

# Lean Principles in Project Based Business

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# Contents

- Business strategies
- Project based business
- Project success – are we on the right track
- Lean principles
- Research challenges

# Business Operation Strategies - Focus Areas

Business strategies

- Cost → Reduce operational costs
- Market → Increase market share
- Organisation → More effective organisation
- Business → New way of operation

# Business Operation Strategies

Business strategies

Strategy	Cost	Mar	Org	Bus
Lean manufacturing	✓			
Agile manufacturing	✓			
Just in time	✓	✓		
Globalisation	✓	✓		
Customisation		✓		
Customer focus		✓		
Integrated teams			✓	
Network organisations			✓	
Process orientation				✓
Supply chain management				✓
Quality management				✓
Extended enterprise				✓

# Manufacturing is the Principal Engine of Growth (MAPI)

Business strategies

- Productivity boom centered in manufacturing
- Products with embedded new technologies come almost exclusively from manufacturing sector
- Manufacturing sector also leads in management innovation; Lean, Six Sigma, JIT, Supply Chain Integration, etc.

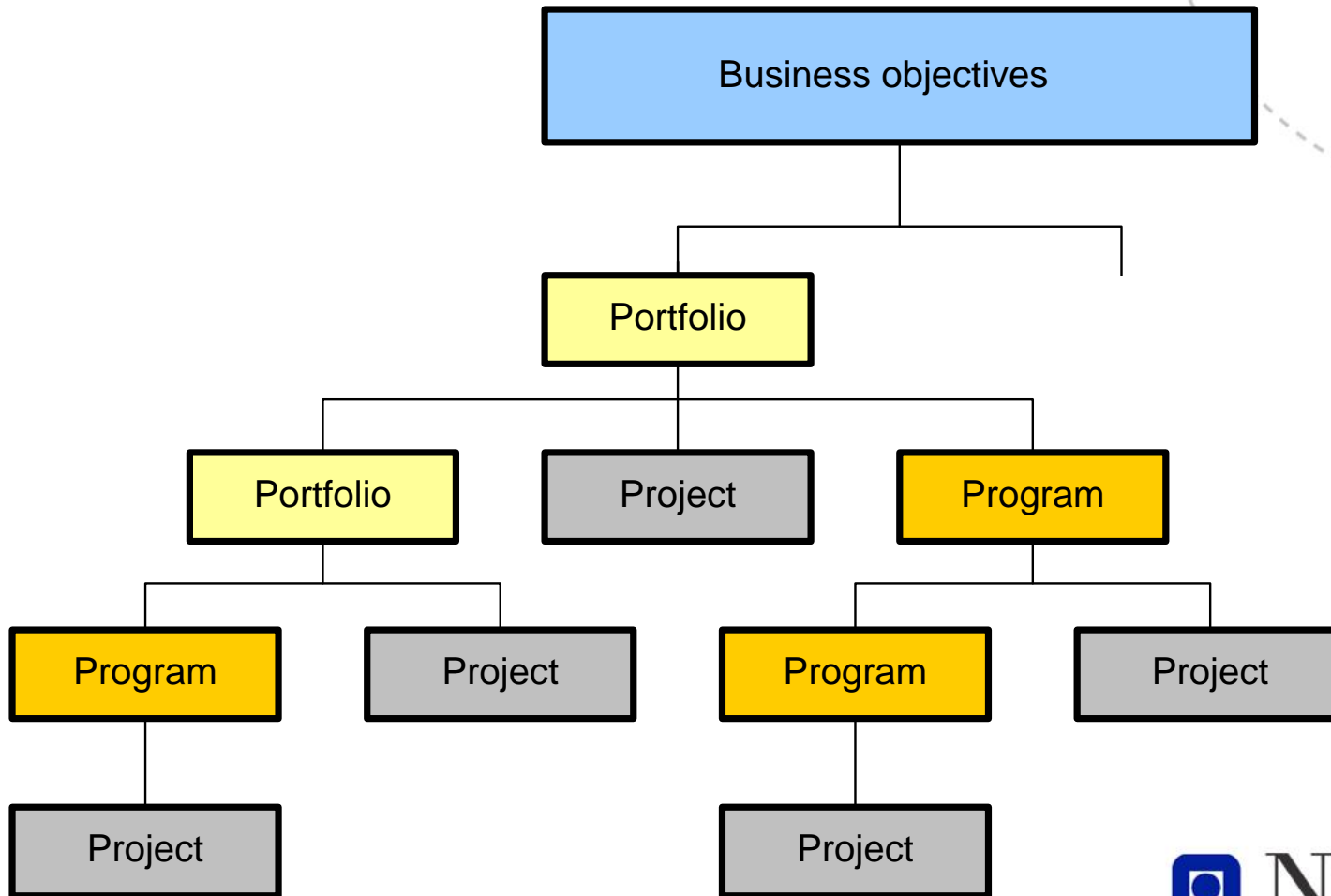
# Manufacturers are becoming “solution providers”

Business strategies

- Distinction between manufacturing & services is eroding
- Firms add services to capture a higher proportion of the total value added and build a closer relationship with their customer
- As companies concentrate on core competencies, customers increasingly demand total solutions from their suppliers

