Understanding the impact of digital assets on women in the informal service sector

About the Publication

This report is the product of a qualitative study conducted for UN Women India and SEWA, by a team of experienced researchers from Sattva Consulting during the period of October 2019 to February 2020. The team was led by Aarti Mohan and Swati Kumari. Data collection and research were undertaken by Kriti Barman who was assisted by Kunal Raj Barua. Sansiddha Pani provided support in analysis of national survey datasets. The report was authored by Kriti Barman.

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Contents

Abbreviations

AI	Artificial intelligence
ANM	Auxiliary Nursing Midwife
ASHA	Accredited Social Health Activist
B2B	Business-to-business
B2C	Business-to-consumer
B2G	Business-to-government
BBC	British Broadcasting Corporation
BPO	Business Process Outsourcing
CAGR	Compound annual growth rate
CSO	Civil Society Organization
CSR	Corporate social responsibility
DPIIT	Department for Promotion of Industry and Internal Trade
Estb.	Established
EY	Ernst and Young
F&B	Food and Beverage
FGD	Focus Group Discussion
FY	Financial Year
GDP	Gross Domestic Product
GeM	Government E-Marketplace
GoI	Government of India
GST (IN)	Goods and Service Tax (Identification Number)
GVA	Gross Value Added
HLP	High Level Panel
HR	Human Resources
IBEF	India Brand Equity Foundation

ICT	Information and Communications Technology
IDR	India Development Review
ILO	International Labour Organization
INR	Indian National Rupee
IT-BPM	Information Technology-Business Process Management
ITeS	Information Technology- enabled Services
KII	Key Informant Interview
LSM	Lok Swasthya Mandali
MIS	Management information system
MSME	Micro, Small and Medium Enterprises
NDLM	National Digital Literacy Mission
NRHM	National Rural Health Mission
NSFV	Not Safe for Viewing
NSS	National Sample Survey
NUHM	National Urban Health Mission
OAE	Own Account Enterprise
OT	Operation Theatre
PLFS	Periodic Labour Force Survey
POSHAN	Prime Minister's Overarching Scheme for Holistic Nourishment
SEO	Search engine optimization
SEWA	Self Employed Women's Association
SIFPSA	State Innovations in Family Planning Services Project Agency
SOS	Si Optus Sit – if needed in emergencies
SSI	Semi-Structured Interviews
SSP	Swayam Shikshan Prayog
UN	United Nations
UNDP	United Nations Development Programme
UNHLP	United Nations High Level Panel
USD	United States Dollar
VLE	Village Level Entrepreneur
WEE	Women's Economic Empowerment

EXECUTIVE SUMMARY

Introduction

India has a very low female labour force participation rate, currently only 26 per cent, and it is highly informal even in the non-agricultural sector. An analysis of the Periodic Labour Force Survey (PLFS) 2017–18 reveals high informalization and casualization of women's work. The service sector shows the potential to employ women in regular and formal work. However, enterprises in the unincorporated services sector continue to operate at the household level and engage women in unpaid and irregular work. The occupational data reveals that women are relegated to elementary job roles in the service sector, limiting their agency and economic advancement.

Recent studies suggest that the digital revolution will address the inefficiencies of the unorganized sector, formalize work engagements and increase employment/income-generation opportunities available to women. The growth in the services sector due to digitization provides scope for women in the informal economy to attain gainful livelihoods through the adoption of digital assets. Engagement with digital platforms has also proven to address challenges faced by women entrepreneurs by according women flexibility of time and mobility, facilitating access to open marketplaces, providing information symmetry and creating linkages to niche markets.

The Secretary-General's High Level Panel (HLP) has identified seven drivers which can address systemic barriers to women's economic empowerment. The identified driver 4 focuses on building digital, financial and property assets. The HLP Working Group identifies digital inclusion as a continuum mapped in terms of access, affordability, awareness and adoption.

Digital assets have been categorized into three segments by the UNHLP:

1. as mediums for direct access to markets and work opportunities
2. as resources enabling livelihoods
3. as enablers to economic empowerment

The present study seeks to understand how myriad levers provided to women workers and entrepreneurs by digital mediums, resources and enablers can enable their upward mobility in the services sector. The study throws light on various barriers and enablers impacting the adoption of digital assets by women.

As a way forward, this research consolidates recommendations to guide a digital engagement strategy that can enable women to cross the digital continuum and utilize digital assets to attain sustainable livelihood opportunities.

Methodology

In line with the study objectives, seven service sector industries were chosen for an in-depth analysis of the scope for scalability of women's livelihood through the adoption of digital assets. The selection of these industries was done based on the concentration of informal women workers in these industries, the identified scope of growth due to digitization and in consultation with Self Employed Women's Association (SEWA) to determine priority industries for intervention. The following industries were studied for the research:

Retail

Food & Beverage

Healthcare

Personal Services

I.C.T & Research

Public Transport

Waste Management

The study followed a purposive sampling technique to select supply-side stakeholders engaging with women and demand-side platforms employing women in the services sector. Key Informant Interviews (KIIs) were conducted with:

1. **20** representatives from digital and offline service sector platforms,
2. **2** representatives from research bodies
3. **3** online job portal executives, and
4. **3** representatives of civil society organizations (CSO)

Five semi-structured interviews (SSIs) were conducted with managers of cooperatives from SEWA in Ahmedabad and Delhi and **three focus group discussions** (FGDs) with women from SEWA collectives. Findings from all sources and methods were confirmed, corroborated and cross-validated concurrently during the data-collection stage and triangulated during analysis.

Concurrently, secondary research was done to conduct a landscaping exercise for identifying digital platforms in the selected service sector industries and explore cross-cutting themes and issues for analysis on the barriers and enablers to women's adoption of digital assets.

Key findings

Impact of digital assets for women in the service sector

Within the service sector, digital assets enable women to reach wider markets, directly attain work opportunities, access information/communication avenues and skilling resources. Digital enablers enhance the ease of conducting service work:

- **Digital mediums** enhance market linkages for women and accord flexibility in transaction, enabling women workers and entrepreneurs to directly transact with a vast market through business-to-business (B2B), business-to-consumer (B2C) and business-to-government (B2G) aggregators. Online marketplaces also provide market scanning options for low-cost procurement and higher visibility for attaining work.
- **Digital resources** provide training and upskilling avenues, allow for information discovery, demand projection, marketing and communication. Digital financial tech resources also enable women to have higher control over their income.
- **Digital enablers** offer operational support through MIS applications and dashboards for data collection, storage, monitoring and analysis. In addition, digital enablers such as navigation and

geo-mapping, SOS applications provide women mobility and safety support.

In the **food and beverage (F&B) service industry**, the exponential growth of food-tech (online food ordering) has organized the unorganized F&B industry, rapidly expanding into non-metro markets and levelling the field for small-scale kitchens/caterers. This has created scope for women to pursue entrepreneurship opportunities as operators of cloud kitchens.

- The F&B service industry currently absorbs the second highest share, i.e. 13 per cent, of 'other' unpaid female workers, with 47 per cent women in unincorporated F&B service industry units working without any regular wages. The highest percentage of women (37 per cent) in the F&B service industry (formal and informal) work as housekeeping/restaurant service workers.
- The growth of food-tech through digital aggregators such as Swiggy Daily and Zomato and high demand for home-cooked food in metro cities has created scope for women in the informal F&B sector to upskill themselves and tap into work opportunities as tiffin service providers and home chefs supplying through online aggregators.

The highly informalized **personal services industry** stands to attain a semblance of formality with the rise in start-ups within this industry that are providing hyperlocal services, growing at a higher rate than other e-commerce segments.

- In the informal personal service industry, 43 per cent of women are own account workers. Across the formal and informal personal services industry, the highest percentage of women, i.e. 55 per cent, are domestic helpers and launderers. Women have traditionally been concentrated in the dry-cleaning and hairdressing subsectors of the industry.
- With the growth of digital aggregators, marketplaces and placement intermediaries in this industry, women can attain flexible and higher-paying work as freelance beauticians, massage therapists, deep cleaners and maintenance workers. Digital marketing resources and listing platforms provide opportunities to women-owned enterprises in the beauty and home-care subsectors to improve market linkages.

With the growth in **e-retail and ancillary logistics services**, women in informal retail value chains can seek better livelihood opportunities. E-retail is projected to formalize previously informal job roles providing productive employment for women in traditional retail value chains.

- While 40 per cent of women in the retail industry are own account working owners, 42 per cent women work as unpaid/irregular household-level workers. Retail absorbs the highest share of unpaid/irregular female workers in India, who work without any regular salary or remain unpaid. The most common occupation among women in the retail sector (formal and informal) is that of a shop salesperson/demonstrator (conducted by 49 per cent of women).
- Within e-retail, B2B and B2G aggregators and marketplaces offer women entrepreneurs the opportunity to

transact in high average order values. Women entrepreneurs and workers can plug into profitable retail value chains as white-label resellers and last-mile logistics and delivery service providers.

With the advent of e-health and m-health, livelihood generation in the **health-care industry** would be driven by growth in the home health care segment and by the requirement for hospital technicians and digitally trained front-line workers.

- Health care is one of the most productive industries in India. Unlike informal enterprises in all other industries, in health care 32 per cent women are formally employed and only 5 per cent women are employed as unpaid/irregular household-level workers. The occupation-level data (formal and informal sector) reveals that a majority of women (44 per cent) are in elementary or intermediate job roles working as nurses or midwives. However, women are not present in specialized enterprises in the unincorporated sector offering nursing, massage, physiotherapy or paramedical services.
- Digital mediums in the home health-care segment onboard women trained as bedside assistants, nursing assistants and geriatric care workers, allowing them to attain longer-term placements. M-health devices digitally enable front-line health workers, reducing drudgery in health data collection, analysis and monitoring through inbuilt dashboards and health tracking tools.

The growth of online cab aggregators and increasing passenger safety concerns have opened up the scope for women to be employed as drivers and chauffeurs in the **public transport** industry.

- In the unincorporated transport industry, 30 per cent of women are unpaid/irregular household-level workers concentrated in the freight transport subsector. Only 6 per cent of women in the industry work as drivers. The most common occupations for women in the industry (formal and informal) are those of guides, cashiers and clerks.
- Digital assets in the public transport industry provide women with market linkages to obtain higher paid on-demand work and with support resources for navigation and digital transactions. Upskilling of women in unproductive job roles within the industry could enable them to attain work as drivers through niche women-only online aggregators such as Taxshe.

With the growth in artificial intelligence (AI), there is growing scope for women to tap into low- to medium-skilled roles in the data annotation, labelling and cataloguing industry in the BPO and **IT-enabled service sector.**

- Only 0.1 per cent of women work in the unincorporated information services industry. However, the industry offers better conditions of employment than all other industries, with only 4 per cent women working as unpaid/irregular workers. Significantly, 15 per cent of women in the unincorporated IT sector are entrepreneurs with establishments, who work with hired employees. Women are mostly concentrated in cybercafes as computer associates and professionals.

- With the growth in AI, the need for human-led AI quality control and data annotation has increased, creating scope for women to attain entry-level work in data tagging as freelancers or full-time data annotators in aggregator companies such as IndiVillage and IMerit. Digital assets in ITeS can allow women to upskill themselves in line with the requirements of the industry enabling them to seek work through online job portals.

With growing concerns of dignity of work, climate change and an increasing push towards sustainability, organizations in the **waste management industry** are seeking to digitize and formalize the informal waste-picking value chain and improve profitability for waste-pickers and recyclers.

- In the waste management industry, 54 per cent of women are engaged as self-employed waste-pickers working on their own. A significant number of women work as garbage collectors in other industries, notably in health care, collecting biomedical waste and in the personal services industry picking household waste. The majority of informal women workers are present in the materials recovery subsector.
- The digitization of recycling value chains can enhance the scope for women to be gainfully employed as waste recyclers, providing them an opportunity to generate profits from value added transactions and achieve dignity of work. Platforms like 'I Got Garbage' (a mobile-based online marketplace) an initiative by Mindtree.org, provide waste-pickers and waste-picking units technical training and support with microactivities like payments and invoicing, waste collection, vehicle tracking, workforce management, etc.

Factors impacting women's adoption of digital assets

Barriers

Issues such as unethical practices adopted by platforms, low policy enforcement and normative constraints limit women from benefiting from the digital transformation. The low viability of transactions on online platforms, and resources and skill gaps, dissuade women from participating in the digital economy and utilizing digital assets for gainful livelihoods. Some of the specific barriers impacting women's access to and adoption of digital assets are:

- Digital platforms follow opaque, distortionary and unsupportive terms of engagement such as preferential treatment for suppliers and the absence of written contracts and employment benefits
- The interfaces of digital platforms are not customized or localized and the customer support for the use of applications and devices is inconsistent
- Absence of stringent regulatory enforcement for e-commerce and of an overarching policy framework to ensure the protection and safety of women service providers
- Mobility constraints for women, curtailing their agency to take up work far from their vicinity or commute long distances for on-demand work
- Non-conducive environment for women to use digital assets as a result of the 'double burden' of domestic responsibilities and sociocultural barriers limiting their access to smartphones and the Internet
- Limited viability of B2C e-commerce for micro, small and medium-size enterprises (MSMEs) due to low average order values and high logistics cost
- Low feasibility of customized placement service provision for women within the B2C business model
- Low smartphone access among the rural population and inconsistency in Internet connectivity
- Lack of access to steady capital and credit
- Lack of skills and resources available to women for effective engagement with online platforms, rendering them incapable of expanding operations to transact in B2B marketplaces, adopting dynamic pricing strategies and social media marketing etc.

Enablers

Certain enabling factors such as targeted policy impetus and user-friendly measures adopted by digital platforms are serving to bridge the digital divide for women and allowing them to effectively use digital assets. Some of the specific enablers include:

- 100 per cent foreign direct investment (FDI) in single-brand retail e-commerce marketplaces
- Goods and services tax (GST) implementation through a unified digital platform
- Microfinancing avenues and collateral-free loans under Mudra and Stand-Up India

- Digital delivery of government schemes through village-level Common Service Centres (CSC)
- B2G procurement and quotas for women-led MSMEs on Mahila e-Haat and the Government e-Marketplace (GeM)
- Exemption provided to MSMEs from paying bid security/earnest money deposit for government tenders and free registration on the GeM
- Convergence of skilling and livelihood interventions; selected digital platforms are associating with the National Skills Development Corporation (NSDC) and Sector Skill Councils (SSCs) to facilitate the certification of women service providers
- Government-led skilling initiatives such as DISHA, STEP, ASPIRE, SANKALP and Atal Innovation Mission
- Collectivization of women entrepreneurs and service providers and formation of self-help groups (SHG) that facilitate peer-to-peer learning and flow of information among women and improved savings and accumulation
- Certain platforms provide women entitlement benefits and user-friendly digital mediums that use symbol-based interfaces and mitigate the literacy/language barrier
- Digital literacy interventions that leverage internship- or volunteer-based training models

Key recommendations

Advocacy initiatives should focus on advancements in e-commerce policy to dissuade exploitative casualization/subcontracting; institute social security measures for women service providers; improve the process of government procurement from women-led enterprises; and enhance the skills training ecosystem. The specific advocacy initiatives required are:

- Subsuming of compliance regulations under the Contract Labour (Regulation and Abolition) Act, Competition Act and Labour Codes based on the 'control' and 'supervision' platforms exercise over service providers
- Implementation of the Social Security Code bill for unorganized and gig workers with strict rules regarding the share of contributions to be borne by the state and platforms towards the Employees' Provident Fund (EPF) and the Employees' State Insurance (ESI) Scheme
- Upgradation of skilling initiatives under the NSDC to help women attain transferable portfolio skills
- Collation of vernacular video-based learning content on the Skill India and NSDC website
- Proper implementation of the National Apprenticeship Promotion Scheme (NAPS) in Industrial Training Institutes (ITI) and Recognition of Prior Learning (RPL) scheme for women
- Creation of a cadre of community-level women digital facilitators under national-/state-led schemes
- Improvement of keyword optimization on the GeM portal and the provision of cataloguing/logistics support on GeM and Mahila e-Haat and buy-back guarantees for women-led MSMEs on GeM

- Mapping of network coverage across geographies and incentivizing state-led and private telecom companies to prioritize service delivery in areas with low network penetration
- Strengthening of CSCs under the National e-Governance Plan, expanding service provision to market research, digital literacy, résumé-building and online registration and licensing support for women-led MSMEs

Platforms must have conducive and fair terms of engagement for women service providers and the design of digital portals should allow women to effectively adopt assets. The following measures must be undertaken by digital platforms:

- Ensuring human-centred design of portals to establish user-friendly interfaces for women end users
- Embedding support facilities such as SOS/panic button into applications and vernacular-based help centres and video-based/live chat support on portals; and offline management information systems (MIS), cloud-based backup and m-wallets to maintain transparency in the calculation of remuneration
- Adherence to privacy considerations and ethical surveillance practices
- Transparency in engagement policies through written contracts with terms laid down for procurement and support service provision
- Provision of entitlement benefits through the issuance of microloans and health insurance by digital aggregators to women
- Uniformity in the provision of support services such as logistics and

warehousing to all vendors, regardless of scale of operations and/or gender

Community-level interventions must be undertaken by **CSOs** with a focus on increasing digital awareness and providing targeted skill training:

- Liaising with community-level opinion leaders to identify and address sociocultural barriers which limit women's adoption of digital assets
- Raising awareness among women regarding income-enhancement opportunities provided by digital assets to incentivize investment in smartphones
- Creating a cadre of community-level peer groups and knowledge leaders to promote digital literacy and awareness
- Providing immersive digital skill training to women through experiential and adaptive learning techniques, leveraging community-based resources (such as adolescents with basic digital literacy)
- Designing internship and volunteer-based interventions in partnership with experts and university students to train women in the use of social media marketing, photography, cataloguing and digital self-learning skills

CHAPTER 1

Background and context

1.1 Relevance of the research

Workforce participation rate for Indian women is 26 per cent[1]

54.8 per cent of women in non-agricultural industries are in the informal economy[2]

Most of the country's growth comes from services sector (9.7 per cent GDP growth compared to 0.7 per cent in agriculture)[3]

The growing digital economy in India could create 65 million new jobs by 2025[4]

Digital engagement efforts will be required to unlock the potential of women in India and facilitate their integration with the digital economy

India has a very low female labour force participation rate, which is currently only 26 per cent, and it remains highly informal even in the non-agricultural sector. The growth in the services sector due to digitization provides scope for women in the informal economy to attain gainful livelihoods through adoption of digital assets. This research aims to provide recommendations for a digital engagement strategy that can enable women to cross the digital continuum and attain sustainable livelihood opportunities.

The Sustainable Development Goal 5B highlights the importance of enhancing women's use of information and communications technology (ICT) to facilitate economic empowerment. The Secretary-General's High Level Panel (HLP) on Women's Economic Empowerment has identified seven drivers which can address systemic barriers to women's economic empowerment.

The identified driver 4 focuses on building digital, financial and property assets. The HLP Working Group identifies digital inclusion as a continuum mapped in terms of access, affordability, awareness and adoption.

As per this framework, women's participation in the digital economy begins at the adoption stage. The present study focuses on research into women's asset adoption and integration with the digital economy. In this context, improving women's adoption of digital assets requires an analysis into patterns of usage by women and

Figure 1.1: Seven drivers identified by UNHLP for women's economic empowerment

Source: UNHLP website

identification of enabling and inclusionary factors, which can be leveraged to facilitate adoption at scale.[5]

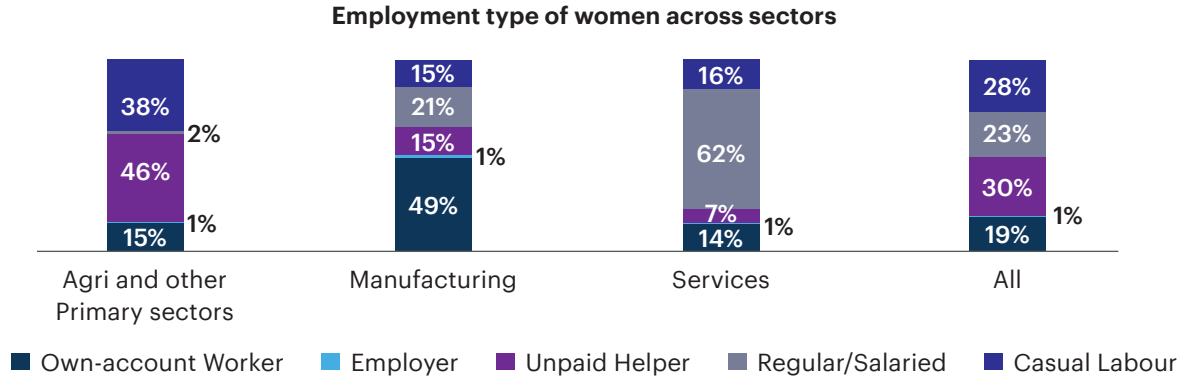
The UNHLP has categorized digital assets into (1) mediums for access to markets and livelihoods (through e-commerce platforms and applications); (2) resources that enable livelihoods, such as communication and finance tools and applications; and (3) enablers to economic empowerment, such as software applications that facilitate work management, safety and security.

The present study seeks to understand the impact of digital assets on women in the informal services sector and the interaction of each of the three segments of digital assets with women's work in the services sector.

1.2 Overview of women's workforce participation in the Indian economy

Women's workforce participation rate in India declined from 35 per cent in 2005 to 26 per cent in 2018.[6] An important factor is the increase in the number of women enrolled in

Chart 1.1: Employment type of women across sectors



Source: Analysis of NSS Periodic Labour Force Survey 2017–18

formal education,[7] which delays their entry into employment. Even accounting for that, there is cause for concern.

Women contribute a mere 17 per cent of the total economic output in India, among the lowest shares in the world and 50 per cent of the global average.[8] Due to the concentration of women in underproductive work, the gross value added (GVA) by them is low. Chart 1.1 highlights this phenomenon, underlining that overall the highest percentage of women, i.e. 30 per cent, are employed as unpaid helpers and 28 per cent are employed as casual labourers.

Research suggests that the demand for female workers has been shrinking due to the lack of livelihood opportunities available for women transitioning out of agriculture.[9]

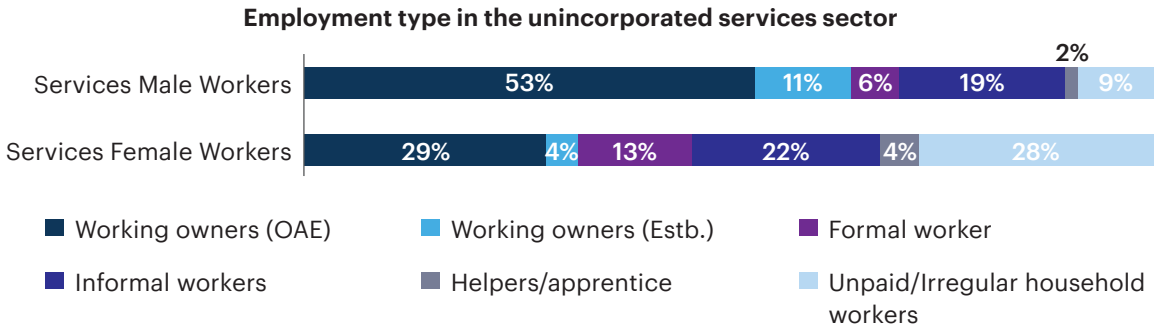
Women's participation in the service sector

Sector-specific data reveals that 62 per cent of women in the services sector are employed as regular workers. The services sector contributed 54.3 per cent to the national GVA in 2018–19. The sector has a high potential to absorb women transitioning out of agriculture, which had only a 14.4-per-cent share in the GVA in 2018/19.[10] The services sector has attracted significant foreign investment in recent years and provided large-scale employment,[11] but the terms of engagement remain unfavourable for women: 65 per cent of regular/salaried women workers do not have a written contract and 51 per cent of salaried workers are ineligible for receiving social security benefits.[12]

The type of women's employment in unincorporated enterprises in the service sector points to a grim scenario. Chart 1.2 underlines that 28 per cent of women (but only 9 per cent men) in the unincorporated service sector work as unpaid/irregular household workers. The rate of informalization is high for women, at 22 per cent. Among women enterprise owners, 29 per cent are women with Own Account Enterprises (OAE) who do not employ any hired worker. This trend is unsettling since among MSMEs such single-worker enterprises have the lowest labour productivity rate and generate little surplus value.[13]

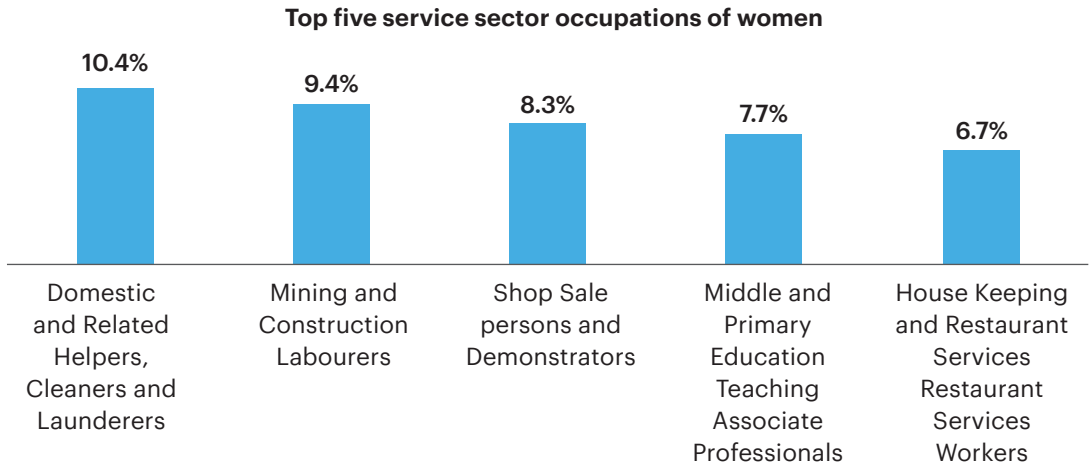
Occupational data reveals that women are relegated to elementary job roles that limit their agency and economic advancement

Chart 1.2: Type of employment in unincorporated service sector enterprises



Source: Analysis of NSS 73rd round)

Chart 1.3: Top five service sector occupations done by women (formal and informal)



Source: Analysis of NSS Periodic Labour Force Survey 2017–18

(Chart 1.3). Overall, the highest percentage, i.e. 26 per cent of women, are in elementary occupations. Women are concentrated in domestic work and cleaning/laundering (10.4 per cent).

