

2024 Portland International Conference on Management of Engineering and Technology (PICMET 2024)

**Portland, Oregon, USA
4-8 August 2024**

Pages 1-680



**IEEE Catalog Number: CFP24766-POD
ISBN: 979-8-3503-6913-7**

**Copyright © 2024, Portland International Center for Management of Engineering
and Technology (PICMET)
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:	CFP24766-POD
ISBN (Print-On-Demand):	979-8-3503-6913-7
ISBN (Online):	978-1-8908-4345-8
ISSN:	2159-5100

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

TABLE OF CONTENTS

TECHNOLOGY MANAGEMENT FRAMEWORK

Theory-to-Application Transition in Mathematics and Computer Science Studies.....	1
<i>Rikuei Kaku, Kimitaka Asatani, Noriyuki Higashide, Ichiro Sakata</i>	
Enhancing Digital Resilience Through AI in Industry 5.0: A Technology Management Perspective	8
<i>Amara Atif, Muhammad A. Qureshi</i>	
Research on the Feature of Patent Strategy of EUV Machine Manufacturer ASML: A Patent Analysis Utilizing KH Coder	17
<i>Dongjian Wu, Manabu Sawaguchi, Masao Oda</i>	

STRATEGIC MANAGEMENT OF TECHNOLOGY

Is Temporal Leadership Always Effective? A Study on Investment Decision-Making of Rural Public Health Resources by Local Government in China	22
<i>Junna Meng, Man Zhao, Anmin Wang, Zhuochen Sun</i>	
The Trickle-Down Effect of Trust in Leader Among Top Executives on TMT Conflict Moderating Roles of Environmental Dynamism	33
<i>Cheng-Ning Song, Hao-Chieh Lin, Chiung-Man Tsai</i>	
Information System for Modern IT Governance and Management - ITGM	47
<i>Jorge Barrera, Sergio Borja</i>	
Fostering Establishment of BtoB Platform Ecosystem: Ingot Information-Sharing Platform Case Study.....	59
<i>Hisao Toriyama, Naoshi Uchihira</i>	
Technology Opportunity Analysis for Creating Innovative Solutions: Applying Semi-Supervised Topic Modelling on Patent Data	67
<i>Jinseob Kim, Sungjoo Lee</i>	

COLLABORATION AND COMPETITION IN TECHNOLOGY MANAGEMENT

Strengthening Capacity in Industrial Revolution 4.0 (IR 4.0): A Case Study on Training Product-Service Systems Between the US and Vietnam.....	76
<i>Man H. Yip, Ana S. C. Santarnaria, Julia Babcock</i>	
3D Printing Mergers and Acquisitions	83
<i>Harm-Jan Steenhuis, Xin Fang, Julia Heilig</i>	
Research on Network Relationships and Collaborative Governance of Multiple Stakeholders in Urban Renewal	89
<i>Nian Liu, Lianying Zhang</i>	
Research on the Evolutionary Game of Urban Regeneration Multiple Participants Supported by Blockchain.....	101
<i>Yuman Liu, Lianying Zhang</i>	

SCIENCE AND TECHNOLOGY POLICY

The AI Challenge for National Technology Strategy..... <i>Mel Horwitch</i>	110
Impact Analysis of Research-Intensive University Development Program for Professors' Research Performance..... <i>Sora Lee, Heesang Lee</i>	121
A Comparative Study of China and US's Future Industry Development Strategy and Typical Future Industry Innovation Capability..... <i>Yun Liu, Yuduo Wu, Dong Guo</i>	130
China's Potential to Overtake the United States: The Role of Technical Diffusion and Catch-Up Speed	138
<i>Byung G. Choy</i>	

