barriers to digital adoption.

This section highlights the findings and insights emerging from the primary data collected by the LEAD field team during October-November, 2023. It combines findings from the primary quantitative survey with insights from the in-depth interviews and key informant interviews.

The first part discusses the characteristics of weavers and collective enterprises that were part of the study, while the later part delves into significant insights into challenges and opportunities for digital adoption in the handloom sector.

## 4.1 Characteristics of Weavers and Collectives in the Handloom Sector

In this section, we present the characteristics of the weavers and the collectives that participated in our primary survey. Weavers who are registered members of a cooperative society or a producer company and those who are not registered with any collective enterprise took part in the survey. For the handloom collectives survey, either the manager, secretary, or the president of the collective took the survey across the four states.

### 4.1.1 Understanding Weavers' Socio-Demographic Representation in the Study

**Table 2: Distribution of 1,236 Weavers Across Socio-Demographic Variables: LEAD Handloom Sector Digitalization Survey of Weavers (October-November, 2023)**

Characteristics	Frequency (N)	Percentage (%)
<b>State</b>		
Assam	308	25%
Tamil Nadu	305	25%
Uttar Pradesh	311	25%
West Bengal	312	25%
<b>Age (years)</b>		
18-29	90	7.3%
30-39	280	23%
<b>40-49</b>	<b>358</b>	<b>29%</b>
<b>50 &amp; above</b>	<b>508</b>	<b>41%</b>
<b>Sex</b>		
Male	616	50%
Female	620	50%
<b>Caste</b>		
General	417	34%
<b>Other Backward class</b>	<b>649</b>	<b>53%</b>
Scheduled Caste	128	10%
Scheduled Tribe	42	3.4%

<b>Religion</b>		
Hindu	881	71%
Muslim	351	28%
Other	4	0.3%
<b>Education</b>		
Never attended school	273	22%
<b>Up to five years in school (Class 1- 5)</b>	<b>407</b>	<b>33%</b>
<b>Six to ten years in school (Class 6-10)</b>	<b>470</b>	<b>38%</b>
Eleven to twelve years in school	64	5.2%
More than 12 years	22	1.8%
<b>Membership Status</b>		
Producer Company	110	9%
<b>Cooperative Society</b>	<b>693</b>	<b>56%</b>
Individual Weaver	433	35%

## Key Highlights of the Representation of Weavers in the Study

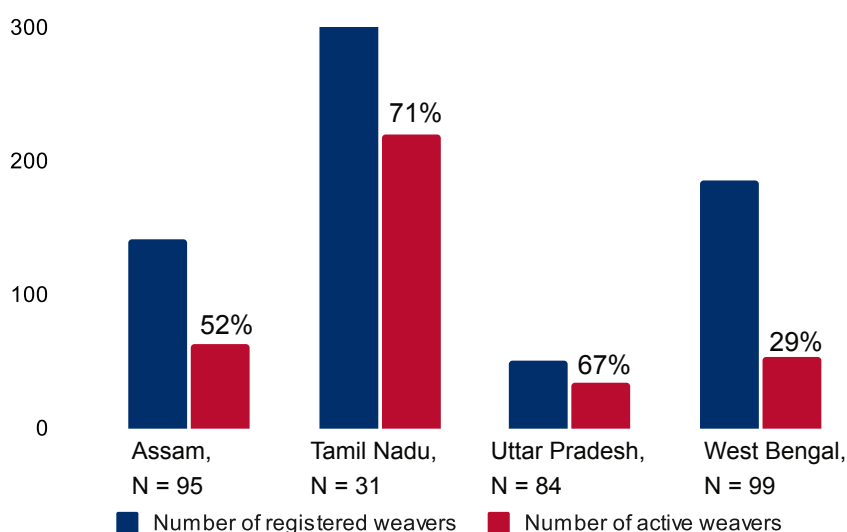
- The average **age of the weavers in our sample is 45 years**, and the majority of the weavers (70 per cent) are above 40 years of age.
- About **66 per cent of the weavers belong to socially and economically marginalized groups** such as Other Backward Class (OBC), Scheduled Caste (SC) and Scheduled Tribe (ST).
- 22 per cent of weavers have never attended school**, 33 per cent have spent only up to five years in school, and another 38 per cent have completed up to ten years in formal schooling. Only two per cent of the weavers have more than 12 years education.
- About **65 per cent of the weavers who participated in the study are members of collectives**, majority of them (56 per cent) being part of cooperative societies (CS) and only a small proportion of weavers (9.5 per cent) belong to producer companies (PC). No weavers in our sample from West Bengal and Tamil Nadu are members of a producer company. About 35 per cent of weavers in the sample are not registered under any collective enterprise.

### 4.1.2 Understanding the Collective Enterprises' Characteristics

Among 309 collective enterprises, our study mainly represents weavers' cooperative societies (96 per cent). It was difficult to locate handloom-focused producer companies in the selected states, as it is a relatively newer form of collective enterprise slowly gaining popularity. Co-operative societies on the other hand have existed since the pre-independence era. A few handloom weavers' cooperative societies, such as Dhaniakhali Handloom Weaving Cooperative Society, Samospur Handloom Weaving Cooperative Society and Daspur Cooperative Weavers Society Ltd in West Bengal, have been operating since 1944-45; Kancheepuram Silk Co-Op Society in Tamil Nadu was formed in 1942. Most of the co-operative societies surveyed in West Bengal were registered around the year 1984, and in the early 90s in Assam, Tamil Nadu, and Uttar Pradesh.

On average, collective enterprises have 148 weavers as registered members. However, only half of the registered members (51 per cent) are actively associated with the collective, which means that only half of them work within the cooperative actively, and others are not active contributors to the collective production. The collective enterprises in Tamil Nadu are bigger in size as the average number of weavers associated as members is 312, while it is 185 in West Bengal, 142 in Assam and 51 in Uttar Pradesh.

The following Figure 4 represents the proportion of weavers who are registered versus weavers who are active members of the collectives across the four states:



**Figure 4: Number of Registered Versus Active Members of Weavers’ Collectives Across Four States of India: LEAD Handloom Sector Digitalization Survey of Collectives (October-November, 2023)**

### Gender Composition Within the Collective Enterprises

Assam, a state where women dominate handloom weaving, has the highest number of collectives (78 per cent), having almost all women members, followed by Tamil Nadu where 13 per cent of collectives have all women members. In Uttar Pradesh, collectives have more men weavers as members (52 per cent of collectives have all men as their members). Equal representation of men and women weavers is highest among collectives in Tamil Nadu (48 per cent). In West Bengal, generally, co-operatives have both women and men weavers as members.

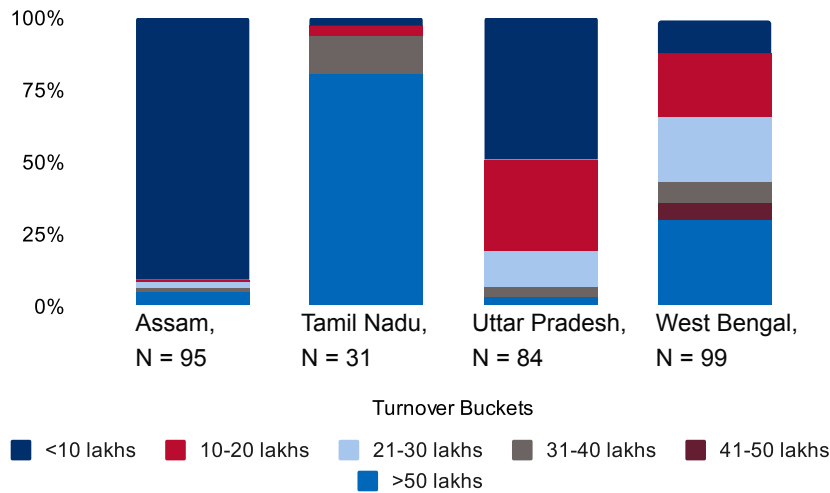
Overall, across the collective enterprises in the four states, about 31 per cent of collectives have women in the leadership positions. However, Assam boasts of higher female representation in leadership roles in handloom collectives at 77 per cent. This is followed by Tamil Nadu where 48 per cent of collectives’ leadership positions are held by women. Conversely, Uttar Pradesh, and West Bengal exhibit concerningly low levels of female inclusion in terms of leadership in collectives at two per cent and six per cent, respectively.

The exclusion of women from collectivization in the form of legal structures such as co-operative societies and producer companies presents an alarming state of gender exclusion in formalizing the handloom sector. In conversations with the management staff at the co-operative societies in West Bengal, it was reflected that usually only one member from the family registers as the member of the society because of the registration fees and membership preference given by the administration. Women in the household get the opportunity to become a member of the co-operative society only if there is no male member in the household or if the men are not involved in weaving.