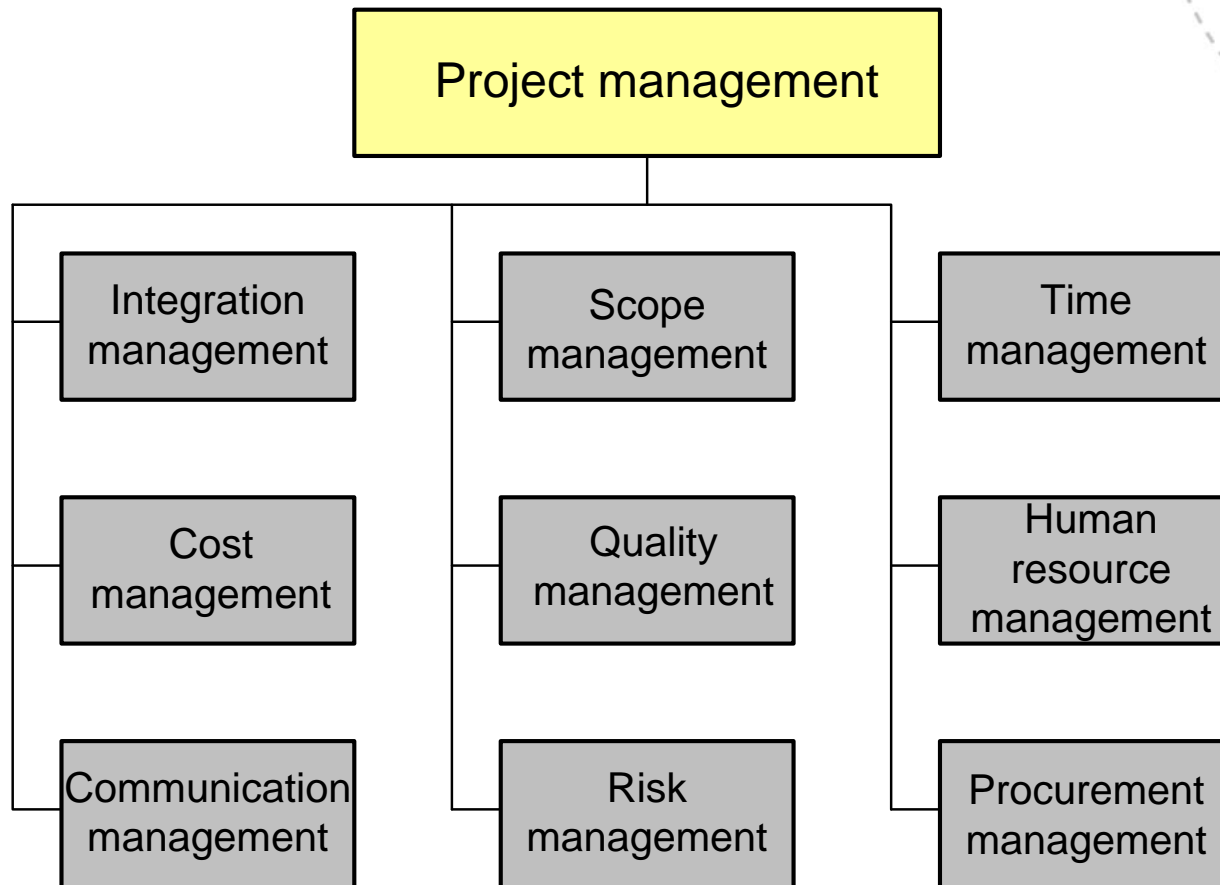
# Project Hierarchy

Project based business



# PMI Knowledge Areas

Project based business

