Study on Influence of Cad on Quick Response Strategy of Merchandising In Apparel Manufacturing

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ABSTRACT

Quick response is vital requirement in the current situation of fashion industry, which are to analysed and implemented to meet the requirements of the demands of apparels. Demand – activated product development anticipates trends & facilitates timely introduction of merchandise into the market. This paper treats the decisions of product developers as corporate assets that can be optimized to increase competitive advantage. The workstation prototype in this project integrates the information & product development tasks into a single workspace using off-the-shelf applications software, authoring software, advanced programming techniques & when appropriate, knowledge-based systems. Quick response in fibre/fabric/apparel products manufacturing means rapid replenishment of retail stocks using the "sell one or replace one" formula-a strategy that works well enough with basic items but not with fashion-driven styles. But consumers' preferences fracture into niche markets & product life cycles shrink from years to months. Thus, the product developer provides direction for demand activated product development, production, & merchandising by anticipating trends & facilitating the timely introduction of merchandise into the market with advanced technology such as CAD/CAM. The speed-to-market advantage is improved when the product assortments parallel consumers' needs, wants & aspirations. This paper treats product development decisions as corporate assets that can be optimized to increase competitive advantage.

Keywords : Niche markets, Quick Response, CAD, CAM, corporate assets.

I. INTRODUCTION

Quick Response is a management concept created to increase Customer/Consumer satisfaction and survive increasing competition from new competitors. It intends to shorten the lead time from receiving a confirmed order to delivery of the products and increase the cash flow to facilitate the benefits of the management.

The Apparel industry people in the world are apprehensive about the future of this industry. For a very long time this industry has been a garage industry. The year 2005 (WTO) witnessed a severe change in the situation for the apparel industry: as per the GATT agreement MFA was wiped out & there will be no quotas enabling survival of the best.

The apparel industry is presently confronted with a number of important challenges. Consumers' expectations are varying as the trend concepts are changing on day today basis . They prefer that the garments they buy be of high quality, offered at an affordable price & that they also be available immediately upon the expression of their demands. On the other hand, the firms involved in the designing, manufacturing, & merchandising of these products must not deal only with the trade globalization but also look into other aspects.

The question managers & academics, interested in the garment business are - Can the industry fulfil consumers' expectations & remain profitable? & quick response has been proposed as the answer of choice to the above questions.

The following research activity, after a brief review of the current situation, demonstrates that QR is one of three alternative solutions:

1) Improving one's marketing strategy
2) Modernising the industry micro-structure with which one interacts,
3) Adopting a QR strategy through CAD/CAD developments.

II. OBJECTIVES OF STUDY

The present study was conducted with following objectives:

❖ To study the present apparel industry supply chain in correspondence to the consumer needs.
❖ To study about the opportunities that CAD/CAM department convey to the QR strategy of merchandising.

III. REVIEW OF LITERATURE

❖ *Cachon & Terwiesch* says "Quick response (QR) is a set of practices designed to reduce the cost of mismatches between supply & demand" .These practices include, for example, lead time postponement, product differentiation & better forecasting.
❖ *Li & Ha (2008) & Caro & Martínez-de-Albéniz (2010),* address the impact of competition on quick response inventory practices. Postponement — the practice of delaying final assembly—also seeks to provide higher product availability with lower inventory investment.
❖ *Cachon & Swinney (2009) & Swinney (2010)* do address the impact of quick response on strategic consumer purchasing. Also said that the presence of strategic consumers can enhance the value of quick response beyond just matching supply with demand—adopting quick response reduces the likelihood of deep discounts, which makes strategic consumers more willing to purchase at the regular price.

IV. METHODOLOGY

Merchandiser has to have very good contact with the Sampling / CAD/CAM department, wherein the new style pattern making is done, the consumption of the fabric & accessories are known within a short period of time. For this apparel industry should have effective CAD implementation, wherein the information flow back to merchandising should be very quick.

We have visited various Export houses to understand the effectiveness of the CAD department & its influence on the quick response strategy of merchandising. In most of the Export house, CAD department is centralized. Software used for Pattern making are Gerber Technology, Lectra Systems, TUKA design from TUKATECH INC. Etc. There will be approximately 16 CAD operators, 6 CAM cutting machines & 6 spreaders in this department.