### How Big are the Collective Enterprises?

#### Turnover Buckets

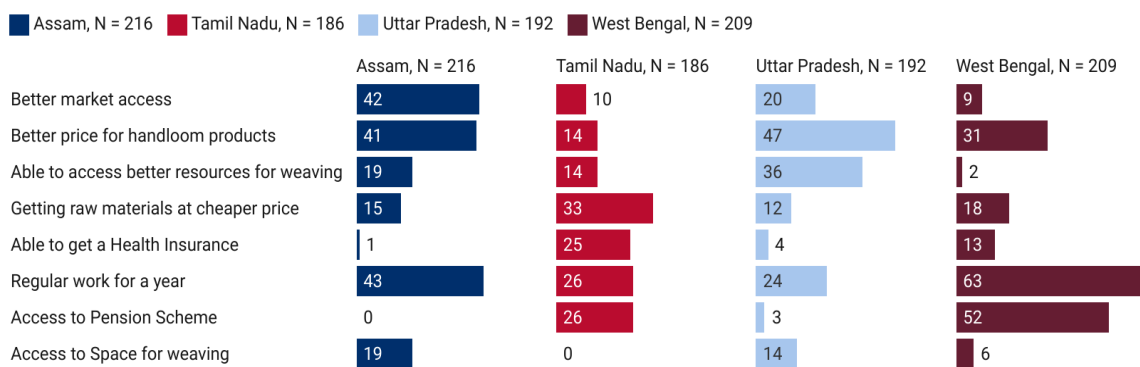
Among 309 collectives, 45 per cent of them have a turnover of less than INR 10 lakhs (~ USD 13K) per annum. 91 per cent collectives from Assam fall in this lowest turnover bucket, followed by 49 per cent in Uttar Pradesh (Figure 5). A mere 20 per cent of the collectives reported having an annual turnover of more than INR 50 lakhs (~ USD 67.5K). About 81 per cent of Tamil Nadu collectives have an annual turnover of INR 50 lakhs (~ USD 67.5K) and above, followed by 30 per cent in West Bengal. A meager five per cent of collectives in Assam and four per cent in Uttar Pradesh reported such high turnover.



**Figure 5: Annual Turnover of Handloom Collectives Across Four States in India: LEAD Handloom Sector Digitalization Survey of Collectives (October-November, 2023)**

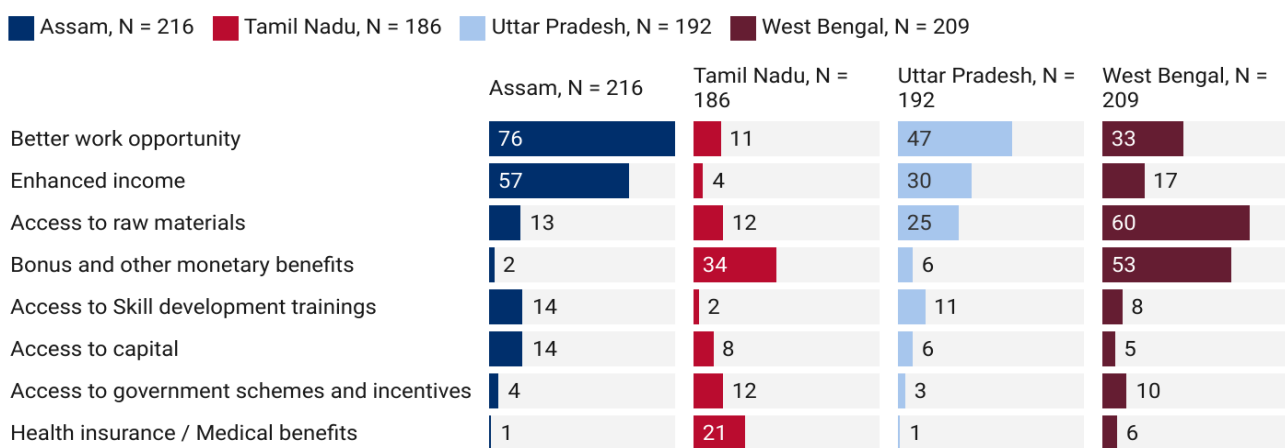
### Motivations for Weavers to Become Members of the Collective

Overall 40 per cent of the weavers who are members of a collective, mentioned that getting regular work was the primary reason to join a collective. For many others (34 per cent), membership was driven by the need to seek better prices for their products. Figure 6 represents state-level variations in motivations to become members. In West Bengal, the key motivations to join a collective lie in accessing regular work for a year (63 per cent) and access to pension schemes (52 per cent). In Assam, the need for regular work (43 per cent), better market access (42 per cent), and better prices for handloom products (41 per cent) are seen as key reasons for joining collectives. Getting better prices for handloom products (47 per cent) was a key driver for joining the CS/PC in Uttar Pradesh.



**Figure 6: Reasons for Becoming a Member of the Handloom Collectives: LEAD Handloom Sector Digitalization Survey of Weavers (%) (October-November, 2023)**

Better work opportunities, enhanced income, and access to raw materials were the main benefits received after joining a collective (Figure 7). 76 per cent weaver members in Assam received better work opportunities after becoming members of a collective. In Tamil Nadu - bonus and other monetary benefits (34 per cent), in Uttar Pradesh - better work opportunities (47 per cent), and access to raw materials (60 per cent) in West Bengal stood out as the benefits enjoyed by most of the weavers.



**Figure 7: Benefits Received After Joining the Handloom Collectives: LEAD Handloom Sector Digitalization Survey of Weavers (%) (October-November, 2023)**

A significantly higher proportion of female weavers received benefits such as better work opportunities (53 per cent of female weavers versus 30 per cent of male weavers) and enhanced income (33 per cent versus 22 per cent). This highlights the potential of collectives in giving women a better bargaining power to access work which might be difficult to navigate when they are not part of co-operatives. On the other hand, more male weavers (29 per cent) received bonuses and other monetary benefits in comparison to the female weavers (19 per cent).

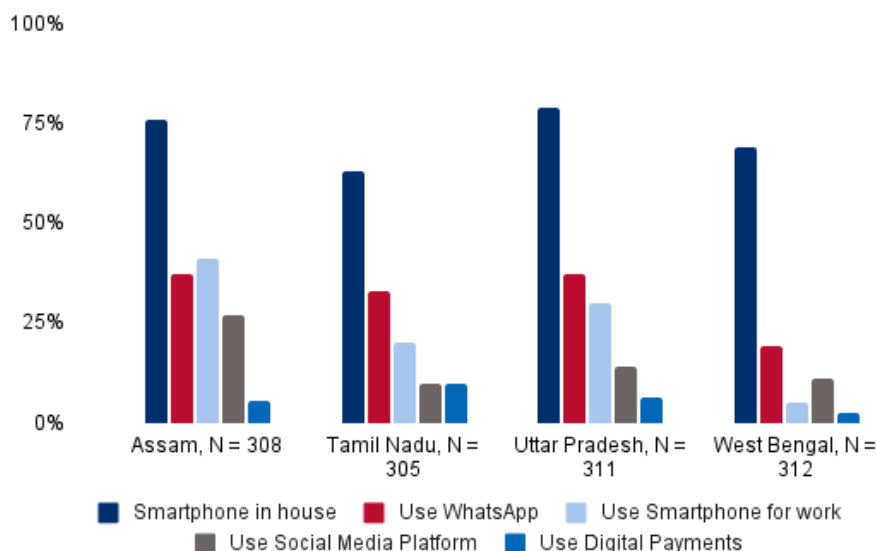
## 4.2 State of Digital Adoption: Is India's Handloom Sector Ready

**On an average, collectives across four states are able to leverage a mere two out of 11 digital tools<sup>4</sup> available to them.**

### 4.2.1 Access to Digital Infrastructure

- **72 per cent** of weavers have access to smartphone either in the form of ownership or shared access in the household.
- Only **33 per cent** of weavers have a personal smartphone. There is a **significant difference in smartphone ownership between male (38 per cent) and female (28 per cent) weavers.**
- **48 per cent** of collectives have computers in their offices.
- **34 per cent** of collectives use computers; mostly use it for record keeping
- Only **25 per cent** of collectives have access to the internet.