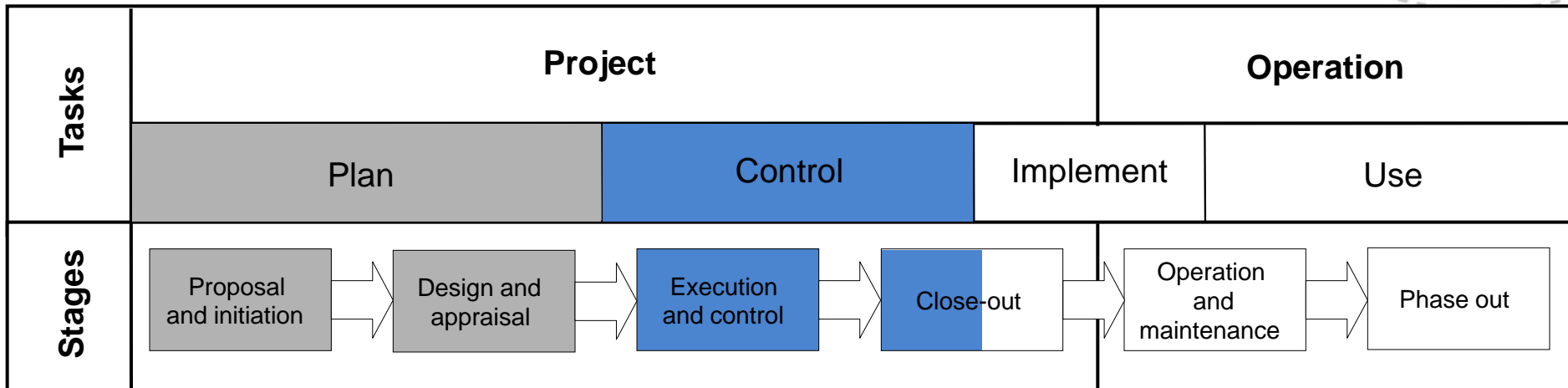


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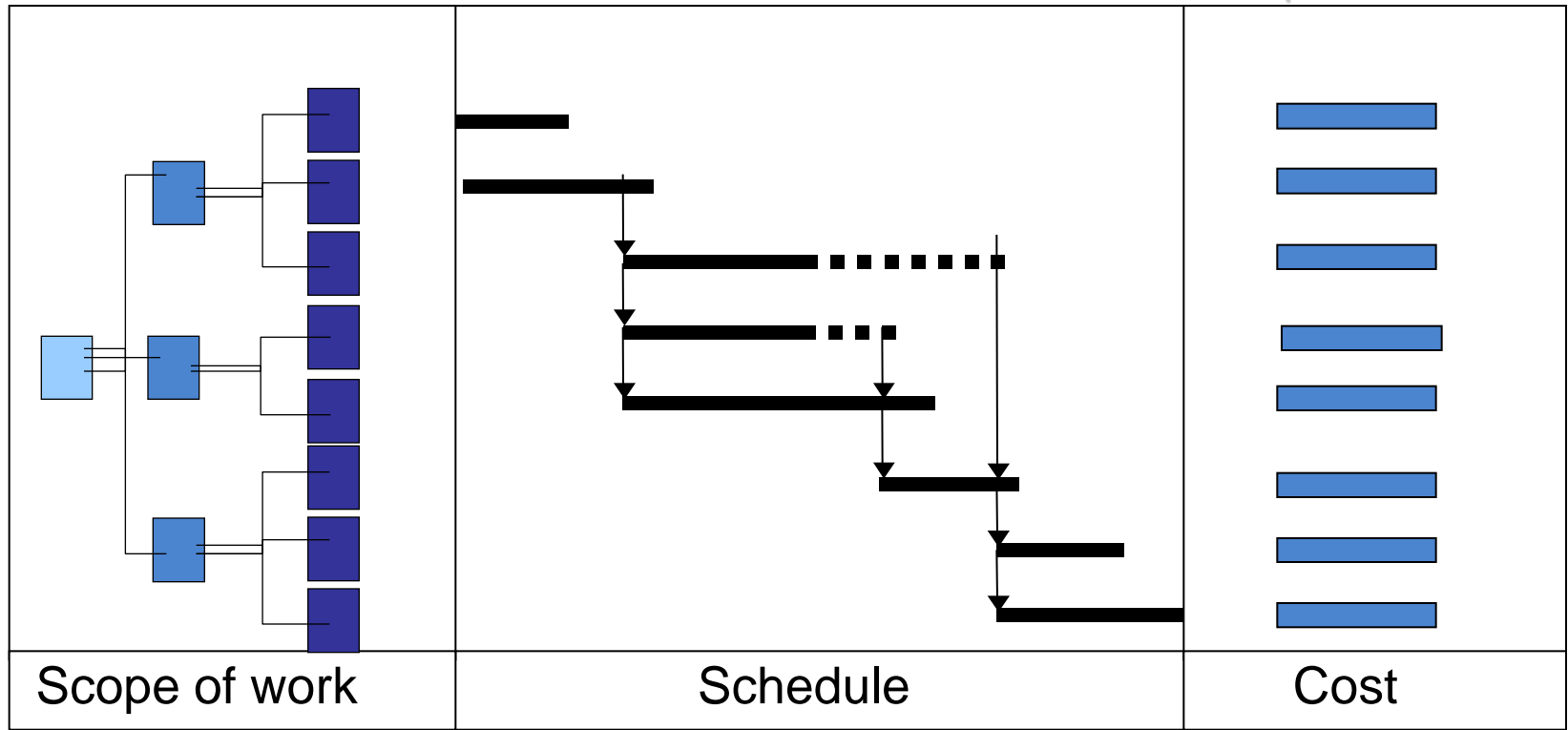
# Life Cycle Perspective

