Chapter 6
Technology-Integrated Smart Living and Era of Smart Homes: Role of Intelligent Network Communication and Management

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ABSTRACT

Businesses and users communicate via networks. Businesses use Skype, RSS, blogs, etc. Communication networks are becoming more complicated and customised as technology develops. Smart networks help carriers launch and manage services. The Bell Communications Research phone network allows device service feature addition or removal. Smart networks may add modules to provide services without replacing equipment. Integrating services with the intelligent network may need new skills. Service addition to an intelligent network may be similar. Improved network management enables smart homes. IoT, AI, and IoE smart houses enable tech-savvy living. IoE and IoT may assist many people, particularly those who spend a lot of time outside while their kids and elderly parents stay home. Home automation may improve life. But every gain has drawbacks. Integrated smart technology may cause complications. Thus, this chapter examines smart living in smart homes, its concepts, intelligent network technologies, administration, benefits, and drawbacks.

DOI: 10.4018/979-8-3693-2346-5.ch006

INTRODUCTION

Every day, communication networks are increasingly intertwining with a diverse array of user-centric applications and essential business systems, visible to all. This integration extends to business systems merging with diverse technological architectures, including weblogs, peer-to-peer platforms like Skype, and media publishing platforms such as RSS, among others. These examples illustrate the ongoing evolution of interconnected technologies within communication networks. These developments in technology are leading to an increase in the complexity of communication networks, and some of them are even becoming more individualised (Debenham et al., 2008).

An intelligent network is one that not only gives its operators the tools to generate services more effectively but also gives them the means to regulate those services more effectively. It is essentially an architecture for a telephone network that was created by Bell Communications Research. This design enables new service features to be added or current functionalities to be withdrawn without the switching device itself needing to be changed. There is no need for the present device to be changed or modified to accommodate the addition of new services, which may be implemented into an existing intelligent network in the form of additional functional modules.

When new features need to be added to an existing network to accommodate new services that are not currently supported by the intelligent network, this may be necessary. As a result, the introduction of a new service may be seen as the establishment of a new capability inside the current intelligent network.

Smart living" denotes the integration of interoperable, intelligent technology into residential spaces, aimed at enhancing the quality of life within these environments (Diraco et al., 2023). These technologically advanced dwellings are commonly known as "smart homes." Historically, innovation has been perceived as a producer-centric endeavour primarily motivated by profit-driven incentives. In most cases, a manufacturer will make investments in any of the innovation-based activities to increase the amount of money they make from sales (Gambardella et al., 2017). These innovations are pushed on customers from a variety of market categories in the expectation that some of those consumers would embrace the new practices. However, this innovation model that has come about as a result of the integration of intelligent network communications demonstrates that it is not just the producer but also the users who are a major source of innovation. User innovation is defined as an activity that is carried out by individual consumers or end users to address their personal needs by spending a significant amount of time developing innovative or creative solutions(Roszkowska-Menkes, 2017). This user innovation can mostly be observed in the development of a smart living technology that is both more intelligent and more sustainable. One could argue that Smart Living technology, which integrates intelligent network communication (ICN), is currently in a phase of development. Internet of Things (IoT), Artificial Intelligence (AI), and Internet of Everything (IoE) are some of the technologies that need to be connected to give end consumers a smart life rather than an ordinary one. When combined, these technologies have the potential to reduce waste across three categories: resources, infrastructure, and costs, hence raising the "smartness quotient" (Ermacora et al., 2015)The primary purpose of this study is to investigate the idea of smart living in smart homes, as well as the function of intelligent network technologies and management. Additionally, the research will investigate the advantages and disadvantages of smart living.