The access to basic digital infrastructure including smartphones and computers remains low among the weaving communities. Only one weaver in our sample has access to computer. The most common reason for low access is affordability. Further, ownership of a personal smartphone is less among female weavers (28 per cent) than compared to male weavers (38 per cent). The gender gap in mobile phone ownership is aligned with the findings in the National Family and Health Survey 2019-21 (NFHS-5) that 54 per cent of women own a smartphone compared to 66 per cent men who own a smartphone. However, from the contrasting levels of smartphone ownership between our survey findings and NFHS-5 results, it is evident that the ownership of smartphone is much lower among the weaving communities compared to the general population Figure 8 shows the state-level variation in access and usage of different digital tools.



**Figure 8: Access and Usage of Different Digital Tools Among Weavers Across Four States: LEAD Handloom Sector Digitalization Survey of Weavers (October-November, 2023)**

The digital infrastructure within cooperative societies remains limited. Access to a smartphone is limited to managers; even then, they often use their personal device to manage the society's work. Almost half of the societies (48 per cent) have access to computers in their offices and 34 per cent use computers, but the use is limited to record keeping or sending mails. Very few cooperative societies have access to the internet.

#### 4.2.2 Use of Digital Payments Methods

While the nation continues to achieve new milestones in digital payments, weaving communities across the board remain excluded from its benefits. Overall, only 6 per cent of weavers reported using digital payment methods, with Tamil Nadu reporting the highest usage at 10 per cent. At the cooperative level, 19 per cent of respondents reported using digital payment applications. Among the individual weavers, challenges including poor access to smartphones, lack of internet, and lack of financial literacy hinder weavers' use of digital payments; the high incidence of informality also leads to cash being the widely acceptable mode of payment in transactions involving smaller amounts. Making use of digital payments requires a digital infrastructure with mobile payment apps, a stable internet connection and so on, which is in short supply in regions where most weaving communities are located.

Qualitative interactions revealed that digital payments involving NEFT and RTGS<sup>5</sup> are used by collective enterprises mainly in placing orders for yarn with the National Handloom Development Corporation (NHDC) as that is the required mode of payment. Some collectives also use UPI and have QR codes in their shops to accept payments from retail buyers. Cooperative societies do not use any digital modes of payments to pay their weavers and suppliers; cash remains the key mode of transactions. Cash provides liquidity that cooperative societies with smaller scale and limited credit require to make payments to the weavers and manage other day to day operations.

#### 4.2.3 Use of WhatsApp for Marketing, Networking, & Communication

Ownership of a smartphone, personal or in the household has enabled weavers to use WhatsApp and other social media platforms for communication. Among 888 weavers who have access to smartphones either on their own or in the household, 44 per cent of them use WhatsApp. Among all weavers, this proportion is 31 per cent and there exists significant gender divide in WhatsApp use. About 36 per cent of male weavers and 27 per cent of female weavers use WhatsApp.

While many weavers use WhatsApp to connect with friends and family, the use of WhatsApp for business is less. Among the 388 weavers using WhatsApp, only 15 per cent belong to West Bengal and the remaining users are almost equally distributed across Assam, Uttar Pradesh and Tamil Nadu. Among the 388 weavers who use WhatsApp, 47 per cent use it to share pictures of their handloom products or connect with buyers. Overall

WhatsApp's potential in aiding the business and opening avenues for weavers is high, however, the usage among weavers has remained weak, with less than half of them using it.

For the weavers who are using WhatsApp, it has eased communication with the designers and master weavers who share the color schemes and patterns digitally or use video calls to give instructions or share new designs. A few of them have also joined weavers' associations and other weavers' groups on WhatsApp to stay connected and access information related to their work.

#### Narrative Account

For Yusuf, a 45-year-old weaver from West Bengal, working for the past 30 years, WhatsApp has helped in improving the designs and patterns he weaves. Yusuf's monthly family income from weaving is around INR 7000-7500 (~ USD 85-90). He primarily earns from weaving and works through a middleman. While he applied for membership to a cooperative society, he was told that new memberships were not possible at that time.

*“Sometimes the mahajan6 sends photos of designs on WhatsApp. If any color combination or design needs to be changed or modified they send it through WhatsApp. Previously we had to go to mahajan's house but now we can get information and pictures of any changes or modification of design. It saves us time. Sometimes I weave a small piece and send the picture to mahajan. He can see the image and confirm if this is correct.”*

Yusuf shares that WhatsApp has helped in accessing approval on the woven cloth in real time so that he can make any corrections if required before finalizing it. It helps him share samples with the mahajan and give an update on the progress of work.

In recent times, WhatsApp has become an easy tool for people to connect and sell products online. WhatsApp has the potential to aid the digital inclusion of the weavers as they can better communicate and connect with online communities, share their products' pictures to the customers and update statuses to keep their audience informed about new products; it can help them in managing orders, giving timely updates; access online training through tutorials and become a member of weavers' associations and WhatsApp groups to stay informed about weaving related tools and techniques and even government schemes.

Given the strong linkages of handlooms to the agriculture value chains, emerging agri-tech solutions offer ready pathways that can be adapted and replicated for digitalization of handlooms and more broadly, the CMH sector. One such example is of Gramhal - a social business that has developed “Bolbav” an AI based WhatsApp chatbot that provides farmers in India access to timely information on crop prices, quality of crops and weather-related information. Similarly, models that promise real-time information around matters relevant to weaving communities, if implemented for the handloom sector, can empower and incentivize weavers to actively participate in the digital ecosystem.

#### 4.2.4 Use of Social Media Platforms for Business

- Only **15 per cent** of weavers use social media platforms like Facebook and Instagram.
- Only **4 per cent** of collective enterprises have an active Facebook page.
- Only **15 per cent** of collectives use online software for managing inventory.
- Only **7 per cent** of collectives have a website.

Social inequalities encompassing socioeconomic status, gender, age, and education determine how one accesses information and communication technologies (ICTs) and leverages digital opportunities (Van Dijk, 2020; Bol et al, 2018; Van Deursen et al. 2021). Despite the importance of social media platforms in advocating for and crafting narratives in the handmade sector, its use among the weavers remains poor. Among weavers with less than INR 10,000 (~USD 121) income per month from weaving and allied activities, only 33 per cent reported to adopt digital behavior<sup>7</sup> compared to 52 per cent among weavers earning more than INR 10,000.

Among 1236 weavers, only 189 (15 per cent) of them use social media platforms like Facebook and Instagram. About 40 of them use it for sharing photos or videos related to handloom products. Poor access to smartphones

and inconsistent internet along with language barriers and lack of digital literacy make them hesitant to use social media platforms. Even when weavers access social media platforms to sell their products, the lack of expertise and training in managing the social media makes it difficult for them to navigate it. Instagram algorithm further makes it challenging for small scale producers to adapt to changing trends and strategize their content accordingly. Instagram invisibilises such small scale enterprises that cannot invest in paid advertising on the platform with slow and poor reach, as was revealed during qualitative interviews.

Thus, e-inclusion is often a multi-layered process and deeply linked to economic and social inclusion (Ragnedda et al, 2022). Platforms like Instagram, Tiktok, Facebook, YouTube are heavily dependent on the newness of content, ability to speak the language, the competencies involved in content creation - writing, photography, video-making, performance, communication skills and more - as well as those required for content dissemination to the right audience. Even when the barrier to access is crossed, weavers (especially the less educated, older and low-income users) either experience exclusion, or are at risk of social exclusion) and are therefore more likely to have a digital experience that does not fully exploit the possibilities that the Internet can offer." (Ragnedda et al, 2022).

*"The rise of democratized access to digital tools, online platforms, and marketplaces has enabled outreach to a wider audience and facilitated easier collaboration, faster learning, and more control over pricing and branding. The flip side is the pressure to adapt to changing technologies and getting exposed to copying without adequate legal protection."*

- Mridula Tangirala (Tata Trusts)

## 4.3 Barriers to Digital Adoption among Weavers and Handloom Collective Enterprises

### 4.3.1 Struggle for Decent Wages Remains the Primary Concern for Weavers and Collective Enterprises

**"Bunkar barbadi ki or"** (weavers on the verge of destruction) reads a placard of the weavers protesting against low wages in Uttar Pradesh.

- **The median monthly income from weaving and allied activities is INR 6,000 (~ USD 73).**

This is higher in Tamil Nadu (INR 10,000/ USD 121) and lowest in West Bengal (INR 4,000/USD 48). **Women weavers earn 33 per cent less than male weavers;** the median monthly income from weaving is INR 8,000 (~ USD 96) for men and INR 6,000 (~ USD 73) for women.

