International Journal of Scientific & Technical Development
(A Peer-Reviewed Bi-Annual Journal) ISSN: 2348-4047

A COMPARISON TO THE TEXTILE INDUSTRY IN A SURVEY OF MASS CUSTOMIZATION PROCESSES FOR MANUFACTURING INDUSTRIES.

***Urrasana hassan, *Arashdeep singh**
*Department of Mechanical Engineering, Desh Bhagat University (Punjab) India 147301
**Department of Mechanical Engineering, Desh Bhagat University (Punjab) India 147301
Corresponding Author Email ID: peerurrasana@gmail.com

Abstract
As our country is making progress it brings change on the global economic structure and create immense transformations in the way companies and nations organize production, trade goods, invest capital, and develop new products and processes economic growth. Various companies employ mass customization techniques, including banking and clothing. This dissertation examines and discusses the transition from mass customization to apparel industry which refers to producing a personalized style by adopting individual consumer taste, at the right time and at right cost. It describes fast fashion from a supplier as well as a consumer's industry shifted from forecasting future trends to using real-time data to understand future fashion trends and shopping habits in a new setting. Finally, it looks at how mass customization affects apparel industry players. To survive in such a volatile market, the customer must now be the standard by which the industry designs and markets its goods. The purpose of this research was to examine apparel merchandising issues associated with mass customization, . A questionnaire is used to assess people's expectations for mass personalising goods, procedures, and places. The survey will provide a convenience sample of over 100 garment and clothing industry respondents. ANOVA, regression, correlation, and SPSS analyses were used to analyse the data. Finding the right product, process, and position measurements is critical for retail mass customization. Our findings address customer participation in clothing design and fitting in retail stores. A few variables that have influenced literature-based mass customization are hypothesised. Today customers demand is a fast and seamless experience, and retailers are made to oblige or lose a loyal base. Scholars from various fields have paid a lot of attention to these and other variables in recent years when it comes to mass adaptation as a growth strategy. The aim of this study was to look at the effect of mass personalization on competitive strategy in order to find a way to bridge the gap between the two strategies. In this analysis, four main approaches to mass adaptation have been used.
KEYWORDS:- Customization, personalizing goods, customers requirements, growth strategy, competitive strategy.

1.INTRODUCTION

Mass customization (MC) is a totally new approach to manufactured goods which combines mass customization and mass production benefits. Based on flexible financial advantages, customized products are provided by mass Customization processes which meet features and quality specifications at a low price and a minimum waiting period, more than before the buyer is consciously aware of the existing model offered is the combination of consumer-related criteria at the enterprise level.Tiihonen, J., & Felfernig, A. 2017) Technical and cost aspects have been addressed to expand the textile and clothing industry. This paper opens the debate on the fundamental new state of mind and necessary improvements in the textile and garment strategy, manufacture, enterprise and use. The principal reason for this research is to only check the standard of the mass production industries and the customization maker has or does not have sufficient resources to do so. One of the most difficult tasks for manufacturers now is to meet consumer requirements at a reasonable price and on time. Both study scholars and new textile companies should use this research to understand the state of their businesses and the fundamental requirements of mass Customization and demands for the customers are more heterogeneous than ever before.

In the early 20th century, worldwide manufacturers have been following industrial manufacturing, mass supplies, mass market advertisements and mass media. Mass manufacturing includes low-cost, standardised goods and services, including interchangeable parts, labour division and economic scale. Markets have become more and more diverse in recent years. The market place is rising competition and demand and the niche of the market is becoming too small. Firms thrive by providing what their customers want. Thus, manufacturers all over the world know that customization is becoming increasingly important as the consumer niche continues to be under contract to address the requirements of the rapidly moving market. (De Bellis et al., 2019)

