

2018 Portland International Conference on Management of Engineering and Technology (PICMET 2018)

**Honolulu, Hawaii, USA
19-23 August 2018**

Pages 1-656



**IEEE Catalog Number: CFP18766-POD
ISBN: 978-1-5386-7719-3**

**Copyright © 2018, The Portland International Center for Management of
Engineering and Technology
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:	CFP18766-POD
ISBN (Print-On-Demand):	978-1-5386-7719-3
ISBN (Online):	978-1-890843-37-3
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

DYNAMICS OF COMPETITION AND STRATEGY: A LITERATURE REVIEW OF STRATEGIC MANAGEMENT MODELS AND FRAMEWORKS	1
<i>Mohammdsaleh Saadatmand ; Maoloud Dabab ; Charles Weber</i>	
UNIFIED BUSINESS INTELLIGENCE ECOSYSTEM: A PROJECT MANAGEMENT APPROACH TO ADDRESS BUSINESS INTELLIGENCE CHALLENGES	15
<i>Bhavana Ramesh ; Akash Ramakrishna</i>	
A CASE STUDY ON FINTECH IN JAPAN BASED ON KEYSTONE STRATEGY	25
<i>Takao Nomakuchi</i>	
IMPROVING SYSTEMATIC LITERATURE REVIEW WITH AUTOMATION AND BIBLIOMETRICS	30
<i>Nonthapat Pulsiri ; Ronald Vatananan-Thesenvitz</i>	
A FRAMEWORK FOR BUILDING INTEGRATIVE SCENARIOS OF AUTONOMOUS VEHICLE TECHNOLOGY APPLICATION AND IMPACTS, USING FUZZY COGNITIVE MAPS (FCM)	38
<i>Pei Zhang ; Antonie Jetter</i>	
PROPOSAL OF FIVE FRAMEWORKS FOR CONSTRUCTING KEYSTONE STRATEGY	52
<i>Hiroshi Kubo ; Hiroko Tanaka ; Takashi Kakimoto</i>	

STRATEGIC MANAGEMENT OF TECHNOLOGY

INCUMBENT FIRM CAPACITY BUILDING IN ANALYTICS: STRATEGY, STRUCTURE, AND INNOVATION MANAGEMENT PERSPECTIVES	63
<i>Mel Horwitch ; Milos Milicevics</i>	
BUSINESS INTELLIGENCE AND DATA ANALYTICS AS A DRIVER OF DYNAMIC CAPABILITY STRATEGIC APPROACH	82
<i>Maoloud Dabab ; Charles Weber</i>	
IEC STANDARD REVISION DYNAMICS: SYMBIOSIS BETWEEN STANDARD AND TECHNOLOGY	91
<i>Seungyeon Moon ; Kyoungwhan Chin ; Heesang Lee</i>	
IT GOVERNANCE EFFECTIVENESS AND ITS INFLUENCE ON INNOVATION PRODUCT AND PROCESS	99
<i>Sergio Borja ; Keungou Kim ; Hyenyoung Yoon ; Junseok Hwang</i>	
NOKIA PHONES: FROM A TOTAL SUCCESS TO A TOTAL FIASCO: A STUDY ON WHY NOKIA EVENTUALLY FAILED TO CONNECT PEOPLE, AND AN ANALYSIS OF WHAT THE NEW HOME OF NOKIA PHONES MUST DO TO SUCCEED	107
<i>Ahmed Alibage ; Charles Weber</i>	
IMPROVING NETWORK POSITIONS THROUGH M&AS: THE CASE OF THE JAPANESE PHARMACEUTICAL INDUSTRY'S INTERNATIONAL EXPANSION	122
<i>Balazs Fazekas ; Yuanyuan Gong</i>	
CREATING VALUE THROUGH COMPLEXITY: PARTIAL COMPATIBILITY AS A SUSTAINING STRATEGY IN JAPAN'S CONTACTLESS INTEGRATED CIRCUIT PAYMENT SYSTEM	132
<i>Masaharu Tsujimoto ; Fredrik Hacklin</i>	

SCIENCE AND TECHNOLOGY POLICY

THE INFLUENCE OF RESEARCH INFRASTRUCTURE FOR TECHNOLOGICAL ENTREPRENEURSHIP	143
<i>Qiao Lili ; Li Zheng ; Gao Yuanying ; Luo Hui ; Shi Yunyan</i>	
POLICY OF GOVERNMENT PROCUREMENT PROMOTING SCIENTIFIC AND TECHNOLOGICAL INNOVATION IN CHINA: INSTITUTIONAL STRUCTURE AND INTERNATIONAL COMPARISON	152
<i>Wang Xiao-Li ; Liu Yun ; Gui Bing-Xiu ; Yang Mei-Jian ; Xu Ya-Jie ; Chen Jia-Xin</i>	
THE STRATEGIC CHOICE FOR APPLYING GOVERNMENT SUBSIDIZED R&D: THE RELATIONSHIP AMONG ORGANIZATIONAL RESOURCES AND CAPABILITIES, STRATEGY, AND PERFORMANCE	164
<i>Chung-Jen Chen ; Ruey-Shan Guo ; Yung-Chang Hsiao ; Kae-Kuen Hu</i>	
DYNAMIC PATTERNS OF KNOWLEDGE CAPABILITIES: A COMPARATIVE ANALYSIS AMONG OECD AND G20	174
<i>KeunHwan Kim ; We Shim ; YoungHo Moon ; YoSeob Heo ; JongSeok Kang</i>	
INFLUENCING FACTORS ON SOCIAL ACCEPTANCE OF AUTONOMOUS VEHICLES AND POLICY IMPLICATIONS	185
<i>Jihye Lee ; Hyungsik Chang ; Young Il Park</i>	
PATHWAYS FOR THE CO-CREATION OF SERVICE IN ACADEMIA: AN ETHNOGRAPHIC ANALYSIS OF EPISTEMIC CULTURES IN JAPANESE PUBLIC SHARED CORE FACILITIES	191
<i>Takashi Onoda ; Yasunobu Ito</i>	

THE INNOVATION SYSTEM OF SAO JOSE DOS CAMPOS: MAIN INSTITUTIONS, ARCHITECTURE, CONTRIBUTIONS TO ECONOMIC AND SOCIAL DEVELOPMENT, PERSPECTIVES AND FUTURE CHALLENGES	200
<i>José Henrique de Sousa Damiani</i>	
THE NATURE OF GROWTH OF SMES IN DEVELOPING ECONOMY: A CASE OF MEDIUM-SIZED ENTERPRISE IN THAILAND	217
<i>Songphon Munkongsujarit</i>	
NATIONAL POLICY AND ACADEMIC RESEARCH TRENDS ON NUCLEAR SAFETY IN JAPAN SINCE THE FUKUSHIMA DISASTER	224
<i>Ichiro Okabe ; Yuya Kajikawa</i>	
AN ANALYSIS ON CHARACTERISTICS AND IMPACTS OF CHINESE HIGHLY CITED RESEARCHERS' TRANSNATIONAL MOBILITY	232
<i>Fangjuan Yang ; Zheng Liang ; Lan Xue</i>	

SCIENCE AND TECHNOLOGY COMMUNICATION

RESEARCH ON THE SHOOTING TECHNIQUES FOR ONLINE INTERACTIVE VIDEO PRODUCTION AND AUDIENCE UNDERSTANDINGS OF POPULAR SCIENCE NEWS FEATURE: USING ENVIRONMENTAL ISSUES AS AN EXAMPLE SUBTITLE AS NEEDED	241
<i>Mavis Tsai ; Yi-Song Chen</i>	
THIRD MISSION GOINGS-ON AND ACADEMIC ENTREPRENEURS IN EUROPE	248
<i>Marina Dabić ; Ivana Kovač ; Davor Labaš ; Ivan Novak ; Mile Bošnjak</i>	
RESEARCH ON THE IMPROVEMENT OF CITIZEN'S SCIENTIFIC LITERACY AND ITS CONTRIBUTION TO ECONOMIC GROWTH IN MAINLAND CHINA	259
<i>He Li</i>	
INVESTIGATION REPORT OF SCIENCE POPULARIZATION CAPABILITY IN ENTERPRISE IN MAINLAND CHINA	265
<i>He Li</i>	

