



An Analysis of Benefits Sought within the Smart Clothing Market: A Case Study of Smart Sportswear

Manoshika Ramasamy and Kim Y. Hiller Connell, Kansas State University, Manhattan, KS

Keywords: smart clothing, consumer needs, niche marketing, sportswear

Background: As our lives become more busy and complex, information technology has emerged to make life easier. Smart clothing, defined as clothing "which can provide interactive reactions by sending signals, processing information and actuating the responses" (Suh, 2010, p. 1), allows garments to respond to environmental stimuli and builds a very intimate form between human and machine interactions. Smart clothing emphasizes the importance of wearable computer interaction with clothing, possessing sensing and communicating capabilities. Current trends in the hybrid of traditional clothing and electronics can be categorized into two approaches: 1) Smart textiles with the capability to react to different kinds of physical stimuli, for example temperature and pressure and 2) Interactive textiles with wearable technology which is sewn into clothing and operated or controlled by an integrated control panel or operation button. As more flexible technologies and smart clothing are developed, a gap exists in identification of the end-users' needs. Existing smart clothing research focuses on a product-oriented basis rather than from the end-users' view point. Therefore, it has become a challenge for marketers to find mass market applications for smart clothing and at present most smart clothing is available only in niche markets. **Purpose:** The purpose of this study is to develop a product development model for smart sportswear that incorporates consumer needs. A secondary purpose is to provide a path to develop smart clothing marketing strategies. **Method:** Current innovations and market developments of smart sportswear were examined through a review of the technical literature related to smart clothing. Consumer behavior towards smart sportswear was analyzed through a review of social and behavioral science literature. These findings were then integrated and synthesized for model development purposes. **Findings:** Smart sportswear is considered a technology integrated product. Therefore the Technology Acceptance Model (TAM) developed by Davis (1989) was adopted in this study. TAM suggests that when a person believes using a particular product will enhance his performance (perceived usefulness) that individual will be motivated to adopt the product. Likewise, a consumer who believes the product will be free from effort (perceived ease of use) he or she will also believe in its usefulness and intend to use the product. Other research, stemming from the TAM model suggest that favorable perceived innovativeness and fashionability also positively influence consumer attitudes towards using a product (Watchravesringkan, 2010). Based on the literature review, this study proposes a new product development model that combines the functional apparel product development process with TAM, perceived fashionability, and perceived innovativeness (see Figure 1). The review of literature also found that consumer needs and preferences require more focus when developing and marketing smart sportswear.

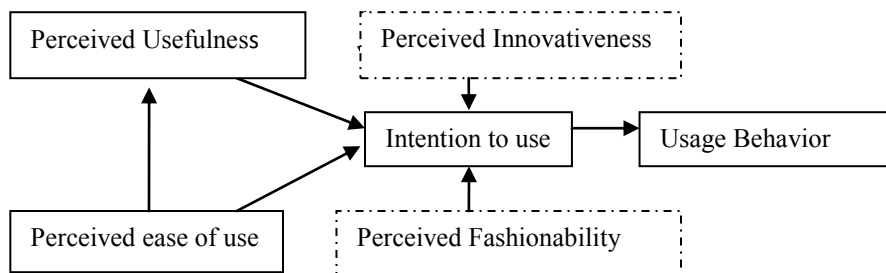


Figure 1. Adopted model for smart sportswear (Davis, 1989; Watchravesringkan, 2010)

Consumer needs and preferences are critical and should be included in the design of both the clothing and the electronic components, rather than solely focusing on the product. The collaboration between researchers, manufacturers of wearable electronics, and smart clothing manufacturers is essential to overcome cost and mass supply of components in the commercial market (See Figure 2). Improved collaboration between companies and suppliers will increase the competitive advantages, thus increases demand to produce more goods with reduced cost. It is also clear that a cross-way communication flow between consumers, the smart sportswear market, and functional clothing product developers is necessary in smart clothing marketing.

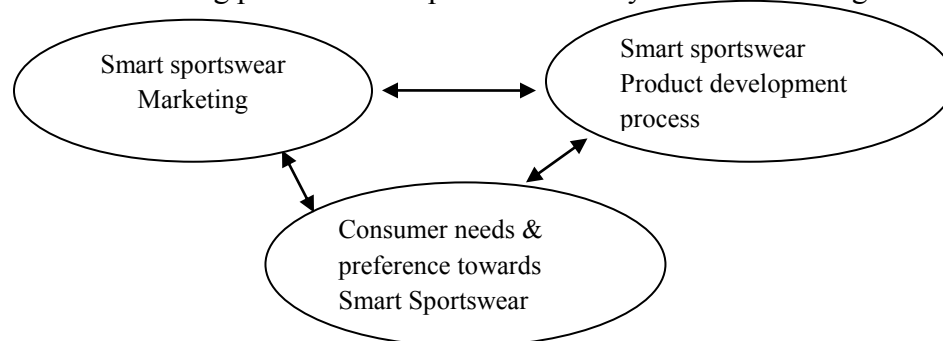


Figure 2. Conceptual model of proposed communication flow

Conclusion: The capabilities of mass production of wearable components is restricted. Development of wearable components take more time and availability of technologies in commercial market is quite a few. Collaborations between companies and suppliers increases the competitive advantages thus increases demand to produce more goods with reduced cost. Future research should test the model in the development of smart sportswear.

References:

- Ann Beth Presley, M. C. (2008, April nd). Impact of textiles and apparel technology on our lives. ProQuest Research Library, 100(2), 41-49
- Barfield, W., & Caudell, T. (2001). *Fundamentals of wearable computers and augmented reality*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models.
- Suh, M. K. C. (2010). Critical review on smart clothing product development. *Journal of textiles and apparel technology and management*, 6(4), 5-6.
- Watchravesringkan, K., Hodges, N. N., & Kim, Y. (2010). Exploring consumers' adoption of highly technological fashion products : The role of extrinsic and intrinsic motivational factors. *Journal of Fashion Marketing and Management*, 14(2).