

2022 IEEE 24th Conference on Business Informatics (CBI 2022)

**Amsterdam, Netherlands
15-17 June 2022**

**Volume 1
Pages 1-243**



**IEEE Catalog Number: CFP22231-POD
ISBN: 978-1-6654-6038-5**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22231-POD
ISBN (Print-On-Demand):	978-1-6654-6038-5
ISBN (Online):	978-1-6654-6016-3
ISSN:	2378-1963

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2022 IEEE 24th Conference on Business Informatics (CBI) **CBI 2022**

Table of Contents

Message from the General Chairs and Program Chairs	ix
Organizing Committee	x
Keynotes	xiii

Session 1: Information Systems Risk, Security and Resilience Track

SecRiskAI: a Machine Learning-Based Approach for Cybersecurity Risk Prediction in Businesses	1
<i>Muriel F. Franco (University of Zurich, Switzerland), Erion Sula (University of Zurich, Switzerland), Alberto Huertas (University of Zurich, Switzerland), Eder J. Scheid (University of Zurich, Switzerland), Lisandro Z. Granville (Federal University of Rio Grande do Sul, Brazil), and Burkhard Stiller (University of Zurich, Switzerland)</i>	
The Sociotechnical Digital Twin: On the Gap Between Social and Technical Feasibility	11
<i>Balbir S. Barn (Middlesex University, UK)</i>	
Efficient Verification of Process Models Supporting Modifications of Data Values	21
<i>Elaheh Ordoni (Karlsruhe Institute of Technology, Germany), Jutta Mülle (Karlsruhe Institute of Technology, Germany), Kuan Yang (Karlsruhe Institute of Technology, Germany), and Klemens Böhm (Karlsruhe Institute of Technology, Germany)</i>	

Session 2: Data and AI Application for Business Track I

Data Analytics and SMEs: how Maturity Improves Performance	31
<i>Jeroen Baijens (Open Universiteit, The Netherlands), Remko Helms (Open Universiteit, The Netherlands), and Laury Bollen (Open Universiteit, The Netherlands)</i>	
No Time Like the Present: Effects of Language Change on Automated Comment Moderation ...	40
<i>Lennart Justen (University of Wisconsin–Madison, USA), Kilian Müller (European Research Center for Information Systems, University of Muenster, Germany), Marco Niemann (European Research Center for Information Systems, University of Muenster, Germany), and Jörg Becker (European Research Center for Information Systems, University of Muenster, Germany)</i>	
Developing a Generic Predictive Computational Model using Semantic Data Pre-Processing with Machine Learning Techniques and its Application for Stock Market Prediction Purposes ...	50
<i>Natalia Yerashenia (University of Westminster, United Kingdom), David Chan You Fee (University of Westminster, United Kingdom), and Alexander Bolotov (University of Westminster, United Kingdom)</i>	

Session 3: Data and AI Application for Business Track II

Retail Sales Forecasting for a Brazilian Supermarket Chain: an Empirical Assessment	60
<i>Fernanda M. de Almeida (Supermercado Nordesteão, UFRN, Brazil), Allan M. Martins (DEE, UFRN, Brazil), Marcus A. Nunes (EST, UFRN, Brazil), and Leonardo C. T. Bezerra (IMD, UFRN, Brazil)</i>	
Supermarket Customer Segmentation: A Case Study in a Large Brazilian Retail Chain	70
<i>Wellerson V. Oliveira (Supermercado Nordesteão, Brazil), Daniel S. A. Araujo (IMD, UFRN, Brazil), and Leonardo C. T. Bezerra (IMD, UFRN, Brazil)</i>	
Challenges of Pricing Data Assets: A Literature Review	80
<i>Wolfgang Badewitz (FZI Forschungszentrum Informatik, Germany), Christoph Hengesbach (FZI Forschungszentrum Informatik, Germany), and Christof Weinhardt (Karlsruher Institut für Technologie, Germany)</i>	
An Adaptable Framework for Entity Matching Model Selection in Business Enterprises	90
<i>Alex Boyko (Vrije Universiteit Amsterdam, The Netherlands), Siamak Farshidi (University of Amsterdam, The Netherlands), and Zhiming Zhao (University of Amsterdam, The Netherlands)</i>	

Session 4: Enterprise Modelling, Engineering and Architecture Track

ServML – A Domain-Specific Modeling Language as an Extension of SysML to Model Smart Service Systems	100
<i>Emanuel Marx (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)</i>	
Reconsidering the Notion of "Operating Model" in the Context of Innovation and Transformation. A Systematic Literature Review	108
<i>Bart van der Heijden (Vlerick Business School, KULeuven & Ghent University, Belgium), Stijn Viaene (Vlerick Business School & KULeuven, Belgium), and Amy Van Looy (Faculty of Economics and Business Administration Ghent University, Belgium)</i>	
Towards a Reference Enterprise Architecture to Enforce Digital Sovereignty in International Data Spaces	117
<i>Danniar Reza Firdausy (University of Twente, The Netherlands), Patrício de Alencar Silva (University of Twente, The Netherlands), Marten van Sinderen (University of Twente, The Netherlands), and Maria Eugenia Iacob (University of Twente, The Netherlands)</i>	
Understanding Interdependencies Among Fog System Characteristics	126
<i>Maximilian Blume (Karlsruhe Institute of Technology, Germany), Sebastian Lins (Karlsruhe Institute of Technology, Germany), and Ali Sunyaev (Karlsruhe Institute of Technology, Germany)</i>	

