

2025 International Conference on Quality Management, Transport and Information Security, Information Technologies (QM&TIS&IT 2025)

**Kaliningrad, Russia
15-19 September 2025**

IEEE Catalog Number:
ISBN:

CFP25J17-POD
979-8-3315-5858-1



Copyright © 2025, IEEE

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:	CFP25J17-POD
ISBN (Print-On-Demand):	979-8-3315-5858-1
ISBN (Online):	979-8-3315-5857-4

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

TABLE OF CONTENTS

Control of Transactions in the Field of Combating Money Laundering and Terrorist Financing: Integrating Smart Contracts with Dynamic Risk Assessments	1
<i>Madina V. Alikaeva, Murat A. Volov, Irina V. Sugarova, Lyudmila V. Prigoda, Elena V. Balahonova</i>	
Improving the Quality of Monitoring Facilities	7
<i>Oleg N. Bodin, Oksana E. Bezborodova, Vasily M. Zhigachev, Kristina D. Mishina, Dmitry V. Martinov Alina O. Kholudeneva</i>	
Approaches to the Detection of Deepfake in the Financial Organization's Activities	13
<i>Aleksandr V. Belov, Georgii A. Fedotov</i>	
Integration of Quality Management and Production Organization Based on Digital Technologies	18
<i>Victor A. Vasiliiev, Svetlana V. Aleksandrova</i>	
Information Technologies in the Development of Transport Security	22
<i>Marina A. Vasilenko, Elena L. Kuzina, Julia A. Tagiltseva, Marina A. Kuzina, Alexander A. Aleksandrov Vyacheslav A. Galkin</i>	
Wireless Integration of Fiber Optic Vibration Sensor	26
<i>Maxim S. Akatov, Aleksander L. Tuv, Dmitry I. Godyno, Arseny D. Beglov, Alina A. Opekunova</i>	
Improving Hardware and Software Systems for Monitoring Geomechanical Characteristics of Rocks in Boulder-Sand-Gravel Quarries	30
<i>Victor A. Khakulov, Vitalii A. Shapovalov, Dana V. Khatukhova, Ibragim A. Nogerov, Amina E. Shinakhova</i>	
Development of the Lane Change System Based on Reinforcement Learning Paradigm Considering Different Types Drivers' Behavior	36
<i>Mikhail D. Konovalov, Liudmila A. Uvarova</i>	
Comparative Analysis of Bibliometric Platforms for Meta-Analysis of Scientific Publications: A Case Study on the Economic Behavior of the Indigenous Peoples of the North	40
<i>Svetlana A. Kurnosova, Irina O. Kotlyarova, Ekaterina V. Zabelina, Andrey V. Konstantinov Kseniya N. Volchenkova, Angelina A. Kartashova</i>	
Operational Testing and Error Budget Management in the Architecture for Large Language Models Integrated Systems	46
<i>Sergey V. Makshakov, Valentina G. Sidorenko</i>	
Machine Learning Approach for Monitoring the Condition of Forest Ecosystems	53
<i>Hlib A. Nekrasov</i>	
Development of a Tool for Forest Type Recognition for Mapping Using Machine Learning Methods	60
<i>Nikita A. Proshak, Irina S. Ulanova, Hlib A. Nekrasov</i>	
Mathematical Model of Electronic Document System Dynamics for Identifying Business Process Bottlenecks	66
<i>Irina R. Shekhovtsova</i>	
Mathematical Model for Information Security Risk Assessment in Electronic Document Management Systems	71
<i>Irina R. Shekhovtsova</i>	

