MBA
AVIATION MANAGEMENT

FRANKFURT UNIVERSITY OF APPLIED SCIENCES

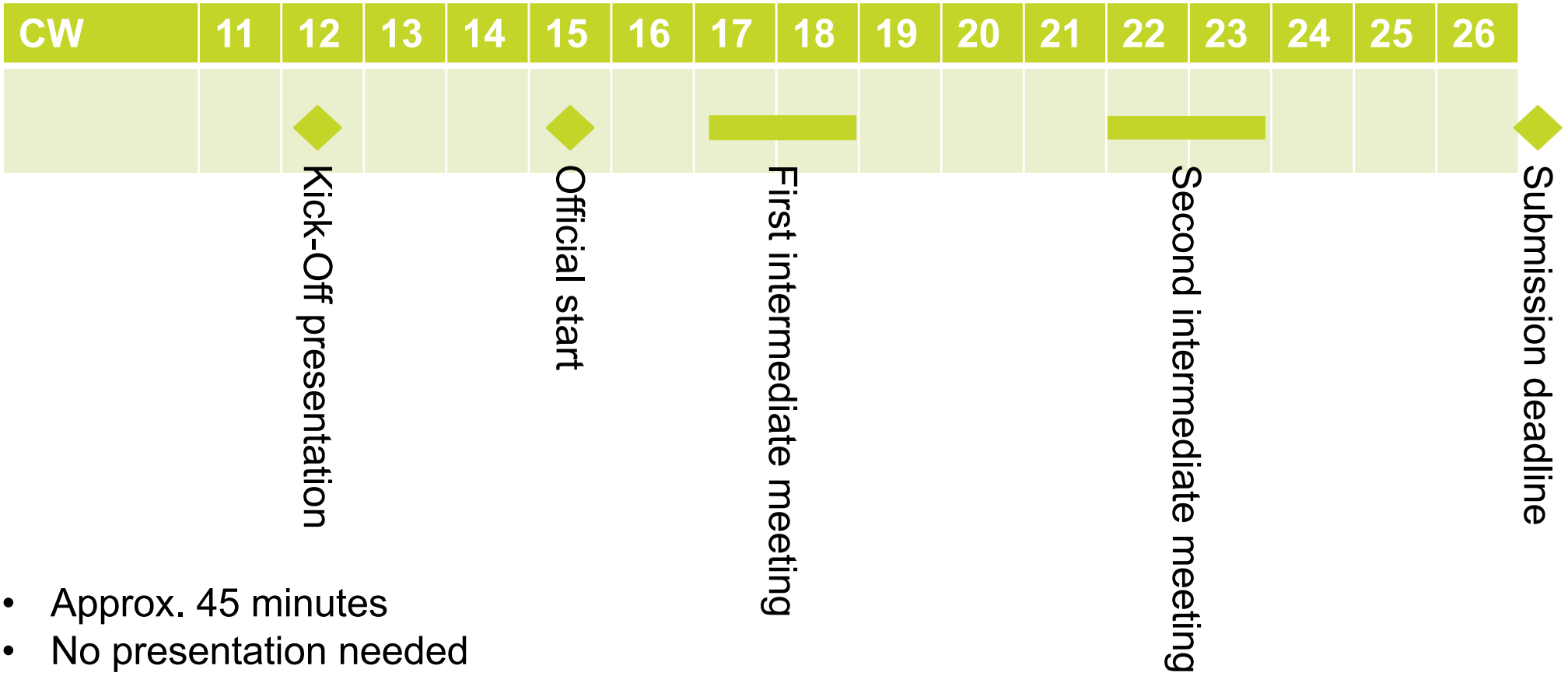
Applied Research Project

Fachbereich 3 Wirtschaft und Recht
Prof. Dr. Benjamin Bierwirth

Agenda

	Thursday	Friday	Tuesday
Block 1: 9:00 – 10:30	Introduction/Expectations Recall academic research	Consulting: Tools, Methods, Instruments	Kick-Off-Presentations: Team 1 & 2
Coffee break			
Bock 2: 11:00 – 12:30	Consulting: Tools, Methods, Instruments	Presentations Offline & Online-“Add-ons“ (specific tools if necessary)	Kick-Off-Presentation: Team 3 & 4
Lunch break			
Block 3: 13:30 – 15:00	YOUR Project Planning: Problem, Goals & Scope	Prepare YOUR Kick-Off Meeting & Presentation	FREE – (Transferred into intermediate sessions)
Coffee break			
Block 4: 15:30 – 17:00	YOUR Project Planning: WBS & GANTT	Prepare YOUR Kick-Off Meeting & Presentation	FREE – (Transferred into intermediate sessions)

Project time line



- Approx. 45 minutes
- No presentation needed
- Discussion of status & next steps
- Final presentations preferable in CW 28 & 29

Timeline & Deliverables

- Start of the projects: March, 22nd (officially April, 11th)
- End of the projects: July, 4th (as per definition of the program management)

- Deliverable:
  - 45-60-Minute Project Presentation (with Backup-slides which explain in more detail how the results have been achieved) – 15 Minutes per group member
  - (Scientific) Project report – 5-7 pages per group member

  - Presentation to be held in July – latest in September
    (individual presentation days will be defined with the groups)
  - Presentation file has to be submitted two days before the presentation
  - Report to delivered until July, 5th
  - Submission as PDF file via email

Contents of the Kick-Off-Presentation

- Problemdefinition & Project goals
- Definition of Scope & Out-of-Scope
- Identification of most important Stakeholders
- Decision on the approach
- WBS & GANTT
- Project Charta

Contents of the final presentation

- Problem
- Scope & Stakeholders
- Approach
  - Results of the diagnosis phases (e.g. market research, todays processes)
  - Elaborated options
- Recommendations
- Next steps
- BACKUP (examples only – not a complete list)
  - Further details of the analyses
  - Discarded options & approaches
  - Various project management documents (e.g. GANT, minutes)

  → The BACKUP should contain additional information to a) support Your analyses and recommendations and b) reflect the effort spent

Structure of the report

1. Introduction
   - Introduction
   - Objective
   - Structure of the paper
2. Literature review (Theory)
3. *Project management*
4. Analysis/ Results / Recommendation
   - Status Quo
   - Gap
   - New concept
   - Recommendation / Implementation plan / Next steps
5. Summary, Conclusion & Outlook

Relevant aspects for grading of Your results

- Project Management
  - Are there signs of ineffective/ inefficient project management?
  - Where the resources used in an efficient manner?
  - Are there signs of uneven distribution of workload?
- Formal aspects
  - Readability
  - Design & Style
- Content
  - Clear Structure of the presentation
  - Effectiveness of methods used
  - Creativity of Your solution

Teams & Projects

1. Elizabeth & Zuri: Charter flights between Africa & Caribean
2. Theresa, Luisa and Mario: Analyzing cabin crew feedback data
3. Bruno, Harjinder and Shiro: Reducing Food Waste
4. Jan, Toni and Dennis: Free Route Airspace

Before we start –
Slides to remember from Project Management!

Projects in a Multicultural Environment

Important issues to consider

- Attitude and conduct
- Cultural awareness
- Language and communication
- Leadership
- Negotiating
- Conflict resolution

Classic triangular view on goals

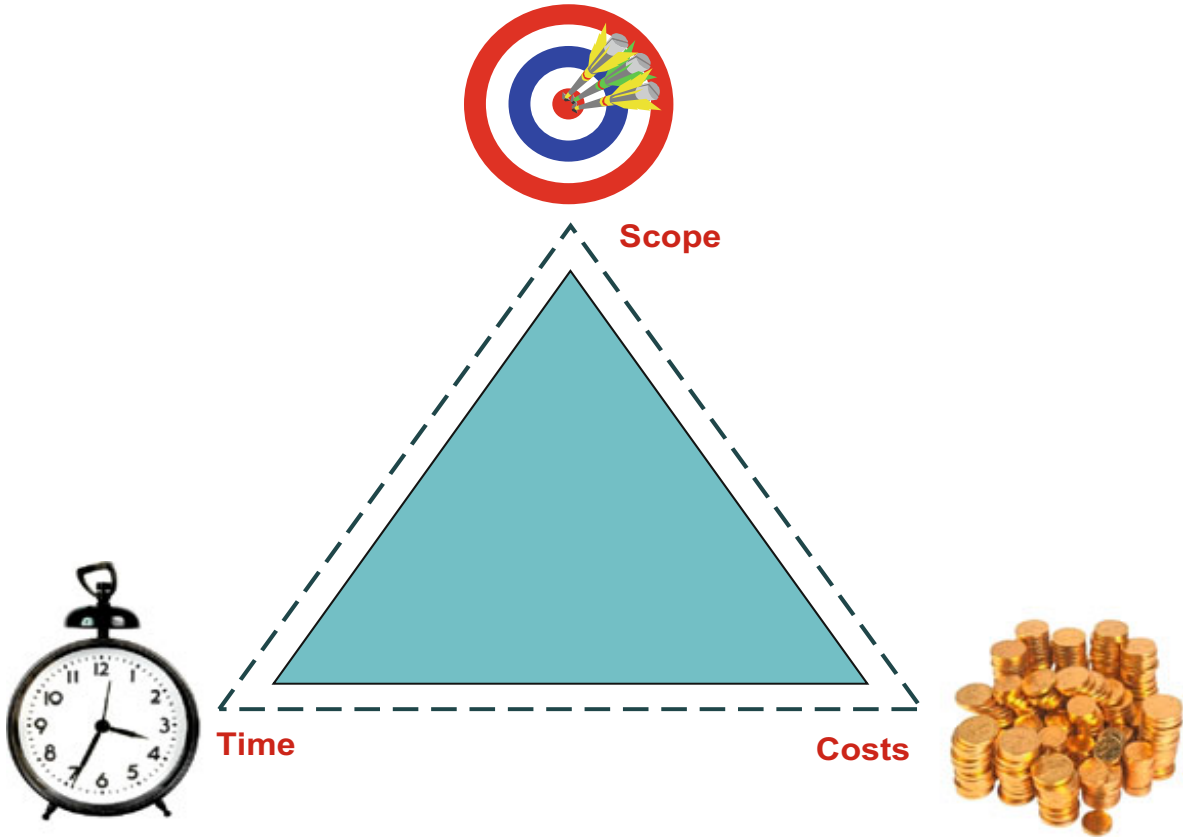
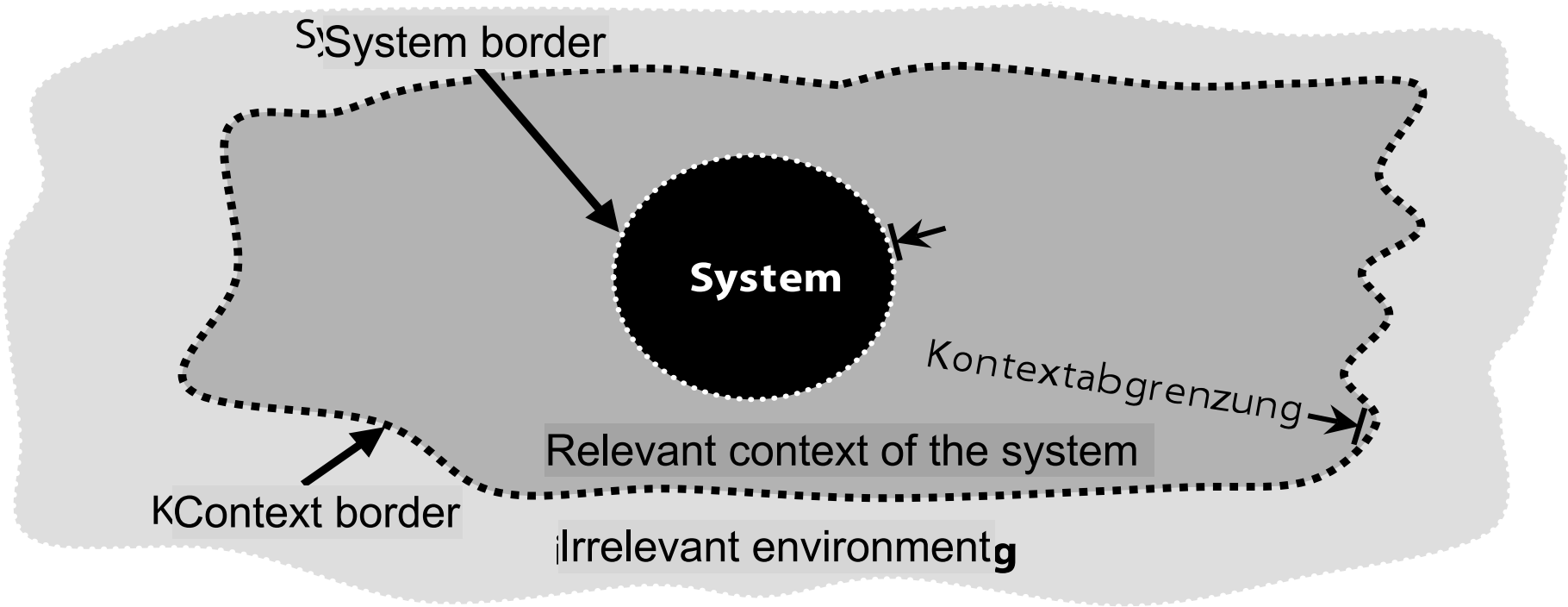


