

PRACTICAL
CHALLENGES WITH
A MASS
CUSTOMIZATION
STRATEGY

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Table of Contents

Executive Summary5

OVERVIEW7

PROJECT FOCUS.....8

CURRENT STATUS.....8

What is the Concept?.....8

APPROACH & Methodology9

TIMETABLE11

CURRENT DEVELOPEMENTS IN MASS CUSTOMIZATION11

Literary Review12

Company12

Stage of life.....12

Financial status.....13

Legacy Systems.....13

Communications Links.....15

Degree of Technological Savvy.....15

Company Structure.....16

Customer17

Market Segmentation.....17

Can and how do Customers elicitate needs?.....18

<i>Interest in Customization and Ability to pay</i>	20
<i>Paradox of Choice</i>	20
Product	21
<i>Product Architecture</i>	21
<i>Production and Distribution</i>	21
<i>Sacrifice gaps</i>	21
<i>Capacity to produce a product that varies the aspects a customer values</i>	22
<i>Delivery of Customization for a Profit</i>	22
Pricing.....	23
<i>Price sensitivity of customers</i>	23
<i>Degree of Customization</i>	24
Promotion	25
<i>Branding</i>	25
<i>Perceived Risk</i>	25
<i>Marketing Communications</i>	25
Process.....	26
<i>Communication Links between Processes</i>	26
<i>Existence of process technology</i>	27
<i>Simplification of customer decision making process</i>	27
Marketplace	28
<i>Competitors</i>	28
<i>Proximity to stakeholders</i>	28
<i>Market Turbulence</i>	28
Linkage to Marketing Theory	29
questionnaire development & Application Methodology.....	36

Results & Discussion of Primary research	37
Limitations of Research.....	40
Recommendations and Implications for Management.....	41
Scope for further research	43
APPENDIX.....	45
1. Casualties of the Mass Customization Path.....	45
2. Survivors still on the road.....	45
3. Corporate Project Process Map.....	46
4. Ethics Explanatory Statement.....	47
5. Ethics Consent Form.....	49
6. Customer Value criteria Test.....	50
8. Email.....	54
10. Marketing Model – Mass Customization - Apparel.....	65
11. Questionnaire Results Summary.....	66
BIBLIOGRAPHY / REFERENCES.....	77
Acknowledgements.....	81

EXECUTIVE SUMMARY

Mass customization has been a concept that has been in our lexicon for more than three decades. Despite this, there are few examples of companies employing successful mass customization strategies. For a marketing concept that promises so much, particularly for the apparel market, there appears to be more failed than successful implementations. Some of this phenomenon may be sheeted home to a concept that was ahead of its time in terms of technology. However with the advances in communication and process technologies that has happened in the last twenty years mass customization should be a viable strategy and we should have seen an increase in successful implementations. This does not seem to have been the case.

The purpose of this research was to identify companies that had successfully and unsuccessfully tried to implement a mass customization strategy and to compare and contrast the process of implementation. The objective of this being the identification of critical success factors that lead to either a positive or negative result. Once these had been identified, the development of a checklist that companies could use to increase the probability of successfully implementing a mass customization would be undertaken.

A critical part of the research was to identify and locate management of failed mass customizers. While it was easy to locate these people, getting agreement to participate in the research was difficult. It was not possible to get access to enough first level data on the failed companies, so the inclusion of secondary sources of data was necessary. These secondary sources consisted of service and equipment providers and consultants that had worked directly with the failed entity. While the information that these sources provided was extremely valuable, a decision was made that it would not be prudent to draw quantitative conclusions based on this data. It could however be used to “round out” information gathered from the successful entities, few failed entities, and literature review.

Together this information has added to the body of academic work on mass customization and has defined concepts that are worthy of further quantitative research.

A review of literature on mass customization enabled the identification of seven “inputs” that may affect any mass customization implementation. These were the company, customer, product, marketplace, process, promotion and the pricing. These seven criteria were then used as a framework to develop a questionnaire and follow up interview that would be administered to a number of industry players, both successful and failed, to try and determine critical success factors that may have influenced the outcome of the mass customization strategy.

Outcomes of the research were then linked to marketing theory in an effort to determine whether the results were consistent with what would have been predicted by theory, or if mass customization presented any challenges to current marketing thinking.

Mass customization is often referred to as “servicing markets of one”. Servicing markets of one challenges one of the basic tenets of marketing theory, that of segmentation and targeting. How do you segment and target to a market of one?

This was probably the most important outcome of the research. While popular belief is that mass customization services segments of one, the reality is that the companies that had successfully implemented a mass customization strategy were serving a segment of one they were addressing a market that had a particular sacrifice gap,

The sacrifice gap is the gap between what a customer wants in terms of product and service attributes and what the company can provide. Identification of this sacrifice gap and understanding its context in relation to the customer, company, and marketplace seemed to be a critical success factor. Companies that had failed in the implementation of a mass customization strategy had invariably misidentified the sacrifice gap or had misinterpreted its context. On the other hand those companies that had successfully implemented a mass customization strategy understood the size of the sacrifice gap and their company's ability to close that gap at a price premium that the customer was willing to pay.

Markets of a niche nature, as opposed to competitive and commoditized were where the successful mass customizers were operating. A number of the failed mass customizers had operated in markets that were highly competitive such as the fashion jean or fashion shoe markets. However it cannot be stated on the basis of this research that niche markets offer a higher probability of success than competitive markets. It is however worthy of further research.

Apparel purchasing is a high involvement purchase. There are inherent risks, both emotional and actual involved in the process. A mass customization strategy mitigates some of these risks but may introduce others. Mitigation and the balancing of risks associated with the purchase of apparel in a mass customization environment is likely to have some effect on the success of such a strategy. There are a number of marketing tools such as branding, satisfaction guarantees, testimonials and endorsements that may be beneficial in incorporating into the overall mass customization process.

Once identified and deemed to be viable, the value criteria that need to be varied to close the sacrifice gap for the customer and the company need to be captured. The interface that translates customer needs into product attributes needs to be accessible to, and be useable by the market segment. Quite often customers do not know how to articulate these needs and the interface needs to assist in this process.

The fact that there are a small number of companies in the marketplace who have successfully implemented and continue to operate a mass customization strategy indicates that it is a sound concept. On the other hand the number of failed implementations and the lack of penetration of mass customization indicates that there are a number of challenges yet to be overcome. This research supports the belief that mass customization, all be it, "servicing markets of one", may still respond to the basic fundamental tools used in marketing.

Hopefully this study may catalyze further research into the concept of mass customization within the apparel industry.

OVERVIEW

Advances in technology and communications in the last decade have meant that it is now technically possible to use the process of mass customization to address a number of issues that the apparel industry has been grappling with for many years.

- ❖ Greater customer satisfaction.
- ❖ Speed to market.
- ❖ Broken assortments.
- ❖ Broken size ranges.
- ❖ Inventory investment.
- ❖ End of life product markdowns.

If these issues can be addressed by a strategy of mass customization then any company embarking on such a strategy is likely increase its chances of profitability and have a competitive advantage over rivals who stayed with a more traditional approach.

Apart from a few rudimentary market tests, the process of mass customization has not been adopted by the industry on a scale indicative of the benefits promised. It has not emerged as either a “killer application” or a “productivity milestone” within industry anywhere in the world.

In fact there are a considerable number of companies that have embarked upon a mass customization strategy only to result in failure.

For a concept that appears to promise positive advances, there must be some other dynamic(s) operating that is inhibiting the adoption of the concept.

What are these dynamics?

How can they be mitigated?

What makes mass customization a potential winning strategy?

This project will attempt to answer these questions and provide a framework that can be used to determine if mass customization is a feasible strategy to adopt in your company.

PROJECT FOCUS

This project aims to identify the critical success factors involved in establishing an end-to-end mass customization strategy. Once the critical success factors are identified, a model for evaluating mass customization as a strategy will be developed.

This model will then be tested by aligning it with both successful and defunct companies that embarked on the mass customization route.

The project will conclude by attempting to develop a checklist tool, that if used, may increase the probability of success for an entity considering mass customization as a strategy.

CURRENT STATUS

The concept of mass-customization was first introduced in the book “Future Shock” some three decades ago. (Toffler. 1970) The concept was further refined and the term mass customization was coined in the work “Future Perfect” some 17 years later. (Davis 1987). The publication by Joseph Pine of his book “Mass Customization; The New Frontier in Business Competition” (Pine1993) really catalyzed serious academic research into the subject.

There is now a significant body of research that supports the concept of mass customization. A search of “Google” on the term yields 160,000 instances. Whilst a number of these articles are not likely to be academically based, a review of [CrossRef Search](#)¹ yields 703 papers.

Practically however, for a concept that promises significant benefits to all stakeholders there has not been a rush to embrace mass customization systems. In fact the pioneers in this area have often paid the ultimate corporate price or have had to retreat significantly wounded. ([See Appendix 1](#))

Quite clearly, experience is telling us that the establishment or transition to a mass customization strategy is not an easy road to follow. Is this failure due to flawed marketing strategy, implementation or financial viability?

WHAT IS THE CONCEPT?

Alvin Tofler was the first known writer to float the concept of mass customization in his seminal work “Future Shock” in 1970. It was however to stay in the realms of science fiction until the late 1980’s.

There are a number of definitions of the concept of mass customization. The first to put some parameters around Tofler’s concept was Davis, who ignorant at the time of the development of digital or communications technologies explained it thus;

¹ CrossRef Search is a pilot search engine for full text academic papers.

“... the notion that by leveraging certain technologies, companies can provide customers with customized products while retaining the economic advantages of mass production.”(Davis 1987)

This was then simplified and made technology agnostic by Pine;

*“... the mass production of individually customized goods and services”
Pine (1993)*

Hart introduced the concept of customer demand;

“... the ability to provide your customers with anything that they want profitably, anytime they want it any way they want it.” (Hart 1994)

And then went on to offer an organizational based interpretation;

“... the use of flexible processes and organizational structures to produce varied and often individually customized products and services at the low cost of a standardized, mass production system.” (Hart 1994)

A differentiation interpretation is put forward by McCarthy;

“... a strategy that seeks to exploit the need for greater product variety and individualization in markets.” (McCarthy 2004)

While these definitions can be interpreted in marginally different ways they are indicative of much of the academic work reviewed to date. Most scholars have a consistent view of the nature of the mass customization concept.

As with any establishment or strategy transition process, there are a number of critical success factors that must be acknowledged and addressed for the program to achieve all of its objectives.

The number of failed industry implementations is indicative that these have not been met by a number of the mass customization pioneering companies.

There appears to be little academic research that looks at critical success factors for a mass customization strategy from a holistic point of view.

APPROACH & METHODOLOGY

A literary review will be conducted to build a conceptual model of mass customization strategy inputs. As part of this model construction, a list of possible critical success factors and questions for consideration will be proposed.

These critical success factors and questions for consideration will then be used to formulate a series of questionnaires that can be administered to key relevant industry experts.

It will be necessary for the author of this study to gain access to various stakeholders in the mass customization industry. These stakeholders may include;

1. Current mass customization companies.
2. Defunct mass customization companies.
3. Mass customization service providers.
4. Mass customization equipment providers.
5. Apparel industry bodies.
6. Academic institutions.

Using public domain sources, a list of companies, stakeholders, academics and experts in the mass customization sphere will be compiled. Approaches will be made to the people and companies to seek their co-operation to participate in this study. There may be barriers to locating and gaining access to subjects that have had direct experience of a mass customization failure. If this eventuality occurs it may be necessary to question mass customization service and equipment suppliers that have had exposure to a failure indirectly.

As it is likely that stakeholders will be geographically dispersed, the internet and other forms of electronic communications methods will be the primary means of contact.

It is considered that the level of participation required will be to complete a questionnaire via email over the internet followed up with a one hour telephone interview with the author. The purpose of the follow up interviews is to enable further investigations of the subjects to occur once all of the initial questionnaires have been returned and a first round of response analysis has occurred. This will enable any commonalities to be studied in greater detail.

As these questionnaires and telephone interviews are considered to be “Low impact research” ethical approval will need to be gained. An explanatory statement ([Appendix 4](#)) and a consent form ([Appendix 5](#)) have been developed to facilitate this process.

Prior to the distribution of the questionnaires a selected number of participants will be asked to pilot the proposed questionnaire to test the feasibility and appropriateness of the questionnaire.

Responses from these questionnaires and interviews will then be used to address the questions for consideration and to validate the critical success factors that will be proposed as a consequence of the literature review.

Once this process has been successfully completed, a checklist can be developed. This checklist may then be used by companies considering embarking upon a mass customization strategy, to increase their probability of successful implementation.

A full process map is included in [Appendix 3](#).

TIMETABLE

The timetables for the key processes from the process map are included in the following table.

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Project proposal										
Literary review										
Distil possible CSF's										
Develop questionnaire										
Identify industry experts										
Gain support from experts										
Gain Ethical Approval										
Administer questionnaire										
Test responses										
Develop strategy checklist										
Complete written report										
Submission of report										

CURRENT DEVELOPEMENTS IN MASS CUSTOMIZATION

In the process of developing a mass customization model it is necessary to deconstruct the concept into a number of discrete components. Each of these components will be explored in terms of current academic thinking and practical applications.

Two academic papers stand out among the many published on mass customization concepts as candidates for the foundations from which a model can be constructed. They are:

1. *"The personalised marketplace: beyond the 4p's."* – R E Goldsmith 1999
2. *"Mass customization: conceptual underpinnings, opportunities and limits."* – CW Hart 1994

Using these two papers as a base, the model graphically depicted in figure 1 was constructed. The variables that influence the mass customization process can be categorized into seven broad categories.

1. Company related issues.
2. Customer related issues.
3. Product related issues.
4. Pricing and its relevance to the market.

5. The status of the marketplace for the proposed product.
6. The processes involved in getting the product to the consumer.
7. The promotion of the mass customization process and product.

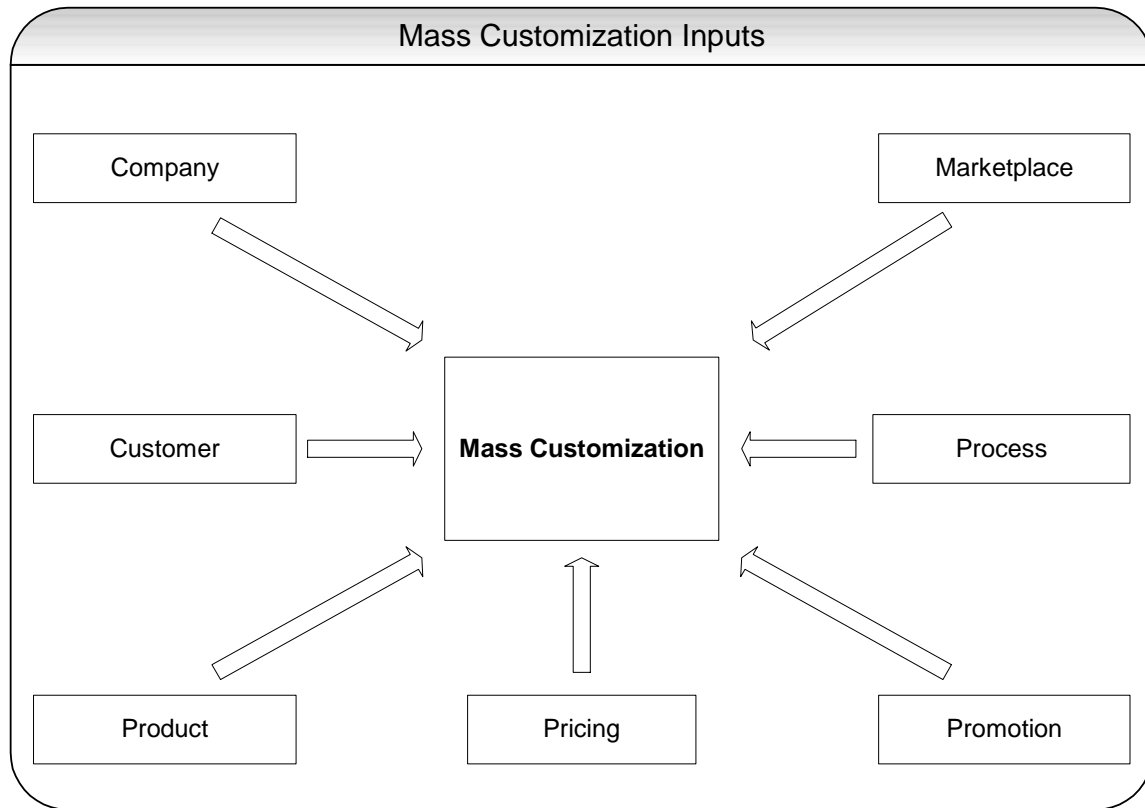


Figure 1 Inputs implicit in a mass customization strategy. (Based on work by Hart 1994 and Goldsmith 1999.)