Development of a Fiber-Optic Angular Displacement Recorder	75
<i>Alexander L. Tuv, Maxim S. Akatov, Dmitry I. Godyno, Arseny D. Beglov, Alina A. Opekunova</i>	
Unconditionally Secure Transform for High-Order Markov Sources via Splitting	80
<i>Andrey N. Fionov, Elena L. Grozovskaya</i>	
Methodology of Complex Steganalysis Using Image Quality Characteristics Estimation	85
<i>Yaroslav L. Grachev, Valentina G. Sidorenko</i>	
Development of the Methodology for Automation of Access Control to the Resources of a Transport Enterprise	91
<i>Nataliya M. Kuznetsova, Tatiana V. Karlova, Anna N. Zapolskaya</i>	
Advanced IT-Security Risk Assessment Methods for Critical IT Infrastructure Facilities	96
<i>Ilya I. Livshitz, Pawel A. Lontsikh, Natalia P. Lontsikh</i>	
“Digital Audit” System Usage in Assessment the Company's Security System Performance	99
<i>Ilya I. Livshitz, Pawel A. Lontsikh, Natalia P. Lontsikh</i>	
Ensuring Security at Facilities of Large Area Coverage	103
<i>Ilya I. Livshitz</i>	
Data Security Provision for Digital Transformation Processes	107
<i>Ilya I. Livshitz</i>	
Digital Transformation and the Use of Information Technology in Crisis Management	111
<i>Madina V. Alikaeva, Murat A. Volov, Bella Z. Karmova, Fardiana R. Ketova, Madina B. Uyanaeva</i>	
Glow Discharge of a Plasma Generator as a Tool for Ensuring the Quality of the Surface Layer of a Material	118
<i>Vladimir A. Logvin, Leonid M. Chervyakov, Natalia A. Bychkova, Svetlana V. Aleksandrova</i>	
Development of a Hardware and Hoftware Complex for Improving the Technical Safety System of Industrial Enterprises	123
<i>Elena Yu Narusova, Vladimir G. Struchalin, Ekaterina L. Koltsova, Dmitry V. Bobrov, Elena V. Mitryukhina</i> <i>Victoria A. Paruleva</i>	
Development of Intelligent Information Systems to Ensure the Safety of the Transport Infrastructure of a Metropolis	129
<i>Elena Yu. Narusova, Vladimir G. Struchalin, Ekaterina L. Koltsova, Pavel S. Polyansky</i> <i>Mikhail R. Pleshakov, Gleb E. Druzhinin</i>	
Development of Digital Twin Models of Transport Facilities Taking into Account Their Life Cycle	133
<i>Anatoly A. Rogov, Andrey S. Shinkaruk, Natalia A. Telyatnikova, Ivan A. Vishnyakov, Elena V. Mitryukhina</i> <i>Alina A. Olenich</i>	
Development of Digital Models of Maintenance Processes at Wagon Repair Plants	137
<i>Andrey S. Shinkaruk, Anatoly A. Rogov, Ivan A. Vishnyakov, Elena V. Mitryukhina</i>	
The Logistics Risk Management in a Digital Technological Enterprise Integrated Management System	141
<i>Julia A. Tagiltseva, Elena L. Kuzina, Marina A. Kuzina, Marina A. Vasilenko, Alexander A. Alexandrov</i> <i>Turaj Ja. Akhmedova</i>	