Fig. 16.2 Interdependence of goals, time and costs

Source: Kuster et al, Project Management Handbook, p. 125

Project Context

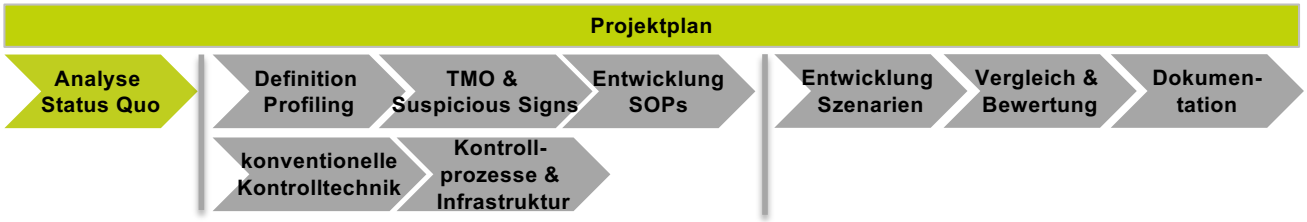


Source: Pohl, Rupp (Ed.): Basiswissen Requirements Engineering, p. 23

Work Package Description

Activities	Deliverables	Resources	Status
• Gründe und Ziele (1-2 Seiten) • Regularien & Verfahren (EU-VO; Bpol-Prozesse: max. 5 Seiten) • Informationsquellen (Zolldaten, ESUMA) 1 Seite • Beteiligte & Verantwortlichkeiten (mit EU-Benchmark) 1-2 Seiten • Ist-Prozesse 2-3 Seiten • Transferfrachtvolumen 1 Seite / 1 Tabelle	▪ Tabelle Rechtliche Grundlagen (Regularien & Verfahren) ▪ Tabelle Daten (verfügbare Informationen & Quellen) ▪ Fact Sheet Flughafen Frankfurt (Transferfracht)	▪ EBS (Lead): 50 h ▪ Fraport AG: 25 h ▪ FRA-UAS: 15 h ▪ LCAG: 35 h	

Input from WP	Output to WP	Start	End	Effort
▪ Datensammlung aller Partner	▪ Alle weiteren AP	**M1**	**M2**	**125 h**



GANTT-Chart

Activities and deadlines Date:

No.	Activities / Measure / Event	Resp-onsible	Pre-conditions	Effort in weeks	Duration in weeks
1	**Project**				
2	***Phase 1***				
3	Activity A	MM	-		6
4	Activity B	MM	3		1
5	Activity D	PP	-		2
6	Activity E	PP	5		3
7	Activity C	MM	3;6		2
8	Activity F	TT	7		3
9	Activity G	MM	8		1
10	Milestone Preparation	PL	4;9		1
11	Milestone Decision	AG	10		0
12	***Phase 2***				
13	Work package H	MM			
14	:				

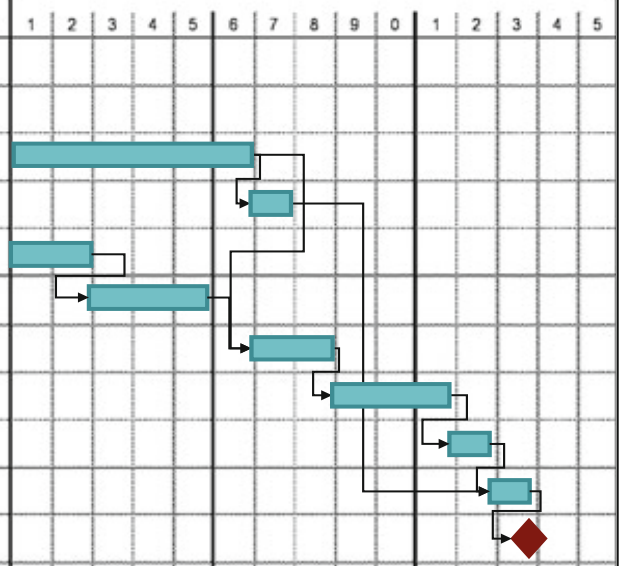


Fig. 16.13 List of activities

Source: Kuster et al, Project Management Handbook, p. 136

Project Risk Management: Risk Matrix

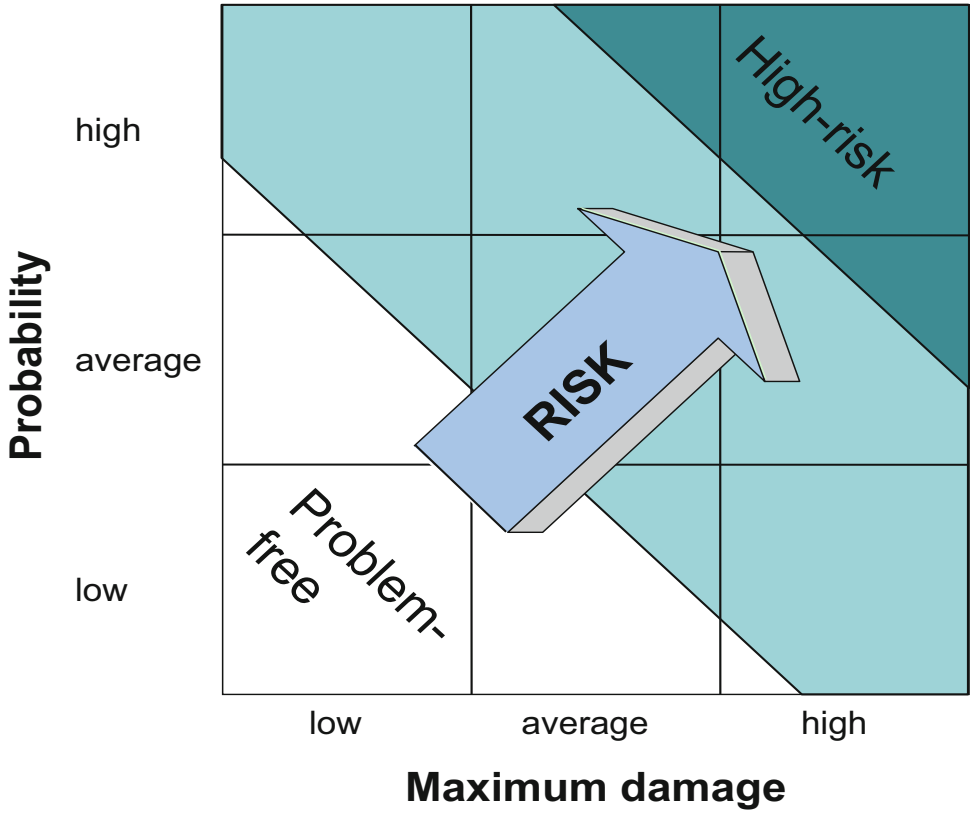
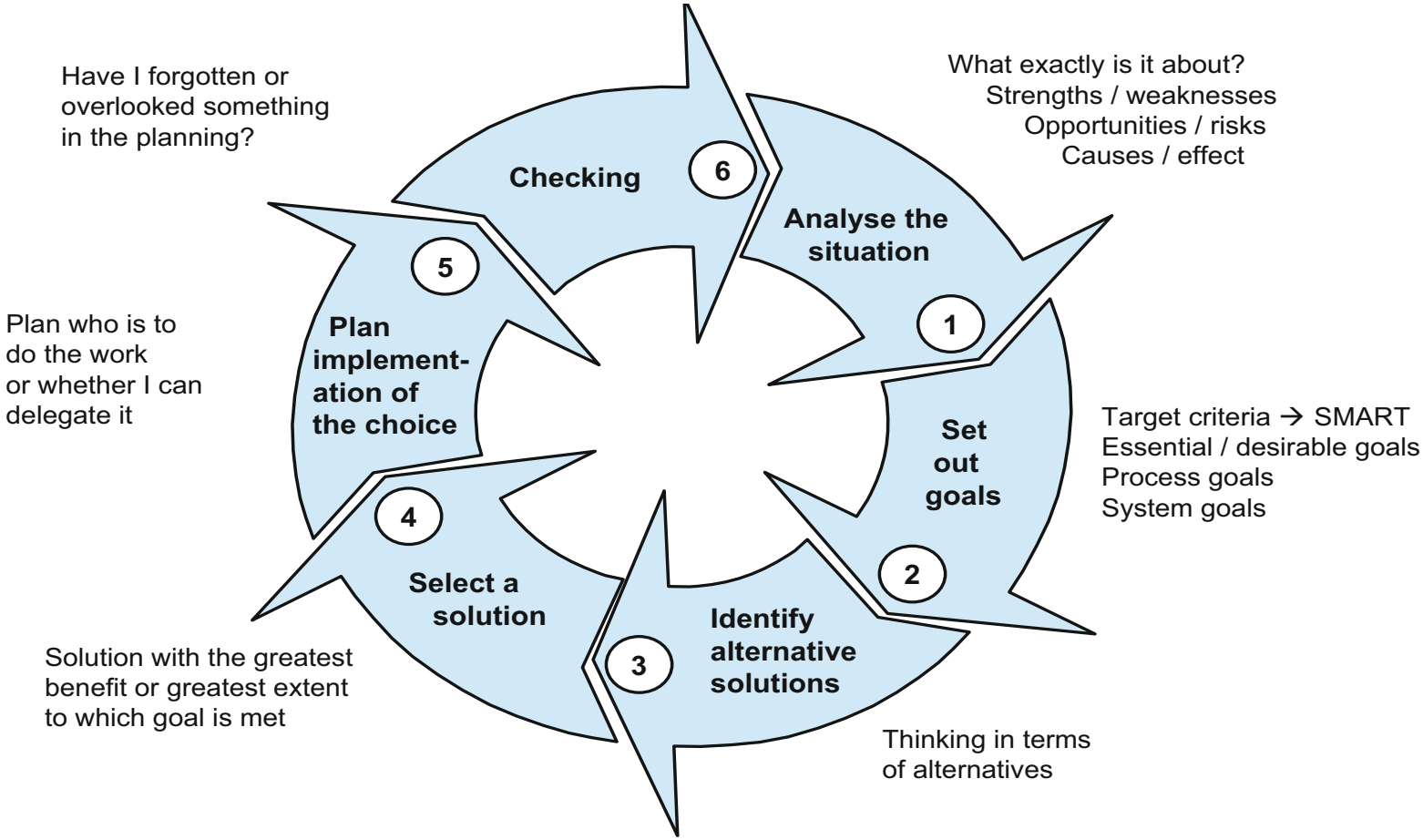


Fig. 17.6 Identifying the extent of risks

Source: Kuster et al, Project Management Handbook, p. 172

Problem-solving circle



Source: Kuster et al, Project Management Handbook, p. 387

Part 1: Consulting

Consulting: Tools, Methods & Instruments

Based on:

Nicolai Andler:

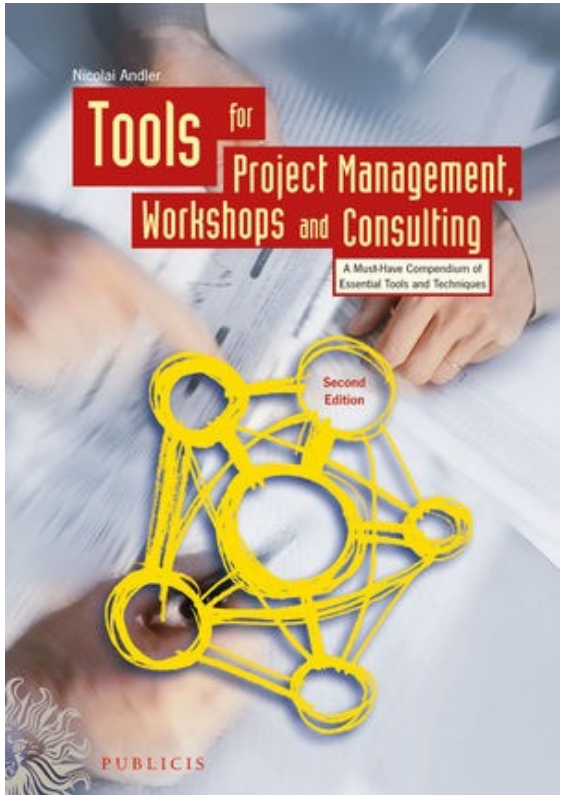
Tools for Project Management, Workshops and Consulting

