



Bishakha Majumdar  
Sriparna Basu  
Shilpi Jain

**case 1-234-089**  
**May 16, 2018**

## **Chanderiyaan: Weaving Digital Empowerment into the Indian Handloom Industry**

On December 15, 2016, the Digital Empowerment Foundation (DEF) marked its 15<sup>th</sup> anniversary and preparations were underway for the evening's celebration at the India Habitat Center in New Delhi. That morning, in a meeting held at the New Delhi DEF headquarters, founder Osama Manzar sought suggestions from his core team on how, and perhaps whether, to take their key initiative, Chanderiyaan, to the next level by becoming a profit-making enterprise.

Chanderiyaan was an initiative of DEF India focused on integrating digital inclusion into the handloom sector of Chanderi, Madhya Pradesh in north-central India. In addition to its original focus on the digitization of the indigenous handloom business, Chanderiyaan had grown into a full-fledged organization involved in the design, manufacture, marketing, and sales of handloom saris<sup>i</sup> and other dress materials.

For some time now, Manzar had been mulling the idea of weaning Chanderiyaan off DEF's support to make it a self-sustaining enterprise. He had even asked his operations head, Shahid Ahmad, to scrutinize the organization's operations and strategies closely to see if the time was right to make such a move. However, Manzar's main concern was whether the Chanderiyaan members were ready to participate in this vision, and if so, could they independently handle business operations such as sales and marketing, finance, human resources and the digital literacy program?

### **Osama Manzar and The Digital Empowerment Foundation—"Inform, Communicate, and Empower"**

Osama Manzar began his career as a journalist following his post-graduate diploma in journalism from the Aligarh Muslim University in India. He served as an assistant editor with *Computer World* magazine and then joined the interactive media division of *Hindustan Times* (a national daily in India). In 1999, he went on to launch his own firm, 4C Plus, an internet technology (IT) solutions company.

i The sari is a popular garment for women in South-Asian cultures, consisting of a single piece of cloth of 5 to 8 meters in length, to be wrapped around the body. In handloom saris, the fabric (silk or cotton) is manually woven on a loom.

*Published by WDI Publishing, a division of the William Davidson Institute (WDI) at the University of Michigan.*

©2018 Bishakha Majumdar, Sriparna Basu, and Shilpi Jain. This case was written by Bishakha Majumdar, Assistant Professor, Sriparna Basu, Professor, and Shilpi Jain, Associate Professor, at the FORE School of Management, New Delhi, India. The case was created as a basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation. The case should not be considered criticism or endorsement and should not be used as a source of primary data.

By virtue of his association with information and communication technology (ICT) from early on, Manzar had increasingly come to the realization that his chief interest lay in the potential of IT and ICT to change people's lives. In December 2002 Manzar, along with his wife, Shaifali Chikermane, launched the DEF. It was a not-for-profit organization registered under the Indian Societies Registration Act, 1860.

DEF started at a time when India was emerging as one of the IT service hubs of the world, but the benefits of digitization had yet to reach the masses. Providers of IT services were few, and services were inaccessible to the majority of the population due to lack of infrastructure, lack of internet signal strength outside major cities, and an intimidating cost structure that made internet connectivity more of a luxury than a necessity in a developing country like India. DEF's core initiative was the Wireless for Communities (W4C) program, which attempted to use the unlicensed spectrum bands of 2.4 GHz and 5.8 GHz made available by the Government of India<sup>1</sup> to provide last-mile wireless connectivity to distant corners of the country. This initiative focused on the areas where the National Optic Fiber Network was unavailable and major commercial bandwidth providers saw few business opportunities.

Manzar understood that internet connection alone had little value for a vast community that lacked both the devices to use internet connectivity and the training and awareness to utilize the amount of information available on the Internet. Therefore, to support the W4C program, DEF set up Community Internet Resource Centers (CIRCs), which provided internet connectivity to individual and institutional subscribers. These centers also provided minimal cost digital services to the general population—such as internet browsing, online form completion for e-governance services, printing and scanning.<sup>2</sup> The centers provided digital education and training at minimal or affordably low rates and eventually empowered community members to run the CIRCs themselves, thus making them self-sustaining institutions (see **Exhibit 1**). In the handloom clusters, the W4Cs and the CIRCs were combined to create DEF's Digital Cluster Development Programme (DCDP).

The CIRCs offered four primary services:

1. **Digital literacy:** Through training in foundational courses in computer and the Internet, and more specialized courses in software programs for professional purposes.
2. **Digital services:** Scanning, photocopying, sending emails, conducting video calls, etc.
3. **Information services:** Information search on the Internet about jobs, education, e-commerce, and entertainment.
4. **Public access services:** Participating in e-governance through the Internet.

In the words of Manzar:

*"The inspiration is always people who are not connected. Most of our country is not connected. People have mobiles, but their mobiles are not data-enabled. Our entire inspiration has been from people who are have-nots, people who are poor.*

*We found that access is the biggest issue. One, it is not provided at all. Two, even where it is provided, the quality is an issue... It is similar to saying there is a village and you are striving to provide their water, and food, and everything, but you do not provide a road. If you provide a road, there is everything else—they can go to and fro. If we do not work on access and connectivity, we will keep on working on various other things. Access provides means to rights."<sup>3</sup>*

### Exhibit 1

## CIRC Vision, Mission, and Values, and Goals



Source: "CIRC: Reaching the unreached." DEF India, 1 Dec. 2015, [www.defindia.org/wp-content/uploads/2015/12/CIRC-Brochure.pdf](http://www.defindia.org/wp-content/uploads/2015/12/CIRC-Brochure.pdf).

Over the years, DEF had collaborated with many organizations across the world in its initiatives, including the Government of India, United Nations, World Bank, European Union, Bill and Melinda Gates Foundation, Vodafone Foundation, Intel Foundation, Internet Society, Sir Dorabji Tata Trust, Google Inc., and Microsoft Inc. DEF began its operations in the heartlands of India and, over the last 15 years, had expanded its scope to include over 150 locations in 22 states within India<sup>4</sup>. The selection of the initiative locations was consciously kept aligned with DEF's vision and mission.

As of early 2018, DEF had brought digital connectivity to more than 5,000 collective entities such as firms, schools, colleges, libraries, government offices, heritage centers, hospitals and healthcare centers in 14 locations across India.<sup>5</sup> More than one million people benefited from the various empowerment initiatives of DEF, and the organization was expanding its outreach into far-flung corners of the subcontinent where connectivity was otherwise a distant dream.

