

Dynamic Scheduling

If time is money, accuracy pays!



“The only reason for time is so that everything doesn't happen at once.” (Albert Einstein)

PM Presentation

Dynamic scheduling is a Project Management (PM) discipline that focuses on the **integration** of baseline scheduling, risk analysis and project control. The presentation is based on **practical experience** as well as **academic research** published in “Measuring Time”, “Dynamic Scheduling”, and “Integrated Project Management and Control”, written by Mario Vanhoucke and published by Springer (www.or-as.be/bookstore).

Abstract

The presentation will provide an overview on current European research studies on **Dynamic Scheduling** that focus on integrating baseline scheduling, risk analysis, and project control, including an overview of the plans for the late 2011 awarded funding of more than € 1 million by the Belgian government for an integrated project management research study on the dynamic use of **Earned Value Management (EVM)** and **Schedule Risk Analysis (SRA)** during project control.

The presentation will start with an overview of the history of the PM related research collaboration that has occurred within Europe including the establishment of the EVM Research Center of Excellence at Ghent University, Belgium. Each individual building block of the research study will be explained, and its relevance to practice will be highlighted. Future expected research results will be briefly summarized with their possible relevance shown based on preliminary tests done on projects from companies in Belgium.

During the presentation, it will be shown that **Project Management and Control** is an integrated and dynamic process that involves a continuous stream of changes, and is a never ending process to support decisions that need to be made along the life of the project. The focus lies on three crucial dimensions of dynamic scheduling:

- **Schedule:** The construction of a baseline schedule
- **Risk:** The analysis of the schedule's risk
- **Control:** The project measurement and control phase

The importance and crucial role of the baseline schedule for the two other dynamic scheduling dimensions (project risk and control) will be highlighted, and the integration of the schedule risk and project control dimensions is discussed in order to support a **better corrective action decision making** when the project is in trouble.

Throughout the presentation, a strong focus will be set on the **time** aspect of projects, and on the **accuracy** of setting and measuring this crucial time focus along the three dimensions of dynamic scheduling. Traditional and novel concepts of Earned Value Management will be integrated with well-known sensitivity measures obtained by a Schedule Risk Analysis, and the accuracy of **performance measuring** and **time forecasting** will be tested and compared for a wide range of projects and scenarios. A new commercial software tool will be used to illustrate the newly developed concepts and results that can be used for research, for teaching as well as for practical project management purposes.

Audience

The presentation is targeting young **PM researchers** and/or **PM professionals** with or without a background and experience in Project Management. All topics are relevant for PhD researchers as well as project managers working in both the private and public sector, and apply to large and small projects with critical performance, time and budget targets.

Biography

Biography

Prof Dr Mario Vanhoucke is a Professor of Business Management and Operations Research at **Ghent University** (Belgium), **Vlerick Business School** (Belgium, Russia, China) and **University College London** (UK).

He has a PhD in Operations Management from the University of Leuven (Belgium) and a Master's Degree in Commercial Engineering from the University of Leuven (Belgium). At Ghent University, he is the program director of the Commercial Engineering program where he teaches "Project Management" and "Applied Operations Research". At Vlerick Business school, he teaches "Decision Making for Business" and "Business Statistics" to Master students including MBAs. An overview of the academic teaching assignments is given at the website www.projectmanagement.ugent.be.

His main research interest lies in the integration of project scheduling, risk management and project control using "combinatorial optimization models". He is an advisor for several PhD projects, has published papers in more than 40 international journals and is the author of three project management books published by Springer. He is a regular speaker on international conferences (EURO, INFORMS) as an invited speaker or chairman. He is also a regular reviewer of articles submitted for publication in international academic journals.

Prof Dr Vanhoucke is a founding member and Director of the EVM Europe Association (www.evm-europe.eu) to organize a yearly conference on integrated project management and controls. He is also a partner at the company OR-AS (www.or-as.be) which released a third version of its project management software tool ProTrack 3.0 (www.protrack.be) and P2 Engine (www.p2engine.com). ProTrack is an advanced scheduling product which focuses on the integration of scheduling, risk, control management and online learning through a PM Knowledge Center (www.pmknowledgecenter.com). P2 Engine is a research derivative of ProTrack used in PhD studies and commercial software development consultancy projects.

The project management research undertaken by Prof Dr Vanhoucke has received multiple awards including the 2008 International Project Management Association (IPMA) Research Award for his research project "Measuring Time (using EVM data) - A Project Performance Simulation Study" which was received at the IPMA world congress held in Rome, Italy. He also received the "Notable Contributions to Management Accounting Literature Award" awarded by the American Accounting Association at their 2010 conference in Denver, Colorado.

In 2012, he has obtained Concerted Research Actions (CRA) funding of more than € 1 million from the Belgian Government for an integrated project management research study. The study will be carried out over the next six years in collaboration with Ghent University, The European Organization for Nuclear Research (CERN) located in Geneva, Switzerland, the University College of London (UK), George Washington University (USA) and the EVM Europe Association.



Mario Vanhoucke

Academic contact: Professor at Ghent University, Vlerick Business School and University College London

 mario.vanhoucke@ugent.be

 @MarioVanhoucke

Business contact: Partner at OR-AS

 mario.vanhoucke@or-as.be

 @ORASTalks

OR-AS: Operations Research - Applications and Solutions

Academic contact: mario.vanhoucke@ugent.be

Business contact: mario.vanhoucke@or-as.be