- **For 70 per cent of weavers, low wages are a major challenge.**

Low wages are the primary challenge faced by weavers in West Bengal (88 per cent), Uttar Pradesh (84 per cent) and Tamil Nadu (70 per cent) while in Assam the primary challenge is access to capital (57 per cent). Further, overall 47 per cent of weavers feel securing fair prices for their products is the primary financial challenge.

- **Membership in co-operative societies does not guarantee higher income.**

Even when co-operatives bring a collective bargaining power, **there is no significant difference in the monthly household income from weaving for weavers who are part of the collectives and those working as an individual weavers, the typical income being INR 6000 (~ USD 73).** On the other hand, for producer company members, the median income is typically higher at INR 8,000 (~ USD 96). While co-operative societies give year-round work to the weavers in most places, they fail to provide better prices.



**Table 3: Challenges Faced by Weavers in their Work Across Four States of India: LEAD Handloom Sector Digitalization Survey of Weavers (October-November, 2023)**

Challenges Faced by Weavers	Overall (N=1236)	Assam (N=308)	Tamil Nadu (N=305)	Uttar Pradesh (N=311)	West Bengal (N=312)
Low wages	70%	38%	70%	84%	88%
Access to government support	37%	38%	21%	33%	57%
Access to capital	26%	57%	4.30%	27%	17%
Difficult working conditions	25%	17%	28%	23%	34%
Changing weather conditions	24%	31%	25%	18%	23%
Access to raw materials	23%	34%	27%	17%	13%

A recurring theme in the survey and qualitative interviews across the states has been the severely low wages impeding the growth of the handloom sector. Despite being one of the largest employers for gender and caste-based marginalized groups, the handloom sector has failed to provide the weaving community with access to decent wages. Lack of access to decent wages and fair prices for the handloom products impacts the weavers' productivity and the second generation's willingness to adopt handloom weaving as their primary pathway to aspirational livelihoods. The lack of decent wages further leads to a lack of motivation among weavers towards digital adoption which impacts the overall growth of the handloom sector.

Poverty among the weaving communities, in fact, remains the biggest barrier to digitalization. Weavers are unable to afford smartphones. Even when they do, it is difficult to have an active internet package. Lack of policy ensuring fixed wages, incentives for handloom weaving, and any other social security benefits for the handloom weavers shall continue to hamper any digital adoption among the group. Aspirational mobility and alternative future opportunities aside, **the vicious cycle of low income and wages is a far greater threat to the future of the handloom sector as it stands today.**

#### Narrative Account

Zameer, a 45-year-old weaver from Santipur, West Bengal, is one among many across India who feel helpless due to the abysmal incomes that weaving offers.

*“My age is 45 now. I have no other option to switch my career. We can't work in hotels or go abroad for work. But in this profession of weaving our earning is very low. Only if we earn 400 to 500 rupees daily can we have a slightly better life. We do get some government subsidy for our children's education but that's not enough for higher education. I failed to teach my two daughters after matriculation because of the shortage of money. I request the government to treat us weavers as daily workers and fix our daily wages to 400 to 500 rupees so that we can survive.”*

For years, weavers like Zameer and many others have been demanding an increase in their wages. However, they face exploitation at the hands of middlemen or bigger merchants who are unable to provide decent money for the products they weave.

“Traditional middlemen”, typically master weavers, play a crucial role in the handloom value chain and remain a key bridge between the artisan/weaver and the markets. Such middlemen supply raw materials, bring new designs and orders from diverse clients, and handle sales and marketing. For individual weavers who often are disconnected from the larger ecosystem, this relationship can become extractive as it limits their ability to negotiate from a position of strength and ultimately leads to a vicious cycle of low wages and low income. While social businesses are increasingly stepping in to take on ‘middle functions’ (Business of Handmade, 2021), digital adoption can close

the information gaps around market trends, designs, price points and opportunities for the weavers and raise their levels of awareness. This in turn can enhance the agency of individual weavers and help them make informed choices about how and with whom they choose to work and on what terms.

Weaving is not only an individual's pursuit, rather it requires and involves the whole family, everyone performing different roles and contributing to the final output. The income of the allied workers is very low, which has led many allied workers to shift livelihoods, resulting in the burden on family members to also perform the allied activities.

### Narrative Account

**Jaya Prakash, a man aged 42, from Tamil Nadu spends about 10 hours daily weaving.**

*“In the morning my wife and mother finish household chores and then work on design impressions, wind and spin the thread. My son also helps sometimes. I do the weaving. Each and every member of the family puts efforts to earn and it's not a single person's earning. Now you see that 15,000 rupees is the earning of 4 members in my family. In that way, 3000 rupees would be the salary of each person monthly.”*

53 per cent of managerial staff who participated in the handloom collective survey, including president, vice president, secretary, manager and treasurer; who overlook the administration and day-to-day functioning of the collective enterprises, have monthly salary less than INR 5000 (~USD 60). Due to low salaries, the management staff at the collectives are pushed to take up a second job. Overall, across the four states, 41 per cent of people at cooperative societies in managerial positions reported having a second job. However, in Tamil Nadu, out of the 31 representatives of the collective enterprises, 23 of them reported salaries of more than INR 15,000 (~ USD 181) and none of them had a second job. In this context of low salaries that push the administration to take up second jobs, there is a low level of motivation to make a digital shift.

### 4.3.2 Limited Access to Digital Infrastructure, and Low Level of Digital Literacy Continue to be a Significant Barrier in Digital Adoption

The limited or no access to basic digital infrastructure, including smartphones and computers among the weaving communities across the states remains the major barrier impeding the digital shift in the handloom sector in India. Co-operative societies are not equipped with modern digital tools, and access to the internet is limited or patchy in most cases. The poor digital infrastructure impedes the digital inclusion of weavers and handloom collectives.



Photo Credit: Eisha Choudhary

Lack of digital literacy and discomfort in using digital tools are two major barriers that prevent collectives from using digital tools to their full potential. Further, 98 per cent weavers have not participated in any digital training. There has rarely been any digital training organized through government institutions that weavers in UP have attended; very few in Assam and Tamil Nadu and few in West Bengal have attended similar trainings as well.

While half of the cooperative societies surveyed have computers (48 per cent), the society's staff is not trained to use it. First-hand accounts indicate that lack of training in digital skills remains one of the primary reasons for the meagre use of computers among members. In one of the interviews in the Dhaniakhali district in West Bengal, the secretary at the primary weavers' cooperative society mentioned that he attended a one-day training on using computers a few years ago. He could only learn a few things during the training that he has now forgotten, and he does not know how to operate the computer for different things like making stock sheets, accessing e-commerce platforms and so on.

### 4.3.3 Lack of Next-Generation Participation is a Barrier to Adoption of New Digital Tools

One of the most significant challenges to the handloom sector is the alarming lack of next-generation artisans and weavers. 70 per cent of the weavers mapped across the four states are 40 years and above in age. Only seven per cent of the sample falls in the 18-29 years age group. This not only prevents intangible knowledge and skills from being transmitted from one generation to the next but also increases the overall cost and investment required to train a non-artisan workforce.

Through qualitative interactions with weavers, it came forth that young women belonging to weaving communities are reluctant to marry into weaving households due to the expected contribution to weaving-related work after marriage and low earnings. The outdated infrastructure in many places poses several health-related issues, which also makes the younger generation apprehensive about working on the looms. The absence of the younger generation affects the overall sustainability and legacy of the handloom sector. A significant subset of handloom weavers is motivated to continue their craft for various reasons, including familial tradition, a deep-seated passion for preserving the artistry, or simply due to their expertise in the craft. However, for some, advancing age poses a challenge to acquiring new digital skills or seeking alternative livelihoods.

### 4.3.4 Intersectionality of Gender and Marginalized Identities Create Barriers to Equitable Digital Adoption

To understand the nuanced experiences of women and other marginalized groups involved in weaving, core ideas of the intersectionality framework – social inequality, social context and social justice (Collins and Bilge, 2020) are important. Women, in general, experience challenges due to their gender, socio-economic status, and the nature of work and more so among the marginalized communities such as lower caste and class categories. Rural women weavers are often excluded from the digital world, perpetuating social inequalities and thereby hindering their potential. This exclusion limits their opportunities for economic self-reliance, both for themselves and their communities.

- ~60 per cent of women weavers reported that the price of their products was either decided by the mahajan or by the cooperative society. Only five per cent of women said that the prices were mutually decided.
- All benefits, apart from access to government schemes bonuses and monetary benefits, were reported higher among women than among male weavers.
- Access to capital, raw materials, and information are the other more prominent challenges reported by women, as compared to male weavers.
- 37 per cent of female weavers fall under the lowest household income bucket of up to INR 5000 (~ USD 60) compared to only 24 per cent of their male counterpart. The representation falls to 39 per cent in the more than INR 15000 (~ USD 181) income bucket for women relative to 12% for men.

