

Dmitrii Rodionov
Tatiana Kudryavtseva
Angi Skhvediani
Mohammed Ali Berawi (Eds.)

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Innovations in Digital Economy

Second International Scientific Conference, SPBPU IDE 2020
St. Petersburg, Russia, October 22–23, 2020
Revised Selected Papers

 Springer



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Editors

Dmitrii Rodionov 
Peter the Great St. Petersburg Polytechnic
University
St. Petersburg, Russia

Tatiana Kudryavtseva 
Peter the Great St. Petersburg Polytechnic
University
St. Petersburg, Russia

Angi Skhvediani 
Peter the Great St. Petersburg Polytechnic
University
St. Petersburg, Russia

Mohammed Ali Berawi
University of Indonesia
Depok, Indonesia

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Preface

The International Scientific Conference on Innovations in Digital Economy, SPBPU IDE 2020, was held at the Peter the Great St. Petersburg Polytechnic University, St. Petersburg, Russia, during October 22–23, 2020. This conference was conducted jointly by the Graduate School of Industrial Economics (GSIE) at the Peter the Great St. Petersburg Polytechnic University (SPbPU) and the Center for Sustainable Infrastructure Development (CSID) at the Universitas Indonesia (UI).

The SPBPU IDE 2020 conference brought together experts from academia and industry to uncover challenges and solutions regarding the digital transformation of economic systems. As it took place during the COVID-19 pandemic, our conference was conducted online to minimise the risk of illness spreading among our participants. Nevertheless, we tried to create an atmosphere which facilitated communication and knowledge exchange among our participants on the topic of the digital economy. During the conference, we discussed both purely scientific and applied research results.

The plenary meeting's agenda included presentations by key conference speakers. One of these was Dirk Nitzsche, Senior Lecturer at Cass Business School, who presented a report on the development prospects of the fintech industry, focusing on an overview of the opportunities and threats as well as the effectiveness of the implementation of modern technologies in the financial sector. Tatiana Kudryavtseva, Associate Professor at the Graduate School of Engineering and Economics at the Institute of Industrial Management, Economics and Trade, SPbPU, and Angi Skhvediani, a research assistant at the same institute, presented a case study on the implementation of modern technology to improve the master's program in digital economy and business analytics at the Graduate School of Industrial Economics.

Several special events took place during the conference. The first event was organised by the editorial board of the International Journal of Technology. Mohammed Ali Berawi, Associate Professor and Director of the Center for Sustainable Infrastructure Development (CSID) at the Universitas Indonesia, and Managing Editor Nyoman Suwartha gave a special lecture entitled 'Writing and Publishing Scientific Articles', focusing on the preparation, writing and publication of journal articles. The second event was a round-table discussion entitled 'End-to-end Technologies in Industry' organised by the Industrial Systems of Streaming Data Processing Laboratory of the National Technological Initiative (NTI) SPbPU Center with the participation of its industrial and technological partners. The third event was a round-table discussion held to explore the topic of cross-border cooperation between the regions of St. Petersburg, Leningrad Oblast and south-eastern Finland using digital tools. The Inclusive Cross-border Business Networking of Tomorrow (INCROBB) project was launched by the Lappeenranta University of Technology as a leading partner, along with the Graduate School of Industrial Economics (GSIE) at the Peter the Great St. Petersburg Polytechnic University (SPbPU), the St. Petersburg Chamber of Commerce and Industry, Saimaan-Virta and Etelä-Karjalan Yrittäjät ry. During this event, participants discussed problems with, and ways to facilitate, cross-border cooperation. One of the main suggestions was

the development of a website where freelancers and companies from different countries can help each other to establish cross-border cooperation.

