

"A man is
great by
deeds, not by
birth"

-Chanakya

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Case Study

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'AASU' Mallesham

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‘AASU’ Malleasham¹

Chinthakindi Malleasham was born in a weavers’ community in Sharjipet village, Nalgonda District of Telangana State, India. His mother, Lakshmi, used to work hard for the family. She even helped her husband, Naranna, in weaving. These weavers mainly knitted Pochampally sarees, which involves a critical phase known as the Aasu process. This process involves moving hand across a panel for about 9000 times to make one saree (Exhibit – I). On a typical day in the process of weaving, Laxshmi used to perform Aasu for two sarees and that involved heavy physical effort. By the end of the day, she experienced unrelenting backache and severe pain in her hand. Seeing this Malleasham at a very tender age became determined to relive his mothers’ implacable pain. Observing the root cause of the pain to be the Aasu process, he wanted to replace the physical effort with a machine. After working hard, carrying out lot of experimentation, and exhausting his savings for several years, he finally invented a machine in 2001 (Exhibit – II). This machine not only relieved his mother’s agony, but also changed the course of weaving Pochampally sarees by reducing human labour, improving the efficiency, and increasing the income of weavers. Dr. Anil Gupta of National Innovation Foundation and Professor at Indian Institute of Management, Ahmedabad, acknowledged the innovation along with Brigadier Ganesham (Ex-Army employee and currently in charge of Honey Bee Network, Hyderabad). They together named the machine after Malleasham’s mother as *Lakshmi Aasu Machine*.

Since 2001, Malleasham sold about 800 units and impacted many weaver families. He observed that the potential to influence such families is abundant. However, he was not sure about the ways in which the influence can be scaled up owing to poor economic conditions of the weavers and their lack of awareness about the utility of the machine, and these reasons acted as a hindrance in purchasing the machine.

POCHAMPALLY SAREE WEAVING

Pochampally is a town in Nalgonda District of Telangana State, India. In the town, there are approximately 10,000 weaving households that accounted for nearly half of the total population, which signifies the fact that handloom is one of the primary means of earning livelihood. In several villages, there are cooperatives with 250 to 400 active weavers as members. There are many weavers who work independently and are not member of the cooperative. Weaving is a family activity where all the members contribute; albeit in varied proportions. On an average, a typical weaver family produces about six to seven sarees in a month and generates a net revenue of about Rs. 3000/-. Generally, each household has two pit looms and normally constituted of five family members.

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The case was prepared by Dr. Guda Sridhar, Associate Professor, IIM Kozhikode, India. This case is written not to illustrate effective or ineffective handling of a context, but as the basis for class discussion.

IMPORTANT NOTE: This draft is yet to be approved by the innovator Mr. Malleasham and the Honey Bee Network. Hence, request not to quote the case.

Pochampally sarees are double Ikat style, where both warp and weft share the fabric, in which the thread systems overlap as per the design. In a single Ikat style, either warp or weft threads are tied and dyed. The uniqueness of Pochampally sarees is in the design and colour of the warp² and weft³ threads. These sarees look same from both sides. Designs are either given by the master weaver or are developed on the own. Cotton, Silk, and Sico (Silk and Cotton Mix) are used as fabric. The range of products includes silk and cotton sarees, scarves, stoles, bags, pouches, sari bags, and women's dress materials along with men's wear such as shirts, kurtas, and pants. In addition to these, the products even include bed sheets, divan sets and curtains. Though traditional in style, it has stood to the test of time all because of the ingenious adaptability of the weaving community.

