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Foreword to the second thematic

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Foreword to the second thematic: Data-Driven Innovations in Modern Societies

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The second thematic is titled “Data-Driven Innovations in Modern Societies” and consists of four chapters exploring innovative technologies and methodologies that transform societal dynamics in communication, education, and virtual interaction.

The first paper involves a study that explores a modified Card Sorting method to investigate user mental models and evaluate the usability of a big data environmental MIT website. It is titled “Visualization of Big Environmental Data using the Card Sorting method” and unlike traditional Card Sorting, the method was adapted to assess information visualization by presenting interfaces on cards and using categories to describe their screen placement. The adapted method highlighted two critical usability issues, leading to one proposed improvement while the findings suggest that this approach enhances visualization of user mental models and offers designers a valuable tool for evaluating their work.

The second paper is titled “Communication and “smart public space”: Opportunities, challenges and supporting IoT Technologies” and it examines communication and IoT technologies as key enablers for the “smart public space” that may provide applications and services for improving essential aspects of the modern public space. A case study about the design and development (PoC) of a system of applications for the “smart public space” is presented, based on computer vision and IoT technologies, demonstrating its features and its contribution to crowd management and the safety, accessibility and overall experience of public space users. The opportunities along with the challenges of “smart public space” are further discussed.

The third paper presents the Metaverse technology as a digital metamorphosis of reality and investigates the possibilities of shaping and experiencing urban social space within a fully or partially controlled virtual environment. The chapter is titled “Metaverse as a field of communication and networking in the digital domain: challenges and prospects”. Cities evolve into digital twins, blending cultural, social, technological, and economic elements while users engage with others and objects in lifelike interactions, fostering exchanges at personal, professional, and political levels. This integration is supported by technologies like AI, IoT, AR, robotics, and cloud computing. The study highlights the Metaverse's role in enhancing communication, urban digitization, and collective decision-making, while showcasing applications across diverse fields. It offers a fresh perspective on immersive interactions in cyberspace during the Fourth Industrial Revolution.

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The fourth and last paper of the second thematic, is titled “The Boarding School (Pondok Pesantren) Education Student Character. Development and Intercultural Communication: The anxiety/uncertainty management theory”. This work focuses on how the boarding school (pondok pesantren) affects the student’s Character Development and Intercultural Communication with anxiety/uncertainty management theory. It aims, through collected observation behavioral experiments data and literature review, to investigate the relations between the boarding school system and the intercultural communication among students with different cultural background focusing on the importance of education of boarding school effects on the student character development.