COLLABORATIONS

A STUDY OF THE FACTORS INFLUENCING INDUSTRY-ACADEMIA COLLABORATION ACTIVITIES IN PRIVATE UNIVERSITIES	273
<i>Yoshikazu Yamaguchi ; Jun Fujimoto ; Akira Yamazaki ; Takehiko Koshiyama</i>	
DATA EXCHANGE ACROSS MUSEUM PLATFORMS IN THAILAND	283
<i>La-or Kovavisaruch ; Taweesak Sanpechuda ; Krisada Chinda ; Sodsai Wisadsud ; Thitipong Wongsatho ; Anuwat Chiwongyen</i>	
SOCIAL CAPITAL CHARACTERISTICS IN R&D PROJECT NETWORKS	288
<i>Matti Majuri ; Minna Lanz</i>	
THE FACTORS AFFECTING JOINT R&D IN THE SERVICE INDUSTRY: FOCUSING ON ORGANIZATIONAL INNOVATION AND DEFENSE MECHANISMS	293
<i>Do-Bum Chung ; Hye-Jeong Jang ; Byungil Kim</i>	
MANAGING COLLABORATIVE STRATEGY IN 3D BIOPRINTING TECHNOLOGY	299
<i>Keun Hwan Kim ; We Shim ; Dae Sup So ; Seung Pyo Jun</i>	
THE DEVELOPMENT OF ALTERNATIVE POWERTRAIN TECHNOLOGIES WITHIN AUTOMOTIVE INNOVATION NETWORKS: A TWO-STAGE NETWORK ANALYSIS	310
<i>Marie Gabel ; Bastian Neyer ; Philipp Borgstedt ; Gerhard Schewe</i>	

COMPETITIVENESS

4TH INDUSTRIAL REVOLUTION AND OPEN ACCESS NETWORK FOR SMART CITY	319
<i>Se-Jin Park ; Byung-Woon Kim</i>	
THE EFFECTS OF PRODUCT LINE LENGTH ON FIRM PERFORMANCE	329
<i>Johanna Kirjavainen ; Saku J. Mäkinen ; Matti Sommarberg</i>	
USING GAME THEORY IN LIBYAN CELLULAR MARKET	334
<i>Nader N. Beltaif ; Charles Weber</i>	

GLOBAL ISSUES

STUDY ON THE IMPACT OF INTERNET DEVELOPMENT ON TALENT TRANSFORMATION	343
<i>Huang Yuanxi ; Yang Guang</i>	

ENVIRONMENTAL ISSUES

CONTRIBUTION TO THE MODELING OF THE URBAN SPACE WITH A VIEW TO ITS DEVELOPMENT ORIENTED TOWARDS A BETTER MANAGEMENT AND A DECONGESTION OF TRAFFIC IN ANTANANARIVO	347
<i>Narizo Mahefa Rahaingoalison ; Pascal Ramanantsizehena</i>	
A MODEL TEMPLATE GREEN ENVIRONMENT INITIATIVE FOR RECYCLING PLASTIC BOTTLES WITH PROGRESSIVE ENTREPRENEURSHIP PARTNERSHIP	356
<i>Vu Duong ; Ashfaq Ahmed ; Omer Farook</i>	

SUSTAINABILITY

INTEGRATION OF COMMUNITY PREFERENCE IN ENERGY PLANNING: A WAY FOR SUSTAINABILITY	361
<i>Adiphol Tannirandon ; Nathasit Gedsri</i>	
PAVEMENT INFRASTRUCTURE SUSTAINABILITY ASSESSMENT: A SYSTEMATIC REVIEW	367
<i>Joseph Acai ; Joe Amadi-Echendu</i>	

EDUCATIONAL ISSUES

A FIVE-YEAR STUDY OF CORE COMPETENCIES BY STUDENTS IN A TECHNOLOGY MANAGEMENT UNDERGRADUATE PROGRAM	377
<i>Dorothy McAllen ; Abubaker Haddud</i>	
MAINTAINING THE RELEVANCE OF TECHNOLOGY MANAGEMENT PROGRAMS IN AN ENTREPRENEURIAL ENVIRONMENT	383
<i>Cheryl Hanewicz ; Pamela Becker ; Pauli Alin</i>	

CONVERGENCE OF TECHNOLOGIES

ANTICIPATING INDUSTRY CONVERGENCE IN THE CONTEXT OF INDUSTRY 4.0	391
<i>Svetlana Okara ; Stefanie Broering ; Nathalie Sick</i>	
FIRM'S PRODUCT INNOVATION STRATEGY AND PRODUCT SALES IN CONVERGENT PRODUCT MARKETS	399
<i>Hyeokseong Lee ; Wonjoon Kim</i>	
ANALYSIS OF TECHNOLOGY CONVERGENCE IN ROBOTICS AND TECHNOLOGICAL PORTFOLIOS AMONG ROBOT-RELATED ORGANIZATIONS	409
<i>Toshihiro Kose ; Ichiro Sakata</i>	
ANALYSIS ON TECHNOLOGY CONVERGENCE MECHANISM USING WEIGHTED GENE CO-EXPRESSION NETWORK	421
<i>Hong Miao ; Yan Wang ; Lucheng Huang ; Feifei Wu ; Xin Li</i>	

DECISION MAKING

ASSESSMENT OF ELECTRONIC AUTHENTICATION POLICIES USING MULTI-STAKEHOLDER MULTI-CRITERIA HIERARCHICAL DECISION MODELING	431
<i>Wonbae Son ; Nasir Jamil Sheikh</i>	
A STUDY ON THE PRIORITIZATION OF POLICY INSTRUMENTS REGARDING GENDERED INNOVATIONS IN STI AND R&D USING AHP METHOD	442
<i>Wonju Hwangbo ; Young Il Park</i>	
A CLOUD-BASED FUZZY MULTI-CRITERIA DECISION SUPPORT SYSTEM FOR PROCUREMENT PROCESS IN FACILITY MANAGEMENT	449
<i>K. P. Pun ; K. L. Choy ; H. Y. Lam</i>	
DEVELOPING A DECISION MODEL FRAMEWORK TO ASSESS ARMS SUPPLIER POLICIES	457
<i>Sungjin Kim ; Nasir Jamil Sheikh</i>	
AN ALGORITHM FOR SUPPORTING DECISION MAKING IN STOCK INVESTMENT THROUGH OPINION MINING AND MACHINE LEARNING	472
<i>Yujin Jeong ; Sunhye Kim ; Byungun Yoon</i>	
COMPUTER ASSISTED TECHNOLOGY INTELLIGENCE: AN INTRODUCTION	482
<i>Franck Komi Adjogble ; Oliver Ullmann ; Andreas Pätzold ; Joachim Warschat ; Thomas Fischer ; Antonino Ardilio</i>	

AN INTELLIGENT SERVICE PLANNING SYSTEM FOR EFFECTIVE HOME CARE SERVICE SCHEDULING	493
<i>Paul K.Y. Siu ; K.L. Choy ; H.Y. Lam</i>	
DEVELOPMENT AND VERIFICATION OF AN INDUSTRY APPLICATION TO IMPROVE THE PROJECT MANAGER-TO-PROJECT (PM2P) PRACTICE	499
<i>Lone Seboni</i>	

