Research Center
Finance & Information Management

Fraunhofer FIT
Project Group
Business & Information
Systems Engineering

Discussion Paper

Modeling Project Criticality in IT Project Portfolios

by

Anna Neumeier[1], Sven Radszuwill, Tirazheh Zare Garizy[2]

August 2018

in: International Journal of Project Management, Volume 36, Issue 6,
August 2018, pp. 833-844

The final publication is available at:
< https://doi.org/10.1016/j.ijproman.2018.04.005>

[1] At the time of writing this paper, Anna Neumeier was a research assistant at the Research Center Finance & Information Management and the Department of Information Systems Engineering & Financial Management at the University of Augsburg.
[2] At the time of writing this paper, Tirazheh Zare Garizy was a research assistant at the Research Center Finance & Information Management and the Department of Information Systems Engineering & Financial Management at the University of Augsburg.

University of Augsburg, D-86135 Augsburg
Visitors: Universitätsstr. 12, 86159 Augsburg
Phone: +49 821 598-4801 (Fax: -4899)

University of Bayreuth, D-95440 Bayreuth
Visitors: Wittelsbacherring 10, 95444 Bayreuth
Phone: +49 921 55-4710 (Fax: -844710)

www.fim-rc.de

WI-600

Abstract

Today's IT project portfolios (ITPP) contain many projects and varied interdependencies. Depending on a project's criticality to the ITPP, a failure can have massive consequences. However, existing methods usually only assess overall project portfolio risk and do not account for the criticality of single projects and their dependencies. Applying Bayesian network modeling to ITPPs, we bridge this gap and extend the current body of knowledge for the information systems and project management literatures. Our new method analyzes single projects' criticality in a portfolio context by considering both transitive dependencies and different dependency types in an integrated way. Since we demonstrate that single projects' criticality can vary substantially, being aware of which projects are critical is a key success factor for ITPP management. For practitioners, our method provides a straightforward procedure to enhance ITPP risk management.

Keywords: IT Project Portfolio Management, IT Project Criticality, Bayesian Network, Interdependencies