A master weaver or the cooperative society in the town procures silk yarn and hands it to the weavers. In general, yarn is procured from several other states and occasionally from Hyderabad. Yarn procured is treated with water, alkali, acids and enzymes for removing the impurities and for making it soft. Meanwhile, the weaver would have evolved a design on a cloth or graph sheet. Sometimes the design is given by the master weaver or trader or a weaver cooperative society. After finalizing the design and preparing the yarn, women of the weaver's family start the Aasu process. This involves to and fro movement of the hand for tying the yarn to a frame in the form of wedge with the help of equidistant pegs (about 20) planted on one side and a hub peg on the other. The distance between the big and small pegs corresponds to the width of the finished fabric. On each peg, a woman has to wind up the yarn four times before moving to the next. The process is repeated as per requirement of making a saree. Typically, Aasu process requires moving hand for about 9000 times that takes around four to five hours. On an average, a woman performs two Aasu in a day. Upon receiving the completed frame, the male member of the family would transfer the skeleton design made on the paper to the yarn by marking with pen or charcoal the parts of the yarn that need to be tied, and the remaining parts will be dyed. The weaver ensures a heightened care in tying those parts of the yarn that won't be dyed with water repellent materials like cycle tubes, plastic paper, or cello tapes. The clarity in the design of the saree would be the result of this stage. Post wrapping, yarns are dyed and then the colour is allowed to penetrate the selected areas. The process is repeated till the desired texture or colour comes on the yarn. This process take about few hours, and later the yarns are dried. Afterwards, the fine ties on the yarn are removed with lot of care. The warp and weft yarns are later on dipped in the starch for assisting the design to stick to the desired alignment. After few hours of drying in the shade, the rubber is removed to enable spinning. The yarn is then brought back to the Aasu base and winded up for making it ready to warp and weft it separately. Finally, the yarn is brought to the handloom, and a saree is woven.

INNOVATION

For generations, Mallesham's family was in the occupation of weaving, and so at a very tender age of 10, he started helping his father in the weaving of Pochampally sarees which is very natural in such families. During the interview, he said,

“I discontinued my studies in Standard VII as my parents could not afford my education. Later, I privately attempted Standard X board exams and could not clear; even after three attempts”.

Since his childhood, Mallesham was emotionally attached to his mother. He said,

² Warp is tightly stretched lengthwise core of a fabric

³ Weft is woven between the warp threads to create various patterns

“My mother used to work for more than 12 hours a day and most of the time on Aasu. I have seen her suffer every day and vowed that I will improve her quality of life”.

Lack of engineering education and financial resources did not hinder his determination. By examining several machines and optimizing his observation skills and commonsense, he sketched the initial plan of *Lakshmi Aasu Machine*. In his interview, Mallesham said,

“...right from my childhood, I was keen to repair radios and TVs. This knowledge helped me to think of a mechanical and Electrical devise that could substitute the human effort in the Aasu process”, and added, “I divided the machine into five parts and built a prototype machine using mechanical devices fixed to a wooden frame. I invested all the money I got from sundry work and weaving. After three years of experimenting, I reached a stage where I was stuck. I needed one last improvement that involved the thread to go round the peg and slide down to the last thread perfectly.”

Throughout this period, his parents thought that Mallesham was wasting money and doing no fruitful work. His parents got him married to Swarna and expected him to settle in weaving profession. However, his wife stood by Mallesham’s desire to innovate and pledged her complete support. After a year of his marriage and investing all his money in making the machine, Mallesham moved to Hyderabad and took a job of an electrician. He took the prototype along with him and was constantly looking for ways of improving it. Mallesham recollected the specific day of the year 2000 when a breakthrough idea came to his mind.

“I used to visit a mechanic shop and observed movement of a machine that provided insight I was looking for the last four years”.

He immediately left the mechanic shop and purchased the required material to complete the Aasu machine. After fitting the parts, he carried out an experiment with yarn available with him. The experimentation of the Aasu machine became successful. Centuries after the Aasu process was conceived, Mallesham replaced the human effort involved in it with mechanical equipment.

After a year of completion of the machine, Mallesham replaced the wooden planks with iron. Meanwhile, he made several improvements in order to increase the efficiency of the machine by enhancing speed levels, reducing noise and power consumption, introducing auto stop facility if the thread is broken and so on.

Mallesham got up from his chair and showed the interviewer a micro controller device.

“I made this one. I learnt on my own how to make micro controllers and integrate with Aasu Machine. I also learnt Assembly Language on my own (he emphasized) and few other computer related programming languages to make this micro controller device. This helped in making Aasu machine better. It also helps weavers in bringing out new designs on Sarees”.

