Competitiveness through Integrated Manufacturing

Source: Textile Review

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Indian textile industry is divided into two parts, one, composite sector and the other, decentralized sector. In a composite textile mill, fiber is converted into finished fabric in one plant. As against this, the decentralized sector constitutes of separate units for spinning yarn, warping & sizing, weaving and chemical processing of the fabric.

One of the most important features of textile manufacturing in India is the large volume of production, about 70 to 80 %, from decentralized sector. Before 30 to 40 years, the scenario was different. There were many composite mills, about 542, allover India. If we look at present scenario it is quite different. The composite mills have closed down and many small units have been set up. There are many reasons for this to happen, right from mill owner's lack of foresight to the policies of government and international practices. It is difficult to deny that Indian textile industry at present is dominated by decentralized sector/separate manufacturing units.

One of the facts, which could not be overlooked, is lack of interest of major players to invest huge funds in textile industry, due to low profit margin and several other reasons. Some companies have undertaken the expansion etc, but it is not up to the requirements that can make the textile industry globally competitive.

Formerly, the textile industry in India was larger than that in China. Today, Chinese textile industry is about 2.5 times larger than in India, and the manufacturing is on very large scale. It is not possible to happen in India overnight. It will take long to achieve such progress in India for well-known reasons.

Therefore, India has to improve its competitiveness through decentralized manufacturing as on date and then it can initiate to follow the steps taken by China and many other developed countries to set up large scale industries. Till then, we have to increase the competitiveness of the decentralized sector.

The question arises that what can be done with decentralized sector? The major thrust must be to maintain a consistent acceptable quality with a competitive price for consistent profitability. The difficulties with decentralized sector are:

1. Is the raw material for every manufacturing activity available in the required quantities, ranges, and of quality needed? And

2. Is it available at competitive prices?

Decentralized sector has to address number of issues like:

1. Cost of production
2. Lead times
3. Transport costs and logistics
4. Quality of raw material

These problems can be 'partially' addressed by adopting two methods:

1. Consortium formation, and
2. Clustered approach

One of the biggest problems of decentralized sector is 'Order Quantity'. Due to small size of units, big orders cannot be accepted. If we look at the outsourcing of companies from developed countries, the orders are big, like million meters, million pieces etc. Small units cannot meet this kind of orders. In addition to this unit cannot meet the delivery schedule due to outsourcing of raw material and preparation etc. Again, these suppliers are small units and they face similar problems.

The problem of 'order quantity' can be tackled by forming an association of small units having capacity of producing same/similar products with consistent quantity. The association should be of formal nature. This will enable the units to employ professional people for

1. Purchase of raw material
2. Process control & maintenance, and
3. Marketing of product

This will tremendously help to achieve the targets that are commonly achieved by best-managed composite mill w. r. t. production, quality and cost of production.

Marketing is a major problem of smaller units in decentralized sector. Therefore, 'job work, only' is forced on them, which results in less profitability. The professional people employed through consortium/association will be able to solve this problem and units can go for their own production in place of 'job work'.

The expenditure for employing professionals, which otherwise is a big burden for smaller units, will get divided on many smaller units. Value addition can be done at manufacturing stages through them. This will result into higher realization and more profits. Centralized facilities for testing, power generation, steam generation etc can be set-up for the units, which are located near to each other. The consortium of weavers or knitters can tie up to suppliers of raw material and spare parts, as if for backward integration. This will help in reducing cost of production. Honesty and integrity are said to be the pre requirements of consortium approach.

The other method is 'Clustering Approach'. It is similar to consortium. The main difference is that the units will be situated in close vicinity of each other. The benefits of clustered manufacturing can be listed as below.