LEADERSHIP

CROSS-LEVEL EFFECT OF TEAM PATERNALISTIC LEADERSHIP AND TEAM CHALLENGE STRESSOR ON EMPLOYEE'S IN-ROLE PERFORMANCE	511
<i>Yang Qiu ; Li Zhang ; Eryue Teng ; Taisi Lai</i>	
DIGITAL WORKPLACE MANAGEMENT: EXPLORING ASPECTS RELATED TO CULTURE, INNOVATION, AND LEADERSHIP	516
<i>Abubaker Haddud ; Dorothy McAllen</i>	
ORGANIZATIONAL PROJECT MANAGEMENT (OPM): EXPLORING ITS NEED IN ORGANIZATIONS	522
<i>Yaser Alnasri ; Jeffrey S. Busch</i>	
CONTINUITY IN CORPORATE GOVERNANCE AND ITS RELATIONSHIP WITH THE COMPANY'S PERFORMANCE: A CASE STUDY OF PAKISTAN INTERNATIONAL AIRLINES CORPORATION (PIAC) - THE NATIONAL FLAG CARRIER	528
<i>Iram Aziz ; Muhammad Abbas Choudhary</i>	

DISRUPTIVE TECHNOLOGIES

WHAT CAUSES COMPANIES TO TRANSFORM DIGITALLY? AN OVERVIEW OF DRIVERS FOR AUSTRALIAN KEY INDUSTRIES	535
<i>Thorsten Lammers ; Laura Tomidei ; Alberto Regattieri</i>	
COMPANY DATA IN THE BLOCKCHAIN: A JUXTAPOSITION OF TECHNOLOGICAL DRIVERS AND POTENTIAL APPLICATIONS	543
<i>David Holtkemper ; Simon Wieninger</i>	
GENOMICS, RARE DISEASES, AND DISRUPTIVE INNOVATION IN THE BIOPHARMACEUTICAL INDUSTRY	550
<i>Mark J. Ahn ; Amir Shaygan ; Charles Weber</i>	

EMERGING TECHNOLOGIES

IDENTIFYING THE DEVELOPMENT TRENDS OF EMERGING TECHNOLOGIES: A SOCIAL AWARENESS ANALYSIS METHOD USING WEB NEWS DATA MINING	561
<i>Qian-Qian Xie ; Xin Li ; Lu-Cheng Huang</i>	
EXPLORING THE CO-EVOLUTION OF INTER-INDUSTRY TECHNOLOGICAL INNOVATION: CASE OF 3D PRINTING	573
<i>Yuanyuan Shi ; Leong Chan ; Renzhi Cao ; Chung-Shing Lee</i>	
THE GEOGRAPHY OF 3D PRINTING	583
<i>Harm-Jan Steenhuis ; Xin Fang ; Tolga Ulusemre</i>	
STRATEGY IN 3D PRINTING OF FOOD	590
<i>Harm-Jan Steenhuis ; Xin Fang ; Tolga Ulusemre</i>	
THE EVOLUTION OF CHINA'S LED INDUSTRY FROM THE VIEW OF DISRUPTIVE TECHNOLOGY INNOVATION	596
<i>Xuanting Ye ; Defang Yang ; Jian Zhang ; Yun Liu ; Jingru Yin</i>	
NOVEL APPROACH TO MANAGING TECHNOLOGICAL ENTREPRENEURSHIP USING A MODEL-BASED SYSTEMS APPROACH TO DEVELOP LOW COST EARTH ORBITING SATELLITES	602
<i>Gary Langford ; Jeffery Carpenter ; Ian Watkins ; Brock Marsh ; Lucas Beaulieu</i>	
THE DEVELOPMENT OF CARBON CAPTURE AND STORAGE IN CHINA: PROGRESS, CHALLENGE AND COLLABORATION	608
<i>Conghui Yin ; Ziyang Huang</i>	
ASSESSING "START-UP READINESS" FOR RESEARCH TOPICS AND RESEARCHERS: CASE STUDIES OF RESEARCH-BASED START-UPS IN THE BIOPHARMACEUTICAL DOMAIN	615
<i>Tomotaka Goji ; Yuki Hayashi ; Hiroko Yamano ; Takanari Matsuda ; Ichiro Sakata</i>	

ARTIFICIAL INTELLIGENCE FOR TECHNOLOGY MANAGEMENT

ANALYSES OF THE TECHNOLOGICAL ACCUMULATION OVER THE 2ND AND THE 3RD AI BOOM AND THE ISSUES RELATED TO AI ADOPTION BY FIRMS	633
<i>Kumiko Miyazaki ; Ryusuke Sato</i>	

ARTIFICIAL INTELLIGENCE ON JOB-HOPPING FORECASTING: AI ON JOB-HOPPING	640
<i>Nathan Kosylo ; John Smith ; Matthew Conover ; Leong Chan ; Hongtao Zhang ; Hanfei Mei ; Renzhi Cao</i>	
RESOLVING ASYMMETRY OF MEDICAL INFORMATION BY USING AI: JAPANESE PEOPLE'S CHANGE BEHAVIOR BY TECHNOLOGY-DRIVEN INNOVATION FOR JAPANESE HEALTH INSURANCE	645
<i>Kunitoshi Yamasaki ; Ryuichi Hosoya</i>	
MEASURING TECHNOLOGY DIFFUSION FOR THE CASE OF RFID TECHNOLOGY: A COMPARISON BETWEEN TF-LAG-IDF AND TOPIC MODELING	650
<i>Huseyin Caferoglu ; Martin G. Moehrl</i>	

INTERNET OF THINGS (IOT)

EMERGING MARKETS AND THE IOT	657
<i>Yorgos D. Marinakis ; Inder Thukral ; Makarand Pandey ; Jorge Hernandez ; Aard Groen ; Steven Walsh</i>	
AN INTERNATIONAL COMPARATIVE STUDY OF INTERNET OF THINGS TECHNOLOGIES USING KEYWORDS EXTRACTED FROM NEWSPAPERS	669
<i>Masatake Saito</i>	
DEVELOPMENT OF A USE PHASE DATA STRATEGY FOR CONNECTED PRODUCTS: A CASE STUDY IN INDUSTRY	674
<i>Julian Wilberg ; Tobias Kalla ; Manuel Fetscher ; Franz Rimböck ; Christoph Hollauer ; Mayada Omer</i>	
TRANSFORMING VALUE CHAINS INTO INTERNET-BASED ECOSYSTEMS: A TESTBED APPROACH	686
<i>Patrick Weber ; Dominik Morar ; Heiner Lasi</i>	

SOCIAL MEDIA

PRODUCT POPULARITY VERSUS SIZE OF CONVERSATION IN SOCIAL MEDIA: AN ANALYSIS OF TWITTER CONVERSATIONS ABOUT YOUTUBE PRODUCT CATEGORIES	697
<i>Nitin Mayande ; Charles Weber</i>	
THE APPLICATION PROSPECT ANALYSIS OF TECHNOLOGY BASED ON WECHAT OFFICIAL ACCOUNTS	704
<i>Feifei Wu ; Yiming Tong ; Lucheng Huang ; Hong Miao ; Xin Li</i>	
THE DIRECTION AND ADHERENCE OF THE WECHAT OFFICIAL ACCOUNT OF CHINA ASSOCIATION FOR SCIENCE AND TECHNOLOGY SYSTEM FOR POPULARIZATION OF SCIENCE IN THE NEW MEDIA ERA: TAKE THE WECHAT OFFICIAL ACCOUNT OF CENTER FOR INQUIRY, CHINA AS AN EXAMPLE	713
<i>Xiaolei Zhang ; Kangyou Wang</i>	

CYBER SECURITY

TIME TO DISCOVER AND FIX SOFTWARE VULNERABILITIES IN OPEN SOURCE SOFTWARE PROJECTS: NOTES ON MEASUREMENT AND DATA AVAILABILITY	719
<i>Steven M. Muegge ; S. M. Monzur Murshed</i>	
EXPLORATORY STRATEGIC ROADMAPPING FRAMEWORK FOR BIG DATA PRIVACY ISSUES	729
<i>Maoloud Dabab ; Rebecca Craven ; Husam Barham ; Elizabeth Gibson</i>	