DEF also extensively engaged in advocacy efforts to address issues of social importance and build up consensus to influence policy-making. One of their flagship programmes in this area was the APC-Impact [Association for Progressive Communication (APC)-IMPACT] that focused on Internet rights advocacy and had been responsible for conducting research, awareness and advocacy workshops on issues such as online rights advocacy, right to privacy, and gender and Internet. A related initiative was Internet Rights that documented over 200 cases of human rights violation over the Internet and made various policy recommendations to relevant stakeholders. In November 2016, DEF conducted the Digital Citizen Summit to create awareness about digital rights and launched the Digital Security Programme, which trained over 70 human rights personnel on how to address online violation of rights. Another programme, Mobile for

Social and Behavioral Changes, focused on building awareness of various welfare schemes by using mobile phones. Women's empowerment was addressed through the trans-media edutainment programme "Main kuch bhi kar sakti hoon" (I can do anything), made in collaboration with the Population Fund of India to build awareness about infanticide, violence against women, and other gender-related issues. The programme aired on national television (*Doordarshan*). In February 2017, DEF also released the film "Ocean in a Drop" by Australian filmmaker Andrew Burton, which showcased the impact of the Internet on rural India. DEF also organized awards such as the Manthan Awards, which promoted innovation, and the 3rd Social Media for Empowerment Award, which focused on the use of social media to empower professionals. DEF's advocacy initiatives received support from government and non-governmental institutions such as Internet Society, Indian Artisans and Craft Workers Welfare Association, and others.

DEF's Annual Report 2016–17 states:<sup>6</sup>

*We realize our efforts can only be replicated across the country if our vision has the support of all stakeholders including the government, industry, civil society organizations and ordinary citizens. This requires advocacy campaigns. Advocacy in turn requires research and knowledge support. Projects in this programmatic area, therefore, address the twin needs of advocacy and research.*

## Handloom Sector in India

The Indian handloom industry is about 3,000 years old and has been the generator of a staggeringly large variety of textiles across the ages<sup>7</sup>. It was the second largest employment generator in India after agriculture, with over 4.3 million people involved in handloom textile production.<sup>8</sup> The industry generated 15% of the total cloth produced in the country and utilized 2.3 million weaving looms, which was the largest infrastructure in the world.<sup>9</sup> The export of handloom products from India stood at \$357.53 million USD in FY2016–17, with the US being the major importer of Indian handloom products followed by the United Kingdom and the United Arab Emirates.<sup>10</sup>

Despite having such significant geographic reach (see **Exhibit 2**) and impact, most of the Indian handloom sector was unorganized and operated on a small scale through traditional tools and methods. The Government of India had undertaken a number of important schemes to uplift the sector,<sup>11</sup> focused on modernization of technology, support for raw materials, infrastructure, marketing, collaboration with urban designers for new designs and products, and general welfare schemes for the weavers and their families.<sup>12</sup> However, the sector faced major challenges owing to ineffective implementation of government policies, low awareness about welfare schemes among weavers, high raw material prices, lack of innovation in designs, poor marketing strategies, low wages, poor performance of intermediaries in training of weavers, price fluctuations, and unfair competition.<sup>13</sup>

### Digital Initiatives in the Handloom Sector

For every 10% rise in tele-density (telecom and network connectivity), there is a 0.6% growth in a nation's GDP.<sup>14</sup> Information technology, particularly internet connectivity, can likely solve two of the handloom industry's most pressing problems: a) need for new patterns and designs, and b) lack of outreach and intermediaries. Much of handloom production is concentrated in villages, so the cost of transporting products to major national and international markets is high, building the perception that handloom products are only for those with expensive tastes. As hand-weaving is a strenuous and time-consuming process, weavers usually have little role in the pre- and post-production processes. Middlemen act as the contact between weavers and the industry, bringing weavers trending designs and colors, getting orders,



## Issues and Challenges

Despite the growing adoption of IT-enabled services in India, remote corners of the country still lagged behind in access to a reliable source of internet connectivity and physical infrastructure for IT such as computers, electricity, and smartphones. According to a World Bank estimate, nearly one billion Indians did not have access to the Internet in 2016, with the vast majority of this population concentrated in the rural areas—the location of the handloom clusters.<sup>18</sup> Only 20.26% of the total rural population had access to broadband or mobile internet in 2017.<sup>19</sup> Moreover, while the urban population was more likely to use the internet for communication such as information searches, over 52% of rural usage was limited to entertainment due to a dependence on offline consumption (download now and play later), and possibly because of slow and erratic internet speed.

Even when technology was accessible, research indicated that psychological barriers to accessing technology could be preventing utilization of resources.<sup>20</sup> Key problems in the handloom context appeared to be a lack of openness among the weavers to use technology for the design, marketing and sales of their products. The linguistic barrier was also significant because most of the resources on the Internet were available only in English.

## Chanderiyaan: Weaving Digitalization into the Handloom Sector

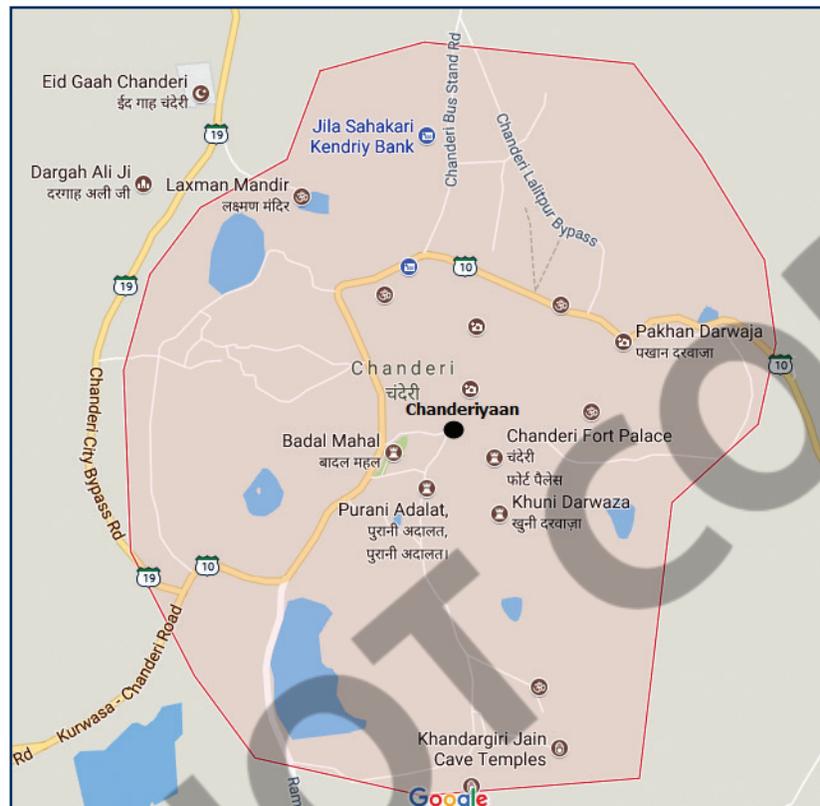
Chanderiyaan was first established in February 2009 in the town of Chanderi<sup>21</sup> as an integrated digital cluster of Chanderi weavers—officially known as the Chanderi Weavers ICT Resource Centre (CWICTRC). It was a social entrepreneurship initiative to create a self-sustaining network of Chanderi weavers through which the weavers could bypass middlemen and wholesalers and take their products directly to global markets. Chanderiyaan was a joint initiative of social conglomerates such as DEF, Ministry of Communications and Information Technology,<sup>22</sup> Internet Society (ISoC), Media Lab Asia, and pioneering IT and telecom organizations such as Microsoft, Ericsson, and Mphasis.

Chanderi was a small municipality with a total population of only 40,000 people, and approximately 3,500 weaver families in the Ashoknagar district of the Bundelkhand region in Madhya Pradesh, India. Chanderi was known for its rich heritage of culture, tradition, and art (see **Exhibit 3**).