LITERARY REVIEW

A wide ranging literature review on mass customization was conducted using this model as a framework. The academic concepts outlined in the literature were classified into one of the seven inputs used in the model.

COMPANY

STAGE OF LIFE.

An assessment of an organizations attitudes, culture and resources should be undertaken prior to embarking upon a mass customization strategy. (Hart 1994)
Consideration requirements include:

1. How capable and enlightened are the current company leaders?

2. Is the company open at all levels of management to new ideas?
3. What is the capacity for organizational change?
4. Is change consistent with the organizational culture?
5. How aggressive is the company in pursuit of competitive advantage?
6. How aware is the company of all areas of the value chain?

These organizational attitudes may have a significant bearing on whether a mass customization strategy should be considered and implemented.

FINANCIAL STATUS.

Mass customization itself must be customized at every level to suit a particular company's needs, customers, production capabilities and competitive status. (Hart 1994) It is therefore likely that there will be considerable financial resources required to fully implement the strategy. Corporate leaders must be able to assess the monetary cost of such a strategy. The company must then be able to fund such a strategy. It could be that companies will need to strike a balance between mass customization capabilities and maintaining immediate cash flows.

Recently Levi Strauss has closed its "Original Spin" operation. Original Spin was Levi Strauss's test bed for mass customization. It emerged from a program named "personnel pair" in 1997. During the period of operation 1997 – 2004 the "hype" surrounding the program was always positive and in fact Levi's current position on the program is that it has merely been postponed for further refinement.

Unfortunately during the time "original spin" was in operation Levi Strauss was undergoing significant financial turmoil and cost cutting initiatives. One of these initiatives was to close the manufacturing plant that produced the original spin jeans. This was the reason given for the programs suspension.

Even though "Original Spin" was quoted in a number of studies as a text book example of mass customization and that the response from customers was reported to be overwhelmingly positive, the financial situations of the company lead to the programs demise.

LEGACY SYSTEMS.

There are a number of issues that relate to whether the customizable product is being produced by a completely new company or process, or whether there are legacy systems and equipment involved.

“A major concern lies in how the apparel industry can effectively use its existing manufacturing facilities and organizational structures to adopt mass customization.” (Lee & Chen 1999.)

There are three main elements required to institute a mass customization system. (Zipkin 2001)

1. Elicitation.
Customers often have problems deciding what they want and then communicating or acting on their decisions. An elicitation process is an artful means of leading customers through the process of identifying exactly what they want. Thus mass customization often requires elaborate mechanisms sometimes called configurators. Elicitation is both essential and difficult; to give customers what they want you must first learn what they want.
2. Process Flexibility.
Process flexibility can be related to modularity and linkages covered in [product architecture](#) and [communications and linkages](#).
3. Logistics.
Logistics covers not only the internal transit of product through a modularized manufacturing system, ensuring that all of the required processes are completed but also covers the delivery to the end user.

For a mass customization system to work, the three elements – elicitation, process flexibility and logistics have to work well individually and in combination with each other. They must link together to form an integrated, coherent whole. Legacy systems can sometimes inhibit creating a seamless coherent system by forcing process compromises.

This is particularly so during time of environmental uncertainty. (Tu, Vonderembse & Ragu-Nathan 2004) Legacy systems and processes may have an increased impact on the capabilities to implement an optimized mass customization process.

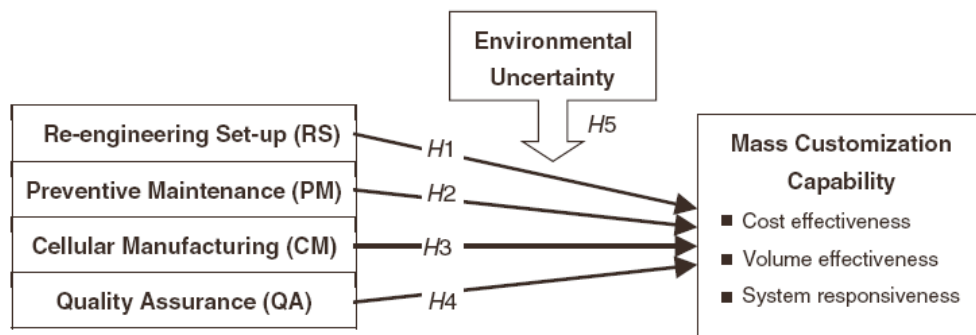


Figure 2 Mass Customization Legacy Processes. (Tu, et al. 2004)

In addition, the impact of legacy systems on mass customization flows up and down the value chain. The customer interface whether it be physical in-store or virtual on line needs to present an interface and communications process that facilitates mass

customization. Inputs from suppliers and service providers need to interact with the mass customization process effectively and efficiently. Manufacturers need to have equipment and processes that can accommodate a mass customization system.

COMMUNICATIONS LINKS.

Internal

Cross functional teams and clear communication channels between various functional areas of a company appear to enhance the success of customization.

“...failure to communicate and coordinate among functions, particularly between marketing and operations, significantly raises the costs and difficulty of executing customization strategies.” (Booz Allen Hamilton 2004)

Not only do explicit internal communication links need to be reviewed in terms of mass customization but implicit links such as remuneration systems and senior management orientation & flexibility may have some effect on the probability of success. (Pine et al 2000, Zipkin 2001, Hart 1994, Holweg 2001.)

External

Communication links between the stakeholders in the entire value chain are also critical to the mass customization process. This includes manufacturers, designers, raw material suppliers, logistics providers and customer interface providers. Some of these processes are likely to be outsourced from the originating company as the apparel industry is considered to be significantly fragmented. (Lee & Chen 2000.) Communication links between all entities in this chain should be as streamlined and transparent as possible. Not only must the explicit links be addressed but the implicit links such as individual corporate objectives and orientations need to be aligned to ensure optimized system momentum.

DEGREE OF TECHNOLOGICAL SAVVY.

Mass customization requires unique operational capabilities. Technologies that are capable of delivering these capabilities are becoming available. The continuing development of electronic commerce and other technologies will ease some constraints – but by no means all. (Zipkin 2001)

Within the apparel industries such technologies as electronic body scanning, electronic pattern generation and grading and digital fabric printing, when coupled with broader technological advances in e-commerce and supply chain management, mean that it is possible today to deliver a mass customization system in a technologically savvy company.

However due to the significant fragmentation of the apparel industry it is probable that there are significant barriers such as capital expenditure requirements, communication and process platform incompatibilities, and geographical dispersion that will need to be

addressed in assembling any mass customization system.

COMPANY STRUCTURE.

Mass customization requires different organizational structures, values, management roles and systems, learning methods and ways of relating to customers. (Pine, Victor & Boynton 1993) Pursuing a mass customization strategy but retaining structures and systems of a non mass customization system has lead to problems at Toyota, Nissan Mazda and Mitsubishi in the past. (Pine et al 1993)

Company structures can be classified into five categories. (Hammond & Kohler 2000)

1. Catalogue companies.
Retailers that derive the majority of their revenues from catalogue sales.
2. Brick and Mortar retailers.
Retailers that derive the majority of their revenues from physical stores.
3. Pure manufacturers.
Manufacturers that sell products only through stores owned by others.
4. Hybrid manufactures.
Manufacturers that sell products both in their own stores as well as stores owned by others.
5. Pure play firms.
Retailers that sell only on-line.

There are a number of issues in embracing a mass customization strategy dependant upon the category of company structure.

Issues such as channel conflict, price setting, and infrastructure support are likely to need to be addressed.

COMPANY QUESTIONS FOR CONSIDERATION.

1. What is the structure of the company and how does it fit within the broader value chain?
2. Has the company been a stakeholder in the industry prior to embarking upon a mass customization strategy?
3. What is the state of the company culture?
4. What is the capacity for change within the company?
5. Is the company well funded and/or cash flow positive?
6. Are there systems and equipment currently in place that will need to be modified for a mass customization strategy?

7. How much of the mass customization process will need to be out-sourced and to whom?
8. Is the company centralized or decentralized in structure?
9. How technologically up to date are the companies manufacturing and communications systems?

CUSTOMER

MARKET SEGMENTATION

The traditional thinking that markets can be segmented into homogeneous segments is challenged by the concept of mass customization. Mass customizers identify the dimensions where their customers differ in their needs. These dimensions present "[sacrifice gaps](#)" (Gilmore & Pine 1997) that the mass customizer must use to drive their individual approaches to mass customization. To be a successful driver, the sacrifice gaps identified must be of such a magnitude that the consumer is unwilling to compromise their choice. In addition, the sacrificed gaps must be able to be "closed" by the company at a cost that the customer is willing to pay and yields a profit. Rather than taking a hit or miss approach to customization, companies need to provide customization options only where it counts to the customer.

"Indeed, companies frequently find themselves introducing the wrong variations at the wrong prices – giving customers value that they don't really want at a price that the company can't really afford." (Booz Allen Hamilton 2004)

Today's customers are harder to generalize, with homogeneous markets increasingly a thing of the past, additionally the individual wants and needs of any one customer are more prone to changes and shifts. (Hart 1994)

With a heterogeneous market, a number of generally accepted marketing tenets and heuristics are called into question.

1. Is segmentation still a relevant marketing tool in markets of one?
2. What is the consumer decision making process? Does it differ from traditional market segments?
3. How do you identify and communicate with a heterogeneous marketplace effectively and efficiently?

A mass customization strategy needs to address questions of this ilk as part of the underlying marketing and marketing communications strategy.

CUSTOMER SENSITIVITY

Customer sensitivity is based on;

1. Uniqueness of needs.
2. Customer sacrifice.

A high level of uniqueness and/or sacrifice will produce a high sensitivity level. This bodes well for a mass customization strategy. However one must still consider the overall size and rate of growth of such a customer segment along with its price sensitivity before an estimate of profitability can be determined.

Convenience is a factor that is related to customer sacrifice. If the level of convenience can be increased the amount of sacrifice may be reduced. Convenience factors include reducing the time spent shopping, reducing physical effort, and reducing aggravation. (Fenech & O'Casey 2001)

Thirty six percent of consumers in the apparel industry are willing to pay up to 15% more for customized apparel and footwear. (Lee & Chen 1999) This finding is also supported by research conducted on the European apparel and footwear markets which show that 30 - 40% of consumers are interested in customized apparel and are willing to pay a premium of 10 - 30% for this offer (Piller & Muller 2004)

Customers also cite fit as an important consideration when purchasing apparel and one that they must sacrifice more often than not. (Cotton Incorporated 2005)

These factors would indicate that the apparel industry was "ripe" for wide spread mass customization implementations.

CAN AND HOW DO CUSTOMERS ELICITATE NEEDS?

Customers sometimes are required to make one time decisions based on difficult and multi-dimensional trade offs. These are cases where the customer requires assistance to articulate a particular need. Sometimes the customer does not have the required expertise to make a final decision.

"Paris Miki understood that consumers rarely have the expertise to determine which eyeglass design best suits their facial structure, desired look, and colouring, and therefore chose to collaborate with customers to help identify their largely unarticulated needs". (Gilmore & Pine 1997)

If there is no vehicle for the customer to articulate their needs to the company this may inhibit a mass customization program. In such cases implementation of a mass customization strategy must include the development of a customer focused configurator.

Furthermore companies need to engage in genuine dialogue with their customers to get their input before, during, and after the product is consumed. This means a real two-way flow of information where consumer input is not only solicited but acted upon. (Goldsmith 1999)

With the advent of advanced communication, process and manufacturing technologies many of these problems can be addressed. However every participant in the value chain

will need access to and be proficient at operating these technologies to provide an answer.

DEGREE OF INVOLVEMENT WITH THE PRODUCT.

Fashion clothing is considered to be a high involvement product.

Age, gender, degree of materialism and self image/product image congruency have a significant effect on fashion retailing. (O’Cass & Julian 2001) Product involvement has been determined as being at the heart of the person-object relationship and the relational variable most predictive of purchase behaviour. (O’Cass 2002)

Specific findings from this study were:

1. The more materialistic consumer is more involved in fashion clothing than the less materialistic.
2. Women are generally more fashion involved than men.
3. Younger people are more fashion involved than older people.
4. Product knowledge varies widely and can be related to branding, past experiences held in memory, interactions with friends or sales people, and advertisement exposure. Product knowledge can also be objective (What they know.) or subjective. (What they think they know.) Either way product knowledge is an important antecedent to purchase behaviour.

Involvement not only is the driving force of fashion adoption but the highly fashion involved customer represents an important market as a heavy clothing buyer. (Tigert, Ring & King)

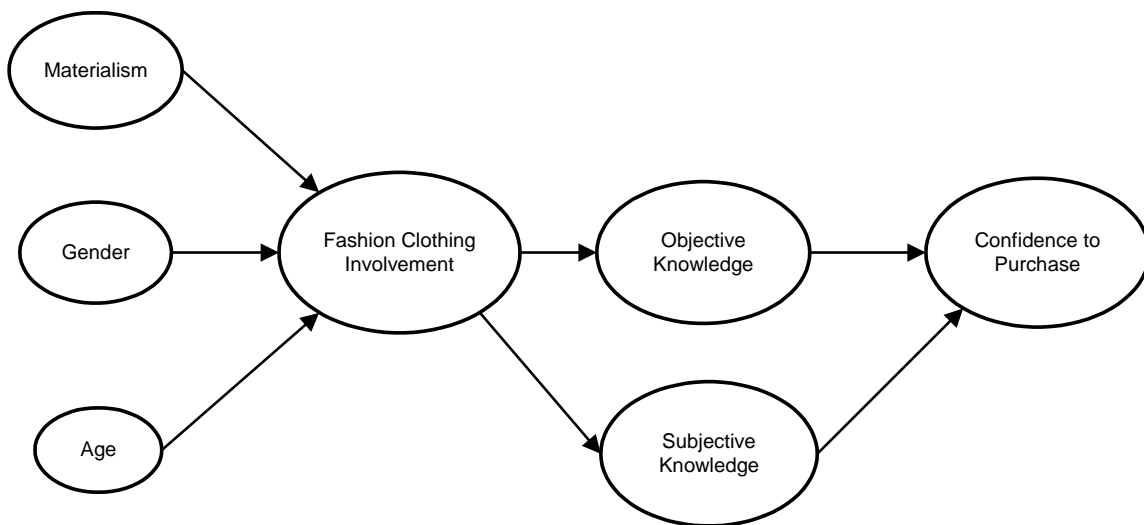


Figure 3 Fashion clothing involvement antecedents and consequences. (O’Cass 2002)

There are a number of important considerations for an apparel manufacturer or retailer to draw from the O’Cass study. Questions that may have implications for the adoption of a mass customization strategy are:

1. How “fashionable” is the product? It is likely that a men’s suit is subject to more fashion related variables than say men’s socks or underwear.
2. What is the segmentation of the target market relative to age and gender? You may have to get a larger share of male or older market segments to cover costs as opposed to younger female market segments.
3. What degree of knowledge does the target consumer have of your product or brand?