1. Ease of access to raw material supply from near by units
2. Greater variety of raw material available to units
3. Units can sell their product to potentially better paying units, outside cluster
4. Smaller units are more efficient as there is only one process to concentrate on

As mentioned earlier the consortium formation and clustering approach can solve the problem of textile industry only 'partially'. Rather it is a makeshift arrangement to increase the share in global market. If we want to further enhance the competitiveness, the way is 'Vertical Integration'. Composite mills converting fiber to finished fabric is one of the methods of vertical integration. In clustering approach we achieve something like

composite mill production. So, clustering approach may be termed as 'Psudo-Composite' manufacturing.

The need of present days is 'Complete Vertical Integration'. Nineteenth Century steel tycoon 'Andrew Carnegie' introduced the idea of vertical integration. This is a form of business organization in which one company controls all stages of production of a good, from the acquisition of raw material to the retailing of the final product, preferably at same site.

The 'vertical integration' makes the industry more competitive. Buyers world wide, perceive the benefits of vertical integration of textile industry from raw materials to end products as a more competitive manufacturing process than if each of the individual process (spinning, weaving! knitting, dyeing, and garmenting) is done by separate companies.

What is the complete vertical integration in textile industry? Complete vertical integration will include:

1. Production of fiber
2. Yarn forming
3. Fabric forming
4. Chemical processing and finishing of fabric
5. Garment making
6. Retailing

In case of separate units for various stages of manufacturing the cost of production is higher for example a weaver pays 1 to 1.5% higher for packaging of cones, 1 to 2.5% more for transport. Processor pays more by 0.5 to 1 % for packaging of fabric and 1 % more for transport. The costs will depend on locations; particularly transport cost. Separate manufacturing units have to pay 4 to 6% higher including commission charged by agents.

One can compare this with average profitability of textile mill, which is in the range of 6 to 8.5%. The importance of vertical integration stems from this fact.

Apart from cost, there are other things, which should be considered. The benefits of vertical integration can be listed as below.

1. All components that are in a product will work harmoniously, which will lower down time and repair costs.
2. The ability to sample fabrics and garments more quickly
3. Duration of operating cycle is reduced.
4. Increased control over production
5. Costs to produce the finisher article/garment is reduced
6. Improvement of supply chain coordination
7. Ability to capture upstream and downstream profit margins
8. Advantages of professional management and technical experts with respect to production, quality and cost
9. For consumer it is easier to claim liability from one company if something goes wrong with quality.

Though vertical integration is the best of its kind for competitive edge, it is not easy to achieve complete vertical integration. Some times there is cost involved in complete integration. The best one can hope for is as much vertical integration as possible.

One more aspect of achieving competitiveness is the integration of electronics with manufacturing processes. The term 'Computer Integrated Manufacturjng (ClM)' is commonly used where computers assist the manufacturing.

ITMA 91 exhibited many processes and machines with use of computer/software. It is called as CIM ITMA.

Broadly the CIM is used for three aspects in manufacturing

1. Process technology- this results in reducing the workforce
2. Control technology- this results in self-regulatory process control (online monitoring)
3. Knowledge technology- this results in interpretation and real time decision making

The developments in computer hardware and software have resulted in achieving those targets, which other wise were thought impossible.

Many types of software have been developed for all processes in textile manufacturing to monitor the performance of process and quality of product. These can be adapted from purchase and ware housing to process control and marketing, supply chain management and product development management. The time to produce samples of fabrics with variety of designs has reduced multifold. This results in quick execution of the manufacturing plans. Reduction in lead-time is important advantage of this in addition to reduction in cost, improvement in quality etc. The CIM can compliment the process of vertical integration.

Conclusion

The nature of textile industry in India demands some urgent attention to improve competitiveness in manufacturing. Consortium formation and clustering approach are immediate solutions in this direction. Vertical integration is the Holy Grail. Perfect vertical integration is what people wish for but it is difficult to achieve. The best one can hope is as much vertical control as possible over the chain from raw material to consumer. Computer integrated manufacturing, if adopted in textile manufacturing; it will further enhance the competitiveness through vertical integration.

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