

Enhancing Competitiveness of Carpet Industry using ICT platform: Implementation of Computer Software in Carpet Designing & Weaving

Dr. Suresh Kumar Pandey

Associate Professor Indian Institute of Carpet Technology, Bhadohi (UP), India

Abstract

Carpet industry is one of the most growing cottage industries in India. This is also known as handicraft industry. Bhadohi – Mirzapur is popular as a carpet hub in the international market sharing major portion of entire carpet manufacturing/ export from India. Bhadohi – Mirzapur is the carpet cluster in Uttar Pradesh. This industry has also been providing the job opportunity to more than 100,000 people at their doorstep and stop them migrating to different places. Every year size of Indian carpet export is increasing rapidly. To make the carpet industry ICT friendly especially in designing, Indian Institute of Carpet Technology, Bhadohi has been providing the technical support/training on computer based designing to the industry using latest software. Using ICT platform, carpet industry has become capable to compete with global carpet manufactures.

Key words

ICT; Competitiveness; traditional industry; export; carpet weaving; Software; design; cluster

Introduction

Carpet weaving is a traditional and well established industry in India. Exquisite Indian carpets are not only part of luxurious lifestyles in modern times but also reflect timeless amalgamation of nature, culture and art. Today, the exquisite masterpieces created by over 3 million Indian carpet weavers and craftsmen continue to enchant the consumers the world over. This industry plays a vital role in employment and income generation as well as foreign

exchange earnings. Since, this industry is primarily rural based, it also leads to balanced regional growth. It is therefore of prime concern to evaluate its export performance, identify the promising export markets and develop certain export marketing strategies for the overall prosperity of this industry.

Carpets and floorings are an integral part of Indian homes and the history of Indian carpets features its development using mats and durries with a variety of material, ranging from wool, cotton, jute, coir, bamboo and grass. History of Indian carpets, especially those of the woollen carpets traces to a period as early as 500

B.C. References to the earliest woven mats and floor coverings can be found in ancient and medieval Indian literature. The history of Indian carpets entails that when Babur came to India, he was disappointed by lack of luxuries here. He missed the luxuries of Persia, which included the Persian carpet and thus Akbar laid the foundation of carpet weaving tradition in India, in 1580 AD at his palace in Agra. With their support he established carpet weavings centers at Agra, Delhi and Lahore to facilitate production of Persian styled carpets, which were inspired by designs of Kirman, Kashan, Esfahan, Herat and so on.



Over the years, the industry got progressively indigenized depicting motifs from Indian paintings. In the nineteenth and early twentieth centuries, an extended belt of commercial production was established in the Mirzapur-Bhadohi belt of Uttar Pradesh, Jaipur and its adjacent areas of Rajasthan because of its close proximity to the Rajput and Mughal Kingdom.

Since the beginning, wool or silks have been the essential material of the knotted carpets. The wool may have a diversity of origins according to the type of carpet being made. Silk knots are also used in Kashmir region. The patterns of Indian carpets varied from vines and floral patterns, animal and bird figures and geometric and calligraphic patterns. Rugs from Akbar's reign (1556-1605) used cotton warp and wool pile and a variety of color scheme had multiple shades of blues, greens, and other colors on a red and peach base. The patterns were a reworked copy of Persian style but later modified to Indian tastes.



Indian carpets during Jahangir's reign (1605-27) were more superior. Materials like silk and pashmina were used that permitted greater number of knots to be included in the art works. Patterns of these Indian carpets resembled miniature paintings. Subtle gradations and shadings with yarns were themselves artistic. The patterns of these carpets were a reflection of manuscript paintings. The history of

Indian Carpets show technically refined taste in both design and construction. The carpets had scrolling vines, flowering plants, and more naturalistic animals in pictorial or overall pattern. Though like all other crafts, carpet making also saw a downfall for some time, but the craft sustained in the traditional families.

One of the key elements in determining the quality and price of the carpet is its design and the character of design. For 250 years, Indian design represented largely floral patterns, arabesques, rhomboids, and the occasional animal pattern, with varying degrees of stylization. Except for manufacturing of yarn, mechanization is very less thus the entire process is manual, hence the wage component is very high, to the tune of 40 % of the manufacturing cost, which is very rare in other industry. In other words, this handicraft industry plays a major role in solving unemployment problem in our country. Carpet Industry also provides the job right at the door step of the weavers as most of the weaving is done in their own houses and timing for works are flexible also work is done either by men, women, children or all the family members.