Project based business



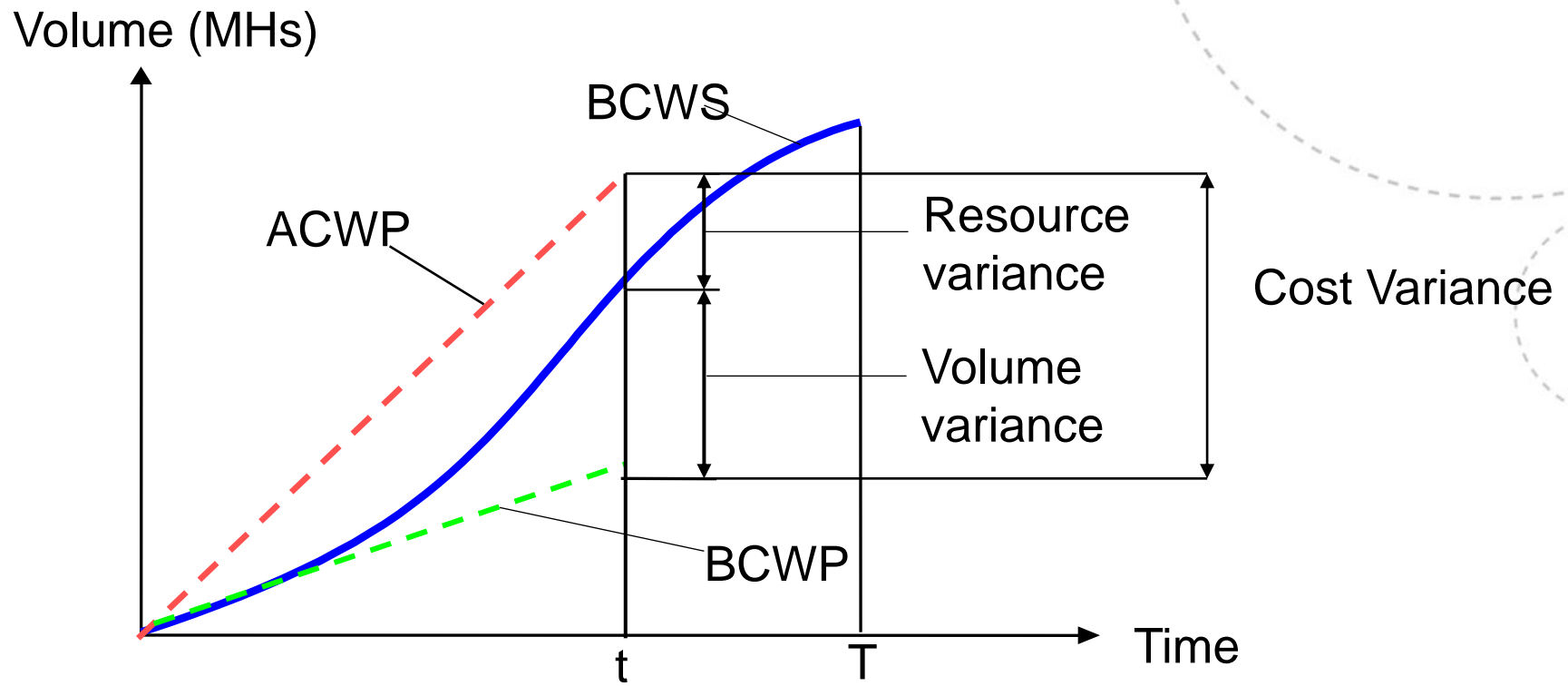
Project based business

# Structured Approach



Project based business

# Earned Value Management

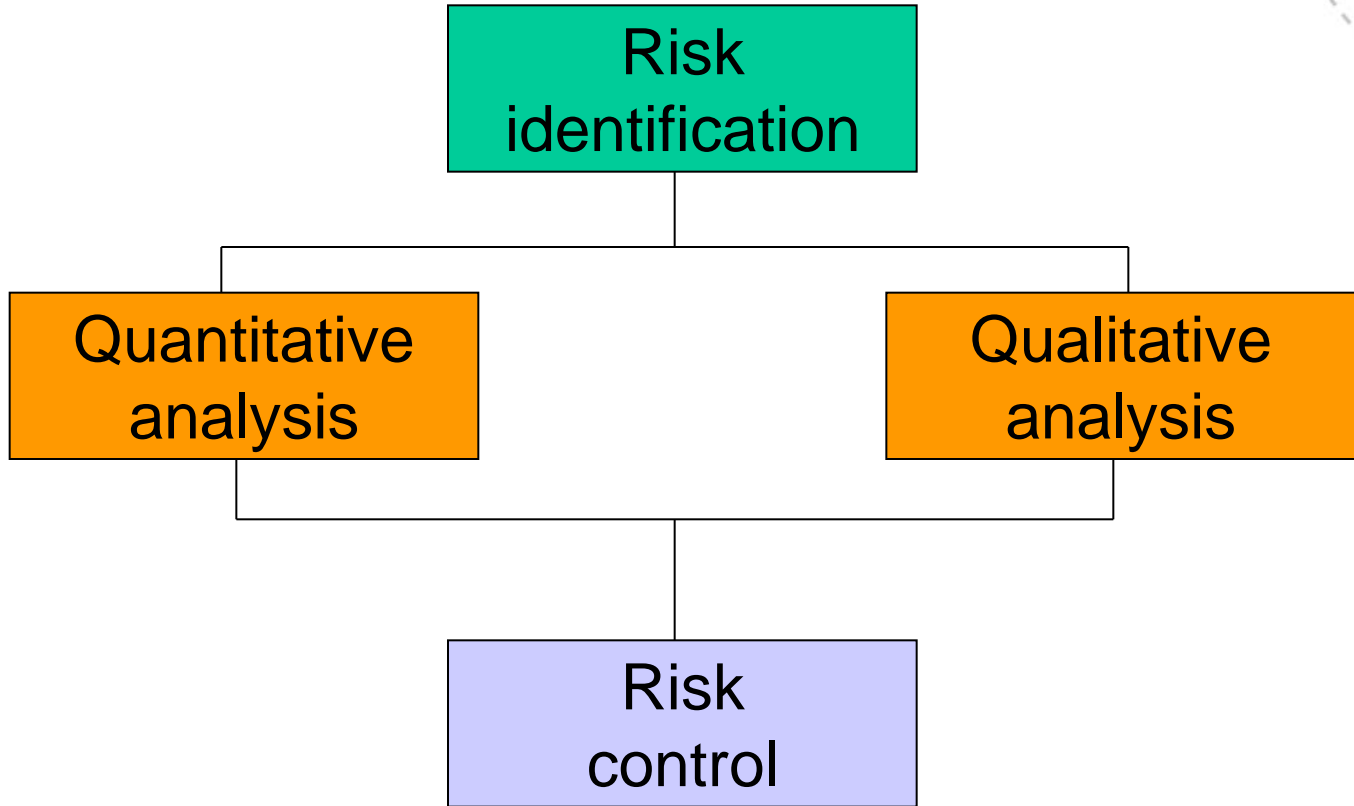


- BCWS: Budgeted Cost of Work Scheduled
- BCWP: Budgeted Cost of Work Performed
- ACWP: Actual Cost of Work Performance



