

Simplified Procedures For Evaluating Low-cost TSM Projects: Users Manual

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Optimizing Time-Cost Tradeoffs in Product Development Projects with a Multi-Objective Evolutionary Algorithm

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Abstract

Time-cost tradeoffs arise when organizations seek the fastest product development (PD) process subject to a predefined budget, or the lowest-cost PD process within a given project deadline. Most of the engineering and project management literature has addressed this tradeoff problem solely in terms of crashing—options to trade cost for time at the individual activity level—and using acyclical networks. Previously (Meier et al. 2015), we presented a rich model of the iterative (cyclical) PD process that accounts for crashing, overlapping, and stochastic activity durations and iterations. In this paper, we (1) propose an optimization strategy for the model based on a multi-objective evolutionary algorithm, called ϵ -MOEA, which identifies the Pareto set of best time-cost tradeoff solutions, and (2) demonstrate the approach using an automotive case study. We find that, in addition to crashing, activity overlapping, process architecture, and work policy provide further managerial levers for addressing the time-cost tradeoff problem. In particular, managerial work policies guide process cost and duration into particular subsets of the Pareto-optimal solutions. No work policy appeared to be superior to the others in both the cost and duration dimensions; instead, a time-cost tradeoff arises due to the choice of work policy. We conclude that it is essential for managers to consider all of the key factors in combination when planning and executing PD projects.

Keywords: Time-cost tradeoff, product development, project management, iteration, crashing, overlapping, work policy, optimization, genetic algorithm.

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mented in a separate report: "Low-Cost TSM Projects; Simplified Procedures for. Evaluation . The manual should be treated as a working document, with users."This manual is for use by transportation planners, traffic engineers, and transit operators involved in planning, programming, and implementing.Training Aid for Applying Nchrp Report Simplified Procedures for Evaluating Low-Cost Tsm Projects (National Cooperative Highway Research Program.Training aid for applying NCHRP report simplified procedures for evaluating low-cost TSM projects. Book.Assessment of Transportation Gaps in Developing Countries in the Context of (), Highway Capacity Manual, Special Report , National research Council, Washington, D.C.; Transportation Research Board (). Simplified Procedures for Evaluating Low-Cost T. S. M. Projects: Users Manual.evaluating mineral properties: version , users manual, using Lotus report simplified procedures for evaluating low-cost TSM projects / Simplified cost models for prefeasibility mineral evaluations / by Thomas W. Camm.problems, many of which were currently difficult to solve manually. The speed . Programs could then be ordered by interested users from the sources listed on the diskette. Dis- simplified procedure for Evaluating Low-Cost TSM projects.and cost-effective use of existing transportation facilities and services. It is through the the operation of the highway system beginning in the early s. . corridor travel data that are essential when planning, monitoring, and evaluating TSM projects. .. Analytical procedures (manually operated or computerized) may be.TSM PROCEDURES AND STANDARDS MANUAL, VERSION In general, the costs of a MAP project are assumed by the developer who is applying for the permit. Simplified Communication Concept of Operation Statement In the case of existing NJDOT communications, the designer shall evaluate remaining.The Project Development Procedures Manual (PDPM) provides the functional .. CHAPTER 6 - Project Cost, Scope, and Schedule Changes. TSM. Transportation System Management. UEW. Utility Engineering Workgroup .. owners or local agencies, the Caltrans district should evaluate the location.case effective traffic management systems are already in operation in the city of Los Angeles in that simple communications will most often lead to cooperation. The Texas .. Public Technology Inc. Manual on Planning and Implementing Priority plified Procedures For Evaluating Low Cost TSM Projects. NCHRP.making process during the simplified highway designs appli- cation ning budget, the potential total project costs, the maximum plified set of production rules was defined to guide the com- with and training in the analysis procedures are often required of users. . The first approach allows users to evaluate costs on the.Conceptual illustrations of the fine model, the tuning model and the cost of each iteration is roughly two fine model evaluations one evaluation of the The actual TSM algorithm is an SMF script that calls necessary procedures and, set up using the template project files and other relevant data provided by the user.AN INTERIM HANDBOOK INTEGRATING ITS INTO THE TRANSPORTATION PLANNING PROCESS. . Defining and Evaluating ITS Elements in the Transportation Plan. Estimating Transportation

Plan Costs and Funding Mechanisms. .. The purpose of defining user services was to relate ITS strategies(ITS projects.process;. 0. Be user-friendly with useful navigation and search tools The manual defines FLH policies, standards and standard practices, Transportation System Management (TSM). Evaluation of Data, Project Requirements, and Design Parameters. Construction Engineering Cost Estimate.the process moves on to conventional project evaluation transportation planning and management, the programming process Hani Mahmassani and Ralph Gakenheimer, "Simple . for low income groups and difficulties in providing public modal structure, operation and management. Manually controlled signals.Projects and Project Features Resulting from the NEPA Process. Note that the \$ million per State cap applies to the combined cost of damages to . assessment of damage, general supervision, contract administration other .. TSM strategies to monitor and control traffic and to manage transportation on streets and.

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