This is a case study for identifying the application of information communication Technology (ICT) in the carpet and allied industry with respect to Bhadohi – Mirzapur carpet belt.

*indicating that traditional technologies should be replaced by new one i.e. use of ICT in carpet industry to compete with world market.

Scenario of Carpet Industry in India

The carpet industry provides livelihood to the millions of artisans belonging to the rural areas of above mentioned areas of the country. It contributes to the national economy in several ways and provides employment to the rural poor & economically weaker sections of the society

at their doorsteps. A major portion of the weavers is belonging to the backward classes or other minority communities and almost all are living below the poverty line. The carpet industry is a de-centralized

industry and is a generational craft where skills are passed on from one generation to another. Capital investment in this industry is meagre. But the returns are immense in terms of foreign exchange.

The exports trends of the Indian Carpet Industry to the different countries in the world are shown in following table:

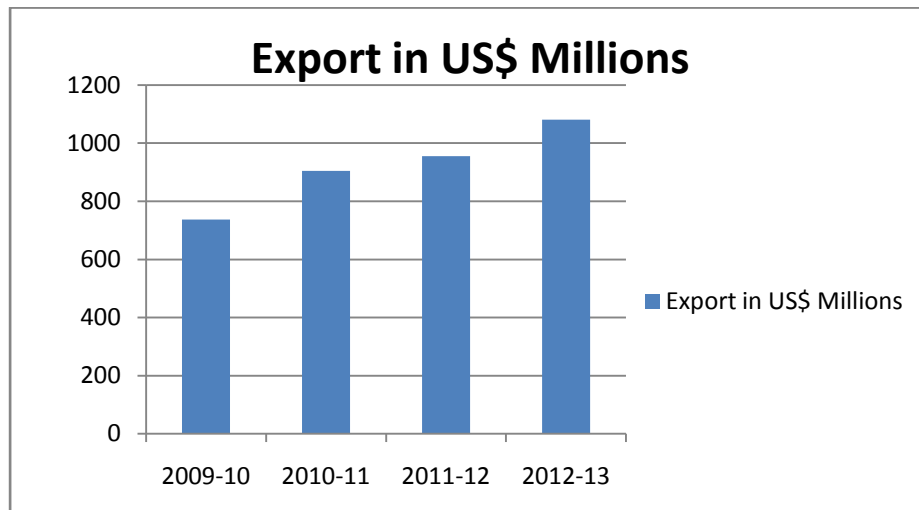
COUNTRY-WISE EXPORTS OF HANDMADE CARPETS AND OTHER FLOOR COVERINGS									
S. No	Country	2009-10		2010-11		2011-12		2012-13	
		Rupees Crores	US \$ Millions	Rupees Crores	US \$ Millions	Rupees Crores	US \$ Millions	Rupees Crores	US \$ Millions
1	Argentina	5.77	1.21	7.04	1.54	7.88	1.64	7.24	1.33
2	Australia	103.08	21.64	125.58	27.44	140.47	29.29	179.42	33.00
3	Austria	19.01	3.99	23.45	5.12	26.05	5.43	26.39	4.85
4	Belgium	51.71	10.85	63.84	13.95	70.66	14.73	72.07	13.25
5	Brazil	45.21	9.49	53.82	11.76	56.65	11.81	64.51	11.86
6	Canada	69.56	14.60	84.75	18.52	94.06	19.61	118.81	21.85
7	Denmark	29.37	6.17	35.78	7.82	40.04	8.35	56.53	10.40
8	Finland	10.00	2.10	10.53	2.30	11.08	2.31	13.96	2.57
9	France	74.88	15.72	88.09	19.25	92.73	19.34	96.34	17.72
10	Germany	498.14	104.57	553.49	120.93	621.90	129.68	656.76	120.97
11	Italy	87.89	18.45	103.40	22.59	108.84	22.70	83.99	15.45
12	Japan	40.95	8.60	49.89	10.90	55.83	11.64	70.12	12.90
13	Netherlands	63.73	13.38	74.98	16.38	78.93	16.46	96.65	17.77
14	Norway	14.50	3.04	15.20	3.32	15.99	3.33	28.46	5.23
15	Sweden	51.50	10.81	59.89	13.08	66.54	13.88	60.03	11.04
16	Switzerland	14.50	3.04	15.80	3.45	16.63	3.47	19.44	3.58
17	Spain	55.60	11.67	58.75	12.84	61.84	12.90	44.99	8.27
18	U.S.A.	1,327.30	278.62	1,617.07	353.30	1,794.75	374.25	2,501.52	460.06
19	U.K.	202.68	42.55	238.45	52.10	266.84	55.64	548.29	100.84
20	others	747.50	156.91	862.67	188.48	955.37	199.22	1,131.78	207.96
21	TOTAL	3,512.88	737.41	4,142.47	905.07	4,583.08	955.68	5,877.30	1,080.90

