|  |  | **Paper No** | **Model/System** | **Method** | **Application** | **Description** | **Software** |
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| ***Quality, Satisfaction & Operations Management*** | **Transport Service Management** | 1 | Multidimensional scaling analysis (MDS) | **MDS** | Make suggestions to the current HSR ticket fare to set the feasible rate concerning the operating, passenger-perceived, and time-space compression costs | The proposed model not only considers the profit margin, but also takes into account the safety, comfort, convenience, punctuality, and satisfaction of passengers | IBM SPSS & PROXSCAL |
| 2 | Structural equation modeling (SEM) | **SEM** | Development of a systematic method of assessing the long-term performance of high-speed rail transport services, by which management units can adjust operating strategies to continuously improve services | The longitudinal analysis in this study compared passenger perceptions of high-speed rail service quality in Taiwan and Korea to determine how such services can best improve operating revenue | SPSS |
| 3 | **SEM integrates characteristics of path analysis, confirmatory factor analysis (CFA), and structural regression models** | By using the confirmatory findings of this study as a policy making reference and for clarifying resource use, the HSR can enhance passenger perceptions | The analysis results indicated that leadership significantly correlated with employee cognition (0752); employee cognition significantly correlated with service quality and operations performance (0667 and 0724, respectively); service quality significantly correlated with corporate image (0755); however, operations performance had only weak correlations with service quality, corporate image, and customer recognition (0043, 0078, and 0373, respectively) | SPSS & AMOS |
| 4 | Passenger satisfaction index (PSI) | **SEM** | Deploying effective service strategy in the operations stage of high-speed rail | Level of access to THSR station and personal space on KTX train are the top-priority quality indicators that need to be addressed to improve customer satisfaction and corporate profits | AMOS |
| 5 | Structural equation modeling (SEM) | **SEM includes path analysis, confirmatory factor analysis (CFA), structural regression models, and late change models** | Measure the impact of mediating variables in the passenger continuance behavior on the QSL chain with high speed rail (HSR) service | This analysis provides an evidential basis with the evaluating indicators so that the management team can deploy an effective marketing strategy, achieve continuous quality improvement, and efficiently manage customer relationships to ensure passengers’ future commitment and confidence in the HSR systems | SPSS & AMOS |
| 6 | (略) |  |  |  |  |
| 7 | (略) |  |  |  |  |
| **Building Service Management** | 8 | Exploratory factor analysis (EFA) | **Kano’s approach + importance–performance analysis (IPA)** | Explore the relationship between identified SQ attributes and CS in the CM business | To facilitate the decision-making process, the service-quality model evolved from the integration of an improved Kano’s approach and importance–performance analysis (IPA) is utilized to develop a prioritized strategy for satisfaction improvements in the CM business | SPSS |
| 9 | **Exploratory factor analysis (EFA) + structural equation modeling (SEM)** | Explores service quality constructs and associated indicators that are useful for assessing service performance, as well as the relationships between resident satisfaction and service quality in the condominium management service sector | This study concludes that both constructs significantly and positively affect resident satisfaction for condominium service businesses | SPSS & AMOS |
| 10 | (略) |  |  |  |  |
| ***Project/Behavior/Technology Management*** | | 11 | Structural equation modeling (SEM) | **SEM** | Determine the effects of PMBOK techniques/tools/skills (TTSs) on project success (PS) | Empirical data obtained in a cross-country comparison confirm that effective use of PMBOK TTSs substantially increases the probability of PS | SPSS & AMOS |
| 12 | Examines the impact of quality determinants from literature in assessing benefits using an information systems success model | An empirical study of leading manufacturers adopting ERP systems is used to investigate corporate benefits related to information quality, system quality, service quality, system use, and user satisfaction | AMOS |
| 13 | Technology acceptance model (TAM) | **TAM** | Investigate the factors that influence successful implementation of mobile computing devices in the construction industry | This study extends the technology acceptance model (TAM) to an exploration of the determinants of user satisfaction with mobile computing devices and the link between user satisfaction and perceived performance | AMOS |
| 14 | Structural equation modeling (SEM) | **SEM** | Examines the relationships among the PMBOK® Guide, project performance, customer satisfaction, and project success by assessing the efficacy of management techniques, tools, and skills for implementing infrastructure and building construction | This study contributes to the literature by providing insight into interactions among the PMBOK® Guide and construction project outcomes in engineering practices | SPSS & AMOS |