1.3 Digitalization and the impact on women entrepreneurs and workers

Since the launch of Digital India in 2015, the country has been seeing the immense impact of digitization not only in terms of GDP growth and job creation but also in terms of the overall quality of life of citizens and access to jobs and educational opportunities. India is on a mission to completely embrace digitization. The government initiated the National Digital Literacy Mission (NDLM) with the vision to empower at least one person per household with crucial digital literacy skills by 2020. Expected to touch the lives of more than 250 million individuals over the next few years, digital literacy awareness, education and capacity programmes will enable women to fully participate in the global digital economy and leverage technology to enable positive change.[14] It is projected that the fourth industrial revolution with its culminative disruption in the field of digital technologies and e-commerce, will change the world of work.[15] It is estimated that 65 million new jobs will be created due to this digital revolution by 2025.[16]

In India, the scope of women to tap into economic opportunities as a result of digitization has shown potential, especially in the services sector. According to a report by Teamlease, the gig economy accounts for 1.4 million jobs in India, and approximately 56 per cent of new employment in India across both blue-collar and white-collar work is being generated by digital gig-economy enterprises. Women have found livelihood opportunities as delivery staff, drivers,

beauticians and maintenance workers, and their participation in sectors such as supply chain and retail has increased.[17]

Studies suggest that digital e-commerce platforms will address the inefficiencies of the unorganized sector and provide a semblance of formality to the market and increase employment/income-generation opportunities.[18] Previous research by Sattva highlights that e-commerce platforms have the potential to unlock sustainable livelihood opportunities for women. Engagement with digital platforms has been proven to address challenges faced by women entrepreneurs by facilitating access to open marketplaces, providing information symmetry and creating linkages to niche markets. E-commerce aggregators ease key supply-side barriers faced by women service providers by providing credit loans and technical/digital support. Often, engagement with digital platforms accords women flexibility in time and mobility and allows them to circumvent normative barriers.[19]

Digitalization can enable financial inclusion by improving women's access to low-cost, formal financial products and services and lead to easier credit appraisals and approvals based on their digital footprint and cumulative credit history.[20] However, 58 per cent of women in India lack mobile phone access,[21] and targeted digital engagement efforts are required to unlock the potential of women to utilize digital assets for sustainable livelihood opportunities.

The platform economy has evidently improved the economic engagement of high-skilled, higher-paid workers. However, the restructuring of non-standard work has also pointed to the risk of informalization as a result of competitiveness based on the availability of low-cost services, which leads to wage stickiness and the exploitation of low-skilled, low-paid workers.[22,23]

The highest percentage of women in the service sector work in elementary occupations. The current study aims to understand how myriad levers provided to women workers and entrepreneurs by digital mediums, resources and enablers can enable their upward mobility in the services sector and provide dignified livelihood opportunities in traditional and non-traditional sectors.

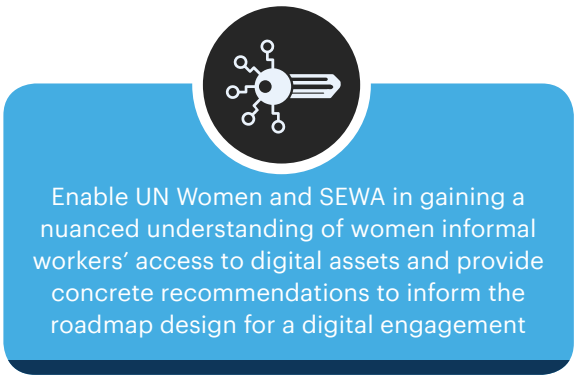
CHAPTER 2

Research approach and methodology

2.1 Study objectives

The research seeks to understand how the adoption of digital assets can help women in the informal economy attain gainful livelihoods in the service sector. The specific objectives of the study are mentioned below:

Figure 2.1: Key objectives of the research



2.2 Key research questions

To better understand the impact of digital technology on women in the informal sector, the study explored four key questions to drive and structure the research:

1. Many technology solutions are available in the services sector today; what is the landscape? What are the opportunities and challenges with regard to finding jobs, business and income growth opportunities for women in the informal sector?
2. What are the legal, regulatory, policy, socioeconomic and other barriers in women's access to and usage of technology? What enablers are required to generate entrepreneurial opportunities and jobs in the services sector for women in the informal economy and facilitate access to finance? Who are the stakeholders responsible for enabling women's inclusion in the digital economy?

3. Which are the key online placement agencies and digital solution enablers on the supply side? What role are they playing in meeting the demands for improving women's access to technology, specifically for better jobs, entrepreneurial opportunities and access to finance?

4. What are the characteristics of the key services sector industries and models? What economic opportunities do these industries offer women in the services sector?

2.3 Rationale for industry selection

In line with the study objectives, seven service sector industries were chosen for in-depth analysis into the scope for scalability of women's livelihood through adoption of digital assets. The three selection criteria were as follows:

Figure 2.2: List of criteria used for industry selection for this study

CRITERIA 1:
UNHLP guiding principle

Industries with a high share of informal women workers who remain outside the purview of formal entitlement benefits and have low agency and bargaining power

CRITERIA 2:
Projected growth scope

Industries with potential high scope for employment growth due to digitization

CRITERIA 3:
Priority industries for SEWA

(i) Industries where SEWA plans to scale up existing interventions

(ii) Industries where SEWA has identified opportunities to pilot interventions in the future

The industries that were selected based on the above criteria are:

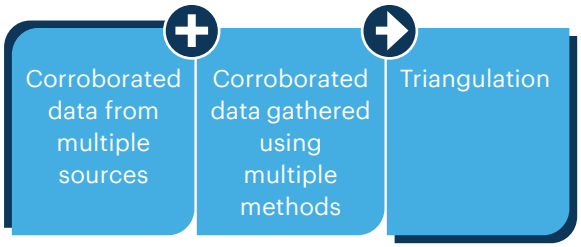
Table 2.1: List of selected industries divided according to the phase of the study

S. No.	Industry Name
1	Retail
2	Health care
3	F&B
4	Personal Services
5	ICT and Research
6	Public Transportation
7	Waste Management

2.4 Data-collection methodology

To meet the study objectives, data was collected on the key research questions. The study followed a purposive sampling technique to select stakeholders working with women in the informal services sector. Key informant interviews (KII), semi-structured interviews (SSI) and focus group discussions (FGD) were conducted with the selected stakeholders.

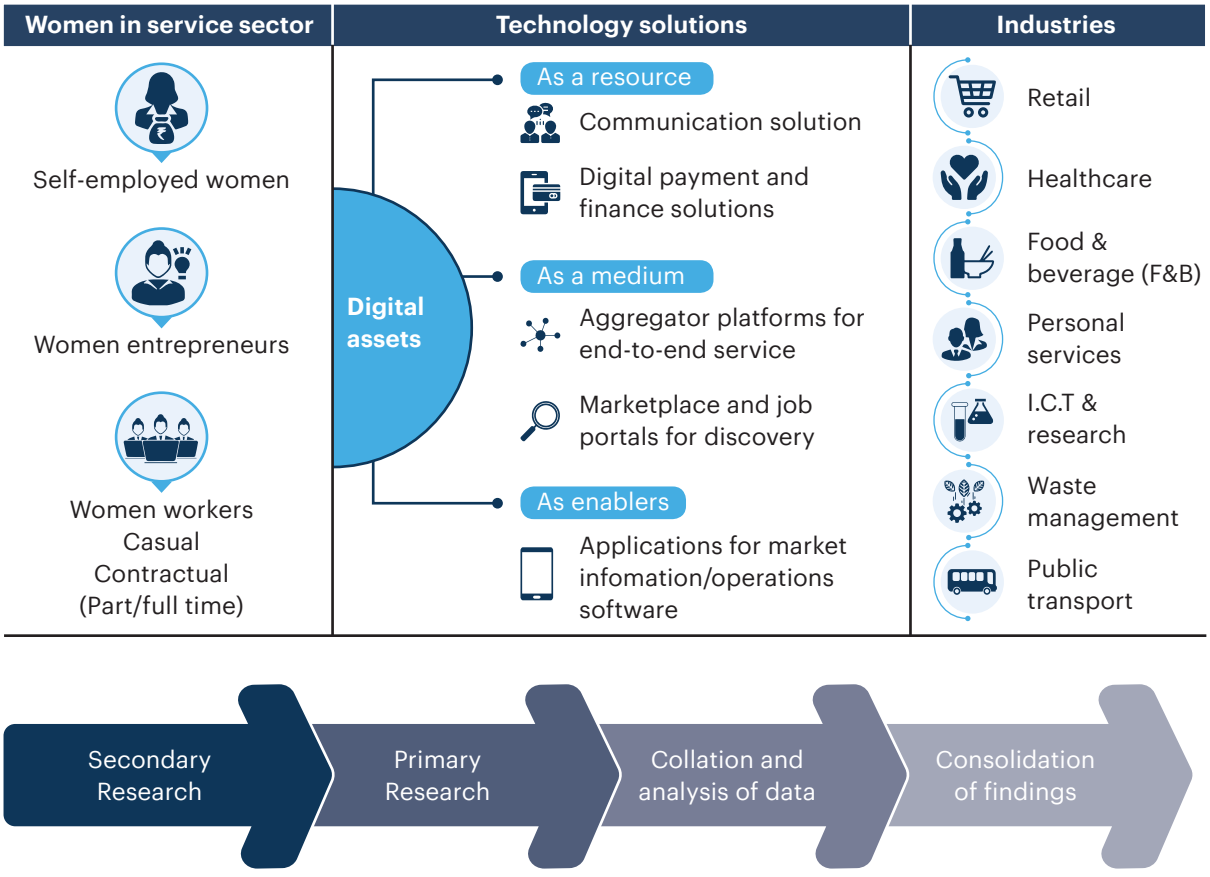
For the purpose of this qualitative research, methods triangulation and data source triangulation approaches were followed.[24] The objective of implementing this design was to verify and validate the qualitative analysis by obtaining different, but complementary, data using multiple methods and from different data sources. The findings from all sources and methods were confirmed, corroborated and cross-validated concurrently during the data-collection stage and triangulated during analysis.



The framework for research includes three axes of analysis: (i) archetypes of women in the services sector; (ii) type of digital/tech solutions; and (iii) services sector industries. The research looked at how each type of digital asset can be adopted by self-employed women, women entrepreneurs and women workers in each industry to attain gainful livelihoods.

The research was done in three phases – pre-consultation, consultation and post-consultation – including a milestone Consultation Event organized by UN Women on 6 December 2019 on 'Digital Assets for Women's Economic Empowerment (WEE): Addressing barriers and enhancing opportunities for women in informal economy and in agriculture'. The Consultation Event was utilized as an exploratory data-collection

Figure 2.3: Research framework for the study



method through a round-table discussion on women's adoption of digital assets with participation by the relevant stakeholders invited by UN Women.

In **Phase 1 (Pre-Consultation)**, research was conducted on two service sector industries to consolidate a preliminary insights presentation for the Consultation Event, which was used as a trigger deck to guide round-table discussions. The following industries were researched in Phase 1:

1. Retail
2. Health care

Phase 2 was the **Consultation Event**, where primary research was conducted, through a round-table method, wherein insights were gathered in the form of 'Round-table Minutes of Meeting'.

In **Phase 3 (Post-Consultation)** thorough research was conducted for the following five service sector industries:

1. Personal Services
2. F&B
3. Waste Management
4. ICT and Research
5. Transport

Secondary research: The first level of secondary research was done to conduct a landscaping exercise to identify digital platforms in the selected service sector industries and CSOs and research bodies working to enable women's economic empowerment through digital inclusion. The landscaping aimed to identify respondents for the research from both the demand and supply sides through various secondary sources and to find subsectors for focused research within each of the seven industries.

A thorough literature review was done to attain information on the key areas of inquiry and identify cross-cutting themes and issues for analysis. The indicative data sets studied for this research are provided below, and the list of sources used for secondary research is detailed in the references section.

Table 2.2: Secondary resources used for the research study

Secondary Research	
1	Data sets from NSS 73rd round on Unincorporated Non-Agricultural Enterprises in India
2	Data sets from the 2017–18 round of the PLFS
3	Data from a previous study by Sattva titled 'Digital solutions for women-owned enterprises'
4	Relevant literature on barriers and enablers to women's adoption of digital assets
5	Latest market research reports by Redseer, IBEF, EY, Deloitte, McKinsey

Primary data collection: The primary data collection was done telephonically, through the discussion at the Consultation Event and through field visits to SEWA pilot sites in Delhi and Ahmedabad.

Table 2.3: Type of primary research resources required for the study

Telephonic interviews
» KIIs with representatives of service sector platforms/job portals
» KIIs with CSO representatives
» KIIs with representatives of research and knowledge bodies

Continued

Continued

Panel discussions

- FGD with participants at UN Women Consultation Event
- Panel discussion facilitated by Sattva for event organized by Global Alliance for Mass Entrepreneurship

Field research

- SSIs with managers of cooperatives in SEWA pilot sites
- FGDs with collectivized women in SEWA pilot sites

The primary data collection through telephonic interviews were conducted over the course of two months starting from the last week of November 2019 till the third week of January 2020. The field visits in Delhi and Ahmedabad were conducted over the course of the final week of December 2019.

2.5 Respondent selection coverage

The primary research includes representatives from the following groups of respondents:

1. Service sector platforms (digital and offline)
2. Online job placement portals
3. Research and knowledge bodies
4. CSOs working with women
5. Women-led cooperatives in the service sector (in Delhi and Ahmedabad)

We indicate the number of respondents during the course of the study below, and we detail the list of respondents in section 6.3 in the Annexure.

Table 2.4: Total number of respondents covered, and tools utilized for primary research

No.	Tools	Industries/ Geographies	Total
1	KIIs with representatives of service sector platforms (digital and offline)	1. Retail 2. Health care 3. Transport 4. ICT 5. Personal services 6. Waste management	20 KIIs
2	KIIs with representatives for research bodies/agencies		2 KIIs
3	KIIs with representatives from job portals/placement agencies		3 KIIs
4	KIIs with representatives from CSOs operating in the service sector		3 KIIs
5	SSIs with managers of cooperatives at SEWA pilot sites	1. 3 SSIs in Ahmedabad 2. 2 SSIs in Delhi	5 SSIs
6	FGD with collectivized women in SEWA pilot sites	1. 2 FGDs in Ahmedabad 2. 1 FGD in Delhi	3 FGDs

2.6 Limitations of the study and challenges faced

The key challenges faced by the study are:

Table 2.5: Key challenges faced for study and remedial strategies adopted

S. No.	Challenge	Remedial Strategy
1	Dearth of quality data for women already in the workforce in the selected industries	» Use of comprehensive and exhaustive secondary research sources to compensate for missing data » Comprehensive collection of primary data along with robust data triangulation methods to decrease data gaps
2	Dearth of key respondents for selected industries, specifically the public transportation, waste management and F&B industries	» Primary research done with research agencies/ bodies working in specific industries » Use of comprehensive and exhaustive secondary research sources to bridge information gaps
3	Dearth of responses from respondents during the holiday season (24 December 2019 to 3 January 2020)	» Continual follow-ups were done via email and telephonic mediums to connect with relevant respondents

CHAPTER 3

Findings by industry

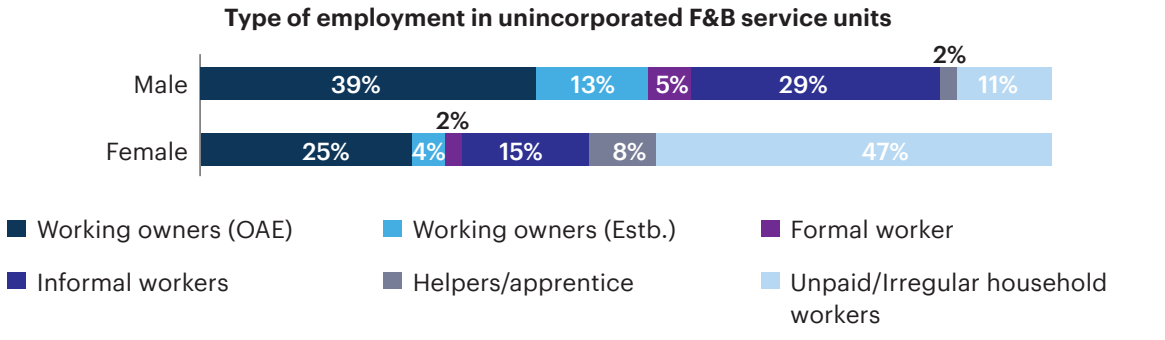
3.1 Current livelihood scenario of women in the service industries

F&B

Within the services sector, the F&B industry absorbs the second highest share, i.e. 13 per cent, of unpaid/irregular female workers; 47 per cent of the women in unincorporated units in the F&B industry work without regular wages. Within the F&B industry, 25 per cent of women own OAEs and work as self-employed women, while only 4 per cent women own establishments and work with hired labour (Chart 3.1).

The majority of the female workers (59 per cent) are employed in restaurants without bars in the unincorporated sector. Women are involved in minor concentrations across other subsectors including but not limited to event catering, mobile cart vendors,

Chart 3.1: Representation of women versus men's employment types in the unincorporated F&B industry



Source: Analysis of NSS 73rd round

37%
Housekeeping/restaurant service workers

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

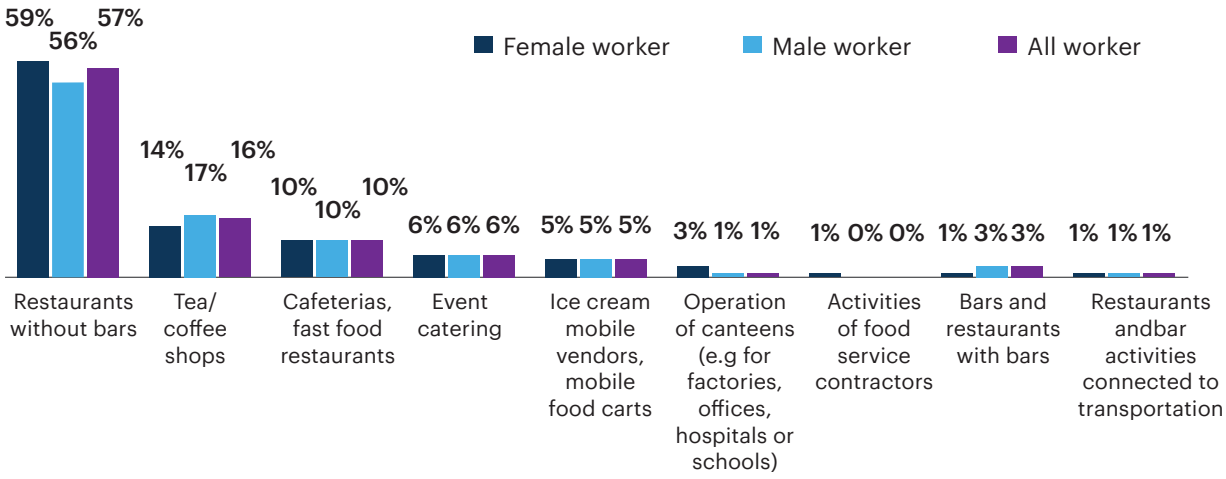
canteen workers, contracted food service workers and restaurants with bars. The PLFS data reveals that, typically, women find work as housekeeping staff or restaurant service workers (37 per cent).

Personal services

A significantly high percentage of women, i.e. 49 per cent, are working owners of informal enterprises; however, 43 per cent are own account enterprise owners who work as self-employed women without any hired labour,[24] and 31 per cent are unpaid/ irregular household-level workers.

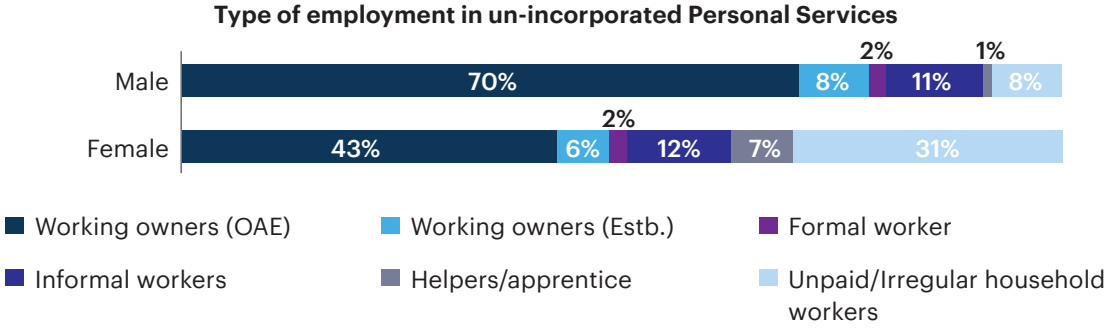
The majority of the women in the personal services sector work in washing and dry-

Graph 3.1: Women's concentration across sub-sectors in unincorporated F&B sector units



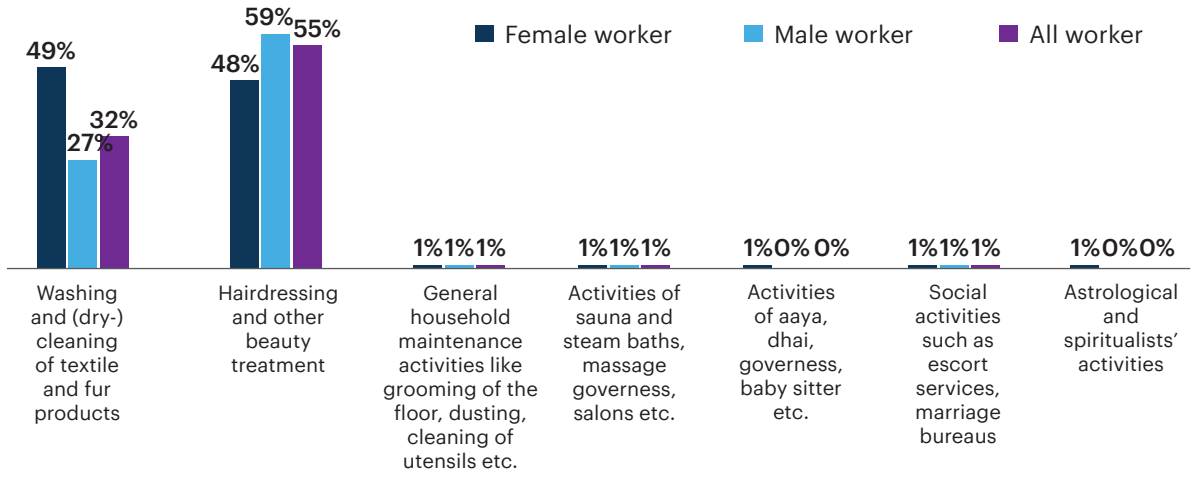
Source: Analysis of NSS 73rd round

Chart 3.2: Representation of women versus men's employment types in the unincorporated personal services industry



Source: Analysis of NSS 73rd round

Graph 3.2: Women's concentration across sub-sectors in unincorporated personal services industry



Source: Analysis of NSS 73rd round

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

cleaning (49 per cent) and hairdressing and beauty services (46 per cent). The 73rd Round of the National Sample Survey (NSS) is enterprise-level and it excludes household domestic workers and cleaners. However, the PLFS (2017–18), which collects data from workers/employees, reveals that 55 per cent of women in the sector work as domestic helpers and/or launderers.

Interestingly, the concentration of men in the hairdressing and beauty sector (58 per cent) is higher than that of women (46 per cent). The concentration of women across other subsectors is negligible.