ISBN: 978-3-89578-370-8

382 pages

April 2011

http://eu.wiley.com/WileyCDA/WileyTitle/productCd-3895783706.html



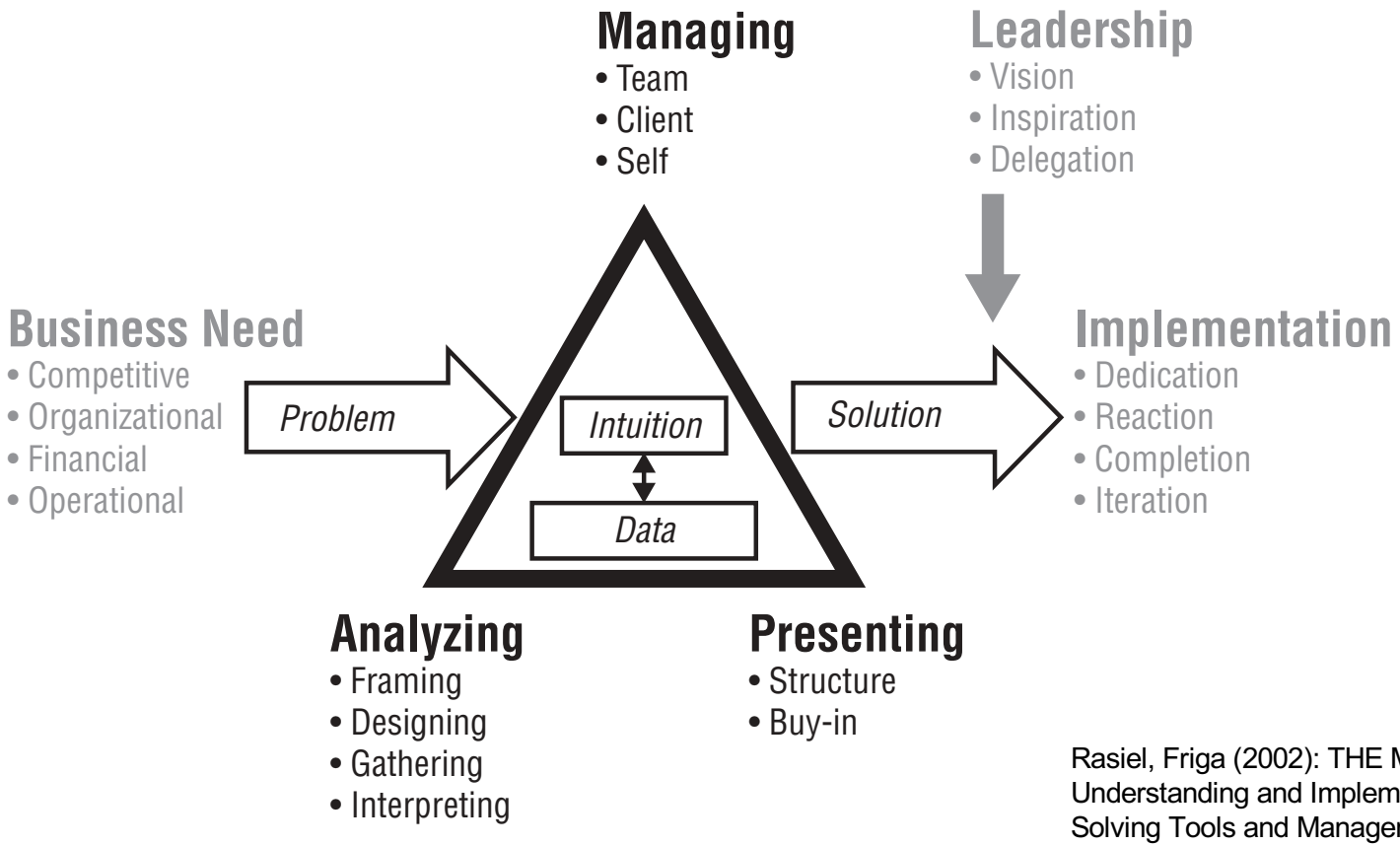
Definition Consultant

- Someone (at least one) from outside the company or department (in case of an internal consultant)
- Brings in additional expertise, tools and methods
- Brings in experience from other companies/industries
- Provides best practices
- Is expected to lower costs, increase revenues or build skills
- Typically on a temporary basis

Reasons for external consulting – Company perspective

- Greater flexibility
- Faster response
- Everyone specialises in his strengths, leading to top results
- More experience can greatly increase efficiency
- Human and financial resources are freed up for investment in the core business
- There is no risk of underutilising specialist knowledge or special facilities that are only needed occasionally

Generic consulting approach

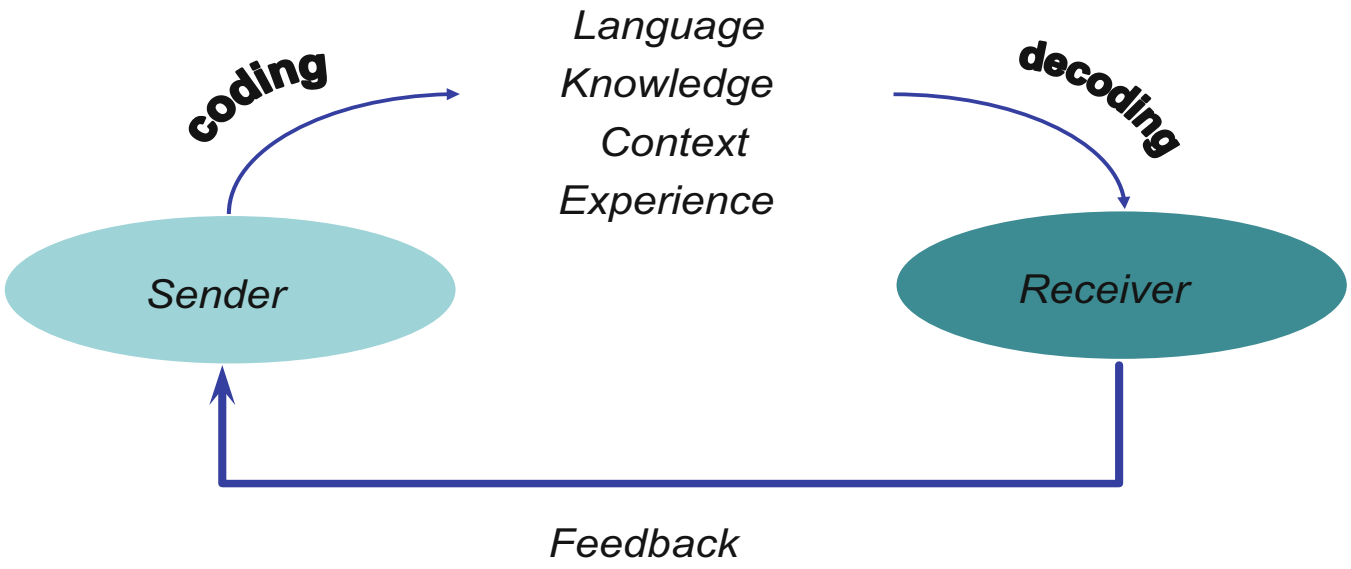


Rasiel, Friga (2002): THE MCKINSEY MIND - Understanding and Implementing the Problem-Solving Tools and Management Techniques of the World's Top Strategic Consulting Firm

Questions – The most important tool!

- Open Questions, Questions That Stimulate
- Information Questions
- Alternative Questions
- Confirmation Questions
- Rhetorical Questions
- Suggestive Questions

Communication



I don't know what I have said until I know what message has reached the recipient!

Fig. 18.9 Schematic representation of the communication process

Source: Kuster et al, Project Management Handbook, p. 204

Communication: 4 sides of a message

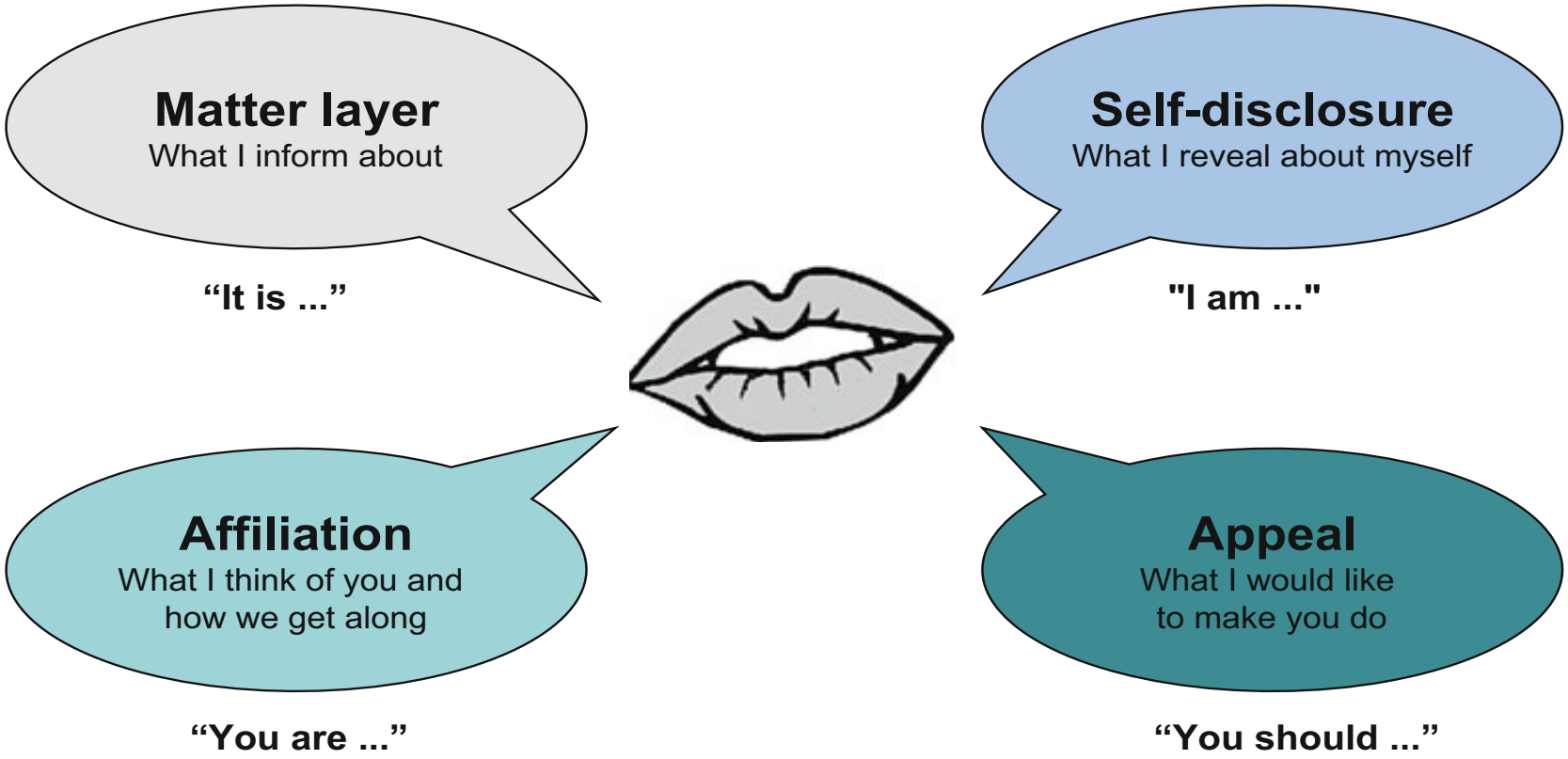


Fig. 18.10 The four sides of a message (Schulz von Thun, 2000)

Source: Kuster et al, Project Management Handbook, p. 204

Tools for the diagnosis phase I/II

1. Defining the status quo and context
   a) Mindmap
   b) Stakeholder-Matrix
   c) Ishikawa
   d) 5W
2. Getting Information
   a) Interview / Expert Panel / Delphi
   b) Survey / Questionnaire
   c) Observation / activity sampling
   d) Methods-Time Measurement (MTM)

Tools for the diagnosis phase II/II

3. Being creative
   a) Brainstorming/Brainwriting
   b) 6-3-5
   c) Morphological matrix
4. Sum things up
   a) ABC
   b) Force Field

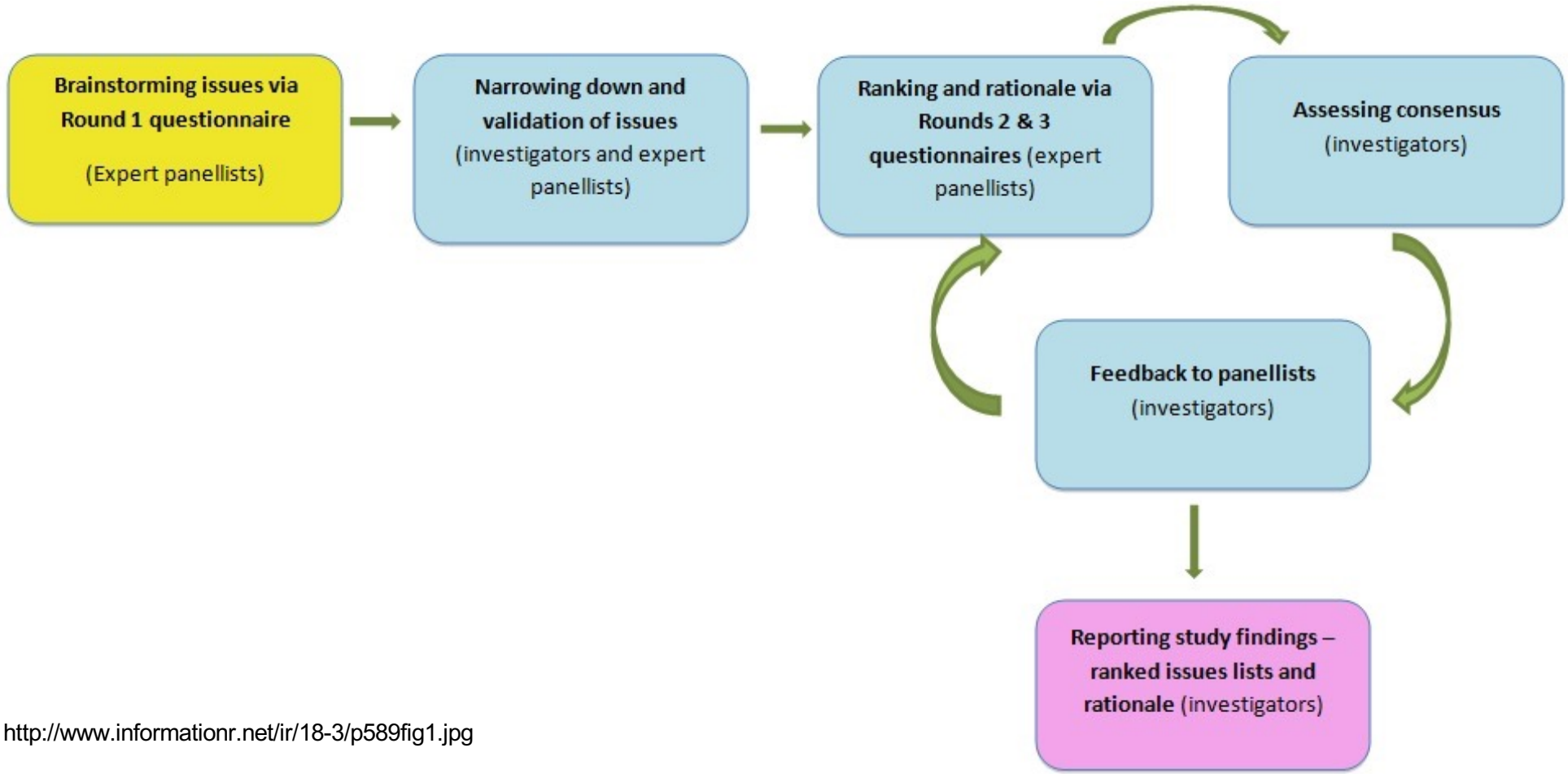
1. a) Mindmap


Mind Map Guidelines
Clarity
hierarchy
order
outlines
Center
Start
image
of topic
at least 3
colors
Style
personal
develop
Use
Links
Colors
Emphasis
images
codes
dimension
Keywords
print
case
UPPER and lower
lines
for each
word
image
alone
connect
center
radiate out
organised
central
thicker
more important
outer
thinner
less important
style
organic
free
flowing
length
same as
word
image

1. d) 5W-Questions

- What? (... is the problem? ... are the symptoms?)
- Who? (... is affected? Persons, Departments)
- Where? (... did it happen? ... was it created? ... is it detected?)
- When? (... did it happens/happened?)
- Why? (... is it happening?)
- How? (... did it happens?)

