

# Workshop Reflective Practice; Domain Knowledge

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## Abstract

Industry master students work part-time in an engineering company. The Reflective Practice workshops are set-up to stimulate reflection about theory and practice. The workshop *Domain Knowledge* addresses the questions: What is domain knowledge, what domain knowledge is required for system design, how do I acquire domain knowledge?

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TBD

## *Colophon*

Merete Faanes from Buskerud University College created the educational flow *Reflective Practice*. Reflective Practice is a thread throughout the entire master Systems Engineering to stimulate students to relate *Education and Practice*.

These workshops are the result of the cooperation of Merete Faanes and Gerrit Muller

Make an overview of the domain knowledge that you have acquired until now.

Provide a few specific examples of such domain knowledge.

Make a list of domain knowledge that you like to acquire.

# Agenda

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t welcome, last workshop, introduction this workshop

t+0:10 block 1: Business

t+1:20 block 2: Process and Organization

t+2:30 block 3: Engineering

t+3:40 plenary discussion

t+3:50 pre-assignment next workshop, close

# Workshop Ground Rules

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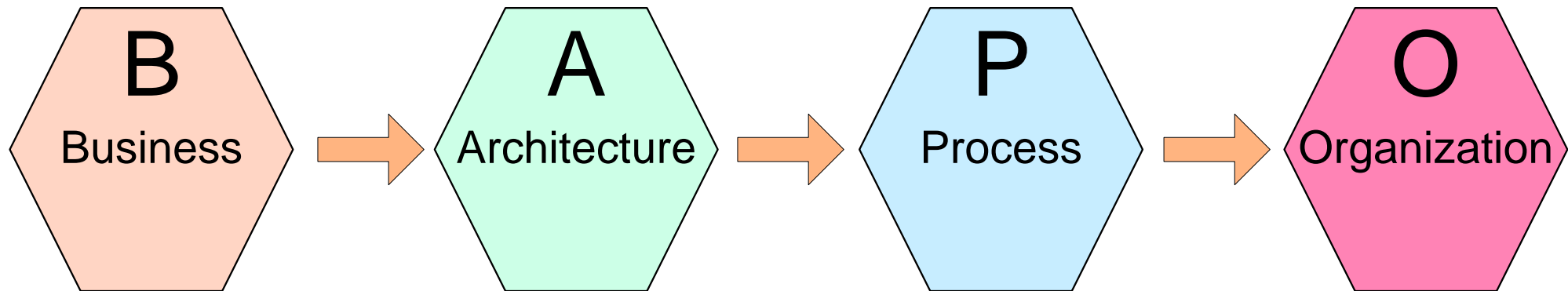
- + Start individually for 5 minutes
- + Then discussion in the group
- > Let the less experienced participants start with answering

# BAPO framework

market  
customers  
financials  
turnover  
profit  
cash flow  
capital use  
value chain  
goods flow  
life cycle

customer needs  
stakeholder concerns  
requirements  
specification and design  
functions  
qualities  
decompositions  
interfaces  
technologies

people  
processes  
roles  
responsibilities  
relationships  
sites/locations



From: COPA tutorial;  
Philips SW conference 2001.

+ What is the Value Chain in your domain;

> Be specific, e.g. Names of customers and suppliers

+ What are the financial figures of merit

> e.g. typical product or project cost, company turnover, material cost

+ What are timing figures of merit,

> e.g. project duration, system life time, order lead time

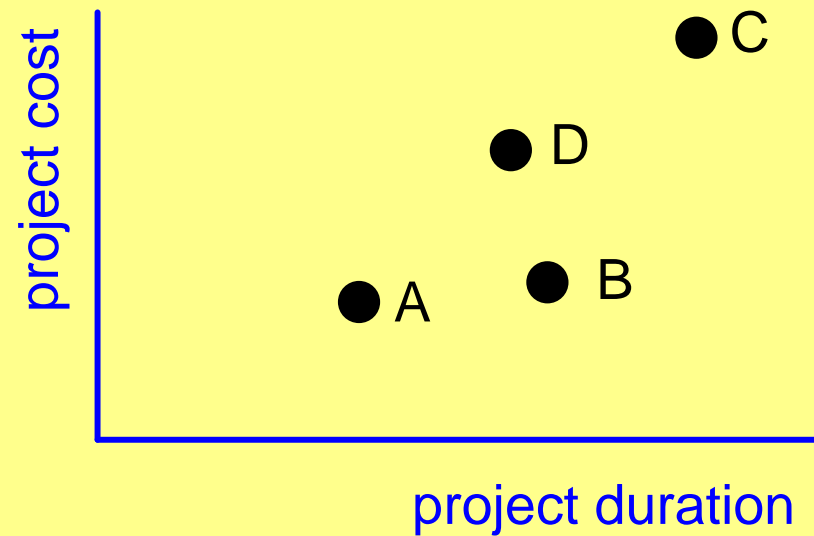
Results on flipover

# Make a Scatter Plot

Read the flips of other groups.

Select two figures of merit (f.i. project cost and project duration) and make a scatter plot of all teams for these two figures.

Can you explain the result?