Session 5: Information Systems Engineering, Management and Governance Track I

IT Project Portfolio Assessment Criteria: Development and Validation of a Reference Model	136
<i>Ruud Wissenburg (Open Universiteit, the Netherlands), Rob Kusters (Open Universiteit, the Netherlands), Harry Martin (Open Universiteit, the Netherlands), and Joyce Evers-Wagemakers (Open Universiteit, the Netherlands)</i>	

IT Business Value Measurement and Communication Among German CIOs: A Conceptual Framework	146
<i>Tobias Held (OTH Regensburg, Germany) and Markus Westner (OTH Regensburg, Germany)</i>	
Perceived Challenges in Benefits Management — A Study of Public Sector Information Systems Engineering Projects	156
<i>Sinan S. Tanilkan (Simula Metropolitan Center for Digital Engineering, Norway) and Jo E. Hannay (Simula Metropolitan Center for Digital Engineering, Norway)</i>	

Session 6: Information Systems Engineering, Management and Governance Track II

Requirements for DataOps to Foster Dynamic Capabilities in Organizations – A Mixed Methods Approach	166
<i>Inan Gür (Fraunhofer Institute for Software and Systems Engineering, Germany), Frederik Möller (TU Dortmund University, Germany), Marius Hupperz (Fraunhofer Institute for Software and Systems Engineering, Germany), Dilara Uzun (Fraunhofer Institute for Software and Systems Engineering, Germany), and Boris Otto (Fraunhofer Institute for Software and Systems Engineering, Germany)</i>	
How EA Information Drives Digital Transformation: A Multiple Case Study and Framework ..	176
<i>Frank Grave (Open University, The Netherlands), Rogier Van de Wetering (Open University, The Netherlands), and Rob Kusters (Open University, The Netherlands)</i>	
Toward a Unified Framework for Information Systems Certification Internalization	186
<i>Philipp Danylak (Karlsruhe Institute of Technology, Germany), Sebastian Lins (Karlsruhe Institute of Technology, Germany), Malte Greulich (Karlsruhe Institute of Technology, Germany), and Ali Sunyaev (Karlsruhe Institute of Technology, Germany)</i>	
Drivers and Inhibitors of Low Code Development Platform Adoption	196
<i>Sebastian Käss (TU Dresden, Germany), Susanne Strahringer (TU Dresden, Germany), and Markus Westner (OTH Regensburg, Germany)</i>	

Session 7: Business Innovation and Digital Transformation Track

Describing Digital IT Consulting Services: The DITCOS Ontology Proposal and its Evaluation ..	206
<i>Meikel Bodé (Services & Cyber Security Group, University of Twente, The Netherlands), Maya Daneva (Services & Cyber Security Group, University of Twente, The Netherlands), and Marten J. van Sinderen (Services & Cyber Security Group, University of Twente, The Netherlands)</i>	
Industry 4.0 Maintenance: An Examination Of The Readiness Of Germany's Industrial Sector ..	216
<i>Jonas Wanner (Julius-Maximilians-Universität, Germany), Lukas-Valentin Herm (Julius-Maximilians-Universität, Germany), Christian Janiesch (TU Dortmund University, Germany), Kevin Fuchs (Julius-Maximilians-Universität, Germany), and Axel Winkelmann (Julius-Maximilians-Universität, Germany)</i>	
Design of an Idea Evaluation Method for SMEs Involving External Support Units	225
<i>Andreas Hermann (University of Muenster – ERCIS), Torsten Gollhardt (University of Muenster – ERCIS), and Jörg Becker (University of Muenster – ERCIS)</i>	

Algorithmic Decision Making and Model Explainability Preferences in the Insurance Industry: A Delphi Study	235
<i>Eric Schotman (Open Universiteit, Netherlands) and Deniz Iren (Open Universiteit, Netherlands)</i>	
Author Index	243

2022 IEEE 24th Conference on Business Informatics (CBI 2022)

**Amsterdam, Netherlands
15-17 June 2022**

**Volume 2
Pages 1-141**



**IEEE Catalog Number: CFP22231-POD
ISBN: 978-1-6654-6038-5**

2022 IEEE 24th Conference on Business Informatics (CBI) **CBI 2022**

Table of Contents

Message from the General Chairs and Program Chairs	viii
Message from the Workshop Chairs	ix
Organizing Committee	x

