INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

The prime inspiration of this research is to formulate a framework for factors affecting consumers' new technology acceptance and develop an innovator toolkit for idea generation enhancement during the smart home ideation phase of the design process. The effort has been experimented, validated and successfully demonstrated in this study. The term 'smart' has become widely used to describe advanced products and innovative business strategies, leading to substantial growth in the smart home market in recent years. The expansion has resulted in the launch of a multitude of unique products onto the global market. The appeal and practicality of smart devices lie in their ability to understand a user's surroundings and activities within a certain context, facilitating adaptive responses. The deployment of smart home technology has been found to give several advantages in the long run, hence boosting the quality of life for users, particularly among elderly people. These advantages reach across different domains, including healthcare, security, and entertainment, as highlighted by Marikyan (2019). The growing acceptance of smart homes worldwide can be attributed to the tangible benefits they offer in terms of promoting pleasant and healthy lifestyles. The representation of advanced intelligent technologies in science fiction movies has significantly influenced the level of user engagement and acceptance. In spite of the increasing prevalence of smart technology in household products, there is a conspicuous lack of research focused on user-centric perspectives in this field. The present collection of study has primarily focused on the technological elements, while overlooking the crucial user perspectives. Hence, it is important to incorporate user perspectives in the design and development of smart home technologies, specifically in relation to the acceptance and adoption of these innovative technologies by users.

In the first phase, an integrative review of the available literature was carried out. The four major categories that emerged through the analysis of the shortlisted articles are as follows: 1. The

Terminology used in smart home and IoT products, 2. Consumer behaviour and its relationship with the other factors such as benefits, barriers, and socio-cultural aspects in smart homes, 3. New technology acceptance, and 4. Product service system (PSS) design in smart homes. A multi-faceted evaluation of articles of the first two categories proposes a new theoretical framework investigating consumer behaviour related to smart homes and IoT product adoption. The framework illustrates key terms and associations between them with future directions on smart home IoT products. In the second phase, a comprehensive examination of the characteristics of Smart Home products and services through the lens of the Kano Model offers a complete understanding of the factors that drive customer satisfaction and dissatisfaction within the smart home domain. This phase is a key exploration of the characteristics that shape user perceptions and satisfaction with smart home products and services. The third phase involved developing a conceptual framework for Smart Home Product- Service-System (SH-PSS) design. We examine the current gaps and challenges in SH-PSS design to enhance user satisfaction and improve user experiences. It explores how user needs, preferences, and experiences are integrated into the design process, ensuring that the resulting products and services cater to the end-users effectively. The fourth and final phase of the study was to Design and Development of Smart Home Product- Service-System (SH-PSS) Innovator Toolkit—and validate the proposed Innovator Toolkit by means of statistical methods. The study describes card-based toolkit protocols and methods. It describes how to utilize these cards to brainstorm and build Smart Home Product-Service-Systems, emphasizing their importance in creative thinking and problem-solving. It is expected that design practitioners and researchers would find the outcomes of the thesis and developed framework helpful while designing smart homes. Moreover, the 'Conceptual framework for factors affecting consumer's new technology acceptance' presented in the current research is an effective means for suggesting promising future research directions to conduct studies based on specific parts and contributing factors of the framework, which are unexplored previously, and investigate their role in influencing consumer behaviour.