The systems adopted in the CAD department for the effective & quick information flow are:

Digitising systems, grading systems, Marker making systems & Cutting operations.

A. DIGITISING SYSTEMS

Digitizers put original patterns into the computer for use & storage. It is done by defining the x, y co-ordinates of series of selected points around the pattern. These basic patterns are manipulated with the help of a computer, for example in case of trousers, darts can be moved & pleats can be created or flair can be introduced. This is how CAD department create new designs on screen from pre-existing patterns to give the information quickly to the merchandisers.

B. GRADING SYSTEMS

After a sample size pattern has to be graded up & down in size. Certain points on the pattern are considered as "growth points" or "Critical points" or places at which the pattern has to be increased or decreased to accommodate changing body size. At each growth point the operator indicates the grade rule to the computer. The system will then automatically produce the pattern shapes in all the pre-specified sizes. Say if we define pattern for size 30, it can be easily graded for size 32/34/36 & so on.

C. MARKER MAKING SYSTEMS

Computerized marker making systems help in laying the pattern part together more economically than an operator could do manually. This ensures minimal wastage of fabric. On plain fabric this is relatively simple but on striped fabric also the computer does automatic matching. The layout is then directed to big

plotters, which are overlaid on the stacked fabric prior to cutting.

D. CUTTING OPERATIONS

Pattern generated by marker making systems can be directed to automatic cutting machines, which are operated without the help of human hands. Fabrics are cut with precise measurements with speed.

INFORMATION FLOW AS A PART OF QUICK RESPONSE

Optimum information should be passed on to the CAD department by the merchandisers to get the quick & effective result. The following points should be kept in mind while transforming the information by the merchandising to the CAD pattern making department.

1) Style sheet
2) Measurement specification sheet
3) Specification sheet with Buyer comments
4) Intimation about the critical points/tolerances
5) Intimation of finishing of the garments.
6) Clear construction details.

USE OF VIRTUAL SAMPLING AS A PART OF QUICK RESPONSE

Virtual Sampling Software is a combination of several techniques / technologies that have been integrated along with the web technology for virtual creation of materials & styles through:
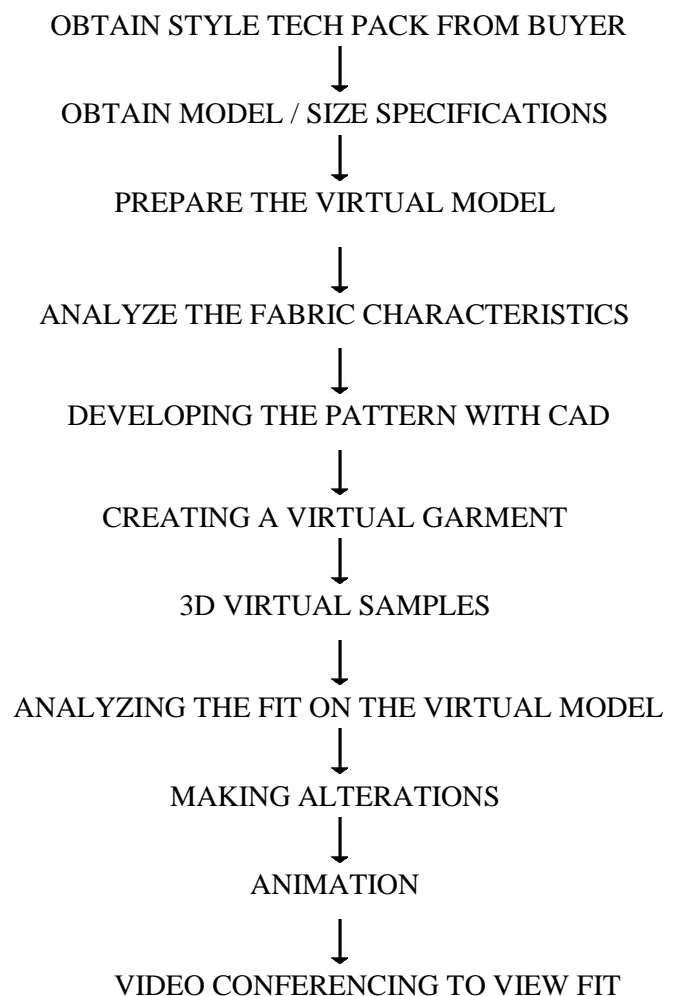
- Rapid prototyping of materials,
- Pattern making,
- Cutting,
- Sewing,
- Analysis of fit,
- Communication of all the necessary data for production of styles.