The history of Chanderi dated back to the eleventh century, when it was a major trade center connecting all the major trade routes between North India, the Deccan, and the western coast port of Gujarat. Apart from its historic and archaeological splendor, Chanderi was world famous for saris, cloth, and apparel, with its handloom trade dating back several centuries. Chanderi handloom products were originally used exclusively by royalty, but at the advent of the 20<sup>th</sup> century, the products became popular among the masses and the Chanderi handloom industry continued to establish itself in Indian as well as global markets.

Handloom formed the chief source of livelihood for about 60% of the population of Chanderi. It was home to about 4,500 weavers and an equal number of handlooms. Handloom had historically been a family trade, with all members of the family engaged in spinning and coloring the yarn, mounting the thread on the loom, weaving the sari, and washing and ironing to prepare it for sale. The trade passed from one generation to another, chiefly through apprenticeship of youngsters under the elders of the family. The custom of marrying locally further kept the art alive as the brides, themselves from the families of weavers and trained in the art, joined the family trade in their conjugal homes.

### Exhibit 3 Map of Chanderi



Source: Digital Empowerment Foundation. [www.def.org](http://www.def.org). Accessed 31 December 2017.

A typical handloom sari took around three to five days to be woven, with more intricate designs taking as long as ten days. Chanderi handloom was striking for its variety of designs—known by interesting, locally-evolved names such as *chana buti* (chick pea motif), *nakshi* (maze), *chatai nakshi* (mat pattern), *meenakari* (gold enameled), *jaal buti* (netlike texture with round motifs), *ashrafiyaans* (gold coin motifs), and *Ganga Yamuna* (bi-colored and named after the two most prominent rivers of India).

The Chanderi handloom was free of synthetic products and machine usage. The price of a Chanderi sari ranged from INR. 1800 (about \$26.95 USD<sup>ii</sup>) to as high as INR. 1,50,000 (about \$2,245.85 USD). The annual revenue generated by this cluster for 2014 was INR. 1.5 billion (about \$22.4 million USD).

Chanderi raw materials came from many sources. The wrap, *tana-bana* silk, was usually imported from China or Korea. The waft, or the cotton, was sourced from Bangalore, Coimbatore and Surat. The golden thread or *zari* for the designs came almost exclusively from Surat.

There were about 100 master weavers in the Chanderi region in 2017 and almost 60% had their own websites to sell products. Sales fluctuated with the season, with winter being the peak season for sales because festivals and carnivals led to buying sprees. Sales tended to decline during the summer and the monsoon months, leading to a decline in the prices during those seasons. Apart from the individual buyers, Chanderi also had a number of institutional buyers. The clothes for the government-owned shops, such

ii \$1 USD = 66.79 INR., as on 1 May 2018.

as the *Mriganayani*,<sup>iii</sup> went through the *Hastkala Vikas Nigam*,<sup>iv</sup> who purchased from the registered buyers. However, big handloom-based businesses, such as Fabindia,<sup>v</sup> had their own weavers.

## The Industry Structure of Handloom Weaving: The Challenges

Handloom weaving continued to be a household industry in India in which family members worked as one unit. In this kind of an enclosed setup, weavers traditionally depended on external agents for procuring raw materials and selling their products in the market. The Chanderi Handloom, for instance, reached the end consumer through a three-tier system:

- **The Weaver:** The weaver weaves the cloth in the loom at his/her home or at a workhouse and brings it to the middleman or intermediary. Weavers typically do not directly sell their product to the market and have less access to the end consumers.
- **The Middleman:** The middleman, also called the Master Weaver,<sup>23</sup> buys the fabric or the finished product from the weaver and takes it to the wholesaler/retailer. The middleman often has a workhouse where several weavers work for him on a “per piece” rate. The middleman is responsible for generating orders from the wholesalers/retailers and providing design specifications to the weavers, depending on the demands of the market. Middlemen also typically provide the raw materials, such as cotton, yarn, and dyes, to the weavers.
- **The Wholesaler/Retailer:** These include the sari shops, showrooms and firms such as Fabindia, who take the end product to the market. The wholesaler and retailer advertise the product, generate and assess demand, and provide design specifications to the middle men, depending on the trends in the international and national markets.

In addition to the tiers above, the handloom industry had another major stakeholder: the cooperative societies. The cooperative society system is designed to maximize benefits for weavers in the production chain. In cooperative societies, weavers unite in the functional areas of marketing, sales, and commissioning orders, in addition to weaving. This eliminates intermediaries and ensures a larger share of profits to the weavers. In general, weavers’ cooperative societies follow a two-tier structure: a primary cooperative society at the village level, and an apex society at the state level.

Due to the staggered access of the artisan to the market, the weaver got paid on a daily or a “per piece” basis. Further, there was lack of standardization in the prices, resulting in confusion among the consumers. The cooperative system, which otherwise could have been an answer to weavers’ woes, was often riddled with corruption and political interference. Moreover, many handloom weavers were not members of these cooperatives. Finally, handloom weaves such as Chanderi saris lacked any quality control mark, leading to a dilution of the quality of the product.

Chanderi weavers also needed assistance in their overall standard of living. Handloom production was highly labor-intensive and deteriorated the health of the weavers, very often leading to weakened eyesight and lungs. There was poor access to education and opportunities to scale up business due to lack of access to capital and developmental schemes (see *Digital Initiatives in the Handloom Sector* section). Even where capital was available, few weavers were ready to step beyond the tried and tested grounds to explore new opportunities at the risk of losing their daily bread. Chanderi weavers also suffered from high fluctuations

iii Mriganayani, literally meaning the doe-eyed woman, is the Government-run store of indigenous handicraft of the state of Madhya Pradesh.

iv Hastkala Vikas Nigam, or the Handloom Development Board, is the official body of the Government of Madhya Pradesh to develop handloom in the state.

v India’s largest private platform for handloom goods, [www.fabindia.com](http://www.fabindia.com).

in the price of raw materials. High prices were sometimes caused by droughts or heavy rains that destroyed silk crops. Raw material prices also fluctuated with gold and silver prices. All these factors made profits unreliable and made weavers overly dependent on middlemen for sustained income.<sup>24</sup>

### Stage I—The Early Years of Chanderiyaan

*“I remember when we were doing business in Chanderi, there was no ATM, there was no banking, there were no reliable services available and today BSNL<sup>vi</sup> has already shut their shops because they were not good in service providing.”<sup>25</sup>*

The Chanderiyaan project was initiated under the patronage of Mr. Jyotiraditya Scindia, who was then Minister of State for Commerce and Industry and a Member of Parliament, and at one time was the titular king of Gwalior.<sup>26</sup> He was instrumental in making available the heritage building of Raja Rani Mahal (the abode of the king and queen), which dated back to the 15<sup>th</sup> century and had been the palace of the Bundela kings. Raja Rani Mahal was designated as the headquarters for the Chanderiyaan project and the government leased this heritage building to Chanderiyaan in January 2010 for a nominal fee of INR. 15000 (about \$232.00 USD) per month.