INTEREST IN CUSTOMIZATION AND ABILITY TO PAY.

A number of studies have been undertaken in the apparel industry that indicates the customer is both interested in and willing to pay for a degree of customization. (Piller & Muller 2004, Lee & Chen 2000) The decision to buy customised products can be represented in a simple economic equation: “if the expected returns exceed the expected costs, the likelihood that customers will employ mass customization will increase.” Returns can be either a rewarding shopping experience that is generated by satisfaction of the flow or fulfilment process and/or a rewarding product experience. (Piller & Muller 2004)

PARADOX OF CHOICE.

There are contemporary reports that some consumer electronics retailers and supermarkets are experiencing a backlash from consumers confused by too broad a range of choices. (Pine, Victor & Boynton 2000)

Large assortment strategies can cause information overload to such an extent that the customer chooses to make no choice at all. If a customer becomes frustrated or dissatisfied with the complexity, a large variety or customization strategy does not yield a competitive advantage. (Huffman & Kahn 1998)

The key is to empower the customer to deal with the level of variety and complexity within the range offer.

CUSTOMER QUESTIONS FOR CONSIDERATION.

1. What is the primary market segment that will form the base of the business?
2. Are there currently “sacrifice gaps” in the primary market segment’s buying experience?
3. Are the customer’s needs in this area unique?

4. Can the customer clearly communicate their needs?
5. How much does the customer know about the product?
6. Can the primary market segment afford to pay for the degree of customization required to close the sacrifice gap?

PRODUCT

PRODUCT ARCHITECTURE

Products architecture is a consideration in a mass customization strategy. Modularizing the customizable elements into distinct packages is recommended. Successful mass customization companies need to turn their processes into modules. They then need to create an architecture for linking these modules that will enable them to integrate rapidly in the best combination or sequence required to tailor to the customers needs. (Booz Allen Hamilton 2004, Gilmore & Pine 2004, Pine, Victor & Boynton 2000)

First identify the product or service option that the customer most cares about and ensure that those areas have the most variability. Then create an effective process that assists customers to articulate their needs as an input into the mass customization process. This process translates customer needs into product specifications.

PRODUCTION AND DISTRIBUTION

There are a number of considerations that need to be taken into account within the production and distribution process of any mass customization product. At what point in time are inventories committed to a particular product? The earlier in the process the less flexible and more costly it will be to implement a mass customization strategy. Lead times on components can also impact the propensity for mass customization. The longer the lead times required securing specialized parts or the more geographically distant a raw material supplier the less likely a mass customization strategy is appropriate. Finally how might a products size and weight affect the distribution process, which in turn may affect costs? (Hart 1994)

SACRIFICE GAPS.

Customer sacrifice is defined as the gaps between the product or service benefits desired by the customer and the product or service benefits actually provided by the suppliers in the market. (Jiang 2000)

Customers involved in traditional transactions endure many types of sacrifices: these include inconvenience, product or service deficiencies, long waits, high costs, difficulty in ordering and lack of fulfilment options. Implementing a successful mass customization strategy is reliant on addressing these gaps and being able to alleviate them at a cost equal to or below that which the customer is willing to pay.

CAPACITY TO PRODUCE A PRODUCT THAT VARIES THE ASPECTS A CUSTOMER VALUES.

Identification of which aspects of a product the customer values are critical to the successful implementation of a mass customization strategy. Perceived value is the consumers overall assessment of the utility of a product based on perceptions of what is received and what is given. (Squire, Readman, Brown & Bessant 2004) It is theorised that the value criteria that customers are using is expanding as markets fragment.

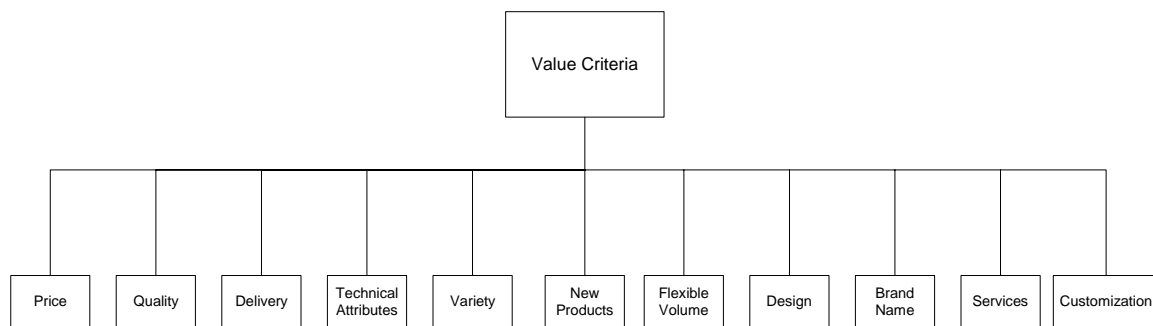


Figure 4 Expanding Value Criteria (Squire et al. 2004)

Figure 4 represents a possible but not exhaustive list of customer value criteria. Furthermore customers do not make an assessment of utility in isolation; products are assessed relative to a reference product. So not only is it important to understand what a customer values but also the reference point to which a comparison is made. To fully understand what the customer values about a product or process it may be necessary to administer some form of questionnaire to both current and/or prospective customers. See example [appendix 6](#).

DELIVERY OF CUSTOMIZATION FOR A PROFIT.

Quantifying the true costs of mass customization can sometimes be difficult. Often these costs are hidden in higher overhead, higher supply chain costs, or greater discounting. This is particularly so if over customization has occurred. This can lead to a weaker position in the market with the company pushing an excessively complex product to a bewildered customer.

*“If customers have too much choice, they cannot make a decision; they freeze.”
(Booz, Allen Hamilton 2004)*

Smart customization is attained by making an intelligent balance between more choices for the customer and the cost of complexity for the company.

“..Nissan for example, reportedly had 87 varieties of steering wheels, most of which were great engineering feats. But customers did not want many of them and disliked having to choose from so many options.” (Pine, Victor & Boynton 200)

PRODUCT QUESTIONS FOR CONSIDERATION.

1. Can the product manufacturing process be modularized along the length of the value chain?
2. Have the product or service options that mean the most to the customer been identified?
3. Can these be provided at a cost that is acceptable to the company?
4. What lead times are required by the stakeholders in the value chain and how does this correspond to the customers expectations?
5. How does this relate to competitive products in the category?
6. Can the product customization options be presented to the customer in a comprehensible manner?

PRICING

PRICE SENSITIVITY OF CUSTOMERS.

Customers must be willing to pay the cost for personalised products or else demand will not warrant their manufacture or distribution. (Goldsmith 1999, Piller & Muller 2004)
Studies by Piller et al have concluded that customers are willing to pay a premium of between 10 - 30% for customized product.

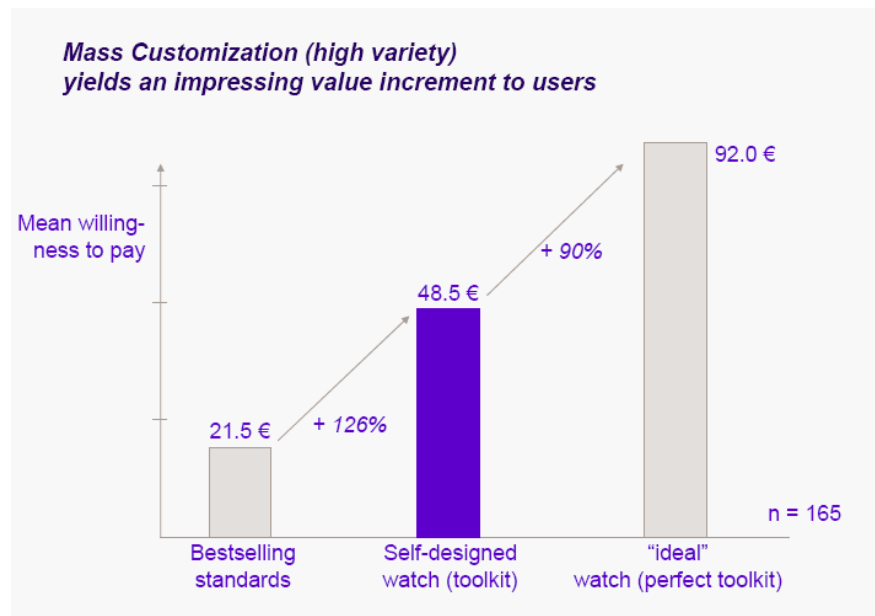


Figure 5. Mass Customization: New directions for research. (Piller 2005)

Willingness of German consumers to pay a price premium for made-to-measure apparel, in 1998

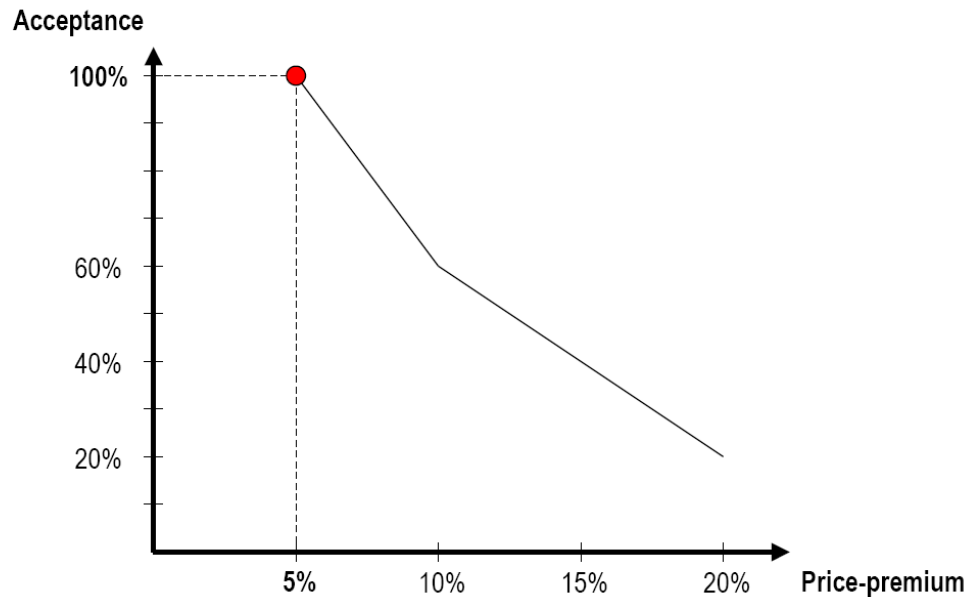


Figure 6. Financial Rewards from mass customization of textiles. (Sanders 2000)

However sensitivity to price has been found to not have a significant influence on attitude towards web retailing. (Fenech & O’Cass 2001) Web purchasers are considered to be more innovative than offline purchasers. They generally have a higher mean income and rather than focussing on price these consumers seem to want reliability and quality information.

DEGREE OF CUSTOMIZATION

A number of studies have supported that the apparel consumer has an interest in customized product and is prepared to pay a premium for such product. The question then reverts to the degree of customization that is required by the customer and identifying the attributes where it is the most important to offer customized options.

Once this has been established the process to provide this degree of customization must be investigated. The question that will need to be answered is whether the customer can be provided with the customized product that they desire at a price that will yield an adequate profit and return on investment for all partners in the value chain.

PRICING QUESTIONS FOR CONSIDERATION.

1. Is the customer willing to pay the premium required to deliver the degree of customization?
2. How does the price compare to competitive product available to the market segment?

PROMOTION

BRANDING.

Brands that are perceived to be familiar to the consumer are more likely to be purchased. (Park & Stoel 2005) Familiarity has a direct relationship to frequent exposure to the brand. Therefore advertised brands tend to be highly familiar to consumers.

This would tend to suggest that brand names that were familiar to the consumer have already established some form of “brand promise” or position within the consumers mind. Mass customization strategies will need to be assessed relative to this positioning. If customization is congruent with the current brand position it is likely to be a more successful strategy than that of an incongruent situation.

In incongruent situations there may be a necessity to review the branding of the mass customized product within the product portfolio.

PERCEIVED RISK

Due to the sensory and interactive nature of the apparel purchase process, apparel products are categorized as high-risk items. (Bhatnager, Misra & Rao 2000)

Perceived risk needs to be considered in the promotion of any apparel mass customization service. As the process is likely to entail a degree of Internet based transactional processing, there is the possibility of perceived risk on a number of levels.

1. What if the choice I make does not suit or fit me?
2. In the absence of the sense smell and touch, how can I make an informed decision?
3. If I do make a wrong decision what recourse do I have?
4. Do I know the company or brand that I am working with?

Some form of process, systems or policies will be required to mitigate such risks. These could include money back guarantees, pre-purchase swatch sample programs, escrow services between the buyer and the seller, satisfied customer endorsements and customer loyalty programs. Provision of product related information such as sizing, fabric content and construction may also mitigate some risk.

MARKETING COMMUNICATIONS

It is likely that a mass customization market will be more heterogeneous than homogeneous. This may create challenges in identifying the market segment and will have implications for the means of communication. Such heterogeneous market segments will possibly have a higher communication cost than that of a homogeneous market. This will need to be taken into account in any marketing communications strategy.

PROMOTION QUESTIONS FOR CONSIDERATION.

1. Is the mass customization project a start-up or an existing venture with existing brand names that are familiar to the target market?
2. If it is a new entity what consideration has been given to establishing the familiarity of the brand with the target market? Has the entity budgeted for this expense?
3. What systems have been put in place to address the levels of perceived risk with the transaction?
4. Has the full cost of establishing a marketing communications strategy for the target segment been taken into account in the marketing budget?

PROCESS

COMMUNICATION LINKS BETWEEN PROCESSES.

Once a product has been modularized to enable customization of attributes that a customer values, a system or process architecture needs to be enabled to transition the product through the various stages of customization. This system should have four main attributes. (Pine, Victor & Boynton 2000, Zipkin 2001.)

1. Instantaneous.
Processes need to be able to be linked together as quickly as possible. The product or service that the customer requires should be defined rapidly, preferably in collaboration with the customer. This may take the form of some type of user interface process that enables the customer to articulate their needs, assists with the identification of needs and then translates these into a set of processes, which are integrated rapidly to create the product or service.
2. Costless.
The linkage system should add as little as possible to the cost of making the product or service.
3. Seamless.
As the system requires the linking of modularized components, there is a very real danger of these modules not “mating” properly and the ultimate product or service that the customer receives not being up to standard or expectations. To mitigate this danger the system architecture needs to incorporate some process that has an overall view of all modules and facilitates the movement of the product or service between modules effectively.
4. Frictionless.
Creating a vision and a common goal that all teams work towards is important in ensuring that movement of the product or service between modules is frictionless. This may have implications for remuneration structures, strategic and tactical accountabilities and incentives and methods of senior management communication.

Much of the knowledge held within the organizations within the apparel industry is of a tacit rather than explicit nature (Hwang 2002.) This places even more importance on the reliance of strong communications links between processes within the value chain.

EXISTENCE OF PROCESS TECHNOLOGY.

The practical implementation of mass customization is based on the potentials offered by new technologies in manufacturing and information management. Not only must this technology be available but the company wishing to embark upon a mass customization strategy must possess the ability, technically, financially and culturally to implement such a system. (Reichwald, Piller & Moslein 2000)

In addition to the company being able to enable the required process technology the target market must be comfortable and competent in utilizing the customer interface into the system. It is likely that the Internet may play a crucial role in the customer-company interface in some way. It therefore follows that all stakeholders in the value chain should have access to; and be comfortable using the internet to facilitate a transaction.

SIMPLIFICATION OF CUSTOMER DECISION MAKING PROCESS.

Consumer convenience and confusion have figured in the mass customization debate to a significant extent. It would then follow that the interface with the customer should create effective sales presentations while trying to optimize the customers' decision making process in a simplified way. (Jiang 2000)

Apparel consumers placed importance on expanding individual search and selection capability, especially if the search process could be customized. (Anderson-Connell, Ulrich & Brannon 2002)

However there are a number of obstacles to overcome in the simplification of the decision making process.

