


Chapter 12

Factoring 6G Technology and Beyond in Advancing Human Life Management and Natural Habitats

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ABSTRACT

This chapter explores the transformative impact of 6G technology and beyond on natural habitats and human life management. As next-generation networks evolve, integrating Artificial Intelligence, the Internet of Everything, and Edge Computing, they enable smart environments, sustainable connectivity, and human-centric solutions. Digital Twin Technology and Green Communications enhance biodiversity conservation, optimize resource efficiency, and support climate resilience. 6G-driven innovations revolutionize healthcare, urban planning, and disaster management, fostering intelligent, adaptive ecosystems. Therefore, through bridging technological advancements with ecological sustainability, this study highlights the potential of future networks to harmonize digital and natural systems, ensuring a resilient, interconnected world.

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1. INTRODUCTION

Human life management and natural habitats are two widely encompassing realms in theory and practice, especially in societies across the globe. Human life management includes health, work, learning, improvement, leisure, and residence. Well-being is not limited to health alone but is a fusion of emotional maturity, psychological resilience, and social trust (T. Bin Ahammed & Patgiri, 2020). However, life management in connection with natural habitats of similar living creatures has become challenging, especially for the current generation of human beings, with expanding knowledge in science and technology factoring security, privacy and technological acceptance (Shafik, 2025k). Factors such as energy consumption, e-waste, deforestation, greenhouse effects, extinct species, global warming, toxic substances, oil spills, and nuclear accidents are not new to the public; however, business intuition expects an innovative solution for the coexistence of human well-being and the preservation of natural ecosystems (Laaroussi et al., 2022).

Nature has been overtaxed in the name of the advancement of a good quality of life, which also includes spiritual and mental well-being. Based on the conventional wisdom of societies with a zeal for computing, technology, especially that of communication, stands capable of ensuring life mechanisms and processes without needing dependency on natural habitats. Communication forms an inseparable part of information, which constitutes the very basis of any life forms, such as genetic or archeological-based life systems (Sekaran et al., 2020). With technology, especially advanced communication technologies, it is possible to devise mechanisms for both managing human life and that of nature in a closed loop, perhaps beyond physical integration. We discuss the latter in this review, primarily focusing on the showcase (Shafik, 2025d).

1.1. Understanding Human Life Management and Natural Habitats

The notions of human life management (HLM) and natural habitats (NH) are poles apart in their philosophy and value proposition; while HLM is designed to give a meaningful and healthier life to the individuals within a society, NH aims at nurturing and facilitating biodiversity and ecological balance (Shafik, 2024h). Both these facets have a strong requirement for one another as NH supports and sustains life activities. It has often been observed that development activities have a direct bearing on NH, which hosts a myriad of life forms. Technology has both constructive and destructive abilities to influence NH (Vaezi et al., 2022). The present technological advancements revolve majorly around managing human lives in terms of health, work, and living experiences, among others. While human life management tools

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