Mass personalization refers to the design, development, advertisement and provision of custom goods and services, on a wholesale basis. In this way, consumers presume that their role is more and more constructive. You can pick an order and produce a specially-settled product to suit your individual specifications, choosing

from thousands of product choices. The personalization of goods appears to produce in small lots or lots as small as a single amount. As a manufacturer moves from mass production to mass Customization, systems are more and more needed that reduce production costs. The wealthy still have the benefit of customised goods at cheaper prices for the people. Model and arrangement are the way to cost-effectively adapt. Modularity includes "disassembly" of items in model sections or subsystems that can be reassembled to satisfy the 3 customer needs. The design and sales cycle for the production of goods must also be accelerated. The past mass manufacturing model is no longer suitable for today's unstable markets, growing goods and e-business opportunities. The choice of products and management of all these products on the market, stores, retail and personally designed goods sold under turbulent conditions are now an important focal point of mass customization. For a specific customer, customers may quickly change products and items. Customers are able to easily alter products in relation to mass production efficiency and fastness for specific consumers or intended for marketplaces. The same principle enables clients to plan products, in conjunction with personalised products and normal pattern products, by Build to Order (BTO), not including presumptions, material inventory and waiting periods.(Zhang, M et al., 2019).

Our nation is the world's second largest textile producer and the third world's largest cotton manufacturer and the second largest cotton customer. The country's fabric production is one of India's oldest and is currently the largest fabric manufacturing sector. Due to its contribution to the industrial result, the manufacturing and other country profits, the fabric business plays a vital part in the prosperity of India.

The fabric sector comprises a number of integrated units that are used to produce textile materials from a wide range of natural and synthetic fibres. The diligence of fabrics can be divided into a preparation factory and a non-organized factory. The strategy and hard work to ensure a significant and adequate action are being carried out in order to promote asset and wide growth and development in the textiles sector, allowing both the consequences and part of the textiles segment within the national financial system. In India, textile industry is historically the only industry in which professional and untrained workers have gained enormous jobs after agriculture. The textile sector remains India's second-largest sector for job creation.

The study opens up the discussion on the fundamental new state of mind and changes needed in textile and clothing plan, manufacturing, business and utilization. Main reason of this research is only to check what is the level of manufacturing industries for mass production and customization.

1.1 The objectives of this study is:

- To learn more about the art of mass customization in the apparel industry.
- To determine whether or not businesses are interested in engaging in different stages of mass customization of textiles or clothing items.
- To provide a recommended method for improving mass adaptation in the retail and textile industries.

2. Review of literature

Mass customization refers to the ability to provide customized products and services with great process flexibility and inclusiveness. Mass customization has become a competitive strategy for an increasing number of organizations. The study reviews literature on mass personalization. This chapter will highlight and discuss the purpose of the mass customization literature to provide a resource for information on fields such as further research.

Silveira et.al. (2014) studied that Customer loyalty is more critical when we have properly tailored goods at the right location and at a minimum delivery period. Combine a few comprehensive principles of customization and propose eight Common Mass Customization levels ranging from pure, personalized product design to mere standardization of design, construction, assembly, packaging, distribution, specially customized function, extra services and practise.

Rendulic, D et.al. (2015) Studied application of a cloud-based supply chain management system to achieve mass customization: best practices from the automotive industry. The variance between lego's ability to built and not the capacity of a single brick company on an international market could thus contrast with a simple sub-contractor region to a noticeable difference in financial system.

Vladimir, et.al. (2021) studied that Mass customization had intensions of global corporations such as toyota and fortune at the beginning. Sometime earlier, an experience with scandinavian sales had revealed the insignificant, if only few, amount of the market to exploit the entire productivity of the concept. During this exploitation, some ventures had approximately 2, 00,000 for jobs in the planet sector at which the largest companies participated. The small business had 60 employees, but

the project results were excellent and the drove highly positive. In reality, many smaller companies were able to became a mass customer because they were well responsible for manufacturing and process modifications that were often universal. Mass customization also appeared in large economies liked the USA to allowed big business to became universal while developing their local business. In a small market-based sector, however, large foreign sales could been very significant at the beginning of the day. The local businesses (SMES) by universal firms could been very small, unknown or yet absent from the very beginning in comparison to the likely export markets. The local business could been very small. Scania trucks and buses from sweden were the case for a textbook case of consumer oriented, mass-size, multifaceted products at the global completion of this size. Of course, in the context of mass customization, the company had achieved a profit leveled for several consecutive months, under strong opposition in a cost-responsive industry. Scania's local business recorded, however, accounts for approximately 4% of its sales and scania was one of some 50 countries. It would been difficult to found such an obvious export route in Japan or the united stated. As could been seen, mass customization could also made it easier, in small countries, for average companies to became large and globally.