E-BUSINESS

DESIGN OF AN ENHANCED LOGISTICS SERVICE PROVIDER SELECTION MODEL FOR E-COMMERCE APPLICATION	739
<i>C. C. Luk ; K L. Choy ; H. Y. Lam</i>	
IDENTIFYING THE CORE KNOWLEDGE DOMAINS OF EMERGING TECHNOLOGIES: THE CASE OF NEW ENERGY VEHICLES	746
<i>Hailong Wang ; Kaikai Liu ; Shixiang Long</i>	
USING CROWDFUNDING IN AN INNOVATIVE WAY: A CASE STUDY FROM A CHINESE CROWDFUNDING PLATFORM	752
<i>Liu Xuefeng ; Wang Zhao</i>	

ENTREPRENEURSHIP/INTRAPRENEURSHIP

ENTREPRENEURIAL ENVIRONMENT OF THE UNIVERSITY: OPPORTUNITIES FOR TECHNOLOGICAL SPIN-OFFS	761
<i>Cornelia Zanger ; Mario Geissler</i>	

HOW ENTREPRENEURS UTILIZE SOCIAL INTERACTIONS AND LEAD COMPANIES TO SUCCESS: A NEW RESEARCH PERSPECTIVE TO OPEN INNOVATION	766
<i>Song Yu ; Zhao Jixin ; Tao Xiaobo</i>	
ECONOMIC GROWTH THROUGH BUSINESS MODEL INNOVATION AND TECHNOLOGICAL ENTREPRENEURSHIP	773
<i>Sebastian Allegretti ; Sven Seidenstricker ; Andreas Kasseckert</i>	
DEVELOPMENT OF ORGANIZATIONAL CAPABILITY FROM ENTREPRENEURIAL IDENTITY: CASE STUDY OF HIROHISA YAMAMOTO AND YAMAMOTO PRECIOUS METAL CO., LTD	791
<i>Yasuto Ishitani</i>	
ACCELERATION OF A SOCIAL ENTREPRENEURSHIP THROUGH FEDERATION OF EQUITY-BASED CROWDFUNDING	800
<i>Aki Tomita</i>	
ACADEMIC ENTREPRENEURSHIP: COMMERCIALIZATION OF UNIVERSITY RESEARCH AND ENTREPRENEURSHIP EDUCATION AT AN ENTREPRENEURIAL UNIVERSITY	806
<i>Zong-Tae Bae</i>	
TECHNOPRENEURIAL CHARACTERISTICS RISING FROM THE ASHES OF CREATIVE DESTRUCTION	812
<i>Matti Sommarberg ; Saku J. Mäkinen</i>	
RICHARD BRANSON AND VIRGIN GALACTIC: A CASE STUDY OF ENTREPRENEURING AS EMANCIPATION	822
<i>Steven M. Muegge ; Ewan Reid</i>	
TRUST IN ENTREPRENEUR — VENTURE CAPITALIST RELATIONSHIPS: A BILATERAL PERSPECTIVE	832
<i>Kristina von Gehlen ; Maximilian Holtgrave ; Ann-Marie Nienaber ; Gerhard Schewe</i>	
ESTABLISHING ENTREPRENEURSHIP ECOSYSTEMS BASED ON DIGITAL TECHNOLOGIES: A POLICY ROADMAP APPROACH AT THE CITY LEVEL	847
<i>D. Cetindamar ; T. Lammers ; N. Sick</i>	
GRASSROOTS OPPORTUNITIES FOR INNOVATION, TECHNOLOGY, AND ENTREPRENEURSHIP: MAKERSPACES IN NON-URBAN COMMUNITIES	852
<i>Prescott C. Ensign ; Phillip Leupold</i>	
CORPORATE ENTREPRENEURSHIP AND ENTREPRENEURIAL ORIENTATION: THE IMPACT ON MANAGING CAPABILITIES FOR INNOVATION	859
<i>Mauricio A. Bedoya ; Bibiana A. Alzate ; Liliana M. Giraldo</i>	
INFORMATION & COMMUNICATION TECHNOLOGY (ICT) CAN CHANGE THE WAY OF WOMEN ENTREPRENEURS RUN THEIR BUSINESSES: A CASE STUDY IN BANGLADESH	866
<i>Bhuyan Muhammad Hussain ; Demian Chen</i>	
INFLUENCE OF EXTERNAL FUNDING AND INTELLECTUAL PROPERTY PROTECTION ON THE SUCCESS OF TECHNOLOGICAL VENTURES: CASE STUDY	872
<i>Thabiso T. Kganyago ; Elma van der Lingen</i>	
INGREDIENTS OF SUCCESSFUL EMERGING BUSINESS ECOSYSTEMS: CASE OF INDUSTRIAL IOT ADOPTION	878
<i>Ranjit Gupta ; Kumiko Miyazaki ; Yuya Kajikawa</i>	
MEDICAL TECHNOLOGY ENTREPRENEURSHIP: THE CASE STUDY TO PRODUCE CUSTOMIZED PROSTHESIS	884
<i>Walter Luis Mikos ; Silvana Leonita Weber ; Kazuo Hatakeyama</i>	
SELECTING HIGH TECH PRODUCTION MACHINES: A GUIDE FOR ENTREPRENEURS AND SMALL MANUFACTURING BUSINESSES	892
<i>Manocher Djassemi</i>	
ANALYSIS OF THE MAIN FACTORS AFFECTING THE ENTREPRENEURIAL WILLINGNESS OF SCIENCE AND TECHNOLOGY WORKERS IN CHINA	897
<i>Kang Li ; Hui Shi ; Da-sheng Deng</i>	
SAUDI FEMALE ENTREPRENEURS, SITUATION AND CHALLENGES	902
<i>Hemaid Alsulami ; Rimal Abutaha</i>	
EVALUATION OF FACTORS THAT HINDER TECHNOLOGY AND ENGINEERING ENTREPRENEURS IN THE MINING SECTOR	908
<i>Bobby Mahlori ; Elma van der Lingen</i>	
INVESTIGATION OF CORPORATE ENTREPRENEURSHIP IN SOUTH AFRICAN MINING COMPANIES	915
<i>Charmaine M. Bilankulu ; Elma Van der Lingen</i>	
REVITALIZING THE YAMUNA RIVER: SOCIAL ENTREPRENEURSHIP APPROACHES	925
<i>Bala Mulloth ; Bharat Rao</i>	
MANAGEMENT OF DEEP TECHNOLOGY STARTUPS IN JAPAN	934
<i>Takashi Iwamoto</i>	
DISRUPTION OR NEW ORDER?: THE EMERGENCE OF THE UNICORN BIKE-SHARING ENTREPRENEURSHIP IN CHINA	937
<i>Alicia L. Say ; R. Guo ; C. Chen</i>	

INTELLECTUAL PROPERTY

EVALUATION METHOD OF PATENT SCOPE BASED ON SEMANTIC INFORMATION OF WORDS AND DEPENDENCY STRUCTURE OF PATENT CLAIMS	947
<i>Hiroaki Tanaka ; Yuko Nakashio ; Yuya Kajikawa</i>	
ASSESSING PATENTS BASED ON THEIR STRUCTURAL SIGNIFICANCE IN PATENT CITATION NETWORK	956
<i>Chung-Huei Kuan ; Dar-Zen Chen</i>	
RESEARCH FOR REUSE OF UNUSED PATENTS BY ANALYSIS OF TRANSFERRED PATENTS	961
<i>Yosuke Towata ; Yoshitoshi Tanaka</i>	
THE PATENT PORTFOLIOS VALUE EVALUATION BASED ON THE TOPSIS-ENTROPY METHOD	967
<i>Song Weiling ; Yuan Xiaodong Zhang Hao</i>	
A STUDY ON ESTABLISHMENT OF THE PATENT APPLICATION QUALITY EVALUATION INDEX SYSTEM	981
<i>Gu Li ; Han Xue ; Yan Wei-chun ; Hong Chen</i>	
QUESTIONNAIRE SURVEY AT UNIVERSITIES ON UTILIZATION OF PATENT INFORMATION FOR ACADEMIC SCIENCE AND TECHNOLOGY RESEARCHES	987
<i>Yoshitoshi Tanaka ; Toshiyuki Inui ; Suzuka Yoshida</i>	
ANALYZING PATENT TRANSACTIONS WITH PATENT-BASED MEASURES	997
<i>Hung-Chun Huang ; Hsin-Ning Su ; Hsin-Yu Shih</i>	
RESEARCH AND DEVELOPMENT SITUATION ANALYSIS OF ANTI-BREAST CANCER DRUGS FROM PATENT INTELLIGENCE PERSPECTIVE	1009
<i>Wei He ; Xiang Yu ; Minghan Sun</i>	
AN ANALYSIS OF THE IMPACT OF TRIPS' SPECIAL EXEMPTION FOR LDCS ON THE BANGLADESH PHARMACEUTICAL INDUSTRY	1016
<i>Yaeko Mitsumori</i>	
THE DEVELOPMENT OF NEW ENERGY VEHICLES INDUSTRY IN CHINA: OPPORTUNITY AND COMPETITION	1022
<i>Huang Ziyang ; Yu Xiang</i>	
A STUDY ON THE INTEGRATION INNOVATION MODE OF CHINA RAILWAY HIGH-SPEED (CRH) TECHNOLOGY	1029
<i>Ling Feng ; Xiang Yu</i>	