A computer lab was then set up for spreading digital literacy. As a first step to utilizing technology to simplify and accelerate the weaving process, a Jacquard machine was bought in 2010. The Jacquard machine was a device attached to a loom that used a series of punched cards to create intricate designs on the fabric while weaving. To popularize the idea of digital design-making, the society organized a design competition for weavers so they could gain exposure to the new technology. Digital design-making reduced design time for Chanderi workers from a matter of weeks to less than a few hours. In the words of Shahid Ahmad, who oversaw activities of Chanderiyaan:

*“We wanted the weavers to become independent and be able to understand and use technology to their advantage, not just in their personal lives but also in work.”<sup>27</sup>*

At around the same time, block printing skills training was provided to women to empower them to develop local enterprises. At the 2010 Commonwealth Games held in Delhi, all the *stole* (scarf) designs were created at Chanderiyaan, one of its first major consignments. These stoles were given as memorabilia to celebrities and players at the event.

Chanderiyaan became the first DEF project to experience the launch of the W4C and CIRC programs. Since the goal of Chanderiyaan was empowerment, the project made it a point to involve local stakeholders at every step. Local stakeholders were included as technicians, trainers, volunteers, and other personnel to build efficiency as well as local ownership of the project.

### Stage II—When Government Funding Stops

Chanderiyaan received government funding until 2011. Thereafter, DEF decided to make the project self-sustaining.<sup>28</sup> The first step taken in this direction was to enforce digital literacy in the sector at ground level; hence in 2012, 1,000 school students were trained to speak English. Also, as a part of the skill builder program, 1,000 people were trained in computer literacy. By 2014, baseline surveys of 3,500 weaver families were initiated and the W2E2 program was started, which aimed to empower women entrepreneurs to grow their businesses with the help of digitization and to find vocational opportunities in digital resources.

---

<sup>vi</sup> Bharatiya Sanchar Nigam Limited, the Government of India-owned telecommunication and broadband service.

As a supplement to the brick and mortar store at Raja Rani Mahal, Chanderiyaan also launched an e-commerce web portal. By late 2017, the Chanderiyaan web portal housed over 100 products. The portal tremendously increased product reach and reduced the cost of maintaining multiple physical stores and inventory.

By 2015, Chanderiyaan had emerged as a brand. The branding activity aimed to assure the customer of the authenticity and the quality of the products, as well as to institutionalize changes. In June 2016, Intel filmed an advertisement in Raja Rani Mahal at Chanderi which aired on YouTube and television channels.<sup>29</sup> The ad showed that by utilizing design software and internet connectivity on a personal computer, the women behind textile-making were able to expand their presence online and elevate their business from a local emporium to a digital store.<sup>30</sup>

### Stage III—Chanderiyaan Goes Digital

Other activities also contributed to the primary objectives of the Chanderiyaan project, such as:

#### 1. *Wireless for Communities (W4C)*

This was a part of the larger Wireless for Communities program, jointly launched by DEF and Ford Foundation, to connect rural communities and empower them through knowledge and access. Under the W4C, Chanderiyaan offered wireless internet connectivity to the local population of Chanderi, using the 2.4 GHz & 5.8 GHz unlicensed internet spectrum provided by the Government of India. This spectrum was used to create a 360-degree wireless network with 5 km radius—which was then made available to households, institutions, and businesses at affordable prices. Chanderiyaan provided cyber facilities to community members at its location. Services included internet-browsing facilities, online form completion for e-governance functions, online ticket booking, printing, scanning, and photocopying. These services ensured that the people of Chanderi, rather than having to travel far to access basic services related to ICT, could have access to the outside world at their fingertips. The internet service café, called the Common Service Centre, launched in early 2016. It was equipped with eighteen desktop computers, six laptops, and four color printers (see **Exhibit 4**). Chanderiyaan also provided training facilities to community members to empower them to run the W4C center at Chanderiyaan in a self-sustaining way. Trainings included educating trainers in wireless technology education and certification and diploma courses in computer technology.

Chanderiyaan sought to make a difference through reliable signal strength and trustworthy service available 24/7. This caused almost all households with Internet to switch to Chanderiyaan's internet service, allowing it to emerge as a brand competing against major Indian service providers such as Reliance Jio, BSNL, and MPOnline. While the low price of Reliance Jio led some customers to choose their service, government offices, hospitals, and schools preferred Chanderiyaan for its reliability. In June 2017, 70 households and five government offices, including the Block Office,<sup>vii</sup> Police Office, and Tehsil,<sup>viii</sup> connected to the Internet through Chanderiyaan.

#### 2. *Design Innovation in Chanderi Handloom*

When Chanderiyaan began its operations in 2009, one of the first things Manzar and his team noticed was that to build the credibility of the new methods of designing and weaving, the community needed to have a successful example set in front of them. The workshops for looms and block printing at Chanderi were set up to create a platform where weavers could learn and apply the new technology hands-on, and

vii Block Office is the main operation wing of the government region for the development administration as well as regulatory administration.

viii It is an area of land with a city or town that serves as its administrative center, with possible additional towns, and usually a number of villages.

see in real time the differences in the production process and the labor involved. The looms were fitted with the Jacquard technology, which considerably simplified the production process. All other costs, such as raw materials, electricity, water, house rent, designing, marketing, and product sales, were covered by Chanderiyaan. The center had 25 weavers employed, who were paid a “per piece” rate ranging from INR. 300–1000 (about \$4.49–\$14.97 USD), depending upon the design.

**Exhibit 4**  
**Chanderiyaan weavers at work in Raj Mahal**



Source: “Digital Cluster Development Programme.” DEF India, 11 Apr. 2017, [www.defindia.org/wp-content/uploads/2017/04/Chanderi\\_Presentation\\_11.pdf](http://www.defindia.org/wp-content/uploads/2017/04/Chanderi_Presentation_11.pdf).

The block printing workshops followed a similar model. Although block printing on Chanderi saris was a popular offering in markets across India, the production process had remained cumbersome in that they were produced in Chandernagore and then sent to Jaipur for block printing. Around 2,000 to 2,500 saris were sent to Jaipur-based block printing hubs every month, costing around 5 lakh rupees, and it took about 45–60 days to have the saris returned. To avoid both the delay and the cost, DEF introduced a training program in block printing so this task could be completed locally. This resulted in the Chanderiyaan facility generating local employment, in addition to reducing the cycle time and manufacturing costs of printed Chanderi saris.<sup>31</sup>

Digital designing with CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) was one of Chanderiyaan’s most innovative offerings. The Design Centre utilized the software Jackdaw to train workers in design-making as well as creating original designs. The software simplified the laborious and time-consuming task of designing motifs, which previously took hours and was now reduced to 15–30 minutes with precision and accuracy, thereby increasing the variety of offerings. The CAD/CAM designing was done by community members who had been trained to use the software by DEF. The design outputs were used not only by the weavers working with Chanderiyaan, but also the independent Master Weavers.<sup>32</sup> In 2017,