Retail

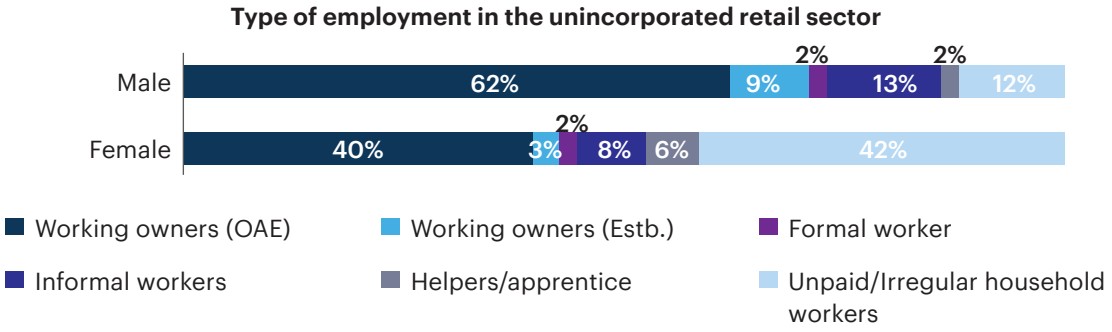
Studies reveal that within the informal sector, retail trade is the largest activity category, with almost every third informal enterprise engaged in the sale of necessities through small kirana stores*.[25] While 40 per cent of women in the retail industry are own-account working owners, 42 per cent of women work as unpaid/irregular household-level workers. Retail absorbs the second highest share of unpaid/irregular female workers in India; they work without a regular salary or any pay.[26] Basole and Chandy (2019) identify the small-scale retail sector as a 'surplus labour' sector because it employs women unable to find work elsewhere.[27] The data from PLFS (2017–18) reveals that 49 per cent of women work in low- to medium-skilled roles as shop salespeople and demonstrators.

The majority of the informal workers are present in the retail of daily household products (23 per cent) and non-specialized products like food, beverages and tobacco

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

* Kirana stores are small, family-owned grocery stores in India.

Chart 3.3: Representation of women versus men's employment types in the unincorporated retail industry



Source: Analysis of NSS 73rd round

Graph 3.3: Women's concentration across sub-sectors in the unincorporated retail industry

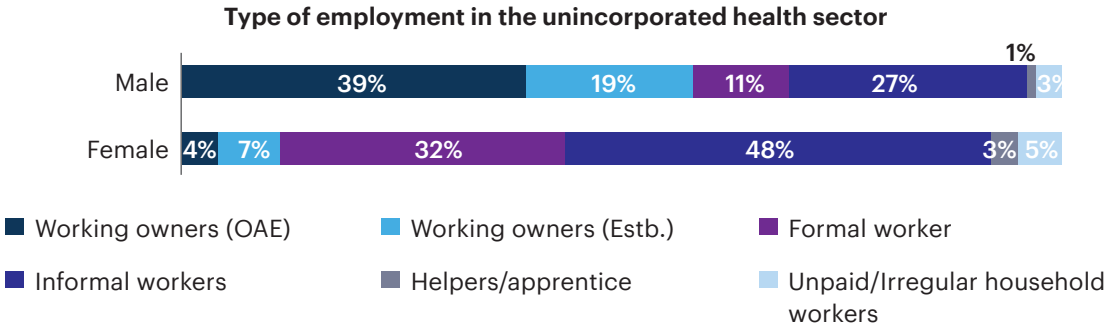
Source: Analysis of NSS 73rd round

(18 per cent). Women are involved in minor concentrations in a variety of other subsectors including retail of fresh fruits and vegetables, retail of readymade garments and other articles of clothing, retail through corner stores, sugar and confectionery products, bakery products and perfume and cosmetic articles.

Health care

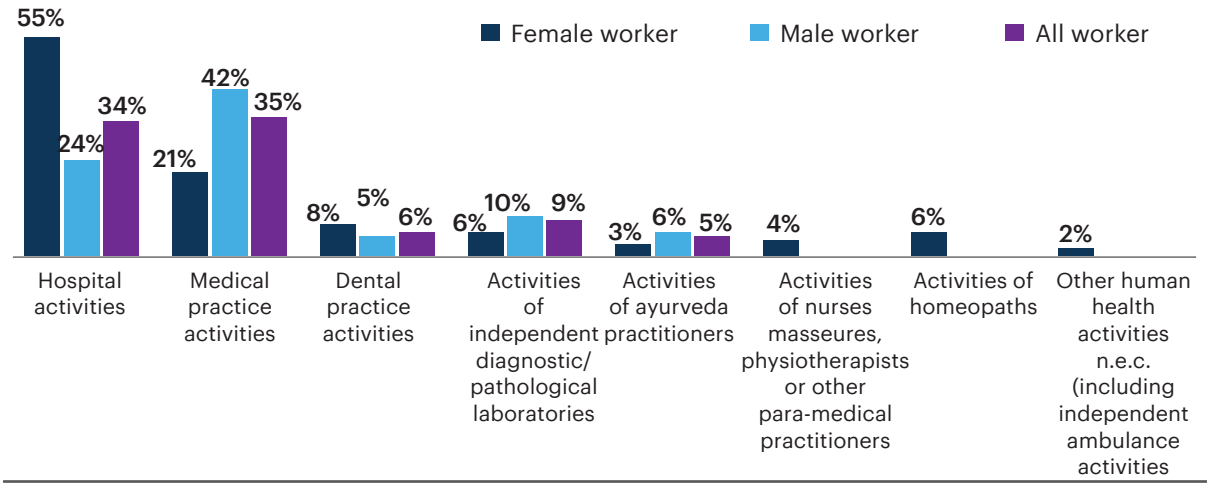
Health care employs 48 per cent of women informally; however, it is one of the most productive industries with an above-average labour productivity of ₹20,751 per month.[28] It is also one of the few industries where 32 per cent of women are formally employed;

Chart 3.4: Representation of women versus men's employment types in the unincorporated health care industry



Source: Analysis of NSS 73rd round

Graph 3.4: Women's concentration across sub-sectors in the unincorporated health-care industry



Source: Analysis of NSS 73rd round

44%
Nursing/midwifery associates and nurses

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

only 5 per cent of women are employed as unpaid/irregular household-level workers. However, the occupation-level data reveals that a majority of women (44 per cent) are in elementary or intermediate job roles working as nurses or midwives (PLFS, 2017–18).

The majority of the women workers in the informal sector work in hospital activities (55 per cent) and medical practice activities (42 per cent).[29] However, it is important to note that women are not present in specialized enterprises in the informal sector that offer nursing, masseuse, physiotherapy or paramedical services, while 4 per cent

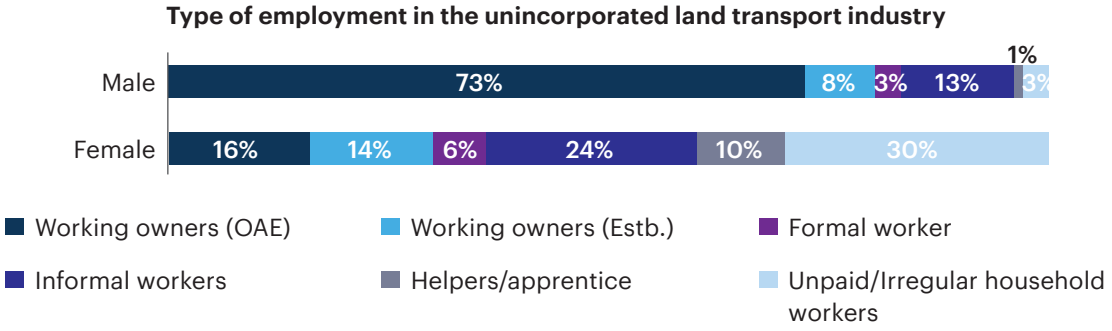
of all male workers are concentrated in this subsegment of unincorporated health care. This reflects that women in nursing roles mostly work in the formal sector whereas informal-sector enterprises offering nursing or physiotherapy services do not employ women.

Land transportation

In the unincorporated transport industry, 30 per cent of women are unpaid/irregular household-level workers concentrated in the freight transport subsector.[30] As per the latest PLFS (2017–18) data, only 6 per cent of women work as drivers,[31] and the most common occupations for women are those of guides, cashiers and clerks (55 per cent).

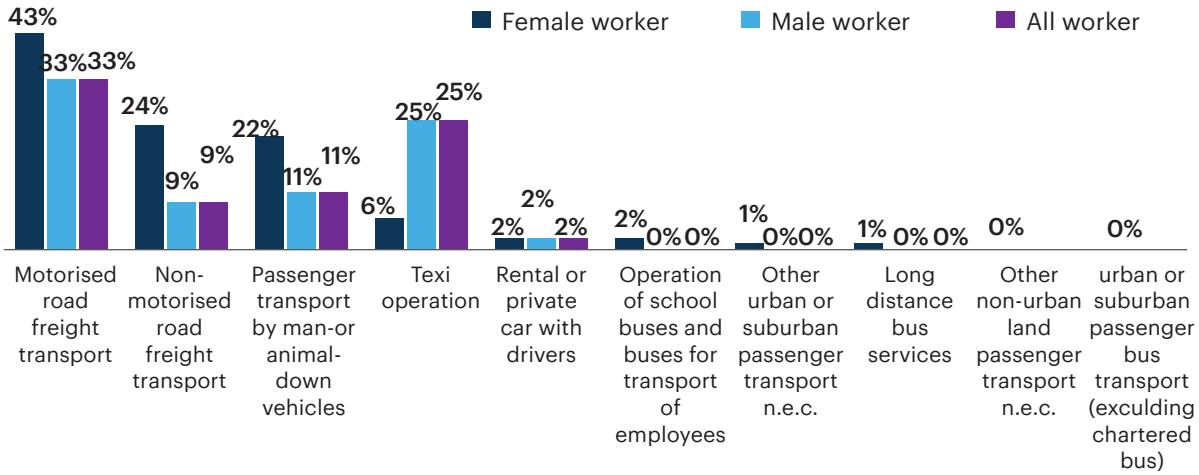
A very high percentage of women in the land transport industry work in freight transport (42 per cent) and only 6 per cent work in taxi operation (the corresponding figure for men is 25 per cent). A peculiar trend in unincorporated units in the land transport industry is that 22 per cent of all women transport passengers using human-/animal-

Chart 3.5: Representation of women versus men's employment types in the unincorporated land transport industry



Source: Analysis of NSS 73rd round

Graph 3.5: Women's concentration across subsectors in the unincorporated land transport industry



Source: Analysis of NSS 73rd round

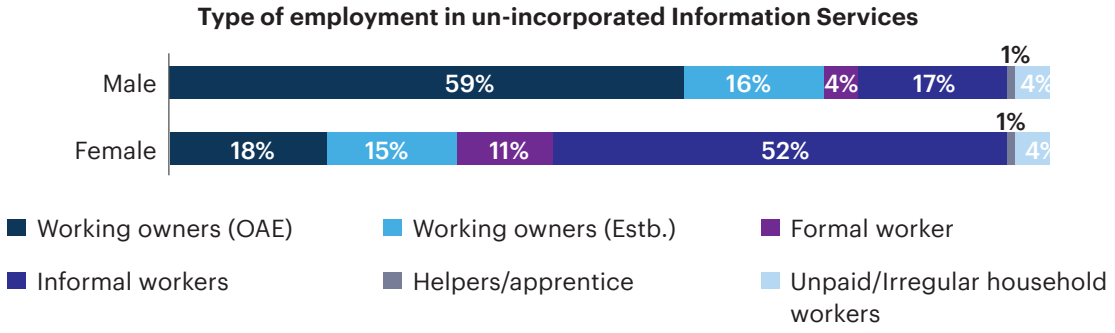
Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

drawn vehicles, while only 11 per cent of men work in this subsegment.

Information services

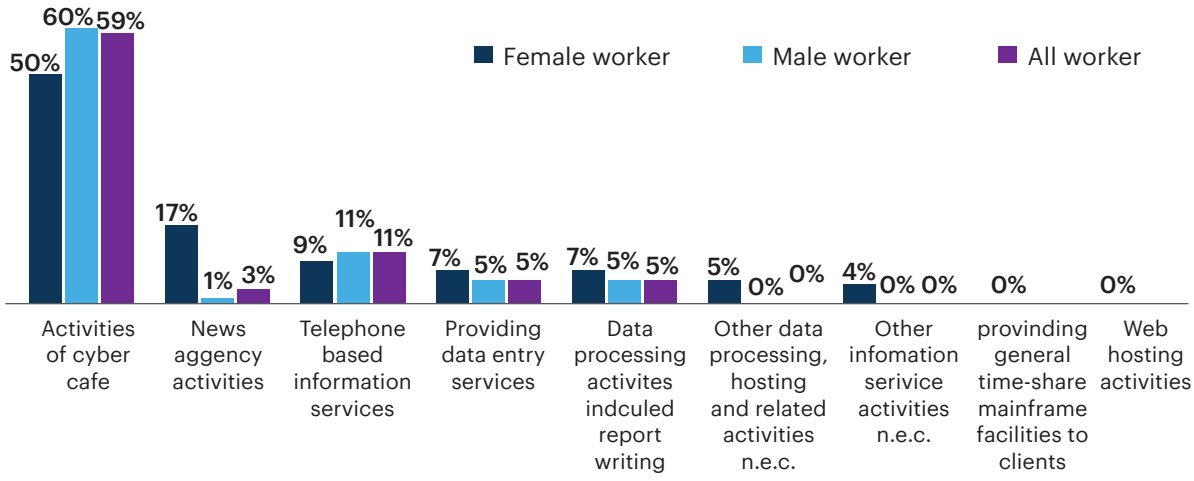
The data from the 73rd Round of the NSS highlights that only 0.1 per cent of women work in the information services industry. The industry offers better employment conditions than other industries, with only 4 per cent of women working as unpaid/ irregular workers. Significantly, 15 per cent of women in the sector are entrepreneurs

Chart 3.6: Representation of women vs/ men's employment types in the unincorporated Information Services industry



Source: Analysis of NSS 73rd round

Graph 3.6: Women's concentration across sub-sectors in the unincorporated Information Services industry



Source: Analysis of NSS 73rd round

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

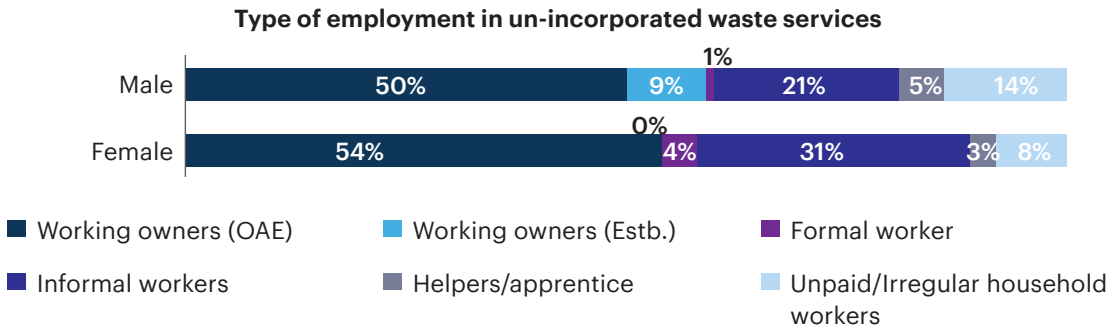
with establishments who work with hired employees. The latest labour force data (PLFS 2017–18) reveals that 77 per cent of women in IT are in the formal sector. The highest percentage of women in the sector work as computer associates and/or professionals (43 per cent).

The majority of the informal workers work in cybercafes (50 per cent). Interestingly, a much higher percentage of women (17 per cent) than men (1 per cent) work in informal news agency activities. The concentration of women in data processing and entry services, writing activities and data hosting services is minimal yet significant.

Waste management

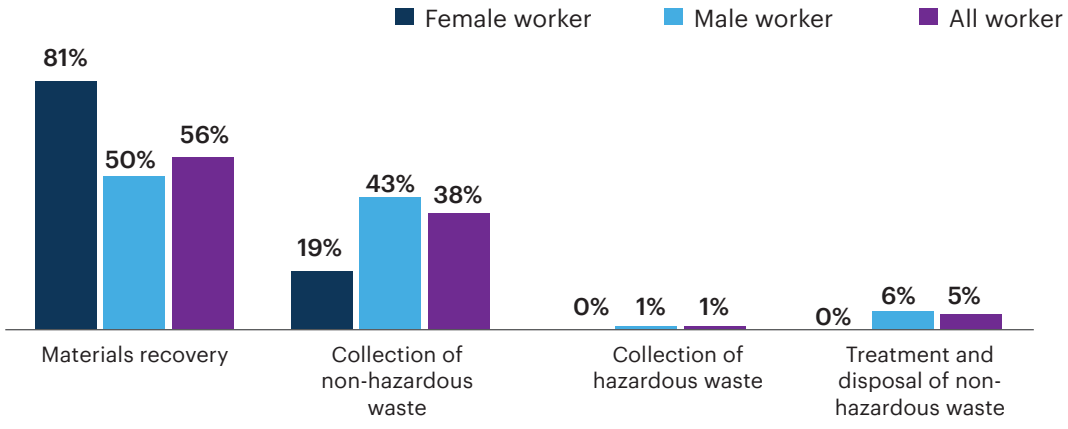
The data from unincorporated waste services enterprises reflects that 54 per cent women are 'working owners', or self-employed waste-

Chart 3.7: Representation of women versus men's employment types in the unincorporated waste management industry



Source: Analysis of NSS 73rd round

Graph 3.7: Women's concentration across subsectors in the unincorporated waste management industry



Source: Analysis of NSS 73rd round

pickers. The data from PLFS (2017–18) reveals that a significant number of women work as garbage collectors in other industries – collecting biomedical waste in health care and household waste in personal services.[32]

The majority of informal women workers are present in the materials recovery subsector (81 per cent) – much more than men (50 per cent) – and in the collection of non-hazardous waste (19 per cent).[33]

59%
Garbage collectors and related laborers

Source: Analysis of NSS Periodic Labour Force Survey, 2017–18

3.2 Scope of growth in the service industries due to digitization

The Fourth Industrial Revolution, that of digital transformation, has enabled e-commerce, made digital assets available in the ecosystem and changed the landscape of the services sector. Digital mediums, resources and enablers enable women to reach wider markets, directly attain work opportunities, access information/communication and skilling resources, and they make doing work easy. The primary research reveals that each type of digital asset provides the following levers to women entrepreneurs and workers:

Table 3.1: Types and definitions of different digital assets

Digital assets provide various levers to women workers and entrepreneurs

Digital Mediums

Enhance market linkages and flexibility in operations which in turn enable:

- Direct transaction with a vast market through B2B/B2C & B2G **aggregators**
- Low-cost procurement through market scanning on **online repositories and mobile applications**
- Enhanced visibility to attain work opportunity through **marketplace platforms & job** portals

Digital Resources

Provide skill training avenues enabling

- Direct access to e-learning content through online resources and tutorials
- Access to information on traininig bodies

Probide demand projection throught online market research to understand demand patterns & industry trends

Act as platfroms for coummunication & marketing to enable information sharing and use of social media for brand building

Enable usage of fintech for payments

Digital Enablers

Offer operational suport such as

- MIS dashboards for digital data collection, storage and analysis
- Applications for work monitoring and reminder generation

Offer mobility/safety support through

- Geo-mapping for navigationg and information on safety/ security of localities and neighborhoods
- S.O.S support for emergency notification

> **Digital mode of payment provides women domestic workers complete control over their income. Cash remunerations are often handed over to the men in the family, reducing women's agency and decision making.**
>
> – Bharti Ben (SEWA Home-care)

F&B

In 2018, online food ordering (food-tech) in India saw triple-digit growth (130 per cent), expanding from 15 cities in 2017 to over 100 cities; the quarter-on-quarter growth rate was 80 per cent in non-metro cities and 12 per cent in metro cities.[34] An analysis conducted by The World Bank, UNDP and Deloitte found an increase of 28 per cent in the 'ready-to-eat' product category, supported by the set-up of food delivery and cloud kitchen value chains.[35] Cloud kitchens are projected to have a market size of $1.05 billion by 2023 on the back of rising disposable income and a changing consumer mindset.[36]

Research suggests that there is high stickiness of demand among subscribers of cloud kitchen apps in the online ordering industry; people tend to use the same platform to place an order even if their preferred dishes are unavailable.[37] Setting up cloud kitchens allows small-scale caterers to increase profit margins and minimize the cost of operations by saving on rent and the cost of establishing a dine-in facility.[38]

With the emergence of discount-led food delivery apps, and especially as the result of growth in the requirement for homestyle comfort meals, the scope for attaining high visibility has increased for women-led cloud kitchens. As a result of the increased market share, major platforms like Swiggy,[39] Foody Buddy[40] and Watscooking[41] have incorporated homestyle-based kitchens to meet the evolving needs of customers, a

Table 3.2: Landscape of three types of digital assets as per archetype of women

	Digital Mediums	Digital Resources	Digital Enablers
Self-employed	Curodoc, meesho, OKHAI, RADDI CONNECT, Uber, UC, mahiti, indi village, girls who code, UrbanClap, iMerit, I Got Garbage, SWIGGY DAILY	paytm, BHIM	
Entrepreneurs	Sulekha, indiamart, recykal, Justdial, JUNKART, GeM, Helper4U, SWIGGY, Mahila E-haat, FreshMenu		SSP
Workers	naukri.com, TIMESJOBS, Helpers near me, Sulekha, shine.in, NanoJobs.com, TAXSHE, bookmybai.com, akha, INFOLKS, Google Ads, Zimmber, On Demand | On Time, indeed, jobsforher	SHEROES, de Asra	MEDIC MOBILE, SAFETIPIN

segment in which India sees an immense growth possibility. Swiggy Daily provides women home-chefs a platform to tap into the subscription-based food-tech market and attain sustainable business.[42]

The growth in Indian start-ups in this industry has tapped the opportunity to cater to migrant urban office-goers looking for hassle-free hyperlocal delivery of home-cooked food.[43] However, some small businesses with a niche market struggle to be discovered on larger digital platforms, and switch to WhatsApp Business (launched in 2018), which leads to a higher conversion rate for small sellers.[44]

Personal services

The highly informalized personal services industry stands to attain a semblance of formality with the growth in start-ups in this industry. Hyperlocal personal service platforms have not yet captured a high share of the e-commerce market, but it is growing at a much higher rate than other e-commerce segments and is one of the largest emerging sectors.[45] The home services segment of hyperlocal e-commerce captured $100 million worth of market share in 2017;[46] in 2018, hyperlocal home services start-ups raised $1.6 billion through venture capital/private equity investment, the highest in the e-commerce segment.[47]

Table 3.3: Job roles for women present in the F&B industry and the digital asset utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Marketplace/Aggregator platforms** providing support to women by reducing delivery and logistics costs and providing market linkages	railrestro, Watscooking, SWIGGY DAILY, FoodyBuddy, dial-a-meal Homechefs	1. Home chefs supplying ot offices and other establishements
Entrepreneurs	**Marketplace platforms** providing visibility to entrepreneurs allowing a steady flow of orders and a predictable stream of income	Sulekha, SWIGGY, Justdial, FreshMenu	1. Women operating their own cloud kitchens 2. Tiffin service providers 3. Food grde packaging service providers
Workers	**Job platforms and social media platforms** (used by recruitment agencies and restaurant chanis) help place women in medium to long term employment within the F&B service industry	naukri.com, TIMESJOBS, shine.com, Google Ads	1. Women working as kitchen helpers 2. Serivers in restaurants 3. Chefs and helpers in cloud kitchens

As a result of the increased demand for convenient, at-home services, digital platforms in this segment are slated for growth in the near future. The growth of on-demand personal service platforms reflects the evolution of the industry – earlier, domestic work performed by women was perceived to be 'unproductive' and it was undervalued.[48]

UrbanClap has managed to raise ₹700 crores of funding and expand to 10 cities. Primary research with an UrbanClap representative revealed that the platform currently has 6,000–7,000 female service providers in the beauty and spa segment, and it plans to increase its coverage to currently untapped Tier 2 cities.[49] In addition, they are increasing their service offerings by focusing on new sectors like yoga and offering women yoga instructors opportunities to attain better-paid gigs.