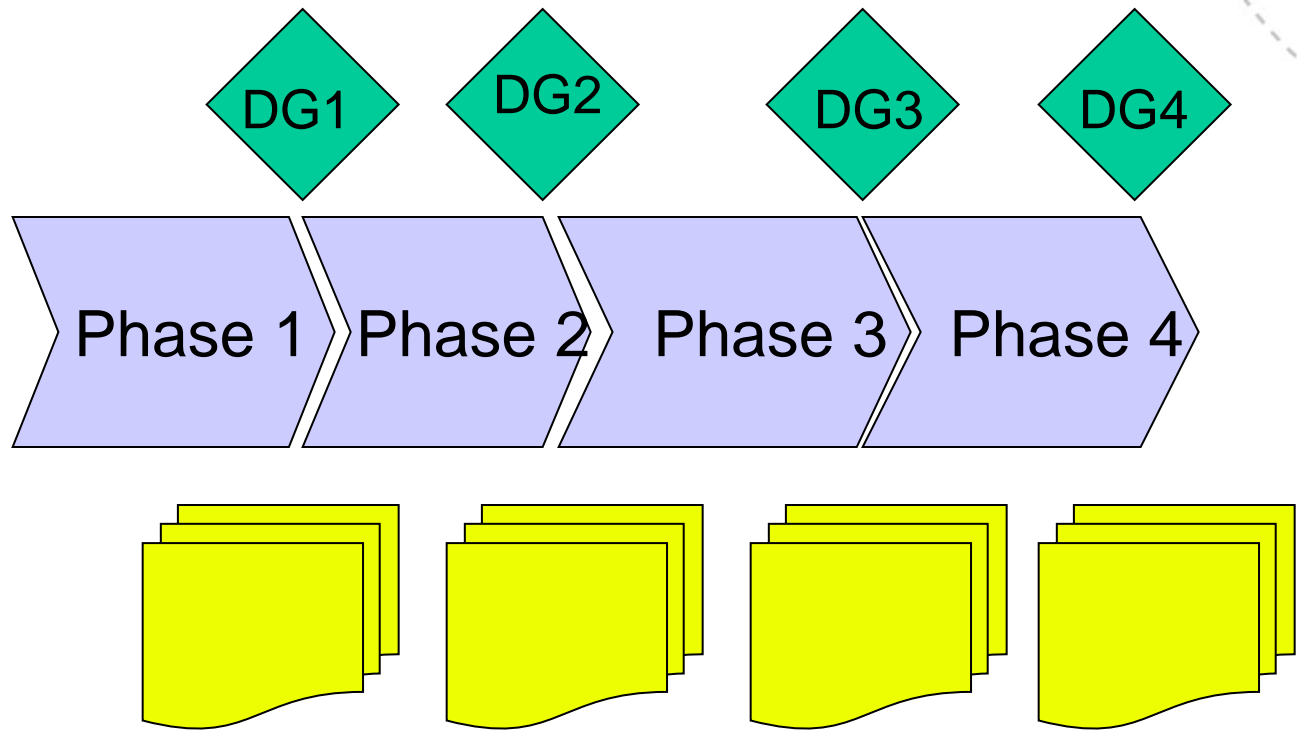
Project based business

# Risk Management

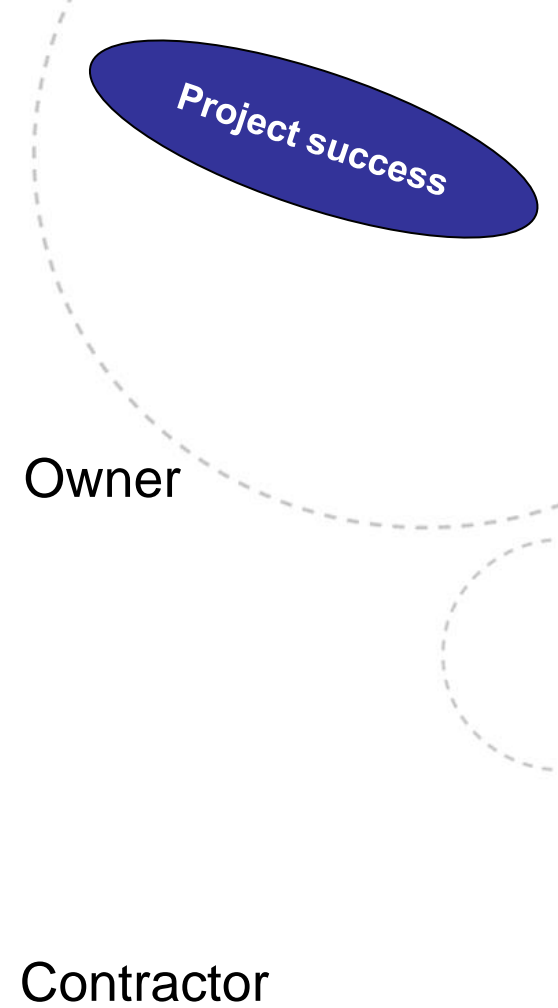
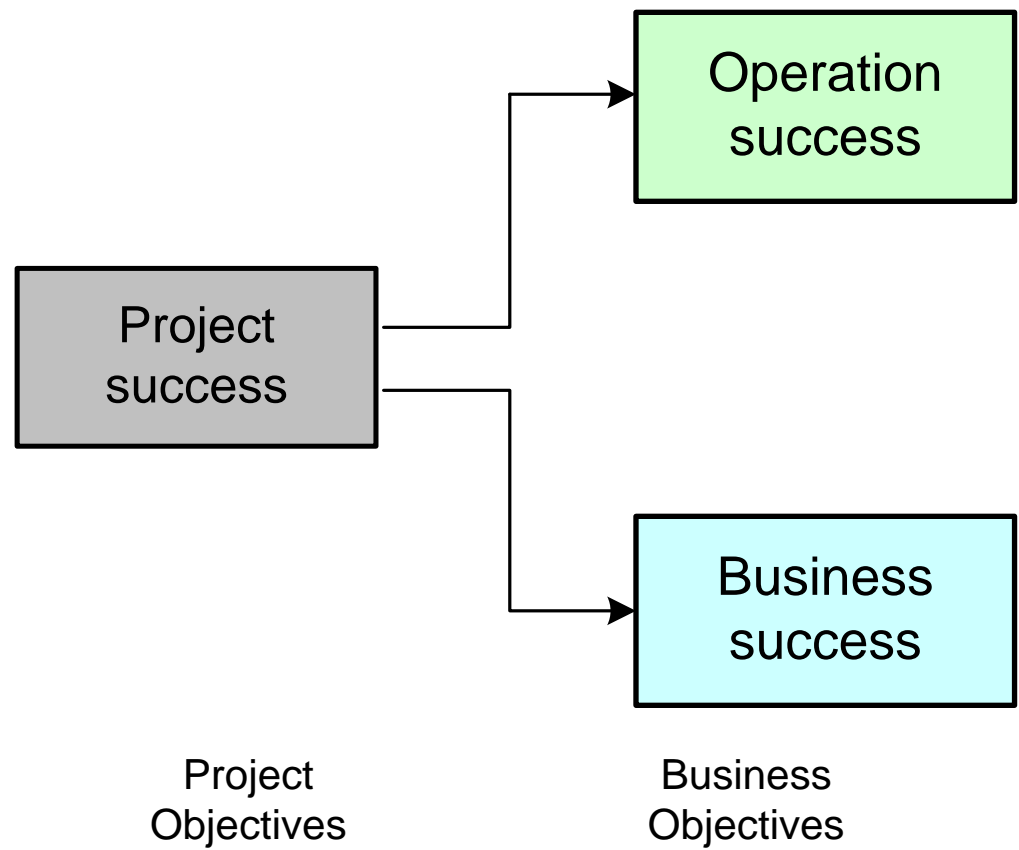