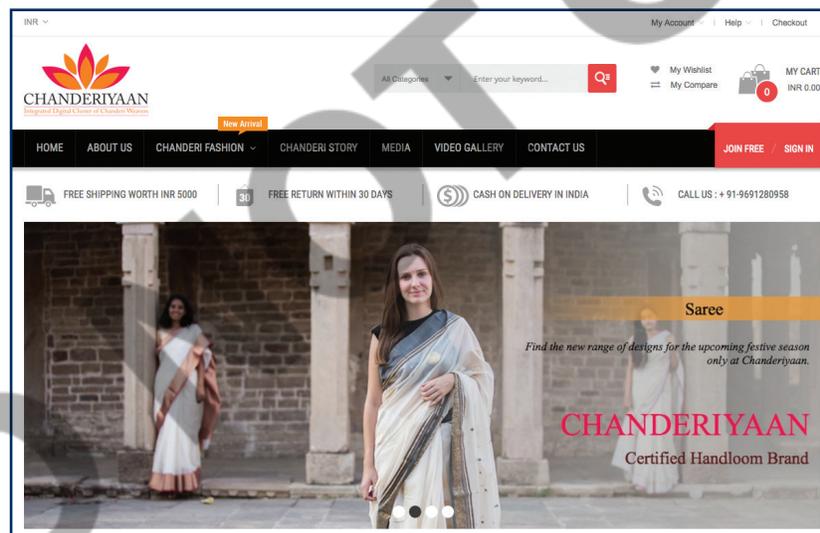
Chanderiyaan had an archive of over 10,000 Chanderi handloom designs and motifs and was training more than 100 weavers in graphic design. In the words of Shahid Ahmad:

*“Earlier, the designers working with these weavers used to sketch out patterns on graph paper, which often meant that they could not get an idea of the finished product. After being able to use digital technology, they know what the final product can look like, how to avoid wastage, etc. Technology has helped them double the time used for weaving, which has meant an increase of almost four times their monthly income since 2011.”<sup>33</sup>*

### 3. E-retailing of Chanderiyaan Products

Chanderiyaan began e-retailing Chanderi products by setting up the website [www.chanderiyaan.org](http://www.chanderiyaan.org). The site had an intricately laid out display of over a hundred different Chanderi product offerings ranging from fabrics to garments for men and women, to home decoration items such as cushion covers, wall hangings, curtains and photo frames. Enabled with a digital payment gateway, this site enabled purchase of Chanderi products from across the world (see **Exhibit 5**).<sup>34</sup>

#### Exhibit 5 Chanderiyaan Web Portal



Source: Chanderiyaan. [www.chanderiyaan.org](http://www.chanderiyaan.org). Accessed 31 December 2017.

### 4. Wireless Women for Entrepreneurship and Empowerment Program (W2E2)

The Wireless Women for Entrepreneurship and Empowerment Program (W2E2) program started in Chanderi with 10 women on April 26, 2014.<sup>35</sup> It aimed at empowering grassroots-level women entrepreneurs through IT education. Under this, women community members who were interested in entrepreneurial ventures as a means of livelihood were trained in using the Internet and social media as an aid to their chosen vocation.

In the words of Vinita Koli, a W2E2 participant:

*“W2E2 is a great opportunity for me, as I never got a chance to study computers because of the financial constraints. Moreover, the program structure that allows me to initiate my own venture is a terrific initiative for women such as me who aspire to do something.”<sup>36</sup>*

### 5. Heritage, Culture, and Tourism

The handloom business in Chanderi was intricately related to the heritage of the town and its architectural splendor. The historical monuments drew tourists to this spot, who also purchased Chanderi saris from the weavers, thus boosting the market. Moreover, the preservation of the heritage sites contributed to the preservation of the heritage of the handloom art and its authenticity. While enjoying the premises of the Raja Rani Mahal, DEF took steps to ensure that the architectural splendor and the cultural heritage of Chanderi was not lost. DEF also collaborated with UNESCO and IHCN to classify and document the heritage and culture of Chanderi at [chanderiheritage.in](http://chanderiheritage.in).<sup>37</sup>

### 6. Education through ICT

To portray digitalization as not only access to information, but also as a means to advance one's trade, DEF launched the first design training center in Chanderi. At the center, weavers and their family members were provided with training in creating software-aided garment design, thereby saving the time and costs involved in manual design. More than 750 men and women received training in various vocational courses at Chanderiyaan through 2017.<sup>38</sup>

In addition, DEF, in collaboration with MLAsia, set up classes in basic computer English language education so that people who now had access to the Internet could use it meaningfully. The basic computer certification course was a three-month course costing INR. 100 (less than \$2 USD) per month.

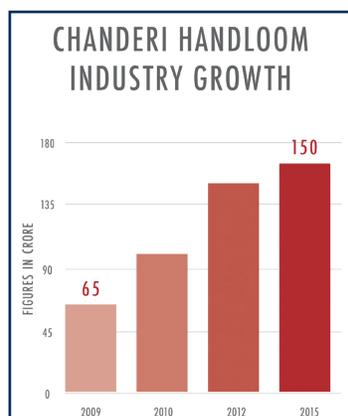
### 7. Self-Help Groups (SHGs)

To promote its vision of enabling from within, Chanderiyaan focused on enabling the people associated with the Chanderiyaan movement to organize into autonomous self-help groups. The purpose of these SHGs was threefold: to engage in activities that make them financially stable and sustainable; to undertake educational and social initiatives that help in self-development; and to create a community ecosystem and network dedicated to collective decision-making and mutual assistance.

## Stage IV—GROWING THE CHANDERIYAAN WAY

When the project commenced in 2009, Chanderiyaan registered an earning of INR. 3 lakhs (about \$4,700 USD), which expanded to INR. 16 lakhs (about \$24,800 USD) in 2015 and to INR. 20 lakhs (about \$31,000 USD) in 2016, registering a 20% increase in profit (See **Exhibit 6**).

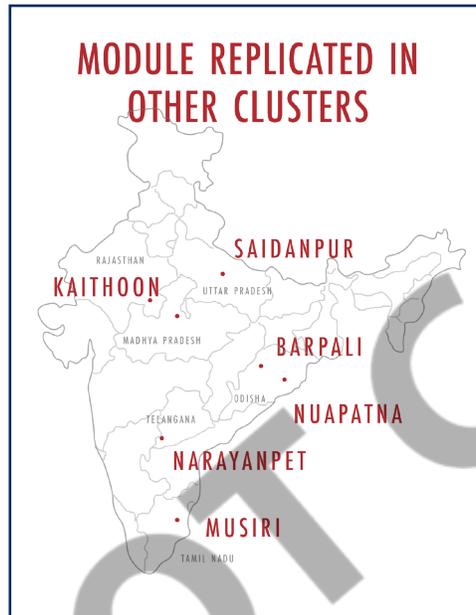
**Exhibit 6**  
**Chanderi Industry Graph**



Source: "Digital Cluster Development Programme." DEFIndia, 11 Apr. 2017, [www.defindia.org/wp-content/uploads/2017/04/Chanderi\\_Presentation\\_11.pdf](http://www.defindia.org/wp-content/uploads/2017/04/Chanderi_Presentation_11.pdf).

The success of Chanderiyaan led Manzar and his team to expand the DCDP model to the other handloom clusters of India, setting up the DCDP in clusters like Nuapatna and Barpali in Odisha,<sup>39</sup> Saidanpur in Uttar Pradesh, Musiri in Tamil Nadu, and Pochampally and Narayanpet in Telangana (see **Exhibit 7**).