ARTIFICIAL INTELLIGENCE IN TECHNOLOGY MANAGEMENT

Artificial Intelligence Applications in Ionospheric Irregularities: A Bibliometric Analysis	156
<i>Alisa Kongthon, Pornchai Supnithi</i>	
Value Proposition Design with Artificial Intelligence: A Methodology for Business Model Innovation..... <i>Arturo A. Rodríguez, Gabriela Calvario</i>	162
Towards Effective Human-AI Collaboration in Decision-Making: A Comprehensive Review and Conceptual Framework	168
<i>Daniel A. Molina, Vladimir Kharlov, Ja-Shen Chen</i>	
The New Era of Knowledge Retrieval: Multi-Agent Systems Meet Generative AI..... <i>Niklas Holtz, Sven Wittfoth, Jorge M. Gómez</i>	174
Exploring the Usage of a Technology Acceptance Model for 4th Industrial Maintenance Management Technologies in Petrochemical Industries..... <i>Sello Mollo, Leon Pretorius, Jan-Harm C. Pretorius</i>	184
The Network Position of AI Venture Companies in Investment Network: Social Capital Matters	194
<i>Boa Kim, Keeheon Lee</i>	
Impact of AI in Product Lifecycle	204
<i>Atmesh Tiwari, Minnie H. Patel</i>	
Training Practitioners for Real-Time Product Development using Generative Artificial Intelligence	214
<i>Antonie J. Jetter; Ameeta Agrawal, Dahm M. Hongchai, Charles M. Weber, Yufei Tao</i>	
Managing Educational Quality Through AI: Leveraging NLP to Decode Student Sentiments in Engineering Schools..... <i>Enrique D. De León López</i>	225
Use of AI in Point-of-Care Devices in Healthcare: Identifying the Critical Factors for Successful Applications..... <i>G. V. Muralidhara, Harish Dhanwantri, Raghavendra Rao</i>	235

AI for Science: Practice from Baidu PaddlePaddle	257
<i>Xiaomeng Chai, Min Zhang, Hua Tian</i>	
Decrypting the Success Path of High Potential Start-Ups: The Application of Process Mining Algorithms on Key Developments	269
<i>Christoph Schröer, Sven Wittfoth, Tabea Hüllen, Florian Naumann, Jonas Frischkorn, Wolfgang Müller-Pietralla</i>	
From Fiction to Forecast: Leveraging LLM-Enhanced Models and Science Fiction for Innovative Technology Predictions	283
<i>Chen Jin, Zhang Keren, Zhu Ziqin, Lin Jiawei, Zhang Yilun</i>	
Enhancing Product Designing with the Help of Artificial Intelligence	303
<i>Dhyeykumar Nikalwala, Minnie H. Patel</i>	
Content Creation by Generative AI and Operator Perception: A Focus on Operator's Profit-Driven Motivation	313
<i>Sayaka Tokita</i>	
AI at Work: Performance Paradigms in the Age of Automation from the OCDE	321
<i>Jessica Lopez-Garcia, David Romero-Gomez, Manuel Castañón-Puga, Eduardo Ahumada-Tello</i>	
Paradoxes and Coping Practices in AI Servitization: An Exploratory Study of Four Chinese Manufacturers.....	327
<i>Xinyi Lin, W. Dong, Coreynen Wim</i>	
Entry Timing, Pre-Entry Knowledge Diversity, and Innovation Performance in AI Technology	339
<i>Xinyi Lin, W. Dong</i>	
Sustainable Enterprise Architecture: A Critical Imperative for Substantiating Artificial Intelligence.....	349
<i>Nampuraja E. Kamalabai, Ilkka Donoghue, Lea Hannola</i>	
Revolutionizing the Cannabis Industry: In the AI Era.....	361
<i>Caren Weinberg</i>	
Open Technology Management for Maximizing the Public Value of Large Language Models	366
<i>Aki Tomita</i>	

DECISION MAKING IN TECHNOLOGY MANAGEMENT

Interactive and Immersive Media for Training in Decision-Making: A Literature Review	377
<i>David Güemes-Castorena, Mauricio Hincapié-Montoya, Christian A. Díaz-León, Armando Elizondo-Noriega, Sofía P. R. Dorst</i>	
Intellectual Capital and Resource Integration Capability in Decision Making Processes: The Moderating Role of Managerial Capability.....	385
<i>Chun H. Wang, Chi C. Wu, Chin C. Ou</i>	