Bookmybai plans to expand to three more cities and it estimates that they will provide employment to an additional 25,000 domestic workers and families.[50] There has been a noticeable increase in the number of aggregator-based platforms that provide on-demand and in-house service after employing proper selection criteria to hire workers and training them. Some of the industry platforms that employ women are Bookmybai, Helper4U.in, Housemaidforyou.com and MaidinIndia.[51,52]

With supply aplenty, no overarching policy guidelines and virtually no mechanism to connect supply with demand or set wage and service standards, the personal services industry has remained largely primitive, unorganized and suboptimally productive. However, that is beginning to change, as a result of technology platforms like Babajob, UrbanClap and Taskbob cropping up in

Table 3.4: Job roles for women present in the personal services industry and the digital asset utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Marketplace/ Aggregator platforms** providing on- demand services	timesaverz, housejoy.in, Zimmber, Yes Madam AT HOME SALON, UrbanClap	1. Beauticians and massage therapists 2. Home deep cleaners & maintenance service providers
Entrepreneurs	**Marketplace platforms** providing visibility to agencies/ cooperatives of domestic workers	Sulekha, Helper4U, Justdial	1. Founders/Owners of women domestic service enterprises 2. Enterprise owners running training/grooming agencies
Workers	**Aggregator platforms** placing women in long term employment	bookmybai.com, Helpers near me, NanoJobs.com, Helper4U	1. Maids, cleaners and cooks in the household 2. Baby sitters and governesses 3. Waiters, receptionists and personal assistants at business establishments

Table 3.5: Spectrum of digital mediums in the personal services industry

	Aggregator platforms	Marketplace platforms	Placement intermediaries
Operational model	Platforms consolidating/ onboarding service providers and gig workers under their own brand name	Platforms which can be accessed by women and women-led domestic worker agencies/cooperatives to advertise their service offerings and receive client leads for longer-term work placement	Digital counterparts of traditional helper agencies/bureaux offering placements and managing contracts and controlling payments
Platform charges	Commission charged from service providers on each gig serviced	1. Subscription charges/one-time fee charged from clients to access contact information of vetted/ verified workers 2. Listing charges required to be paid by service providers/agencies	Platform fee deducted from wages disbursed to service providers
Relevant platforms	UrbanClap.com, housejoy.in	1. helper4u.in, helpersnearme.com, rozgarkhoj.com, 2. justdial.com and quikr.com	bookmybai.com

the platform economy.[53] A study by India Development Review (IDR) indicated that between 2017 and 2022 the domestic help subsector will require close to 3.3 million more service providers and the beauty and wellness subsector will require 8.2 million incremental service providers.[54] The growth of platforms in this sector points to an opportunity for formalizing the workforce engaged in the low-productivity informal sector.

Primary research with stakeholders in this segment revealed that high-skilled workers in the sector comprise beauticians, deep cleaners and masseuses, and low- to medium-skill workers are employed as domestic workers or cooks.[55] The employment pattern in industry platforms is gendered; the deep-cleaning segment of UrbanClap – conducted using advanced machines, industrial chemicals, etc. – employs only male workers, as it is considered labour-intensive/technical work.[56]

Retail

With the growth in e-retail and ancillary logistics services, women working in informal retail value chains can seek better livelihood opportunities. E-retail led by big aggregators such as Amazon and GeM are projected to formalize currently informal job roles by providing women productive employment in traditional retail value chains.[57,58,59] The e-commerce and consumer Internet sector Tradebook shows that the compound annual growth rate (CAGR) of e-retail is 31 per cent,[60] and they estimate that retail will have a $68.8 billion market value by 2020. As a result of the growth in e-retail, e-commerce platforms are helping bridge the demand gap by offering market linkages and increasing awareness among women about potential market opportunities.[61] A study by IDR indicates that 10.7 million additional workers will be required to fill the employment gap in the retail subsector between 2017 and 2022. With the

increase in the number of people entering the workforce over the next few years, there is an opportunity to bring them into the formal economy,[62] and digital platforms can play a key role in bridging that gap.

As the result of the growth in e-retail, e-commerce logistics has grown; it was valued at $1,350 million as of 2018.[63] Primary research reveals that larger aggregators in the logistics sector are continually looking to expand their services to Tier 3 cities by onboarding third-party entrepreneurs who can establish and set up delivery operations through last-mile 'regional hubs'.[64]

Social commerce companies in India – like Meesho, GlowRoad, Wooplr and Shop101 – allow women to participate in the fairly untapped subsector of reselling and create opportunities for themselves.[65] As of October 2019, the Meesho platform boasts of 21,000 suppliers and 2 million resellers, and it targets to have 20 million resellers by 2020.[66] The platform is addressing both capital and mobility issues that women face in this sector by allowing them to tap into a supplier base online and resell products within their social network.[67] Meesho has addressed the challenges associated with logistics by providing end-to-end, supplier-to-customer delivery services. Last-mile delivery platforms like HeyDeeDee plan to onboard 10,000 women by 2020,[68] and platforms like Delhivery plan on onboarding more women in high-skilled roles that include supervisory, sales and HR positions at their intermediate hubs.[69]

Teamlease Services Data indicates that hiring for women in delivery roles could go up 20–26 per cent by 2021 as a result of the growth in the e-retail industry.[70] Amazon India

Table 3.6: Job roles for women present in the retail industry and the digital asset utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Aggregator** in the nihe online retail value chain	Myntra, meesho, OKHAI, KASHMIR BOX, Nature's Basket, SHOP 101, GlowRoad	1. Designer/materials supplier for niche brands released by aggregators 2. Independent wholesaler/reseller of apparel/organic items/ayurvedic products for aggergator platforms
Entrepreneurs	**B2B Marketplaces** offering high Average Order Values & on-demand platforms allowing women led SMEs without large inventories to transact **B2B Marketplaces** with sourcing quota for women entreprensurs	GeM Government e Marketplace, indiamart, Mahila E-haat	1. SME suppliers of handicraft apparel, ayurvedic products and generic medicnes 2. SME suppliers of locally sourced organic produce
Workers	**Logistics Support Providers (LSPs) for e-tail,** (especially those providing laast mile services in Tier II &III cities	DELHIVERY, Hey Deedee	1. Inventory managers, warehouse personnel and packers in off-roles with LSPs

is operating women-run delivery stations in a combination of Tier 2 and 3 cities and, as a result of their success, they plan to increase the number of women in their fleets to at least 2 per cent of the existing 90,000 delivery partners across India.[71]

Health care

A study by the International Labour Organization (ILO) states that the future of health care will encompass the formalization of preventive and outpatient care work, which is disproportionately undertaken by women and often remains unpaid.[72] Livelihoods in health care would be driven by the growth in the home health-care segment, the requirement for hospital technicians and the need for digitally equipped front-line workers in Ayush Bharat. Ayushman Bharat, which aims to digitize Health and Wellness Centres, will require trained front-line workers under the National Urban Health Mission (NUHM) and the National Rural Health Mission (NRHM).[73]

India has only 0.02 technicians/1000 population as compared to 2.15 technicians/1000 people in the United States. Trained women technicians will need to be deployed in hospitals to make up for the shortage.[74] The boom in the number of start-ups that offer home health-care services – such as nursing, bedside assistance and geriatric care – is projected to drive a 39-per-cent increase (in USD millions) in the market value of home health care between 2018 and 2020.[75,76] The growth in the home health-care segment should expand the scope for women to tap opportunities in the formalized care-work segment.

M-health devices have the potential to transform community-based health care and diagnostics. The dashboards and health tracking tools built into m-health devices can digitally enable front-line health workers

Table 3.7: Key m-health programmes in India

Key m-Health programmes in India		
Programme	**mSehat[79]**	**Mobile Kunji and Mobile Academy training[80,81]**
Key differentiator	Integrated m-health technology at four levels, including: 1. Customized mobile applications for ASHAs 2. ANM application 3. Programme management application for block, district and state level officials 4. Reminder/ alert generation system for beneficiaries	The mobile academy is an IVRS-based tool to provide refresher trainings to ASHA workers on preventive maternal health The mobile kunji* consolidates key maternal and child health information on IVRS-based service numbers, which ASHA workers can dial to play audio content for expecting families
Geography reached	Five districts in Uttar Pradesh: Bareilly, Kannauj, Mirzapur, Sitapur and Faizabad	Bihar, Odisha, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand and Uttar Pradesh
Implementors	State Innovation in Family Planning Services Project Agency (SIFPSA)	BBC Media Action, funded by Bill and Melinda Gates Foundation

* Kunji refers to a guidebook of flash cards.

Table 3.8: m-health application developers in India

m-Health application developers in India		
Organization	**Medic Mobile**	
Key differentiator	Open source application, co-designed with front-line health workers, providing customized dashboards as per local health needs and the average level of digital literacy among front-line health workers in each community	Gamification of training provided to front-line health workers on use of m-health devices to enable sustained adoption by them. Inbuilt data security measures to keep beneficiary details safe
Partner organizations	Barefoot College India	Centre for Catalyzing Change, Johns Hopkins University

by reducing the drudgery in collecting, analysing and monitoring health data. The GoI has systematically rolled out the ICDS-CAS (Integrated Child Development Services Common Application Software) system. The system uses mobile technology to enable Anganwadi workers, supervisors and health officers to track performance and make real-time, well-informed decisions and thereby strengthen service delivery. The ICDS-CAS system is being used in the POSHAN Abhiyan programme.[77]

Other applications developed by CSOs – such as the mSakhi by IntraHealth – are enabling l front-line health workers to provide real-time community-level health solutions. Given the success of the digital transformation, mSakhi is to be expanded into two new states in India. ASHA Soft, another successful Android-

Table 3.9: Job roles for women present in the Health industry and the digital assets utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Marketplace and Aggregator** providing home healthcare services	care24, mahiti, Curodoc	1. Outpatient care providers 2. Geriatric care providers 3. Home bedside assistants 4. Home nursing assistants
Entrepreneurs	**Online startups/CSOs** training women entrepreneurs in: 1. Use of diagnostic/dialysis devices 2. Insurance claim processing processing	VIROHAN	Enterpreneurs setting up: 1. Blood collection centers 2. Dialysis centers 3. Insurance claim processing centers
Workers	**Job portals/CSOs** providing information/ training for employment in: 1. Hospitals 2. NUHMNRHM frontline roles	naukri.com, MEDIC MOBILE, SSP	Technicians in hospitals such as 1. OT technicians, 2. Medical Lab technicians, 3. Hospital Lab administrators, 4. General Duty Assistants Frontline workers such as ANMs, ASHAs and Multi-Purpose Workers (MPWs)

based application, allows front-line workers to offer maternal health support by assisting pregnant women track, monitor and manage their health.[78]

Digitalization of referral networks offers front-line workers opportunities to tap into technology and offer value added services within communities. Swayam Shikshan Prayog (SSP) has trained their front-line workers, called Aarogya Sakhis, in the use of diagnostic tools. Also, SSP has set up referral networks in partnership with district hospitals that allow front-line workers to earn commissions on referrals.[82]

Digitalization has also bridged the gap in women's education within the health-care sector, with organizations like Virohan utilizing a curated curriculum, and leveraging digital learning assets to provide state-of-the-art training facilities. Digitally integrated formal training can enable women to pursue career opportunities as operation theatre (OT) technicians, medical lab technicians, general duty assistants and hospital lab administrators.

Public transport

Radio taxis will expand their market share from $1.38 billion in 2018 to $4.40 billion in 2024;[83] 1.5 million jobs are being created in the shared cab industry.[84] Uber India has reported a 30-per-cent jump in revenues till the end of financial 2018 and a 39-per-cent rise in net profits.[85]

While only 1.1 per cent of women in unincorporated enterprises work in the transport industry,[86] the growth of online aggregators has created the scope for employing women as drivers, and growing concerns over passenger safety have prompted taxi-service-aggregator platforms

Table 3.10: Job roles for women present in the public transport industry and the digital asset utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Platforms** providing women riders/drives market linkages to obtain on-demand work **Organizations** Providing skill training	ola, Priyadarshini Taxi womenpower, KOALA CABS, UBER	1. Taxi, E-rickshaw, bike drivers and riders working independently
Entrepreneurs	**Platforms and applications** providing market linkages and navigation and transaction support facilities to entrepreneurs	paytm, BHIM	1. Women owned travl/ tour (large to small size) companies
Workers	**Aggregators** that provide full-time and part-time job opportunities for women	naukri.com, TAXSHE, Helpers near me, sakha Consulting Wings Pvt. Ltd.	1. Drivers with women led Logistics Support Providers (LSPs) 2. Chauffer, navigators

like Uber and Ola to onboard more women drivers.[87,88] To meet the increased demand and the need for safer travel options, Uber plans to employ 50,000 women drivers in India by 2020.[89]

Cab aggregators like Uber and Ola have increased commission charges and reduced incentives in recent years and caused large-scale disenchantment. The plan to cap commission charges at 10 per cent could improve the income margins for cab drivers.[90]

Women-driven taxi sharing services like Taxshe, WomenCabs and Go Pink Premium Cabs are seeing increasing demand for women drivers.[91] Smaller organizations like Priyadarshani cabs, Sakha Cabs and Taxshe are entering the market to meet the demand for women drivers.[92,93] With mobilization support from their non-profit arm Neeva Foundation, Taxshe aims to conduct extensive outreach and train 5000 women drivers in the next five years to meet their growing demand.[94] Taxshe claims that women drivers on their platform who own their vehicles and work nine-hour shifts take home up to ₹100,000 a month.[95]

Digital enablers like Google Maps and Safetipin can empower women drivers to navigate effectively and remain informed regarding safety considerations. Collectively, digital assets are creating avenues for women to attain higher-paid, non-traditional livelihoods in the public transport sector.

Information services

With the growth in AI, the need for human-led AI quality control and data annotation has increased, and it has created the

Table 3.11: Job roles for women present in the information services industry and the digital asset utilized as per archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Organizations** providing skill training for women to participate as freelancers in the IT sector **Crowdsourcing platforms** for freelancers to login and conduct data tagging work for international clients	Playment, iMerit, samasource, girls who code, AKSHAYA Gateway of opportunities	1. Freelancers working as data annotators, and labelers
Entrepreneurs	**Marketplace platforms** providing market linkages and visibility to entrepreneurs	Justdial	1. Women operating their owm photocopy and lamination centers, STD/ISD/PCO booths 2. Entrepreneurs running telemarketing/customer support hubs
Workers	**BPO companies** that provide training and access to data annotation work opportunities **Job plaftorms** through which women can seek placements in the IT sector	jobsforher, TIMESJOBS, indeed, Clickindia, INFOLKS, indi village	1. Call center agents, sales representatives, customer care representatives 2. Workers conducting data tagging, cataloguing for AI algorithms 3. Television and radio broadcasters marketing, Customer service (BPO)

scope for women to attain entry-level work in tagging, labelling and cataloguing data.[96,97,98] India is a leader in the global ITeS outsourcing industry; it has captured 55 per cent of the global IT-ITeS market.[99] By 2025, the market size of the IT-BPM industry is expected to be $350 billion.[100] An Economic Times article states that 33 per cent of the 30,000 jobs created in the BPO sector in India in 2014 – generated as a result of the BPO Promotion Scheme – were occupied by women.[101] The average starting monthly salary for women can be up to ₹15,000–20,000, which is typically offered to entry-level data labellers.[102,103]

The Indian Brand Equity Foundation (IBEF) states that the IT industry employs nearly 3.97 million people in India, of which 105,000 were added in FY18. India is expected to add over 250,000 new jobs in 2019.[104] A study by ILO claims that digital platforms will enable women working in the informal sector to seek new opportunities and formalized job roles by supporting their transition.[105]

Primary research reveals that high-skilled work in ITeS can include product cataloguing for e-commerce, sentiment analysis, content moderation and ingredient tagging.[106] Entry-level roles in the ITeS data annotation industry do not require specialized technical qualifications, and women with basic digital literacy skills can be trained to perform specialized tasks. IndiVillage maintains that women with the right bent of mind and critical thinking ability can be trained to attain and retain data tagging work in the ITeS industry.[107]

Waste management

By 2031, the waste generated in India will increase threefold, to 125 million tons, as will the need for recycling services.[108,109] About 81 per cent of the women in the waste services sector are involved in materials recovery work (section 3.1). The digitization of recycling value chains can enhance the scope for women to be gainfully employed as waste recyclers and provide them the opportunity to generate profits from value added transactions and achieve dignity of work. By 2025,[110,111] the electronic waste (e-waste) sector will create 450,000 direct jobs, and the waste management sector is expected to grow at 7.17 per cent per annum and be worth $13.62 billion.[112,113] As the concerns over climate change grow and the push towards sustainability increases, organizations are attempting to tap the recycling industry by enabling waste-pickers in the informal sector to formalize operations.

Platforms like I Got Garbage, a mobile-based application and an initiative by Mindtree.org, provide waste-pickers and waste-picking units technical training and support with microactivities like payments and invoicing, waste collection, vehicle tracking, workforce management, etc.[114] Mindtree spreads awareness at the community level to encourage the proper segregation of waste at source and improve the work conditions for waste-pickers. An online marketplace embedded into the I Got Garbage application connects wholesalers and buyers with waste-picking units.[115] Recykal is attempting to formalize the waste management sector through their own platforms and cloud-based management systems.

The formalization of the waste management industry is vital to improve the work conditions of workers exposed to hazardous waste. A report by the ILO claims that the most effective way to assist this transformation will be through innovations in technology.[116]

Table 3.12: Job roles for women present in the waste management industry and the digital asset utilized as per the archetype

Archetypes of women	What is relevant?	Available digital assets	Scope of livelihood in the industry
Self-employed women	**Integrated plaftorms** providing support to women through collection management software	RADDI CONNECT; I Got Garbage; Gulmeher; ELCITA; Stree Mukti Sanghatana; Hasiru Dala	1. Collectors of garbage, recyclables and e-waste at a household level(2) 2. Waste pickers becoming artisans
Entrepreneurs	**Marketplace plaftorms** providing visibility and market linkages to entrepreneurs	recykal; JUNKART	1. Aggregators collecting and disposing gardage 2. Scrap waste (dry) dealers, recyclable material collectors, open dumpsites operators, zones managers, community depositors
Workers	**Communication plaftorms** help workers reduce transactional and logistical costs		1. Collectors, dismantlers, pre-processors, producers of secondary raw materials and recyclers within the waste management (hazardous and non-hazardous) value chain(5)

CHAPTER 4

Factors impacting women's adoption of digital assets

4.1 Barriers to the effective integration of women in the digital economy

Women are constrained from benefiting from the digital transformation by unethical practices adopted by platforms, poor policy enforcement and normative constraints. The low viability of transactions on online platforms, and resource and skill gaps, dissuade women from participating in the digital economy and utilizing digital assets for gainful livelihoods.

Unsupportive practices and policies

4.1.1 Opaque, distortionary and unsupportive terms of engagement followed by digital platforms

» The latest report of the Competition Commission of India finds that e-commerce aggregators and marketplaces give vendors preferential treatment. Aggregators and marketplaces unethically influence search ranking based on commissions received from suppliers and their participation in discounting. This impacts the visibility of small, women-led businesses on digital platforms and their click-through and conversion rates.[117] For small-scale enterprises, indiscriminate discounting is an unsustainable practice.

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- E-commerce platforms levy charges for support services such as search engine optimization (SEO) and catalogue management, but they do not state that explicitly at the time of offering onboarding packages. Abodana and Kalakruti sell handicraft products on the Amazon Saheli platform, and Lok Swasthya Mandali sells ayurvedic products, but they have not received an order because they do not use SEO services.

At the time of onboarding the co-operative, Amazon had stated that the Saheli online storefront was their CSR initiative. Cataloguing support and account management services were promised, although it was later mentioned that additional cost would have to be incurred for availing these services.

Representative of SEWA Federation

- Online aggregators do not offer written contracts or adopt work security measures. Often, digital platforms do not provide women entitlement benefits, health insurance cover or fixed pay, and they let clients and service providers negotiate wages. Since there is no written agreement, platforms and employers are exonerated from providing women – especially in the personal services industry – secure working conditions or rightful remuneration.[118]

Due to lack of any written contracts provided by digital platforms there is low accountability on the part of clients who hire domestic workers through online placement intermediaries. Clients often do not provide paid leave, demand extra services and more extensive work, or deny payments entirely deeming service provision to be of 'inferior quality'.

Representative of Centre for Internet and Society

- The advent of intermediary digital platforms has eroded the traditional relationship of employers and employees and rendered women vulnerable. Women in the personal services segment face a heightened risk of untoward incidents.[119] Interviews with experts highlight that platforms utilize unethical surveillance measures to monitor women, which trivializes their privacy.[120]
- Recent research on the growing data annotation and tagging industry reveals that labelling video/photo content is often tedious or grisly work, especially when the content is 'Not Suitable for Viewing' (NSFV), and exposes women to disturbing or triggering images.[121]

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- Often, digital platforms and applications are unable to localize the design of applications to suit the needs of female end users and/or provide continual customer support. Non-customized, unfriendly user interfaces impact the sustained usage of digital applications and platforms. This is especially relevant for financial tech resources, where the fear of data security threats, accidental mis-clicks and the lack of vernacular language options dissuade women from using digital financial service applications and payment gateways for e-retail transactions.[122,123] In the community health care segment, the lack of continuous customer support for technical faults in digital diagnostic devices can hinder front-line health workers using such devices in providing critical care.

Community health workers from Lok Swasthya Mandali were provided an m-health device 'The Swasthya Slate' to use as a diagnostic tool in the community. However, the tool would often run out of battery and health workers were unable to analyse health data collected. There was no provision to give feedback to the application developers or suggest changes based on local health needs.

Representative of Lok Swasthya Mandali

4.1.2 Lack of stringent regulatory enforcement and policy levers for women retailers and service workers

- The enforcement of competitiveness policies is poor. The draft e-commerce policy aims to protect domestic businesses from foreign competition and ensure that marketplaces provide all suppliers and vendors a level playing field. But it does not specify a mechanism to check for distortionary measures, or implement strict guidelines[124,125] or a process to curtail the unsustainable discounting practices of online marketplaces, which can hamper the long-term sustainability of women-led small and medium enterprises.

- There is no national policy to protect women service workers in the digital economy. While the draft e-commerce policy applies to the online exchange of services, the underlying measures are targeted mainly at the exchange of goods and products. The draft policy does not mandate online aggregators to prepare and sign written contracts or lay down specific terms of engagement, entitlement benefits and remuneration.[126]

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- Keyword tagging or optimization was found not to be effective on the GeM portal, the government e-procurement portal for public sector units, and it does not provide logistics support, limiting women-led MSMEs from fulfilling tenders to hard-to-reach areas. Through its 'Womaniya' storefront, the portal aims to facilitate the e-tendering of products developed by women-led MSMEs, but a Lok Swasthya Mandali representative highlighted that its ayurvedic products lacked traction and the process of seeking vendor support was complicated.

> **Our Ayurvedic products were wrongly categorized in the 'handicraft' section of the portal, due to which no order has been placed. Even after four months of following up with the portal, the products remain wrongly categorized.**
>
> Representative of Lok Swasthya Mandali

Normative constraints

4.1.3 Mobility constraints for women

Limitations on women's agency to take up work far from their vicinity or commute long distances for on-demand work allocated by platforms curtails their participation in the digital economy. This was found to be an especially serious limitation for women in the personal services industry and public transport industry.

4.1.4 Non-conducive environment for women to use digital assets

- The double burden of domestic responsibilities restricts career growth for women in demanding job roles in the digital economy, leading to a high attrition rate and limiting the scope for promotions, and often forcing them to remain in elementary job roles. This leads to low workforce participation in specialized industries such as information services and public transport.

> **There is high attrition among women who are of 'marriageable age' and often qualified women reject promotions as they do not believe they can commit to positions of 'Team Leaders' since they have familial obligations.**
>
> Representative of IndiVillage

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- Sociocultural barriers prevent women from owning smartphones and compel them to purchase feature phones.[127] The Mobile Gender Gap Report 2019 reveals that mobile Internet use among non-owners of phones is highest in India (6 per cent), with most of them being women. This highlights that women who do not own smartphones use the Internet on mobile devices owned by family members.[128] However, non-ownership of smartphones limits women from attaining the digital skills required for economically empowering themselves.

There have been instances where phones provided to Sakhis (frontline health workers) would be snatched by their husbands. We also had an instance of a husband installing a tracker on her wife's device.

Representative of Swayam Shikshan Prayog

Viability considerations

4.1.5 Low viability of B2C e-commerce for MSMEs and independent women service providers

- For MSMEs in the retail industry, the average order value on e-commerce marketplace platforms is low, but the logistics and transportation cost for small-ticket B2C transactions is high, and the margins are so low that they struggle to make a profit. To achieve traction on B2C platforms, investment is required in brand-building, digital marketing and SEO, which MSMEs may not be able to make. The payment disbursement cycle followed by aggregators in e-retail may dissuade MSMEs from transacting online (Amazon has a seven-day processing cycle for sellers, which is impacted by refunds incurred in case of returns).[129]
- Food-tech platforms in the F&B service industry continually increase commission charges. Swiggy has increased commission charges to 18–23 per cent and Zomato is to increase commission by 5–10 per cent.[130] That reduces the profit margin of cloud kitchens.[131]
- In the public transport industry, price-based competition from Uber and Ola is high and further limits the market share of on-demand women-only cab aggregators, already small because they cater only to women passengers. Women-only cab aggregators have not been able to raise enough funding[132] either, and that may limit the viability of such platforms and their capacity to provide women drivers sustainable livelihoods.

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» For the retail sale of products with limited shelf life such as vegetables and organic/ayurvedic products, suppliers transacting on inventory-led B2C platforms face expiration and wastage considerations.

We have an inventory on Amazon; however, we have had to take back our expired ayurvedic products, which do not get any visibility on the website.

Pharmacist from Lok Swasthya Mandali

» Digital placement intermediaries are often unable to provide customized placement services individually to job seekers, especially in the B2C channel. This was found to be a significant factor of the failure of placement services platforms like Helpers Near Me to provide women work opportunities in the personal services industry. Helpers Near Me developed an application for community mobilizers to onboard women, but it does not have the provision to capture an applicant's work history and/or their choice of job role. In a peculiar case, their app offered a highly qualified nursing assistant domestic help work.3

4.1.6 Low smartphone access among rural population and inconsistency in Internet connectivity

» As of 2019, Internet penetration in rural India is only 27 per cent.[133] Rural women might not be able to access the Internet on their mobile devices, and that limits their ability to utilize digital financial services for transactions and payments.