**Exhibit 7**  
**Cluster Map**



Source: "Digital Cluster Development Programme." DEF India, 11 Apr. 2017, [www.defindia.org/wp-content/uploads/2017/04/Chanderi\\_Presentation\\_11.pdf](http://www.defindia.org/wp-content/uploads/2017/04/Chanderi_Presentation_11.pdf).

## At the Crossroads

During DEF's 15<sup>th</sup> anniversary meeting, best practices from various clusters were shared with the core team. However, the success of the DCDP model had different implications for Manzar. DEF had grown quickly since its inception. While digital education, advocacy, and capacity building had been DEF's initial focus areas, new initiatives had developed, including handloom, clean drinking water, and female empowerment. The DCDP alone had grown to eight handloom clusters, each with its own unique challenges and requirements. It was important for DEF not to spread its resources too thin, or to move too far from its core competency of digital advocacy and capacity building. But far more important to Manzar was self-sustainability. While the stability of Chanderiyaan and its consistent financial performance was encouraging for the DCDP model, Manzar felt it was time to make Chanderiyaan financially self-reliant.

The goal of making Chanderiyaan independent was not a new idea, however. Right from the inception of the DCDP, DEF took care to involve community members in the operation of the clusters. The purpose was twofold. First, having people from the community on board made buy-in from the rest of the populace easier. Further, network managers and advocacy workers communicated in the local language, knew the local topography, and were available for assistance and after-sales service at all times. Second, the core vision of DEF was community empowerment; and its initiatives were tasked to become self-sustainable in the long term. Hence, it was imperative that community members in Chanderi take over not only the daily operations, but also the management of the institution. With the organization now reaching a mature stage, Manzar felt it was probably a good time to make it independent (see **Appendix A**).

Manzar had already spoken to his core team about his plan to gradually wean Chanderiyaan off the Foundation's support and make it an independent, self-sustaining enterprise. To this end, he asked his deputy, Shahid Ahmad, to scrutinize if the time was right to make a transition in the business model. Further, he wanted to find out if the core workers at Chanderiyaan were ready to make this transition. Ahmad, as the chief coordinator of the DCDP, agreed with Manzar's opinion, but for a different reason: he felt the cluster was not functioning at its fullest capacity. Its role as an independent service provider was nearing saturation, given the limited population in Chanderi who could access internet services; the topography of Chanderi (surrounded by mountains on all sides) did not allow the CIRC to send signals using hop technology<sup>ix</sup> beyond Chanderi at that time. As far as the handloom business was concerned, Ahmad felt more efforts could be made to increase showroom sales. It was generally perceived that since most of the costs of the Cluster—such as staff salaries, rent, marketing, and production—were subsidized by DEF, employees were not motivated to increase sales because they knew that overhead costs were covered by DEF. Manzar knew Ahmad had recently presented the self-sustainability proposal to the core Chanderiyaan employees and was eager to hear the details from him.

### **Chanderiyaan Reacts to Self-Sustainability Proposal**

The self-sustainability proposal received mixed reactions from the Chanderiyaan Cluster. One reason was the recent downturn in the market. The team had been sensing a reduced demand for Chanderi clothes. Hosted exhibitions had fallen from 101 (previous year) to 11 (current year). Hence, showroom sales were high, but exhibition sales were low.<sup>40</sup> A similar situation was visible throughout the garment industry.<sup>41</sup> There was a general feeling that Chanderiyaan needed to partner with the suppliers of big brands like Fabindia in order to maintain sales levels.

Another challenge cited by Chanderiyaan employees was the dilution of perceived quality of the Chanderi handloom products. To make easy profits, many sellers had switched to power looms that had drastically reduced the cycle time of sari production, making them dramatically less expensive than original Chanderi garments. To the ordinary buyer, there was little distinction between a handloom-made sari and one made with a power loom. Thus, the authentic handloom was often losing out to power loom products. With no price-regulatory mechanism, different sellers sold the saris at different prices, which often caused buyers to purchase lower-quality products and/or made them skeptical regarding Chanderi garment pricing.

Chanderiyaan employees also felt sales were hampered because DCDP marketing managers were based out of New Delhi, and sometimes the gap between visits to Chanderi had been as long as 14 months. Employees felt they needed two to five locally-based marketing personnel, devoted to the Chanderi cluster, who could not only sell products but also promptly advise them regarding latest market trends such as color and patterns. Then they could produce more contemporary designs, which was a major challenge.

While digital design had reduced costs and design time had shrunk from four weeks to one week, the weaver still lost time when setting up a new design on a machine. Chanderiyaan felt weavers needed to be paid more for changing designs to increase their willingness to do so. There were also problems with infrastructure and personnel. For example, the embroidery machines could not be used due to lack of suppliers, and the block printing division closed after its expert passed away.

Employee feedback about the CIRC was more positive, driven by the exemplary after-sales service. The CIRC team made high-speed internet service available at a competitive price, but what really made a difference was the team's availability and prompt service, which was previously nonexistent in a small town

---

<sup>ix</sup> Hop technology is a kind of multi-node network system in which, to send a response across a distance, a node uses other nodes as relays. Hop technology is useful where the transmission distance is larger than the range of a single node.

like Chanderi. Positive word of mouth spread quickly to other potential customers. Unfortunately, with the recent arrival of the Jio provider and its inexpensive internet packs, the demand for broadband internet had been reduced. In addition, the limitation of hop technology was turning out to be a major deterrent in further expansion of the service.

### Which Way Forward?

As Ahmad completed his report on Chanderiyaan's feedback to the self-sustainability proposal, he said, "The issues are real—there is no denying of that. However, it appears that there is a need for the team to take ownership of problems. While the team is adept with the operations, most of the members have little clue about the strategic side of the business. They did not have a clear idea about where the funding comes from or where the profits go."<sup>42</sup>

Before spinning off Chanderiyaan as an independent entity, Manzar knew it was important to identify the cost and profit centers of the business. Manzar studied the financial figures for 2015–16. The data revealed some interesting trends, but not enough reliable data to inform next steps.