| 15 | (略) |  |  |  |  |
| ***PPP, Public Policy, Performance Evaluation*** | | 16 | Descriptive statistics & Exploratory factor analysis (EFA) | Descriptive statistics + **EFA + 2D quadrant analysis** | Identify the important aspects of the evaluation process and factors that should be considered in the ex post evaluation of PPP projects in Indonesia infrastructure | The descriptive statistics in the ex post evaluation showed that the three most important aspects of the evaluation process were “review and acceptance of evaluation by appropriate parties,” “documentation of information used in preparing the evaluation,” and “purpose and intended use of evaluation” (mean values 418, 411, and 397, respectively) | SPSS |
| 17 | Confirmatory factor analysis (CFA) and mean value analysis (MVA) | **CFA + MVA** | Compare the categories of key drivers, critical success factors (CSFs), and preferred risk allocation in PPPs established in Taiwan, Singapore, China, the United Kingdom, and Indonesia | This study provides useful information for people seeking to invest in PPP projects, enabling them to enhance their understanding of key drivers, CSFs, and risk allocation in the researched countries | SPSS & AMOS |
| 18 | Proposes specific tools and measures to facilitate stakeholder management | Public–private partnerships (PPPs) and practices for PPP institutional frameworks (IFs) | Investigate the major role public–private partnerships (PPPs) played in stimulus plans and the challenges faced when promoting PPPs in response to the 2008 GFC | The findings of this study can be used by governments that intend to enhance IFs and systematically attract private investment in infrastructure projects; economic downsizing and other adverse consequences of GFCs can thus be avoided |  |
| 19 | Governmental debt guarantee (GDG) on the basis of game theory | **Transportation cost Economics (TCE) + game theory** | Examine the effects of a structured GDG mechanism with particular complementary measures applied in joint projects to develop the Taipei Mass Rapid Transit (MRT) stations | Proactive Measures of Governmental Debt Guarantees to Facilitate Public-Private Partnerships Project |  |
| 20 | Design a structural questionnaire for professionals in Taiwan and to elicit their PPP project experience | **Mean value analysis (MVA) and confirmatory factor analysis (CFA)** | Compared the use of public–private partnership (PPP) policy between high speed rail (HSR) projects and general infrastructure projects | This study provides a valuable reference for stakeholders interested in executing HSR via PPP | AMOS |
| 21 | (略) |  |  |  |  |
| 22 | (略) |  |  |  |  |
| ***Sustainable Development & Energy Policy*** | **Sustainable Development** | 23 | Life cycle assessment | **Life cycle assessment (LCA) + Monte Carlo simulation (MCS)** | Develop a carbon dioxide emissions evaluation system and an environmental cost calculation method | The proposed method can guide engineers and architects in evaluating the primary environmental risk for a building life cycle and selecting an appropriate construction method | @Risk |
| 24 | Probabilistic multi-objective optimization algorithm PSO (PMOPSO) | **PMOPSO + Monte Carlo simulation** | Facilitating project managers in achieving a design that satisfies technical and quality requirements with lowest cost, shortest duration, and minimal adverse impacts on the environment | This work proposes a novel probabilistic multi-objective optimization algorithm to attain sustainable construction cost, project duration, and CO2 emissions simultaneously in an uncertain project environment The novel algorithm, which is based on Particle Swarm Optimization integrated with Monte Carlo simulation, is applied to generate a low-carbon economy and cleaner production | MATLAB R2008 |
| 25 | Quantitative and qualitative analysis | **Quantitative + qualitative analysis** | Determine what aspects hinder the integration of sustainability and lean concepts within the region | A process for planning throughout the entire construction process was determined so that waste can be reduced and the integration of lean and sustainable concepts is more achievable |  |
| 26 | Level of awareness of and preparedness | **Survey + statistical analysis** | Implementing Sustainable Development in the Construction Industry | The results of this study indicate that constructors should have more responsibilities and get involved at an earlier stage of a construction project – during the design phase – in order to exploit their knowledge | Statistical package SPSS |
| 27 | (略) |  |  |  |  |
| **Energy Policy** | 28 | Structural equation modeling (SEM) | **Structural Equation Modeling (SEM) + Consumer Perceived Expectation Analysis (ICPEA) + Consumer Adoption Propensity (CAP)** | Examine similarities and differences in consumer adoption of smart meters across Taiwan, Korean, Indonesia, and Vietnam | The findings of this study improve understanding of regional differences in consumer adoption of smart grid systems | IBM SPSS and AMOS |
| 29 | Developed an index to measure consumer propensity to adopt smart meters in residential buildings |
| 30 | (略) |  |  |  |  |