» Inconsistent Internet connectivity across rural and peri-urban areas hinders the scope for women to utilize digital assets for securing livelihoods or enabling work. For front-line health workers utilizing Internet-based m-health devises, there are concerns regarding data loss due to connectivity issues.

Women health Sakhis have had to face instances where the data collected on the m-health device has been lost due to poor internet connection. Sakhis often end up putting in 'double effort' by entering data both on the digital device and manually.

Representative of Swayam Shikshan Prayog

[3] Revealed during a focus group discussion with a mobilizer and women onboarded onto the Helpers Near Me application, in Jahangirpuri area of Delhi. The platform has failed to provide any woman in Jahangirpuri an appropriate work opportunity.

Resource and skill gaps

4.1.7 Lack of access to steady capital and credit

- The lack of access to capital and credit often limits the ability of women to purchase and maintain smartphones and use enabling digital assets and, thus, impacts their integration with the digital economy. As per the Mobile Gender Gap Report 2019, the cost of buying a handset was the top barrier for Indian women's ownership of mobile phones (reported by 21 per cent).[134]
- Integration with e-commerce requires enterprises to maintain high-quality stock and fulfil logistical requirements which are not geographically bound. The lack of access to capital restricts women retailers from expanding operations to service the B2B e-commerce market or shipping orders to hard-to-reach areas. Capital constraints also limit independent caterers from setting up cloud kitchens and curtail women drivers' ability to invest in vehicles and participate in the growing cab-aggregator market. Loan schemes are available (section 4.2), but women are rarely deemed creditworthy, because they usually lack the assets to supply collateral and a credit history and their banking experience is limited.[135,136,137]

4.1.8 Lack of skill and resources for effective engagement with online platforms

- In India, the most important barrier to mobile phone ownership is difficulty in reading and writing, report 14 per cent of men and 20 per cent of women – the largest gender divide among all Asian countries surveyed for the Mobile Gender Gap Report 2019.[138]
- Women lack access to tertiary education and training, due to which they are unable to acquire leadership positions, especially in the information services industry.[139]
- Competition in the e-retail market is driven by dynamic pricing strategies adopted by platforms;[4] social media marketing campaigns; product/service cataloguing and photography; and SEO and keyword tagging. Primary research reveals that successful e-commerce businesses operate dedicated web servers that provide higher visibility and conversion rates with efficient value chains at the back-end. However, small-scale women-led enterprises and independent service providers do not have the skills or resources to follow these practices.

Continued

[4] RUse of price scanning of competition, deep discounting methods to alter price of listed products/services online

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Unless aggressive web engagement and social media marketing is done, B2C e-commerce platforms are reduced to product listing portals for small businesses, due to slim profit margins from low average order values (AOVs).

Representative of Gulmehar

Kudumbashree has a dedicated web-portal 'Kudumbashree Bazar', with listings of products and services. However there have been minimal revenues generated from that portal since there is no dedicated 'sales force' which can manage the back-end value chain for fulfilling orders and providing services.

Representative of Kudumbashree

4.2 Enablers facilitating the adoption of digital assets by women

Certain enabling factors in the ecosystem help women bridge the digital divide and use digital assets effectively.

Policy impetus

4.2.1 Schemes for market linkages, taxation, licensing and credit access

» In February 2019, the Government of India released its e-commerce FDI policy.[140] The policy allows for 100 per cent FDI in the B2B and B2C e-commerce models and does away with the earlier requirement of seeking permission from the government. The removal of this restriction is expected to propel growth in these sectors. To protect domestic businesses from capital dumping and inventory control, FDI has been restricted in the inventory-led e-commerce segment.[141] Domestic, women-led MSMEs with listings on e-commerce marketplaces will have a fair chance to participate in e-retail and benefit from increased market linkages provided by digital platforms as they grow and capture a higher market share.[142]

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- While the GST has invited sharp criticism for its supposed implementation failures, the exemption for small businesses, especially with a turnover of less than ₹2 million, is an impetus for women-led businesses, as 61.2 per cent of women-led enterprises have an annual turnover of less than ₹300,000.[143] In line with the recent e-commerce policy, the Department for Promotion of Industry and Internal Trade (DPIIT) is working on developing regulations to make it mandatory for freelance workers on digital platforms to attain their GSTIN (goods and services tax identification number) and on ensuring that all service activities undertaken through such platforms can be tracked, workers' rights protected and any "untoward event" avoided.[144]
- Government schemes such as Mudra and Stand-Up India are pertinent for women-led enterprisesx.[145] Mudra provides first-time women entrepreneurs collateral-free microfinancing loans of up to ₹1 million. The collateral-free nature of the Mudra scheme can be relevant for women, as they often do not have control of productive assets.[146] The Stand-Up India Scheme provides loans worth ₹1–10 million.
- As part of the National e-Governance Plan, the GoI plans to set up 250,000 CSCs in the country to ensure the front-end delivery of e-governance services. The management of these CSCs and delivery of services is done by Village Level Entrepreneurs (VLEs), who earn a commission on the services they deliver. Another objective of the CSC 2.0 is to encourage more women to become VLEs.[147] The integration of the various licensing and governance provision services as part of the CSCs would improve the ease of doing business for women entrepreneurs at the village level and enable them to access information on the livelihood opportunities available.
- The single-window clearance facility through the Food Licensing and Registration System launched by the Food and Safety Standards Association of India (FSSAI) under the Digital India initiative can also prove to be an enabler for women-led cloud kitchens to streamline their licensing requirements.[148]
- The Mahila e-haat and GeM B2G portals are mandated to purchase at least 3 per cent of their procurement from women-owned MSMEs, giving them an opportunity to tap these sustainable B2G channels.[149] Further, MSMEs are exempt from paying the bid security/earnest money deposit for government tenders, and MSMEs can register on the GeM portal free.[150]
- Government policies like the **Indian BPO Promotion Scheme** are incentivizing BPOs/ITeS establishments where women make up 50 per cent of the workforce.[151]

Continued

Continued

4.2.2 Convergence of education, skilling and livelihood interventions

» Digital platforms are associating with the NSDC and SSCs to provide training and certification to women service providers onboarded onto their platforms. Primary research reveals that personal services platforms – such as Housejoy, UrbanClap and Rozgarkhoj – are encouraging women service providers to attain certification from the Domestic Workers Sector Skill Council and the Beauty and Wellness Sector Skill Council or directly onboarding them through these SSCs. On-the-job training of women provided by aggregator platforms significantly improves their retention.

» **UrbanClap provides refresher trainings to women beauticians through digital channels.**

» **IndiVillage provides a three-month hand-holding for women onboarded by them, starting with basic computer training and progressing to skill training on data annotation and labelling software.**

» The GoI has launched AI education promotion schemes – Atal Tinkering Labs are being established in schools under the Atal Innovation Mission to provide early exposure to school-going adolescent girls to the work opportunities in the information services industry and ignite their interest in unconventional careers in the industry.[152] Other skilling initiatives – such as DISHA, STEP, ASPIRE and SANKALP – can also provide women the opportunity to be trained in relevant digital and specialized skills for attaining work in the services industry.[5]

Other enablers

4.2.3 Collectivization for effective digital engagement

» Primary research reveals that collectivization among women can be an empowering means of building agency and support networks and enable them to demand better working conditions from digital platforms and counter the isolation experienced by freelancers. Collectivization allows women to engage effectively with the digital

Continued

[5] The key features of these skilling programmes are mentioned in Annexure 6.1.

Continued

economy through peer-to-peer learning of business, technical and digital skills and improvement in pricing strategies.[153] Savings and accumulation of working capital is encouraged through SHGs and women cooperatives. Collectives and unions are also better able to undertake grievance redressal. In association with local labour unions in Delhi, Maharashtra and Tamil Nadu, ILO has established a helpline number for domestic workers to report untoward incidents and seek resolution through the unions even if they are not members.[154]

» Women-led cooperatives are better equipped to develop a strong brand narrative and market linkages. Working with artisan women in Uttarakhand, the Purkal Stree Shakti Samiti has tapped into a niche international market and conducts white-label reselling through online platforms such as Itokri and Jaypore. Kudumbashree has built a social impact narrative creating sustainable livelihoods for women entrepreneurs who are a part of the network.[155,156]

4.2.4 User-friendliness of contemporary digital interfaces

» Platforms should use a symbol-based user interface as it can mitigate the literacy and language barriers for women and enable adoption. In one instance, the gamification of digital literacy proved to be an easy and effective way to upskill women front-line health workers in the usage of m-health tools and attune them to the features of digital applications.

To train women on usage of m-health applications developed by Mahiti, we start the induction by getting women to play Candy Crush on a smartphone to help them understand the touch sensitivity of the application and then steadily enable them to use other features of the application.

Representative of Mahiti

» Improved security measures and training initiatives by major aggregators in the public transport industry such as Uber and Ola can serve as important enablers for women driver partners. Uber recently signed a memorandum of understanding (MoU) with the National Health Authority to provide health insurance cover for driver partners under Ayushman Bharat.[157] Uber signed another MoU with Café Coffee Day (CCD) allowing women drivers to access sanitation facilities in CCD outlets.[158] Ola has partnered with NSDC and RISE India to establish driver training centres across nine cities in Maharashtra.[159]

» Research reveals that some personal services industry platforms have aimed initiatives at generating an awareness of rights among service providers and clients, enabling transparency in payment calculations and providing safe/secure working conditions. Helpers Near Me provides rights awareness training online in Hindi and English and conducts police verification of all clients.[160] BookmyBai reportedly provides free accommodation and food to migrant domestic workers till they find a home.[161]

Continued

- **UrbanClap has inbuilt m-wallets on its application used by service providers where customer leads can be viewed and breakdown of remuneration calculations can be accessed.**
- **UrbanClap sends notifications to clients to communicate terms and conditions of work that must be adhered to by the customers, which includes clauses on working hours, cost of services and choice of additional paid services that can be availed of.**

4.2.5 Digital literacy interventions leveraging internship-based training models

- Interviews with digital platforms reveal that deploying internship programmes in association with university students have proven successful. Through the development of fellowship-based immersion programmes and projects, the digital engagement of women entrepreneurs and workers can be enhanced by skills training on marketing and pricing strategies. Such fellowship programmes can enhance the aspiration and motivation of women entrepreneurs and inculcate a curiosity about digital avenues.

1. **Okhai interns exposed artisans to applications such as Instagram and Pinterest and successfully upskilled them to work as designers. An Okhai representative said that interns assisted women in understanding the urban demand and aesthetic, helped them utilize Instagram for design inspiration and stimulated motivation by enabling artisans to post their creations on Instagram.**
2. **deAsra has deployed a 'Young Entrepreneur Programme' in partnership with universities to train and enable last-mile entrepreneurs in the use of open source enterprise diagnostic tools, operations management templates and checklists available on their website.**

CHAPTER 5

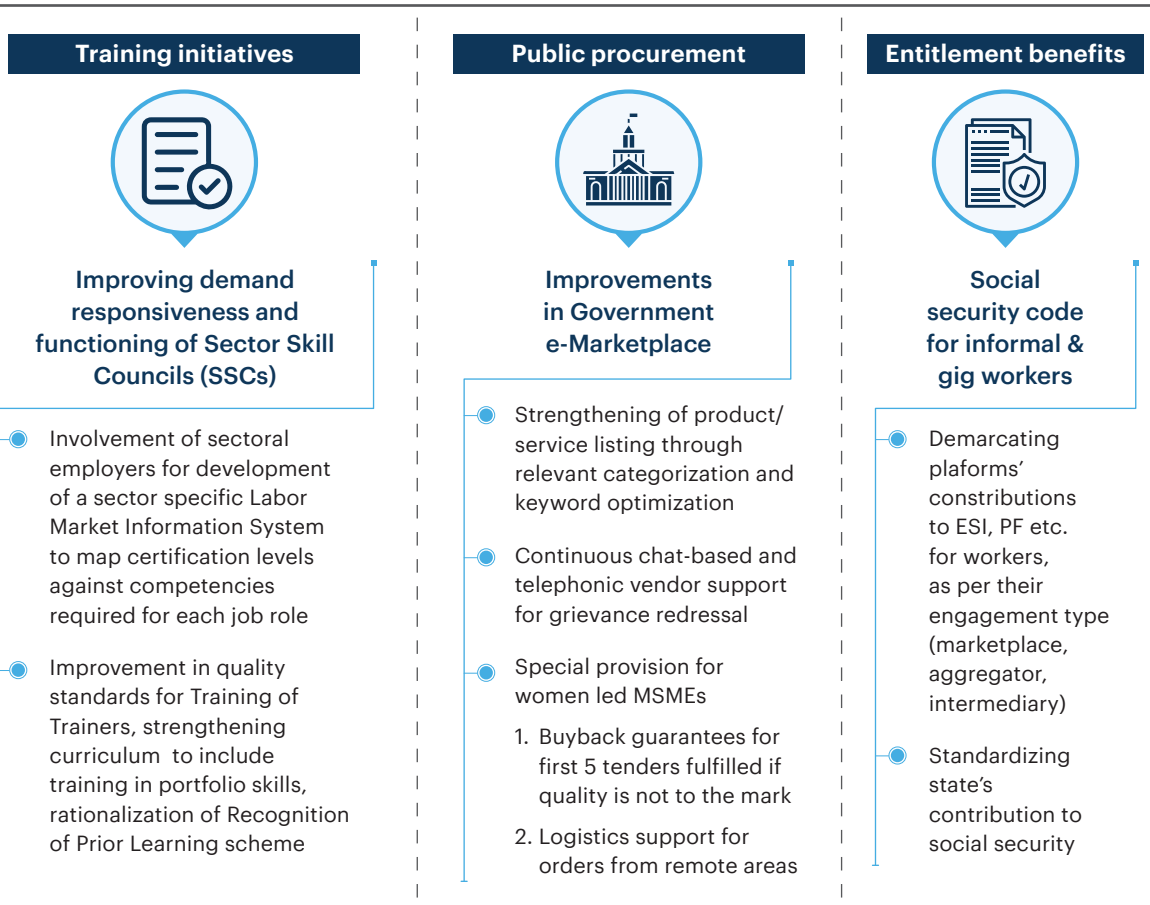
Recommendations

Women face myriad barriers to utilizing digital assets for livelihoods (section 4.1). This chapter outlines the three key areas where interventions are required to enable women in the informal services sector to adopt digital assets effectively.

5.1 Recommendations for advocacy

Advocacy initiatives aimed at advancements in e-commerce policy, online public procurement and skills training are the most

Figure 5.1: Overall advocacy recommendations



important ways of improving the digital engagement of women.

We detail the recommendations to improve women's adoption of digital assets and ensure that they can tap sustainable and dignified livelihood opportunities in the digital economy, and we assign a priority index.[6]

E-commerce policy recommendations

Regulation and standardization of women's engagement with the digital platform economy to dissuade exploitative casualization/subcontracting

Priority

1. **Identification and categorization of different types of online platforms**, i.e. marketplaces, aggregators, placement intermediaries under the e-commerce policy based on the 'control' and 'supervision' exercised over service providers

2. **Subsuming compliance regulations under the existing acts, laws and labour codes** relevant to each type of platform as per their form of engagement with women workers and entrepreneurs:

    1. Aggregators→Compliance with labour codes
    2. Placement intermediaries→Licensing and compliance under the Contract Labour (Regulation and Abolition) Act
    3. Marketplace and online listing platforms→Compliance under the Competition Act and e-commerce policy

3. As part of the proposed **Social Security Code Bill (2019), there should be clearly laid down rules** regarding the share of contributions to be borne by the state and platforms (of each category) towards EPF, ESI for gig workers and unorganized workers. Social security benefits should be worker-centric and transferable instead of being platform-dependent.

4. **Laying down of strict penalties** for non-compliant platforms under the draft e-commerce policy

5. **Passing of the Data Protection Bill**

[6] Legend for priority: 1. High (Red) 2. Medium (Yellow) 3. Low (Green)

Recommendations for skilling and support facilities

Enhancement in state-led skilling initiatives and digital literacy programmes

Priority

1. **Upgradation of all skilling initiatives** under the NSDC to train women in core portfolio skills transferable across industries and job roles so they can meet the demands of industries growing as a result of the digital transformation

2. **Proper implementation of the National Apprenticeship Promotion Scheme (NAPS)** in ITIs for women in formal training. **Formal validation of skills under the Recognition of Prior Learning (RPL)** scheme to certify women who have attained skills informally. This would provide them more bargaining power and agency in associating with the digital economy.

3. Collation of **vernacular video-based learning content** on the Skill India and NSDC website

4. **Creation of a cadre of community-level women digital facilitators** under national and state-led schemes; for instance, women banking correspondents as part of the DigiDhan melas

Introduce and strengthen support facilities to improve digital asset adoption among women

Priority

1. **B2G procurement from women-led MSMEs needs to be strengthened.** While 3 per cent of government procurement is set aside for purchases from women-owned MSMEs, further support is required for the efficient integration of women-led MSMEs on B2G portals:

    1. Cataloguing and logistics support through GeM and Mahila e-haat and improvement in keyword optimization

    2. Provision of buy-back guarantees for the first five high-value orders fulfilled by women-led MSMEs through the GeM in the case of quality mismatches. This would cushion the burden of possible losses. Quality improvement support should be provided after the buy-back guarantees are exhausted.

Continued

Continued

2. **Mapping and strengthening of supportive infrastructure through the Digital India initiative:**

    1. Creation of a National Index to map internet network coverage across geographies and incentivize both state-led and private telecom companies to prioritize service delivery in geographies with low network penetration
    2. Strengthening of Common Service Centres (CSCs) under the National eGovernance Plan, expanding service provision to market research, digital literacy, résumé-building and online registration and licensing support for women-led MSMEs
    3. Digitization of District Industrial Centres in rural areas to provide operational support to women-led MSMEs

5.2 Recommendations for digital platforms

Platforms must offer conducive and fair terms of engagement for women vendors, ensuring that design of digital portals and applications is gender-sensitive and easy for women to adopt.

Platform design

Human-centred design of portals to establish user-friendly interfaces for women end-users to account for local factors and provide customized services to women workers and entrepreneurs

Priority

Table 5.1: Best practices in platform design in India

Best practices in human-centred design	
Primary research reveals that before rolling out m-health applications Medic **Mobile undertakes co-creation workshops with front-line health workers** to customize the application to local health needs and the average level of digital literacy among front-line health workers in each community.	**Taxshe Cabs has championed the model of customized placement services for female drivers.** All drivers are allotted work with clients – only women and children passengers – on fixed routes and within a 10 km radius of their vicinity.

Continued

Continued

Best practices in human-centred design	
The platform takes inputs not just at the time of application design but also continually over the period of engagement with health workers. By designing dashboards and tools that facilitate the process of collecting health data from the field and understanding and analysing it, the application aids field health workers. Supervisors of front-line workers are trained in basic troubleshooting of the application. If the technical fault is complex, health workers can reach the centralized customer care at Medic Mobile.	Each driver gets to design her work schedule around her personal domestic responsibilities. *"We have to understand that if a woman has domestic responsibilities, she cannot just walk away from it. Our drivers have the flexibility of going home to tend to their children during the workday and use washrooms at their own homes"* (Taxshe representative). The organization has been able to tap the demand for women-driven cabs; it has a wait-list of more than 400 client requests. Taxshe has distinguished themselves from on-demand taxi service providers by centring service provision on the women drivers rather than on the passengers.

Inbuilt support facilities on applications and portals for women

Priority

1. **SOS/Panic button** on applications
2. Vernacular-based **help centre** and video-based/ live chat support *(currently made available on the reseller application Meesho)*
3. **Offline MIS** and cloud-based backup *(inbuilt as part of m-heath tools developed by Mahiti)*
4. **Inbuilt m-wallets** and payment gateways on aggregator platforms to maintain transparency in calculation of remuneration
5. **Commute assistance** provision

Engagement policies — Priority

Transparency in terms and conditions of engagement and strict adherence to agreements

1. Marketplace platforms and placement intermediaries should be designed to **allow portability of previous work experience** and provide women the option to choose job roles based on their work history and skill set
2. **Written contracting** processes with terms laid down for procurement, working conditions, commission charges, paid add-on services, remuneration and incentives provided
3. Provision of **microloans** to women and health insurance benefits by aggregator platforms
4. **Uniformity in the provision of support services** such as logistics and warehousing to all vendors regardless of scale of operations and/or gender
5. Adherence to **privacy considerations** and ethical surveillance practices

Platforms can adopt best practice frameworks developed by international alliances to establish their credibility in the on-demand economy, such as the 'Good Work Code' developed by the National Domestic Workers' Alliance in the United States of America.[162]

5.3 Recommendations for CSOs

Community-level interventions must be undertaken by CSOs to improve digital awareness and provide targeted skill training

Liaising with community-level opinion leaders to identify and address sociocultural barriers which limit women's adoption of digital assets

Raising awareness among women regarding income-enhancement opportunities provided by digital assets to **incentivize investment in smartphones**

Creating a cadre of community-level peer groups and knowledge leaders to promote digital literacy and awareness

Providing **immersive digital skill training to women through experiential and adaptive learning techniques** and leveraging community-based resources (such as adolescents with basic digital literacy)

Designing internships, fellowships and volunteer-based interventions in partnership with experts and university students to train women in the use of social media marketing, photography, cataloguing, dynamic pricing and digital self-learning skills. The online platforms that place interns with CSOs are HelpX and GivingWay.

Table 5.2: Community-level intermediary models promoting digital adoption

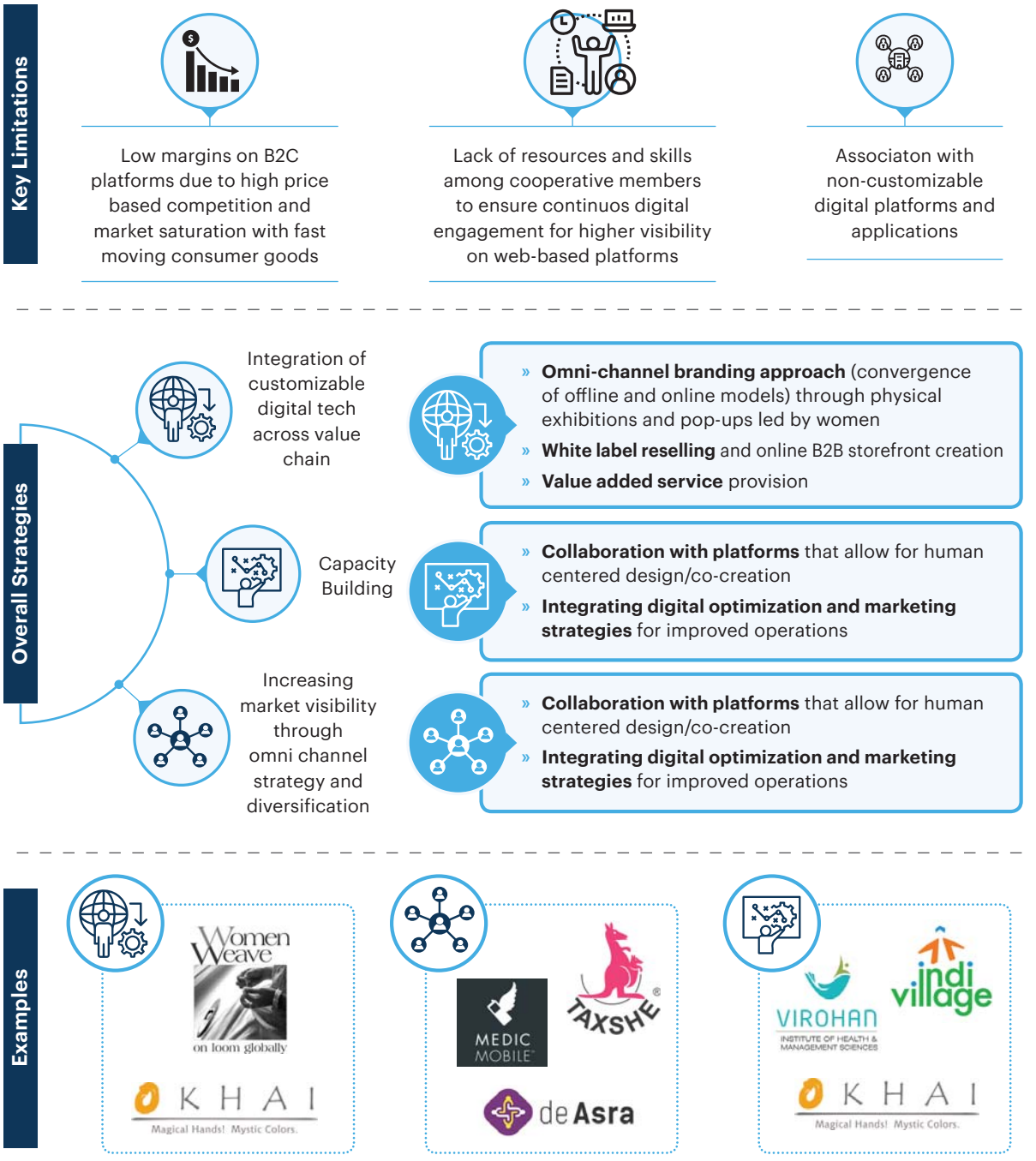
Relevant models of community-level intermediaries promoting digital adoption	
The **Digital Sakhi Programme** of L&T Financial Services (LTFS) aims to create community-level women mentors by training Digital Sakhis in digital financial literacy, leadership and technology. The Sakhis ensure door-to-door awareness-raising and information dissemination in demarcated villages. The second stage of the programme identifies women entrepreneurs trained by the Sakhis in enterprise development through other curricula and digital financial skills. In the first year of the programme in Maharashtra, the programme saw impressive improvements in digital financial literacy among women, increasing by 13.86 per cent among Digital Sakhis. Amplified impact was measured as a result of programme implementation in partnership with SEWA in Madhya Pradesh. Women's awareness of mobile wallets increased as much as 43.8 per cent and their awareness of debit cards increased 40 per cent.[163]	As part of the **e-choupal initiative of ITC, village-level 'sanchalaks' have been trained** to set up Internet kiosks and assist farmer retailers to directly transact with ITC through the e-choupal. These sanchalaks increase the agency and bargaining power of farmers by providing standardized quality assessment support at the kiosk and enabling them to negotiate prices directly with ITC based on market price information. These sanchalaks serve as facilitators in the 'farm-to-buyer' digital value chain established by ITC.[164]

5.4 Pilot recommendations for SEWA

Based on preliminary research and assessment of SEWA pilots which integrate digital assets, the following strategy is proposed:

The specific recommendations for each cooperative are detailed below. A digital readiness score is assigned to provide a preliminary feasibility indication regarding the cooperative's readiness to implement the suggested digital engagement strategies. The scoring metrics are detailed in section 6.7 of the Annexure.