CONVERGENCE OF TECHNOLOGIES

Technology Convergence and Its Influence on Innovation Networks: An Assessment of Emerging Trends.....	395
<i>Shuying Li, Wudan Ma, Xiaoyu Wang, Xian Zhang, Haiyun Xu, Edwin Garces, Tugrul Daim</i>	

Research on Technology Convergence Mechanism Based on Multi-Layers Network: A Case Study of Industrial Robots	404
<i>Dejing Kong, A. Haoran, Yafei Liu</i>	

Next Stop Metaverse: Opportunities and Barriers of AI-Based Virtual Worlds for Companies	410
<i>Peter Schrader, Nicole Gladilov, Franz Falkenau, Jens Neuhüttler, Günter Wenzel, Oliver Schöllhammer, Katharina Hölzle, Thomas Bauernhansl</i>	

EMERGING TECHNOLOGIES

Discovering Technological Opportunities in the Hydrogen Industry: An Adoption of GNN and Patent Data	422
<i>Runzhe Zhang, Xiang Yu, Zhiqiang Guo, Ben Zhang</i>	
Management of Disruptive Technologies as Applied in Stages of Long-Term Insurance Processes.....	429
<i>Thabo Moloi, Antoine F. Mulaba-Bafubandi</i>	
Determining Maintenance 4.0 Readiness: A Case Study of a South African Food Manufacturing Company	445
<i>Malusi Mabaso, Rina Peach, Leon Pretorius</i>	

ENTREPRENEURSHIP/INTRAPRENEURSHIP

The Effect of Technostress to Employee's Job Burnout in Organization Within Thailand	455
<i>Jul Thanasrivanitchai, Thanawan Torasamphan</i>	
What Factors Influence Entrepreneurial Decision-Making?: Insights from Technology-Intensive Firms in Taiwan	461
<i>Yi-Fan Lung, Mei-Chih Hu</i>	

INNOVATION MANAGEMENT

Learning Effects in Informal Consensus Building During the Innovation Process: Questionnaire Survey on Nemawashi	473
<i>K. Nikka, Naoshi Uchihira</i>	
Leveraging AI Technology to Facilitate Innovation Management at System-of-Systems Level from Second-Order Science: A Study Based on VSM and Reflexivity Theory	482
<i>Qian Chen, Jin Chen, Keren Zhang</i>	
Derivation of Targets for the Portfolio Planning of a Solution Provider in Machinery Engineering.....	492
<i>Michael Riesener, Alexander Keuper, Carsten Boßmann, Günther Schuh</i>	
Systematic Evaluation of Hybrid Portfolios for Solution Providers in Machinery Engineering	502
<i>Michael Riesener, Alexander Keuper, Carsten Bobmann, Timm Schulz-Isenbeck, Günther Schuh</i>	
Establishing Sustainable Business Models Through Subscription in Machinery and Plant Engineering	511
<i>Michael Riesener, Alexander Keuper, Carsten Bobmann, Jonathan Smerz, Timm Schulz-Isenbeck, Günther Schuh</i>	

