

THESISONDERWERPEN 2014-2015

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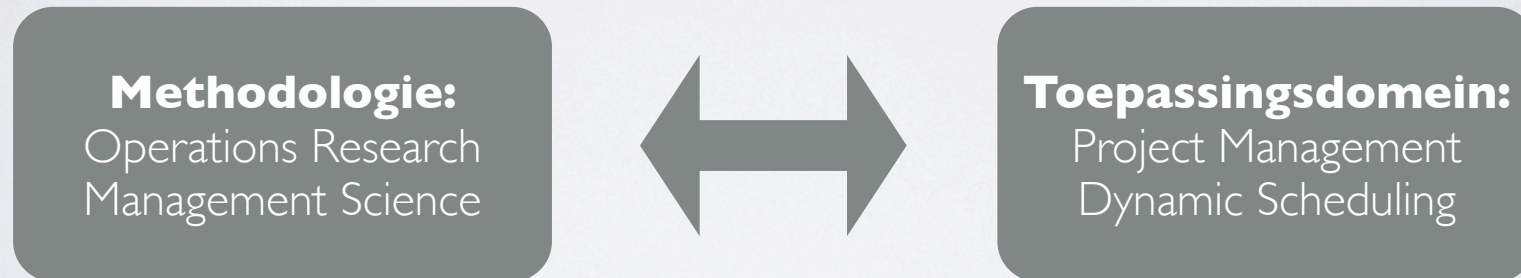
Danica D'hont

Annelies Martens



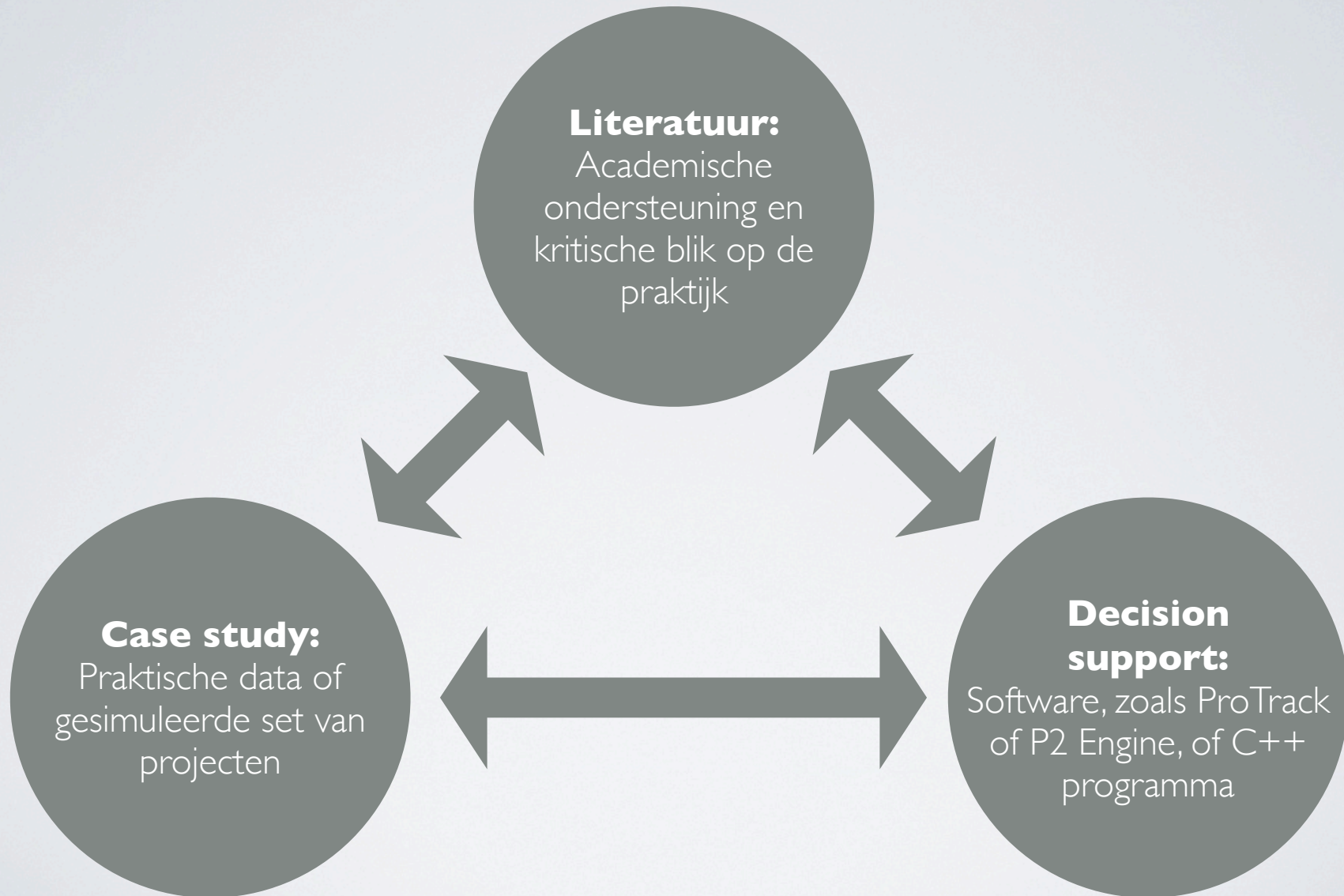
Wat zoeken wij?