+ Make an organogram

> be specific e.g. add names

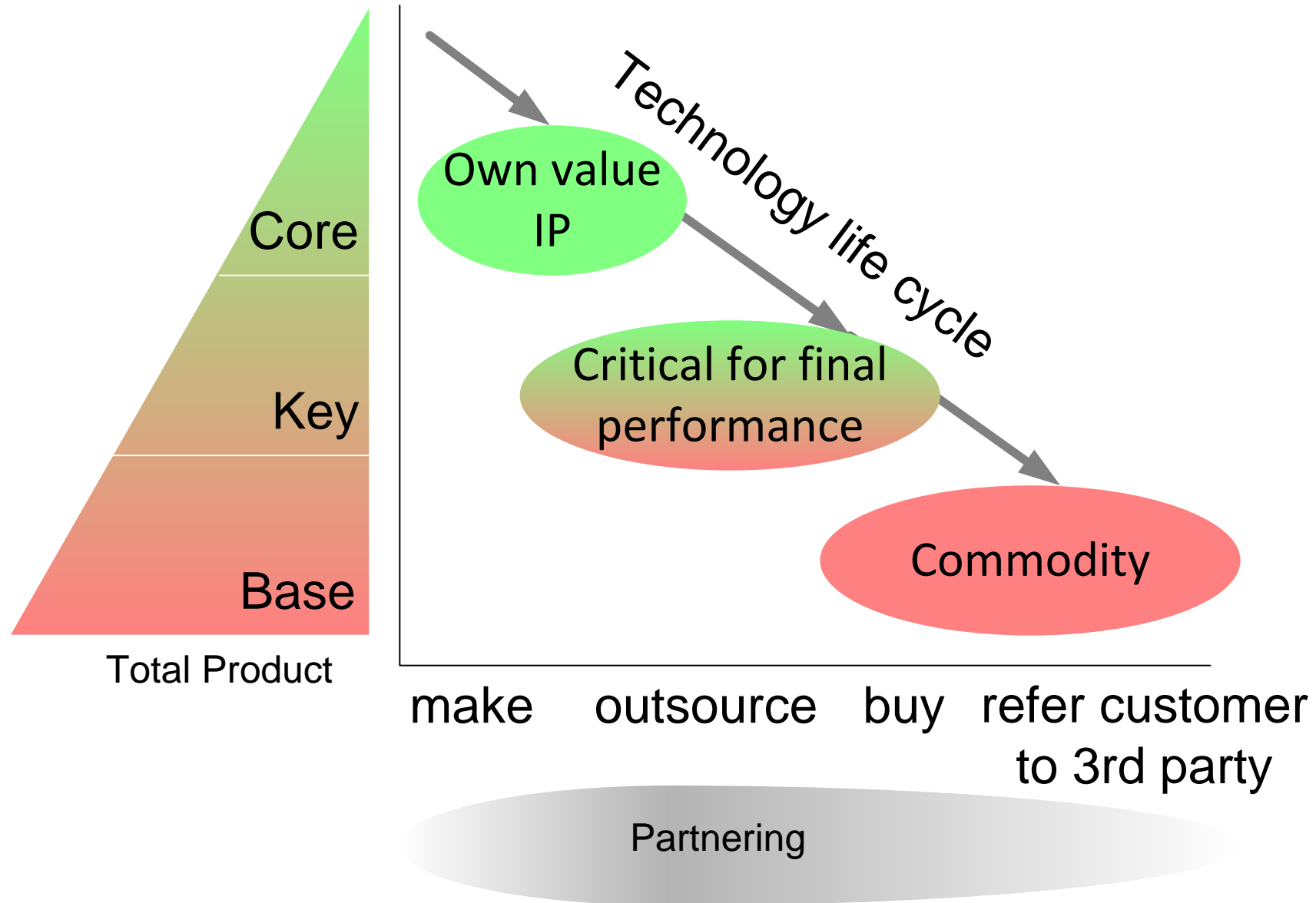
+ What is the product or project process

+ What is your immediate project context

> be specific add names, components/functions and roles

Results on flipover

# Core, Key, and Base Technologies



- + What are the key performance parameters of the system;
  - > be specific with names and numbers
- + Make a list of all involved technologies
- + Classify technologies as Core, Key or Base

results on flipover

Make an architecture overview of your own system; you need this overview for the SESI course. See next slide when your system is classified or highly confidential.

The overview has to cover the following aspects:

- partitioning structure (block diagrams, Work Breakdown Structure (WBS), or Bill of Material (BoM))
- dynamic behavior (functional models, e.g. Energy, Material, or Information (EMI) flows, state diagrams, sequence diagrams, etc.)
- Key Performance Parameters of the system-of-interest (quantifications)
- the relation between parts, dynamic behavior and key performance

maximum 5 pages

Write an 1 page reflection report, discussing the workshop and the architecting assignment.

# How to Cope with Confidentiality

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The closer you can stay to your “real” system the more realistic and valuable the learning outcome. The staff treats your material as confidential. However, if your system is classified or highly confidential, then take one of the following steps (in order of preference):

- *obfuscate*: make changes to values or features to remove the confidentiality
- use past system that is similar (works only if that is not confidential)
- *transpose*: select a similar system in another domain (for example move from missile to drone)

Fill in the pre questionnaire at

<http://www.gaudisite.nl/RPHTAquestionnairePre.doc>

Add your name to the filename when submitting to Canvas

We use the results of this questionnaire in anonymous form for research.

# Replacing assignment; only after permission of the teacher

- do the pre-assignment and submit this to the teacher (as all other students)
- go through the workshop questions yourself
- discuss the questions and your answers with a local colleague
- write a (max) 2-page document with your answers including examples and rationale behind the answers
- send this 2-page document by mail to another student and ask for comments
- update the 2-page document
- do the post-assignment, include what the feedback of the other student changed in your thinking
- send 2-page document and post-assignment to the teacher