CAD companies like Lectra, Tuka Tech, Gerber Technologies, Net graphics today are offering e-prototyping solutions enabling speeding up of the creative process, testing of more ideas & development of lines adapted to market requirements.

With Tuka Tech's solution, the buyer & supplier both have digital fit model software, wherein the supplier can develop pattern digitally & verify not only the fit but also the drape of the fabrics on the dress-forms as well as human figures. The buyer then approves the dress digitally & makes any design changes if required. The supplier then makes the final sample based on the comments given by the buyer on a fit model's. TUKA form verifies the fit of the dress & finally the buyer approves the final sample. Through this, the same fit model is available to everyone in the supply chain. TUKA CAD, TUKA forms & e-fit Simulator allow everyone to shorten the product approval time & make only one & final sample.

THE PROCESS OF VIRTUAL SAMPLING

OBTAIN STYLE TECH PACK FROM BUYER
↓
OBTAIN MODEL / SIZE SPECIFICATIONS
↓
PREPARE THE VIRTUAL MODEL
↓
ANALYZE THE FABRIC CHARACTERISTICS
↓
DEVELOPING THE PATTERN WITH CAD
↓
CREATING A VIRTUAL GARMENT
↓
3D VIRTUAL SAMPLES
↓
ANALYZING THE FIT ON THE VIRTUAL MODEL
↓
MAKING ALTERATIONS
↓
ANIMATION
↓
VIDEO CONFERENCING TO VIEW FIT

Sampling is a long process as it is sequential & requires the participation of many users i.e. the buyer, vendor, manufacturer, designer & maybe the consumer at various stages of conceptualization & manufacture. Through virtual sampling process a network connecting all users is created in a way that everyone can witness & participate at every stage of development of the product.

Everyone sees the same thing & any changes or modifications are made in real time.

This network is made possible by integrating the traditional CAD systems for making color palettes, weave, print, sketches, croquis, repeats, patterns or silhouettes on a web-based platform. The software may also contain modules like texture mapping, catalog making, mass customizing, color management & so on which further aid the sampling process. This network is connected to rapid prototyping tools like inkjet printing, automatic sample looms & automatic single ply cutters to complete the link.

V. CONCLUSION

"**AUTOMATE, EMIGRATE OR EVAPORATE**" is the keyword for the present apparel industry. Industry has to be automated with latest CAD/CAM software to satisfy quick response demands. It must convert apparel production to cheaper labour cost and it should reach to the developing countries. A true manufacturer / customer relationships must exist; both need to work together to make & sell good quality garments at a profit. To make this relationship work, it enforces to imply QR techniques in their microstructure to be a valid customer in the market. Quick Response techniques play a vital role in the modern day business, since there is a broad chance for India to capture the market. Hence apparel industries have to work hard & achieve the quick response techniques to respond quickly to the demands of the consumer. Rising demand for ready-made garments in the global market requires efficient merchandise management. On top of this, inefficiencies in the textile-apparel supply chain force textile organisation to make quick response the core driver of differentiated market positioning & sales growth. The goal of QR is fever inventories, higher customer satisfaction, more profits, faster & more frequent shipments. The retailers who can give consumers what they want, where they want it, when they want it & at the price they want to pay, will be the winners.

VI. SCOPE & SUGGESTIONS

After reviewing the whole process, after discussing with lot of professionals in the Apparel industry some of the improvements has to be made in the apparel industry are listed below. It is mainly applicable to those industries, which are yet to modernize.

The low complexity microstructure allows both price & trend oriented strategies. This means that firms currently engaged in a industry with good SCM & the normal application of QR techniques expected to succeed & to be profitable. On the other hand the high complexity micro-industry structure is not naturally well suited to either strategy. Can organizations currently living a marketing strategy/ industry micro-structure mismatch survive? In order to do so, they must choose between one of the following three alternatives.

1) Modify their marketing strategy to match the industry micro-structure in which they do business.
2) Modify the industry micro structure in which they do business to match their marketing strategy.
3) Invest in SCM & the application of QR techniques so that they can minimize the impacts of complexity of industry microstructure.

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