- Studenten met
 - Een kwantitatieve ingesteldheid
 - Die de brug willen slaan tussen theorie en praktijk
 - Zelfstandig kunnen werken
 - Kritisch ingesteld zijn



- Meer dan een “normale” thesis

Wat stellen wij voor?



Onderwerpen

- Dynamic scheduling
 - Project Scheduling: Resource-constrained project scheduling
 - Risk Analysis: Monte-Carlo simulations and extensions
 - Project Control: EVM and its extensions
 - ... and all sorts of extensions...
 - www.projectmanagement.ugent.be/?q=teaching/scipties2014
- Doelstelling
 - Testen van een nieuw idee (paper) of bevestiging van bestaand onderzoek
 - Toepassing van een (bestaand) idee op echte data
 - Ontwikkeling nieuwe procedures/algorithmes
 - Dashboards and KPIs in Project Management

De begeleiding

- Een team van mensen bestaande uit
 - De promotor: Mario Vanhoucke
 - De begeleider: Het OR&S team (vast aanspreekpunt)
 - Bedrijfsondersteuning: ProTrack en P2 Engine
- Onze aanpak
 - Onderwerpen met 2 personen mogelijk
 - Regelmatige opvolging met de begeleider (uw keuze!)
 - Maandelijks team meeting (bespreking resultaten)
 - Bedrijfsondersteuning software tools (met mogelijke vertraging)

**Maandelijks teamvergadering
waarin jullie voortgang wordt
besproken**



De begeleiding

- Software tools
 - Een C++ tutorial voor de programmeurs
 - Een PM software tool: ProTrack
 - Een PM research tool: P2 Engine
- Deadlines
 - Mei 2015: Eerste tussentijds rapport
 - Evaluatie
 - 50% van het werk
 - Planning toekomst
 - Finaal rapport en verdediging in 2016

Master Thesis

www.evm-europe.eu

www.pmi-belgium.be

www.projectmanagement.ugent.be

www.earnedschedule.com

www.pmknowledgecenter.com

www.pmgamecenter.com

www.or-as.be

www.p2engine.com

www.protrack.be

Sidmar prijs!
PMI-Belgium prijs!

PhD

Biggest PM research project ever
in collaboration with

CERN, George Washington University, University College London

Awards

- **PMI Belgium best Project Management thesis award**

- 27/09/2014: Annelies Martens: "Statistical project control" (<http://www.or-as.be/blog/thesisaward2014>)
- 22/09/2012: Pieter Leyman: "A genetic algorithm for the multi-mode resource-constrained project scheduling problem with discounted cash flows" (http://www.or-as.be/blog/thesisaward2012_PM)
- 07/07/2011: Evelyn De Blicq and Ellen De Groot: "An accuracy study on Earned Value Management extensions using Monte-Carlo simulations" (<http://www.or-as.be/blog/thesisaward2011>)

