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Simulation Games for Sustainable Cities and Smart Infrastructures – Foreword

Simulation and gaming have proven their value in contributing to the analysis and design of so-called complex systems, such as the development of sustainable cities and smart infrastructures. Numerous examples of games about urban planning, intelligent transport systems, social cohesion, and other related themes have been developed, played, and studied in the past years. In the International Simulation and Gaming Association (ISAGA) Conference 2017, we aimed at taking the current state of affairs one step further and move toward a comprehensive theory of simulation games for sustainable cities and smart infrastructures. During the conference, which was held jointly by ISAGA and SAGANET (Simulation and Gaming Association The Netherlands), hosted by Delft University of Technology, science met practice, and many academic as well as practice-based games and concepts were presented and discussed. The result of the scientific contributions is presented in this LNCS book.

The contributions to this book range from design thinking related to simulation gaming, the analysis of the consequences of design choices in games, to games for decision-making, examples of games for business, climate change, maritime spatial planning, sustainable city development, supply chain, and team work factors, up to games that facilitate (organizational) learning processes or are used for attitude measurement, and the use of VR technologies in games, not to forget the role of de-briefing in the game process.

In the section “Design and Development,” the focus is on the design process of simulation games. The articles show the importance of design choices and the influences of these choices on the game’s effectiveness. They also highlight the role of the designer as well as the use of accepted design concepts and approaches. In the section “Planning and Policy,” games are presented that serve as support tool for policy-making processes. The articles describe how stakeholders can be engaged in a decision-making process, and how games can facilitate the participation of and discourse between them. The perception of games as well as their use for (organizational) learning processes is discussed in the contributions in the section “Games and Simulations.” Learner activation and individual value of games in learning processes are topics discussed along with concrete examples of games facilitating, e.g., knowledge development in the field of supply chain management. In the next section, we give room to the relatively new and yet underexplored field of “Games as Research Instruments.” The contributions show how games can serve as research instruments themselves, and how they can be combined with other research measures in order to provide both a rich feedback to participants and researchers and a rigid research set-up for measurement of, e.g., participants’ attitudes in the transportation domain. Games that are used for learning processes are discussed in the last section, “Learning.” The authors introduce theoretical concepts of games as a learning instrument, from assessment to conditions for learning, up to the role of de-briefing.

Thus, the 20 selected articles discuss game methodologies for the design and research of and with games, applications of gaming to tackle the grand challenges of our society as well as to support learning processes and policy development, new insights in interface and interaction designs for games, and evaluated applications of games in real-world settings.

The present collection of articles represents current advances in the field of simulation and gaming, which were presented and discussed at a very constructive and energetic conference in Delft, the Netherlands. The editors wish to thank all contributors to this book, reviewers of the articles, as well as all participants of the ISAGA 2017 conference for adding to this important and still-growing field of research that is strongly related to its application domains. We also want to thank Maria Freese and Shalini Kurapati, who helped us process all contributions to the conference. We look forward to future exchanges and further advancements of our exciting field of research and design of simulation games!

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