Project based business

# Decision Gate Model

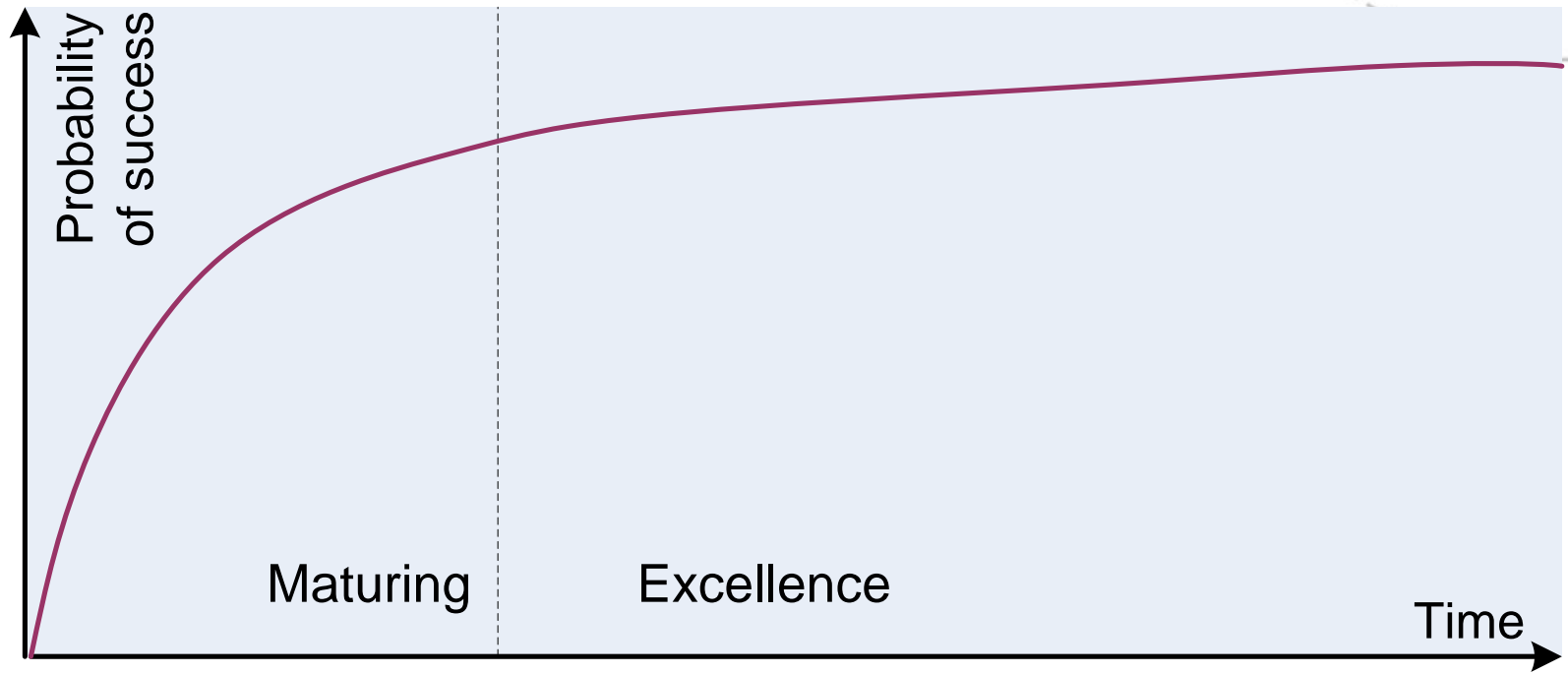


# Success – for whom?



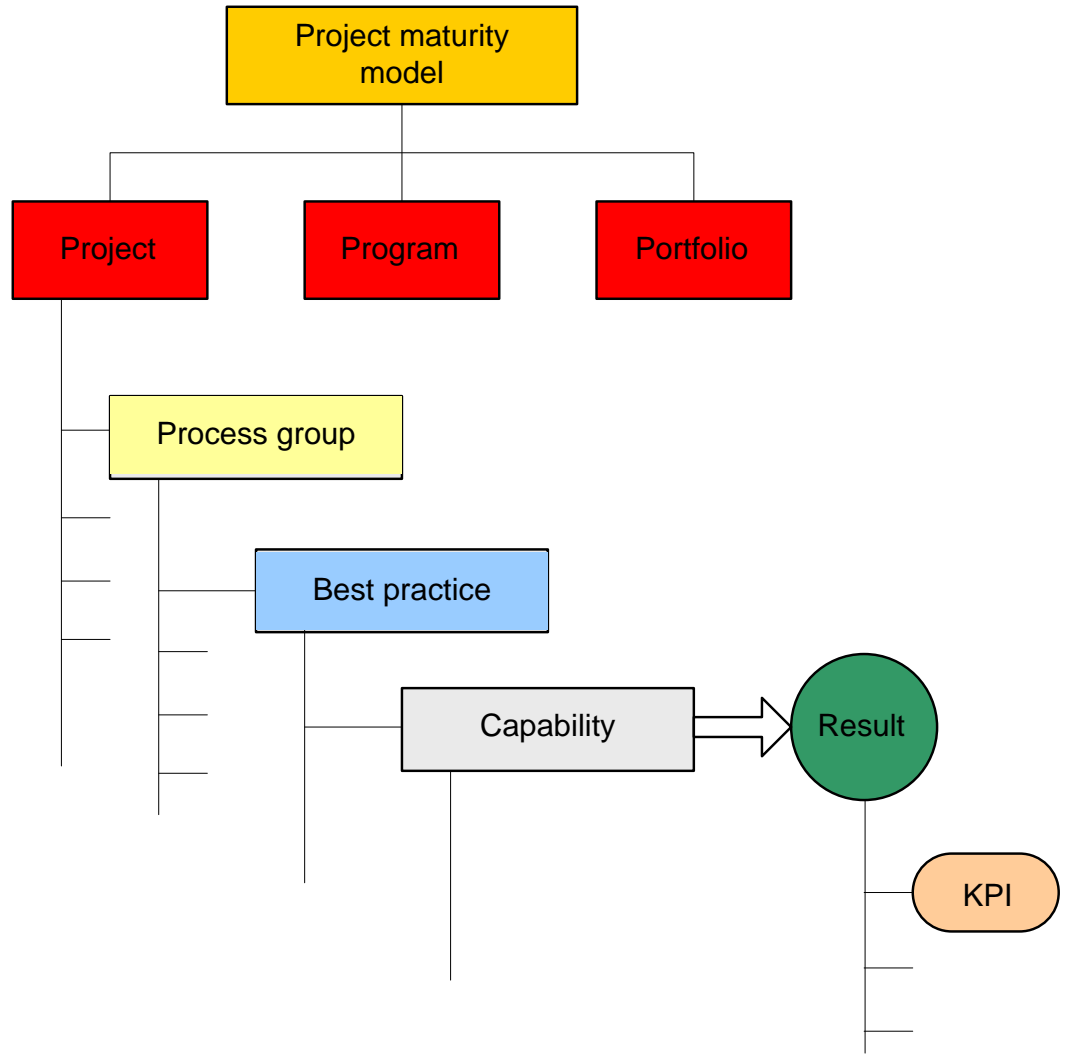
# Project Management Maturing

Project success



# PMI – OPM3

Project success





# National Hospital of Norway

- Decided with a budget of 2820 mill NOK 1991/92
- 1993/94 hotel added, increased floor area, +88 mill
- 1994/95 new wing added, +129 mill
- 1995/96 capacity extended, +105 mill
- 1995/96 delay caused by dispute, +47 mill
- 1996/97 capacity extended, +882 mill
- 1998/99 delay, +620 mill
- 1999 accident, + 176 mill

Project success

# National Hospital – Key Data

Type of data	Plan 1992	Final	Increase
Costs	2820	5336	89%
Area m <sup>3</sup>	109.000	135.690	25%
Employees	2.600	3.500	35%
Beds	540	585	8%
In-patients per year	27.000	33.000	22%
Out-patients per year	120.000	130.000	8%



# National Hospital Project Audit

- Unrealistic risk assessment
- Insufficient cost control – wrong progress data
- Insufficient project control system
- Challenging contract strategy
- Unclear responsibility between construction and equipment
- Poor management of changes

Project success

# Some Lessons Learnt

Project success

- Frequent political changes effect cost and schedule
- Late user specifications for equipment cause changes
- Complex projects require professional management
- Small PC packages unsuitable for complex projects
- Many changes requires a change management system
- Commissioning and quality control crucial

# Five Lean Project Management Principles

1. Structured – unstructured approach
2. Degree of control
3. Managing risk
4. Managing stakeholders
5. Focus on competence

