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CUSTOMER FOCUSED TEXTILE AND APPAREL MANUFACTURING SYSTEMS: TOWARD AN EFFECTIVE E-COMMERCE MODEL

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ABSTRACT

Environmental changes, including intensive international competition, unpredictable consumer demand, and market trends of variety and short product life cycles, compel the U.S. textile and apparel industry to focus increasingly on the consumer as a way to meet these challenges. Quick response has established new business strategies, new relationships and new procedures to speed the flow of information and merchandise between retailers and manufacturers of apparel and textiles, all driven by the customer. With such a customer responsive system in place, the industry began expanding into mass customization. Mass customization uses information technology, flexible processes, and organizational structures to deliver a wide range of products and services that meet specific needs of individual customers but on a mass scale. This paper examines Quick Response and mass customization manufacturing strategies used in the textile and apparel industry, examines how existing technologies can support these strategies, and investigates how mass customization can be undertaken through e-commerce.

Keywords: Mass customization, Manufacturing systems, E-commerce, CAD/CAM system

1. INTRODUCTION

The rapidly changing culture, politics and economics of modern life deeply affect the industrial environment, especially consumer industries such as textiles and clothing (Lowson, King & Hunter 1999). One of the impacts is that the contemporary North American and European textile and apparel industries suffer immense competition from foreign producers (Yan & Fiorito 2002). As early as the mid-1980s, imports were estimated to account for close to 50% of consumption (Lowson, King & Hunter 1999). As most imported textiles are produced with very low labor expense, huge amounts of inexpensive products can be supplied in the domestic market. Considering this situation, competitiveness in cost and quality continue to be key issues for textile manufacturers. In order to significantly reduce time and cost in the supply chain, the industry needed to become more focused on consumers by developing a supply chain management process that would be demand driven and production that would be synchronized to replenish product at the consumer's pull rate (Lovejoy 2001). Today, consumers desire to personalize the style, fit and color of the clothes they buy, and require high-quality customized products at low prices with faster delivery (Lee & Chen 1999). New manufacturing technologies such as 3D body scanners,