What Kind of Persons are ‘Empathetic Innovators’ Crucial to Innovation?: From the Case of the Electronic Compass Device R&D Team	520
<i>Takaki Yasuda, Chiaki Oshiyama, Koki Ijuin, Naoshi Uchihira, Takuichi Nishimura</i>	
Waning Breakthroughs? Investigating the State of Innovation in the Field of NLP.....	531
<i>Abebe Gasparini, Carl H. Lohmander, Keeheon Lee</i>	
Linking Industry, Technology and Business: A Deep Learning-Based Approach to Predict Their Future Relationships to Identify Innovation Opportunities	559
<i>Tae-eun Kim, Sungjoo Lee</i>	
Theoretical Study of the “Front Line” in Economic Growth: A Trial Theory for Bridging Economic Growth Models and Innovation.....	571
<i>Kazuhiko Itaya</i>	
Effect of Knowledge Sharing on Participant Performance in Artificial Intelligence Contests: A Quasi-Experiment.....	578
<i>Lingling Wang, Meijian Yang, Sen Li</i>	
Tensions in Digitalization in Higher Education: Learning from the Past to Guide Digital Transformation	588
<i>Fredrik Liljeblad, Joakim Lilliesköld, Ermal Hetemi</i>	
The Influence Mechanism of CVC on Enterprise Innovation Performance and Specialization: Empirical Research Based on GEM Enterprises	599
<i>Yurui Cheng, Song Chen, Xunshuo Bian, X. Mao</i>	
The Impact of Market Competition on Process Innovation in Chinese High-Tech Companies: The Moderating Effect of Executive Incentive.....	608
<i>Xu Mao, Chen Song, Xu Jiaying</i>	
Cross-Market Innovation: The Dynamics of Latecomer Catching-Up Model from Emerging Chinese Electric Vehicle OEMs.....	619
<i>Wei Liu, L. Xianjun, Yu Xiong, Kun Feng, F. Yu</i>	
Exporting the Innovative Momentum: The Case in the Semiconductor Industry.....	634
<i>Hung-Chun Huang, Hsin-Yu Shih, Tsung-Han Ke</i>	
The Strategy and Its Evolution Trajectory of Product Innovation and Servitization: An Empirical Study of Manufacturing SMEs in Taiwan	643
<i>Bang-Ning Hwang, Ying-Zhen Chen</i>	
Conceptualizing Data-Driven Frugal Innovation: A Case from the Philippines.....	654
<i>Michael P. Cañares, Ronald Vatananan-Thesenvitz</i>	
External Technological Knowledge Acquisition in Developing Country Firms.....	664
<i>Khaleel Malik</i>	
Semi-Integral Architecture: Sustainable Infrastructure Concept	669
<i>Atsunori Someya, Manabu Sawaguchi</i>	

INFORMATION MANAGEMENT

The Generation of Hybrid Feature-Based Research Topics using Text Mining and K-Means Algorithms for Government Science and Technology Projects.....	681
<i>Chia-Yi Chuang, Ching-Hsua Lin, Rui-Qi Lin, Chin-Yuan Fan</i>	

A System-Dynamic-Based Model to Study the Effect of Singular AWS Bucket Management Big Data Architecture into the Automotive Industry.....	686
--	-----

Cesar M. Martinez-Soto, Mario A. Negrete-Rodriguez, A. Elizondo-Noriega, David Güemes-Castorena

A System-Dynamics-Based Model to Study the Implementation of Big Data with ETL Process in the Automobile Manufacturing Industry	697
---	-----

Mario A. Negrete-Rodriguez, Cesar M. Martinez-Soto, A. Elizondo-Noriega, David Güemes-Castorena

KNOWLEDGE MANAGEMENT

System-Dynamics Modeling of an Expertise-Based Talent Management Strategy for Engineering Changes Analysts in a Car Manufacturing Plant	706
---	-----

A. A. Castillo-Paz, A. Elizondo-Noriega, G. L. Emmett, J. Rouen, A. Topp, R. Linan, L. Duarte-Pacheco, J. L. Cecilio-Meza, J. F. Piñal-Moctezuma

A System-Dynamics-Based Simulation to Model a Rotary Talent Management Strategy for Engineering Changes Analysts in the Automotive Industry	718
---	-----

A. A. Castillo-Paz, A. Elizondo-Noriega, J. Rouen, G. L. Emmett, A. Topp, R. Linan, J. L. Cecilio-Meza, J. F. Piñal-Moctezuma

Experimentation of Integrating Roadmapping and Sci-Fi Prototyping Methods	736
---	-----

Miwa Nishinaka, Kunio Shirahada, Yusuke Kishita, Dohjin Miyamoto, Hirotaka Osawa, Sachiko Kiyokawa, Hideaki Takeda

Quantifying Relationships in Fuzzy Cognitive Maps Based on Content Analysis of Unstructured Research Texts.....	744
---	-----