“Many of the characteristics of a garment that are pivotal in the consumer decision-making process – colour, touch, feel and fit – are difficult, if not impossible to communicate virtually. Moreover unlike books, music, and consumer electronics, the difficulty in describing the product cannot be offset easily with customer reviews, reviews by industry experts, or comparisons based on independent performance evaluations.” (Hammond & Kohler 2000)

These barriers to the customer evaluation process will need to be addressed in any mass customization apparel initiative.

PROCESS QUESTIONS FOR CONSIDERATION.

1. Does the company have a fully documented process map?

2. Can the product “travel” between processes in an efficient and effective manner?
3. Do all of the stakeholders in the value chain have access to the technology required to make the process system work?
4. Does the customer segment have access to the technology required, and competence in operating that technology to begin the process?
5. Are there systems in place to augment characteristics that cannot be easily provided by the process?

MARKETPLACE

COMPETITORS

How long would it take a competitor to react should be considered prior to embarking upon a mass customization strategy. Who will react most quickly and what will they do to combat your strategy need to be considered. In the event of a competitive response from either an existing industry player or a new entrant what course of actions do you have and how do they affect the profitability of your processes.

PROXIMITY TO STAKEHOLDERS.

The geographical proximity of the participants in the value chain may have an influence on the success of a mass customization strategy. Factors such communication lead times and logistical issues may have a negative impact on speed to market initiatives.

MARKET TURBULENCE

Instability and unpredictability of demand and heterogeneous as opposed to homogeneous customer demand, will dictate a higher need for variety within a product range. Operating within a marketplace like this would give a mass customization strategy and advantage over that of a standardization strategy. (Hart 1994)

“... those companies whose markets are highly turbulent because of factors like changing customer needs, technological advances, and diminishing product lifecycles are ripe for mass customization.” (Pine, Victor Boynton 2000)

Mass production is predicated on a degree of certainty of product demand which is then used as a forecast input into the production process. In a turbulent market demand rarely coincides with forecasts. Companies end up missing potential sales or they end up burdened by inventory holding costs and must entice customers with steep discounts or other incentives. (Holweg & Pil 2001)

MARKETPLACE QUESTIONS FOR CONSIDERATION.

1. Has the company identified the competitors to its mass customization product?
2. Has their response to a competitive threat been estimated?

3. Is there a plan in place to meet such a response?
4. Where are the stakeholders in the process located?
5. What effect is this likely to have on the process time and communication links?
6. How are the customer's needs, likely to change over time?
7. What is the anticipated life of a product or product style?

LINKAGE TO MARKETING THEORY

From the literature review we can deduce that there are a number of fundamental marketing theories that may impact on the success or failure of a mass customization strategy. In fact the concept of mass customization may call into question some of the applicability of some long held marketing concepts.

Could it be that developments in technology that make mass customization possible also render these concepts obsolete? Do we need to review these concepts and question their relevance in today and tomorrow's world?

Market Segmentation

Market segmentation has been a foundation stone of the marketing concept. Mass customization has been coined as "servicing markets of one." (Pine 2000) So is market segmentation an oxymoron within a mass customization concept? Is there such a thing as a segment of one?

Marketing theory has taught us that to be viable a market segment needs to be:

- | | |
|----------------|-----------------|
| 1. Measurable | 4. Differential |
| 2. Substantial | 5. Actionable |
| 3. Accessible | 6. Sustainable |

Porter in his work "Competitive Advantage creating and sustaining superior performance" (1985) pointed out that new technology, particularly electronics and information systems, are changing old assumptions about segmentation. As mass customization takes significant advantage of these two technologies, is this the wake up call to review the concept of segmentation and determine whether it is as relevant in today's marketing landscape?

Successful mass customization in the apparel industries relies significantly on varying product attributes relative to the importance that customers attach to such attributes. For

example garment fit has been cited as one of the key product attributes that is evaluated by customers in the decision making process.² It would then follow that garment fit would play a pivotal role in any segmentation process.

Segmenting a market in terms of product attributes is commonly referred to as benefit segmentation. The correct identification of such product benefit attributes as well as the level of importance that the customer attributes to these benefit attributes would appear to be critical to the overall success of a mass customization strategy.

Is the fact that there seems to be few successful implementations of mass customization strategies, somehow related to a miss application of segmentation?
Or is segmentation not relevant in these circumstances.

Targeting

Targeting follows on from the identification of a market segment. Evaluation of the worth of a market segment and its overall attractiveness to the entity is critical to success. Factors such as size, growth, profitability, scale economies and low risk are paramount.

Mass customization could be considered to be the antithesis of mass marketing. Mass customization products are likely to appeal to market segments that are smaller and more fragmented than mass produced and mass marketed products. This assumption was supported by the literature review. In addition to possibly being smaller in size, segmenting on a second tier variable of product benefit (As opposed to first tier segmentation which would include age, gender and other tangible variables.) is likely to result in target segments that are quite disparate in nature. There is a likelihood that these segments will be harder and therefore more costly to reach with a marketing message. This being the case an increased focus would be placed on the aggregated cost of communicating with such small markets. These costs are likely to be more of a fixed nature rather than a variable nature. (You cannot segment a market any further than one.) It follows then that this will then place some degree of importance on scope rather than scale. Once identified and reached can you sell this segment a wider scope of products rather than simply one product?

Consideration should also be give to the investment into such segments given the entities objectives and resources.

It follows then that targeting just as segmentation may take on an increased importance in a mass customization environment.

Buyer Behaviour

If we concede that buyer behaviour is influenced by perception, learning, attitude personality and lifestyle, then it is likely that a product will be positioned and presented to a target segment utilizing these influencing factors.

Perception will be influenced by a products, personality, image and description. The objective is to engender positive perceptions in the target segments. Trying to align the product image with the self-concept image of the target segment can do this. As

² "A question of Fit" Cotton Incorporated 2005

perceived value is integral to the marketing mix (Zeithaml 1988) it is important that it is congruent with the other aspects of the marketing mix and consistent with the target segments self – concept.

As no one lives in a vacuum, opinions of peer and reference groups become important in product image presentation. Not only must a products image and personality appeal to the target segment it must present a consistent and positive image amongst the target segments peer and reference groups. If not this will result in negative tension forming and de-motivation for purchase behaviour.

Motivation to fulfil a need can be catalysed by either a rational or emotional call. A rational call is likely to revolve around price and features that result in value, whereas if price is to be de-emphasised an emotional call that appeals to feelings and self image is more appropriate. In terms of Maslow’s hierarchy of needs the appeal is targeted more towards the higher needs of self-actualisation and ego as opposed to physiological and safety.

We learned from the literature review that clothing purchases are likely to be more high involvement than low involvement.

“The level of involvement is defined as the individual state of arousal, activation and preparedness to engage in specific information processing or goal directed behaviours towards a stimulus.”³

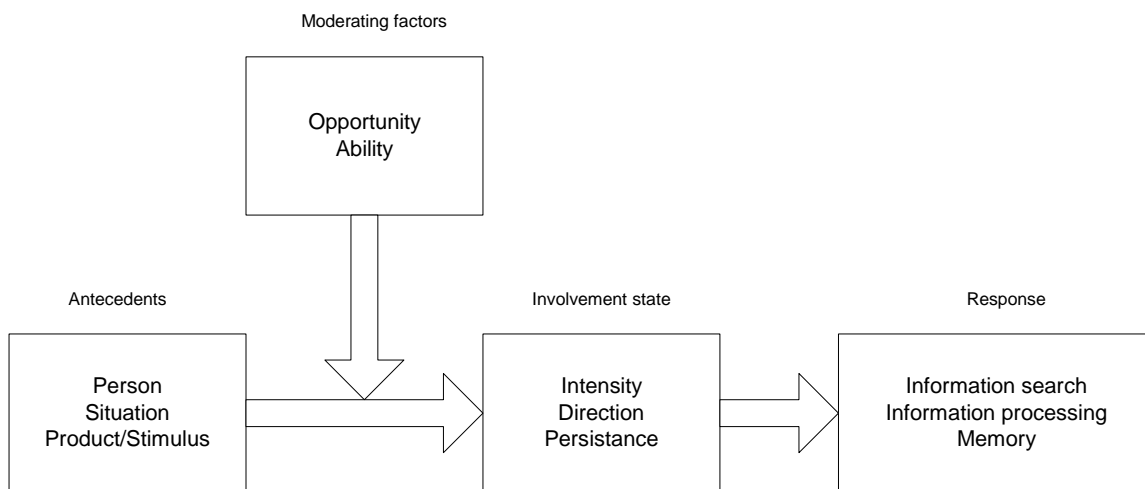


Figure 7. “Consumer Behaviour” Schiffman, Bednall, Cowley, O’Cass, Watson & Kanuk

Looking at the antecedents that lead to a consumer becoming involved with a brand or product;

Person.

³ Andrews, Durasula & Achtker “A framework for conceptualizing and measuring the involvement construct in advertising research. Journal of Advertising 19,1990 pp. 27-40

There must be interest and personal relevance with the product or product category. If we look at this in the context of apparel mass customization prospect, a possible scenario could revolve around the concept of fit.

"I want to look the best for my job interview to impress my prospective employer, but I can never get a suit to fit me properly buying off the rack."

The prospect is linking the relevance of looking good to the higher probability of being hired if they create a good impression.

Situation.

Captures the level of importance of the situation in which the product is used. Again using the scenario:

"I really want this job so I need to create a good first impression"

The situation and potential outcome are motivating a high level of importance of looking good in the prospects mind.

Product/Stimulus.

Captures the aspects of the product category or offer that could encourage or discourage involvement with the product.

"I need to get a made to measure suit made so that it fits me properly."

It would follow that given the opportunity and ability this prospect would be highly motivated to search out information on how he could obtain a made to measure suit.

Having a prospect motivated to search is only part of the buying process. Assuming that a mass customizer has been able to target and communicate with such a prospect, the information presented may then be processed by the prospect congruent with the model proposed by Zeithaml. (figure 8)

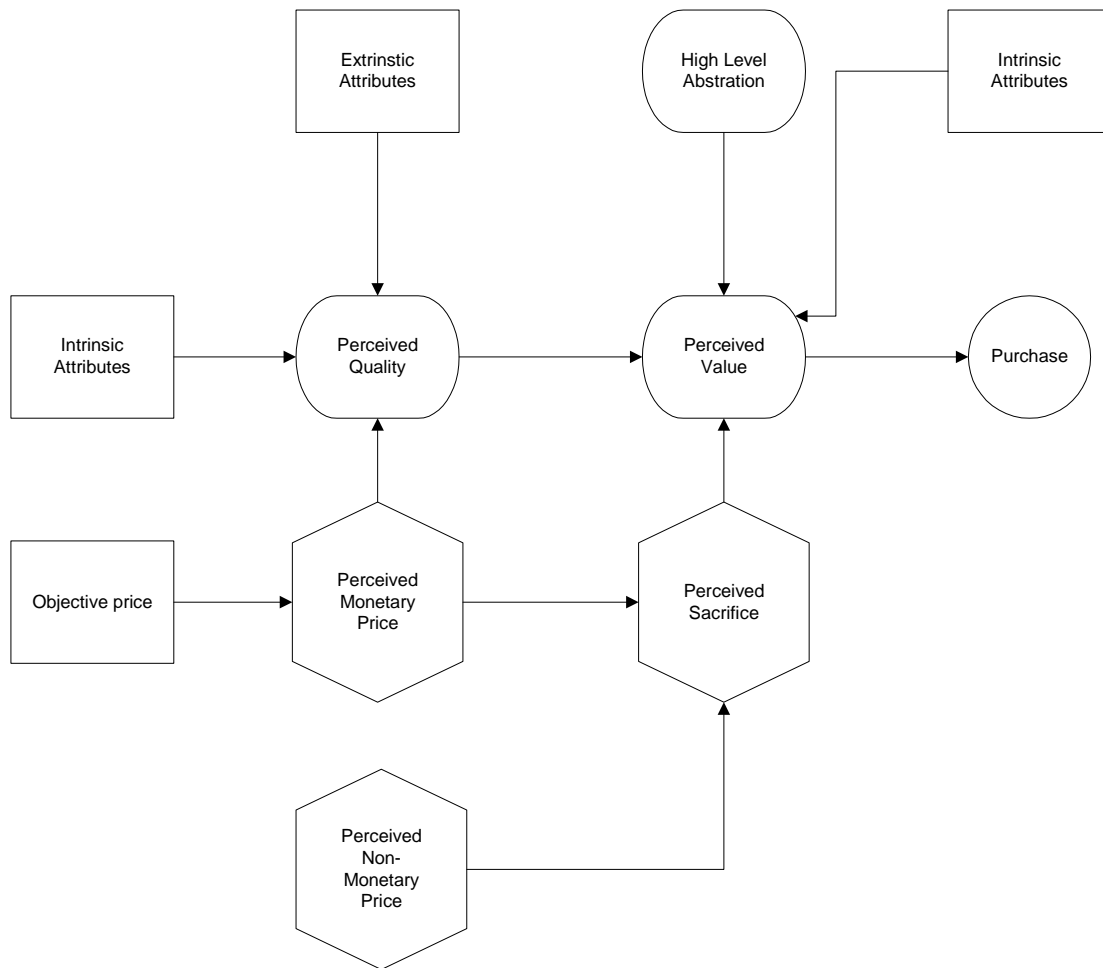


Figure 8. Means end model relating price quality and value. (Zeithaml V. 1988)

It would then follow, given the involvement of the clothing buyer, that both the perceived monetary and non-monetary aspects of such a purchase would assume a high degree of importance relative to the successful execution of a mass customization strategy.

Value is also related to the amount of risk and sacrifice that a consumer perceives in the purchase of a particular product. This risk can be both real and perceived. The level of risk changes depending on whether the purchase is for goods that are used or consumed publicly or privately, are low or high involvement and are hedonistic or utilitarian in nature.

Practically, have mass customizers been able to balance out price, quality and value relative to perceived risk, and communicate this relationship effectively to motivate a sale?

Competitive Advantage.

A competitive marketplace may have an effect on a mass customization strategy. The literature review highlighted that market turbulence may have some influence. To investigate this in a bit more depth a review of the five forces model (Porter 1985) in the context of mass customization may provide a little more insight.

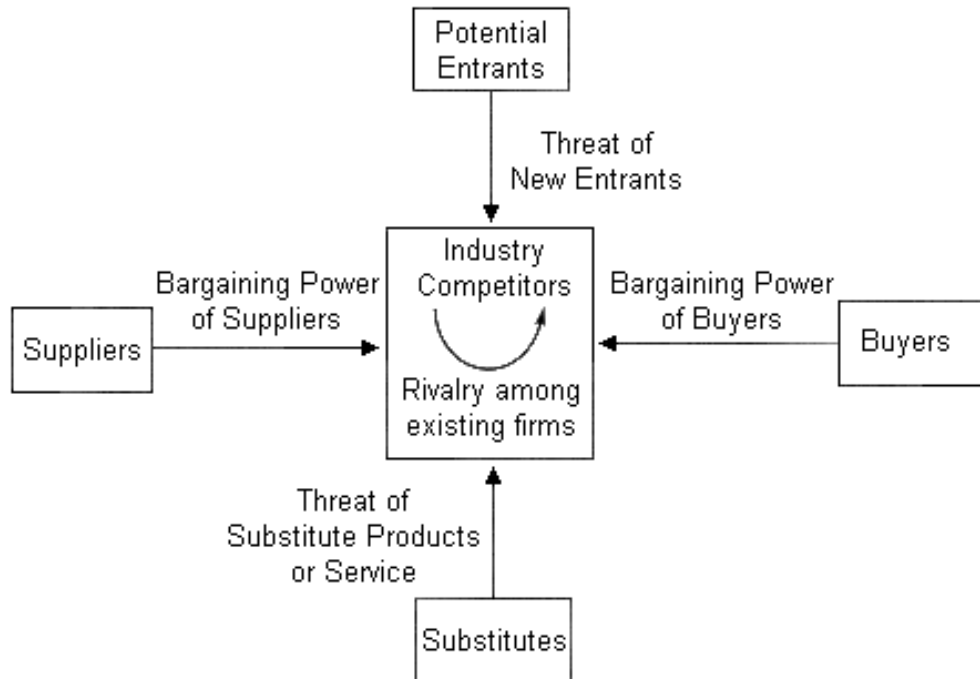


Figure 9 Five forces model (Porter 1985)

Of particular interest in the Porter model, within a mass customization context, is the threat of substitute products or services. The set of substitute products may vary in size dependant upon the size of the sacrifice gap endured by the customer. Using a practical example; the sacrifice gap caused by having a pair of jeans not fit comfortably may result in a larger set of competitive products than say the set of competitive products that result from a badly fitting business suit. The assumption here is that the customer has a larger sacrifice gap in the suit example than that of the jean example. Buyers who are risk averse are less likely to substitute than those prone to taking risk.