PROJECT/PROGRAM MANAGEMENT

EFFICIENT PROJECT PORTFOLIO MANAGEMENT: AVOIDING VALUE DESTRUCTION BY PROMOTING SOCIAL RETURNS ON R&D	1035
<i>Bonginkosi Ngqulunga ; David Walwyn</i>	
ANALYSIS OF SOCIAL AND ECONOMIC IMPACTS OF A COMMUNITY REVITALIZATION PROGRAM USING RENEWABLE ENERGY	1045
<i>Yaeko Mitsumori</i>	
ASSESSING KEY FACTORS IMPACTING THE PERFORMANCE OF OFFSHORE HYDROCARBON PROJECTS	1050
<i>Abdulhakim Giadedi ; Tugrul Daim</i>	
IDENTIFICATION OF FACTORS TO PROMOTE INTERDISCIPLINARY RESEARCH: A TRIAL AT COINS	1059
<i>Shogo Katoh ; Giancarlo Lauto ; Tomohiro Anzai ; Shintaro Sengoku</i>	
AN APPROACH ON MONITORING EVOLUTION OF PROJECTS BY PROFESSIONAL PERFORMANCE ASSESSMENT: A CASE STUDY AT THE AMAZON REGIONAL CENTER OF THE NATIONAL INSTITUTE FOR SPACE RESEARCH	1070
<i>Marck da Silva ; Márcia Nazaré Rodrigues Barros ; Lucyana Barros Santos ; Marcos Adami ; Alessandra Rodrigues Gomes</i>	
ELEMENTS OF SHARING ECONOMY IN A PUBLIC-PRIVATE PARTNERSHIP: A CASE STUDY OF A COMPANY IN MIYAKO, IWATE PREFECTURE, JAPAN	1076
<i>Kengo Miyamoto ; Youji Kohda ; Rihyei Kang</i>	
RESOURCE MOBILIZATION BY "STRANGE BEDFELLOWS": A CASE STUDY OF "BIOMASS NIPPON STRATEGY"	1083
<i>Ryo Taniguchi</i>	

INNOVATION MANAGEMENT

A SYSTEMATIC LITERATURE REVIEW OF DYNAMIC CAPABILITIES, STRATEGIC FORESIGHT AND ORGANIZATIONAL LEARNING	1093
<i>Nonthapat Pulsiri ; Ronald Vatananan-Thesenvitz</i>	
A FRAMEWORK AND EVALUATION MODEL TO DETERMINE INDUSTRY VELOCITY	1102
<i>Krip Metanantakul ; Ronald Vatananan-Thesenvitz ; Dongcheol Heo</i>	

DIVERSE TIES WITH SERVICE INTERMEDIARIES AND ESTABLISHED FIRMS' SERVICE INNOVATION: THE MODERATING ROLE OF TECHNOLOGICAL CAPABILITY	1110
<i>Lin Wang ; Yuelong Zheng ; Zhongyi Huang</i>	
STRUCTURAL ANALYSIS FOR DIFFUSION USING SIMULATION IN AGENT-BASED MODELING WITH MULTI MICRO FACTOR	1116
<i>Kazuhide Namba</i>	
A COMPARATIVE STUDY OF THE EFFECTS OF DIFFERENT INDUSTRY TECHNOLOGY INNOVATION PERFORMANCE FACTORS: BASED ON A GEM SEMI-PARAMETRIC MODEL	1124
<i>Zhu Jinwei ; Wang Yangyang</i>	
DOES MY ORGANIZATION NEED AN INNOVATION MANAGEMENT FUNCTION?: TOWARDS A MODEL FOR EVALUATION	1136
<i>Marthinus J. du Plessis ; Marthinus W. Pretorius</i>	
DISCONTINUOUS INNOVATION AND THE DEFENSE INNOVATION CYCLE	1146
<i>Adam Jay Harrison ; Bharat Rao</i>	
HIERARCHICAL DIFFERENCES IN SUPERVISOR SUPPORT AND COWORKER SUPPORT	1154
<i>Yasutaka Hashigami ; Masaharu Tsujimoto</i>	
DERIVING REQUIREMENTS FOR THE ORGANIZATIONAL STRUCTURE OF CORPORATE INCUBATORS	1161
<i>Günther Schuh ; Felix Lau ; Charlotte Dyba ; Florian Vogt</i>	
PROFIT EXPANSION METHOD BY OUTBOUND OPEN INNOVATION	1169
<i>Manabu Eio</i>	
DIFFUSION OF INNOVATIONS AND PERSONAL NETWORK	1178
<i>Mariko Tsutsui</i>	
HOW INNOVATION STRATEGIES AFFECT THE ROLE OF OPENNESS UNDER KNOWLEDGE SPILLOVERS?	1182
<i>Zhenyu Jiang ; Zongjun Wang</i>	
CLUSTER ANALYSIS OF ICT COMPANIES BASED ON INNOVATION AMBIDEXTERITY DIMENSIONS: EVIDENCE FROM THE IRANIAN INNOVATION SURVEY	1190
<i>Nima G. Mokhtarzadeh ; Mehdi Mohammadi ; Pedram Pourasgari ; Mohammadreza Zarefard</i>	
MEANINGFUL INNOVATION IN CORPORATE ACTIVITIES FROM THE VIEWPOINT OF FINANCIAL DATA	1196
<i>Yuji Matsuno</i>	
FORENSIC ANALYSIS OF INVENTOR QUALIFICATIONS USING SOCIAL MEDIA DATA	1201
<i>J. Curtis Edmondson</i>	
APPLYING THE TECHNICAL RESULTS AND EXPERIENCE FROM UNSUCCESSFUL PROJECTS IN NEW PROJECTS: KURARAY AND THE INNOVATION OF NYLON 9T	1210
<i>Mitsuteru Mutsuda</i>	
SUCCESS FACTORS TO IMPROVE THE LIFE CYCLE OF INFORMATION AND COMMUNICATION TECHNOLOGY START-UPS IN BRAZIL	1218
<i>João Henrique de Souza Pereira ; José Eduardo Ferreira Lopes ; Geciane Silveira Porto</i>	
FROM TECHNOLOGY TRANSFER TO DISRUPTIVE INNOVATION: THE CASE OF EMBRAER	1227
<i>Marcelo A. Machado ; Kazuo Hatakeyama</i>	
ADVANCED INNOVATION MANAGEMENT: BEST PRACTICE OF GERMAN AND AMERICAN CORPORATIONS IN THE MOBILITY SECTOR	1236
<i>Rebecca Hirte ; Philip Roth</i>	
COMPARING THE ROLE OF KNOWLEDGE CREATORS IN THE ECOSYSTEMS OF CHINA AND THE UK: A CASE OF 3D PRINTING	1247
<i>Guannan Xu ; Yuan Zhou ; Yuchen Wu</i>	
THE TECHNOLOGICAL INNOVATION EFFICIENCY OF CHINA'S HIGH-SPEED RAIL ENTERPRISES BASED ON DEA APPROACH	1255
<i>Xi Yang ; Xiang Yu</i>	
STRATEGIC MANAGEMENT OF SUSTAINABLE INNOVATION OF BRAZILIAN INDUSTRIAL COMPANIES	1264
<i>Jordana Marques Kneipp ; Clandia Maffini Gomes ; Isak Kruglianskas ; Roberto Schoproni Bichueti ; Kamila Frizzo ; Francies Diego Motke</i>	
STRATEGIC FORESIGHT AND POLICY INTERPRETATION OF MASS ENTREPRENEURSHIP AND INNOVATION(MEI) IN CHINA	1270
<i>Zhang Li ; Zhao Yu ; Zhou Daya</i>	