The vulnerabilities experienced by women weavers at the intersections of age, caste belongingness, and educational qualifications influences their digital behavior. The findings from the logistic regression (outcome being high level of digital adoption vs low adoption), based on data from the LEAD handloom sector digitalization survey of weavers, indicate the following:

- Women weavers are half as likely compared to men weavers to adopt digital behavior.
- Women above 40 years in age are less likely to show a digital behavior
- Weavers having 6-10 years of education and 11 years or higher levels of education are 2.7 and 6.4 times more likely to adopt digital behavior compared to weavers with no education.
- Weavers belonging to socially marginalized caste groups - SCs and STs - are less likely to adopt digital tools compared to the general category weavers.

#### Narrative Account

Sujata, a woman in her early 30s, was listening to Bollywood songs that played on YouTube on her smartphone when we met her in a handloom cluster in Tamil Nadu. We were pleasantly surprised to see a woman owning a smartphone, given the low level of access to personal smartphones among women weavers in the handloom clusters. Sujata warmly welcomed us and showed us the blue, yellow, golden Kanjeevaram saree that she was weaving. She told us this would sell for INR 20,000 (~USD 242) in the market, but she will only receive INR 4,000 (~USD 48). This masterpiece of a saree would demand nearly a week of her labor, with Sujata working for 8 to 10 hours daily, taking breaks in between to finish her household chores. In the conversation about weaving sarees and leisure, Sujata shared that she sometimes listens to music on her smartphone but is not allowed to use any social media platforms as her husband disapproves of it. She had once installed Facebook on her smartphone which her husband deleted and strictly told her to not use such online platforms again. Sujata's narrative is similar to that of many other women who, even when they get access to smartphones, or even use social media platforms, are monitored by their family. What they are posting, whom they are talking to, and why they have certain apps are questions that make women apprehensive of actively using social commerce channels.

### 4.3.5 Lack of Awareness and Access to Information Around Government-Led Initiatives Impedes Digital Adoption at Scale

- **75 per cent of the collective enterprises are not aware of the Government e-marketplace (GeM) portal.**
- **Only two per cent cooperatives are selling on the GeM portal.**

The ministry of textiles reported onboarding of 1.5 lakh handloom weavers on the GeM portal that was launched in 2016. GeM facilitates buying and selling directly from the weavers and artisans, among others and procurement by different government departments and ministries. The GeM portal was expected to reach INR 3.5 trillion worth of procurement by the end of the fiscal year 2022-23 (Kumar, 2023).

In recent years, GeM has been an integral part of the government initiatives to promote direct procurement from weavers' co-operatives. In a press release in December 2023, the Ministry of Cooperation informed that in the first phase of onboarding of cooperatives on the GeM, 618 cooperative societies/cooperative banks with a turnover/deposits of more than INR 100 Crore (~ USD 13.9 Million) have been identified. Most cooperatives in our study are in the smaller turnover brackets of up to INR 10 Lakhs (~ USD 13K) and a maximum under INR 1 Crore (~ USD 133K), which could be a possible reason for the lack of awareness on GeM.

Apart from the GeM portal, different states have taken the initiative to promote the State Apex Marketing Societies for the weavers' collective enterprises. However, **only 37 per cent collectives reported being registered with any apex marketing society in their states.**

Most of the collectives in West Bengal (82 per cent) were registered with Tantuja, in Tamil Nadu with Cooptex (42 per cent), but Assam (12 per cent) and UP (10 per cent) saw a disassociation with apex marketing bodies. The collectives that are registered with the state apex marketing societies reported better design adaptation and sales than those that were not registered with them. The absence of government incentives for registering with the federations and the domination and rigid attitudes of the federations prevent many collectives from getting registered with the apex marketing societies and availing of existing government benefits.

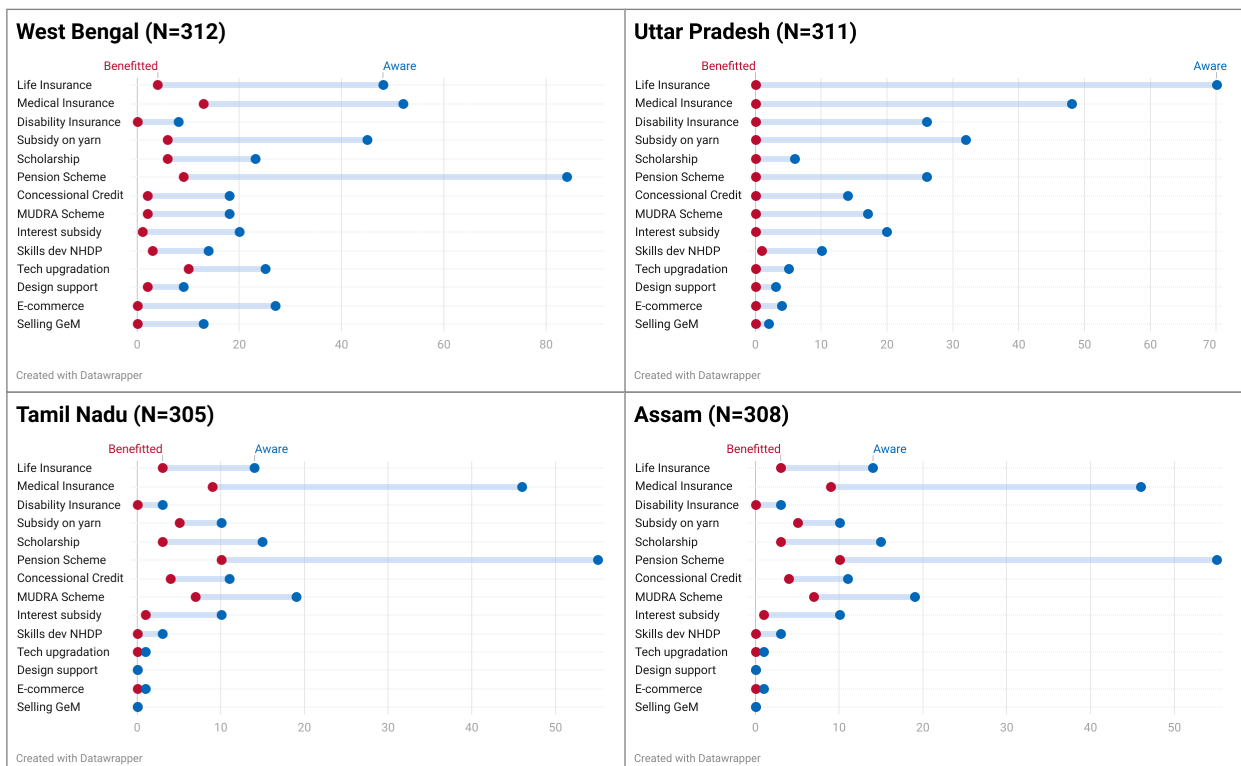
The information asymmetry and awareness gaps on the policy initiatives undertaken to promote online selling and marketing of handloom products produced by primary weavers' cooperative society prevents them from taking advantage of the available schemes of the government to promote their sales.

## State of Social Protections and Access to Government Schemes

The Government of India, based on the recommendations of the Third National Handloom Census 2009-10, initiated the scheme of issuing Weavers Identity Cards to weavers as an identification proof required to avail several government welfare schemes. Overall, 63 per cent of weavers across the four states possessed a weaver's identity card. West Bengal (98 per cent) has progressed in issuing weavers identity cards among weavers, followed by Uttar Pradesh (78 per cent), Tamil Nadu (53 per cent), and Assam (21 per cent). Women weavers (59 per cent) are slightly less likely to own a weavers' identity card as compared to male weavers (66 per cent).

Life insurance (89 per cent), medical insurance (78 per cent), and yarn subsidy (77 per cent) are a few schemes that cooperatives were most aware about. They were less aware of scholarship schemes for children of handloom workers to study in textile industry (35 per cent), schemes related to design support (35 per cent) and GeM portal (25 per cent). When it comes to availing benefits under different government schemes, subsidy on yarn (47 per cent), skills development under National Handloom Development Program (28 per cent), weaver MUDRA scheme (17 per cent) are relatively more availed schemes by the cooperatives. Interesting, all cooperatives from Tamil Nadu (100 per cent) mentioned receiving benefits from MUDRA scheme, whereas this proportion is alarmingly low in West Bengal (2 per cent) and Uttar Pradesh (4 per cent).