2. a) Interview / Expert panel / Delphi



http://www.informationr.net/ir/18-3/p589fig1.jpg

2. b) Survey / Questionnaire

- Who do You ask?
- Which mode of survey do You prefer? (Face-to-face, online, email, written/mailing)
- Pre-Test Your Survey
- Keep Your Questionnaire Short.
- Start a questionnaire with an introduction
- Open-Ended versus Closed Ended Questions
- Rating Scales for Attitude Questions
- Avoid technical terms and jargon
- Avoid Vague or Imprecise Terms
- Avoid Complex Sentences
- Avoid Questions Using Leading, Emotional, or Evocative Language

Refer to the Harvard guidelines for questionnaires for more detail:
http://psr.iq.harvard.edu/files/psr/files/PSRQuestionnaireTipSheet_0.pdf?m=1357530492

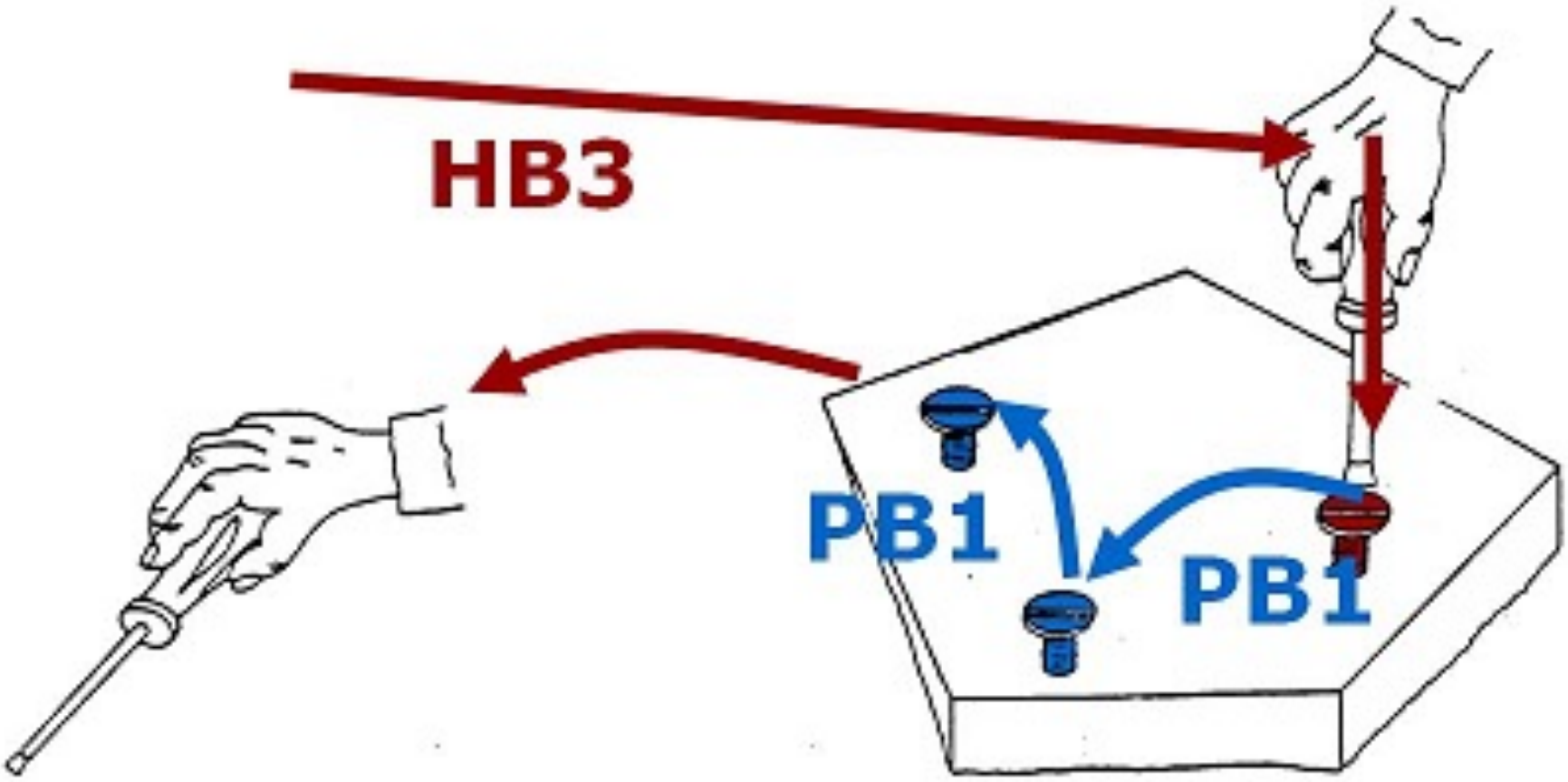
2. c) Observation / Activity sampling

Activity Sampling is a statistical technique that can be used as a means for collecting data. It is **defined** by BS 3138:41008 as: A technique in which a large number of observations are made over a period of time of one group of machines, processes or workers. www.managers-net.com/**activity_sampling**.html

- Who do You need to observe?
- At what time?
- How long?

- Make sure the observation does not influence the behavior of the observed person
- Observation can be done by
  - „Shadowing“ (Following a worker)
  - Analysis of CCTV-recordings (ask workers council)
  - Self-assessment of the workers

2. d) Methods-Time Measurement (MTM)



http://mtm-hungaria.hu/sites/default/files/uas.png

Comparison of data collection tools

Method of time calculation	Reproducible methods description	Unique methods - time relationship	Advanced planning of methods and time	Internationally recognized time standards
Stop Watch Time Study	◐	◐	◐	○
Activity Sampling	○	○	○	○
Self-recording	◔	◔	◔	○
Compare/Estimate	○	○	○	○
Video Recording	●	◕	◔	○
Standard Data	◐	◔	◔	○
MTM	●	●	●	●

Good suitability: ●

Poor suitability: ○

http://mtm-international.org/wp-content/uploads/2013/12/compl-table.png

3. a) Brainstorming

1. There are no dumb ideas.
2. Don’t criticize other people’s ideas.
3. Build on other people’s ideas
4. Reverse the thought of “quality over quantity”.

Add-Ons:

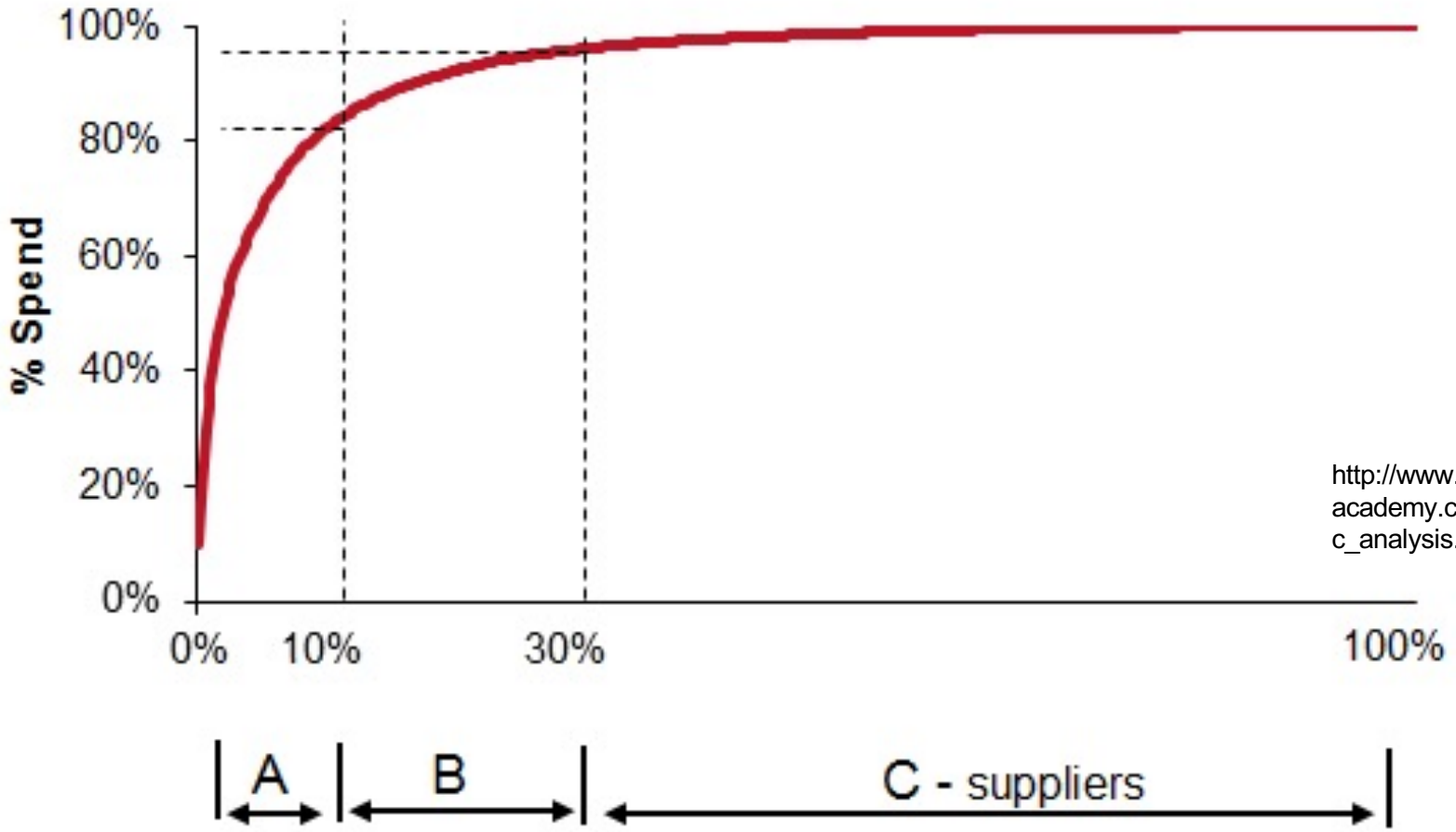
- Collect the ideas on metaplan cards
- Arrange/group the cards on a whiteboard or flipchart
- Prioritize with 3/5/10 red dots

3. b) 6-3-5 method / brainwriting

- 6 Participants
- 3 ideas from each participant per round
- 5 Rounds
- Pass the paper/card clockwise