Substitution is one of the five competitive forces that play a role in determining the profitability of an industry. The threat of substitution places a ceiling on prices that can be obtained in a marketplace. Within a mass customization context, substitution can be initiated either from the mass customizer entering a market where there is a high degree of competition from other suppliers, or from the propensity of the customer to trade off the importance of the sacrifice gap that the mass customizer is trying to eliminate against other product/service variables. One would expect that in highly competitive, turbulent marketplaces that the probability of this eventuality is higher than in marketplaces that are less competitive.

Branding

We have learned from the literature review that generally the apparel buyer is more likely to be more highly involved in the product category and perceives a higher degree of risk associated with purchases. This risk is likely to be both physical (what if I buy something and it is not what I had anticipated) and emotional. (what if I buy something and it does not look good on me because of a poor fit) This circumstance is likely to be magnified within a mass customization context. Mass customizers are using the internet as a major tool in terms of product configuration and customer need elicitation. The internet does not offer a solution to aspects of apparel purchases such as fit, feel and smell, which have been highlighted as important decision criteria within an apparel transaction.

It would then follow that there is an increased focus on brand, brand values and brand promise to substitute for the lack of tactile cues such as fit, feel and smell.

Brand purchasing is more likely when the consumer is confident that he or she can obtain satisfactory performance. Familiarity relates to product related experiences that have been accumulated by the consumer through product use and marketing experiences. (Baltas 1997) It may follow that because the purchase of apparel using the internet is perceived as a "risky business" that there is a greater reliance on brands than there is in a wholly physical world. Brand familiarity and promise may be used as surrogates for other product attributes that cannot be fully determined in the transaction process.

It appears that there may be a natural "known brand" bias built into the mass customization apparel market. This concept revolves around risk. Laurent and Kapferers's (1985) conceptualisation of involvement included four components;

1. The products pleasure value.
2. The products symbolic value.
3. The products risk importance.
4. The probability of purchase error.

It could be argued that all of these components are present in the mass customization apparel purchase. If this is so there will be a built in bias in favour of a known brand selection as long as the known brand attributes are congruent with the attributes that the customer expects to obtain with the apparel purchase.

Mitchell (1999) proposed a model that outlined the importance of risk in a brand purchase decision.

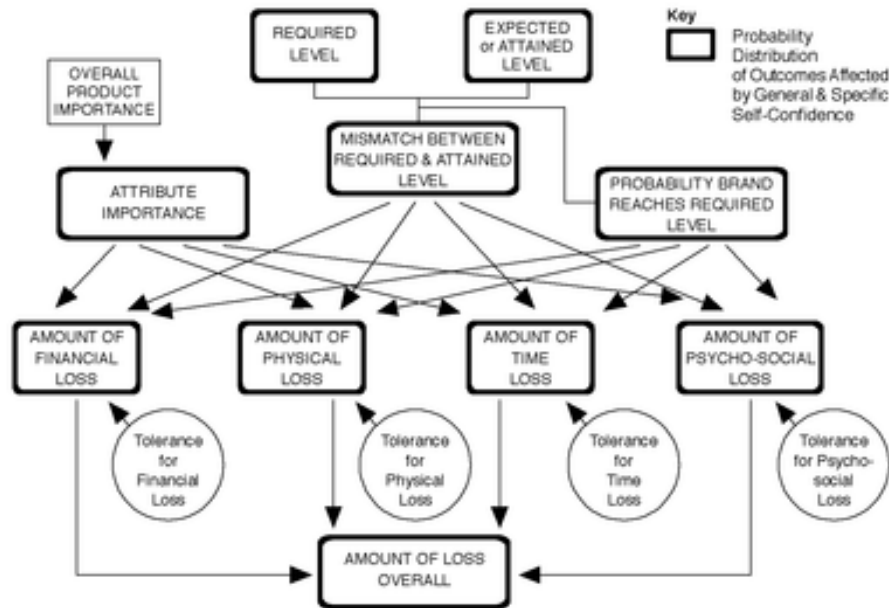


Figure 10. Risk processes in a brand choice decision (Mitchell 1999)

It may be that there are implications for apparel companies that wish to embark on a mass customization strategy that revolve around brand.

QUESTIONNAIRE DEVELOPMENT & APPLICATION METHODOLOGY.

The questionnaire developed for the primary research took into account the party that was taking part in the project. There were potentially three types of respondents. These were executives of;

1. Current mass customizing entities.
2. Suppliers to mass customizers.
3. Failed mass customizing entities.

The structure of the questionnaire was based around the mass customization inputs that were outlined in the current developments in mass customization section of this paper and was administered during July-August 2005. The literary review process distilled a number of "Questions for Consideration", these came about from either propositions made by various authors in academic papers or from "gaps" that were identified and warranted further research.

The questionnaire was segregated into nine sections.

- | | |
|-----------------|----------------|
| 1. Introduction | 5. Price |
| 2. Company | 6. Promotion |
| 3. Customer | 7. Process |
| 4. Product | 8. Marketplace |

9. General

Sections 2 – 8 corresponded to the inputs used in the model. Each of these sections contained questions that could be answered by the use of a check box system. In addition most questions contained a field for other comments, so that the respondents could qualify their answers if required.

Section 9 was a general comments section that was inserted to allow the participants to include anything of significance that they felt was not covered elsewhere in the survey.

A pilot (test) interview was conducted with one of the subjects to test the feasibility and appropriateness of the questionnaire prior to the main distribution. This process allowed for an estimate of the time taken to complete the questionnaire. This information was then conveyed to the respondents in the cover email so that the participants were always aware of the commitment of time required. ([See appendix 8](#)) The pilot was also used to test the questionnaire for, comprehensibility, and general good sense.

The results of the pilot indicated that there were few amendments required. One redundant question was removed and a small number of questions were rewritten to ensure that the flow of the document was logical for the intended participants.

A list of prospective interviewees was compiled using the methods outlined in the [Approach & Methodology](#) section. Thirteen prospects were isolated and were approached to participate in the research panel. Of these, eight agreed to participate. Those prospects that did not agree cited confidentiality and time constraints as the reason for non participation.

These eight participants were sent via email, a copy of the questionnaire and were advised that there was a probability that a follow up one to one telephone interview would take place. The intention of this interview was to further clarify any of the responses from the questionnaire, and to allow for interrogation of participants around issues of possible commonalities of critical success factors.

Seven of the eight candidates completed the questionnaire and made themselves available for a follow up interview. (On review of the questionnaire one subject decided that the information requested was of a confidential nature and declined to participate any further.)

RESULTS & DISCUSSION OF PRIMARY RESEARCH

The original purpose of this report was to identify critical success factors that may contribute to the success or failure of implementing a mass customization strategy. From the information garnered from these entities it was intended to formulate a checklist tool that could be used to assist companies considering embarking on a mass customization strategy. Integral to this process was the identification and communication with a number of successful and failed mass customization entities. It is the opinion of the author that insufficient “failed entities” were located or agreed to be interviewed. Therefore a solid base on which to draw definitive quantitative conclusions could not be established. (See

Limitations of Research) There was however valuable data and insight yielded by the interviews conducted with the companies that agreed to participate in the research. This information can be used to further our knowledge and refine the concept of mass customization by formulating a number of hypotheses that can form the subject for further research .

The summary of the questionnaire responses can be found in [appendix 11](#). This data can be utilized to refine further research required on the subject of mass customization by proposing a number of hypotheses.

The structure of the research findings have been presented in the following format to allow for interpretation and discussion.

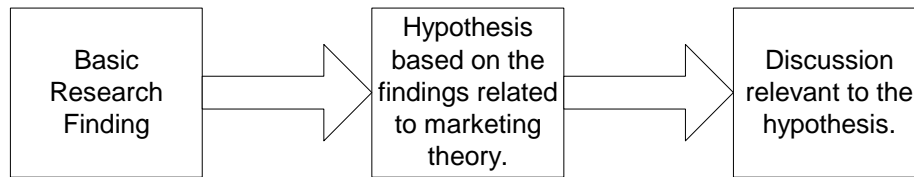


Figure 11

Findings

1. The majority of mass customization entities that were successful had a product that used an existing or an extension of an existing brand. The majority of entities that were not successful had launched new to the world brands. There were a minority of entities that had succeeded launching new to the world brands. These entities were in the high value, low fashion, and stable price market segments. There were also entities that used existing or extension brands that had failed, however the reason for that failure was linked more to a financial situation unrelated to their marketing efforts.

Hypothesis 1

Using an existing brand or line extension may increase probability of success of a mass customization strategy.

Discussion.

It could be that with existing brands a “consumer franchise” had been developed and that having already established some form of credentials an entity can focus more resources in making the target market more aware of the benefits of the mass customization program as opposed to developing the credentials and personality of a new brand.

In addition there seems to be a high degree of risk implicit in a mass customized apparel purchase. This risk is related to the degree of involvement that the customer has with the product category and the limitations imposed by the process required to elicit a customers needs and to translate them into product attributes for the mass customizer. This set of “limiting parameters” imposes a “known brand” bias on the transaction. Customers may use the attributes that they know about a brand as surrogate indicators for attributes that the mass

customization process fails to adequately present during the transactional process.

2. The entities that were more successful were producing garments/products that were fashion/formal as opposed to the less successful entities that were producing garments/products that were utility/casual in nature.

Hypothesis 2.

Limiting participation to a market that is high value and high involvement may increase the probability of success of a mass customization strategy.

Discussion

The higher the perceived financial, social or physical risk that is associated with the consumption of a product, the higher the degree of involvement. Products that are used in a formal/fashion nature are likely to have a higher degree of social/professional risk attached than products of a utility/casual nature. For example the social risk associated with a business suit that does not fit well is likely to be greater than the personal risk that a pair of jeans may be a little uncomfortable. This finding relates directly back to buyer behavior and perceived risk. It is congruent with the model put forward by Zeithaml (1988) (figure 8). As the degree of risk increases both from monetary and non-monetary perspective the size of the sacrifice gap grows. This sacrifice gap is a “situation antecedent” that will motivate the consumer to search out a solution along the lines of the model put forward by Schiffman et. al (figure 7). If an entity is positioned to close this sacrifice gap, and the prospect is aware of the entity a transaction should eschew.

3. Responses to customer questions 1 – 3 of the survey have provided a consistent theme.

All entities reported initially that they had targeted a market segment that was of a size that would support the costs of implementing a mass customization strategy. Further probing of the failed entities revealed that the amount of sacrifice that the customer within the targeted segment suffered was insufficient to motivate them to pay the price required to purchase a product to close the gap.

Hypothesis 3

Market segment size is influenced by the size of the sacrifice gap that the consumer endures and the premium required by the supplier to produce a product that closes that gap.

Discussion

Significant care should be taken in identifying and evaluating the target market segment for a mass customization strategy. It appears from the findings that this is a critical success factor in implementing a successful mass customization strategy. The target segment is not just those consumers who want the product benefits that are presented by a mass customized product, but those who are also willing to pay any premium required to produce such products. The research seems to support the premise that you can segment down to a level that is difficult to target and communicate with in an efficient way, given the level of costs associated with reaching the segment. Expressed in another way the costs involved in aggregating sufficient demand for the product, exceeded the profit generated by fulfilling such demand. So far from being not relevant to “markets of

one” segmentation seems to assume increased importance in a mass customization environment.

4. All of the successful entities reported that they operated within a market that had consistent pricing and considered themselves to be fulfilling a niche. While the failed entities were in a more commodity, competitive market where pressures from competitors inhibited price premiums.

Hypothesis 4

Mass customization strategies are more likely to be successful when implemented in marketplaces that are considered to be niche in nature and where competition is low.

Discussion.

All of the failed entities had participated in markets that were highly competitive and more commoditized than the successful entities. Aggression from companies that occupied the market segment was high. While it could be said that the mass customizer was providing a product that was significantly different from the non mass customizing company, what happened was that prices were lowered for the commodity product, thus increasing the gap between the non customized and the customized product. It is postulated that this gap in price became big enough to counter the initial sacrifice gap that the mass customization process filled. Had this competitive landscape evolved over time the mass customizer may have been able to counter with a reduced cost of doing business, however as the competitive response was almost immediate and initiated by multiple competitors intense and fatal cost pressures eschewed.

5. Customer questions 5 – 8 focused in on the stakeholder’s ability to identify and either service or satisfy customer need. Identification and articulation of customer need both by the customer and by the mass customizer was reported to be a critical success factor. To facilitate this communication the internet was the channel that all of the respondents used to assist with communication and articulation. However we have the phenomena where some entities were successful and some failed.

Hypothesis 5.

The target market for a mass customized apparel business needs to have access to, and be internet savvy. In addition once these criteria have been met a customer interface needs to be designed so that a customer can simply identify and communicate their needs to the mass customizer. The need to provide a simple articulation interface increases with the increase in the perceived risk of the purchase to the consumer.

Discussion.

The failed entities had a broad similarity in the markets that they targeted with the successful entities in terms of internet access and competence. Where the differences were evident were in the complexity of the customer interface. The failed entities number of product customizable components was significantly

more than the successful entities. Therefore there was a noticeable difference in the complexity of the customer interface. This can be related back to the perceived risk model presented by Mitchell (1999) An increase in the number of product attributes that can be varied will result in a higher perceived risk in the overall transaction.

In addition the failed entities generally dealt in products that were considered subject to higher purchase involvement and higher purchase risk. Where the risk and involvement were of similar levels across successful and failed entities, the successful entity had developed a customer interface that used a combination of online and face to face elicitation. This may have mitigated some of the perceived risk in the customers mind. There also appears to be scope in increasing the relevance of other risk mitigating tools such as warranties and guarantees. The successful mass customizers had taken steps to bolster these components of their customer offer over above the norm. The failed entities either had standard or in fact sub-standard product and transaction warranties and guarantees.

Due to the small size of the sample, a number of the other mass customization “aspects for consideration” could not be categorized. They appeared to be not critical to the companies that participated in the survey, or no conclusion could be reached using the data presented. Further research will be needed to quantifiable rule these either in or out as critical success factors. The following discussion is based on interpretation of the data as it was presented.

Supply Chain

Aspects of the supply chain such as vertical integration, proximity to stakeholders, and legacy systems did not have either a positive or negative effect on the companies that participated in the survey in terms of ultimate success or failure.

Financial Stability

Whilst not a marketing issue, the degree of financial stability was a critical factor to the success of a mass customization strategy. All of the failed entities whether they were new to the world companies or divisions of existing apparel companies encounter troubles accessing funds or resources to continue operations.

LIMITATIONS OF RESEARCH

Locating failed entities was considerably more difficult than originally anticipated. Once the management of a failed entity was located there was a reluctance to participate in the research project. Due to this phenomenon there was a reliance on equipment and service providers who had had exposure to a failed entity to act as a proxy for the failed entities management. There is a danger in this approach that the true reasons for failure may be somewhat masked.