3. Research Methodology

The study's goal is to assess Indian industry's willingness to produce mass-customized goods. The study examines the demand side and explores mass customization as a global product strategy. It aims to facilitate mass adaptation for Indian manufacturers and garment companies. Research methodology can be compared to an ideal research design.

3.1 Questionnaire

The questionnaires were developed around three themes. The questionnaire needed to be suitable for a wide range of respondents to encourage group comparisons. Scales must be highly stable and repeatable, so uninitiated respondents needed to fill out the questionnaire quickly. They also had to cover all bases for two reasons First, a large number of dependent variables had to be measured. The variables are city, industry, and plant size. This survey uses a six-point Likert scale. Strong agreement (1), Agreement(2), Agreement or Disagreement (3), Unanimity(4), Strong disagreement(5) and Unrelated (6).

3.2 Data collection

The collection of data is based on 3 stages, the first step is to meet and visit in the frame region. A total of 100 candidates agreed to complete a questionnaire, indicating a response rate of 100%. This method was thought to be superior to self-administered questionnaires because it enabled participants to learn more about the company and its environment. The size of a company is determined by the number of employee it employs. Four small businesses account for 28% of all visitors; six medium-sized businesses, 43% of visitors; and four big businesses, 29%. The graph shows the organizational types (small, medium, and large).

Table 1 Organizational Dimensions

S.No.	Company name	Staff members
1	DCM TEXTILE	150
2	PEARL GLOBAL LTD.	230
3	SRF LIMITED	56
4	CORNING TECHNOLOGIES INDIA PRIVATE LIMITED	89
5	SUDARSHAN JEANS PRIVATE LIMITED	201
6	GBTL LIMITED	69
7	PARTAP FABRICS PRIVATE LIMITED	160
8	MATRIX CLOTHING PRIVATE LIMITED	121
9	UNIQUE COLLECTIONS	144
10	NUMERO UNO CLOTHING LIMITED	160

4. Data Analysis

The initial result of the calculations is presented in a table format that is descriptive of statistics and can be used to evaluate all variables. In certain cases, the standard deviation, mean, and sample (N) are used to complete the questionnaire. They have plenty to go around. Customers who purchase products will deduce the property of the goods by looking at the mean value column. In Table 2, the maximum mean value is 1.9089. Factor analysis is a useful tool for examining the complex relationships between variables such as the social and economic situation, dietetic patterns, and psychosomatic scales of compound concepts. By breaking down multiple variables into a few primary accountable ones, it helps researchers to investigate concepts that aren't

directly calculated.

A phase of the central mean can be determined using distribution measurements (variety, standard deviation, difference, smallest, and greatest) (tendency). For any variable, a specific number of descriptive statistics can be produced. When the descriptive statistics of several side-by-side numeric variables are compared by 70, the descriptive process is more efficient.

Table 2 Descriptive Statistics

	Mean value	Standard deviation	N (Analysis)	N (Missing)
VAR001	1.3653	.48394	221	0
VAR002	1.4353	.49284	221	0
VAR003	1.4232	.59543	221	0
VAR004	1.2598	.49592	221	0
VAR005	1.3232	1.00569	221	0
VAR006	1.5412	.95449	221	0
VAR007	1.2940	.88583	221	0
VAR008	1.3512	.76854	221	0
VAR009	1.3090	.88654	221	0
VAR010	1.9089	.98930	221	0
VAR011	1.4509	.34309	221	0
VAR012	1.3138	.40303	221	0
VAR013	1.4313	.90923	221	0
VAR014	1.2341	.42842	221	0
VAR015	1.4902	.85849	221	0

The reliability test evaluates the overall reliability of the variables that aid in the definition of a scale degree. This tells us how big the sample is, how many items there are, and how reliable the data is. Model-Alpha is the most well-known one (Cronbach). A reliability rule that is sometimes accepted and is based on the alpha or Cronbach alpha value shown in table 3 below.

