2023 International Annual Conference of the American Society for Engineering Management and 44th Annual Meeting (ASEM 2023)

Climbing Higher with Engineering Management

Denver, Colorado, USA 25 – 28 October 2023

ISBN: 978-1-7138-9083-6

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2023) by American Society for Engineering Management (ASEM) All rights reserved.

Printed with permission by Curran Associates, Inc. (2024)

For permission requests, please contact American Society for Engineering Management (ASEM) at the address below.

American Society for Engineering Management (ASEM) 200 Sparkman Drive, Suite 2 Huntsville, AL 35805 USA

Phone: (256) 503-8482 Fax: (256) 723-8877

ASEM-HQ@asem.org

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 Email: curran@proceedings.com Web: www.proceedings.com

Table of Contents

Managing Peer Effects for Employee Performance: A Review of Empirical	
Studies on Peer Effects	8
Middle Management Dynamics and Purposeful Career Agency: A	
Systems Thinking Approach	23
EMBOK 5.0 – Industry 4.0/5.0 Manifest and Latent Dimensions Mapping	
to The ASEM EMBOK	33
Wins - A Team Building Game	43
Management of Change in A Market: Case of the Hi-Tech Industry	50
Development of a Project Management Certification Tuned for the Engine-	
ering Managers	60
Lithium Battery Supply Chain and Green Initiatives	. 70
Risk Assessment and Management of Construction Activities Using	
Expert Opinions and the EV Technique	. 78
Maintenance productivity enhancement through Performance Measureme-	
nt Metrics	85
Evolving skills of a project manager in the digital age: A Comparison from	
a South African Perspective	95
Optimisation of a Water Distribution Network: A Digital Approach	. 10
An approach to define a road map for Digital Transformation of industrial o-	
rganizations.	. 11
Studying Risk Factors: Evidence from Mega Railway Projects in India	. 12
Assessing the Effectiveness of Engineering Management Practices in	
Enhancing the Competency of Mechanical Engineering Graduates in	
Selected Universities in the Philippines.	13
Enhancing Operational Efficiency and Sustainability of Power Plants	
through Engineering Management in the Age of Industry 4.0.	. 13
New Metrics for Evaluating Project Progress and Team Contribution using	
Agile Methods	. 14
Assessing the Readiness of the Supply Chain Industry in the Philippines	
for Industry 4.0: Opportunities and Challenges	15

A System Dynamics Modeling Approach to Explore Bitcoin Market	
Dynamics	. 1
Technology Management of Smart Policing Robocops for AI Ethics and C- ybersecurity	_ 1
Force Structure Planning using a Sufficiency Approach	1
Diversity, Equity, Mortality, and Career & Retirement Planning for EM	
Masters Students	-
Integrating Systemic and Applied Anthropology Approaches to Identify	
Barriers and Enablers to Accessing Healthcare	. 2
Bibliometric Review of Professional Skills Development in Engineering	
Education: Implications for Engineering Management Programs	. 2
Assessing the Past Six Years of a New Model for The Graduation Require- ment for The Engineering Management Master's Degree at The University of Idaho	
Horizontal Collaboration in a Distribution Network	
Use of purposeful human activity systems framework for organizational	. 4
change management in workshops	
Smart Base Installations: System Design to Inform Weather Warning Decision-Making	
Grade Effectiveness vs Expectations: When to Grade	2
Integrating Imprecision and Uncertainty in Qualitative Constraints: A Bayesian Hierarchical Model	
Beliefs of Students and Alumni Concerning Curricular Needs of the Engin-	
eering Management Minor at the University of Colorado Boulder: A Case	
Study	2
Designing Enduring Purposeful Human Activity Systems: Employee	
Reception to Systemic Organizational Design	. 2
Environmental, Social, and Governance Metrics for Airport Water Sustaina-	
bility	2

A Proposed Conceptual Framework to Maintain Consistency Between Org-	
anizational Culture and Behavior	-
Committed to Long-Term Stewardship	_
Wargaming Demonstrates How C Suite Management Styles Can Impact	
Clean Energy Projects	_
Design and Implementation of An Inventory Control System to Improve De-	
ficiencies and Reduce Costs	_
An Analysis Of Automation Technology In Energy-Efficient Buildings	_
Applying The DMAIC To Improve The Quality Of Medical Software	
Product By The Testing Enhancement	_
The Pavement Management Plan for Military Installations	_
The Transportation Systems Of Boeing's Supply Chain	_
A Comparative Analysis: OEMs And CMs For Sourced Finished Medical	
Devices (SFMDS) And The Key Global Sourcing Roles To Assist In	
Mitigating Patient Risks	_
Optimizing Maintenance Intervals To Analyze, And Prevent Aircraft Press-	
urization System Malfunctions	_
Efficacy of Automated Enforcement with Red Light Cameras in Preventing	
Automobile Collisions	_
Implementation Of Six Sigma Methodologies To Increase Production And	
Efficiency	_
Using Graph Theory On Twitter Interaction Networks Of Us-Based Airlines	
To Determine Their Market Expansion	_
Supply Chain Resilience Under COVID-19 Pandemic Disruption Informed	
by High Reliability Organization (HRO) Theory	_
Predicting Maternal Health Risk by Utilizing Different Machine Learning Cl-	
assifiers	_
Creating Portfolio Management Concepts for Highly Agile and Innovative	
Government Research Programs Using Design Thinking and Lean Startup	
Methodologies	_