R&D MANAGEMENT

CONCEPTUAL APPROACH TO THE DEVELOPMENT OF TECHNOLOGY EVOLUTION NETWORK BASED ON STRUCTURAL AND SEMANTIC ANALYSIS	1279
<i>Ho-Joon Lee ; Youngjung Geum</i>	
INFLUENCING FACTORS ON COMPONENTS AND MATERIALS R&D PROJECTS: AN EX-POST PERFORMANCE ANALYSIS	1286
<i>Yong-gon Cho ; Sungjun Hong ; Junhee Bae ; Dongphil Chun</i>	
STUDY ON COOPERATION DYNAMIC OF MULTI-ENTERPRISE GENERIC TECHNOLOGY R&D	1295
<i>Zheng Yuelong ; Wang Lin ; Huang Zhongyi ; Leng Zhengzheng ; Zhou Lixin</i>	

A MANAGEMENT MODEL FOR MAKING FULL USE OF PERSONAL ABILITY IN OFFSHORE R&D: A CASE STUDY OF A COMPANY MANUFACTURING OFFICE AUTOMATION EQUIPMENT	1301
<i>Yang Wang ; Naoshi Uchihira ; Yasushi Ogawa</i>	
HOW DO INFLUENCES OF FUNDING AND FUNDED ORGANIZATIONS AFFECT PERFORMANCE OF PUBLICLY-SUPPORTED PRIVATE R&D PROJECTS?	1313
<i>Yaichi Aoshima ; Kazunari Matsushima ; Naoki Takada</i>	
INTERNATIONALIZATION OF RESEARCH ACTIVITIES OF THAI RESEARCHERS: A CASE STUDY	1326
<i>Sineenat Tienkouw Watanavisit ; La-or Kovavisaruch</i>	
TECHNOLOGY AND SYSTEM READINESS ASSESSMENT FOR A NUCLEAR ENERGY R&D PROGRAM	1331
<i>Brent Dixon ; Michael Todosow ; Gretchen Matthern ; Roald Wigeland</i>	
NET PRESENT VALUE-BASED ANALYSES OF PRODUCTS IN DEVELOPMENT BY PHARMACEUTICAL AND BIOTECH FIRMS: NPV-BASED ANALYSES OF BIOPHARMACEUTICAL PRODUCTS	1338
<i>Shino Kondoh ; Reiko Onodera ; Mitsuya Sakurai ; Atsushi Seki ; Shintaro Sengoku</i>	
CREATING AN EVALUATION MODEL OF SERVICES INNOVATION FACTORS OF THE KNOWLEDGE HUB: USING HSNCHU SCIENCE PARK AND SILICON VALLEY CASE STUDIES	1348
<i>James K.C. Chen ; Algane Jong</i>	
STUDY OF ALLOCATIVE EFFICIENCY OF SCIENTIFIC AND TECHNOLOGICAL RESOURCES IN MEGA CITIES OF CHINA	1364
<i>Ru Ma ; Hongwei Wang</i>	

NEW VENTURE DEVELOPMENT

A PROCESS MODEL INTEGRATED TO INNOVATION MANAGEMENT TOOLS TO SUPPORT TECHNOLOGY ENTREPRENEURSHIP	1369
<i>Matheus L. P. Souza ; Leonel D. R. Melo Filho ; Raoni B. Bagno ; Wesley C. Souza ; Lin C. Cheng</i>	
TECHNOLOGICAL INNOVATION INVESTMENTS INFLUENCE ON THE STRATEGIC ORIENTATION OF SOCIO-TECH VENTURES	1381
<i>Joanne L. Scillitoe ; Latha Poonamallee ; Simy Joy</i>	
ETHICAL CONFRONTATIONS AT MBLOOM VENTURES LLC: HAWAII'S FIRST EARLY-STAGE TECHNOLOGY FUND	1391
<i>Prescott C. Ensign</i>	
STRUCTURAL CHARACTERISTICS OF VENTURE COMPANIES NETWORK IN JAPANESE BIOTECH INDUSTRY	1394
<i>Keigo Takai ; Naoki Wakabayashi</i>	

NEW PRODUCT DEVELOPMENT

METHODOLOGY FOR BUSINESS MODEL RELATED PRODUCT DESIGN	1399
<i>Guenther Schuh ; Christian Doelle ; Manuel Ebi</i>	
METHODOLOGY FOR DETERMINING AGILE PRODUCT SCOPES IN DEVELOPMENT PROJECTS	1407
<i>G. Schuh ; C. Dölle ; F. Diels ; M. Kuhn</i>	
DISRUPTION-ORIENTED PRODUCT PLANNING: TOWARDS A FRAMEWORK FOR A PLANNING PROCESS FOR DISRUPTIVE PRODUCTS	1416
<i>Günther Schuh ; Tim Wetterney ; Felix Lau ; Tim Schmidt</i>	
CONCEPTUAL DESIGN OF AN ADSORPTION REFRIGERATION SYSTEM: CONCEPTUAL DESIGN AS CORE OF THE INNOVATION CELL	1425
<i>José C. Alvarez Merino ; Kazuo Hatakeyama</i>	
FACTORS INFLUENCING INTERACTION OF CREATIVE TEAMS IN GENERATION OF IDEAS OF NEW PRODUCTS: AN APPROACH FROM COLLABORATIVE SCRIPTS	1429
<i>José J. Aguilar-Zambrano ; Manuel J. Trujillo</i>	
THE IMPACT OF FUZZY FRONT END ACTIVITIES AND CHANGES IN PROJECT EXECUTION ON NEW PRODUCT DEVELOPMENT PROJECT SUCCESS IN JAPANESE MANUFACTURING FIRMS: COMPARATIVE STUDY BETWEEN B2B AND B2C PROJECTS	1440
<i>Akio Nagahira ; Ko Yamasaki ; Sumie Ishihara ; Shuichi Ishida</i>	
INTEGRATION OF TOOL MAKING INTO AGILE PRODUCT DEVELOPMENT USING INDUSTRY 4.0 TECHNOLOGIES AND ADDITIVE MANUFACTURING TECHNOLOGIES	1457
<i>Günther Schuh ; Michael Salmen ; Christoph Kelzenberg ; Johan de Lange</i>	
THE CONCERNS OF INNOVATING NEW PRODUCT DEVELOPMENT PROCESS IN HIGH TECH COMPANIES: EVIDENCE FROM TAIWAN	1466
<i>An-Yu Chen ; Hang Lee</i>	
INNOVATION ON EXPIRED PATENT MEDICINES IN THE BRAZILIAN PHARMACEUTICAL INDUSTRY	1473
<i>R. T. Yugue ; A. C. A. Maximiano ; R. Sbragia ; P. T. S. Nascimento</i>	