Despite the numbers, awareness did not translate into availing of benefits by the weavers in the cooperative society. Figure 9 below highlights the difference in awareness and access to the various schemes by weavers across the four states.



**Figure 9: Difference in Awareness and Access of the Various Schemes Across the Four States - LEAD Handloom Sector Digitalization Survey of Weavers (October-November, 2023)**

### 4.3.6 Lack of Partnerships with Ecosystem Actors and Market Access Players Breaks the Potential Bridge to Digital Adoption

The cooperatives and producer companies in the handloom sector are operating in silos. Our data from the LEAD Handloom Survey (2023) reveals that only two per cent of collectives have partnerships with any NGOs/ Social Businesses. If incentivized and supported right to deliver impact, India's many social businesses and startups can become active channels for digitizing the nation's diverse grassroots collectives while delivering the necessary markets needed for growth.

One of the first and leading not-for-profit organizations to empower rural communities with access to digital skills and training is Digital Empowerment Foundation (DEF). For DEF, the major challenge of working with artisan communities on digital integration has been the expectation of the artisans to reap monetary benefits in a short period of time. Working on the behavioral shifts among weavers towards digital adoption requires an enabling ecosystem - built on sensitivity to cultural practices and values, gender inclusion and direct market linkages. Several grassroots NGOs have the capability to lead this as they are better immersed with the weaving communities on an everyday basis.

Collectives also have not actively partnered with global e-marketplaces like Amazon and Flipkart that have active artisan-centric approaches. The data in our research reveals that only nine per cent of collectives across the four states - Assam, Tamil Nadu, Uttar Pradesh and West Bengal have collaborated with Amazon/Flipkart. Out of these most of them ended the collaboration either because of Amazon's strict policies or inability to meet demands set by them.

A manager at the cooperative society's office in Dhaniakhali in West Bengal told us that the society collaborated with Amazon but had to discontinue only in four months. He shared that Amazon had listed several of their products online. As one particular design started to get attention, Amazon asked them to make the product available in a month's time. He shared that one handwoven Dhaniakhali saree takes about 3-4 days on average to be prepared. It was not possible to make 50 pieces of the same available in a month. This resulted in a conflict with the Amazon staff as they could not meet the demands set. Strict return policies, unfair competition, maintaining an inventory and managing online operations are major hurdles preventing weavers and collectives from fostering a healthy relationship with the global retail marketplaces.



Photo Credit: Eisha Choudhary

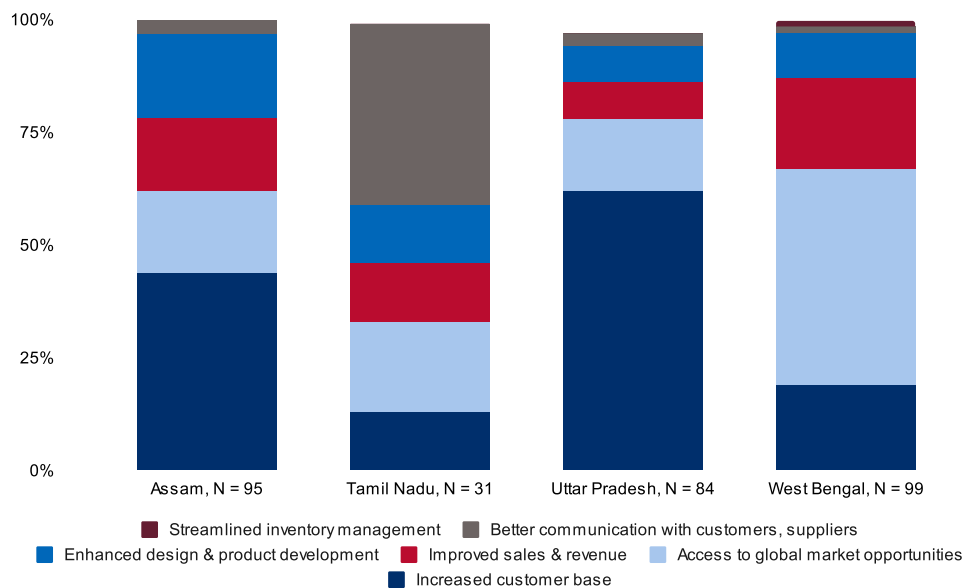
# 5. Opportunities for Digital Adoption in Handloom Collectives

48 per cent of collectives have computers in their offices, but only 34 per cent reported using them. Tamil Nadu reported the highest at 97 per cent, and Assam the lowest at 14 per cent. Among 104 collectives who use computer, majority of them (88 per cent) use it for record keeping.

## 5.1 Collectives' Inclination to Digital Adoption

48 per cent of collectives have computers in their offices, but only 34 per cent reported using them. Tamil Nadu reported the highest at 97 per cent, and Assam the lowest at 14 per cent. Among 104 collectives who use computer, majority of them (88 per cent) use it for record keeping. A very small proportion of them use it for website maintenance (seven per cent), social media (five per cent), and e-commerce (three per cent).

58 per cent of enterprises believe that digital tools can help in the operations and functioning of the cooperative society. Overall, 35 per cent of enterprises thought that digital tools could help them in increasing their market reach and customer base.



**Figure 10: Opportunities for digital tools in collective enterprises (N=309); LEAD Handloom Sector Digitalization Survey of Collectives (October-November, 2023)**

Among the states, 62 per cent in Uttar Pradesh and 44 per cent in Assam recorded higher responses for market and customer base expansion. Along the same lines was the response around digital tools helping cooperatives reach global markets. Notably, better communication with customers and suppliers was seen as a potential benefit of digital adoption among collectives in Tamil Nadu at 40 per cent, much higher than the overall 6 per cent. Interestingly, a negligible number of cooperatives across the four states believed streamlining of inventory management as a benefit of digital adoption.

### Case Study: Learnings from Co-optex

The Tamil Nadu Handloom Weavers' Co-operative Society Limited, under the brand name of Co-optex was registered as a State Level Co-operative Organization in the year 1935. Co-optex, the biggest apex society in the handloom sector in India markets handloom products through its 150 showrooms spread all over the country. Digital shift has proven to be a game changer for Co-optex.

#### Key Digital Efforts:

- Co-optex has in place an ERP application with the support of the Ministry of Electronics and Information Technology, Government of India for improved operational efficiency and ensuring better management of resources. In this ERP, the entire supply chain, right from the product procurement to the billing in the showroom, is digitalized. Several activities using this ERP system are undertaken digitally, including production plan based on the previous sales data and current stock availability, procurement plan based on the products requirement period (season wise procurement), placing purchase order to handloom societies across Tamil Nadu, invoice generation from the handloom societies, procurement of quality checked products in warehouse, generation of unique QR code for each product to track and trace, showroom billing application that covers end-to-end operations in a showroom, including accounting of Co-optex.
- Co-optex has its own e-commerce website and mobile application (suitable for both android & iOS). It includes the end user e-commerce app, and the product selection app for the purchase managers.
- A user login is provided for all the weavers' societies that are registered as members with Co-optex. Through this web ERP application, they raise the invoice for the supplied goods, track the payment status of the submitted invoices, and get the MIS reports based on their requirements.
- Expanding e-commerce across 150 showrooms. Initially, there was a dedicated e-commerce showroom exclusively earmarked for e-commerce sales. January 2024 onwards, Co-optex has encouraged all 150 showrooms to venture into online selling. The existing website is modified to accommodate the onboarding of as many showrooms as possible. The static IP addresses were obtained from internet service providers (isp) for this purpose. The existing staff can take a snapshot and upload it on the website. In January, 2024, Co-optex reported a sale of more than INR 7 lakh (~ USD 8500) through its e-commerce platform, which was 465 times higher than its sales through physical stores in the month.

#### Incentivizing Approach:

- To appreciate and motivate the staff at the Co-optex showroom to continue their effort in digital adoption, the Co-optex management has introduced an incentive program that gives them a cash bonus for every upload and every sale done through the online portal. On 21 February 2024, Co-optex wrote to their staff that if a showroom staff uploads one product's photo from their showroom online, they will be given INR 10 (~USD 0.12) for it. The aim is to bring as many products as possible to the online portal. The staff is also given another INR 10 for each product they sell online.
- The aim of incentivizing is to motivate the staff at the showrooms to go digital. Apart from this, every day the top three salespersons are appreciated through a personal voice note by The Managing Director, Co-optex, in the society's staff WhatsApp group that acts as an encouragement for them to continue doing good work.

**- Author's Interview with Mr Anandakumar, Managing Director, Co-optex and Mr Ravi, General Manager, Co-optex**



# 6. Recommendations

This section discusses implications and recommendations for policy makers and key stakeholders based on the findings of the study. The recommendations are provided at three distinct levels - program, process, and policy.

