Abstract

Smart Clothing, the convergent future of the electronics and clothing industries, struggles to reach its true potential and enter the mass market because of 1) imbalanced contributions from the electronics and clothing sectors, 2) the lack of an integrated approach to optimise the input from the different areas, and 3) the unclear direction of the products. There is a need for an NPD process that balances all contributions and addresses new values based on user requirements. Moreover, a strategic approach, that challenges the development teams to go beyond their existing creative boundary and reconciles their differences, is required. According to the research, Smart Clothes should take the design approach of functional clothing and focus on the area of sportswear, personal healthcare and physical monitoring, as they fit the users' lifestyle and requirements. Since social acceptance is an important factor, Smart Clothes must also have a good design and whilst, at the same time, perform all the basic functions that ordinary garments do. They should allow the user to personalise the styles and functions according to the benefits, with respect to product lifecycle and disassembly. A conceptual model of the NPD process was developed and tested with experts in this field. The proposed model provides the basis for a computer software to plan and manage product development teams and activities at the front-end of the NPD process. It offers several advantages:

1. Combining the NPD models and those of collaborative development
2. Providing a holistic view of Smart Clothing development
3. Clarifying of the roles of all participants within the collaborative development teams
4. Describing the responsibilities and expected contributions of all participants
5. Explaining working relationships and overlapping roles and responsibilities
6. Offering the directions for the creative boundary extension