MANUFACTURING MANAGEMENT

A LITERATURE REVIEW OF SOUTH AFRICAN AUTOMOTIVE INDUSTRY GLOBAL COMPETITIVENESS	1485
<i>John M. Ikome ; Grace M. Kanakana</i>	
PROBLEMS AND GAPS OF FAMILY SMES IN JAPAN	1489
<i>Sayaka Tokita</i>	
SUCCESSIVE INNOVATIONS IN GLOBAL AND LOCAL MARKETS: STRATEGIES OF GLOBAL NICHE TOP ENTERPRISES IN JAPAN	1497
<i>Makoto Hirano ; Daiki Tobino</i>	
IMPLEMENTATION OF LEAN MANUFACTURING IN A SMALL, MEDIUM AND MICRO ENTERPRISE IN SOUTH AFRICA: A CASE STUDY	1504
<i>David Kruger</i>	
ANALYSIS OF THE VULNERABILITIES OF THE SUPPLY CHAIN NETWORK OF A MANUFACTURING COMPANY USING THE NETWORK-SCIENCE APPROACH: S-ELECTRONICS CASE	1514
<i>Kyoungwan Chin ; Heesang Lee</i>	

PRODUCTIVITY MANAGEMENT

STRATEGY AND TECHNOLOGY MODELS IN SMALL SCALE MINING OF SANDSTONE TO FACILITATE COMMUNITY BASED ECONOMIC DEVELOPMENT AND GROWTH	1521
<i>Mokwalo Monareng ; Antoine F. Mulaba-Bafubiandi ; John F. Agwa-Ejon</i>	
USAGE OF ENERGY EFFICIENT FURNACE AS TECHNOLOGY TRANSFER CONCEPT TO RURAL FOUNDRIES	1529
<i>Kulani Mageza ; A. F. Mulaba-Bafubiandi ; Clever Banganayi</i>	
SYSTEMIC COMPETITIVENESS FACTORS IN THE PHARMA INDUSTRY'S PRODUCTIVITY AND INNOVATION IN MEXICO	1533
<i>Enrique Martinez ; Jose Carlos Ferreyra ; Jesus Zurita.</i>	

QUALITY MANAGEMENT

CODE RELEASE MODEL FOR TECHNOLOGY TRANSFER ON R&D PROJECTS OF SW DEVELOPMENT	1543
<i>Jeong-Hyun Park</i>	

ENTERPRISE MANAGEMENT

DEVELOPING AN INNOVATIVE ORGANIZATIONAL CULTURE: A PEOPLE-CENTERED AND VALUE-FOCUSED APPROACH WITH CASE STUDIES	1549
<i>Oliver Yu ; Rock Shih</i>	
EXPLORING THE RELATIONSHIP BETWEEN RELEVANCE OF COALITION LOYALTY PROGRAMS AND LOYALTY	1554
<i>Hong Wang ; Daniela Corsaro ; Xiao Han ; Xin Qi ; Di Kuang</i>	
THE INFLUENCE FACTORS ON YOUNG CONSUMERS' GREEN PURCHASE BEHAVIOR: PERSPECTIVE BASED ON THEORY OF CONSUMPTION VALUE	1561
<i>Hong Wang ; Xiao Han ; Di Kuang ; Zhichen Hu</i>	
FEASIBILITY STUDY ON ESTABLISHING HUMAN RESOURCE DEVELOPMENT INFRASTRUCTURE FOR DEVELOPING COUNTRIES: THE CASE FOR GHANA'S POWER COMPANY	1566
<i>Johng-Ihl Lee ; Mun-su Park ; Sang Hwa Kwun ; Daniel Soonwoo Chang</i>	
STRATEGY FOR SUSTAINABLE ECONOMIC GROWTH OF SMALL SCALE MINING OPERATIONS IN SOUTH AFRICA	1579
<i>Nirdesh Singh ; Antoine F. Mulaba-Baufubiandi ; Jan-Harm C. Pretorius</i>	

KNOWLEDGE MANAGEMENT

THROUGH OPEN INNOVATION CONCEPT INTEGRATING INFORMATION TECHNOLOGY RESOURCE INTO INSTRUCTION OF SCHOOL	1587
<i>James K.C. Chen ; Benson S.S. Sun</i>	
A DECISION MODEL FOR DATA MINING TECHNIQUES	1596
<i>Maoloud Dabab ; Mike Freiling ; Nayem Rahman ; Daniel Sagalowicz</i>	
SYSTEMS INTELLIGENCE AND ORGANIZATIONAL KNOWLEDGE CREATION	1604
<i>Yasuo Sasaki ; Jader Zelaya ; Naoshi Uchihira</i>	

RECATAGORIZING INTERDISCIPLINARY ARTICLES USING NATURAL LANGUAGE PROCESSING AND MACHINE/DEEP LEARNING	1610
<i>Kazuya Tanaka ; Riku Arakawa ; Yasuaki Kameoka ; Ichiro Sakata</i>	
GRIDAMED: A TOOL FOR PUBMED SEARCH AND RESEARCH TREND MAP GENERATION	1616
<i>Heyoung Yang ; Hyuck Jai Lee ; Sung Wha Hong</i>	

INFORMATION MANAGEMENT

IT GOVERNANCE — AN INTEGRATED FRAMEWORK AND ROADMAP: HOW TO PLAN, DEPLOY AND SUSTAIN FOR COMPETITIVE ADVANTAGE	1619
<i>Gad J. Selig</i>	
BASIC METHODOLOGY FOR CYBER PHYSICAL SYSTEM MODELLING	1634
<i>Anne Bernardy ; Felix Jordan ; Günther Schuh ; Volker Stich ; Violet Zeller</i>	
FINTECH PUZZLE: THE CASE OF BITCOIN	1640
<i>Tin-Chang Chang ; Yung-Lin Chen</i>	
DATA STORAGE COST REDUCTION BY DECLUTTERING IMAGE AND VIDEO DATA: CASE STUDY OF VIDEO FILE DECLUTTERING	1646
<i>Takanari Matsuda ; Tomotaka Goji ; Ichiro Sakata</i>	
A CUSTOMIZED PROCEDURE FOR PRODUCT KNOWLEDGE FLOW ACROSS A FIRM'S INTERNAL VALUE CHAIN	1654
<i>Nataly Jhannett Flores Marca ; YangYang Zhao</i>	
THE INFLUENCE OF SOCIAL PERCOLATION IN IMPROVING FUNDRAISING STRATEGIES OF CHARITY ORGANIZATIONS	1666
<i>Emi Trepçi ; Rainer Hasenauer</i>	
PROCESS IMPROVEMENT THROUGH REDUCTION IN SOFTWARE DEFECTS USING SIX SIGMA METHODS	1676
<i>Bilal Asghar ; Imran Awan ; Atemush Muhammad Bhatti</i>	

INFORMATION TECHNOLOGY

THE EVOLUTIONARY PROCESS OF IT CONCEPT WORDS: A CASE STUDY ON IOT	1687
<i>Rieko Kataoka ; Naoshi Uchihira ; Yasuo Ikawa</i>	
AN IT SERVICE DEVELOPMENT MODEL BASED ON A SERVICE ECOSYSTEM: CASE STUDIES OF CLOUD SERVICE COMPANIES	1696
<i>Kenichiro Banka ; Naoshi Uchihira</i>	
OPPORTUNITIES AND CHALLENGES OF EMBRACING SMART FACTORY IN SOUTH AFRICA	1705
<i>Anup Pradhan ; John Agwa-Ejon</i>	

TECHNOLOGICAL CHANGES

BLOCKCHAIN IN HEALTHCARE: A NEW TECHNOLOGY BENEFIT FOR BOTH PATIENTS AND DOCTORS	1713
<i>Tran Le Nguyen</i>	
EXPLORING ASIA-PACIFIC TECHNOLOGY DIFFUSION AND TECHNOLOGICAL CHANGE	1719
<i>Hung-Chun Huang ; Hsin-Yu Shih ; Tsung-Han Ke</i>	