Forum

Trust and its Extensions in Digital Platform Ecosystems: Key Concepts and Issues for Future Research	1
<i>Sebastian Reiners (European Research Center for Information Systems, University of Muenster, Germany)</i>	
KnowGraph-MDM: A Methodology for Knowledge-Graph-Based Master Data Management	9
<i>Nour Ramzy (Infineon Technologies AG, Germany), Sandra Durst (Infineon Technologies AG, Germany), Martin Schreiber (Infineon Technologies AG, Germany), Sören Auer (TIB Leibniz Information Centre for Science and Technology, Germany), Javad Chamanara (L3S Research Center Leibniz University of Hannover, Germany), and Hans Ehm (Infineon Technologies AG, Germany)</i>	
Systematizing Business Process Redesign Initiatives with the BPR:Assessment Framework	17
<i>George Tsakalidis (University of Macedonia, Thessaloniki, Greece), Nikolaos Nousias (University of Macedonia, Thessaloniki, Greece), Michael Madas (University of Macedonia, Thessaloniki, Greece), and Kostas Vergidis (University of Macedonia, Thessaloniki, Greece)</i>	
Towards an Event-Centric Knowledge Graph Approach for Public Administration	25
<i>Dimitris Zeginis (University of Macedonia, Thessaloniki, Greece) and Konstantinos Tarabanis (University of Macedonia and Information Technologies Institute Centre for Research & Technology – Hellas, Thessaloniki, Greece)</i>	
Innovating Smart Product-Service Systems in Manufacturing SMEs: Current Practices, Affordances, and Constraints	33
<i>Daniel Heinz (Karlsruhe Institute of Technology, Germany), Hae-Rin Park (Karlsruhe Institute of Technology, Germany), Carina Benz (Karlsruhe Institute of Technology, Germany), and Gerhard Satzger (Karlsruhe Institute of Technology, Germany)</i>	
Resource Requirements in Business Process Modelling from an Operations Management Perspective	41
<i>Asvin Goel (Kühne Logistics University, Germany) and Min-Bin Lin (Humboldt University, Germany)</i>	

Discovering Instance Spanning Exceptions from Process Execution Logs	49
<i>Florian Stertz (University of Vienna, Austria), Karolin Winter (Technical University of Munich, Germany), and Stefanie Rinderle-Ma (Technical University of Munich, Germany)</i>	
A Global System for Avalanche Risk Assessment	57
<i>Fanny Pagnier (LISTIC, Université Savoie Mont Blanc, France), Frédéric Pourraz (LISTIC, Université Savoie Mont Blanc, France), Hervé Verjus (LISTIC, Université Savoie Mont Blanc, France), Didier Coquin (LISTIC, Université Savoie Mont Blanc, France), and Gilles Mauris (LISTIC, Université Savoie Mont Blanc, France)</i>	

VORTE

Knowledge Graph Semantic Annotation and Population with Real-Time Events Data from GDELT	65
<i>Marc Gallofré Ocaña (University of Bergen, Norway), Tareq Al-Moslmi (Independent researcher, Norway), and Andreas L. Opdahl (University of Bergen, Norway)</i>	
Interoperating Vocabularies in Multilingual Domain Data	73
<i>Simone Bocca (University of Trento, Italy), Gábor Bella (University of Trento, Italy), and Fausto Giunchiglia (University of Trento, Italy)</i>	

ITSS

Towards Uninterruptible Smart Home Processes	80
<i>Kai Grunert (Technische Universität Berlin, Germany)</i>	
Community Embeddings with Bayesian Gaussian Mixture Model and Variational Inference	88
<i>Anton I. N. Begehr (National Research University Higher School of Economics, Russia) and Peter B. Panfilov (National Research University Higher School of Economics, Russia)</i>	
Another Approach of DeFi: P2P Smart Contracts	97
<i>Ansel Shaidullin (National Research University Higher School of Economics, Russia) and Mikhail Komarov (National Research University Higher School of Economics, Russia)</i>	

TDGD

Decentralized Governance Inspired by Corporate Governance?	104
<i>Hans Koning (Vrije Universiteit Amsterdam, Netherlands) and Tina van der Linden (Vrije Universiteit Amsterdam, Netherlands)</i>	
Smart Legal Contracts & Smarter Dispute Resolution	111
<i>Ece Su Ustun (University of California, Berkeley) and Melek Yuçe (Ozyegin University, Turkey)</i>	
Rethinking the Rule and Role of Law in Decentralized Finance	118
<i>Andre Wang (University of Amsterdam, The Netherlands)</i>	
Easing the use of Smart Contracts Through Model-Based Engineering	126
<i>Cristian Gómez Macías (Universidad Rey Juan Carlos, Spain), Juan Manuel Vara (Universidad Rey Juan Carlos, Spain), Francisco Javier Pérez Blanco (Universidad Rey Juan Carlos, Spain), and Esperanza Marcos Martínez (Universidad Rey Juan Carlos, Spain)</i>	

Watch the Gap: Making Code More Intelligible to Users Without Sacrificing Decentralization?	133
<i>Simona Ramos (Universidad Pompeu Fabra, Spain) and Morshed Mannan (European University Institute, Italy)</i>	
Author Index	141