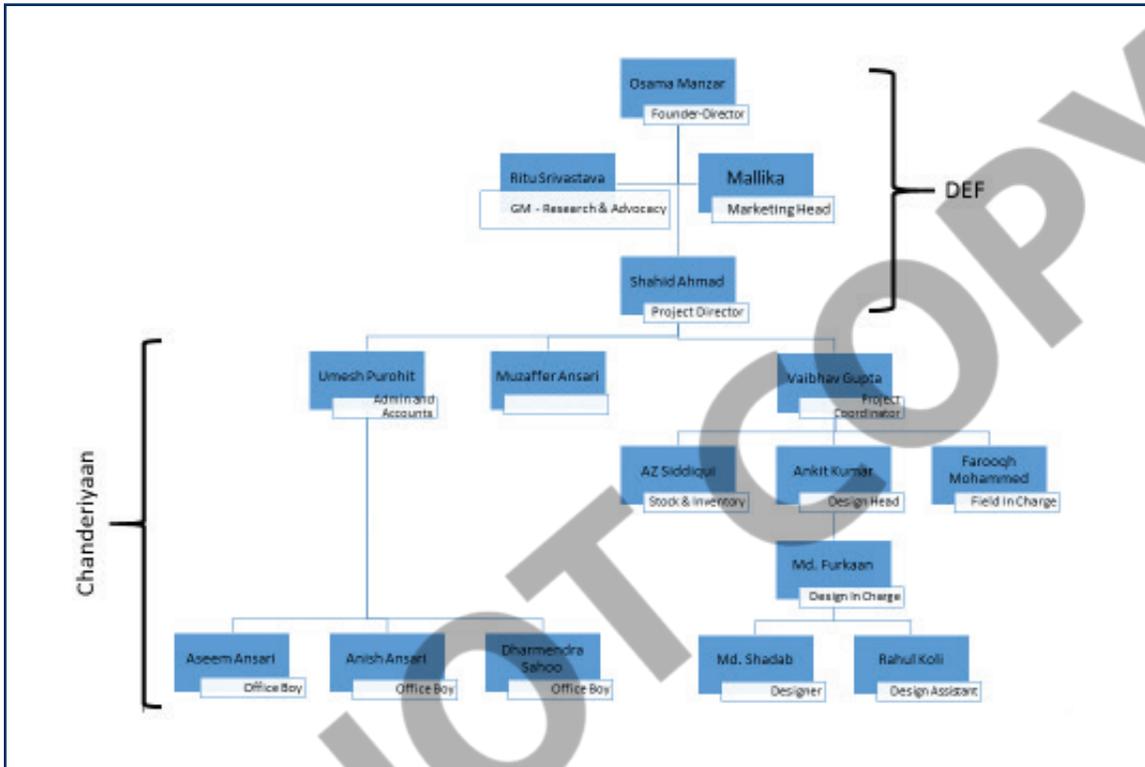
Manzar wondered which path forward to take. Should Chanderiyaan be weaned off DEF's support all at once? This option might incite the Chanderiyaan team to increase their productivity and sales to the highest degree. Or, should they be made independent gradually and in phases to minimize any shock that might accompany the change? Or, should Chanderiyaan be allowed to continue looking beyond the bottom line and focus on community development?

Whatever his choice, Manzar knew that it would have tremendous implications for the success of the different digital clusters of India and the fate of the CIRC and the DCCP programs; Because of this, he had to be careful to make a choice that fit the unique conditions at Chanderiyaan. One of his observations came to mind:

*"Every sector, every aspect, every local, every community, is a unique community in itself. So when you go and connect and provide accessibility, you cannot build the same road everywhere, with the same approach. You will find rivers, you will find this, you will find that; different user, different culture, different approach. And therefore, even though you are going with the same connectivity approach, your approach to community integration will be different."<sup>43</sup>*

Appendices

Appendix A  
Chanderiyaan Organizational Chart



Source: Manzar, Osama. Personal Interview. 1 June 2017.

---

## Endnotes

---

- 1 "Wireless for Communities." *DEF India*. [www.defindia.org/wireless-for-communities](http://www.defindia.org/wireless-for-communities). Accessed 10 Dec. 2017.
- 2 "CIRC." *DEF India*. [www.defindia.org/community-information-resource-centres-circs](http://www.defindia.org/community-information-resource-centres-circs). Accessed 10 Dec. 2017.
- 3 Manzar, Osama. Personal interview. 1 June 2017.
- 4 "Wireless for Communities." *DEF India*. [www.defindia.org/wireless-for-communities](http://www.defindia.org/wireless-for-communities). Accessed 10 Dec. 2017.
- 5 "CIRC." *DEF India*. [www.defindia.org/community-information-resource-centres-circs](http://www.defindia.org/community-information-resource-centres-circs). Accessed 10 Dec. 2017.
- 6 "Annual Report Digital Empowerment Foundation 2016–2017." *DEF India*. [www.defindia.org/annual-reports/](http://www.defindia.org/annual-reports/). Accessed 11 Jan. 2018.
- 7 Soundarapandian, M. "Growth and Prospects of Handloom Sector in India." Occasional Paper-22. *National Bank for Agriculture and Rural Development Mumbai*. [www.nabard.org/demo/auth/writereaddata/File/OC%2022.pdf](http://www.nabard.org/demo/auth/writereaddata/File/OC%2022.pdf). Accessed 10 Nov. 2017.
- 8 "Handloom Industry in India." *India Brand Equity Foundation*. [www.ibef.org/exports/handloom-industry-india.aspx](http://www.ibef.org/exports/handloom-industry-india.aspx). Accessed 10 Nov. 2017.
- 9 "Handloom Industry in India." *India Brand Equity Foundation*. [www.ibef.org/exports/handloom-industry-india.aspx](http://www.ibef.org/exports/handloom-industry-india.aspx). Oct. 2017. Accessed 10 Dec. 2017.
- 10 "Handloom Industry In India." *India Brand Equity Foundation*. [www.ibef.org/exports/handloom-industry-india.aspx](http://www.ibef.org/exports/handloom-industry-india.aspx). Oct. 2017. Accessed 10 Dec. 2017.
- 11 "Handloom Industry In India." *India Brand Equity Foundation*. [www.ibef.org/exports/handloom-industry-india.aspx](http://www.ibef.org/exports/handloom-industry-india.aspx). Oct. 2017. Accessed 10 Dec. 2017.
- 12 Chetty, Sanjana S., Gowda, N.K. Ramachandra, & Chetty, Satish G. "Survey on Impact of Traditional Handlooms Schemes: A Case Study at Madhya Pradesh, India." *Research Journal of Management Sciences* 5.8 (2016): 9–12. Print.
- 13 "Draft Consulting Paper on Handlooms." *Planning Commission Government of India*. Oct. 2014. [www.planningcommission.gov.in/reports/genrep/drft\\_cosalpapr\\_1410.pdf](http://www.planningcommission.gov.in/reports/genrep/drft_cosalpapr_1410.pdf). Accessed 10 Dec. 2017.
- 14 Waverman, Leonard, Meschi, Meloria, & Fuss, Melvyn. "The Impact of Telecoms on Economic Growth in Developing markets," *The Vodafone Policy Paper Series* 2(2015): 10–2. [www.vodafone.com/content/dam/vodafone/about/public\\_policy/policy\\_papers/public\\_policy\\_series\\_2.pdf](http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_2.pdf). Accessed 10 Dec. 2017.
- 15 Syama Sundari, B. "Handlooms are dying and its because of our failure to protect them." *The Wire*. 21 Mar. 2017. [www.thewire.in/116389/handlooms-are-dying-and-its-because-of-our-failure-to-protect-them/](http://www.thewire.in/116389/handlooms-are-dying-and-its-because-of-our-failure-to-protect-them/). Accessed 1 Jan. 2018.
- 16 "Bharat Broadband Network Limited" *BBNL*. [www.bbnl.nic.in/index1.aspx?lsid=51&lev=2&lid=48&langid=1](http://www.bbnl.nic.in/index1.aspx?lsid=51&lev=2&lid=48&langid=1). Accessed 2 Jan. 2018.
- 17 "Handloom Industry In India." *India Brand Equity Foundation*. [www.ibef.org/exports/handloom-industry-india.aspx](http://www.ibef.org/exports/handloom-industry-india.aspx). Oct. 2017. Accessed 10 Dec. 2017.
- 18 "Digital Dividends." *The World Bank*. World Development Report 2016. [www.documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf](http://www.documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf). Accessed 2 Feb. 2018.
- 19 "Acute urban-rural divide in Internet penetration in India." *Economic Times India*. 20 Feb. 2018. [www.economictimes.indiatimes.com/tech/internet/acute-urban-rural-divide-in-internet-penetration-in-india-report/articleshow/62997468.cms](http://www.economictimes.indiatimes.com/tech/internet/acute-urban-rural-divide-in-internet-penetration-in-india-report/articleshow/62997468.cms). Accessed 2 Feb. 2018.
- 20 Mugeni, Gilbert Barasa, Gregory, Wabuke Wanyembi, and Joseph, Muliaro Wafula. "Evaluating factors affecting broadband adoption in Kenya." *International Journal of Information*. 10 Feb. 2012.
- 21 Manzar, Osama. Personal Interview. 1 June 2017.
- 22 Chowdhry, Seema. "Chanderiyaan: An e-commerce website that will enable weavers to sell directly to clients." *Livemint*. 11 Jan 2014. [www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html](http://www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html). Accessed 13 Dec. 2017.
- 23 "TBI Blogs: From Design to Sales—How Digitisation Is Empowering the Chanderi Weavers of MP." *DEF India*. 22 June 2016. [www.thebetterindia.com/57426/digital-empowerment-of-weavers-chanderiyaan/](http://www.thebetterindia.com/57426/digital-empowerment-of-weavers-chanderiyaan/). Accessed 1 July 2017.
- 24 Master weaver. Personal Interview. 1 Aug. 2017.
- 25 Manzar, Osama. Personal Interview. 1 June 2017.
- 26 "Minister Jyotiraditya Scindia Visited Chanderiyaan." *Chanderiyaan*. [www.chanderiyaan.org/minister-jyotiraditya-scindia-visited-chanderiyaan/](http://www.chanderiyaan.org/minister-jyotiraditya-scindia-visited-chanderiyaan/). Accessed 5 Oct. 2017.
- 27 Chowdhry, Seema. "Chanderiyaan: An e-commerce website that will enable weavers to sell directly to clients." *Livemint*. 11 Jan 2014. [www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html](http://www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html). Accessed 13 December 2017.
- 28 Chowdhry, Seema. "Chanderiyaan: An e-commerce website that will enable weavers to sell directly to clients." *Livemint*. 11 Jan. 2014, [www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html](http://www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html). Accessed 13 Dec. 2017.