Ahmed Alibage, Antonie J. M. Jetter, Elpiniki Papageorgiou

Human Resources Formation for Technology Management in Emerging Nations: Challenges and Opportunities in the AI Era.....	754
--	-----

Humberto Merritt

INFORMATION/COMMUNICATION TECHNOLOGIES

Setting an Agenda for Technology Professionals to Overcome the Challenges of Earthquakes	761
--	-----

Dilek Cetindamar, Redah Sheriff, Avishti Sharma, Akash Sreekumar

A Study of Subscription Gifting as Donation on Twitch Social Live Streaming Service Under COVID-19 Pandemic Situation	767
---	-----

Hisayuki Kunigita, Youji Kohda

Blame Shifting, Shopping Intensity, and Revisit Likelihood in Data Breaches	772
---	-----

John N. Angelis, Rajendran S. Murthy

INTELLECTUAL PROPERTY

IP Evaluation and Technology Transfer.....	781
--	-----

Priyadarshini Singh, Gouri Gargate

Role of Technology in the Preservation and Protection of Traditional Knowledge: Traditional Knowledge Management — The Way to Riches.....	795
---	-----

Rishika Seal, Gouri Gargate

Annual Pharmaceutical Sales Estimates using Patents.....	804
<i>Koichi Kamijo, Yaeko Mitsumori, Hiroshi Kato, Akiko Kato</i>	
Patent Pools in the Automobile Industry: A Case Study of Internet of Things.....	814
<i>Sherin Priyan, Gouri Gargate</i>	
Data Analysis of the Drug Pipeline of Bangladesh: Preparation for the TRIPS-Compliant Product Patent Regime.....	819
<i>Yaeko Mitsumori, Monirul Azam</i>	
How Does the Synergy Between Technical Standards and Intellectual Property Rights Affect the Digital Transformation of the Automotive Industry? Empirical Evidence from China.....	828
<i>Lingying Wang, Peiling Yu, Ying Wu, Lingxiang Cai, Wenxin Xie, Jia Wen</i>	

ENTERPRISE MANAGEMENT

Exploring the Dynamics of Business Model Portfolio: Unveiling Strategic Restructuring: A Case Study of Sany Heavy Industry.....	840
<i>Saeid Heshmatisafa, Marko Seppänen</i>	
Effects of the COVID-19 Pandemic on Pharmaceutical Companies' Performance: Whether the Disease Nurtured or Stifled the Global Pharmaceutical Industry	854
<i>Yaeko Mitsumori, Hiroshi Kato, Akiko Kato, Koichi Kamijo</i>	

R&D MANAGEMENT

Identification of Exogenous Disturbances of Product Development.....	862
<i>Michael Riesener, Alexander Keuper, Jonas Tittel, Carsten Boßmann, Alexander Menning, Günther Schuh</i>	
Identification of Product Development Goals to Increase Organizational Resilience	870
<i>Michael Riesener, Alexander Keuper, Jonas Tittel, Carsten Bobmann, Pawan Singh, Günther Schuh</i>	

PROJECT/PROGRAM MANAGEMENT

Five Pivotal Practices for Leaders to Cultivate Empathy Within Virtual Scrum Teams.....	876
<i>Dahm M. Hongchai, Charles M. Weber</i>	
Research on Key Influencing Factors of the Life-Cycle Incremental Cost of Green Building	893
<i>Anmin Wang, Yilin Zhu, Junna Meng</i>	
Investigating the Impact of Transportation Infrastructure Investment on Urban Expansion in Chengdu-Chongqing Urban Agglomeration.....	898
<i>Rongyue Liu, Lianying Zhang, Fengcai Liu</i>	

MANUFACTURING MANAGEMENT

A System-Dynamics-Based Simulation to Assess the Behavior Over Time of the Production Error Rate Caused by New Product Introduction in General Assembly Activities of an Automotive Manufacturing Facility	906
<i>A. A. Castillo-Paz, A. Elizondo-Noriega, R. Cervantes, G. L. Emmett, J. Rouen, A. Topp, R. Linan, A. S. Perez, L. Duarte-Pacheco, J. L. Cecilio-Meza, J. F. Pinal-Moctezuma</i>	