IT Strategy of the International Container Cargo Transportation Control System	147
<i>Julia A. Tagiltseva, Elena L. Kuzina, Marina A. Kuzina, Marina A. Vasilenko, Artem A. Karelin</i> <i>Roman N. Parkhomenko</i>	
Digital Transformation of Sales Processes: Development of IT Strategies and Leading Marketing in the Digital Economy	153
<i>Marina A. Vasilenko, Elena L. Kuzina, Julia A. Tagiltseva, Marina A. Kuzina, Roman N. Parkhomenko</i> <i>Turaj Ja. Akhmedova</i>	
Student “Centaur” Competencies: Human-AI Synergy as the Foundation for Success in the Digital University of the Future	159
<i>Vladimir N. Azarov, Vladimir V. Gorokhov</i>	
Application of Artificial Intelligence in Education. From Consumer to Co-Creator: What to Teach Students of the Digital University in the Era of Developing AI	162
<i>Vladimir N. Azarov, Vladimir V. Gorokhov</i>	
Cognitive Offloading or Atrophy? Risks of Skill Degradation and New Forms of Dependence in the Era of Pervasive Artificial Intelligence	167
<i>Vladimir N. Azarov, Vladimir V. Gorokhov</i>	
Caspian Pipeline Consortium Equipment Monitoring System	170
<i>Aleksandr V. Belov, Irina V. Arutyunova</i>	
Improving Quality of Stress Assessment Based on Analysis of Signs of Takotsubo Syndrome	175
<i>Oleg N. Bodin, Oksana E. Bezborodova, Vasily M. Zhigachev, Kristina D. Mishina, Dmitry V. Martinov</i> <i>Mikhail V. Edemsky</i>	
Smart Quality Management System of a Digital Enterprise Based on Neural Networks	180
<i>Evgeny K. Chernyshev, Vladimir N. Azarov, Anatoliy V. Chekmarev</i>	
Digital Twins: Industry IT Services of Quality Management Systems	183
<i>Leonid M. Chervyakov, Natalia A. Bychkova, Andrew V. Oleynik</i>	
Method for Determining the Sign in the Residue Number System Based on the Chinese Theorem on Fractional Remainders	187
<i>Diana I. Kalita, Pavel A. Lyakhov, Ulyana A. Lyakhova, Anzor R. Orazaev, Viktoria D. Kovaleva</i>	
Automatic Camera Calibration Method for Solving the Problem of Moving Object Detection	191
<i>Diana I. Kalita, Pavel A. Lyakhov, Ulyana A. Lyakhova, Anzor R. Orazaev, Viktoria D. Kovaleva</i>	
The Learning Potential of VR-Technologies in the Educational Process	195
<i>Tatyana V. Karlova, Alexander Yu. Bekmeshov, Marianna V. Mikhaylova, Anna N. Zapolskaya</i> <i>Alexey E. Tikhomirov</i>	
Scientific Foundations of an Intelligent Method for Quality Assessment and Monitoring of Information Content and Digital Security of Public Resources of Educational Organizations	198
<i>Maxim S. Kravchenko, Andrey V. Averchenkov, Sergey A. Sheptunov, Dmitriy A. Averchenkov</i>	
Modeling of Wireless Sensor Network Clustering by Constructive Neural Network Method	205
<i>Nawar F. Mohammad, Lilia I. Voronova</i>	
The Impact of Digitalization on the Academic Environment	210
<i>Violetta V. Petrova, Ludmila I. Shramko</i>	

Development of an AI-Consultant for a Design Engineer Using a Neural Network and a Dynamo Script	215
<i>Olga V. Smirnova, Win Ko Myint Thu</i>	
Development of a Digital Twin for Assembly and Packaging Processes Using the R-Pro Modelling Environment	219
<i>Victor A. Smolnikov, Lilia I. Voronova</i>	
Development of Unmanned Research Vehicles with Control System Based on Artificial Intelligence	225
<i>Natalia V. Sukhanova, Sergey A. Sheptunov</i>	
Development of Environment Monitoring with Control System Based on Artificial Intelligence	228
<i>Natalia V. Sukhanova, Sergey A. Sheptunov</i>	
Ethical Challenges of Applying Artificial Intelligence in Education: Issues in Developing Standards	232
<i>Victor V. Timchenko, Petr V. Matveyev, Olga A. Yeliseeva</i>	
Integrating Information and Parametric Modeling for the Design of Steel Truss Bridges	238
<i>Win Ko Myint Thu, Olga V. Smirnova</i>	
Digital Model of Thermal Phenomena in Diamond Cutting Wheels During Their Operation	244
<i>Martin M. Yakhutlov, Sergey A. Sheptunov, Vladimir N. Azarov, Khamisha M. Senov, Musa Ts. Didanov</i>	
<i>Zalim N. Deunezhev</i>	
Digital Modeling of the Frequency Characteristics of the “Grain-Matrix” System of Diamond-Abrasive Tools	247
<i>Martin M. Yakhutlov, Sergey A. Sheptunov, Vladimir N. Azarov, Maryana R. Kardanova, Oxana V. Islamova</i>	
<i>Zalim N. Deunezhev</i>	