Modeling Higher Education Economic Systems Through a Thermoeconom-	
ics Lens: A Review of the State of the Art	459
Dynamic Performance Appraisal Systems for Aligning Team Thinking and Doing	469
Identifying Vulnerabilities In National Critical Energy Infrastructure To	
Improve Army Readiness And National Security	479
A Preliminary Review of The Literature on Agent-Based and Machine-	
Learning Approaches in Addressing Issues of Financial and Economic Un-	486
Inventory Control and Optimization of Reorder Point	
Engineering Managerial Leadership Succession and Generational	
Transition in the Utility Sector: An Empirical Investigation	500
Waste Heat to Power (WHP) Technology as a CO2 Reduction Portfolio:	
Market Penetration, Potentials, and Challenges	511
Online Education in Workforce Engagement	521
Lean Six Sigma for Microbusinesses in the Service Industry	527
Preparing Poll Workers to Secure U.S. Elections	537
The Challenge between New Product Development and Production: A	
Case Study of an American Medical Device Manufacturing Company	548
A Systematic Literature Review Of Project Management Training	
Techniques	556
A Review of the State-Of-The-Art of the Scientific Methods used to	
Evaluate the Effectiveness of Training Approaches	567
Improving Traditional Project Management for Renewable Energy Projects	
through the Integration of Agile and Lean Methodologies	577
The Productivity-Profit Association: The Various Perspectives of The	
Diverse Methods of Productivity Evaluation	586
A Mathematical Model For Designing A Three-Echelon Dairy Supply	
Chain Considering Integrated Distribution Location, Inventory, Vehicle	
Selection, And Loading Strategy	598

Dual-Sourcing Strategy for Space Industry Projects	605
Optimizing The Initial Process In A Door Assembly Plant	616
Assessment Of The Impacts Of Social Sustainability Projects In Airports	623
A Preference-Based Optimization Framework for Course Assignments	631
Analysis Of Power System Resilience Subject To Extreme Events	636
Evaluating Sensor Placement Via Machine Learning Models	646
Student Employee Perspectives of Efficiency-Associated Affordability	
Practices Based on Organization Size	654
Executing Creative Work in the Hybrid Environment: Observations and	
Lessons Learned from Doctoral Journeys	664
A Value-Focused Decision Model for Green Energy Portfolio Management	673
A Review Of Augmented And Virtual Reality For Engineering	
Management Undergraduate Programs And Case-Study For Testing And	
Evaluation	683
Development of Cooperative Game Theory Based Joint Cost and	
Emission Based Incentive Structure for Companies Engaged in Collaborat-	
ive Shipping.	692
Feasibility study of using virtual reality (VR) technology as a means of	
leadership development	703
Leveraging Big Data to Influence Customer Loyalty in the Private Transpo-	
rtation Industry	710
Engineering Responsive Systems with the Fast and Frequent Feedback M-	
ethodology	719
A Systems Engineering Framework for Complex Training Systems: Virtual	
Reality in Flight Training	729
Regression Analysis – Graduation rate in Hamilton County Schools	739
Improving Healthcare Supply Chain Efficiency: Application Oof Inventory -	
Stratification	745
Stakeholder Elicitation for Autonomous Robotic Systems Design for	
Mission-Critical Environments	755

Model-Based System Engineering Enabled Approach for Managing Infrast-
ructure Construction Projects in Africa
A Smart Machine Learning Prediction Model For Forecasting Supply In Blood Bank Supply Chain
Revisiting The R&D Project Management Methodologies For Defense R& D Projects: An AHP Based Multi-Criteria Methodology Selection Model Proposal
Integrating the Circular Economy Paradigm with Building Ecology for Sust- ainability Improvements of The Built Environment in The U.S A Lifecycle Engineering Based Approach
Survey Responses on Improving Affordability at NASA MSFC
Measuring Cultural Impacts on Engineering Identity Formation: A Review of Techniques and Methods
Using statistical control techniques for improving exchange rate predictive models
Machine-Learning Analysis Of Mortality Due To Comorbidities And Resulting Microvascular Complications In COVID Patients With Type-2
Diabetes Mellitus Agile Methodology Concept Applied During Power Plant Construction Phase
Statistical Analysis Of Bias In Manufacturing Efficiency Loss Data Overview of AI vs. Human Experiments and Implications for Engineering
Management Fields Adult Development Complexity in Formal Education on Engineering
Management and Leadership: The Kegan Path
The Impact Of Procurement Systems On Construction Cost And Delivery In South Africa
A Systematic Analysis of Agent-Based Modeling and Power System Resilience

Applying Multi-Level Systems Dynamics Modeling to Support an	
Integrated Model of Organizational Resilience	<mark>8</mark> 91
Agility-Readiness Assessment Of Teams For Digital Transformation: A Mu-	
Iticriteria Decision Approach	902
Transnational development and operation of hybrid study offers for engine-	
ering management	913
A Systems Approach to Analyzing the Resilience of Critical Infrastructure	
Systems' Restoration Process	921

Table of Contents

Current Trends in Engineering Management: A Bibliometric Analysis of Su-	
bmissions from the ASEM International Annual Conference	933
Case Study: Study of Pipeline Control System Modernization and Standar-	
dization	940
Investigation Of Electrical Harness Continuity And Insulation Resistance	
Test Failures	948
Automation And Its Role In Aviation	956
Customer-Focused Methods for Optimal Design Verification based on Stat-	
istical Sampling	965
A Systems Approach to Managing Complex Airframe Design	975
Quality development for a paint booth – a case study at an automotive	
plant	984
A SKU Recommendation Engine For Beverage Sales In Independent	
Retailers	994
Application Of Data Science In A Quality Management: Lessons Learned	
And Recommendations	1003