Method for Production Capacity Forecasting: An Analytical Approach to Identifying Sequentially Chronological Production Constraints.....	917
<i>Leonard Weitman</i>	

Improving Attendance to Achieve Organizational Goals: A Case Study of Human-Centered Design in a Small US Plant-Based Food Manufacturer.....	924
<i>Angel Contreras-Cruz, Eduardo Ahumada-Tello</i>	

SUPPLY CHAIN MANAGEMENT

Supply Chain Management and Operational Effectiveness a Transportation Case Study	931
<i>Euphodia Netshakhuma, Jan H. C. Pretorius, Leon Pretorius</i>	

QUALITY MANAGEMENT

Usability in B2B Software Development	939
<i>Anh Nguyen, Charles M. Weber</i>	

System Dynamics Modeling for Engineering Change Administration in Serially Produced Vehicles: A Case Study in Electrical and Electronics Assembly Operations	948
<i>A. A. Castillo-Paz, A. Elizondo-Noriega, A. Benavides, J. V. Cuellar, G. L. Emmett, J. Rouen, A. Topp, R. Linan, A. S. Perez, J. L. Cecilio-Meza, J. F. Piñal-Moctezuma</i>	

System Dynamics Modeling in Automotive Electronics Assembly: A Case Study on New Product Engineering Change Administration	966
<i>A. A. Castillo-Paz, A. Elizondo-Noriega, J. V. Cuellar, A. Benavides, G. L. Emmett, J. Rouen, A. Topp, R. Linan, A. S. Perez, J. L. Cecilio-Meza, J. F. Piñal-Moctezuma</i>	

A Case Study in Engineering Change Administration Operations in Serially Produced Vehicles: A System Dynamics Approach to Painted Body Current Product Operations	979
<i>A. A. Castillo-Paz, A. Elizondo-Noriega, A. Ramirez, G. L. Emmett, J. Rouen, A. Topp, R. Linan, A. S. Perez, J. L. Cecilio-Meza, J. F. Piñal-Moctezuma</i>	

SUSTAINABILITY

Sustainable Technology Management: A Causal Loop Analysis of Circular Economy Adoption and Stakeholder Dynamics.....	997
<i>L. Van Der Linde, L. Pretorius, R. Oosthuizen</i>	

Contributions of AI-Based Smart Services to Sustainable Value Creation.....	1007
<i>Nicole Gladilov, Lena Ahner, Jens Neuhüttler, Katharina Hözlé</i>	

Transitioning the Firm to a Circular Stakeholder-Value Creation Model	1021
<i>Kunio Shirahada, Charles Romito, Nancy Bocken</i>	

Sustainability to Financial Realities: A Comparative Study of Renewable Energy's Impact on Financial Performance.....	1029
<i>Dounia Chlyeh, Erkan Bayraktar, Mustafa K. Yilmaz, Ekrem Tatoglu, Selim Zaim</i>	

Constructing Financial Support Ecosystem of Innovation Momentum for Semiconductor Industry	1040
<i>Tsung-Han Ke, Hung-Chun Huang, Hsin-Yu Shih</i>	

SYSTEMS APPROACH

Product Modularity: Literature Since 2016	1046
<i>Jeff Carpenter</i>	
A Systems Approach to Prepare Military Functions for Climate Change	1050
<i>Elizabeth M. Pacyna, Gary O. Langford, Herman J. Migliore, Charles M. Weber</i>	
Organizational Reliability and Resilience as a Dynamic System: Knowledge Modeling with Fuzzy Cognitive Maps	1059
<i>Antonie J. M. Jetter, Ahmed Alibage, Nan Liang</i>	

ENVIRONMENTAL ISSUES

Developing Socio-Technology Scenarios for the Realization of a Carbon-Neutral Society	1068
<i>Shigeki Saito, Haruhisa Okuda, Tomohiro Yatagawa, Yuichi Washida</i>	
IOT for Solid Waste Management in India: A Road Towards Sustainability.....	1074
<i>Piu Das, Gauri Gargate</i>	