- <sup>29</sup> "Chanderi Saree TVC\_With a PC, you're powerful." Uploaded by Intel India, 9 June 2016, [www.youtube.com/watch?v=TboXMCzPN1Q](https://www.youtube.com/watch?v=TboXMCzPN1Q).
- <sup>30</sup> "Digital Cluster Development Programme." *DEF India*, 11 Apr. 2017, [www.defindia.org/wp-content/uploads/2017/04/Chanderi\\_Presentation\\_11.pdf](http://www.defindia.org/wp-content/uploads/2017/04/Chanderi_Presentation_11.pdf). Accessed 10 Dec. 2017.
- <sup>31</sup> "Launch-Of-Block-Printing-In-Chanderi." *Chanderiyaan*. [Chanderiyaan.org/launch-of-block-printing-in-chanderi/](http://Chanderiyaan.org/launch-of-block-printing-in-chanderi/). Accessed 5 Oct. 2017.
- <sup>32</sup> "TBI Blogs: From Design to Sales—How Digitisation Is Empowering the Chanderi Weavers of MP." *DEF India*, 22 June 2016, [www.thebetterindia.com/57426/digital-empowerment-of-weavers-chanderiyaan/](http://www.thebetterindia.com/57426/digital-empowerment-of-weavers-chanderiyaan/). Accessed 1 July 2017.
- <sup>33</sup> Chowdhry, Seema. "Chanderiyaan: An e-commerce website that will enable weavers to sell directly to clients." *Livemint*. 11 Jan. 2014, [www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html](http://www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html). Accessed 13 Dec. 2017.
- <sup>34</sup> Chowdhry, Seema. "Chanderiyaan: An e-commerce website that will enable weavers to sell directly to clients." *Livemint*. 11 Jan. 2014, [www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html](http://www.livemint.com/Leisure/5xJzXu7qyA1IaTDLGkUH1L/Lounge-Loves--Chanderiyaan.html). Accessed 13 Dec. 2017.
- <sup>35</sup> "Wireless Women Entrepreneurship Empowerment Program Beneficiaries." *Chanderiyaan*. [www.chanderiyaan.org/wireless-women-entrepreneurship-empowerment-program-beneficiaries](http://www.chanderiyaan.org/wireless-women-entrepreneurship-empowerment-program-beneficiaries). Accessed 5 Oct. 2017.
- <sup>36</sup> "Wireless Women Entrepreneurship Empowerment Program Beneficiaries." *Chanderiyaan*. [www.chanderiyaan.org/wireless-women-entrepreneurship-empowerment-program-beneficiaries](http://www.chanderiyaan.org/wireless-women-entrepreneurship-empowerment-program-beneficiaries). Accessed 5 Oct. 2017.
- <sup>37</sup> "E-heritage Chanderi." *Chanderi e-heritage*, [www.chanderiheritage.in](http://www.chanderiheritage.in). Accessed 30 Dec. 2017.
- <sup>38</sup> "ERP and Vocational Training Beneficiaries." *Chanderiyaan*, [www.Chanderiyaan.Org/560/](http://www.Chanderiyaan.Org/560/). Accessed 5 Oct. 2017.
- <sup>39</sup> "Digital Cluster Development Programme." *DEF India*, 11 Apr. 2017, [www.defindia.org/wp-content/uploads/2017/04/Chanderi\\_Presentation\\_11.pdf](http://www.defindia.org/wp-content/uploads/2017/04/Chanderi_Presentation_11.pdf).
- <sup>40</sup> Manzar, Osama. Personal Interview. 1 June 2017.
- <sup>41</sup> Master weaver. Personal Interview. 1 Aug. 2017.
- <sup>42</sup> Ahmad, Shahid. Personal Interview. 1 Aug. 2017.
- <sup>43</sup> Manzar, Osama. Personal Interview. 1 June 2017.



Established at the University of Michigan in 1992, the **William Davidson Institute** (WDI) is an independent, non-profit research and educational organization focused on providing private-sector solutions in emerging markets. Through a unique structure that integrates research, field-based collaborations, education/training, publishing, and University of Michigan student opportunities, WDI creates long-term value for academic institutions, partner organizations, and donor agencies active in emerging markets. WDI also provides a forum for academics, policy makers, business leaders, and development experts to enhance their understanding of these economies. WDI is one of the few institutions of higher learning in the United States that is fully dedicated to understanding, testing, and implementing actionable, private-sector business models addressing the challenges and opportunities in emerging markets.