- A maximum of 108 ideas can be created

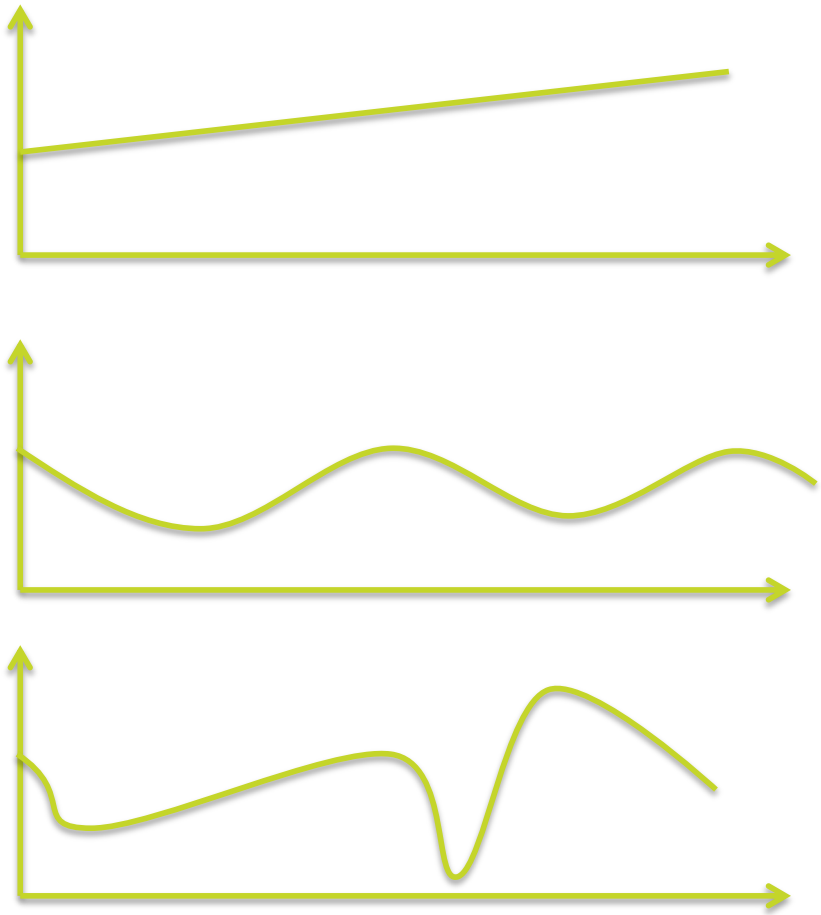
4. a) ABC Analysis



http://www.procurement-academy.com/images/article_images/abc_analysis.png

XYZ-Analysis

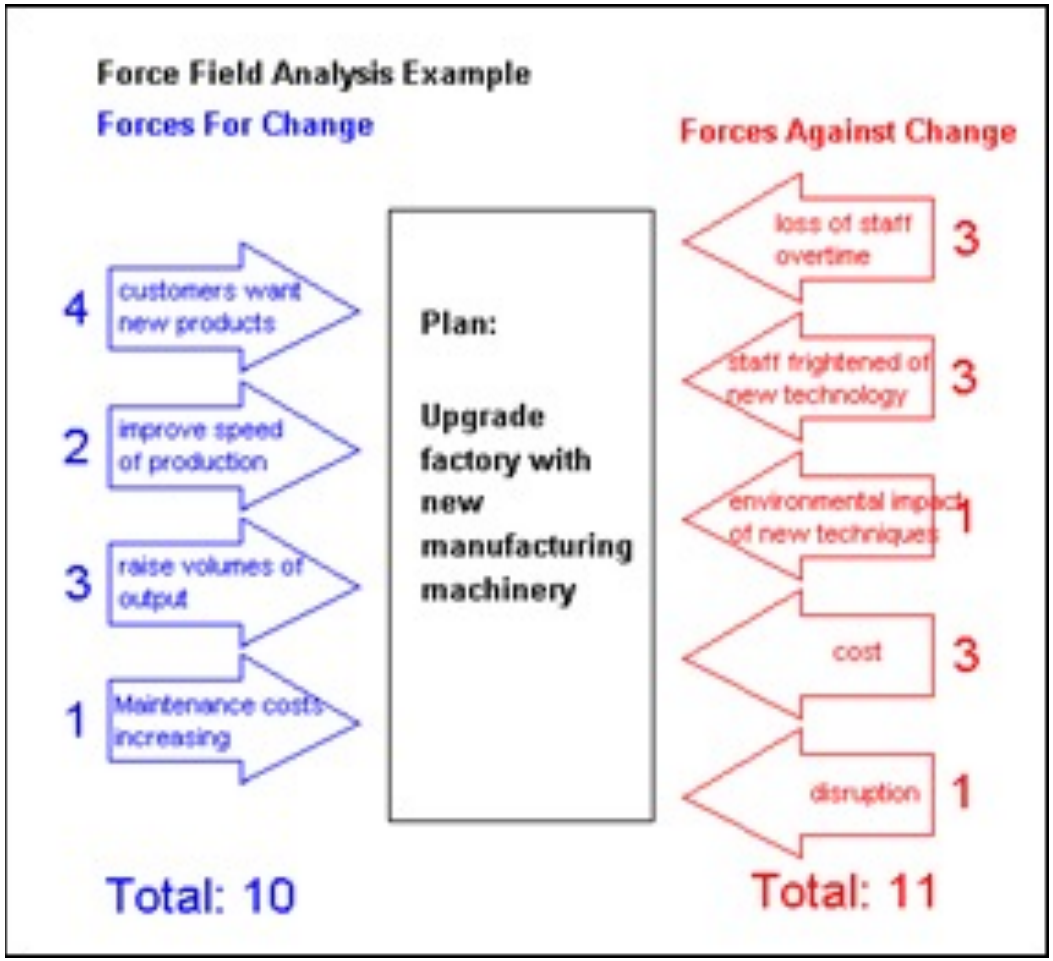
- X = konstant demand
- Y = seasonal demand
- Z = irregular/erractic demand



Standard strategies for ABC-XYZ-Analysis

	X = Constant demand	Y = Seasonal demand	Z = erradic demand
A = High Value	→ Optimize and minimize buffers	→ Add safety stock	→ Demand-based steering and orders
B			
C = Low Value	→ Standardized plans and rules → Consumption-based steering		→ Monitor → Regular orders → Simple processes

4. b) Force Field



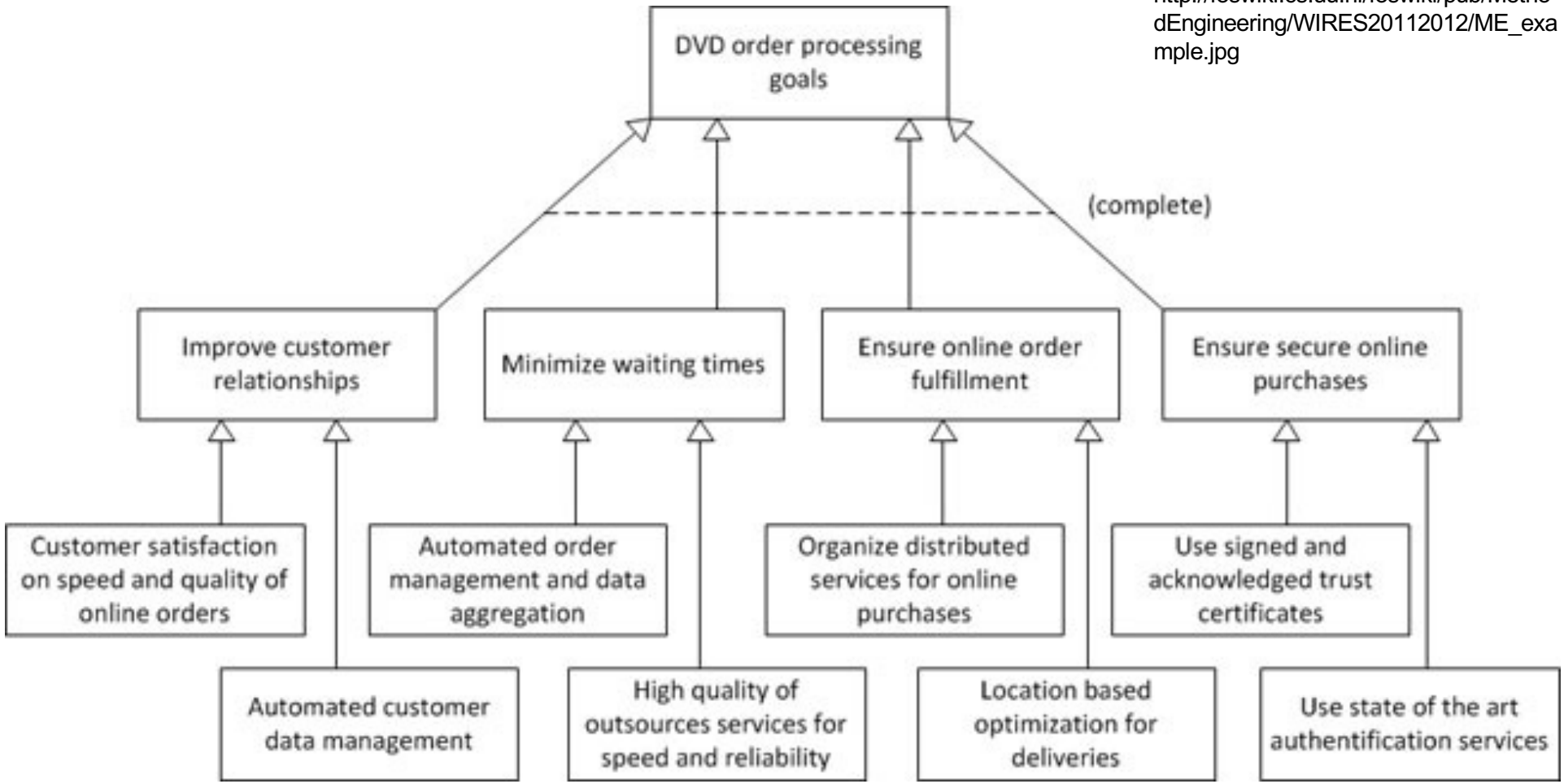
http://www.odi.org/sites/odi.org.uk/files/odi-assets/embedded-images/forcefield.gif

Tools for the definition of goals

- Goal hierachy
- Project charta
- SMART goals
- Goal catalogue

Goal hierachy

http://foswiki.cs.uu.nl/foswiki/pub/MethodEngineering/WIRES20112012/ME_example.jpg



Goal catalogue

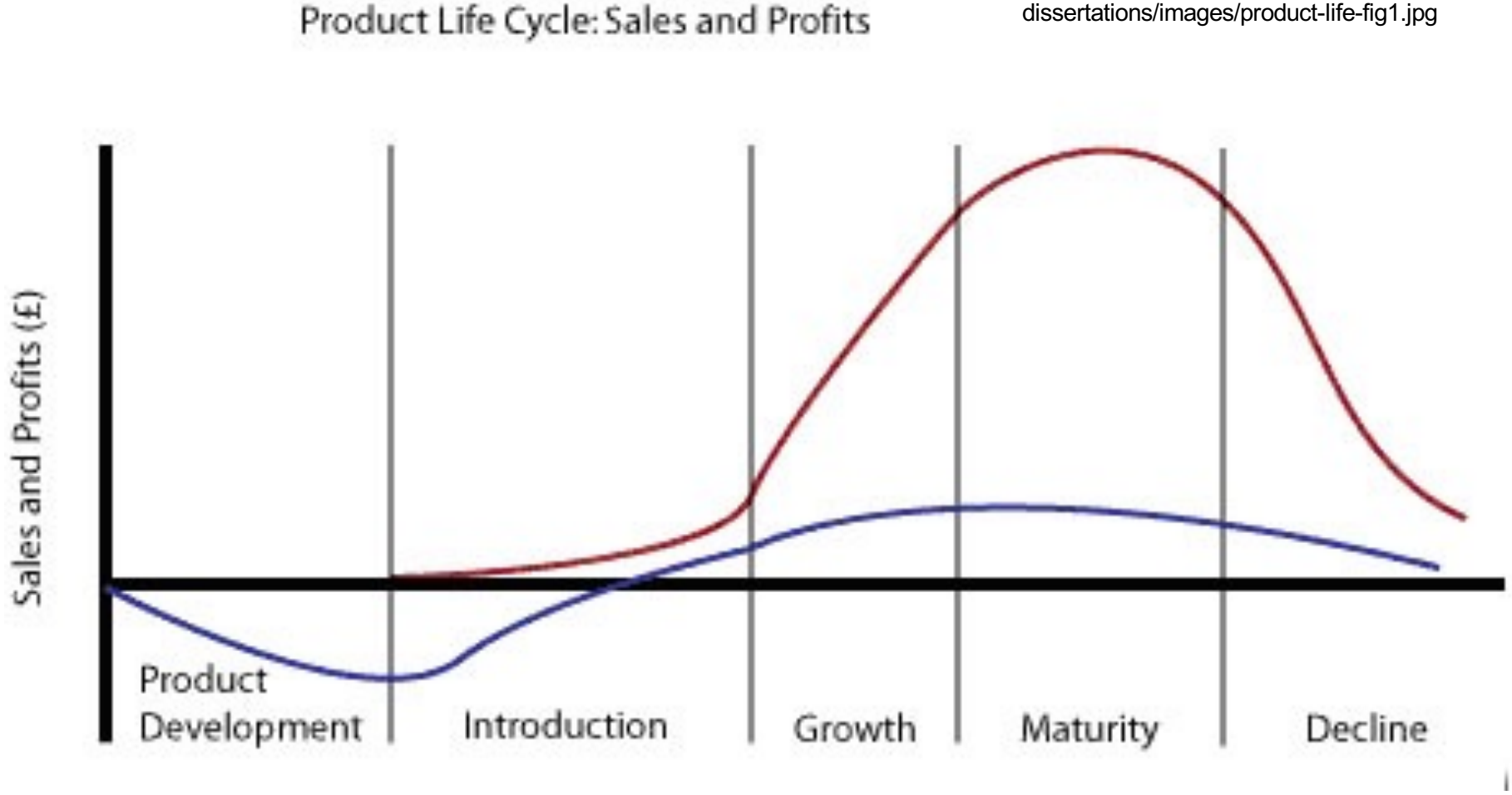
Zielkatalog			
Zielkategorie	**Zieldefinition**	**Bedingungen, Beschränkungen**	**Priorität („Muss, sollte, wäre schön")**
		Finanzen	
Rentabilität	Hohe Kosteneinsparung	Min. 5 %	Sollte
Liquidität	Minimale zusätz-liche Investitionen erforderlich	Max. 500,000 €	Muss
		Funktionen und Prozesse	
Sicherheit und Verlässlichkeit	Keine Ausfallzeit länger als 15 Minuten	Max. drei Vorkomm-nisse pro Jahr	Muss
Leistung	...	...	...
		Personal	
Fähigkeiten, Qualifikationen	...	...	...