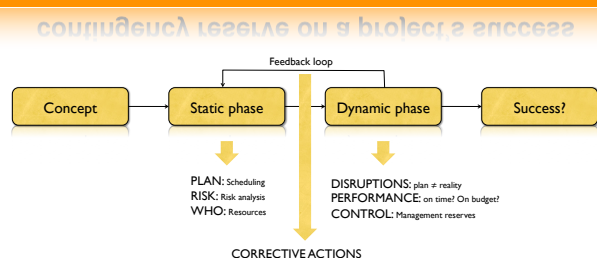
- **Arcelor Mittal best thesis award**

- 27/09/2014: Bert Aelter en Jules Branswyck: "Het introduceren van teamrotatie in een projectomgeving" (http://www.or-as.be/blog/thesisaward2014_OR)
- 21/09/2013: Pieter Beeckman and Kenny Vanleeuwen: "An accuracy study and improvement of a time-dependent EV model using Monte Carlo simulation" (http://www.or-as.be/blog/thesisaward2013_OR)
- 22/09/2012: Louis-Philippe Kerkhove: "A study of exact and meta-heuristic planning techniques for unrelated parallel machines with common servers in the textile industry" (http://www.or-as.be/blog/thesisaward2012_OR)
- 07/07/2011: Len Vandenheede, "A case study for multi-project planning"
- 15/07/2010: Frederic Steen: "Applying the shifting bottleneck procedure for a real-life production problem"
- 07/07/2007: Bruce Fecheyr-Lippens, "Personnel scheduling in the airline sector: Case Brussels Airlines"



Onderzoeksondersteuning

Searching for static and dynamic project drivers to predict and control the impact of management/contingency reserve on a project's success



Concerted Research Actions

Each year the Flemish Government allocates research funds to Ghent University so as to implement the Flemish Government's Resolution of 8 September 2000.

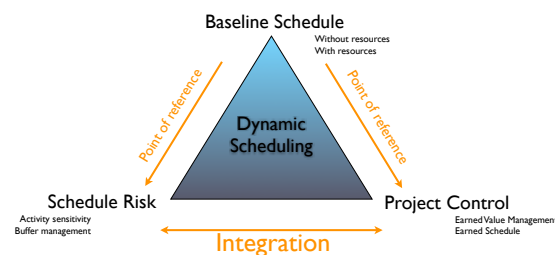
Concerted research actions are research projects with a duration of four to six years of which the scientific excellence can be demonstrated on the basis of objective data – more specifically on the basis of publications and other indicators that show the scientific quality of the research group(s) in question.

This year, the research proposal submitted by Prof Dr Mario Vanhoucke titled “*Searching for static and dynamic project drivers to predict and control the impact of management/contingency reserve on a project's success*” has been awarded after a review process and a final presentation to the jury.

This ‘more than a million euro’ research project in collaboration with the George Washington University (US), University College London (UK) and CERN (Switzerland) will certainly move the research in project management and dynamic scheduling towards a higher level. Preliminary research results will be spread on conferences, such as the www.evm-europe.eu conference.

Research topic

Dynamic scheduling is the integration of *baseline scheduling*, *risk analysis* and *project control* and aims at understanding static and dynamic drivers of project success.



In this new research project, 6 researchers will be assigned during the period 2012 - 2018 to the team of Prof Dr Mario Vanhoucke to carry out different experiments on fictitious and empirical project data. Their aim is to write top academic papers as well as more practical oriented guidelines that bring value to the project management discipline.

The research project can be considered as a follow-up study of the research study “Measuring Time” which has led to various international publications, a book published by Springer and two awards. Building further on this study, the aim is to extend the traditional Schedule Risk Analyses and Earned Value Management approaches to statistical extensions. To that purpose, novel algorithms for scheduling projects will be developed which will then be used to test the performance of projects in progress using extensive Monte-Carlo simulation experiments. Preliminary progress results will be presented at the yearly EVM-Europe conference and will be incorporated in the software tool ProTrack (www.protrack.be) and P2 Engine (www.p2engine.com) to make it accessible to both researchers and practitioners.

More information on research activities

The Operations Research and Scheduling research group (www.projectmanagement.ugent.be) consists of a team of researchers at Ghent University that performs research on project management and dynamic scheduling. In collaboration with OR-AS (www.or-as.be) and EVM-Europe (www.evm-europe.eu), results will be published on PM Knowledge Center (www.pmknowledgecenter.com), presented at international conferences and published in books and international publications.