However an unexpected circumstance was that there were some interviewees on the panel that had held positions in entities that had failed prior to their current positions. Combining responses relating to failed entities from them with those of the equipment and service providers added a degree of balance to the responses.

The research method used can be likened to the “Delphi” approach, where as few as five respondents, are necessary to gain an acceptable degree of accuracy. It would however be prudent not to use this data to draw quantitative conclusions. A more conservative approach would be to use the data in a qualitative manner to highlight areas worthy of further structured research.

The questionnaire contained a number of questions that related to the financial stability and viability of the entity. It was necessary to include these questions to try and ascertain whether the reasons for failure of an entity were primarily due to a failed marketing approach or to some other factor that may have related to the financing of the entity. Once this was established no attempt has been made to determine the reasoning behind failure, other than those reasons that can be linked back to marketing performance.

RECOMMENDATIONS AND IMPLICATIONS FOR MANAGEMENT.

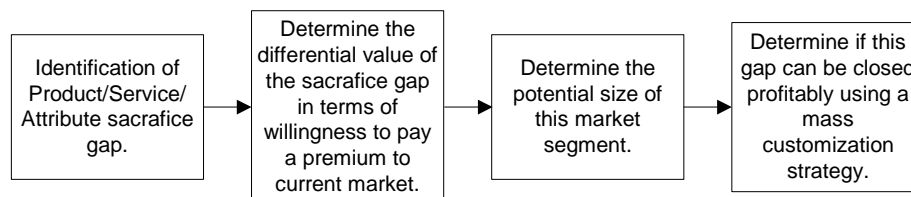
The observation that the concept of mass customization promised significant potential within the apparel industry, but for some unexplained reason had not been seen to deliver on this promise, was the starting point for this research.

In the process of developing an understanding of the inputs and variables that might affect outcomes of the process ([Appendix 10](#)) some of the fundamental tenets of marketing were called into question. Specifically the concepts of segmentation and targeting, and whether our traditional understandings of how these marketing tools worked, could be applied to “markets of one”.

The research indicated that a critical success factor in the successful adoption of a mass customization strategy is the identification of a relevant “sacrifice gap” within the product universe that you operate.

All of the successful mass customizers were operating in markets where a significant sacrifice gap was evident and they had provided a process that closed this gap at a premium that was acceptable to the customer and to the company. In contrast the failed entities, while having identified a sacrifice gap, were unable to close that gap to either the satisfaction of the customer and/or the company.

Adoption of the following four step process will help to test the viability of using mass customization approach to your market.



So, far from the popular belief that mass customization is dealing in “markets of one” a far more traditional marketing landscape emerged. Rather than a heterogenous market that is based on product attributes, process, or other criteria, segmentation on “propensity to close a nominated sacrifice gap” was the segmentation required to identify a viable market segment.

A degree of rigour is required in this first stage of evaluation as this forms the foundation of all of the subsequent tests. Once this market segment has been identified the traditional marketing processes of testing viability can be performed. Namely is the segment:

1. Measurable.
2. Substantial.
3. Accessible.
4. Differential.
5. Actionable.
6. Sustainable.

All of the failed mass customization entities that were part of the research had faltered on this foundation process. They had either overestimated the segments willingness to pay, their company’s ability to close the gap in a profitable way or underestimated the competitions ability to close the sacrifice gap and therefore reduce the market size to a level that was not sufficiently substantial.

Highly competitive, commoditized markets seem not to be solid ground on which to build a mass customization marketing strategy according to this research. The successful companies were either operating in a product/attribute niche or where they were in a more competitive marketplace were operating as brands that had established a significant heritage with the consumer. Those companies that had failed were producing products that were competing in markets where prices were changing on a more frequent basis than the successful companies and were producing products that did not have a long brand association with the particular market.

Apparel consumers are highly involved in the purchasing decision. There is a significant degree of perceived risk, both financially and emotionally in the purchase of clothing. A mass customization process has the potential to reduce some risks while increasing others during the buying process. eg.

“I am likely to look better in a tailor made suit than I am in an off the rack suit, however I am going to pay more for this garment from a company I do not know well and what if I make a mistake. “

The mitigation and balancing of these risks needs to be addressed in any mass customization process so as to lead the customer to make a positive decision.

The implications for management of these findings are that not only may it be better to target niche markets, but if the company does not have brands that are strong in the particular market, it may be more advantageous to act as a “service provider” or licence a strong brand name from within the industry. The process of facilitating the mass customized sale should also incorporate tools such as satisfaction guarantees, testimonials and endorsements that help mitigate some of the perceived risks inherent in such a transaction.

Mass customization is not a process of giving the customer an unending choice of variables from which to choose to customize a product for their specific need. Even if it is technically possible to produce this within the confines of the sacrifice gap, consideration needs to be given to the consumer's ability to articulate their particular need and its importance within the holistic transaction. This can be thought of as the "paradox of choice". Value criteria can be a product of many variables, the mass customizers skill will be to isolate those variables that matter to the customer most, are able to be satisfied within the sacrifice gap and enhance the companies differentiation within the marketplace.

Once these value criteria have been identified and isolated, the challenge becomes developing an interface that enables the customer to clearly articulate their needs and to translate those into attributes that can be incorporated into the final product.

In summary our research has supported the following:

1. Segmentation and targeting in a mass customization environment is equally as important and a mass production environment if a successful strategy is to be implemented. It is considered a critical success factor.
2. A successful segmentation within a mass customization environment is likely to be along a "sacrifice gap" criteria rather than traditional mass production segmentation criteria.
3. Niche markets may be more likely to present fertile ground for a mass customization strategy than highly commoditized and competitive markets.
4. Mitigation and balancing of risk, both perceived and actual before, during and after the buying process needs to be factored into any mass customization strategy.
5. Value criteria, once identified, will need an interface that the customer can easily use to articulate their needs and that the company can use to translate these needs into product attributes that can be varied in the mass customization process.

SCOPE FOR FURTHER RESEARCH

The original aim of this research project was to develop a checklist that companies considering a mass customization strategy could use to increase the probability of a successful implementation. This was to be achieved by a deductive compare and contrast procedure using successful mass customizers and failed mass customizers as a benchmark.

While this process was sound in theory, in practice obtaining a relevant number of such companies who would agree to participate in the research proved to be a considerable challenge. This was particularly so for companies that had failed. While management of these companies were located, there was a general reluctance to participate in the research program.

Consequently other, less direct methods of establishing the reasons for failure of these companies had to be employed. This consisted largely of including service providers and consultants in the research that had acted for the failed companies. As with any research moving one degree away from the source of data lessens the ability to make sound quantitative conclusions. Interpretations of source data from secondary sources are open to various biases that cannot be adequately mitigated.

For these reasons this report has not sort to make any definitive judgements about the critical success factors involved in a mass customization strategy, or in fact developed a checklist that can be used to try and increase the probability of a successful implementation based on the research gathered.

The information gathered for this report and the research conducted, can however add to the body of academic work on mass customization.

There is significant scope for further research into the concept of “sacrifice gaps” and their relationship to success or failure of a mass customization strategy. The literature review and the response to the questionnaire and subsequent interviews indicate that sacrifice gaps could be at the very heart of determining whether a mass customization strategy can be successfully implemented.

The hypothesis developed as a result of the primary research conducted for this report are also worthy of further research.

APPENDIX

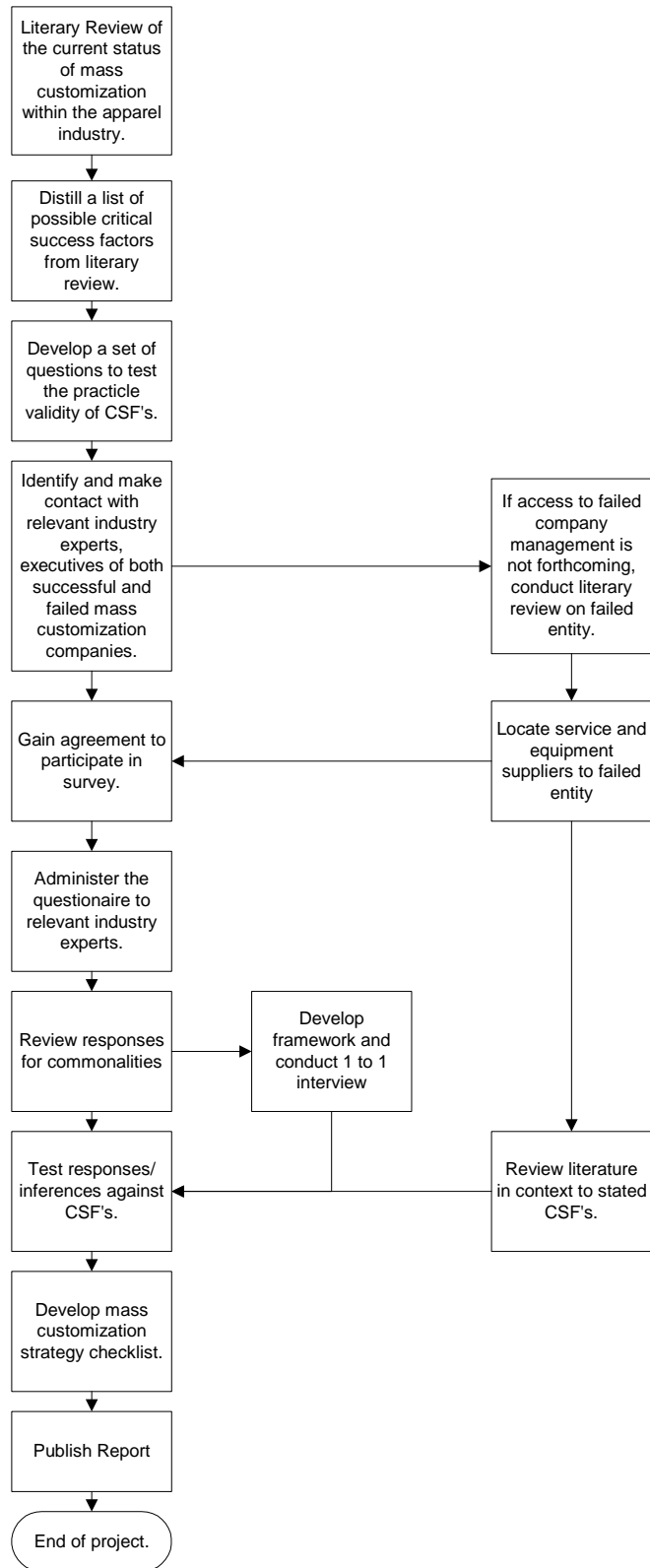
1. CASUALTIES OF THE MASS CUSTOMIZATION PATH.

1. Levi Strauss Custom Fit program (Critically wounded)
2. IC3D Custom Clothing (Dead)
3. Custom Foot (Dead)
4. The Custom Shop (Dead and Reincarnated)
5. Reflect.com (Dead & folded into other P&G cosmetics brands)

2. SURVIVORS STILL ON THE ROAD.

1. Dress2kill
2. Brooks Bros
3. Possen Made to Fit Fashion
4. Bivolino.com
5. Lands End

3. CORPORATE PROJECT PROCESS MAP.



4. ETHICS EXPLANATORY STATEMENT.

MONASH University



Title: Practical Challenges with a Mass Customization Strategy

This information sheet is for you to keep.

My name is Alex Cochran and I am conducting a research project with Steven Worthington a supervisor in the Department of Marketing towards a Masters of Marketing at Monash University. This means that I will be writing a thesis.

I have come across your company in my initial research into mass customization in the apparel industry. I believe that you may be in a position to help me with further research on mass customization that I wish to undertake.

I am doing a thesis based around the “critical success factors” of mass customization within the apparel industry.

As part of my research I would like to contact people who have been involved in mass customization ventures (particularly in the apparel industry) both successful and failed to measure against the CSF’s that I distil from academic literature.

I hope that the outcomes of my research will benefit companies that are considering embarking upon a mass customization strategy, by presenting them with a checklist of critical success factors to contemplate prior to commitment.

The study involves completing a questionnaire via email then a follow up telephone interview.

I anticipate the questionnaire being made available in May - June 2005 and follow up interviews happening in July – August 2005. The questionnaire should take less than an hour to complete and the follow up interview should take 30 minutes. The thesis is due to be completed in October 2005.

“Being in this study is completely voluntary - you are under no obligation to consent to participation and you may withdraw at any stage, or avoid answering questions which are felt to be too personal or intrusive”.

Confidentiality/results

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. To maintain confidentiality any reference to participants will be encoded in copies that are circulated outside of the researcher and the University.

Storage of data

Storage of the data collected will adhere to the University regulations and kept on University premises in a locked cupboard/filing cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Use of data for other purposes

If the data collected is used for further research participants identities will be encoded to avoid disclosure.

Queries/results?

If you have any queries or would like to be informed of the aggregate research finding, please contact Alex Cochran on + 61 419 019 469 or email acoc8424@bigpond.net.au. The findings are accessible for 12 months from October 2005.

What if I have a complaint?

Should you have any complaint concerning the manner in which this research **<insert your project number>** is conducted, please do not hesitate to contact the Monash University Standing Committee on Ethics in Research Involving Humans at the following address:

The Secretary
The Standing Committee on Ethics in Research Involving Humans (SCERH)
Building 3d
Research Grants & Ethics Branch
Monash University VIC 3800
Tel: +61 3 9905 2052 Fax: +61 3 9905 1420 Email: scerh@adm.monash.edu.au

Thank you.

Alex Cochran

5. ETHICS CONSENT FORM.

Consent Form - Stakeholders in the Apparel Industry

Title: Practical Challenges with a Mass Customization Strategy

NOTE: This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that I am willing to:

I agree to be interviewed by the researcher Yes No

I agree to make myself available for a further interview if required Yes No

I agree to complete a questionnaire asking me about mass customization success factors.

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

I understand that any data that the researcher extracts from the interview questionnaire / survey for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research.

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

I understand that data from the interview and questionnaire will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a 5 year period unless I consent to it being used in future research.

