Maximizing Business Value Through Projects:
Doing less and achieving more!

Thomas G. Lechler
Stevens Institute of Technology
Hoboken NJ
Simple multiple tasks?

A simple exercise:

1. Draw a circle in the air with one hand.

2. Simultaneously, draw a square in the air with the other.
Destroying Value by Doing too Much!

• A large communications company that develops infrastructure equipment completed,

• 20 projects all were delayed.

• 4 projects consumed 80% of the human resources.
Introduction

• In the planning stage managers try to allocate 100% of all available resources to implement the selected projects.

• The problem is, that this strategy would not allow for acting on potential risks and uncertainties while implementing the projects.

• We develop a simple and effective counter-intuitive heuristic to address this problem.

• We create a simulation tool allowing us to test resource allocation strategies in realistic environments.
Research Question & Methodology

Research Question:

• How does project selection and resource allocation affect the value of an organization?

Methodology:

• A self-developed simulation platform is used to test different project scenarios.

• Different scenarios of multitasking and non-multitasking approaches for various sets of projects are simulated.

• Main variables are value, resource buffer and project risk.
Assumptions

• Stochastic vs. deterministic environment.

• Specific vs. general resources.

• Resource bottlenecks average out across different types of projects.

• Organizational value is average net profit of project portfolio.

• Project revenues are lump sum payments.

• Project risks: actual work exceeds planned work.

• Each scenario is constantly repeated.
Scenarios

Buffers and Project Risks and Allocation Strategies

• Buffer size ranges between:
  ▪ 0% (full 100% use of available resources) and
  ▪ 25% (working at 75% of capacity).

• Project risks: Standard deviation of each activity ranges between:
  ▪ 0% (deterministic case) and
  ▪ 25% (stochastic case).

• Multitasking vs. Non multitasking
Results – Scenario 1: No Multitasking

100% resource allocation is the worst strategy!
Results – Scenario 2: Multitasking

Multitasking strategies do not find a stable resource buffer strategy!
Results – Scenario 3: Multitasking vs. No Multitasking

Multitasking strategies are inferior to non-multitasking strategies!
Practical Solutions

• How could organizations increase the value of their project portfolios?
• Are there concepts that could be implemented?
25-25 Heuristic: Simple Implementation Concept

- Eliminate 25% of all active projects: Strategic Gating with Focusing Matrix.

- Reduce 25% in workload: Simplify remaining active projects
25-25 Implementation Impact at Company P

- 2002, company P was losing money.
- Change production methods and procedures,
- Improved quality,
- Cut average manufacturing lead time by 50%,
- Reduced inventories by 30%, and
- Increased throughput by 40%,
- Reduced setup times from 2 hours to less than 10 minutes,
- 2003 company P is profitable again!
25-25 Implementation Impact at Company P

- 2006, the number of R&D projects in process exceeded 40
  - High percentage of missed deadlines
  - Excessive overtime
  - Increased time spent on client support
- Focusing Matrix: Only 14 of the 40 R&D projects in the current portfolio passed the screening.
- Company sold in 2008 for 10-times the initial value!
Lessons Learned

• A general resource buffer of around 10% will enable the portfolio to achieve an overall value that is close to the maximum.

• The higher the level of multitasking within a multi-project system the less project portfolio value could be created.

• Costs for idle resources lower than losses from delayed projects.

• 25-25 heuristic works well in a multi-tasking environment.

• It is a good process with immediate value impact.
Stevens Enterprise Project Management Master’s

• How to teach project managers?
  – Business side of projects is important to create value.
  – Think and act entrepreneurial.
  – Create a business mindset.

• Which content should they be taught?
  – Strategic selection and adjustment of projects.
  – Analyses of project value opportunities.
  – Value management concepts and tools.
Conclusions: Stevens’ PM Education

- Project Management Graduate Certificate (4 courses)
- Masters of Science in Enterprise Project Management
  - 12-course degree program with project business focus:
    - Business: Strategic management, Finance and Accounting
    - Leadership: Organizational Behavior, Self Awareness, and Change Management
    - Project Management: Fundamentals, Project Analytics, Strategic Project Management, and Portfolio Optimization
- MBA (20 courses) – Enterprise Project Management Major
- Professional Education
Thank you
Results – Scenario 1

Hypothesis 1 - Buffers and Project Variation

• The results show that when no variation is included, the highest project value is produced when 100% of resources are employed.

• When variation is introduced, the value of projects utilizing 100% of resources deteriorates much quicker than in scenarios where we use buffers.
Results – Hypothesis 2

Multitasking vs. Non-Multitasking

• In the deterministic scenario both multitasking and non-multitasking strategies no buffer is necessary and both strategies produce identical results.

• In the stochastic scenario, the portfolio value in the multitasking case deteriorates much quicker than in the non-multitasking case. This supports hypothesis 2a.