SOURCE: MINISTRY OF COMMERCE DATA BANK & DGCI&S DATA

Indian carpet industry has made significant strides in the recent past and export of carpets from India has touched the figure of Rs. 1081 US \$ Millions (Rs.5, 877 Crores) in 2012-13. From above table it shows that USA, UK, Germany, Australia, Italy, France, Canada, Netherlands are the major customers of Indian hand-made carpet. The size of export is increasing every year in almost all the countries. Owing to the

rising demand from emerging markets like Africa, China and Latin America, the carpet exports from India increased 10.23 percent during the first half of the 2013-14 fiscal year, as per the data released by Carpet Export Promotion Council (CEPC) of the country. According to the CEPC statistics, the country exported US\$ 530 million worth of carpets during the period of April to September this year.

This trend of export growth can also be illustrated by the following chart.



Carpet manufacturing process

Carpet manufacturing is a lengthy process and it takes approximately 30-90 days to produce a carpet depending on the quality, design and size of the carpet. The overall carpet manufacturing process may be divided into following phases:

Steps in Carpet Manufacturing Process

- Selection of size and quality of carpet to be developed
- Creation of Design
- Selection of colour combination
- Development of graphical map of the design for weavers
- Selection of the raw materials
- Weaving
- Washing and Finishing
- Packaging

After finalizing the quality and size of the proposed carpet to be produced, the major step is to create a design and colour combinations. Manually the carpet design outline is prepared on paper and then filled in with colours according to the buyer's/manufacturers choice.

After finalizing the design, colour combinations are selected. Different colour combinations can be selected for the same design according to the choice of the manufacturers/buyers. It is entirely the designers' creativity to produce a range of designs and colour combinations. Manual creation of designs with different colour combinations is time taking, expensive and having limitations up to a particular designer.

Looking on the huge demand of the Indian handmade carpet in the world market, it needs to incorporate the latest ICT technology to develop modern designs with numerous colour combinations to compete with the world market.

Over the period of time carpet industry realized the need for using modern technology for improving the designing of carpets and computerized tools have been introduced for widening the number of designs and for enhancing the skill sets of the weavers so as to enhance productivity as well as the overall export.

The reasons for adopting the computer technology and changing from traditional

design process to computer software based designing are as under:

Manual designing process was time taken and has limitations

Conclusion & Suggestions:

Carpet industry in India has been growing like other handicrafts sector. The industry has also been providing the employment to the illiterate, rural area people at the doors and stops them from migration. It is playing a vital role in bringing the foreign currency to our country. Indian handmade carpets are highly demanded floor covering throughout the world. Designs and colour combinations are the major factors for a carpet to be sold in the market. Today almost all the sectors are using the modern technology to produce effective, qualitative and quantitative products to compete with the global market. Indian carpet industry is also required to adopt the new technology to be remain first in the handmade carpet in the world.

The initiatives will not only help the industry to recapture the major share in exports but also give the job opportunities to the computer and management professionals. The adoption of ICT/computer design software will help in a high degree of flexibility to develop the designs, colour combinations and carpet prototypes in a very less time which will help the industry to deal with buyers. It will facilitate rapid changes in design and enhanced customer acceptance. It also increases the productivity of the weavers.

References

1. Advances in carpet manufacturing, edited by K.K.Goswami, Woodhead Publication.
2. Process control carpet manufacturing, K.K.Goswami, Abhishek Publication.

3. D. B. Yoffie, Competing in the Age of Digital Convergence, California Management

Review, Vol. 38, No. 4, 1996.

4. <http://www.india-carpets.com/> (Indian Carpet Export Promotion Council)

5. New Opportunities & Future Prospects for Indian Hand Made Carpet, Basuk, M. (n.d.) Recent R&D Initiatives and Developmental Schemes of wool and woollens.

6. Srivastava, S. (2007). Handmade Carpets: The Potential for Socioeconomic Growth. The Innovation Journal: The Public Sector Innovation Journal.

7. Bhattacharyya, B. &Sahoo, L. (1996). The Indian Carpet Industry: Evolving Concerns, Prospects & Strategies. IIFT Global Business Press.