Participant's name

Signature

Date

6. CUSTOMER VALUE CRITERIA TEST.*(Squire et al 2004)*

VALUE-ADDING CRITERIA			Importance						
			1	2	3	4	5	6	7
1	Price	We value low price							
2	Quality	We value high quality							
3	Delivery								
3a		We value on-time delivery							
3b		We value fast delivery							
3c		We value flexible delivery times							
3d		Other time criteria?							
4	Technical attributes								
4a		We value optional extras							
4b		We value durable/reliable products							
4c		Other technical criteria?							
5	Product variety								
5a		We value an extensive product range							
5b		Other variety criteria?							
6	New products								
6a		We value new products							
6b		Other new product criteria?							
7	Flexible volume								
7a		We value the ability to order any quantity of a product							
7b		Other volume criteria?							
8	Design								
8a		We value a low-cost designed product							
8b		We value fast designs							
8c		We value an innovative design							
8d		Other design criteria?							
9	Customization								
9a		We value input before product purchase							
9b		Other customization criteria?							
10	Services								
10a		We value after-sales technical support							
10b		We value product training							
10c		Other service criteria?							
11	Brand name								
11a		We value the brand name associated with the product							

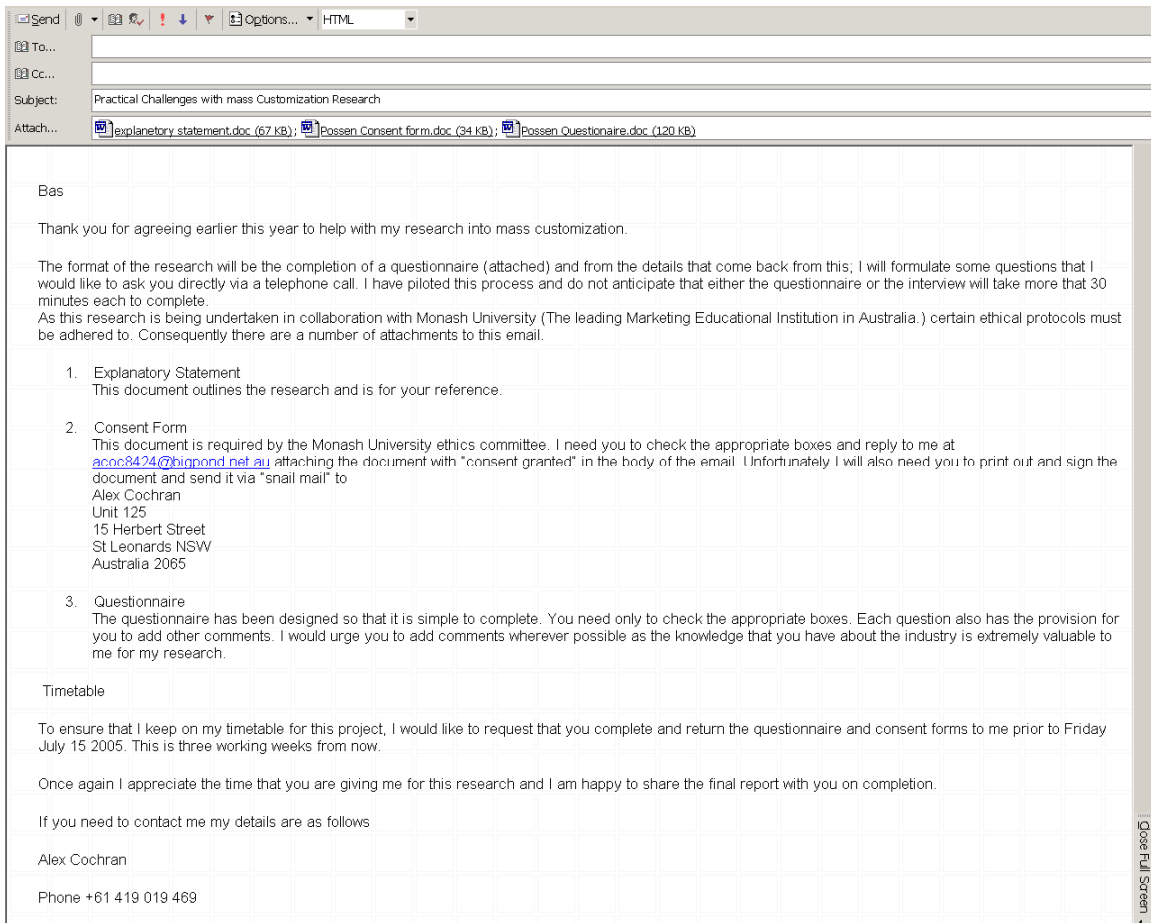
VALUE-ADDING CRITERIA			Satisfaction						
			1	2	3	4	5	6	7
1	Price	We are satisfied with prices							
2	Quality	We are satisfied with quality levels							
3	Delivery								
3a		We are satisfied with on-time delivery							
3b		We are satisfied with the speed of deliveries							
3c		We are satisfied with the flexibility of delivery times							
3d		Other time criteria?							
4	Technical attributes								
4a		We are satisfied with the range of optional extras							
4b		We are satisfied with the durability/reliability of products							
4c		Other technical criteria?							
5	Product variety	We are satisfied with the variety in the product range							
5a									
5b		Other variety criteria?							
6	New products								
6a		We are satisfied with the number of new products							
6b		Other new product criteria?							
7	Flexible volume	We are satisfied with the ability to order any quantity of a product							
7a									
7b		Other volume criteria?							
8	Design								
8a		We are satisfied with the cost of designed products							
8b		We are satisfied with the speed of designs							
8c		We are satisfied with the innovation in design							
8d		Other design criteria?							
9	Customization								
9a		We are satisfied with the degree of customer input							
9b		Other customization criteria?							
10	Services								
10a		We are satisfied with after-sales technical support							
10b		We are satisfied with product training							
10c		Other service criteria?							
11	Brand name								
11a		We are satisfied with the brand name associated with the product							

Type of customization and specifications		Importance						
		1	2	3	4	5	6	7
1	DISTRIBUTION CUSTOMIZATION							
1a	Do you value individualized delivery?							
1b	Do you value individualized packaging?							
1c	Other?							
2	ASSEMBLY CUSTOMIZATION							
2a	Do you value a number of customized optional extras?							
2b	Pre-defined size options ...							
2c	Pre-defined colour options ...							
2d	Pre-defined technical options ...							
2e	Other?							
3	FABRICATION CUSTOMIZATION							
3a	Do you value a product that has a pre-defined design but can also be tailored to your needs?							
3b	Any size ...							
3c	Any colour ...							
3d	Any technical option (that does not impede the design) ...							
3e	Other?							
4	CUSTOMIZED DESIGN							
4a	Do you value a unique product design?							
4b	Other?							

Type of customization and specifications	Satisfaction							
	N/A	1	2	3	4	5	6	7
1 DISTRIBUTION CUSTOMIZATION								
1a We are satisfied with individualized delivery								
1b We are satisfied with individualized packaging								
1c Other?								
2 ASSEMBLY CUSTOMIZATION								
2a We are satisfied with the number of customized optional extras								
2b Pre-defined size options ...								
2c Pre-defined colour options...								
2d Pre-defined technical options ...								
2e Other?								
3 FABRICATION CUSTOMIZATION								
3a We are satisfied with products that can be tailored to our needs								
3b Any size ...								
3c Any colour ...								
3d Any technical option (that does not impede the design) ...								
3e Other ...								
4 CUSTOMIZED DESIGN								
4a We are satisfied with unique product designs								
4b Other?								

8. EMAIL

Copy of email sent to participants in the survey.



9. Questionnaire

Thank you for agreeing to assist with my thesis “Practical Challenges of a Mass Customization strategy.”

Purpose of the Research

The research is being undertaken to advance the academic understanding of critical success factors involved in successfully implementing a mass customization strategy.

Outcomes of the Research

The outcomes of the research will be a checklist that companies can use prior to embarking upon a mass customization strategy which may enhance the probability of success. As a participant in the research you will receive a full copy of the report (identities masked) and are cleared to use the information in any way you believe that it may enhance your organization

Confidentiality

All information gained in this research will be treated as confidential and no individual company will be identified or disclosed in any report. The research is conducted under the ethical guidelines of Monash University Victoria Australia.

Purpose of the questionnaire

This questionnaire will be used as primary data for the research and to frame the structure of a follow up one on one interview.

Structure of the questionnaire

The questionnaire is largely multiple choices in nature and only requires you to click on the check boxes. Most questions have a field for further comments. This field is not limited in any way and as many comments can be entered to clarify and embellish the answers checked. I would encourage you to add comments wherever possible to enhance my understanding of your response.

Completing the Questionnaire

Companies Providing Mass Customized Apparel to the End User.

The questions should be answered from the point of view of your company.

Companies partnering with or providing services or equipment to Mass Customizers

The questions should be answered on the basis of your understanding about one of your clients. One of the challenges of this research is to get some insight into mass customization strategies that were not successful to contrast with those that are successful. If you have exposure to a company that was not successful in its strategy base your answers on that entity.

Deadlines

To ensure that I stay on track with my research I would respectfully request that you complete and return the email to me by week ending Friday June 24 2005.

Instructions for processing this questionnaire.

1. Please save this questionnaire to your local hard drive.

2. During completion remember to save the document so responses are not lost.
3. On completion save the document.
4. Email the completed document to acoc8424@bigpond.net.au
Either attach the document to an email message or when the document is open process as follows:
File→Send to→Mail Recipient (As attachment) → This will open up a separate email window with the document already attached→copy the address above into the To field→click on send.

Once again thank you for agreeing to participate in this research project.

Alex Cochran

Practical Challenges with a Mass Customization Strategy Questionnaire.

Company

Thinking about your own company (if a mass customizer) or a company that you have had direct exposure to in the apparel mass customization industry, please complete the following:

1. The company is:
 - operational
 - failed.

 2. Describe the formation of the company or mass customization business unit.
 - New to the world company
 - Spin off from existing apparel based company
 - Other comments

 3. The company could be best described as a:
 - Catalogue company.
Retailers that derive the majority of their revenues from catalogue sales.
 - Brick and Mortar retailer.
Retailers that derive the majority of their revenues from physical stores.
 - Pure manufacturer.
Manufacturers that sell products only through stores owned by others.
 - Hybrid manufacturer.
Manufacturers that sell products both in their own stores as well as stores owned by others.
 - Pure play firms.
Retailers that sell only on-line.
 - Other:

 4. Thinking about the company's industry status and/or influence would you describe it as:
 - Influential
 - Insignificant
 - Other comments

 5. How would you describe the company culture?
 - Open at all levels to new ideas.
 - Conservative and calculating in its progress.
 - Has the capacity to deal with organizational change.
- Is aggressive or passive in pursuit of competitive advantage.
Other comments
6. At the time of the mass customization implementation the company is/was financially:

- Strong.
 - Weak.
 - Do not know.
- Other comments

7. The company's supply chain can be described as:

- Vertically integrated.
 - Significantly outsourced to third party partners.
 - Do not know.
- Other comments

8. If the company was in the apparel business prior to the establishment of the mass customization business unit, would you describe the modifications of systems and equipment to service mass customization as:

- Not applicable.
 - Significant.
 - Minor.
- Other comments

9. Communications between functional areas of the company can be described as:

- Clearly understood and operational.
 - Could be improved.
 - Not operational.
- Other comments

10. Communications with other stakeholders in the value chain, such as suppliers, retailers and service providers, can be described as:

- Clearly understood and operational.
 - Could be improved.
 - Not operational.
- Other comments

11. The company had a plan for implementation of a mass customization strategy and knew the financial implications and was able to fund these changes.

- True
 - Mostly true
 - Mostly false
 - False
- Other comments

Customer

Thinking about your target market segment (if a mass customizer) or the target market of the company outlined in section one classify questions 1 - 4 as true, mostly true, mostly false or false:

1. "The company has/had a well defined target market segment that is of a size that will support the costs of implementing a mass customization program."
 True
 Mostly true
 Mostly false
 False
Other comments

2. In terms of value this market segment is:
 Growing
 Shrinking
 Remaining stable.

3. "This target segment, up until the mass customization program introduced by the company, had to significantly sacrifice some aspect of satisfaction (this could include, fit, convenience, selection width) during the purchase process."
 True
 Mostly true
 Mostly false
 False
Other comments

4. "The target customers are/were willing to pay more to reduce the sacrifice gap outlined in question 3."
 True
 Mostly true
 Mostly false
 False
Other comments

5. Customers sometimes find it difficult or impossible to articulate a need that relates to a product attribute. Is/was the customer able to clearly articulate their needs to the company so they could be incorporated into the product specification?
 Yes
 No
Other comments

6. How was this need articulated?
 Online configurators.
 Mail order form.
 In store kiosk.
 In store sales assisted transaction.
Other comments

7. Was the articulation of this need congruent with the target markets expertise?

Yes

No

Other comments

8. How did the company communicate with its customer base?

Internet

Via a third party such as a partner's sales associate.

Direct mail.

Mass media.

Other comments

Product

1. The product presented under the mass customization program carried a brand that was:

new to the world

an extension of an existing apparel brand

familiar to the consumer.

Other comments

2. Thinking about the product that the company is/was using for the mass customization strategy:

Would you consider the product was more applicable to:

Men

Women

Unisex

Is the product:

High value

Low value

Is the product:

Fashionable

Utility

Other comments

3. Mass customization relies on a detailed understanding of what product or "buying process" attributes a customer values.

The company:

had significant knowledge gained through experience about what product/buying process attributes the target customers valued

undertook research to determine what product/buying process attributes the target customers valued.

Other comments

4. "The company has been able to provide a significant advance in "wanted product or buying process features" at a price that the target customer is willing to pay."

- True
 - Mostly true
 - Mostly false
 - False
- Other comments

5. "The company was/has been able to develop a product that offers customization in aspects of the product or buying process that are competitive with other products in the marketplace."

- True
 - Mostly true
 - Mostly false
 - False
- Other comments

6. The product developed for the mass customization program can be best described as:

- a purchase where the buyer has a lot at stake either financially or socially.
 - a purchase where the buyer has little at stake financially or socially.
- Other comments

Price

1. The company's mass customization product was priced:

- Below the competitors
 - Equal to the competitors
 - 10-30% above the competitors
 - > 30% above the competitors
 - Do not know
- Other comments

2. Is/was the company able to generate sufficient volume at the nominated price to make the mass customization program profitable?

Other comments

In your opinion was this due to:

- the customers' unwillingness to pay the premium or
- that the cost of providing the mass customization exceeded the customer price.

Other comments

Promotion

1. The product that was the subject of the mass customization program:
 - carried a brand that was the same as the company's other products
 - carried a brand that was unique to the programOther comments

2. Within the apparel industry the senses of touch and incidence of fit are integral to the buying process. How did/does the company overcome any of shortcomings in this respect in the buying process?
 - Provided extensive money back guarantees
 - Gave access to fabric samples
 - Offered extensive fractional sizes
 - Offered made to measure with either assisted measurement processes or detailed self measurement instructions.Other comments

3. Did/does the company have a separate marketing communication strategy for the mass customization program?
 - Yes
 - NoOther comments

4. Is there a separate promotional budget for the mass customization program?
 - Yes
 - NoOther comments

Process

1. The partners in the value chain (raw material suppliers, manufacturers, service providers and logistics providers) are geographically:
 - distant from each other
 - close to each other
 - distant from the customer
 - close to the customerOther comments

2. Does the answer to question 1 increase the lead time between the customer specification and complete fulfilment?
 - Yes
 - NoIf yes, is/was the customer willing to accept this lead time extension?
 - Yes
 - NoOther comments

3. Was significant process change required for the company to embark upon a mass customization product strategy?
- Yes
 No
Other comments
4. If significant process change was required did this lead to significantly increased product costs, customer effort in product specifications or extended lead times for product fulfillment.
- Yes
 No
 Do not know
Other comments

Marketplace

1. Do all of the stakeholders in the value chain have access to and use electronic communication to transfer information about customer orders through the system?
- Yes.
 No.
 Do not know
2. Setting aside the mass customization process as a unique proposition for the company how would you describe the marketplace for your product?
- Highly competitive
 Competitive
 Niche
Other comments
3. Lifecycles for your product are:
- less than one season (summer, winter, spring fall)
 change on a seasonal basis
 annual
Other comments
4. Prices for your product are
- changing frequently depending on competitors and seasons
 relatively stable.
5. How did the competitors in your product category react to your program?
- Initial aggressive response
 Initial passive response
Other comments