EDUCATIONAL ISSUES

The Path of Improving the Quality of Education Management in Artificial Intelligence Era	1089
<i>Xu Zhongyuan</i>	
A Systematic Literature Review on the Use of Simulators to Train Undergraduate Students in Logistics	1095
<i>Esteban E. Rodriguez-Garcia, Armando Elizondo-Noriega, Francisco L. Camou-Grijalva, Abenameth Romero-Araiza, Juan F. Piñal-Moctezuma, Miguel A. Sandoval-Jaramillo, Tecilli Tapia-Tlatelpa, Fabiola Salas-Diaz</i>	
Adaptation of Keller's IMMS Questionnaire to Measure Undergraduate Class Motivation	1102
<i>A. Elizondo-Noriega, F. Salas-Diaz, A. Guerrero-Cerrano, C. Alcantar-Nieblas, N. Tiruvengadam, Luis C. Félix-Herrán, T. Tapia-Tlatelpa, L. Lozano-Taba, J. A. Castro-Echeverría, O. Galindo-Hernández, M. R. Forte-Celaya, A. A. Castillo-Paz, C. Ramírez-Figueroa, J. Cuevas-Ortuño, J. R. Angulo-Cedeño, R. J. Velázquez-Valdés, J. L. Cecilio-Meza, M. A. Negrete-Rodríguez, M. S. Ramírez-Montoya, D. Güemes-Castorena, F. Ruiz-Mendez</i>	
Aligning Industry Needs and Education: Unlocking the Potential of AI via Skills.....	1109
<i>Katri Salminen, Pia Hautamäki, Markus Jähi</i>	
A Study on Highly Effective Human Resource Development Methods for Project Managers in National R&D Projects in Japan.....	1119
<i>Takeshi Maeno, Yoshiro Tasaki, Hiroyuki Hori</i>	

TECHNOLOGY FORECASTING AND EVALUATION

Challenges and Potentials in Evaluating Early-Stage Deep Technology	1124
<i>Miha Podbreznik, Florian Degen, Achim Kampker</i>	

Assessing Digital Disruptiveness in the Age of Mobile Internet: Case of Vehicle Location-Based Services	1132
<i>Demei Lee, Jonathan C. Ho</i>	

Technology Forecast of Artificial Intelligence Applied to Medication Decision Support System	1137
<i>Kae-Kuen Hu, Kuo-Liang Chen, Mo-An Chu, Chen Peng, Chia-Min Lin, Li-Ling Cho</i>	

TECHNOLOGY ROADMAPPING

Responsive Scenario-Based Roadmapping: Applying System Dynamics to Enhance Scenario-Based Roadmapping.....	1146
<i>Pawat Tansurat, Nathasit Gerdtsri</i>	

Comparing an Expert-Based Study with a Bibliometric and LDA Analysis to Support Roadmapping	1152
<i>A. Gomes, M. Oliveira, J. Freitas, N. Athanassopoulou, C. M. Worthman, R. O'Connor, R. Phaal</i>	

Which Technologies Will Drive the Battery Electric Vehicle Industry?: A Keyword Network Based Roadmapping.....	1161
<i>Karuna Jain, Madhur Srivastava</i>	

Unleashing Strategic Agility: Roadmapping Owner-Led Creative SMEs.....	1170
<i>Serge Bruylants, Ronald Vatananan-Thesenvitz</i>	

Comparative Analysis of Chinese and American Photovoltaic Technology Trajectories Based on Patent Citation Networks.....	1177
<i>F. Yu, L. Xianjun, Yu Xiong, Kun Feng, Lewis Liu</i>	

TECHNOLOGY ADOPTION

Assessment of EV Adoption Perspectives: A High Level Analysis of STEEP Perspectives	1184
<i>Bilgehan Yildiz</i>	

Personalized Technology Recommendation System Based on the Company's Technology Transfer	1200
<i>Seokhyun Ryu, Sungjoo Lee</i>	