Table 5.3: Overall digital engagement strategy for SEWA



Farm2Table

Farm2Table enables the sale of vegetables using WhatsApp as a platform, which is managed by a single woman entrepreneur at the moment. The WhatsApp group is used to prepare daily price listings and accept orders from women working at the SEWA Federation office.

The digital readiness score has been assigned by analysing information collected during a semi-structured interview with the representative from Farm2Table.[7]

Challenges identified	Strategy to address the problems (Outcomes)	Tangible measures (Activities)
Low B2C market access and challenge associated with supplying to restaurants where chefs and supply chain managers are men with preference for male suppliers	Providing **value added service**	**Offering subscription** to chopped and packaged fruit delivery in reusable packages
	Targeting corporate offices (B2B) and increasing membership on WhatsApp group through marketing efforts	**Establishing market footprint** in corporate offices through sample sale and subscription packs
	Building a **brand narrative** of the Farm2Table journey	Publishing Dinaben's **video weblog on media portals** such as YourStory, The Wire and YouTube
Low profit margin at around 10 per cent on each order **due to high transport cost** on small-ticket orders; transport cost increases as produce quality has to be preserved	**Forward linkage** with transport cooperative	Formation of an **e-rickshaw cooperative** in Ahmedabad and in-sourcing delivery within SEWA Federation

Digital readiness score	Total	Score
Strength	1	1
Active membership	1	3
Smartphone usage	100 per cent	3
Digitally literate co-op manager: Yes		

Abodana and Kalakruti

Abodana is a cooperative involved in block printing, and Kalakruti is SEWA's apparel cooperative. Both cooperatives use a format of selling through e-tendering on GeM and product sale on Amazon Saheli.

The digital readiness score has been assigned based on information collected regarding the cooperatives from representatives of SEWA Federation.

[7] Legend: 3: High, 2: Medium, 1: Low

Challenges identified	Strategy to address the problems (Outcomes)	Tangible measures (Activities)
Low visibility on platforms such as Amazon Saheli and GeM due to lack of digital marketing and SEO efforts	Dovetailing on **white-label resellers,** creating **online storefronts on B2B platforms** which provide paid analytics support	Selling of block print fabric to established apparel brands with high online market share such as **Okhai, Jaypore, Rangsutra.** Setting up B2B apparel storefronts on **Zilingo Asia Mall and Udaan**
	Omni-channel approach efforts	Organizing **physical pop-ups and exhibitions** to boost online sale
	Building capacity of cooperative managers to optimize digital marketing efforts	Onboarding **training bodies to build capacity of cooperative managers** (who have intermediate digital literacy skills) on Google Analytics and Facebook page Insights (free software)
	Outsourcing SEO diagnostics and digital marketing to third-party service providers	Utilizing business diagnostic tools available on **deAsra's** website (free toolkit) and onboarding third-party marketing companies vetted by DeAsra for digital marketing

Digital readiness score (Abodana)	Total	Score
Strength	85	2
Active membership	10	1
Smartphone usage	15 per cent	1
Digitally literate co-op manager: No		

SEWA Home Care and Helpers Near Me (pilot)

Home Care is SEWA's cooperative that provides women with market linkages in the domestic care industry in Ahmedabad. Home Care uses digital platforms like JustDial mostly for visibility; however, offline channels constitute their primary source of business. The Helpers Near Me pilot is being implemented in the Jahangirpuri area of Delhi, wherein a mobile application is used by the mobilizer to onboard women (non-collectivized) from the Jahangirpuri community for potential placement as domestic helpers and care workers.

The digital readiness score for SEWA Home Care has been assigned based on information collected from SEWA Federation, an interview with the SEWA Home Care manager and through FGDs with women in Jahangirpuri. The Helpers Near Me pilot has one mobilizer; however, none of the women onboarded through the application has found work.

Challenges identified	Strategy to address the problems (Outcomes)	Tangible measures (Activities)
Low visibility on Justdial (due to poor SEO efforts and an overall customer rating of 3.3)	Increase visibility through reviews and keyword optimization	Requesting **reviews from current customers** and businesses
		Improving keyword tagging on Justdial
	Association **with more established platforms** providing larger market access and direct placement services	Registering SEWA Home Care as an agency on **Helper4U**
No option on Helper4U application to enter each woman's unique work history and **choice of occupation**, leading to **inefficient mapping** and placement services provided by the platform; none of the onboarded women has found work yet	**Updating** platform application	**Troubleshooting and co-creation with Helpers Near Me** to update work history section on the onboarding application
	Association with **more established platforms** providing larger market access and efficient placement services	Onboarding independent women deep cleaners onto **UrbanClap**, which has a large market share and is open to onboarding skilled women in the deep-cleaning segment

Digital Readiness Score (SEWA Home Care)	Total	Score
Strength	150	3
Active membership	65	2
Smartphone usage	80 per cent	3
Digitally literate co-op manager: Yes		

Trupti

SEWA's catering cooperative, Trupti, provides offline B2G catering services at government office canteens. Trupti also sets up stalls at events in Ahmedabad that sell hot snacks. As a one-time intervention, the Farm2Table WhatsApp group was utilized to seek orders for packaged snacks prepared by women in the Trupti Cooperative.

The digital readiness score for Trupti has been assigned based on information collected from interactions with SEWA Federation representatives.

Challenges identified	Strategy to address challenges (Outcomes)	Tangible measures (Activities)
Low number of active members due to low scale of operations	Generate interest among women and establish a **cloud kitchen under Trupti** within a dedicated kitchen space	Utilizing tools provided on **deAsra's website** or hiring third-party vendors vetted through deAsra for preparing documents and plans required for FSSAI
Lack of FSSAI licence for commercial sale of snack and produce	Utilizing services of **third-party platforms** to attain licence and access markets	
Lack of standardized recipes for large-scale operations	Co-creation of local homestyle menu items and capacity-building on consistency of food preparation	Organizing workshops for caterers led by women operating kitchens at the office of Small Industries Development Bank of India (SIDBI) in Gujarat
Challenges associated with **packaging and delivery**	**Forward linkage** with logistics cooperative	Formation of a **last-mile logistics cooperative** and in-sourcing packaging and delivery within SEWA Federation

Digital Readiness Score (Trupti)	Total	Score
Strength	102	3
Active membership	25	2
Smartphone usage	50 per cent	2
Digitally literate co-op manager: Yes		

Lok Swasthya Mandali

This SEWA cooperative provides health care assistance through front-line work. Lok Swasthya Mandali operates in Ahmedabad and provides services such as health awareness-raising, health insurance provision and nursing services in local and rural communities. Women that are part of the Lok Swasthya Mandali use WhatsApp for communications and maintain all documentation manually on their diaries.

The digital readiness score for Lok Swasthya Mandali has been assigned based on information collected from FGDs with front-line workers, pharmacy workers and coordinators working with Lok Swasthya Mandali.

Challenges identified	Strategy to address challenges (Outcomes)	Tangible measures (Activities)
Drudgery of collecting, recording and analysing health **data manually**	**Co-creation and training** on m-health applications with tech partners	Co-create m-health application with **Medic Mobile** for collection and analysis of health data and referral
Lack of tools for real-time diagnostics, and referral		Working together with **Mahiti** to attain diagnostic applications and interactive voice response system (IVRS)-based referral tools, and organizing training by Mahiti team (who undertake capacity-building through gamification of application elements)
Limitation of service provision to awareness building roles	Capacity-building of women through formal training	Enrolment of eligible women in diploma/ degree courses for technicians and general duty assistants, offered by Virohan
Informality of physiotherapy service provision by women in Lok Swasthya Mandali		Formal training of women through training providers certified and accredited by **Health care Sector Skill Council**

Digital Readiness Score (Lok Swasthya Mandali)	Total	Score
Strength	1825	3
Active membership	20	1
Smartphone usage	90 per cent	3
Digitally literate co-op manager: Yes		

Recommendations for new pilots that SEWA can implement

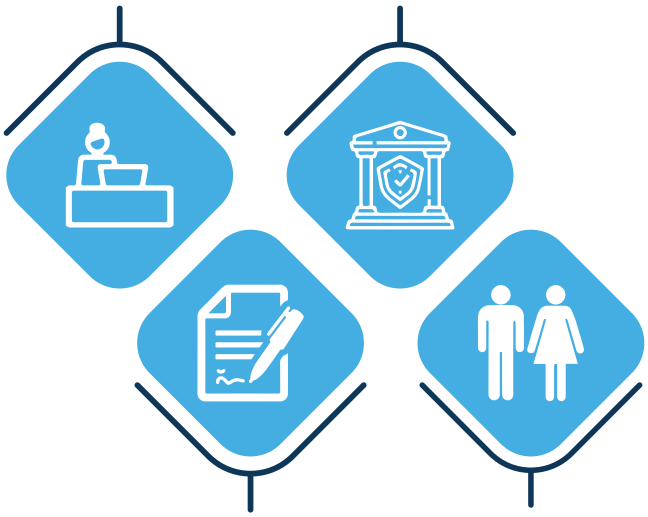
Pilot Recommendation	Market Opportunity	Relevant Platforms
Setting up women led logistics hubs or warehouses at last mile geographies	1.35 Billion USD e-retail logistics amrket (as of 2018). [1] Creation of 4 million jobs in logistics and delivery due to e-commerce.[2]	Delhivery, which onboards enterpreneurs operating intermediate logistics hubs in last mile geographies
Training programs for women with basic digital literacy skills, on data tagging and annotation	1.2 Billion USD worth of data labelling market in India by 2023[3]	Indivillage and IMerit in India employing and training women in data annotation roles
Setting up a fleet of women scooter riders to cater to female commuters in Ahmedabad	Market share of 4.40 Billion (USD) to be captured by radio taxi services by 2024, compared to $1.38 billion in 2018[4]	Taxshe model which allows each female driver to flexibly design their work schedule around the personal domestic responsibilities LadyJek, a women only (driver and customer) motorcycle ride sharing app in Indonesia.

Source: 1. IBEF (2018) 2. NCAER, 2019 3. Analytics India Mag, 2019 4. TechSci Research, 2019

5.5 Areas for further research

Research on comparability of National Sample Surveys, such as the PLFS (2017–18) with Employment Unemployment survey of previous years. Academic research is required on the scope of sample surveys to go beyond enumeration and capture data on the nature of work done by women in the informal services sector

Evaluation of the first phase of Common Service Centre scheme (CSC 1.0) before a roadmap for CSC 2.0 is finalized and progress on the number of women Village Level Entrepreneurs (VLEs) operating the CSCs



Legality of linking social security nets to individuals instead of routing it through employers in the platform economy (under the proposed Social Security Code 2019 for gig workers) and assessment on the scope of placement intermediary platforms to register as contractors (so as to subsume compliance under Contract Labor Regulation and Abolition Act)

Research on scope of replicating successful digital models in the manufacturing sector, within the service sector

CHAPTER 6

Annexure

6.1 Key features of relevant schemes and policies for women in India

Finance	Skilling	Sigital transaction	Social security
Mudra: Micro financing options for first time to aspiring entrepreneurs	**SANKALP:** Strengthening the pool of trainers for future training at national and state levels	**Mahila E-haat:** Online catalogue platform for retailers to gain market linkages	**Pradhan Mantri Shram yogi Mandhan:** Provides social security for unorganized workers
Stand Up India: Between 10 lakh and 1 crore to a women setting up a greenfield enterprise	**ASPIRE:** Setting up ICT centres in rural areas for skilling	**GeM:** National Public Procurement Model for state and national-level service providers	
Annapurna Scheme: Loan upto ₹ 50,000 for kitchen equipment for women entrepreneurs	**STEP:** Providing skill to women over the age of 16 to increase employability in the country		
Bhartiya Mahila Business Bank Loan: A loan of upto Rs 20 crore for women business owners of manufacturing enterprises	**PMKVY:** Providing skill training and increased job opportunities through entrepreneurship and placements		
Dena Shakti Scheme: Loans up to ₹ 20 lakh for women entrepreneurs in agriculture, manufacturing, micro-credit, retail stores, or similar small enterprises	**PMKK:** Installing Model Training Centres in districts to provide skill training		

Continued

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Finance	Skilling	Sigital transaction	Social security
Udyogini Scheme: Women between 18 and 45 years of age, in agriculture, retail and similar samll businesses, can avail loans up to Rs 1 lakh under this scheme	**D-DAT:** 500 crore skill development training scheme		
Cent Kalyani Scheme: Loan upto 1 cr for agriculture or retail			
Orient Mahila Vikas Yojana Scheme: Reduction of interest rates for enterprises where women are majority stakeholders			
TREAD Scheme for Women: Provides financial assistance to NGOs that are equipping first time women entrepreneurs			

6.2. Tools for primary research

1. Key informant interview questionnaire for digital platforms

S. No.	Questions	Probe
Part 1	**Profile of organization: To assist with analysis of women's work in service sector**	
1	Currently, how many women are part of the workforce or are using your platform to provide services? What are their socioeconomic, demographic backgrounds? And how has this grown in recent years?	What have been the factors aiding this growth?
Part 2	**Understanding digital engagement and how digital assets unlock livelihood opportunities to empower women**	
2	What are the factors that have led to the growth of women in your digital platform? Will this sustain in the next 3 years?	
3	Is there a business case for your platform to onboard more women service providers or create newer livelihood avenues for them?	How different is it for entrepreneurs/self-employed/women workers?
4	How does your platform offer market access to women/link them to employers? a) What kind of digital assets are you using? b) In your view, what has been the relevance and effectiveness of the same?	a) Have you partnered with any other digital platforms? b) What kind of digital resources are women in your platform utilizing (For ex: WhatsApp, Paytm)? How are women adopting these assets?

Continued

Continued

S. No.	Questions	Probe
5	What is the nature of the work women attain through your platform? What are the job roles they perform? And what is the duration of work they get?	a) What is the nature of work offered by digital platforms to women entrepreneurs and self-employed women? b) Is digital creating avenues for women to foray into non-traditional occupations within these sectors?
6	How are the contracts and policies laid out for women? How do contracts offered to women differ from the ones made to men?	Are entrepreneurs and self-employed women who offer service through the platform also offered contracts? How different is it from those offered to women workers?
7	What is the platform's liability to provide women with entitlement benefits/social security?	How different is it for entrepreneurs/self-employed/women workers?
8	What is the unit economics for women, how does it differ from men?	
9	What special services do you have to attract women service providers?	
10	What are the digital resources that women across the value chain should learn to use to be onboarded on a platform like yours?	
11	How is your platform capacitating women service providers before, after and during onboarding them? How? What are the areas of capacitation?	Are skilling needs of women workers different from self-employed women and entrepreneurs? How?
12	What is the strategy going forward, to onboard more women?	
13	Is your platform enabling enterprise to enterprise exchange among women?	
Part 3	**Factors impacting women service providers' scope to sustain livelihoods using technological avenues**	
14	What are the challenges to onboarding women or working with women?	a) skill gaps: technical/literary b) normative c) financial
15	In your experience has it been better to onboard women from collectives or non-collectivized women?	Elaborate through instances
16	Are there any reasons why women are hesitant in associating with digital platforms?	a) Work contracts/incentive structure b) Scope for collectivizing c) Work pressure of on-demand jobs
17	What policy initiatives can the government undertake to scale the impact of digital assets on women's livelihood?	
18	How do you feel that CSOs can enable more women to adopt and use digital assets and engage effectively with your platform?	

2. Key informant interview questionnaire for job portals

S. No.	Questions	Probe
Part 1	**Organizational engagement profile: Analysis of women's work in service sector**	
1	Approximately, how many women versus men use your platform to seek employment? What per cent of women get full-/part-time opportunities through your platform?	Are self-employed women/women entrepreneurs also utilizing your platform to offer their services to other businesses?
2	What are their backgrounds, geographies, socioeconomic status? Are women from low income households utilizing your platform to seek service sector jobs?	
3	What type of jobs are women usually applying for in the service sector? Are there any specific industries that women are applying for?	
4	How is your portal getting women from low income households to subscribe to the portal?	
Part 2	**Understanding digital engagement and how digital assets unlock livelihood opportunities to empower women**	
5	How has women's engagement with your portal grown due to digitization?	
6	What are the solutions provided by job portals for women from low income households?	
7	What are future initiatives that your portal wants to undertake in order to reach out to more women who are seeking employment?	
8	Are there policies targeted towards women that your portal has developed?	Policies targeted towards women from low income households
9	Is your platform sharing any knowledge/capacity-building pieces with women subscribers to help them with job search?	
Part 3	**Factors impacting women service providers' scope to sustain livelihoods using technological avenues**	
10	What are the barriers to women utilizing your platform?	i. skill gaps: technical/literary ii. normative iii. financial
11	What are the challenges faced by your portal in linking women to service sector jobs?	
12	What interventions are required to address these challenges?	
13	Is there a policy push required to enable engagement of your portal with women from low income households?	

3. Key informant interview questionnaire for CSOs

S. No.	Questions	Probe
Part 1	**CSO organizational profile: To assist with analysis of women's work in service sector**	
1	What are the livelihood interventions your CSO is leading for women in the service sector?	
2	How many women are currently being reached through these livelihood interventions? What are their socioeconomic, demographic backgrounds?	
3	What jobs and occupations are women attaining through these livelihood interventions?	
4	Are these women engaged in multiple occupations to supplement family income?	What are the most common occupations?
5	Approximately, what percentage of these women become entrepreneurs, find self-employment and conduct casual/contractual work in the services sector?	
6	What are the mechanisms through which your CSO links women to markets/employers in the service sector?	
Part 2	**Understanding digital engagement and how digital assets unlock livelihood opportunities to empower women**	
7	Are you using any kind of digital assets to facilitate livelihood for women? If yes a) What kind of platforms and resources? b) What has been your experience so far on the relevance and effectiveness of the same? c) How is your CSO reaching out to digital platforms? Do digital platforms reach out to your CSO to onboard women?	a) Has engagement with a digital platform (For Ex: Amazon) been of assistance in finding work opportunities for women? b) What kind of digital resources are women utilizing (For ex: WhatsApp, Paytm)? How are women adopting these assets? c) How does usage of digital resources by women impart scalability and sustainability to their work?
8	What is the nature of work women attain through digital platforms? What are the job roles and the average period of work? How flexible/non-continuous are these work arrangements?	What is the nature of work offered by digital platforms to women entrepreneurs and self-employed women?
9	Are women provided with contracts by digital platforms? In your view, are the terms of work or contracts different for men and women?	Are entrepreneurs and self-employed women who offer service through the platform also offered contracts? How different is it from those offered to women workers?

Continued

Continued

S. No.	Questions	Probe
10	Are platforms liable and accountable for providing social security entitlements/benefits to women they engage with?	How different is it for entrepreneurs/self-employed/women workers?
11	Does any digital platform you have engaged with have special services to attract women?	
12	Do digital platforms invest on capacitating/ skilling women they onboard? How? What are the areas of capacitation?	Are skilling needs of women workers different from self-employed women and entrepreneurs? How?
13	Ecosystem viewpoint: A 2018 McKinsey report establishes that 60 million jobs will be established due to digital economy by 2025. In your view how has digitization changed the overall landscape of women's work? How does digitization impact traditionally informal work arrangements?	In your experience, are women welcoming or disliking the flexibility in work arrangements accorded by digital platforms (marketplaces and aggregators)? Are women realizing their agency and bargaining power within these work arrangements offered by digital platforms?
Part 3	**Factors impacting women service providers' scope to sustain livelihoods using technological avenues**	
14	What are the barriers faced by women in accessing and using digital assets, or being onboarded on digital platforms?	a) skill gaps: technical/literary b) normative c) financial
15	How does your CSO address these barriers? How can this be achieved at scale?	Are enablers required for women workers different from self-employed women and entrepreneurs? How?
16	Are there any reasons why women are hesitant in associating with digital platforms?	a) Work contracts/incentive structure b) Scope for collectivizing c) Work pressure of on-demand jobs
17	Do women's collectives act as effective mediums to interact with digital platforms? How efficient are collectives in engaging with digital platforms on behalf of all members?	How is your CSO enabling enterprise to enterprise exchange between women?
18	What do you think is required at the policy level to improve women's engagement with digital platforms?	

4. Semi-structured interview guide for managers of cooperatives at SEWA Federation

S. No.	Questions	Probe
Part 1	**Profile of women in the pilot: To help with analysis of women's work in the service industry**	
1	How many women are a part of this cooperative/pilot currently? a) On average how long have they been a part of the SEWA Collective? b) How were these women collectivized? c) How do you envision the number of women growing in this cooperative?	Are self-employed women/women entrepreneurs also utilizing your platform to offer their services to other businesses?
2	What is the nature of work performed by women who are part of this cooperative/pilot?	What form of entrepreneurial work is initiated by women in this intervention, what kind of self-employment or jobs are performed?
3	a) What are the skills (literary and technical) required to efficiently work within various job roles? b) How were these skills imparted to women?	
4	a) What is the average level of literacy among all women? b) What is the average age of women who are currently a part of this cooperative/pilot? c) Is there any difference in terms of participation and engagement in different groups of women? If yes, what kinds vis-a-vis which group?	
5	a) What is the average monthly income earned by each woman in this cooperative/pilot? b) Are women paid per monthly/weekly/per gig?	
6	Are women in this pilot engaged in multiple occupations to sustain family income?	
Part 2	**Understanding digital engagement and how digital assets unlock livelihood opportunities to empower women**	
7	Are you using any kind of digital assets to facilitate livelihood for women? If yes a) What kind of platforms and resources? b) What has been your experience so far on the relevance and effectiveness of the same? c) How is your CSO reaching out to digital platforms? Do digital platforms reach out to your CSO to onboard women?	a) Has engagement with a digital platform (For Ex: Amazon) been of assistance in finding work opportunities for women? b) What kind of digital resources are women utilizing (For ex: WhatsApp, Paytm)? How are women adopting these assets? c) How does usage of digital resources by women impart scalability and sustainability to their work?