TECHNOLOGY FORECASTING

FORECASTING THE DIFFUSION OF PRODUCT AND TECHNOLOGY INNOVATIONS: USING GOOGLE TRENDS AS AN EXAMPLE	1729
<i>Daniel Duwe ; Florian Herrmann ; Dieter Spath</i>	
DETECTING HOTSPOTS IN INTERDISCIPLINARY RESEARCH BASED ON OVERLAPPING COMMUNITY DETECTION	1736
<i>Lu Huang ; Xiang Jia ; Yi Zhang ; Xiao Zhou ; Yihe Zhu</i>	
CO-WORD ANALYSIS TO DETECT POSSIBLE COMBINATIONS FOR COMPOSITE MATERIALS	1742
<i>Chika Fujisue ; Hajime Sasaki ; Hiroko Yamano ; Ichiro Sakata</i>	
A LINK PREDICTION-BASED METHOD FOR IDENTIFYING POTENTIAL COOPERATION PARTNERS: A CASE STUDY ON FOUR JOURNALS OF INFORMETRICS	1749
<i>Lu Huang ; Yihe Zhu ; Yi Zhang ; Xiao Zhou ; Xiang Jia</i>	

TECHNOLOGY ROADMAPPING

DATA-DRIVEN ROADMAPPING TURNING CHALLENGES INTO OPPORTUNITIES	1755
<i>Ummaporn Pora ; Natcha Thawesaengskulthai ; Nathasit Gerd Sri ; Sipat Triukose</i>	
BUSINESS MODEL INNOVATION ROADMAPPING: A STRUCTURED APPROACH TO A NEW BUSINESS MODEL	1766
<i>Amaury-Alexandre Schaller ; Ronald Vatananan-Thesenvitz ; Mariano Stefania</i>	
TECHNOLOGY PLANNING FOR ALIGNING EMERGING BUSINESS MODELS AND REGULATORY STRUCTURES — THE CASE OF ELECTRIC VEHICLE CHARGING AND THE SMART GRID	1775
<i>Kelly Cowan ; Tugrul U. Daim</i>	
REFERENCE ARCHITECTURE MODEL IN MEDICINE: A CASE OF DNA MICROARRAY DIAGNOSIS AS A PRIMARY LESSON	1785
<i>Shingo Kano</i>	

TECHNOLOGY ASSESSMENT AND EVALUATION

HOW IS DATA SCIENCE INVOLVED IN POLICY ANALYSIS?: A BIBLIOMETRIC PERSPECTIVE	1795
<i>Yi Zhang ; Alan L. Porter ; Scott Cunningham ; Denise Chiavetta ; Nils Newman</i>	
RETURN ON CPS (ROCPS): AN EVALUATION MODEL TO ASSESS THE COST EFFECTIVENESS OF CYBER-PHYSICAL SYSTEMS FOR SMALL AND MEDIUM-SIZED ENTERPRISES	1805
<i>Peter Burggräf ; Matthias Darnapfel ; Matthias Bertling ; Tingni Xu</i>	
ASSESSMENT OF WATER PURIFICATION TECHNOLOGIES IN DEVELOPING COUNTRIES	1814
<i>Danielle Bradley ; Jennifer Vegh ; Chung-Shing Lee ; Renzhi Cao ; Leong Chan</i>	
TEXT MINING MEDICAL DEVICE GUIDELINES TO EXPLORE CLASSIFICATION OF TECHNOLOGIES	1820
<i>Sayaka Itoh ; Shingo Kano</i>	
ASSESSING PHOTOVOLTAIC SOLAR TECHNOLOGIES AS A SOLUTION FOR THE PROBLEM OF POWER SHORTAGE IN IRAQ	1825
<i>Ahmed A. Alibage</i>	
THE SOCIAL RETURN ON INVESTMENT OF YOUNG SCIENTIST COMPETITION (YSC): THAILAND CASE STUDY	1841
<i>Jintana Pattanatornchai ; Sinrintorn Insawat ; Panita Lamsam</i>	

TECHNOLOGY ACQUISITION

A TECHNOLOGICAL RETURN TO ORIGINATING FIRMS FROM KNOWLEDGE SPILLOVERS: A NEW STRATEGIC TOOL OR AN UNINTENTIONAL SIDE EFFECT?	1847
<i>Tohru Yoshioka-Kobayashi ; Toshiya Watanabe</i>	
HOW SHOULD JAPANESE COMPANIES BUILD ABSORPTIVE CAPACITY AT THE TEAM LEVEL? THE KEY ROLE OF GATEKEEPER AND COMBINATIVE CAPABILITIES	1855
<i>Xiang Yu ; Yuichi Washida</i>	

TECHNOLOGY ADOPTION

CHATBOT TECHNOLOGY ADAPTATION TO REDUCE THE INFORMATION GAP IN R&D CENTER: A CASE STUDY OF AN IT RESEARCH ORGANIZATION	1863
<i>Apivadee Piyatumrong ; Chatchawal Sangkeetrakarn ; Sopawan Witdumrong ; Jitpapas Cherdgone</i>	
PUBLIC BROADCASTER'S BIG-DATA TECHNOLOGY TRAJECTORIES: THE CASE OF NHK AND BBC	1872
<i>Ruiz-Navas Santiago ; Miyazaki Kumiko</i>	
CRITICAL FACTORS FOR ADOPTION OF WEARABLE TECHNOLOGY FOR THE ELDERLY: CASE STUDY OF THAILAND	1885
<i>Shayarath Srizongkham ; Kunio Shirahada ; Navee Chiadamrong</i>	
EFFECTS OF FUTURE CONNECTED AUTONOMOUS VEHICLES ON FREEWAY CONGESTION USING FUZZY COGNITIVE MAPPING	1894
<i>Hakan Kutgun ; Vivian Du Pont ; Henry Janzen</i>	
IMPACT OF EXTERNAL STIMULI ON SOCIAL MEDIA ENGAGEMENT: A SME PERSPECTIVE	1901
<i>Olumide Adebayo ; Elif Kongar ; Nasir Jamil Sheikh</i>	
ASSESSING THE DETERMINANTS OF ERP-ENABLED SHARED PLATFORMS ACROSS MULTI-BUSINESS ORGANIZATIONS: AN EMPIRICAL INVESTIGATION	1907
<i>Samuel Fosso Wamba</i>	

TECHNOLOGY DIFFUSION

UNDERSTANDING THE DIFFUSION OF THE BLOCKCHAIN TECHNOLOGY: A PATENT-BASED ANALYSIS USING THE TF-LAG-IDF FOR TERM NOVELTY EVALUATION	1911
<i>Bennet Bruens ; Martin G. Moehrl</i>	
THE TIME DELAY OF PATENT LICENSE IN CHINA	1918
<i>Deming Lin ; Lulu Chen</i>	
KNOWLEDGE SPILLOVER AMONG SEMICONDUCTOR FOUNDRIES	1921
<i>Chun-Chieh Wang ; Mu-Hsuan Huang</i>	
HOW ETHNOGRAPHY INFILTRATED THE JAPANESE BUSINESS SCENE: A CASE STUDY	1930
<i>Yasunobu Ito</i>	

TECHNOLOGY MANAGEMENT IN THE ENERGY SECTOR

OFFSHORE WIND ENERGY RESEARCH TRAJECTORY AND TRENDS	1937
<i>Chih-Hung Hsieh ; Louise Y. Lu ; Chien Huei Lin ; John S. Liu</i>	
A STUDY OF DETERMINATION OF ENERGY PERFORMANCE INDICATOR FOR APPLYING ENERGY MANAGEMENT SYSTEM IN INDUSTRIAL SECTOR	1942
<i>Hong Souk Shim ; Sung Joo Lee</i>	

TECHNOLOGY MANAGEMENT IN THE HEALTH SECTOR

SOCIALLY ASSISTIVE ROBOTS DIFFUSION IN ELDERLY CARE: A PRE-ADOPTION STUDY THROUGH AGENT-BASED MODELING	1949
<i>Belviso Carlotta ; Hasenauer Rainer ; Ulrike Bechtold</i>	

TECHNOLOGY MANAGEMENT IN THE SERVICE SECTOR

SERVICE INNOVATION IN THE CLOUD: IMPLICATIONS FOR STRATEGY DEVELOPMENT	1959
<i>Robert R. Harmon ; Enrique G. Castro-Leon</i>	

Author Index