Lean principles

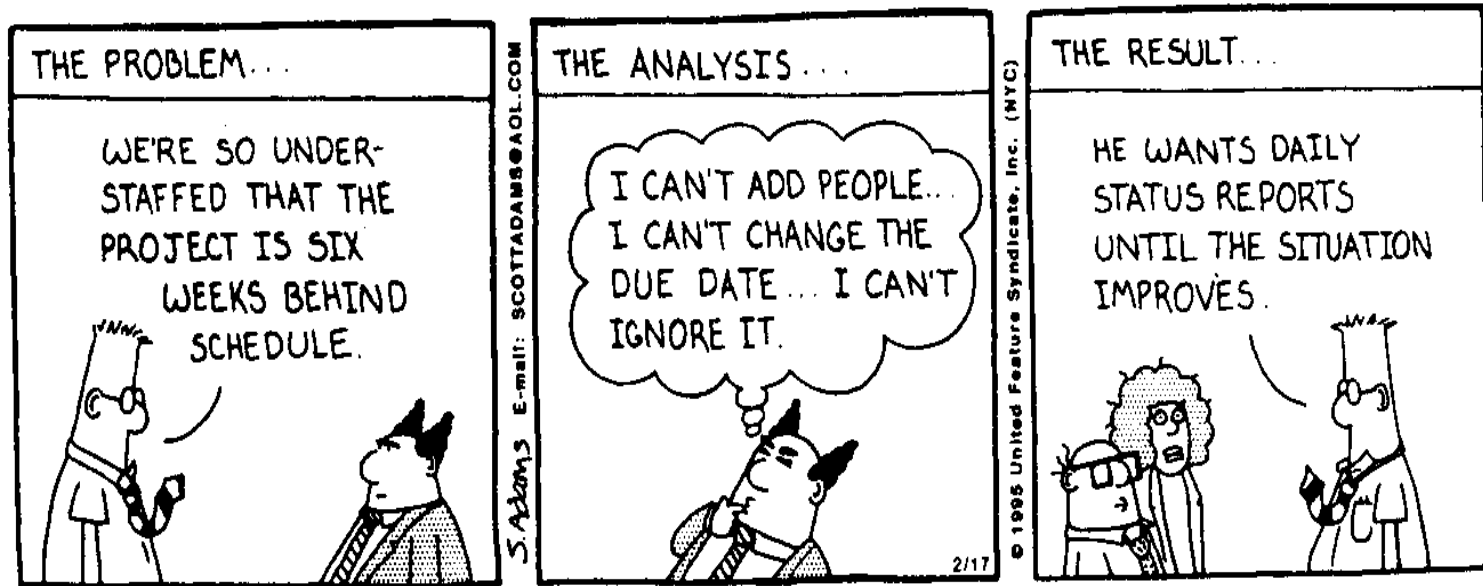
# Agile Project Management

Lean principles

- Less focus on structured approach
- Less focus on front end loading – do not try to predict everything before project start
- Defer decisions and take advantage of technology development
- Allow project team more flexibility in decision making
- Let the project be dynamic – continuously improve

Structured/unstructured approach

# Common Experience ?



Degree of control

# Degree of Control

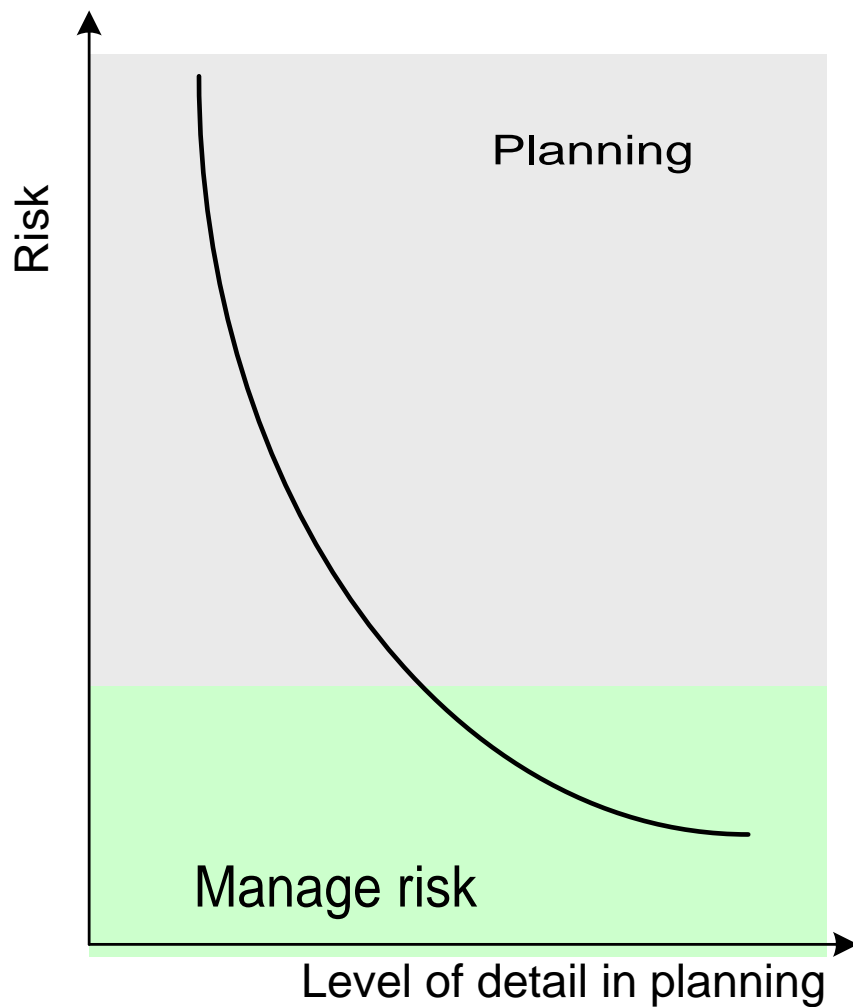
- Amount of governing documentation
- Justify the need for control data – from “nice to know” to “what is needed”
- Organizational culture – trust or mistrust
- Open minded to different cultures and new approaches
- Building trust in individuals