Analyses

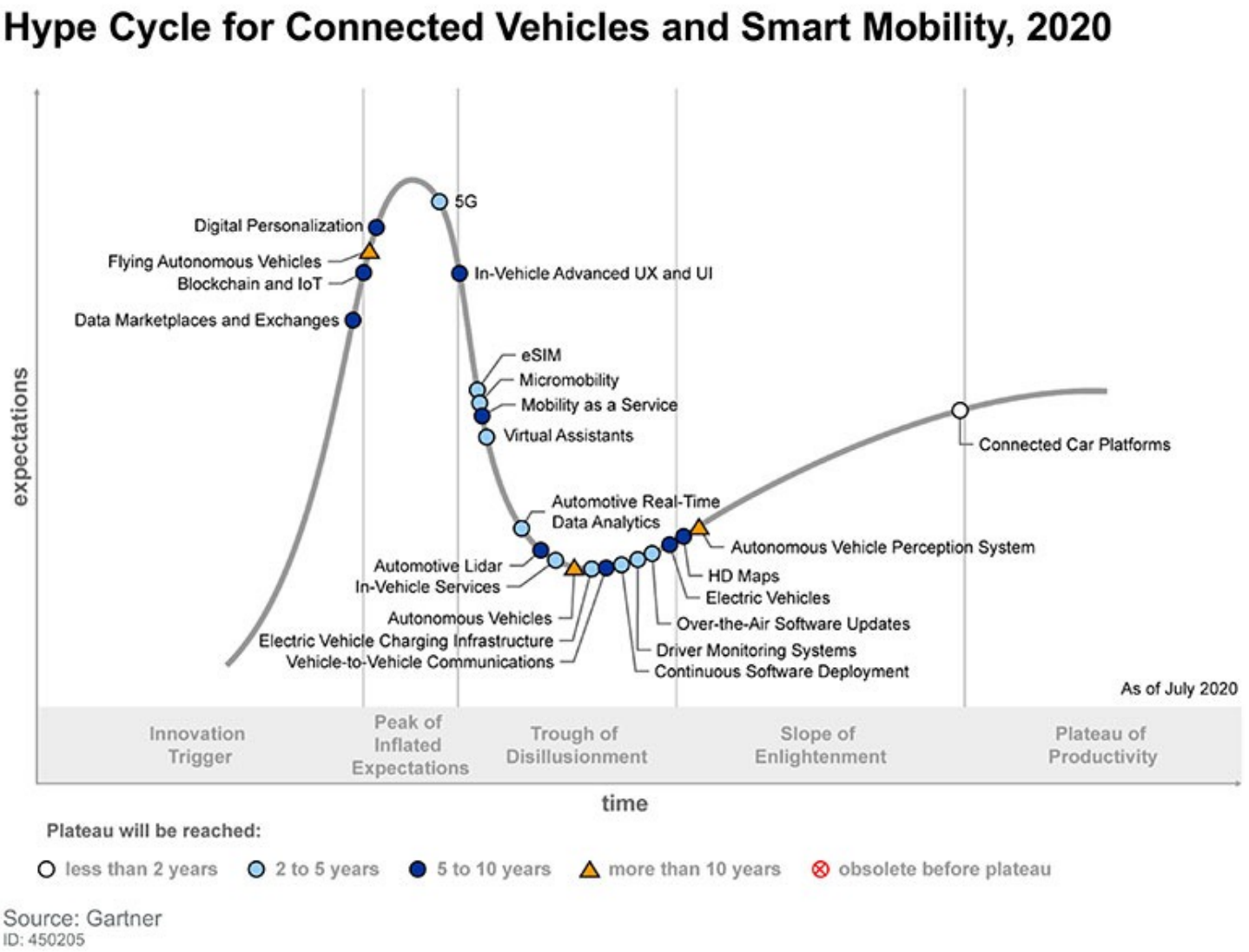
1. Strategic analyses
    1. Life cycle
    2. SWOT & PESTLE
    3. Five Forces
    4. BCG-/Business-Matrix
    5. Product-Market-Matrix
    6. Benchmarking
2. System analyses
    1. Process / Value stream
    2. Systems modeling
3. Organisational analyses
    1. Communication & hierachy
    2. Qualification matrix

Product Life Cycle

http://www.coursework4you.co.uk/essays-and-dissertations/images/product-life-fig1.jpg



Gartner Hype Cycle



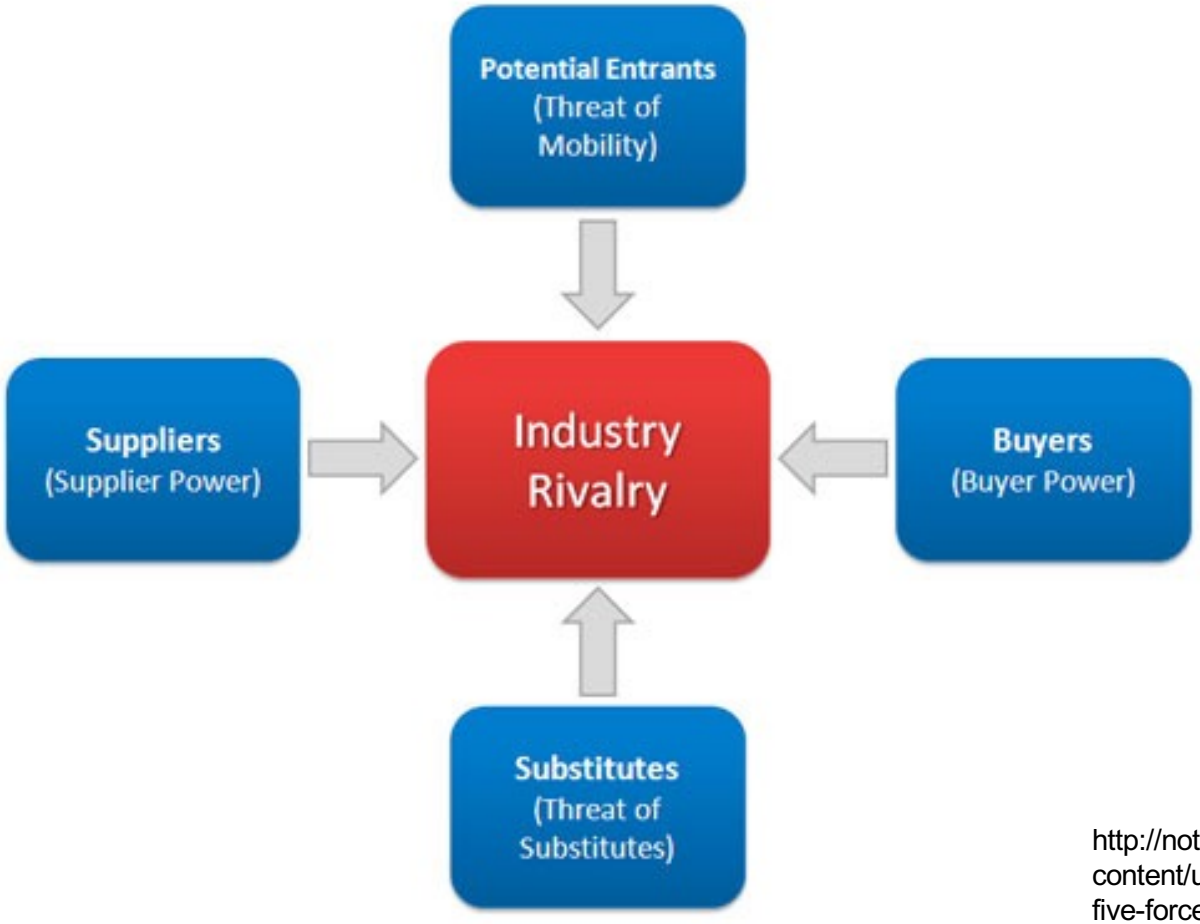
Source: Gartner
ID: 450205

SWOT & PESTEL

http://cdn2.hubspot.net/hub/55403/file-1489789351-png/images/swot.png?t=1429810618081&width=350&height=231

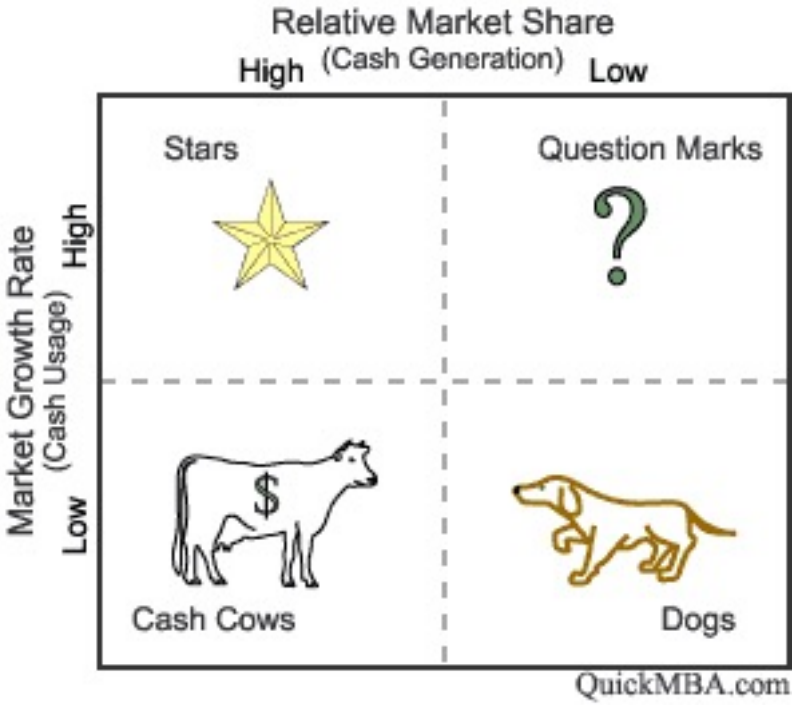
http://1.bp.blogspot.com/-IBhw9pM1aJU/VSF9DjlAqPI/AAAAAAAAJBw/m0ANrWcKuNo/s1600/pestel%2Banalysis.png

Five forces

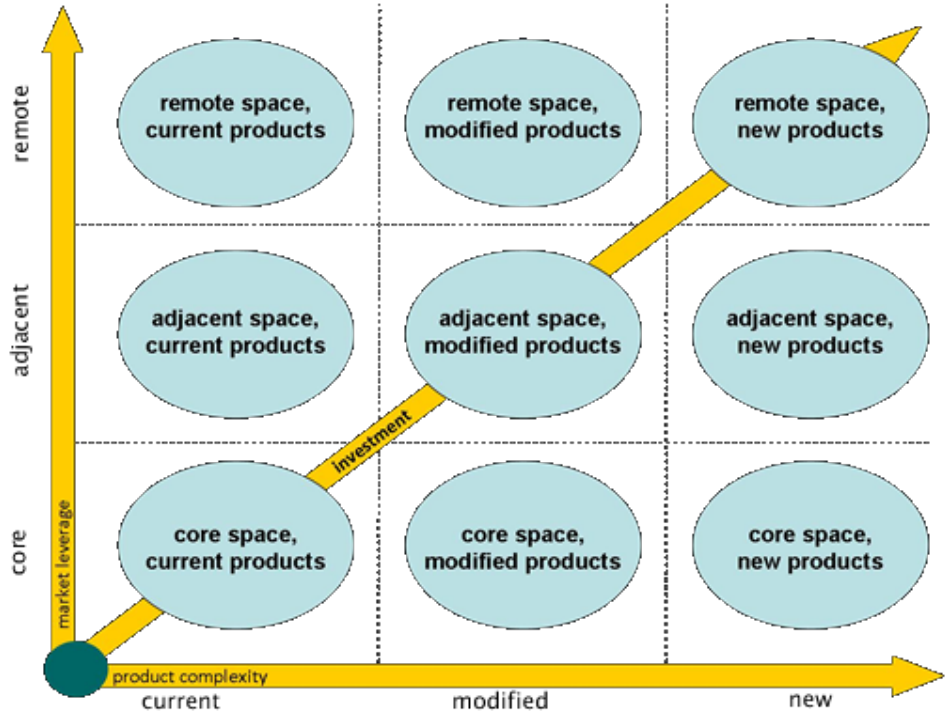


http://notesdesk.com/wp-content/uploads/2009/04/porters-five-forces-model.jpg

BCG-/ Business-Matrix



http://www.quickmba.com/images/strategy/matrix/bcg/growthshare.gif



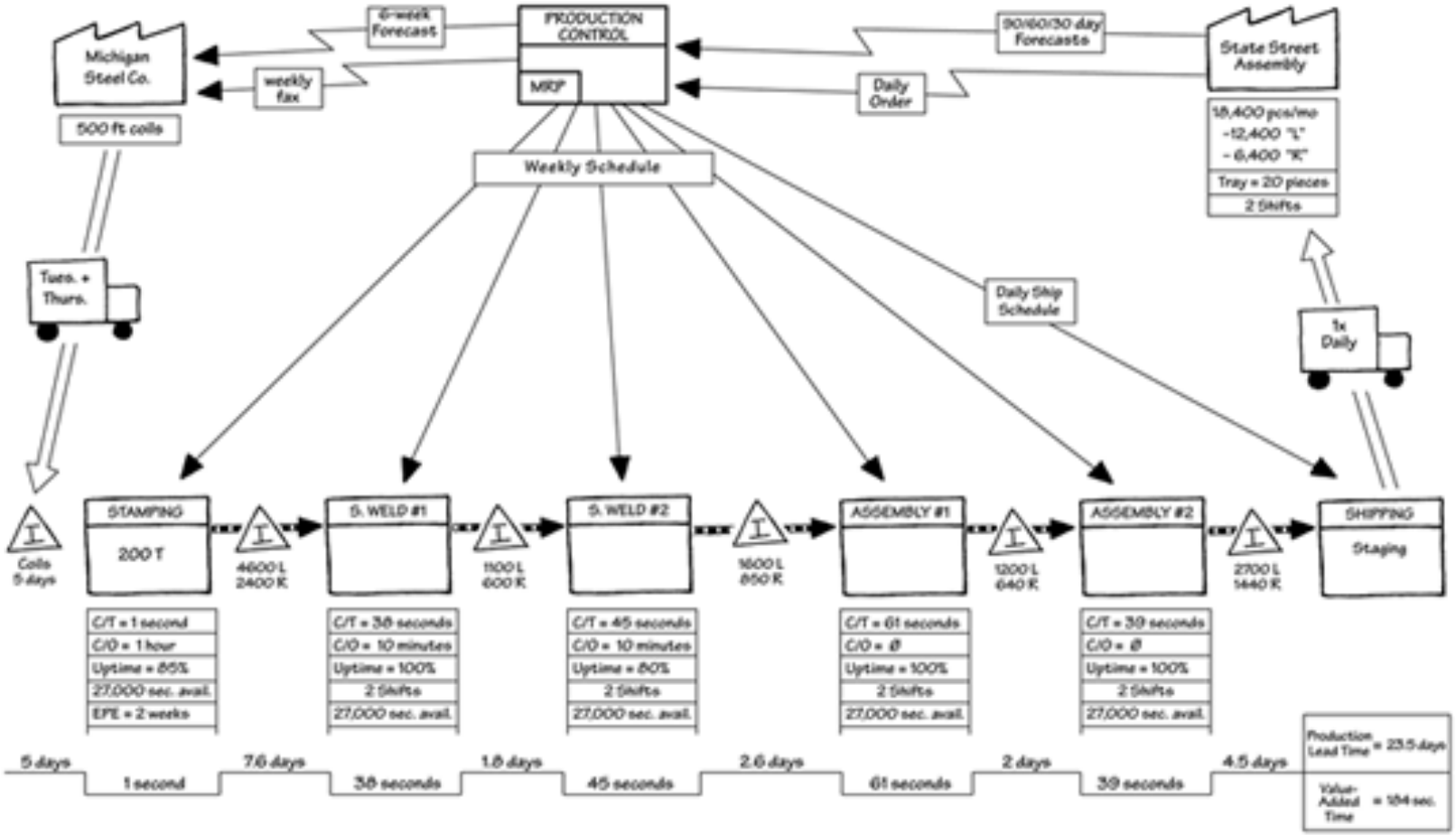
http://www.2020outlook.com/images/productStrategy.png

