Preface

The International Conference on Perspectives in Business Informatics Research (BIR) series focuses on the fields of business informatics and information systems. It targets the research that bridges business applications and information systems engineering, and facilitates the communication between scientists and practitioners. The 18th BIR conference was held in Katowice during September 23–25, 2019, at the Centre for New Information Technologies (CNTI), University of Economics in Katowice, Poland. The theme of the conference was "Responsibilities of Digitalization – Responsible designing & shaping the future of technology for digital preservation, global data storage and cost-effective management". This volume contains publications presented during the conference workshops and Doctoral Consortium. More specifically:

- The 2nd workshop on Security Analytics – a Business Informatics Perspective. The main goal of this workshop is to discuss how security threats could be prevented, detected and investigated;
- The 4th workshop on Managed Complexity (ManComp). The ManComp purpose is to share research result regarding system complexity identification, representation, control and reduction;
- The 11th workshop on Information Logistics and Digital Transformation (ILOG). The major objective is to discuss approaches for digital transformation, information logistics, semantic technologies and knowledge-based systems;
- Doctoral Consortium of BIR 2019, where young researchers can present their results and receive constructive feedback from the senior experts.

Each workshop as well as the Doctoral Consortium had its own organizers and the international program committee. After the peer-review process, the BIR 2019 workshop program committees have selected 13 scientific papers for the presentation and inclusion to this volume. Other four papers were selected by the BIR2019 Doctoral Consortium organizers. All contributions research and present the significant and emerging topics of the business informatics.

As chairs of BIR2019 workshops, we would like to express our great thanks to all workshop organizers, organizers of the Doctoral Consortium, program committee members of all workshops, BIR conferences organizers, and all the BIR 2019 workshop and Doctoral Consortium authors for their invaluable contributions.

September 2019   Václav Řepa
                                                          Raimundas Matulevičius

Security Analytics Workshop 2019 Preface

During the last years, Cyber Security Analytics has gained increasing awareness both in industry and in academia. This is due to a number of factors, including a significant increase in the number and severity of attacks, increasing focus from media, and increasing amounts of legislation such as the European General Data Protection Regulation (GDPR).

While much research focuses on either technical, business or compliance perspectives, there is a need to think of these disciplines together and develop solutions across traditional disciplines. Such solutions are the purpose of this workshop. More specifically, the workshop looks into different phases of potential attacks and understanding of how to prevent, detect and investigate them. The workshop searches to bring together different areas of cyber security analytics, including technical, business and compliance perspectives.

ManComp 2019 Preface

Managing complexity has a long tradition for algorithms and general problems. However, it is an important issue also in Business Informatics domain. Here the complexity of different systems and systems of systems has to be managed. While complexity usually associates with large- or very large-scale systems, still managing complexity is important even for systems with small sizes operating in complex environment. Nowadays informatics requires handling complexity at different levels and configurations of social, physical, enterprise, software, and hardware systems. The workshop is focused on approaches and methods for managing complexity in the domain of applied informatics that may concern interplay of systems and ecosystems of various sizes and substances. Its purpose is to share and transfer knowledge on complexity identification, representation, controlling and reduction as well as to exploit possible synergies in development of innovative complexity handling strategies, approaches, and methods.

The ultimate goal of the workshop is bringing together researchers and practitioners to discuss theoretical approaches or real-life case studies featuring success and/or failure stories in managing complexity. Purpose of these discussions is to deepen the understanding of strategies, approaches, and methods in managing complexity in enterprise, software and hardware engineering. A cross-pollination of experiences in both domains is assumed.

ILOG 2019 Preface

ILOG 2019 is the 11th workshop in a series that initially focused only on information logistics but extended the scope in 2017 to the neighboring topic of digital transformation. The mission of information logistics is to improve information flow in organizations by reducing information overflow and facilitating information supply that meets the demand of organizational stakeholders.

In recent years, many organizations are rethinking what customers value most and developing operating models that exploit the possibilities of big data, social media, artificial intelligence and other new technologies for competitive differentiation. This often leads to a digital transformation of large parts of the enterprise targeting seamless integration of digital services/products with digitized and optimized operations. Efficient and target-oriented information flows are a major contribution to digital transformation.

Knowledge-intensive industry and service sectors, public organizations and governmental bodies are dependent on accurate and timely information supply for efficient and high-quality processes and services. Intelligent information supply has become an important issue that is characterized by just-in-time, demand-oriented and context-sensitive information. The digital transformation of organizations poses new requirements to optimized information supply and emphasizes the importance of information logistics solutions. In this context, ILOG 2019 encouraged the submission of papers addressing these requirements and potential solutions as well as submissions addressing the use of semantic technologies, like ontologies, semantic nets, semantic web standards and other knowledge technologies. Such technologies and related methods have proven to be an important element of information logistics and solutions supporting digital transformation. Many information logistics applications would not be feasible without moving from data processing to also interpreting the meaning of this data.

The ILOG workshop aims to bring together people who have strong interest in digital transformation, information logistics, semantic technologies, information systems, enterprise solutions and knowledge-based systems. A broad understanding of possible approaches and solutions for information logistics and digital transformation was encouraged.

Based on at least three reviews per submission, the international Program Committee selected six high-quality papers for inclusion in the workshop and this volume. The authors of these papers include both researchers and practitioners from different disciplines. We dedicate special thanks to the members of the international Program Committee for promoting the workshop, their support in attracting high-quality submissions, and for providing excellent reviews of the submissions. Without their committed work, a high-quality workshop like ILOG 2019 would not have been possible. Our thanks also include the external reviewers supporting the paper selection process and the authors of submissions and presenters at the workshop.

September 2019

Birger Lantow
Kurt Sandkuhl
Ulf Seigerroth

Doctoral Consortium of BIR 2019

This section of the proceedings covers the works accepted for the Doctoral Consortium at BIR 2019. The conference aims to be interdisciplinary and to establish a balance between Business and IT views, encouraging diverse and mixed research approaches. The Doctoral Consortium has a long tradition at BIR and aims to stimulate rich discussion that can guide junior researchers towards maturing their doctoral work and refining their problem statements, as well as gaining new ideas on how their work can be further developed during the Ph. D. program.

After an iterative revision process, we invited 4 doctoral students to present their work and summarise it in the papers hereby included. Each paper received reviews from Program Committee members, additional shepherding from the DC Chairs towards the published draft and, finally, mentoring during the event's extensive discussion slots.

The Ph. D. students participating in the discussion are Yahnui Su, with design research on a novel model for mobile game self-publishing; Mariia Rizun with a proposal of a knowledge graph-driven recommender system in an educational context; Artur Machura with his work on the benefits of ontologies for requirements elicitation and analysis; and Adam Mrozek with an early stage research plan on particle swarm optimization.

We welcome readers to consult these diverse endeavours of doctoral students in the field of Business Informatics. We thank the Doctoral Consortium program committee for valuable reviews and mentoring that will inspire authors to better focus their research design and to conceptually refine their contributions. We hope to see matured versions of these works in the main conference, at future editions of BIR.

The organizers of the Doctoral Consortium would like to express gratitude to everyone involved in making BIR 2019 a success, especially to our hosts at University of Economics in Katowice.

September 2019

Marite Kirikova
Robert Buchmann

Organization

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