Embracing Smart Retailing Systems: An Integrated Model	1207
<i>Shiu-Wan Hung, Jyun-Hao Jian, Chia-Yi Hsu</i>	

Evaluating Adoption Factors for Robotic-Assisted Surgery with the Analytical Hierarchical Process.....	1213
<i>Isin S. Sarigöl, Burak Dindaroglu, Erman Aytaç</i>	

Exploring Ways to Communicate New Technology Concepts: A Comparison of Short Audiovisual Content on Drones and Flying Cars	1229
<i>Nanami Furue, Watau Uehara, Yuichi Washida, Hiroaki Goto</i>	

Simulation-Based Evaluation of the Total Cost of RFID Absorption in a Manufacturing Firm.....	1237
<i>N. Tiruvengadam, A. Elizondo-Noriega, D. Güemes-Castorena, E. J. Vega-Gonzalez</i>	

Technological Capabilities for the Adoption of Industry 4.0 in a Multi-Latin Mexican Company	1243
<i>Maribel G. Barrientos, Gabriela D. Bielous, Alexandre O. Vera-Cruz</i>	

TECHNOLOGY MANAGEMENT IN THE ENERGY SECTOR

Smart Grid Cybersecurity in the Age of Artificial Intelligence	1251
<i>Chip Corbett, Charles M. Weber, Timothy R. Anderson</i>	
Power Resilience Planning Under the Threat of Artificial Intelligence.....	1259
<i>Chip Corbett, Cuong Nguyen, Dahm M. Hongchai, Prajakta Thorat, Pavithra Prasad, Sarah Von Schimmelmann, Charles Weber, Tim Anderson</i>	

TECHNOLOGY MANAGEMENT IN THE HEALTH SECTOR

Mental Models of Translational Scientists	1267
<i>Rasnia Tabpla, Antonie J. Jetter</i>	
Multi-Sectoral Collaboration and the Role of the Private Sector in Extending Healthy Life Expectancy: A Case of Frailty Prevention.....	1279
<i>Tomoki Ouchi, Yasuhiro Tsuchida, Shintaro Sengoku</i>	
A Cloud-Enhanced Secure Healthcare System to Combat Antibiotic Resistance	1291
<i>Iffat T. Haque, Fawzia Tamanna, Tahmina Meem, Rashed Mazumder</i>	
Redefining Collaborative Dynamic in Drug Development: Patient Organizations as New Stakeholders for Oncology Clinical Trials in the U.S.	1298
<i>Yesup Lee, Shintaro Sengoku</i>	
A Study of the Long-Term Performance After the Initial Public Offering of Korean Biopharmaceutical Companies.....	1308
<i>Suha Hwang, Heesang Lee</i>	

TECHNOLOGY MANAGEMENT IN SEMICONDUCTOR INDUSTRY

Forecasting Trend of Technological Momentum for Semiconductor Industry	1317
<i>Tsung-Han Ke, Hung-Chun Huang, Hsin-Yu Shih</i>	
Technological Intricacy and Technological Regime Changes: The Network Evolution of the Semiconductor Industry.....	1324
<i>Hung-Chun Huang, Hsin-Yu Shih, Tsung-Han Ke</i>	
Technological Competitiveness Among Global Leader Companies: Patents Analysis of Atomic Layer Deposition Technology.....	1333
<i>Seunghwan Lee, Heesang Lee</i>	

TECHNOLOGY MANAGEMENT IN BIOTECHNOLOGY INDUSTRY

The Development in the Regenerative Medicine Industry: Analysis on Global Technology Trends and Local Academic-Industry Cooperation Modes	1344
<i>Kae-Kuen Hu, Ruey-Shan Guo, Shu-Hsing Hsu, Chen Peng, Chia-Min Lin, Li-Ling Cho</i>	
A Comprehensive Review of Factors Influencing Mergers and Acquisitions in Technology Startups	1355
<i>Hanae Suzuki, Shuto Miyashita, Shintaro Sengoku</i>	
Digitization's Influence on Organizational Processes.....	1366
<i>V. K. Narayanan, Srivardhini Jha</i>	

Author Index