Benchmarking

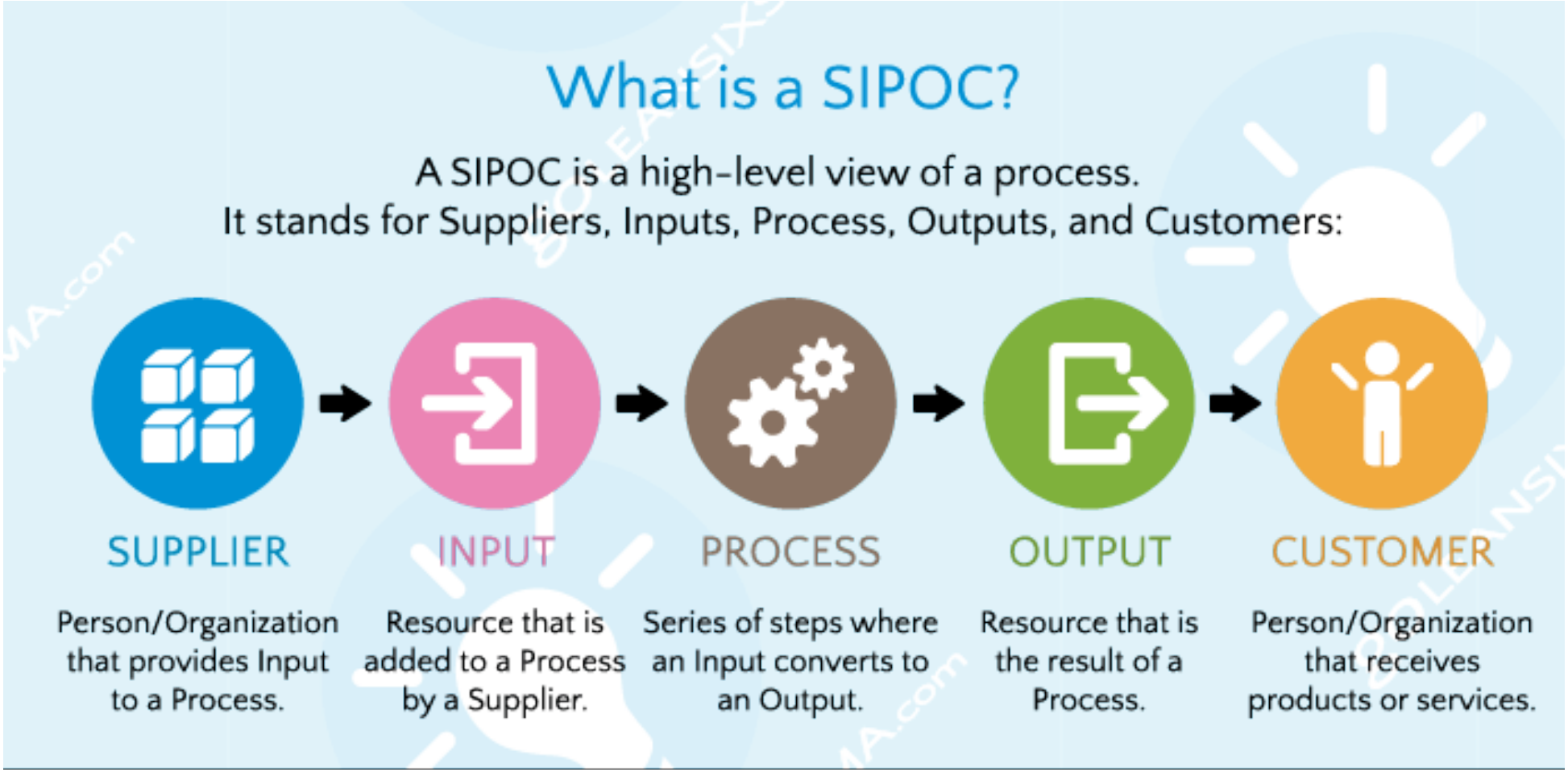
- Compare Your company/ process against competitors or other industry players

- Using neutral/ independent platforms (SCOR model, WorldACD, TAPA)
- Comparison of public data
- Questionnaire/ survey
- Discussion and/or company visit with competitors/ other companies

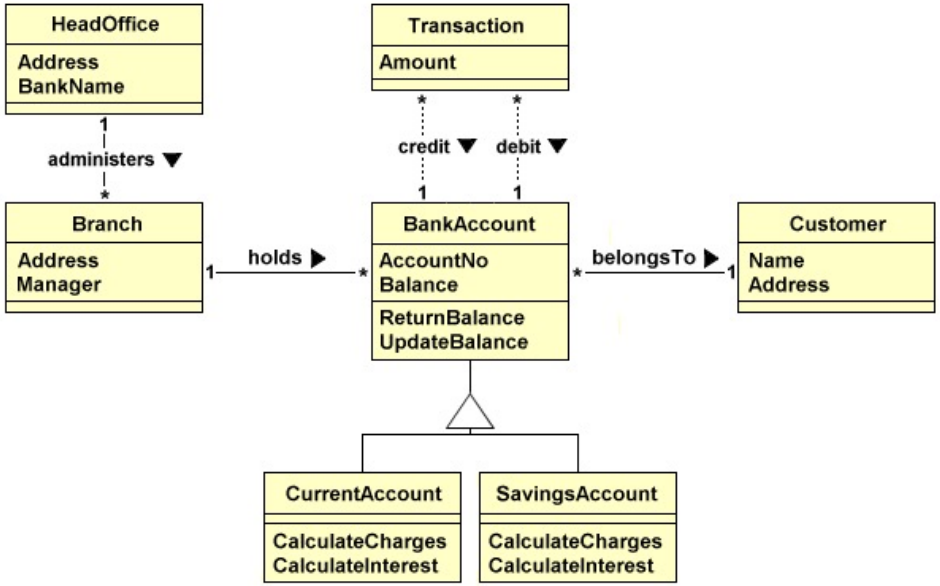
Process / Value stream



SIPOC


What is a SIPOC?
A SIPOC is a high-level view of a process.
It stands for Suppliers, Inputs, Process, Outputs, and Customers:
SUPPLIER
Person/Organization that provides Input to a Process.
INPUT
Resource that is added to a Process by a Supplier.
PROCESS
Series of steps where an Input converts to an Output.
OUTPUT
Resource that is the result of a Process.
CUSTOMER
Person/Organization that receives products or services.

Systems modeling



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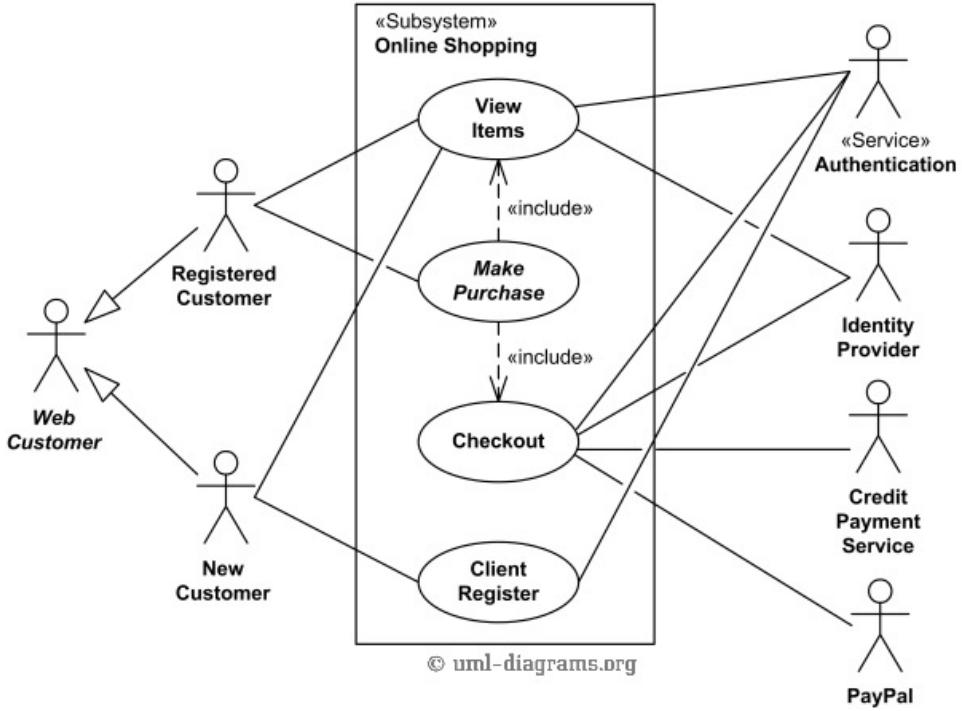
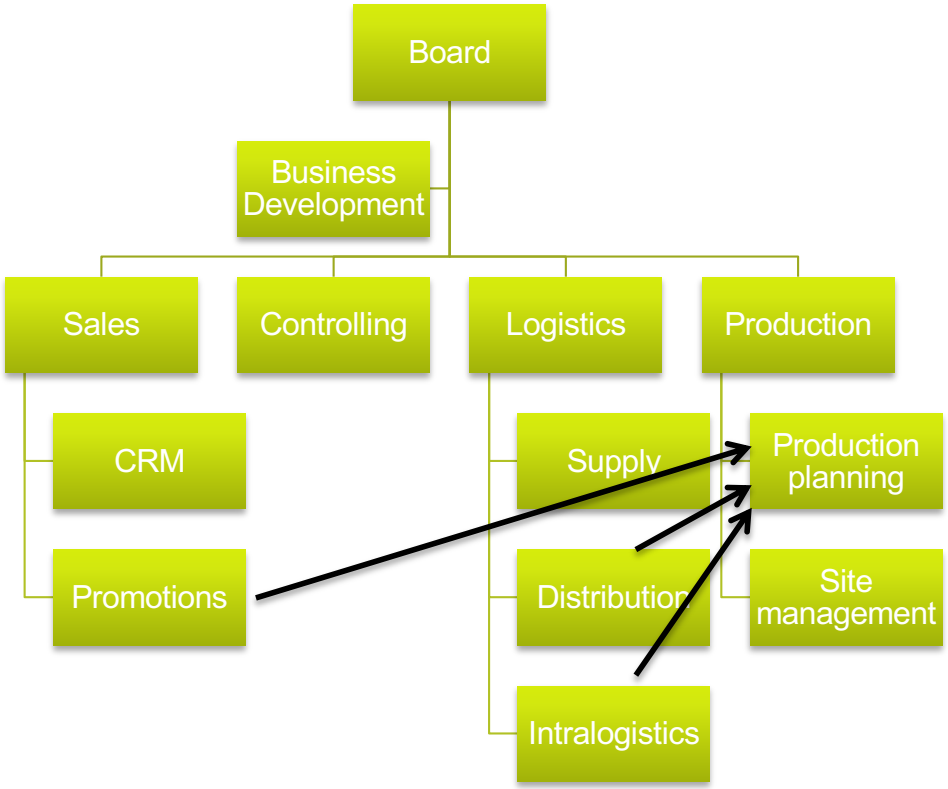