Table 3 Reliability test evaluation

Values of Cronbach's Alpha	**Consistency of Values**
$0.5 < \alpha$	Unacceptable
$0.6 > \alpha \geq 0.5$	Poor
$0.7 > \alpha \geq 0.6$	Questionable
$0.8 > \alpha \geq 0.7$	Acceptable
$0.9 > \alpha \geq 0.8$	Good
$\alpha \geq 0.9$	Excellent

First enter all 30 variables for the analysis in the reliability test and determine from top of the table the alpha of Cronbach which stands at 0.767 and which is appropriate in its consistency ($0.8 > \alpha > 0.7$).

5. Results and Discussion

There are many textile companies to choose from, but some struggle to implement or plan new and innovative technologies for their customers and production units. This experience will help businesses manage consumers and provide personalised goods. On the other hand, the industry's adoption of mass customization is discussed in this section. The study's potential scope and significance were also highlighted. The study's objectives and goals can be achieved if the work is effectively developed. The company should consider both potential and existing customers.

In SPSS, the questionnaire is divided into seven groups: basic company knowledge, technology, business capacity, and consumer needs, advancing demands, competition with competitors, and customer capabilities. These are the questions. Before using SPSS, we divided the survey into 7 groups. But few variables are different for groups, but not much in factors.

Following factor analysis, the reliability of all variables was evaluated. This value is important in the reliability analysis of Cronbach alpha for all 7 Factor is above 0.5. Verify the study's validity with the validity test. Some pilot tests provide inaccurate results due to inexperienced respondents and unclear questionnaire questions

6. Conclusion

It is possible to draw some conclusions from this research work after the completion of this entire paper. Currently, a large number of famous industries are customised by mass. However, the mass volume and intensity. In the sum of publishing on this new technique, the customization of real uses takes place. Mass adaptation is not a distant prospect literature. In addition to the textiles sector, such as the shoe industry, information technology and the automotive industry, there is mass customisation. Although the firms with mass customization still have not been fully able to maintain minimal inventories and meet all their consumers' requirements, the new development of manufacturing technology would enable mass customization both for manufacturers and buyers.

The following is the conclusion of this study:

1. Several major corporations have new advanced technology, manpower and resources to prepare for mass

customization soon.

2. Mass adaptation is wanted by small and medium-sized enterprises, but they are not able to connect with customers in terms of good machines and apps.

3. The customer always want some exclusive things and will pay for and wait for anything extra.

4. Product demand is highly volatile and customer purchasing decisions are influenced by fashion and style.

References

1. Tiihonen, J., &Felfernig, A. (2017). An introduction to personalization and mass customization. Journal of Intelligent Information Systems, 49(1), 1-7.
2. De Bellis, E., Hildebrand, C., Ito, K., Herrmann, A., & Schmitt, B. (2019). Personalizing the customization experience: a matching theory of mass customization interfaces and cultural information processing. Journal of Marketing Research, 56(6), 1050-1065
3. Zhang, M., Guo, H., Huo, B., Zhao, X., & Huang, J. (2019). Linking supply chain quality integration with mass customization and product modularity. International Journal of Production Economics, 207, 227-235
4. Alfirevic, N., Rendulic, D., &Talaja, A. (2015). Application of a Cloud-Based Supply Chain Management System to Achieve Mass Customization: Best Practices from the Automotive Industry, 36–48.
5. Vladimir, M., Zuzana, S., & Pavol, S. (2021). Optimizing Lot-Sizes and Scheduling in Terms of Mass Customization. Chiang Mai University Journal of Natural Sciences, 20(2).