- a. The program-level recommendations are targeted towards public and private players, including NGOs, and civil society organizations, CSRs that directly engage with weavers on the ground.
- b. Process-level recommendations are targeted towards both ground-level implementation organizations as well as local administrative bodies (district and state governments) that can enable the local ecosystem to support a hassle-free digital adoption journey for weavers and enterprises.
- c. The policy recommendations are focused on actors involved in the national level policy and decision making. The recommendations aim to shape policy discussion towards more weaver and handloom friendly schemes.

## 6.1 Program-Level Recommendations

### **A. Incentivize and train the next generation within the weaving communities to adopt digital approaches to aid knowledge transfer and maintain cultural sustainability.**

- Introduce leadership training programs for key members and managers of collective enterprises in partnership with social businesses and other stakeholders to improve their digital vocabulary, their exposure to market trends, and access to networks. These can be delivered via hyper-local incubators designed to train a young generation of community leaders across diverse areas of expertise relevant to handloom production.
- Support the scaling of existing artisan-entrepreneurship training approaches like Somaiya Kala Vidya, Handloom School, Antaran, Indian Institute of Craft and Design (Jaipur) and many others. Often, programmatic pathways designed by ecosystem actors and intermediaries prioritize the digital shift as a key part of training and support delivered to artisans and weavers, respecting the cultural nuances of the community.
- Holistic approaches to identify and groom next-gen weaver entrepreneurs and youth to enhance aspirational mobility can drive a much-needed perception shift. These should include exposure to new technologies - YouTube, WhatsApp, and virtual connectivity apps like Zoom and others - that allow for real-time communication and collaboration. There is also merit in introducing creativity-enhancing technologies like computer-aided design, online template editors for graphics and social media, and platforms for storytelling.

### **B. Design and tailor culturally sensitive and context-specific digital literacy and vocational training programs for better inclusion of indigenous groups. This should include ‘ease of going digital’ through weaver-friendly digital platforms.**

- Digital inclusion efforts for weavers must move beyond one-size-fits-all solutions and embrace cultural sensitivity and intersectionality. Engaging weavers within their hyper-local cultures, considering their socio-economic landscape, and acknowledging diverse values and practices are essential for program success.

*“Digital Empowerment Foundation’s new approach for the artisan cluster is to make them and their artwork “a destination”. Every artisan cluster is unique, including their work, art, techniques, products, stories, and problems. DEF works by integrating the digital tools in the artisan cluster through societies and groups of hyper-local families and communities of practice, where they adopt digital tools in a cultural manner.”*

**- Osama Manzer (CEO, Digital Empowerment Foundation)**

Building trust within these communities would require understanding the community's preferences. For example, many weavers prioritize training in their own language by trusted community members (Building Empathy with Artisans 2020).

- Interventions that incentivize “train-the-trainer” models and vocational training (with exposure to digital) can empower community members and create local jobs while building lasting capacity. Co-creating such approaches with local community leaders, cooperatives, and collective enterprises would foster trust and ensure interventions align with community values.
- To ensure ‘the ease of going digital’ any platform’s interface design supported by multilingual access needs to be prioritized. Platforms designed to support communities in the handloom sector should simplify the onboarding, provide clear guidelines on product specifications, and enable the use of online central databases for procurement of good quality raw materials. Given that weavers belong to indigenous groups, language barriers need to be addressed in order to motivate collectives to utilize government-led initiatives and e-marketplaces.

## 6.2 Process-Level Recommendations

**Prioritize inclusion of women and marginalized communities by adopting holistic approaches to digital adoption and media literacy that address systemic barriers.**

- Digitalization of women-powered weaving collectives can be achieved through region-specific CSR mandates or outcome-linked financing for social businesses. This approach fosters collective progress, accelerating digital adoption, and boosting digital literacy, knowledge, and overall development among women weavers.
- Given that all-pervasive literacy barriers can impact digital adoption, processes need to be designed to include best practices to mobile media usage, e-commerce transactions and safe behaviors online.

## 6.3 Policy Level Recommendations

**A. Incentivize low-cost digital infrastructure and tech solutions for rural weaving communities through different channels.**

Low-cost digital infrastructure and tech solutions can be extended to the weaving communities via:

- Empowering cooperatives by offering subsidies on raw materials, coupled with training programs to primary weaver cooperatives, SHGs, and producer companies. These efforts can be aligned to existing digitization efforts for Primary Agricultural Societies (PACs), by equipping them with computers, smartphones, tablets, and internet access.
- Prioritizing rural and remote regions to expand access to digital infrastructure and internet connectivity. Policies focused on access to low-cost digital infrastructure can play a key role in incentivizing underserved weaving communities in improving their quality of work.
- Supporting aggregation and dissemination of information on low-tech innovations and emerging technologies, like ergonomic chairs, solar-powered looms and other tech-led efficiency solutions that make weaving less labor-intensive and onerous. Public good, knowledge-sharing platforms should centralize access to research around emerging high-tech and low-tech solutions from institutions like the Indian Institute of Technology, the National Institute of Fashion Technology, the National Institute of Design, and the Indian Institute of Management and incentivize their adoption by diverse stakeholders as well as weaver collectives.

*“E-commerce is only the front end of the business. Many organizations/cooperatives do not even sell online. To drive digitalization of the cooperatives, it is important to focus on strengthening the backend with digital tools. The digitalization at the front end becomes ineffective if the back end is not integrated with digital technology.”*

**- Siva Devireddy (Founder, GoCoop)**

## **B. Strengthen the back-end with digital tools by incentivizing public-private partnerships.**

Policy efforts for promoting digital adoption among weavers such as launching of the indiahandmade.in website, government e-marketplace (GeM) and e-saras, are largely aimed at the front end of the spectrum i.e. the marketing and selling of the final products online. Digitalization to fortify and streamline the back-end infrastructure of the handloom sector can be accelerated if there is a greater push to:

- Create public-private partnerships with intermediaries, ecosystem enablers as well as start-up incubators to catalyze the digital shift. Incentivize social businesses to develop and deploy affordable digital tools and infrastructure, and partner with collectives to bring in best practices around digitalizing their operations, developing and providing easy-to-access ERP and MIS systems to seek timely information and ensure transparency in service delivery.
- Incentivize large conglomerates, foundations, and philanthropic actors to adopt underserved weaving clusters and handloom collectives, and invest towards designing and delivering digital infrastructure and literacy coupled with 360-degree learning and education.
- Design procurement and support policies through global retail conglomerates like Amazon, Flipkart and many others keeping in mind local socio-economic and cultural challenges. Simultaneously, members of cooperatives and collectives need to be supported and incentivized to adapt to changing market demands, where possible, and thereby forge a fruitful partnership with larger marketplaces.

## **C. Build an enabling legal environment to catalyze market-ready collectives, and align national and regional strategies to deliver digital-first, single-window access.**

- The current governance structure, with handlooms and handicrafts lumped under the Ministry of Textiles umbrella, hinders focused efforts. Establishing a dedicated Ministry for Creative Manufacturing and Handmade would enable better alignment of policies and priorities across the diversity of craft forms and cultures as well as departments and ministries linked to handmade, and specifically to handlooms as the challenges and opportunities are similar.
- Leverage digital tools to create a streamlined, "single window" access point/platform across diverse ministries. Aggregating and delivering information, guidelines, and compliance requirements around schemes, social protections, and opportunities to secure capital - interest-free loans, grants, and awards - for handloom collectives and weavers will also enhance digital adoption. Simplifying the application process and ensuring clarity around terms of engagement are crucial to encourage participation. This, coupled with an easy-to-use, multilingual app or chatbot, would empower collectives to bypass intermediaries and directly access support.
- Draw from the global discourse and best practices around platform cooperatives<sup>9</sup> and Alternative Ownership Enterprises (AOEs) to decentralize and democratize power while creating agency for rural collectives and weavers. To do so, it is necessary to align legal frameworks and structures with a goal to professionalize the existing infrastructure of collectives - cooperatives, producer companies and SHGs - to become market-ready and resilient as part of the Ministry of Cooperation's future directions and recommendations. Supportive policies will also ensure the active participation of handloom collectives and their weavers on Open Network for Digital Commerce (ONDC) that aims to accelerate e-commerce adoption "through an open protocol based on open-source specifications" (ONDC, 2022).
- Incentivize primary weavers' cooperative societies to register with state-level Apex handloom bodies that support and direct the functions of collectives. This will help decentralize digital adoption among collective enterprises across diverse states. State Apex marketing societies need to be incentivized to digitize their operations and need to replicate best practices from diverse states. For example - Co-optex in Tamil Nadu.