In the subsequent year, he developed two variants of Aasu machine; one with micro controller and the other without microcontroller. Both the variants have a motor, power transmission system, and arrangement for switching over the yarn from one spoke to the other. For handling the fully automated Aasu machine, the weaver requires to mount yarn to the specified place and set the yarn as per requirements; whereas for handling semi-automated Aasu machine a little more effort is required as the weaver needs to frequently adjust the yarn and enhance their skill to manage the machine. Both the machines consume about 1 unit of electricity per hour and take about an hour and 30 minutes to complete one Aasu. Both machines have four limit switches that need to be replaced after every six months.

Being asked about the benefit that his innovation would bring forth, he replied,

“Firstly, weavers benefit by substituting human labour. Women would now have a better quality of life. Secondly, everyday wage of the entire family would become their savings. Thirdly, the improved productivity will also increase the income opportunities for the family. Now the family can weave about six sarees per day compared to two earlier. After the initial investment on the machine, the recurring cost is just about Rs. 3/- per saree on the electricity charges. Importantly, new designs can be woven using the fully automatic Aasu machine, thus benefiting the entire Pochampally saree community.”

Offering a cup of tea to the interviewer, he added,

“I dreamt of making this weaving profession a more profitable and attractive option for many of my fellow weavers, and this zest led me to where I stand now. I want to see youngsters remain attached to this profession and make meaningful contributions to their families rather than straying for sundry jobs. I want reverse migration. Such young people can invest in this machine and offer services to the weaver families who cannot afford this machine”.

COST and PROMOTION

For making a fully automatic Aasu machine, it requires about 150 kilograms of steel (iron), a PVC screw rod of worth Rs.1000, one A.C. motor of 1/8 HP, and 1 A.C. Stepper motor of 10 units of Torque. Apart from this, several electronic components like controllers, chips and circuits were assembled by Mallesham to make a control box. These components would cost about Rs. 2000. A semi-automatic Aasu machine requires about 220 kilograms of steel (iron), one A.C. motor of ¼ HP, and a wooden chain of worth Rs.450. On an average, Mallesham makes about four machines in a month using three laborers who are paid monthly wage of about Rs.7000/- each. The raw materials are brought from Hyderabad which includes travel and transportation costs. Mallesham's salary is not part of the costing given above.

He said,

“I have currently priced the product at about Rs. 20,000 for the automatic and about two thousand less for the semi-automatic.

There is a small mark up over the costs for motivating me to continue to innovate”.

In 2008, the innovation has been patented with the help of National Innovation Foundation, Ahmedabad, and Honey Bee network, Hyderabad. In 2009, Mallesham received the Traditional Knowledge award from the then President of India Ms. Pratibha Patil. In the subsequent year (2010), he received Samsung Innovation Quotient, and in the year 2012, he won the CNBC TV18 award on Innovation for Development. He attended several exhibitions and seminars to show case his innovation. All this resulted in a considerable positive word of mouth. Several articles were published in newspapers and magazines which helped weavers’ community to take note of this unique innovation (Exhibit – III). In the interview, he mentioned,

“As soon as the first news clipping was published in a local newspaper, several big weavers called me and congratulated. They have promised to help me in whatever way they could”.

He also added,

“Along with our community, several government officials helped me in availing schemes of the government that led to subsidizing the machine to the weavers. Many Non-Resident Indians sponsored either partly or in full to several weavers. Overall, we could sell about 800 units of Aasu Machines till now”.

FUTURE PLANS

Being asked about his visualization of the future sales prospects of his innovation, he replied, “At present, there are about 150 weaver families who have requested for full and partial subsidy. There are more than 500 weaver families who are willing to purchase the innovation if made affordable to them”.

In addition to this, he said,

“After few minor modifications, this innovation is suitable to perform double Ikat style weaving. In our country, this style is evident in Gujarat, Orissa, Bengal, and few North East states. Asian countries like Japan, Indonesia, Thailand and few other South East Asian countries also have evidence of such weaving style. I wish that these weaver communities get aware of my innovation and use them. Although I am not sure of the total potential, I am sure they would be interested in the product”.

Before concluding the interview, Mallesham uttered,

“All I know is that I have to reach these markets. I only need to know is how to reach them”.

Exhibit – I: Aasu Process by Mallesham’s Mother Ms. Lakshmi



Exhibit – II: Mallesham with Lakshmi Aasu Machine



Exhibit – III: First few News clippings of Malleshham



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