6. Was your company prepared for this response?

Yes

No

Do not know

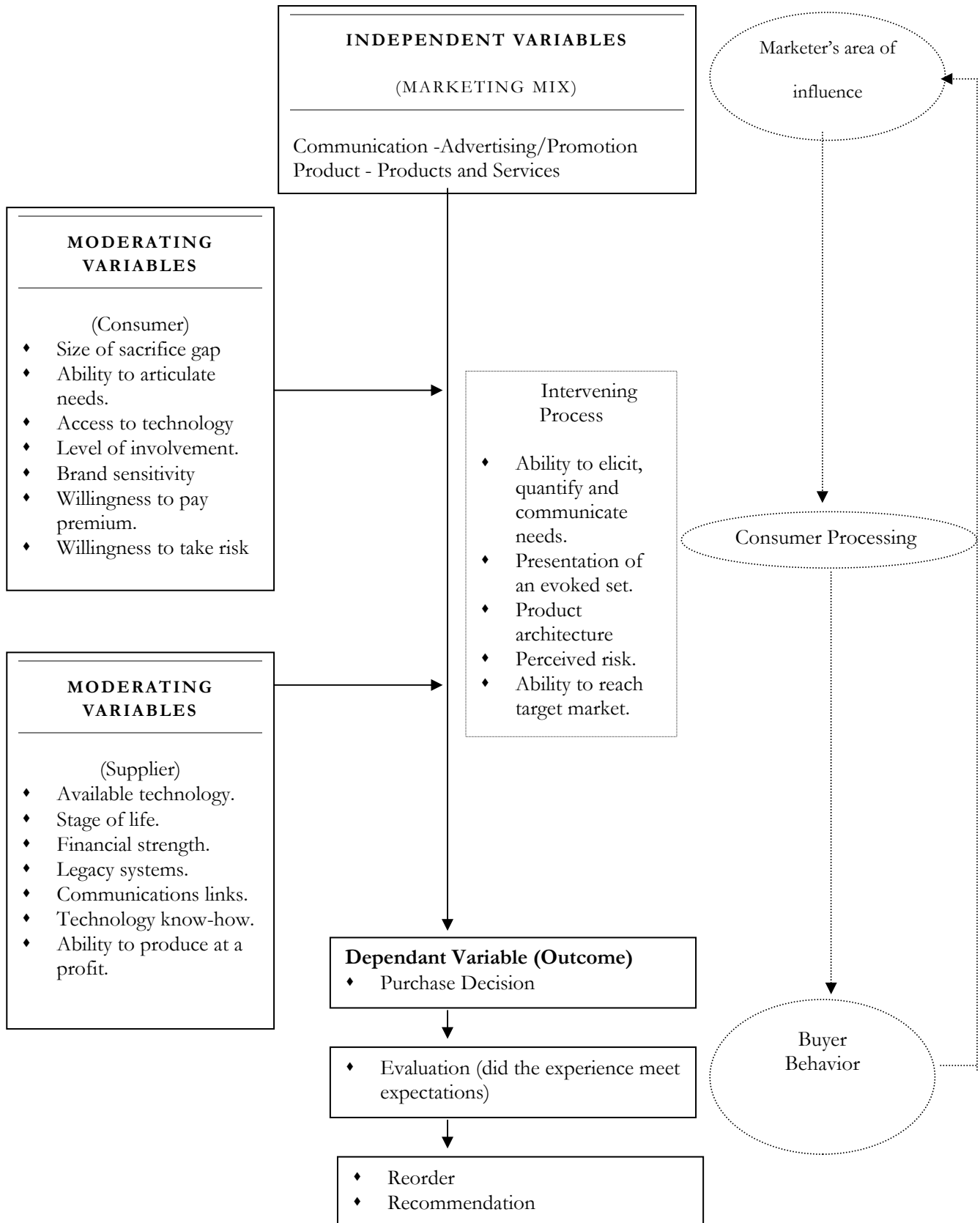
Other comments

General Comments

The space below has been left for you to add additional comments about the company and mass customization process.

Other comments

10. MARKETING MODEL – MASS CUSTOMIZATION - APPAREL



11. QUESTIONNAIRE RESULTS SUMMARY

Practical Challenges with a Mass Customization Strategy Questionnaire.

Company

Thinking about your own company (if a mass customizer) or a company that you have had direct exposure to in the apparel mass customization industry, please complete the following:

1. The company is:

- operational
 failed.

75% of the respondents were still operational and 25% failed.

2. Describe the formation of the company or mass customization business unit.

- New to the world company
 Spin off from existing apparel based company
Other comments

All of the companies were new to the world, but often worked with existing apparel companies in providing them with mass customization skills and processes.

3. The company could be best described as a:

- Catalogue company.
Retailers that derive the majority of their revenues from catalogue sales.
 Brick and Mortar retailer.
Retailers that derive the majority of their revenues from physical stores.
 Pure manufacturer.
Manufacturers that sell products only through stores owned by others.
 Hybrid manufacturer.
Manufacturers that sell products both in their own stores as well as stores owned by others.
 Pure play firms.
Retailers that sell only on-line.

Other:

All of the companies were pure plays that only sold on line. However as with question 2 some worked for bricks and mortar stores or existing brands that were sold through other channels of distribution.

4. Thinking about the company's industry status and/or influence would you describe it as:

- Influential
 Insignificant
Other comments

There was a 50/50 response to this question. The response was related to whether the company was a facilitator or whether it was the primary face to the customer.

5. How would you describe the company culture?
- Open at all levels to new ideas.
 - Conservative and calculating in its progress.
 - Has the capacity to deal with organizational change.

All respondents answered this question in the affirmative that management was open at all levels to new ideas.

- Is aggressive or passive in pursuit of competitive advantage.
Other comments

Likewise all responses came back that they were seeking aggressive competitive advantage.

6. At the time of the mass customization implementation the company is/was financially:
- Strong.
 - Weak.
 - Do not know.
- Other comments

The companies that reported that they were financially strong at implementation were the survivors and those that were weak had either failed or had curtailed their mass customization activities.

7. The company's supply chain can be described as:
- Vertically integrated.
 - Significantly outsourced to third party partners.
 - Do not know.
- Other comments

75% of the respondents had significantly outsourced their operations. The respondents that were vertically integrated did not correspond to either the successful or failed entities.

8. If the company was in the apparel business prior to the establishment of the mass customization business unit, would you describe the modifications of systems and equipment to service mass customization as:
- Not applicable.
 - Significant.
 - Minor.
- Other comments

As most of the respondents were new to the world companies the answers to this question were 75% not applicable and therefore no conclusions can be made.

9. Communications between functional areas of the company can be described as:
- Clearly understood and operational.
 - Could be improved.
 - Not operational.
- Other comments

All respondents reported that communications were good between all levels of the management.

10. Communications with other stakeholders in the value chain, such as suppliers, retailers and service providers, can be described as:
- Clearly understood and operational.
 - Could be improved.
 - Not operational.
- Other comments.

The response here was consistent with question 9, with all companies reporting that communications were good.

11. The company had a plan for implementation of a mass customization strategy and knew the financial implications and was able to funds these changes.
- True
 - Mostly true
 - Mostly false
 - False
- Other comments

Predictably there was significant divergence in the response to this question based on whether the company was successful or had failed or wound back the mass customization program. The follow up interviews revealed that the failed entities had either underestimated the resources required to take the project to fulfillment or financial pressures bought to bear from the wider organization had impacted the mass customization program.

Customer

Thinking about your target market segment (if a mass customizer) or the target market of the company outlined in section one classify questions 1 - 4 as true, mostly true, mostly false or false:

9. "The company has/had a well defined target market segment that is of a size that will support the costs of implementing a mass customization program."
- True
 - Mostly true
 - Mostly false
 - False
- Other comments.

Answers to this question were either true or mostly true. There was one exception where one respondent answered false. Interestingly enough this was one of the successful entities. Further questioning revealed that at the time of implementation there was not enough data to conclude with certainty

that the market was of such a size to sustain the mass customization program. Time has however proved that the market is sustainable. The failed entities also reported that the market was of such a size that it would support a mass customization program. Failure was put down to not having enough sacrifice gap or significant enough involvement to justify the difference in pricing between a mass customized product and a standard product.

10. In terms of value this market segment is:

- Growing
- Shrinking
- Remaining stable.

There was a 50/50 split here between growing and stable. No entity was playing in a shrinking market.

11. "This target segment, up until the mass customization program introduced by the company, had to significantly sacrifice some aspect of satisfaction (this could include, fit, convenience, selection width) during the purchase process."

- True
- Mostly true
- Mostly false
- False

Other comments

Responses to this question were not as anticipated there was an equal response across all variables. It had been anticipated that the answers to this question would be true or mostly true. This was not the case. Clarification was sought in the follow up interviews. The conclusion from this was that initially the respondents were thinking of the market in too broad terms and when the market was defined as the segment of the wider market that may be interested in mass customization the responses changed to either true or mostly true.

12. "The target customers are/were willing to pay more to reduce the sacrifice gap outlined in question 3."

- True
- Mostly true
- Mostly false
- False

Other comments

There was significant divergence in answers to this question between the successful and failed entities. The successful entities believed that their target audience would pay more for a mass customized product while the failed entities were less sure and cited competition in their market as a reason for the answer.

13. Customers sometimes find it difficult or impossible to articulate a need that relates to a product attribute. Is/was the customer able to clearly articulate their needs to the company so they could be incorporated into the product

specification?

Yes

No

Other comments

The majority answer to this question was yes. Interestingly the “no” responses came from a failed entity and a successful entity. Further clarification revealed that the successful entity was still working on the customer interface, and believed that there were still improvements that could be made prior to giving an affirmative response.

14. How was this need articulated?

Online configurators.

Mail order form.

In store kiosk.

In store sales assisted transaction.

Other comments.

All respondents used the internet and only one used this in conjunction with a sales person at a bricks and mortar store. One customer had transitioned from a mail order system to an on line system. The significance of this answer is that a mass customization program may rely on the target market having access to and being familiar with an on line environment.

15. Was the articulation of this need congruent with the target markets expertise?

Yes

No

Other comments.

The answers to this question were all in the affirmative.

16. How did the company communicate with its customer base?

Internet

Via a third party such as a partner’s sales associate.

Direct mail.

Mass media.

Other comments

The majority response to this question was the internet with only one of the successful entities using some mass media.

Product

7. The product presented under the mass customization program carried a brand that was:

new to the world

an extension of an existing apparel brand

familiar to the consumer.

Other comments.

The majority response was that the brands being used were extensions of existing brands. The successful entities all had used extensions of existing

brands, while the failed entities had used new to the world brands. There was one exception to this where a failed entity had used a brand extension. The reason for failure was not attributed to the brand but to financial circumstances which impacted on the division from the wider company.

8. Thinking about the product that the company is/was using for the mass customization strategy:

Would you consider the product was more applicable to:

- Men
 Women
 Unisex

Is the product:

- High value
 Low value

Is the product:

- Fashionable
 Utility

Other comments.

There was clear divergence here between successful and failed entities. All of the successful entities were producing high value fashionable product while the failed entities were producing lower valued utility product. There was a relatively even split between the gender variables.

9. Mass customization relies on a detailed understanding of what product or “buying process” attributes a customer values.

The company:

- had significant knowledge gained through experience about what product/buying process attributes the target customers valued
 under took research to determine what product/buying process attributes the target customers valued.

Other comments.

While there was divergence in the response to this question, it was not delineated between successful and failed entities. It could be concluded that either experience within the industry or research while important to the degree of success of a mass customization program does not provide a 100% certainty of success.

10. “The company has been able to provide a significant advance in “wanted product or buying process features” at a price that the target customer is willing to pay.”

- True
 Mostly true
 Mostly false
 False

Other comments

Answers to this question were delineated somewhat along success and

failure lines, however it was not a straight forward as indicated. One of the failed entities had produced advances that the customer was willing to pay for, but still failed. Failure was not put down to this aspect of the process but to other financial factors. Other failed entities could not produce the product for a price that enough customers were willing to pay.

11. "The company was/has been able to develop a product that offers customization in aspects of the product or buying process that are competitive with other products in the marketplace."

- True
 Mostly true
 Mostly false
 False

Other comments.

The successful companies all answered either true or mostly true to this question. The failed companies had participated in a highly competitive marketplace and the price premium required from the customer was under pressure constantly.

12. The product developed for the mass customization program can be best described as:

- a purchase where the buyer has a lot at stake either financially or socially.
 a purchase where the buyer has little at stake financially or socially.

Other comments.

The successful mass customizers were all presenting product that the customer had a lot at stake either financially or socially. While the failed companies were selling "high priced" units the customer had competitive alternatives and the situations where the products were used were not as highly involved as those products of the successful entities.

Price

3. The company's mass customization product was priced:

- Below the competitors
 Equal to the competitors
 10-30% above the competitors
 > 30% above the competitors
 Do not know

Other comments.

Without exception all of the successful mass customizers were selling their product at a level that was equal to or less than 30% above their competitors, while the failed entities were trying to get a premium in excess of 30% above the market.

4. Is/was the company able to generate sufficient volume at the nominated price to make the mass customization program profitable?

Other comments.

The response to this was as expected. The failed entities responded no while the successful entities responded yes.

In your opinion was this due to:

- the customers' unwillingness to pay the premium or
- that the cost of providing the mass customization exceeded the customer price.

Other comments.

Interestingly the customers unwillingness to pay and the companies inability to produce the product at a low enough cost were both cited as reasons for failure for all failed entities.

Promotion

5. The product that was the subject of the mass customization program:

- carried a brand that was the same as the company's other products
- carried a brand that was unique to the program

Other comments.

Answers to this question were consistent with the other brand related questions. The responses were split 50/50.

6. Within the apparel industry the senses of touch and incidence of fit are integral to the buying process. How did/does the company overcome any of shortcomings in this respect in the buying process?

- Provided extensive money back guarantees
- Gave access to fabric samples
- Offered extensive fractional sizes
- Offered made to measure with either assisted measurement processes or detailed self measurement instructions.

Other comments.

All of the entities had in place one or all of the above tools. The only exception was that one of the failed entities had a significantly inferior product warranty. This would not have aided the overall success of the venture.

7. Did/does the company have a separate marketing communication strategy for the mass customization program?

- Yes
- No

Other comments.

100% of the respondents had a separate marketing strategy for the mass customization program.

8. Is there a separate promotional budget for the mass customization program?

- Yes
- No

Other comments.

While all of the entities had a separate mass customization communications program the funding of that program was not consistently sourced. A number of the entities had a separate budget while a number were funding the program out of an existing promotional budget.

Process

5. The partners in the value chain (raw material suppliers, manufacturers, service providers and logistics providers) are geographically:
- distant from each other
 - close to each other
 - distant from the customer
 - close to the customer
- Other comments.

The consensus response here was that there was significant geographical distance between stakeholders. In fact the only respondent that had customers and suppliers close by was one of the failed entities.

6. Does the answer to question 1 increase the lead time between the customer specification and complete fulfilment?
- Yes
 - No
- If yes, is/was the customer willing to accept this lead time extension?
- Yes
 - No
- Other comments.

While the geographical distance increased the time of the buying process the customer was willing to wait.

7. Was significant process change required for the company to embark upon a mass customization product strategy?
- Yes
 - No
- Other comments.

All entities reported that there was significant change or development required to embark upon a mass customization strategy. Even where the company had been involved in the industry for some time there was significant change required.

8. If significant process change was required did this lead to significantly increased product costs, customer effort in product specifications or extended lead times for product fulfilment.
- Yes
 - No
 - Do not know
- Other comments.

Answers to this question were not conclusive. The majority of responses

were that there were little increased costs, however one of the successful entities incurred increased costs, but as it was in a high margin part of the market it was able to absorb these additional costs and still remain profitable.

Marketplace

7. Do all of the stakeholders in the value chain have access to and use electronic communication to transfer information about customer orders through the system?

- Yes.
 No.
 Do not know.

All of the successful entities had electronic communication access to their stakeholders. One failed entity did not have access to their supply chain via electronic means. These suppliers were however geographically close by.

8. Setting aside the mass customization process as a unique proposition for the company how would you describe the marketplace for your product?

- Highly competitive
 Competitive
 Niche

Other comments.

All of the successful entities reported that they were involved in niche markets. All of the failed entities reported that they were involved in highly competitive markets.

9. Lifecycles for your product are:

- less than one season (summer, winter, spring fall)
 change on a seasonal basis
 annual

Other comments.

All of the respondents had products that were changing on a seasonal basis.

10. Prices for your product are

- changing frequently depending on competitors and seasons
 relatively stable.

All of the successful entities had stable pricing whereas the failed entities had a situation where the competitors prices were fluctuating.

11. How did the competitors in your product category react to your program?

- Initial aggressive response
 Initial passive response

Other comments.

All successful entities reported an initial passive response by competitors and the failed entities reported that there was an aggressive response.

12. Was your company prepared for this response?

- Yes
 - No
 - Do not know
- Other comments

All entities reported that they were prepared for a response.

General Comments

The space below has been left for you to add additional comments about the company and mass customization process.

Other comments

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