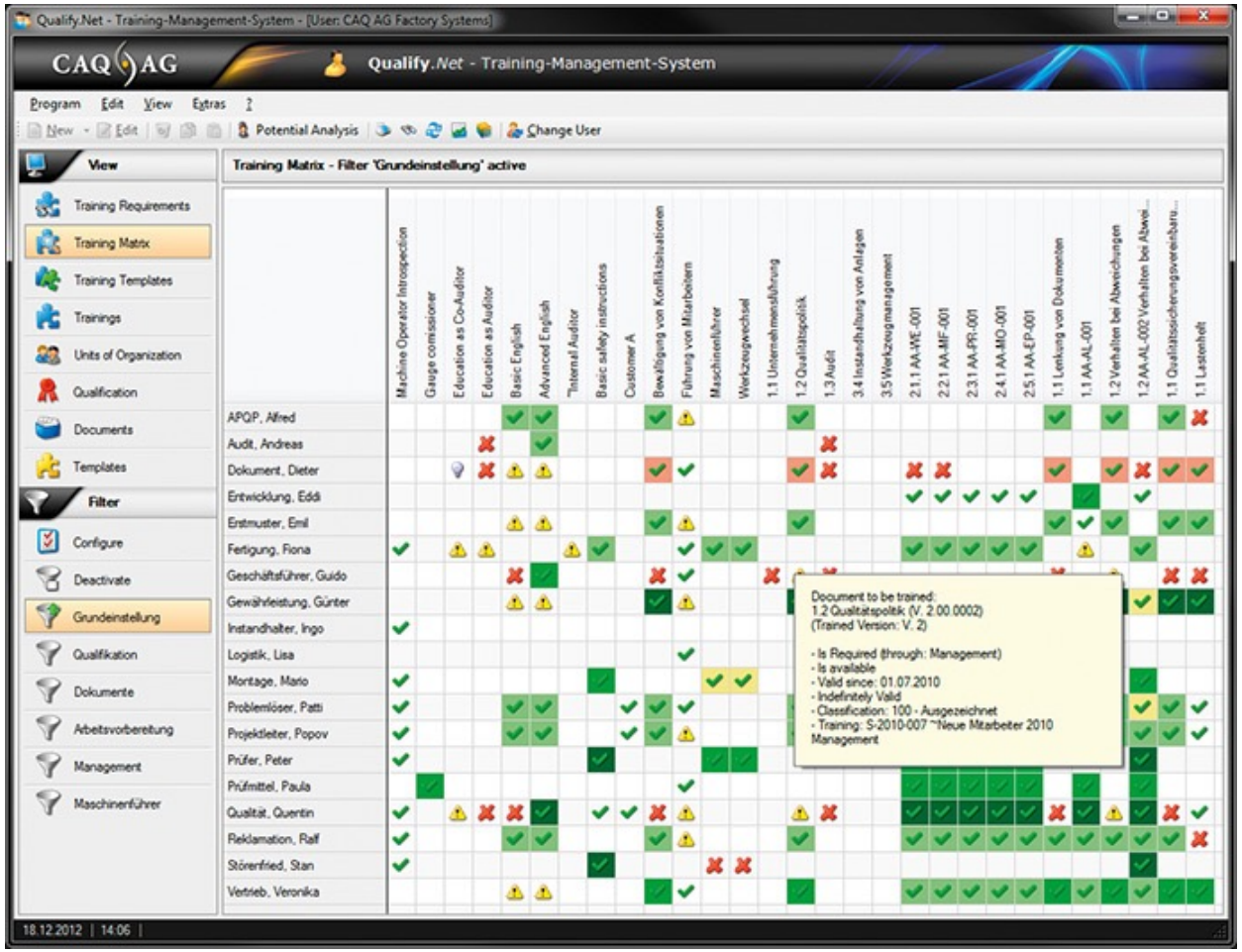
http://www.uml-diagrams.org/examples/use-case-example-online-shopping.png

Communication & hierarchy analysis

- Compare hierachy with actual communication streams and processes
- Identify
  - bottlenecks,
  - conflicts of interest,
  - Interfaces between departments



Qualification matrix



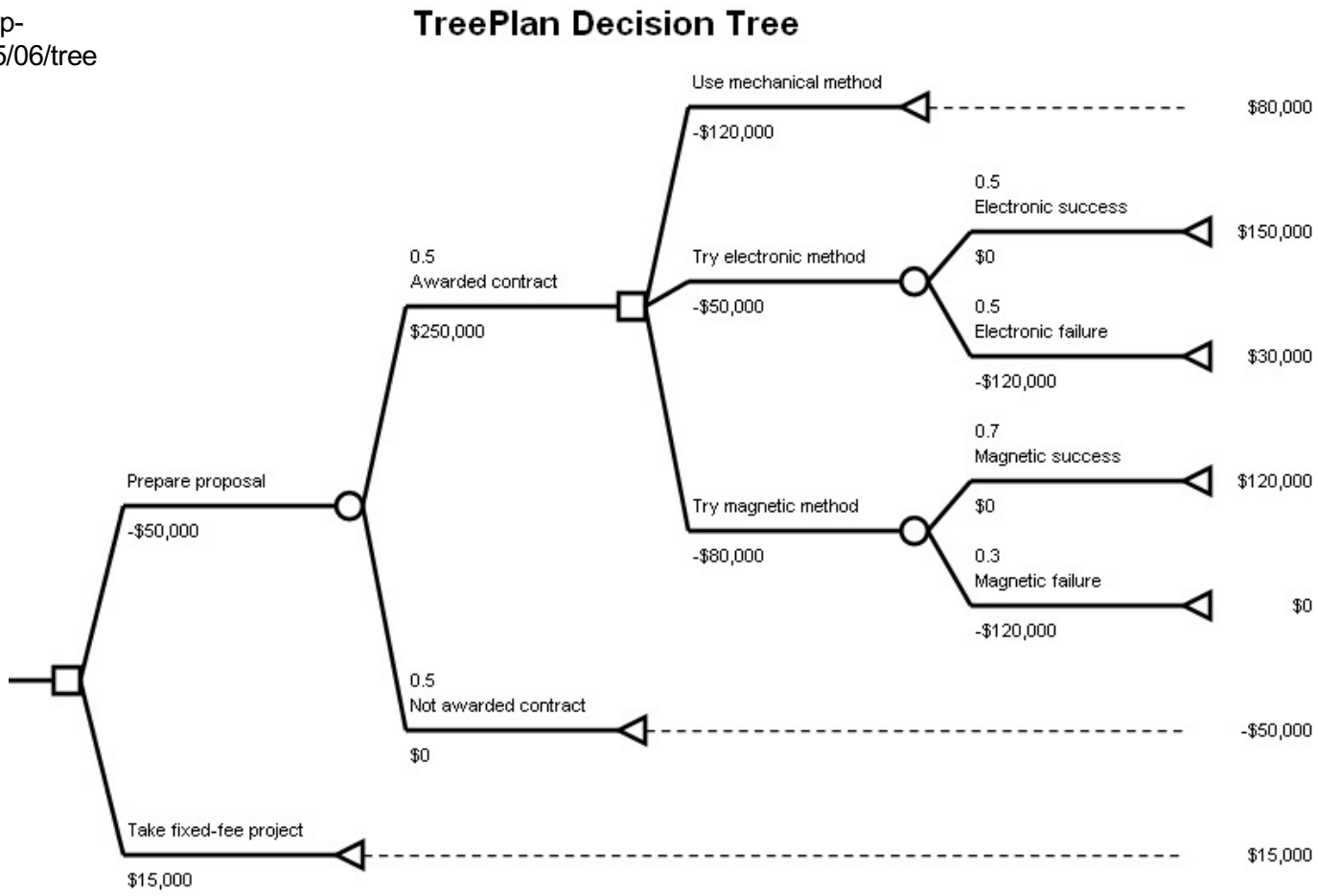
https://www.caq.de/images/Products/qualify-2013-1b-en.jpg

Coming to a conclusion

- Decision tree
- Pair(-wise) ranking
- Cost-Benefit analysis

Decision tree

http://treeplan.com/wp-content/uploads/2015/06/treeplan-decision-tree-diagram.gif



Cost-utility analysis

UPDATED

Goals		Option A		Option B		Option C	
Costs	40%						
Invest-ments	20%	1	0,08	2	0,16	2	0,16
Staff costs	60%	3	0,72	2	0,48	5	1,2
Project costs	20%	3	0,24	2	0,16	3	0,16
Add. revenue	40%	1	0,4	4	1,6	2	0,8
Speed	10%	5	0,5	3	0,3	1	0,1
Quality of Service	10%	4	0,4	3	0,3	1	0,1
Sum			**2,34**		**3,00**		**2,54**

Pair-wise ranking

Asset	Compared to: Asset A	Asset B	Asset C	Asset D	Total
Asset A		3	2	3	8
Asset B	1		3	2	6
Asset C	2	1		1	4
Asset D	1	2	3		6

http://www.thesecurityminute.com/assets/graphics/pairwise_comparison_matrix.png

Cost-Benefit-Analysis

http://m.c.lnkd.licdn.com/mpr/mpr/AAEAAQAAAAAAAAa8AAAAJDY2YzkzNjRiLTFjOTAtNDgyZC1hMjU3LTJmMWIzYTkyOGIyYg.jpg

Costs and Benefits Worksheet:

Project Investment

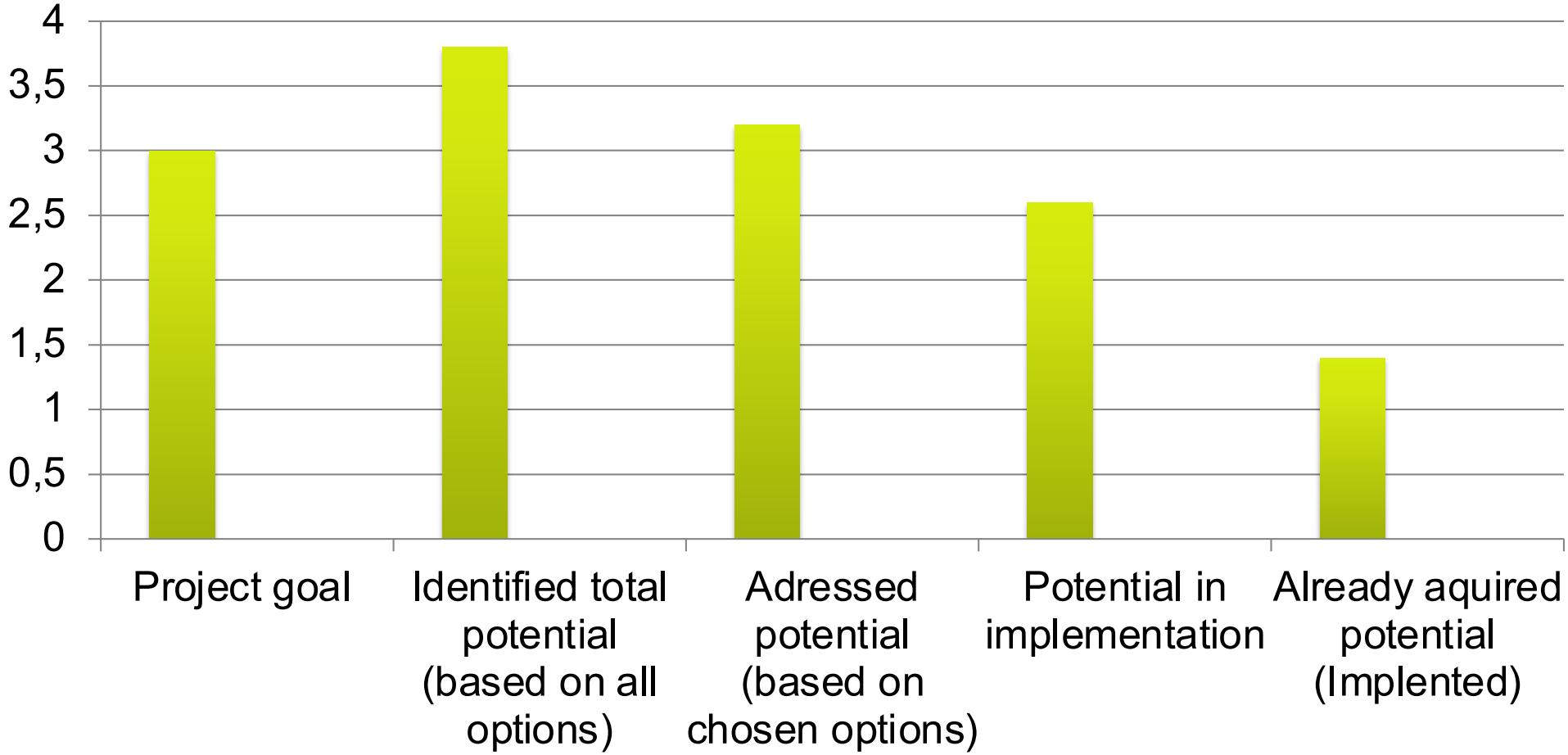
Capital Expenditures	Amount	2013	2014	2015	2016	2017	2018	2019
Combustion Chamber components	$ 740,000		$ 123,333	$ 246,667	$ 246,667	$ 123,333		
Capitalized System Software								
Design	$ 170,000		$ 28,333	$ 56,667	$ 56,667	$ 28,333		
Development	$ 600,000		$ 100,000	$ 200,000	$ 200,000	$ 100,000		
Unit Testing	$ 400,000		$ 66,667	$ 133,333	$ 133,333	$ 66,667		
Turbine Control components	$ 675,000		$ 112,500	$ 225,000	$ 225,000	$ 112,500		
Total Capital Costs	$ 2,585,000							
Project Expense (One-time Expense)								
System Design	$ 500,000	$ 500,000						
Combustion Chamber rebuild	$ 380,000	$ 100,000	$ 280,000					
Turbine Control System Upgrade	$ 420,000	$ 150,000	$ 270,000					
Integration Testing	$ 650,000		$ 650,000					
Grid Power	$ 800,000		$ 800,000					
System Testing	$ 1,000,000		$ 1,000,000					
Project Support	$ 750,000	$ 400,000	$ 350,000					
Total Project Expense	$ 4,500,000							
Total Project Investment	**$ 7,085,000**	**$ 1,150,000**	**$ 3,780,833**	**$ 861,667**	**$ 861,667**	**$ 430,833**	**$ -**	**$ -**

Operating Costs (OpEx)	Amount	2013	2014	2015	2016	2017	2018	2019
Operating savings (negative costs)	-$700,000/yr		$ (350,000)	$ (700,000)	$ (700,000)	$ (700,000)	$ (700,000)	$ (700,000)
Total Operating Costs		**$ -**	**$ (350,000)**	**$ (700,000)**	**$ (700,000)**	**$ (700,000)**	**$ (700,000)**	**$ (700,000)**

Project Benefits (amount & timing)	Amount	2013	2014	2015	2016	2017	2018	2019
Maintenance Savings	$200,000/year		$ 100,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
IT Savings	$700,000/year		$ 350,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000
Total Benefits		**$ -**	**$ 450,000**	**$ 900,000**	**$ 900,000**	**$ 900,000**	**$ 900,000**	**$ 900,000**

	2013	2014	2015	2016	2017	2018	2019
Annual Total	**$ (1,150,000)**	**$ (2,980,833)**	**$ 738,333**	**$ 738,333**	**$ 1,169,167**	**$ 1,600,000**	**$ 1,600,000**
Cumulative Total	**$ (1,150,000)**	**$ (4,130,833)**	**$ (3,392,500)**	**$ (2,654,167)**	**$ (1,485,000)**	**$ 115,000**	**$ 1,715,000**

Hardening of project potentials



Transformation project – project phases