There were 117 submissions to the conference in total. All submitted papers passed a four-stage review process. At the first stage, all papers were evaluated and reviewed by the conference or Program Committee co-chairs. At the second stage, papers were evaluated and reviewed by at least two reviewers or a conference Program Committee member. At the third stage, we conducted technical reviews and checked papers for plagiarism, mastery of the English language and overall structure. This resulted in a pool of 63 high-quality papers presenting the best practices and scientific results in the conference topics. Out of these papers, 14 were recommended for publishing in CCIS after additional review and significant extension. Nine papers successfully passed this additional review process and were accepted for inclusion in the CCIS proceedings. These papers were divided into three sections.

For the first section, 'Economic efficiency and social consequences of digital innovation implementation', three papers were selected. The first paper in this section, written by Juaneda-Ayensa, E., Clavel San Emeterio, M., Cirilo-Jordan, S. and González-Menorca, L., presents research dedicated to the unified theory of acceptance and use of social apps (UTAU-SA). The authors discuss the role of technology in the promotion of recycling behaviour. They identify that the key determinants of behavioural intention are, in order of importance, impact awareness, desire for notoriety and facilitating conditions. In addition, they find that the intention to use the application has a direct and positive effect on the intention to recycle. The second paper in this section, written by Mohammed Ali Berawi, Mohamad Khaerun Zuhry Radjilun and Mustika Sari, is dedicated to developing a blockchain-based crowdfunding model for property investment. The authors propose the concept of a crowdfunding platform which utilises blockchain technology. This will help to improve the accountability and transparency of the crowdfunding process. The third paper in this section, written by Kirill Sarachuk, Magdalena Missler-Behr and Adrian Hellebrand, discusses the role of ultra-high-speed broadband internet in firm creation in Germany. The authors find a positive and significant relationship between basic broadband availability and firm creation, while ultra-high-speed connections have a weak and negative influence on new business formation.

For the second section, 'Industrial, service and agricultural digitalisation', three papers were selected. The first paper in this section, written by Nadezhda Kvasha, Ekaterina Malevskaya-Malevich and Svetlana Kornilova, discusses the issues of information modelling technology as the integrating basis of investment process development. The second paper in this section, written by Mariya Volik and Tatyana Kopysheva, reveals the peculiarities of the business-process automation of client interaction in a company based on Bitrix24. The researchers use the example of a software development and implementation company to demonstrate the possible effects of the automation of customer interactions. The third paper in this section, written by Tatina Verevka, Andrei Mirolyubov and Juho Makio, discusses opportunities for and barriers to using big data technologies in the metallurgical industry. The authors discuss possible positive effects of the implementation of machine-learning technologies and predictive analytics tools based on big data platforms.

For the third section, ‘End-to-end digital technologies in industry’, three papers were selected. The first paper in this section, written by Valeria Rakova, Marina Bolsunovskaya, Arseny Zorin, Vladimir Fedorov and Yuliya Novikova, explores the use of digitalisation to improve population well-being in the arctic area. The authors present a project for the development of the information complex, which can improve monitoring and decision making in the spheres of sanitation and epidemiology for the population of the Russian Arctic. The second paper in this section, written by Nikolay Lomakin, Anastasia Kulachinskaya, Uranchimeg Tudevtagva, Elena Radionova and Natalya Mogharbel, presents an AI-system for predicting Russia’s GDP volume based on dynamics of factors in the transport sector. The authors use a perceptron AI system that consists of an input layer and two hidden layers. This system allows them to predict the Russian GDP with an error margin of 0.0027%. The third paper in this section, written by Vasilyanov Georgiy and Vassiliev Alexei, discusses the usage of embedded virtual modelling for the development of a symmetrical walking robotic platform.

We want to thank our keynote speakers, panellists and authors, who contributed to the conference and made it possible by submitting and later revising their work according to the comments provided by the reviewers. We are also grateful to the members of the Program Committee for providing valuable and profound reviews.

We hope that the conference will become an annual event to share recent developments in the sphere of the digital economy.

July 2021

Dmitrii Rodionov
Tatiana Kudryavtseva
Mohammed Ali Berawi
Angi Skhvediani

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