# 7. Conclusion

Collective enterprises in the handloom sector play a crucial role in enhancing productivity by undertaking collective production, formalizing India's unorganized workforce, enabling women to realize their potential and agency, and contributing to organized supply chains. Despite their immense potential, most of the collectives are struggling to support weavers and their families in accessing decent wages, securing better prices for handloom products, and promoting digital adoption. If digital transformation has aided a new economy of consumers for the handloom sector, its benefits haven't yet filtered down to the communities linked to it.

The challenges faced by these collectives are many - decreasing interest among younger generations to engage in weaving, lack of aspirational and career mobility for weavers, discontinuation of insurance and incentives-based schemes, demand for their products restricted to local markets only, and lack of digital infrastructure and context-specific digital training. The history of cooperative movement in the country validates some of these claims though emphasizes the untapped potential of the massive infrastructure of collectives to transform and bring social change within the rural weaving communities. Now, more than ever, there is an urgent need to fortify the back-end infrastructure of the handloom sector to build the production efficiency needed to drive scale and growth within collective enterprises.

Despite several schemes and initiatives from the Central and State governments, there is a significant policy gap in addressing digital needs and barriers within the handloom sector. Adapting the right policies and bringing change in the operations and governance of the cooperatives have shown that cooperatives can achieve greater business heights. For example, the Tamil Nadu based Co-optex, which emphasized on adopting a good digital presence, brought in design innovations and asserted its physical presence through exhibitions collectively resulting in its revival (Raman, 2017). While digitalization efforts can no doubt close information gaps, enhance awareness and build greater agency among communities, such digital and high-tech approaches need to be supported with low-tech infrastructure (e.g. ergonomic chairs) that makes weaving less labor-intensive and onerous.

In the absence of innovation, incentives from the government to undertake handloom production, and lack of potential collaborations with private players, the cooperatives struggle to set a growing business trajectory for themselves. Now is the time to think about alternate models and legal structures for MSMEs emerging in Creative Manufacturing and Handmade that can support cooperatives to achieve business efficiency while being true to its values of equal participation and equal share for all.

With the use of technology and digital tools becoming all-pervasive, policies for the future of the cultural economy will also have to factor in considerations for responsible digital and media literacy. This necessitates framing and outlining the contours and boundaries of technology-aided development in the context of creativity and culture, and building in safeguards to prevent the misuse or misappropriation of community knowledge systems by mainstream commercial actors, evidence of which is already emerging across the ecosystem.

With a rich history spanning over 3000 years, handloom textile production and allied activities sit at the heart of the opportunity that 'Handmade in India' presents. By bridging the gaps in governance and resource access through the strategic application of technology, we can create a more enabling environment for handloom collectives to professionalize and operate as market-ready enterprises in their own right. As highlighted in the report, social businesses are willing to support collectives and lead a collaborative effort to sustain the handloom sector. Public-Private-Community partnerships can accelerate digital adoption at the grassroots and sustain the sector going forward. The digital transformation that the collectives desperately need can only happen when the policy around digitalization is framed on the three principles - right to access, right to knowledge and information and right to development in the digital age.

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# Glossary

Term	Meaning
Creative Manufacturing and Handmade	Creative Manufacturing and Handmade (CMH) employs decentralized, often non-automated modes of production rooted in creativity, culture and craftsmanship, and encompasses a wide range of economic activities across the farm-to-consumer value chain, including small-batch production and boutique manufacturing, while relying heavily on renewable agricultural inputs. CMH works across fashion, home-decor and lifestyle, e-commerce and retail, craft-tech, culture-tech etc. <b>(Business of Handmade, 2023)</b> .
Digitalization	Digitalization describes a host of transformations that are reshaping how business is done, including low-cost, global communications and networking; platform-based business models; virtual and integrated supply chains; innovative finance; automation; big data; and artificial intelligence <b>(Centre for Inclusive Growth, 2021)</b> .
Digital Ecosystem	A digital ecosystem is a network of people and organizations, connected by digital technology, often with a core, called a platform <b>(Baldwin and Woodard, 2008)</b> .
Handloom	Within the handloom ecosystem, any loom other than powerloom <b>(Handlooms Reservation of Articles for Production Act, 1985)</b>
Self Help Group	A Self-Help Group (SHG) is an informal community-based association of 10-20 women from similar socio-economic backgrounds. Each SHG is given a unique ID and name for identification. The group functions as a financial intermediary for savings and credit, as well as a platform to advocate for local issues.
Primary Weavers Cooperative Society	A voluntary, autonomous association of individuals/producers operating under a single brand name to leverage collective bargaining, sell products and share profits.
Producer Company	Under the Companies Act 2013 in India, farmer and artisan cooperatives were allowed to function as corporate entities known as Producer Companies or FPCs. Owned and governed by the shareholders, they are administered by professional managers; members are able to leverage collective bargaining to access financial and non-financial inputs/ services, and reduce costs. <b>(Government of India, 2013)</b>
Allied Worker	A member undertaking pre-loom and/or post-loom work within the premises of the house or outside the household premises. The allied activities include pre-loom activities like winding, warping, dyeing, tying and dyeing, sizing, loom setting and manual card punching <b>(GOI Handloom Census, 2019)</b>
MSME	The <b>Government of India</b> defines micro, small, and medium enterprises (MSME) on the basis of investment (plant/machinery/ equipment) and annual turnover upperlimit. Micro: Investment – INR 1 crore and Turnover – INR 5 crores Small: Investment – INR 10 crores and Turnover – INR 50 crores Medium: Investment – INR 50 crores and Turnover – INR 250 crores As formal enterprises, MSMEs can avail of benefits such as subsidies on patent registration, electricity bills, and collateral-free loans. Most crafts-based enterprises/startups tend to fall within the MSME category. However, they are often left behind because their requirement for capital, approach to labor relationships, etc. differ significantly from other formal enterprises.
Gender Digital Divide	The gender digital divide primarily refers to the gender divide in access and use of digital technologies and the internet.

# Endnotes

1 <https://www.aiacaonline.org/what-we-do/#DIGITAL-EMPOWERMENT>

2 <https://www.creativedignity.org/programme/dynamic-databases/>

3 Quota sampling is a type of convenience sampling to recruit participants, until the proportions in each subgroup match with the desired proportion.

4 The 11 variables on digital tools and devices include: Use Computer, Access to Internet, Dedicated Smartphone for CS/PC, Use Digital Payments App, Use of online inventory management app, maintaining digital accounts, existence of CS/PC's website, CS/PC having a Facebook page, use of WhatsApp, use of e-commerce, and use of other online platforms

5 NEFT (National Electronic Funds Transfer) is a payment system where the settlement of funds takes place in half-hourly batches. RTGS (Real-Time Gross Settlement) a payment system of continuous and real-time settlement of fund transfers. RTGS is preferred for urgent transfer of large amounts. NEFT is preferred for transfers that are not time-sensitive.

6 "Mahajan" refers to the local moneylender, often a bigger merchant that provides credit to small businesses within the community.

7 To quantify digital adoption among weavers, we have used the following eight indicators from the LEAD handloom sector survey of weavers: Smartphone ownership (personal), Smartphone access in the house, Use of Smartphone for work, Access to Computer, Use of Digital Payments, Use of WhatsApp, Use of Social Media Platforms such as Facebook, Instagram, Twitter. To define digital adoption levels among weavers, a composite index was constructed using principal component analysis (PCA) technique based on the above-mentioned variables. In the PCA method, each variable is assigned a weight and the standardized variables are multiplied by the weights and summed to produce the digital adoption index. The first principal component, explaining 44 per cent of the total variation in the data, was considered as the digital adoption index. Based on the index the weavers were divided into quintiles, having the least, low, medium, higher, and highest levels of digital adoption behavior. A logistic regression method is used to identify the background characteristics of a weaver that plays a significant role in determining their behavior towards digital adoption. For this purpose, we define our outcome variable as a binary variable which takes on a value of 1 if the index suggests that the weaver belongs to either the higher or highest level of digital levels; if the weaver belongs to the lowest three categories, the variable takes on the value of 0.

8 To define vulnerabilities, we considered weaver's background characteristics such as age, gender, caste, religion, and education.

9 Platform cooperatives, according to Platform Cooperativism Consortium, are "businesses that sell goods or services primarily through a website, mobile app, or protocol. They include blockchain-based, distributed cooperatives and social media cooperatives with multiple stakeholders: platforms owned by users and workers alike".