Lean principles

Degree of control



# When to Stop Planning?



Lean principles

Managing risk



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# Types of Risk

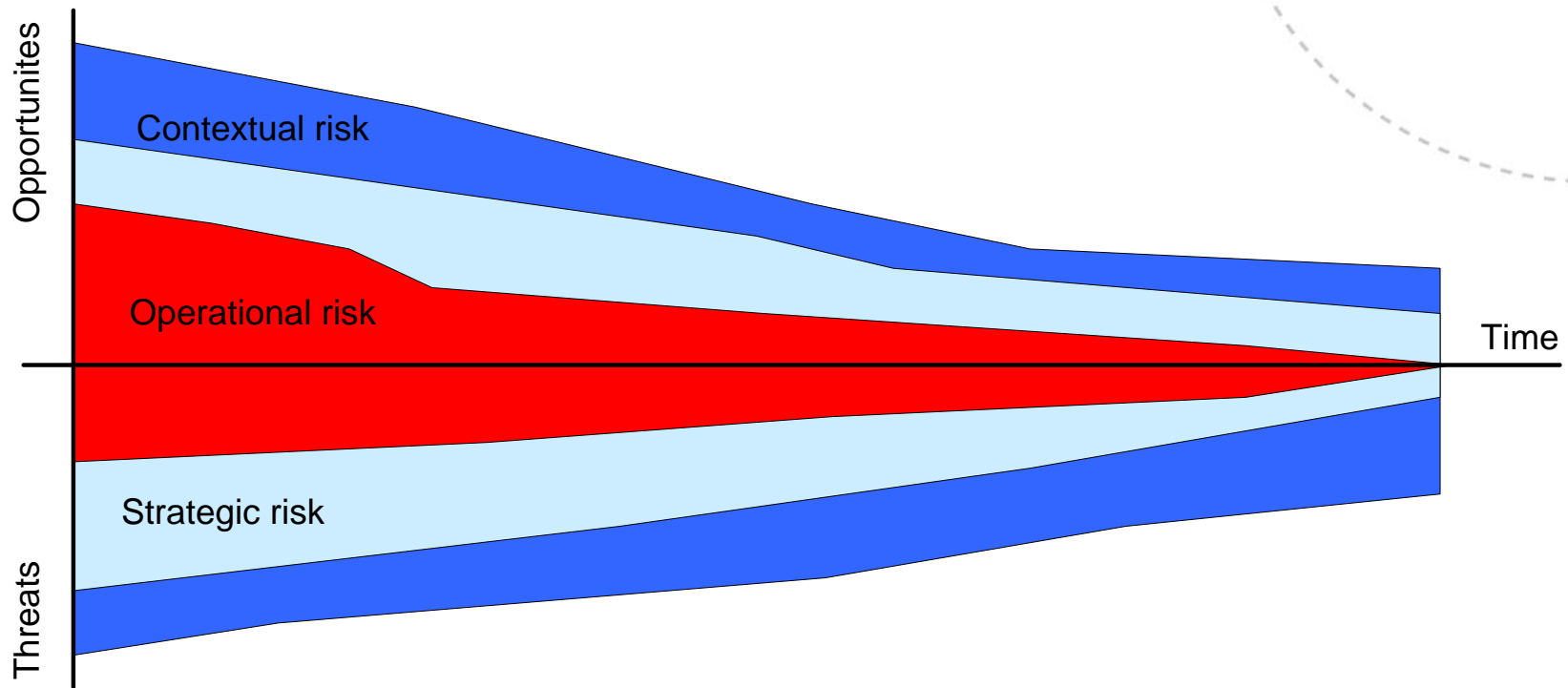
- Operational
  - Within control of the PM
- Strategic
  - Within control of the owner
- Contextual
  - External or interlinked with other projects

Lean principles

Managing risk

Lean principles

# Risk Development Over Time



Managing risk

# Challenges in Managing Risk

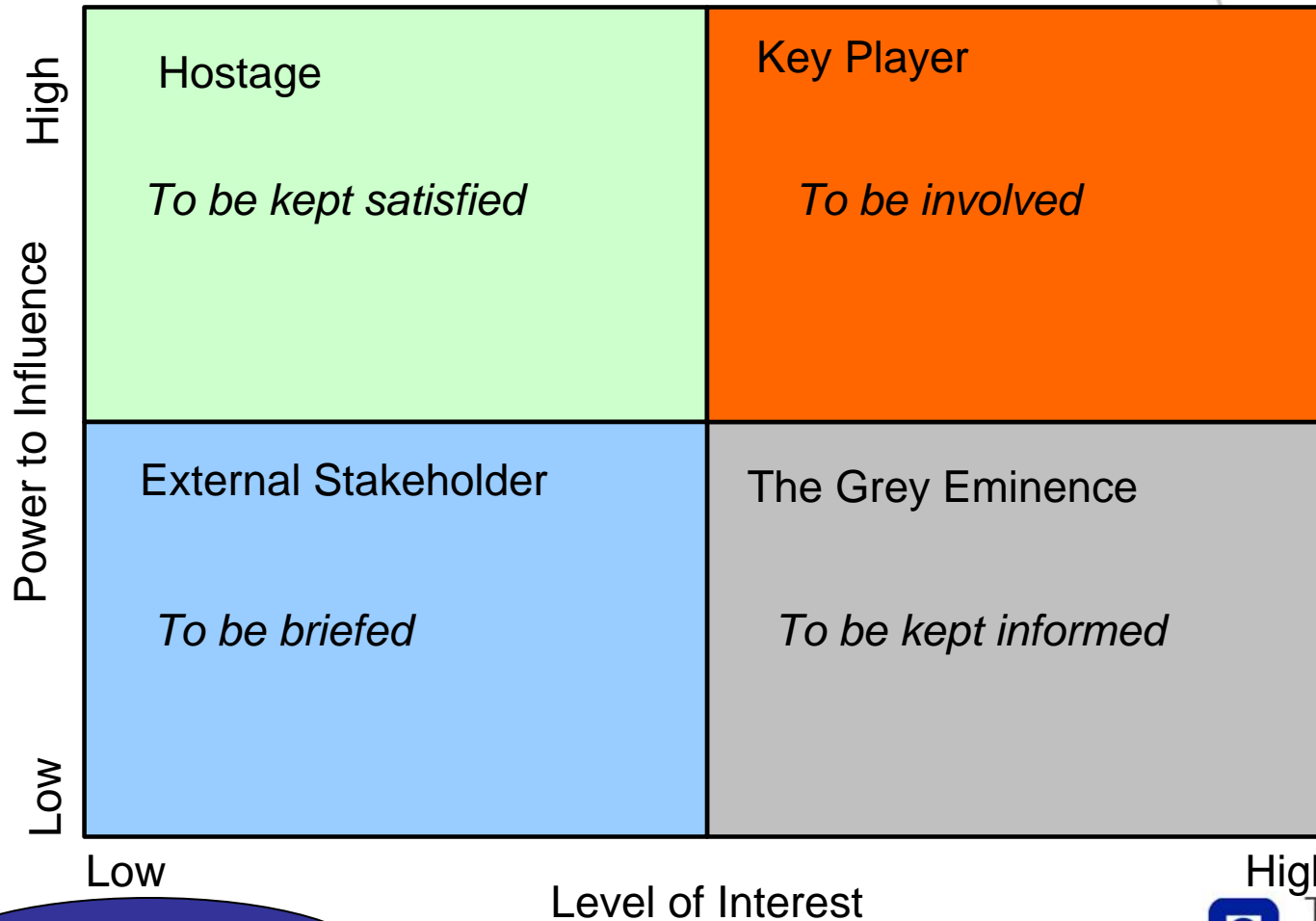
Lean principles

1. Include all the three types of risk
2. Manage risk throughout the project life
3. Use risk management to capitalise on opportunities
4. Avoid risk aversive strategies from the project organisation
5. Place decision points as late as possible
6. Develop project risk maturity in the organisation

Managing risk

# Stakeholder Management

Lean principles



Managing stakeholders

Lean principles

# New Competence Required

Complexity	Large	Focus on structure ✓ Top-down ✓ Risk averse ✓ Systematic	?
	Small	Traditional project management	Focus on flexibility ✓ Bottom-up ✓ Risk prevention ✓ Creative
		Small	Large
		Risk	

Focus on competence

# Three Research Challenges

Research challenges

- Managing high innovation projects
- Understanding and managing risk
- Developing a success hungry culture