Continued

Continued

S. No.	Questions	Probe
8	What is the nature of work women attain through digital platforms? What are the job roles and the average period of work? How flexible/ non-continuous are these work arrangements?	What is the nature of work offered by digital platforms to women entrepreneurs and self-employed women?
9	Are women provided with contracts by digital platforms? In your view, are the terms of work or contracts different for men and women?	Are entrepreneurs and self-employed women who offer service through the platform also offered contracts? How different is it from those offered to women workers?
10	Are platforms liable and accountable for providing social security entitlements/benefits to women they engage with?	How different is it for entrepreneurs/self-employed/women workers?
11	Does any digital platform you have engaged with have special services to attract women-led cooperatives? b) Does the cooperative receive any services from the platform (logistics, transport) c) Does the cooperative receive any credit access?	
12	Do digital platforms invest on capacitating/ skilling women they onboard? How? What are the areas of capacitation?	Are skilling needs of women workers different from self-employed women and entrepreneurs? How?
Part 3	**Factors impacting women service providers' scope to sustain livelihoods using technological avenues**	
13	What are the barriers faced by women in accessing and using digital resources?	a) skill gaps: technical/literary b) normative c) financial
14	What are the barriers faced by your cooperative/ women in your cooperative in associating with digital platforms?	a) Work contracts/incentive structure b) Work pressure of on-demand jobs c) Stringent quality measures d) Mobility/safety issues
15	How does the cooperative address these barriers? How can this be achieved at scale?	Are enablers required for women workers different from self-employed women and entrepreneurs? How?
16	Do women's collectives act as effective mediums to interact with digital platforms? How efficient are collectives in engaging with digital platforms on behalf of all members?	How is the cooperative enabling enterprise to enterprise exchange between women?
17	What do you think is required at the policy level to improve women's engagement with digital platforms?	a) Policies laid down by digital platforms b) National/state level government policies

5. Focus group discussion guide for women in SEWA cooperatives

S. No.	Questions	Probe	Hindi
Part 1	**Profile of women in the pilot: To help with analysis of women's work in the service industry**		
1	How long have you been a part of SEWA's collective? a) Were you involved in any other collective before this? b) Are other women in your family also part of the collective?		आप कबसे SEWA से जुड़े हैं? a) इससे पहले क्या आप किसी संगठन से जुड़े थे? b) क्या आपके परिवार की दूसरी महिलाएं भी SEWA या किसी और संगठन से जुडी हैं?
2	What kind of support (opportunities for livelihood, capability building, personal development) are you currently accessing from SEWA?		SEWA से आपको किस तरीके की मदद मिल रही है? (काम के लिए, कौशल ट्रेनिंग, स्व–विकास)
3	What is the nature of work performed as part of this pilot intervention? a) What are the skills (literary and technical) required to efficiently work within various job roles in this pilot? b) How were these skills learned/imparted?	What kind of entrepreneurial opportunities are you pursuing in this pilot, and what kind of self-employment or jobs are being performed?	आप SEWA में किस–किस प्रकार का काम करते हैं? (स्व–व्यवसाय, स्व–रोजगार, और नौकरी) a) यह काम करने के लिए आपको किन तकनिकी व् शैक्षणिक कुशलताओं की जरुरत पड़ती है? b) यह कुशलताएं आपने कैसे प्राप्त की?
4	a) What is the average monthly income earned through your work in this pilot? b) Are you paid daily/weekly/monthly or per gig?		a) आपकी औसत मासिक आय क्या है? b) आपको वेतन दैनिक/साप्ताहिक/मासिक, या प्रत्येक काम के आधार पर दिया जाता है?
5	a) Do you believe the income earned from working in this pilot intervention is enough for your and your family's sustenance? b) Are you engaged in multiple occupations to sustain family income? What other occupations?		a) क्या आपके हिसाब से आपका वेतन आपके और आपके परिवार के जीवन निर्वाह के लिए पर्याप्त है? b) क्या आप अपने जीवन निर्वाह के लिए, इस काम के अलावा कोई और काम भी करते हैं? क्या काम करते हैं?

Continued

Continued

S. No.	Questions	Probe	Hindi
Part 2	**Understanding digital engagement and how digital assets unlock livelihood opportunities to empower women**		
6	a) Do you know how to use a smartphone or computer or access the Internet? b) If yes, why did you learn to use digital assets? c) If no, why? Do you want to explore it now?	How did you learn? How easy or difficult was it? What/Who made it possible or difficult to learn?	a) क्या आपको स्मार्टफोन, कम्प्यूटर और इंटरनेट प्रयोग करना आता है? b) यदि हाँ, तो आपने ये क्यों सीखा? क्या यह आपके लिए आसान था या कठिन था? इन संसाधनों का प्रयोग किसकी वजह से आपके लिए आसान बना या मुश्किल बना? c) यदि आपने नहीं सीखा है, तो क्यों नहीं? क्या अब आप सीखना चाहते हैं?
7	a) How do you utilize (personal and work) these assets/resources? b) Any major changes you have noticed in your behaviour/life or of others around you since you started using the digital assets?		a) आप इन संसाधनों का अपने लिए और अपने काम के लिए किस प्रकार प्रयोग करते हैं? b) इन संसाधनों का प्रयोग करके क्या आपने अपने और दूसरों के व्यवहार या जीवन में कोई बदलाव अनुभव किया है?
8	a) What are the capital/ digital assets and resources that have been provided to you as part of the intervention? b) Did you receive training to be able to use these assets/resources effectively?	a) Vehicles (cars, rickshaws, bikes) b) Mobile phone/smart phones/tablets/ computers c) Applications, software	a) आपको SEWA की तरफ से क्या–क्या संसाधन प्राप्त हुए हैं? – वाहन? (कार, रिक्शा, बाइक) – मोबाइल फोन, स्मार्टफोन, टैबलेट, कंप्यूटर – सॉफ्टवेयर, मोबाइल एप्लीकेशन b) इन संसाधनों का उपयुक्त प्रयोग करने के लिए क्या आपको कोई ट्रेनिंग मिली है?

Continued

Continued

S. No.	Questions	Probe	Hindi
9	a) What are the challenges faced by you as women in work/ entrepreneurship? b) How has adoption of digital assets addressed these challenges?	a) Direct income enhancement? b) Productivity and quality enhancements? c) Ease of conducting work? d) Change in societal perception?	a) आपको महिला होने के नाते काम/ स्व– व्यसाय में क्या कठिनाइयां आती हैं? b) डिजिटल संसाधनों का प्रयोग करके इन कठिनाइयों को कैसे दूर कर पाते हैं? संसाधनों से निम्न के लिए क्या समाधान मिलता है? – आय में बढ़ोतरी? – उत्पादकता या क्वालिटी में बढ़ोतरी? – काम करने में आसानी? – सामाजिक विचारों में बदलाव?
10	a) Have you been on boarded onto any e-commerce website? b) What are the terms of engagement with the platform?	a) Do you supply products? b) Provide services through an online platform? c) Have you been provided with any contract? d) Do you/the cooperative receive any services from the platform (logistics, transport) e) Do you/the cooperative receive any credit access or social security benefits?	a) क्या आप कभी किसी इ–कॉमर्स की वेबसाइट से जुड़े हैं? b) क्या नियम और शर्तें हैं? – क्या आप सामन सप्लाई करते हैं? – क्या आप कोई सेवाएं प्रदान करते हैं? – क्या आपको कॉन्ट्रैक्ट मिलता है? – क्या आपको परिवहन, गोदाम, सेवा/सामान सूचि बनाने की मदद मिलती है? – क्या आपको वेबसाइट से कोई आर्थिक सेवाएं मिलती हैं?
Part 3	**Factors impacting women service providers' scope to sustain livelihoods using technological avenues**		
11	a) How long a distance do you have to travel every day for work? b) How do you commute? Do you feel safe commuting to work?	a) Would you travel farther if the work opportunity is better? b) Would you be willing to travel to different locations for short term employment?	a) आपको अपने कार्य पर जाने के लिए कितना सफर करना पड़ता है? b) आप कैसे सफर करते है? क्या यह सुरक्षित लगता है? c) यदि अच्छा काम मिले तो क्या आप दूरस्त जगहों पर जाने के लिए राजी होंगे? d) क्या आप छोटी अवधि के काम के लिए दूरस्त, नए पर जाने के लिए राजी होंगे?

Continued

Continued

S. No.	Questions	Probe	Hindi
12	a) How supportive are your families towards you working in this cooperative? b) What is the perception of your community towards your adoption of digital assets?		a) आपको परिवार की तरफ से काम पर जाने के लिए कितना सहयोग मिलता है? b) आप यदि डिजिटल संसाधनों का प्रयोग करते हैं तोह इस बारे में आपके परिवार वाले क्या मत रखते हैं?
13	Are there any factors that limit you from associating with e-commerce platforms?	a) Work contracts/ incentive structure b) Work pressure of on-demand jobs c) Stringent quality measures d) Mobility/safety issues	क्या कोई ऐसे कारण हैं जिनकी वजह से आप इ–कॉमर्स वेबसाइट से जुड़ने में हिचकिचाते हैं? – कॉन्ट्रैक्ट या सुविधाएं न मिलना? – काम का दबाव (मांग के अनुसार काम की अनिश्चितता और अनियमितता)? – कार्य में उच्चतम क्वालिटी बनाए रखने का दबाव? – आने जाने में सुरक्षा का डर?
14	What are the challenges you face in using digital assets?	a) Language barriers b) Lack of digital skills c) Lack of support for technical faults in devices/applications/ software d) Fear and risks of fraud/ misuse/mistake	डिजिटल संसाधनों का प्रयोग करने में आपको क्या कठिनाइयां आती हैं? – भाशा की दिक्कत? – डिजिटल कुशलता का अभाव? – डिजिटल संसाधनों की टेक्निकल कमियों को दूर करने में सहयोग का अभाव? – डिजिटल संसाधनों में आर्थिक धोखाधड़ी या गलती होने का डर?
15	What support would you like to receive in the future to effectively use digital assets for work?	a) From SEWA b) From digital platforms c) From the Government	आपको भविष्य में किन सुविधाओं की आवश्यकता होगी ताकि आप डिजिटल संसाधनों का सही प्रयोग कर सकें? – SEWA की तरफ से? – इ–कॉमर्स वेबसाइट की तरफ से? – सरकार की तरफ से?

6.3 List of respondents for key informant interviews

S. No.	Key respondents interviewed	Industry
1	Virohan	Health care
2	SEWA Federation	CSO
3	Lok Swasthya Mandali	Health care/Retail CSO
4	SEWA Bharat (Helpers Near Me)	Personal Services
5	Medic Mobile	Health care
6	Delhivery	Retail
7	Gulmehar	Waste Management
8	Teamlease	Job Portal/Recruitment
9	Internshala	Job Portal/Recruitment
10	Microsave Solutions	Research organization
11	Centre for Internet and Society	Research organization
12	Industree	Retail
13	UrbanClap	Personal Services
14	Kudumbashree	Livelihoods
15	IndiVillage	ICT
16	SEWA Trupti	F&B
17	Mahiti	ICT
18	Swayam Shikshan Prayog	CSO
19	Meesho Digital	Retail
20	Okhai	Retail
21	Swiggy	F&B
22	B-able	Health care
23	deAsra Foundation	Entrepreneurship
24	Sheroes	Social Networking
25	NSDC	Livelihoods
26	Mindtree	Waste Management
27	SEWA Homestay	Hospitality
28	Taxshe	Public Transport

6.4 List of attendees from UN Women Stakeholder Convention event

S no.	Name	Organization
1	Aarti Mohan	Sattva Media and Consulting Pvt. Ltd.
2	Abhishek Shah	Intellecap
3	Aiman Haque	SEWA Bharat
4	Akansha Babbar	Quest Alliance
5	Akhand Tiwari	MicroSave Consulting
6	Ambika Tandon	Centre for Internet and Society
7	Aniket Doegar	Haqdarshak
8	Anirudh Seth	Sattva
9	Aparna Uppaluri	Ford Foundation
10	Archana Kapoor	SMART NGO/Radio Mewat
11	Arunima Panda	SEWA Bharat
12	Asmita Joshi	Uber
13	Bhumika Joshi	SEWA Bank
14	Dr Dhanya MB	V.V. Giri National Labour Institute
15	Faizan Rehman	NIPFP
16	Kalpana Vishwanath	Safetipin
17	Kelvin Sergeant	ILO
18	Kriti Barman	Sattva Media and Consulting Pvt. Ltd.
19	Maawii Zohan	Tandem Research
20	Nikunj Agarwal	IIC
21	Nitya Nangalia	SEWA Bharat
22	Osama Manzar	Digital Empowerment Foundation
23	Paromita Sen	SEWA Bharat
24	Pradhnya Godbole	CEO, DeAsra Foundation
25	Prateep Chakravarty	Grameen Foundation
26	Preeti Anand	Idea42
27	Priyanuja Dutta	SEWA
28	Punarbhava	SEWA
29	Renana Jhabvala	SEWA Bharat
30	Richa Pant	L&T Finance
31	Rohan S.	GraamVaani
32	Sairee Chahal	Sheroes

Continued

Continued

S no.	Name	Organization
33	Salonie	SEWA Federation
34	Sara Chamberlain	BBC Media Action
35	Savitri Singh	ICA- Asia Pacific
36	Sheeja Nair	NSDC
37	Shobhit Mathur	Dhwani RIS
38	Sreekanth SR	Mahiti Infotech Pvt. Ltd
39	Steven Walker	IIC
40	Suhasini Singh	Fairwear Foundation
41	Sunita Sanghi	Ministry of Skill Development and Entrepreneurship
42	Swati Kumari	Sattva Media and Consulting Pvt. Ltd.
43	Vandana Singh	SEWA Bharat
44	Vidit Verma	SEWA Bharat

S no.	Secretariat	Organization
1	Subhalakshmi Nandi	UN Women
2	Suhela Khan	UN Women
3	Preeti Gulati	UN Women
4	Chitranka Banerjee	UN Women and SEWA Bharat Joint Initiative

6.5 Itinerary for field visits

Ahmedabad

Itinerary						
Date	**S. No.**	**Activity**	**Location**	**Timing**	**SPOC**	**Respondents**
23/12/2019	1	Quick overview of SEWA Federation	SEWA Federation office	10:40–11:55 a.m.	Salonie and Nikita	Jayaben
	2	Vegetable shop visit and SSI with Farm2Table coordinator	APMC - Shop No. 40	12–2 p.m.	Nikita	Dinaben
	3	Consolidation on day's insights	SEWA Federation office	3–4 p.m.	Salonie	Salonie, Nikita and Jayaben

Continued

Continued

Itinerary						
Date	**S. No.**	**Activity**	**Location**	**Timing**	**SPOC**	**Respondents**
24/12/2019	1	SSI with Home Care (domestic services cooperative) coordinator	SEWA Federation office	11 a.m.–12:15 p.m.	Salonie	Bhartiben
	2	FGD with Ayurveda marketing, insurance, outreach members	SEWA Federation office	2–4 p.m.	Salonie	Pueshpaben, Maniyaben, Ugmenshben, Ramiben, Savitaben, Ravinaben, Laxmiben, Ramilaben, Ilaben
	3	FGD with pharmacy workers and accountants	LG Hospital Pharmacy	4–5:30 p.m.	Nikita	Romilaben, Pallaviben, Amishaben, Bhavaniben

6.6 Glossary

Engagement roles of women in the service sector

S. No.	Category	Sub – category*	Definition
Engagement roles of women in the service sector			
1	Self-employed	Working owner (OAE)	Self-employed persons operating their enterprises on their own account or with one or a few partners and who run their enterprise without hiring any labour; they could, however, have had unpaid helpers to assist them in the activity of the enterprise
2	Entrepreneur	Working owner (Establishments)	Self-employed persons who work on their own account or with one or a few partners and who, by and large, run their enterprise by hiring labour
3	Employed/ Hired worker	Formal hired worker	A formal hired worker is one having continuity of job and eligible for paid annual leave and also eligible for social security benefits like provident fund or insurance provided by the employer
4		Informal hired worker	An informal hired worker does not have continuity of job and/or not eligible for paid annual leave and/or not eligible for social security benefits like provident fund or insurance provided by the employer
5		Apprentice/ Helper	An apprentice is a learner or beginner who works with a skilled or qualified person in order to learn the practical aspects of a trade or a profession for a fixed time period
6		Unpaid/Irregular household workers	This includes all persons belonging to the household of the proprietor or households of the partners who are working in or for the enterprise without regular salary or wages. Persons working as exchange labourer in the enterprise without salary or wages will also be covered in this category. All unpaid household workers / helpers who are associated with the activities of the enterprise during the reference month are considered in this category.

***Source:** NSS definitions mapped to archetypes of women studied for the research

Type of digital assets

S. No.	Category	Subcategory	Definitions for the purpose of this research
Types of Digital Assets			
1	Medium	Marketplace	Platforms which offer service providers an avenue to access larger markets and conduct e-commerce under their own brand name
2		Aggregator	Platforms which offer service providers an avenue to access larger markets; however, aggregators aggregate e-commerce activities under their own brand name
3		Job portals	Platforms which offer women access to services sector jobs and employers access to service providers
4	Resource	Communication solutions	Digital platforms offering service providers communication, advertising and branding solutions for interacting with consumers and other agents in the value chain
5		Digital payment and finance solutions	Platforms providing mobile wallet management and solutions for digital transactions
6	Enabler	Market information/ operations software	1. Platforms offering market (demand-side) information 2. Platforms offering information on externalities (weather, stock prices, etc.) 3. Digital applications offering information related to social security schemes and mechanisms to access such schemes

6.7 Scoring metric for digital readiness of SEWA pilots

Score	Strength of cooperative	Active membership	Percentage of women with smartphones
3	More than 100 numbers	More than 50 per cent of all registered members are active	More than 50 per cent of all active members use a smartphone
2	50–100 members	About 20–30 per cent of all registered members are active	About 20–30 per cent of all active members use a smartphone
1	Fewer than 50 members	Less than 20 per cent of all registered members active	Less than 20 per cent of all active members use a smartphone

References

1 Global Compact Network India and Deloitte. (2019). Opportunity or Challenge? Empowering women and girls in India for the Fourth Industrial Revolution. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/in/Documents/about-deloitte/UNGCNI_black_final v6 web high res.pdf

2 Ministry of Statistics and Programme Implementation, Government of India. (2019). Periodic Labour Force Survey (PLFS). Retrieved from http://www.mospi.gov.in/sites/default/files/publication_reports/Annual Report, PLFS 2017–18_31052019.pdf

3 Department of Financial Services India. (2018). An Overview of India's Economic Performance in 2017–18. Retrieved from http://mofapp.nic.in:8080/economicsurvey/pdf/001–027_Chapter_01_Economic_Survey_2017–18.pdf

4 McKinsey Global Institute. (2019). Digital India: Technology to transform a connected nation. Retrieved from https://www.mckinsey.com/~/media/McKinsey/Business Functions/McKinsey Digital/Our Insights/Digital India Technology to transform a connected nation/Digital-India-technology-to-transform-a-connected-nation-Full-report.ashx

5 UNHLP on Women's Economic Empowerment (2016). Driver 4 Toolkit: How to Build Assets: Digital, Financial and Property. Retrieved from https://www2.unwomen.org/-/media/hlp%20wee/attachments/reports-toolkits/hlp-wee-toolkit-driver-4-en.pdf?la=en&vs=5426

6 Culture and the Labour Market keep India's Women at Home; Economic Times. 5th July 2018.

7 International Labour Organisation. (2017, March 9). The paradox of low female labour force participation. Retrieved January 27, 2020, from https://www.ilo.org/newdelhi/info/public/fs/WCMS_546764/lang--en/index.htm

8 The World Bank. (2018, March 16). Women in India's Economic Growth. Retrieved January 27, 2020, from https://www.worldbank.org/en/news/speech/2018/03/17/women-indias-economic-growth

9 Chatterjee, Urmila; Murgai, R. R. M. G. (2015). Job opportunities along the rural-urban gradation and female labour force participation in India. Technical Report 7412, World Bank, Washington, DC. Policy Research Working Paper.

10 Author's analysis of PLFS, 2017–18

11 India Brand Equity Foundation (IBEF). (2019, October). Services Sector in India. Retrieved January 27, 2020, from https://www.ibef.org/industry/services.aspx

12 Ministry of Statistics and Programme Implementation, Government of India. (2019). Periodic Labour Force Survey (PLFS). Retrieved from http://www.mospi.gov.in/sites/default/files/publication_reports/Annual Report, PLFS 2017–18_31052019.pdf

13 Global Alliance for Mass Entrepreneurship (GAME), Basole, A., & Chandy, V. (2019). Microenterprises in India: A Multidimensional Analysis. Azim Premji University. Retrieved from https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2019/10/GAME_APU_Microenterprises_In_India_Report_Oct_2019.pdf

14 NASSCOM Foundation, & Adke, T. (2019, September 9). National Digital Literacy Mission. Retrieved January 27, 2020, from https://nasscomfoundation.org/national-digital-literacy-mission/

15 Global Compact Network India and Deloitte. (2019). Opportunity or Challenge? Empowering women and girls in India for the Fourth Industrial Revolution. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/in/Documents/about-deloitte/UNGCNI_black_final v6 web high res.pdf

[16] McKinsey, 2019. (March, 2019). Digital India: Technology to transform a connected nation. Retrieved January 27, 2020 from https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Digital%20India%20Technology%20to%20transform%20a%20connected%20nation/Digital-India-technology-to-transform-a-connected-nation-Full-report.ashx

[17] Kar, S. (2019, July 30). Women bag frontline roles in gig economy, but lag behind in wages. The Economic Times. Retrieved from https://economictimes.indiatimes.com/jobs/women-bag-frontline-roles-in-gig-economy-but-lag-behind-in-wages/articleshow/70442660.cms

[18] EY. Future of jobs in India. Retrieved from https://www.ey.com/Publication/vwLUAssets/ey-future-of-jobs-in-india/%24FILE/ey-future-of-jobs-in-india.pdf

[19] AVPN, & Sattva Media and Consulting Pvt. Ltd. (2019). Digital Solutions for Women-Owned Enterprises.

[20] Intellecap. (2018). Digitizing Rural Value Chains in India: An Assessment of High Potential Opportunities to Increase Women's Economic Empowerment. USAID. Retrieved from http://intellecap.com/wp-content/uploads/2018/10/Digitizing-Rural-Value-Chains-in-India_Intellecap-Report.pdf

[21] Kantar IMRB, 2018 Kantar, IMRB, =. (2018). 21st edition ICUBE: Digital Adoption and usage trends. Retrieved on January 27, 2020 from https://imrbint.com/images/common/ICUBE%E2%84%A2_2019_Highlights.pdf

[22] Isaac, E. (2014) 'Disruptive Innovation: Risk-Shifting and Precarity in the Age of Uber – Roundtable on the International Economy BRIEF Working Paper.' University of Berkeley. [Online] Available: http://www.brie.berkeley. edu/wp-content/uploads/2015/01/Disruptive-Innovation.pdf [accessed 18/11/2016].

[23] ICRIER, & Kapoor, R. (2019). An Employment Data Strategy for India. NCAER. Retrieved from http://www.ncaer.org/IPF2019/IPF-Papers/Paper-IV-IPF-2019-Kapoor-Conf-version.pdf

[24] Author's analysis of NSS 73rd Round

[25] Business Line, & Edwin, T. (2018, April 24). Beedi, apparel-making are top activities of women-run units in informal sector. Retrieved January 28, 2020, from https://www.thehindubusinessline.com/economy/macro-economy/beedi-apparel-making-are-top-activities-of-women-run-units-in-informal-sector/article23661414.ece

[26] ibid

[27] Global Alliance for Mass Entrepreneurship (GAME), Basole, A., & Chandy, V. (2019). Microenterprises in India: A Multidimensional Analysis. Azim Premji University. Retrieved from https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2019/10/GAME_APU_Microenterprises_In_India_Report_Oct_2019.pdf

[28] ibid

[29] Author's analysis of NSS 73rd Round

[30] ibid

[31] Author's analysis of PLFS, 2017–18

[32] Author's analysis of PLFS, 2017–18

[33] ibid

[34] Redseer. (October, 2019). Food-Tech Market Updates. Retrieved from https://redseer.com/newsletters/food-tech-market-updates-june18/

[35] Deloitte, & RAI. (2019). Unravelling the Indian Consumer. Deloitte. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/in/Documents/consumer-business/Unravelling the Indian Consumer_web.pdf

[36] Inc 42, & Singh, S. (2019, October 4). India's Booming Cloud Kitchen Opportunity And The Market Challenges. Retrieved from https://inc42.com/datalab/indias-booming-cloud-kitchen-opportunity-and-the-market-challenges/

[37] Redseer. (2019). Food-tech Market Updates. Retrieved January 28, 2020, from https://redseer.com/newsletters/food-tech-market-updates-june18/

[38] KPMG. (2016). India's Food service industry: Growth recipe Consumer Markets. Retrieved from https://assets.kpmg/content/dam/kpmg/in/pdf/2016/11/Indias-food-service.pdf

[39] Swiggy Daily. (2020). Subscribe to everyday meals for lunch or dinner from a kitchen of your choice. Retrieved January 28, 2020, from https://www.swiggydaily.com/

[40] FoodyBuddy. (2020). FoodyBuddy. Retrieved January 28, 2020, from https://www.foodybuddy.in/

[41] Watscooking. (2020). Order Home Cooked Food: Homemade food: From Home Chefs near you. Retrieved January 28, 2020, from https://www.watscooking.com/

[42] Vardhan, J., & Entrackr. (2019, May 19). Exclusive: Swiggy is launching Swiggy Daily for homestyle cooked food. Retrieved January 28, 2020, from https://entrackr.com/2019/05/exclusive-swiggy-daily-homestyle-food/

[43] Inc42. (2019, June 3). Swiggy Takes On Mumbai's Dabbawalas With Swiggy Daily Subscriptions. Retrieved January 28, 2020, from https://inc42.com/buzz/swiggy-takes-on-mumbais-dabbawalas-with-swiggy-daily-subscriptions/

[44] Singh, S., & Economic Times Bureau. (2019, September 16). How WhatsApp Business has become a popular tool for micro enterprises. Retrieved January 28, 2020, from https://economictimes.indiatimes.com/small-biz/sme-sector/how-WhatsApp-business-has-become-a-popular-tool-for-micro-enterprises/articleshow/71130211.cms?from=mdr

[45] Redseer. (2018, May). Ecommerce industry in India. Retrieved January 28, 2020, from https://redseer.com/reports/ecommerce-industry-in-india/

[46] ibid

[47] Fortune India, & Thakur, A. (2019, September 5). Are you being served? The UrbanClap success story. Retrieved January 28, 2020, from https://www.fortuneindia.com/enterprise/are-you-being-served/103554

[48] Hunt, A and Samman, E. (2016) 'Women's economic empowerment: navigating enablers and constraints'. London: Overseas Development Institute. Available: https://www.odi.org/publications/10483-womens-economicempowerment-navigating-enablers-and-constraints [accessed 19/11/2016]

[49] Sattva Qualitative Primary Research

[50] Book My Bai. (2018, May 15). How BookMyBai scaled to a $30million dollar business in 3 years by bootstrapping and investing $30000. Retrieved January 28, 2020, from https://www.bookmybai.com/Blogs/How-BookMyBai-scaled-to-a-30million-dollar-business-in-3-years-by-bootstrapping-and-investing-30000/28

[51] The Hindu, & Jaiswal, P. B. (2016, March 14). Need house help? There's an app 'maid' for you. Retrieved January 28, 2020, from https://www.thehindu.com/news/cities/mumbai/news/need-house-help-theres-an-app-maid-for-you/article8350946.ece

[52] The Hindu, & Jaiswal, P. B. (2016, March 14). Need house help? There's an app 'maid' for you. Retrieved January 28, 2020, from https://www.thehindu.com/news/cities/mumbai/news/need-house-help-theres-an-app-maid-for-you/article8350946.ece

[53] Economic Times, & Goyal, M. (2016, November 20). How online startups are reshaping the informal jobs sector in India. Retrieved January 28, 2020, from https://economictimes.indiatimes.com/small-biz/startups/how-online-startups-are-reshaping-the-informal-jobs-sector-in-india/articleshow/55514767.cms

[54] IDR, & Bose, A. M. (2019, May 21). An untapped opportunity in informal sector jobs. Retrieved January 28, 2020, from https://idronline.org/an-untapped-opportunity-in-employability/

[55] Sattva Qualitative Primary Research

[56] Primary research with UrbanClap

[57] E&Y, FICCI, & NASSCOM. (2017). Future of Jobs in India – A 2022 Perspective. Retrieved from http://ficci.in/spdocument/23031/Future-of-Jobs-in-India-2.0.pdf

[58] Sattva Qualitative Primary Research

[59] KPMG. (2016). Impact of E-commerce on employment in India. Snapdeal. Retrieved from https://assets.kpmg/content/dam/kpmg/in/pdf/2016/12/impact-of-ecommerce-on-employment-in-india.pdf

[60] E&Y. (2019). E-commerce and Consumer Internet Sector – India Trendbook 2019. Retrieved from https://www.ey.com/Publication/vwLUAssets/ey-ecommerce-and-consumer-internet-sector-india-trendbook-2019/$FILE/ey-ecommerce-and-consumer-internet-sector-india-trendbook-2019.pdf

[61] KPMG. (2016). Impact of E-commerce on employment in India. Snapdeal. Retrieved from https://assets.kpmg/content/dam/kpmg/in/pdf/2016/12/impact-of-ecommerce-on-employment-in-india.pdf

[62] IDR, & Bose, A. M. (2019, May 21). An untapped opportunity in informal sector jobs. Retrieved January 28, 2020, from https://idronline.org/an-untapped-opportunity-in-employability/

[63] IBEF (2018). E-Commerce. Retrieved 30th Jan, 2020, from https://www.ibef.org/download/E-Commerce-Report-Oct-2018.pdf

[64] Interview with representative from Delhivery

[65] Economic Times, & Bhatt, S. (2018, August 26). How social commerce companies are helping women in small towns earn a living from their homes. Retrieved January 28, 2020, from https://economictimes.indiatimes.com/news/company/corporate-trends/how-social-commerce-companies-are-helping-people-earn-a-living-from-their-homes/articleshow/65545294.cms?from=mdr

[66] Inc 42, & Anupam, S. (2019, October 15). Empowering India's Unorganised Retail: How Meesho Scaled Up Reselling To New Heights. Retrieved January 28, 2020, from https://inc42.com/startups/meesho-revamps-indias-unorganised-retail-by-empowering-resellers/

[67] Sattva Qualitative Primary Research

[68] HeyDeeDee. (2020). About Hey Deedee. Retrieved January 28, 2020, from https://heydeedee.com/

[69] Sattva Qualitative Primary Research

[70] Business Standard, & Umarji, V. (2019, July 20). Flexi-jobs in e-commerce industry records 77% rise in 3 years: Report. Retrieved January 28, 2020, from https://www.business-standard.com/article/companies/flexi-jobs-in-e-commerce-industry-records-77-rise-in-3-years-report-119072100031_1.html

[71] Economic Times, & Verma, P. (2018, December 8). Female staff in ecommerce companies have doubled to over 40k in one year. Retrieved January 28, 2020, from https://economictimes.indiatimes.com/industry/services/retail/female-staff-in-ecommerce-companies-have-doubled-to-over-40k-in-one-year/articleshow/66996425.cms?from=mdr

[72] International Labour Organisation. (2019). The future of work in the health sector. ILO. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_669363.pdf

[73] National Health Mission. (2018). Ayushman Bharat: Comprehensive Primary Health Care through Health and Wellness Centers. NHSRC. Retrieved from http://nhsrcindia.org/sites/default/files/Operational Guidelines For Comprehensive Primary Health Care through Health and Wellness Centers.pdf

[74] National Skill Development Corporation (NSDC). (n.d.). Human Resource and Skill Requirements for the Healthcare Services Industry Sector (2022). NSDC. Retrieved from http://inskills.co.in/download/Sectors/NSDC report on Skill Requirement in Healthcare Services Industry.pdf

[75] India Brand Equity Foundation (IBEF). (2019). Advantage India: Healthcare. IBEF. Retrieved from https://www.ibef.org/download/healthcare-jan-2019.pdf

[76] Soni. Inc. 42. (Healthcare Landscape of India: The state of India's healthcare startups. Retrieved from https://inc42.com/features/healthtech-startups-landscape-india/

[77] Bernard Van Leer Foundation (BVLF). "Empowering Frontline Early Childhood Workers through Technology in India." Early Childhood Matters. BVLF, 2019. https://earlychildhoodmatters.online/2019/empowering-frontline-early-childhood-workers-through-technology-in-india/.

[78] EH News Bureau. "A Digital Disruption for Asha Workers." Express Healthcare, October 4, 2019. https://www.expresshealthcare.in/healthcare-it/a-digital-disruption-for-asha-workers/414411/.

[79] SIFSPA. (2016). mSehat – A New Dawn. Retrieved from https://www.sifpsa.org/msehat.php

[80] Agarwal, Rosenblum, Goldschmidt, Carras, Goal, Labrique. John Hopkins University (2016). Mobile Technology in Support of Frontline Health Workers: A comprehensive overview of the landscape, knowledge gaps and future directions. Retrieved from https://www.chwcentral.org/sites/default/files/Mobile%20Technology%20in%20Support%20of%20Frontline%20Health%20Workers.pdf

[81] BBC Media Action. (2020). Empowering community health workers in India: Mobile Academy and Mobile Kunji. Retrieved from https://www.bbc.co.uk/mediaaction/where-we-work/asia/india/sdp-ma-mk

[82] Sattva Qualitative Primary Research

[83] "India Radio Taxi Services Market, By Vehicle Type (Sedan, Hatchback, SUV, LUX), By City (Bengaluru, Delhi, Mumbai, Chennai, Kolkata, Pune & Others), By User Segment (Individual, Tourist & Corporate), Competition, Forecast and Opportunities, 2014–2024." India Radio Taxi Services Market Size, Share & Forecast 2024 | TechSci Research. Tech Sci Research, 2019. https://www.techsciresearch.com/report/india-radio-taxi-services-market/3257.html.

[84] Gupta, Arvind. "View: How India Is Leading Digital Revolution with Speed and Scale." The Economic Times. Economic Times, February 9, 2019. https://economictimes.indiatimes.com/news/economy/policy/how-indias-is-leading-digital-revolution-with-speed-and-scale/articleshow/67906932.cms.

[85] The Economic Times, and Sagar Malviya. "Uber's India Unit Brings Home 30% More in Revenues." The Economic Times. The Economic Times, January 22, 2019. https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/ubers-india-unit-brings-home-30-more-in-revenues/articleshow/67634791.cms?from=mdr.

[86] Author's analysis of NSS 73rd Round

[87] The Business Line, and Apuurva Sridharan. "When Women Get behind the Wheel... to Get Ahead." Business Line. The Hindu, May 18, 2018. https://www.thehindubusinessline.com/news/variety/when-women-get-behind-the-wheel-to-get-ahead/article23928754.ece.

[88] Dhillon, Amrit. "Driving up Women's Standard of Living in India." The Sydney Morning Herald, May 26, 2018. https://www.smh.com.au/world/asia/driving-up-women-s-standard-of-living-in-india-20180518-p4zg7y.html.

[89] Hindustan Times. "Uber Will Train 50,000 Women Taxi Drivers in India by 2020." Hindustan Times, March 13, 2015. https://www.hindustantimes.com/apps/uber-will-train-50–000-women-taxi-drivers-in-india-by-2020/story-UVZRiR6lUzAf09RduOBIdI.html.

[90] Reuters, and Aditi Shah. "India Considers Commissions Cap for Uber, Ola, Unsettling Industry." Reuters, November 28, 2019. https://www.reuters.com/article/us-india-transportation/india-considers-commissions-cap-for-uber-ola-unsettling-industry-idUSKBN1Y208M.

[91] Philip, Christin Mathew. "Harassment Cases Push up Demand for Women-Driven Cabs: Bengaluru News - Times of India." The Times of India, July 25, 2018. https://timesofindia.indiatimes.com/city/bengaluru/harassment-cases-push-up-demand-for-women-driven-cabs/articleshow/65124932.cms.

[92] Gandhiok, Jasjeev. (2020)"Delhi: Cabs Driven by Women for Women from IGI Airport Terminal-3: Delhi News - Times of India." The Times of India. Accessed January 27, 2020. https://timesofindia.indiatimes.com/city/delhi/cabs-driven-by-women-for-women-from-igi-t3/articleshow/73451761.cms.

[93] "About Us: Priyadarshini Taxi Service." About Us. Priyadarshini Taxi Service, 2020. http://www.priyadarshinitaxi.com/about_us.php.

[94] Sattva Qualitative Primary Research with Vandana Suri, Co-founder of Taxshe

[95] ibid

[96] "Data Engineering, Preparation, and Labeling for AI 2019." Cognilytica, September 16, 2019. https://www.cognilytica.com/2019/03/06/report-data-engineering-preparation-and-labeling-for-ai-2019/.

[97] Sattva Qualitative Primary Research

[98] Factor Daily, & Murali, Anand. "How India's data labellers are powering the global AI race", Factor Daily, March 21, 2019. https://factordaily.com/indian-data-labellers-powering-the-global-ai-race/

[99] ibid

[100] India Brand Equity Foundation (IBEF). (2019). It and ITes. IBEF. Retrieved from https://www.ibef.org/download/it-ites-feb-2019.pdf

[101] Sharma, Economic Times. (July, 2016). Women bag a third of 30,000 jobs created. Retrieved from https://economictimes.indiatimes.com/jobs/women-bag-a-third-of-30000-bpo-jobs-created/articleshow/70388284.cms

[102] Times of India, & Sonam, Joshi. "How artificial intelligence is creating jobs in India, not just stealing them", Times of India, September 8, 2019. https://timesofindia.indiatimes.com/india/how-artificial-intelligence-is-creating-jobs-in-india-not-just-stealing-them/articleshow/71030863.cms

[103] Buvinic, M., Jaluka, T., & O'Donell, M. (2017). Sewa Gitanjali Cooperative A Social Enterprise in the Making. Center for Global Development. Retrieved from https://www.cgdev.org/sites/default/files/sewa-gitanjali-cooperative-social-enterprise-making.pdf

[104] India Brand Equity Foundation (IBEF). (2019). It and ITes. IBEF. Retrieved from https://www.ibef.org/download/it-ites-feb-2019.pdf

[105] International Labour Organisation. (2018). "Emerging technologies and the future of work in India".

[106] Interview with representative from IndiVillage

[107] Sattva Qualitative Primary Research

[108] "Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050. Urban Development;. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/30317 License: CC BY 3.0 IGO."

[109] Ahluwalia, Isher Judge; Patel, Utkarsh. (2018). Solid Waste Management in India: As Assessment of Resource Recovery and Envinronmental Impact. Working Paper No. 365 Indian Council for Research on International Economic Relations (ICRIER)

[110] Economic Times, PTI. (2019). "E-waste sector will create half million jobs in India by 2025: IFC", Times of India. https://economictimes.indiatimes.com/jobs/e-waste-sector-will-create-half-million-jobs-in-india-by-2025-ifc/articleshow/68708339.cms

[111] PWC. (2018). The changing landscape of the retail food service industry. FICCI. Retrieved from http://ficci.in/spdocument/23056/foodzania-release2018.pdf

[112] Global Alliance for Mass Entrepreneurship (GAME), Basole, A., & Chandy, V. (2019). Microenterprises in India: A Multidimensional Analysis. Azim Premji University. Retrieved from https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2019/10/GAME_APU_Microenterprises_In_India_Report_Oct_2019.pdf

[113] Dunselth, B., & India Briefing. (2017). The Waste Management Industry in India: Investment Opportunities. Retrieved January 28, 2020, from https://www.india-briefing.com/news/the-waste-management-industry-india-investment-opportunities-14032.html/

[114] I Got Garbage. (2020). What we do. Retrieved January 28, 2020, from https://www.igotgarbage.com/what-we-do/

[115] Sattva Qualitative Primary Research

[116] International Labour Organisation. (2014). Tackling informality in e-waste management: The potential of cooperative enterprises. ILO. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/--sector/documents/publication/wcms_315228.pdf

[117] Competition Commission of India, Government of India. (2020). "Market Study on Ecommerce in India. CCI, GoI. Retrieved from https://www.cci.gov.in/sites/default/files/whats_newdocument/Market-study-on-e-Commerce-in-India.pdf

[118] Hunt, Abigail; & Machingura, Fortunate. Overseas Development Institute. (2016). "A good gig? The rise of on-demand domestic work". ODI. Retrieved from https://www.odi.org/sites/odi.org.uk/files/resource-documents/11155.pdf

[119] Karnik, Madhura. (2017). "Can technology finally make rich Indians treat their maids like human beings?". Quartz India. Retrieved from https://qz.com/india/964240/bookmybai-can-technology-finally-make-rich-indians-treat-their-maids-like-human-beings/

[120] Insights from roundtable discussion at UN women Convention on 6th December: Role of digital assets for women in the informal economy

[121] Metz, Cade. (2019). "A.I. Is Learning From Humans. Many Humans." The New York Times. Retrieved from https://www.nytimes.com/2019/08/16/technology/ai-humans.html

[122] KPMG, Google. (2017). "Indian Langauges – Defining India's Internet". KPMG. Retrieved from https://assets.kpmg/content/dam/kpmg/in/pdf/2017/04/Indian-languages-Defining-Indias-Internet.pdf

[123] Intellecap. (2018). Digitizing Rural Value Chains in India: An Assessment of High Potential Opportunities to Increase Women's Economic Empowerment. USAID. Retrieved from http://intellecap.com/wp-content/uploads/2018/10/Digitizing-Rural-Value-Chains-in-India_Intellecap-Report.pdf

[124] Seth, Rohan. (2019). "Reading into India's draft e-commerce policy". The Hindu Read. Retrieved from https://www.thehindu.com/thread/politics-and-policy/reading-into-indias-draft-e-commerce-policy/article28513974.ece

[125] Analysis of draft e-commerce policy. Government of India. (2019). "Draft National e-Commerce Policy. Retrieved from https://dipp.gov.in/sites/default/files/DraftNational_e-commerce_Policy_23February2019.pdf

[126] ibid

[127] Barboni, Giorgia; Field, Erica; Pande, Rohini; Rigol, Natalia; Schaner, Simone; Moore, Charity Troyer. (2018). "A Tough Call: Understanding barriers to and impacts of women's mobile phone adoption in India". Harvard Kennedy School. Retrieved from https://epod.cid.harvard.edu/sites/default/files/2018–10/A_Tough_Call.pdf

[128] GSMA. (2019). "Connected Women: The Mobile Gender Gap Report 2019". GSMA. Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/GSMA-The-Mobile-Gender-Gap-Report-2019.pdf

[129] Bucha, S. (2017, June 15). How payments work for online selling. Amazon Services. https://services.amazon.in/resources/seller-blog/how-payments-work-for-online-selling.html

[130] Money Control, (2020). "Swiggy seeks higher commissions from restaurants, Zomato may follow: Reports". Money Control Budget 2020. Retrieved from https://www.moneycontrol.com/news/business/swiggy-to-demand-higher-commissions-from-restaurants-zomato-to-follow-reports-4782251.html

[131] Inc 42, & Singh, S. (2019, October 4). India's Booming Cloud Kitchen Opportunity And The Market Challenges. Retrieved from https://inc42.com/datalab/indias-booming-cloud-kitchen-opportunity-and-the-market-challenges/

[132] Firstpost. (2020). "Cabs for women, by women: Could Ola succeed where others have failed?". Firstpost. Retrieved from https://www.firstpost.com/living/ola-may-launch-by-women-for-women-cabs-why-similar-services-get-no-corporate-love-1850197.html

[133] ICUBE. (2019). Digital adoption & usage trends. Kantar IMRB. Retrieved from https://imrbint.com/images/common/ICUBE™_2019_Highlights.pdf

[134] GSMA. (2019). "Connected Women: The Mobile Gender Gap Report 2019". GSMA. Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/GSMA-The-Mobile-Gender-Gap-Report-2019.pdf

[135] Lemmo, A. (2009). Women entrepreneurs in India: Bottlenecks and Opportunities. Background for Women Mean Business Conference, 11 December 2009.

[136] Basargekar, P. (2007). Women entrepreneurs: Challenges faced. The ICFAI Journal of Entrepreneurship Development, 4(4), 6–15

[137] Mukherjee, S. (2009). Women entrepreneurship development: The Catalytic role of NGOs. ICFAI Journal of Entrepreneurship Development, 6(2), 21–38.

[138] GSMA. (2019). "Connected Women: The Mobile Gender Gap Report 2019". GSMA. Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/GSMA-The-Mobile-Gender-Gap-Report-2019.pdf

[139] Bhattacharyya, Asmita; 2Dr. Ghosh, Bhola Nath. (2012). "Women in Indian Information Technology (IT) sector: a Sociological Analysis". IOSR Journal Of Humanities And Social Science (JHSS). Retrieved from http://iosrjournals.org/iosr-jhss/papers/Vol3-issue6/F0364552.pdf

[140] GOI. (2016). "Guidelines for Foreign Direct Investment (FDI) on E-commerce". GOI. Press Note No. 3. Retrieved from https://dipp.gov.in/sites/default/files/pn3_2016_0.pdf

[141] Government of India. (2019). "Draft National e-Commerce Policy. Retrieved from https://dipp.gov.in/sites/default/files/DraftNational_e-commerce_Policy_23February2019.pdf

[142] Economic Times. (2018). "Modi's e-commerce policy: Here are the winners and losers". Economic Times. Retrieved from https://economictimes.indiatimes.com/industry/services/retail/modis-e-commerce-policy-here-are-the-winners-and-losers/articleshow/67285057.cms?from=mdr

[143] AVPN, & Sattva Media and Consulting Pvt. Ltd. (2019). Digital Solutions for Women-Owned Enterprises.

[144] Peermohamed, Alnoor. (2020). "Gig economy workers may soon have to register under GSTN". Economic Times Tech.com. Retrieved from https://tech.economictimes.indiatimes.com/news/startups/govt-looks-to-get-gig-workers-onto-gstn/73389039

[145] Government of India. (2020). "Stand Up India Scheme Features". Government of India, Financial Schemes. Retrieved from https://www.standupmitra.in/Home/SUISchemes

[146] Mudra, Government of India. (2020). "Mudra Offerings". Mudra, GOI. Retrieved from https://www.mudra.org.in/offerings

[147] Department of Electronics and and Information Technology, Government of India. (2015). "Implementation Guidelines for the Project 'CSC 2.0- A Way Forward'". Digital India. GoI. Retrieved from https://digitalindia.gov.in/writereaddata/files/CSC%202%200%20Guidelines%20%28Final%29%203rd%20December%202015.pdf

[148] FSSAI (n.d) Food Safety and Standards Authority of India (FSSAI), Government of India. (2020). "Licensing". FSSAI, GoI. Retrieved from https://fssai.gov.in/cms/licensing.php

[149] Ministry of Micro, Small and Medium Enterprises, Government of India. (2020). "Public Procurement Policy". MSME, GoI. Retrieved from https://msme.gov.in/public-procurement-policy

[150] Ministry of Micro, Small and Medium Enterprises, Government of India. (2020). "Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 MSME, GoI. Retrieved from https://msme.gov.in/public-procurement-policy-micro-and-small-enterprises-mses-order-2012

[151] Ministry of Electronics and Information Technology, Government of India. (2020). "India BPO Promotion Scheme (IBPS)". MEIT, GoI. Retrieved from https://meity.gov.in/ibps

[152] Atal Innovation Mission. Government of India. (2020). "Atal Tinkering Labs: ATL Curriculum". AIM, GoI. Retrieved from http://www.aim.gov.in/resources-for-atl-incharge.php

[153] Global Compact Network India and Deloitte. (2019). Opportunity or Challenge? Empowering women and girls in India for the Fourth Industrial Revolution. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/in/Documents/about-deloitte/UNGCNI_black_final v6 web high res.pdf

[154] International Labour Organisation. (2017). "No call to go unanswered – A unique initiative for domestic workers". ILO. Retrieved from https://www.ilo.org/newdelhi/info/public/fs/WCMS_543354/lang--en/index.htm

[155] Insights from panel discussion during a Convening event organized by 'Global Alliance for Mass Entrepreneurs' on 12th December 2019

[156] Jaypore, Storytellers of Wonder. (2014). "Purkal Stree Shakti Samiti: Empowering Lives in a Himalayan Hamlet". Jaypore. Retrieved from https://blog.jaypore.com/2014/11/12/purkal-stree-shakti-samiti-empowering-lives-in-a-himalayan-hamlet/

[157] Uber Newsroom, IndiaSA Comms Team. (2019). "Uber Signs partnership with Ayushman Bharat to facilitate free healthcare for driver and delivery partners". Retrieved from https://www.uber.com/en-IN/newsroom/uber-signs-partnership-with-ayushman-bharat-to-facilitate-free-healthcare-for-driver-and-delivery-partners/

[158] Reported by a representative from Uber at UN women's Convention on 6th December: Role of digital assets for women in the informal economy

[159] Ola Media, 2018 Ola, Ola Media. (2018). "Ola and Skill Development and Entrepreneurship Department, Government of Maharashtra Sign MoU to Create 10,000 Job Opportunities in the State". Retrieved from https://www.olacabs.com/media/in/press/ola-and-skill-development-and-entrepreneurship-department-government-of-maharashtra-sign-mou-to-create-10000-job-opportunities-in-the-state

[160] Revealed in an interview with SEWA's coordinator for the Helpers Near Me pilot program

[161] Karnik, Madhura. (2017). "Can technology finally make rich Indians treat their maids like human beings?". Quartz India. Retrieved from https://qz.com/india/964240/bookmybai-can-technology-finally-make-rich-indians-treat-their-maids-like-human-beings/

[162] National Domestic Workers' Alliance. (n.d.). Good Work Code. Retrieved January 25, 2020 from http://goodworkcode.org/the-code/

[163] L&T Financial Services, Finclusion. (2018). "Empowering Women Through Digital Finance". LTFS. Retrieved from https://www.ltfs.com/content/dam/lnt-financial-services/home-page/csr/documents/Finclusion.pdf

[164] Insights from panel discussion during a Convening event organized by 'Global Alliance for Mass Entrepreneurs' on 12th December 2019

About UN Women

UN Women is the United Nations organization dedicated to gender equality and the empowerment of women. A global champion for women and girls, the organization was established in 2010 to accelerate progress on women's rights worldwide. UN Women's efforts are based on the fundamental belief that every woman has the right to live a life free from violence, poverty, and discrimination, and that gender equality is a prerequisite to achieving global development.

About SEWA Bharat

Founded by Ela Bhatt in 1972, the Self-Employed Women's Association (SEWA) works to empower poor women in India's informal economy by equipping them with both personal confidence and practical tools necessary to fulfil needs and exercise rights. On the one hand, SEWA "organizes" women so that they can have a strengthened collective voice. On the other, SEWA runs development programs - relating to health, skills, livelihoods, etc. - that can empower women to become self-sufficient members of their community. SEWA envisions creating a society where no woman feels afraid or alone. SEWA Bharat is the all India federation of Self Employed Women's Association [SEWA], including the central trade union of 2 million women workers in the informal economy in India. It is headed by Smt. Renana Jhabvala who is the recipient of Padma Shri from the Government of India. SEWA Bharat is committed to strengthening the movement of women in the informal economy by highlighting their issues at the national level and building its member organizations' capacity at the grassroots' level. Across 18 states, SEWA Bharat is focused on advancing women's rights and women's economic empowerment to ensure a) Full employment which means work that provides economic security, food security and social security and b) Self-reliance which aims to support individual women and women's collectives in their journey towards becoming autonomous, self-reliant and self-sustainable, both economically and in terms of their decision-making ability.

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