



Open Innovation Platform  
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# Introduction to Design Methods

LUT Summer School  
July 25-29, 2016

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Co-funded by the  
Erasmus+ Programme  
of the European Union



# Design Methods and Processes: Scope

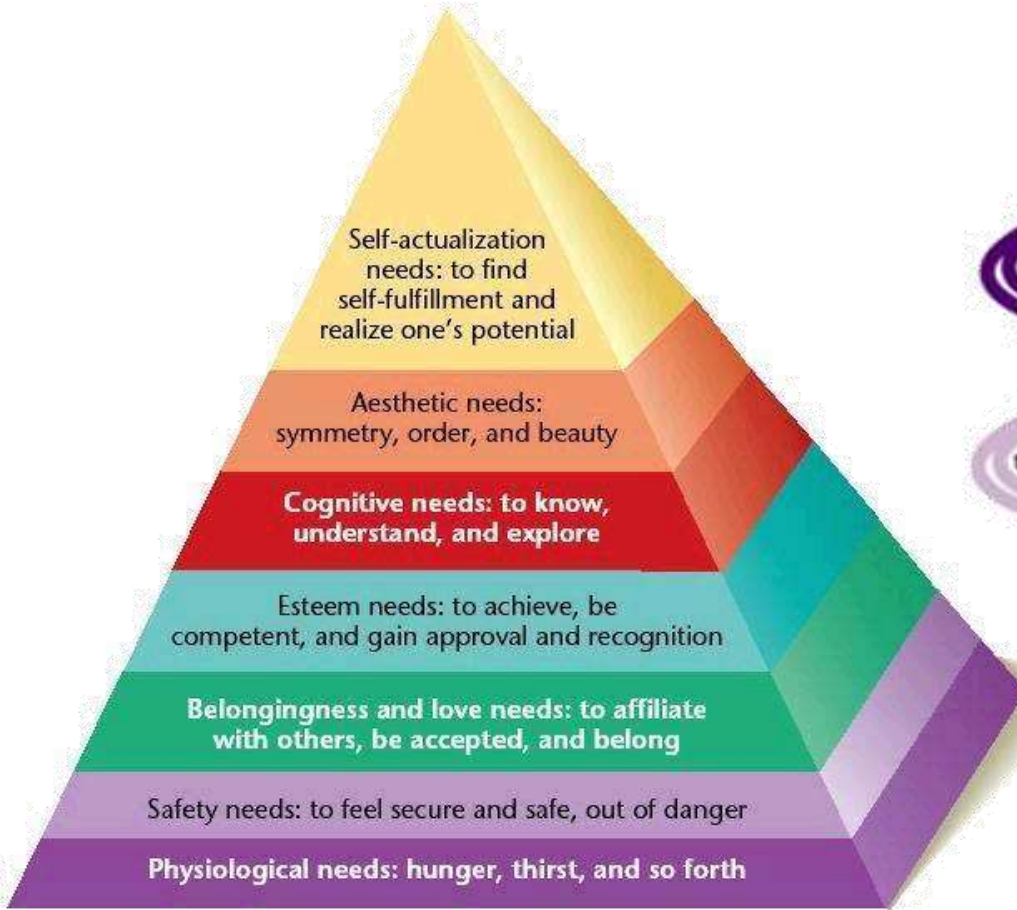


**What do these artefacts have in common?**

# Design Methods and Processes: Scope

## Design Context:

### Human beings and Needs





# Design Methods and Processes: Scope

**Everyone can – and does – design**  
*(N. Cross)*



- **We all design when we plan for something new to happen**, whether that might be a new version of a recipe, a new arrangement of the living room furniture, or a new layout of a personal web page
- So, **design thinking is something inherent within human cognition**; it is a key part of what makes us human.

# Design Methods and Processes: Scope

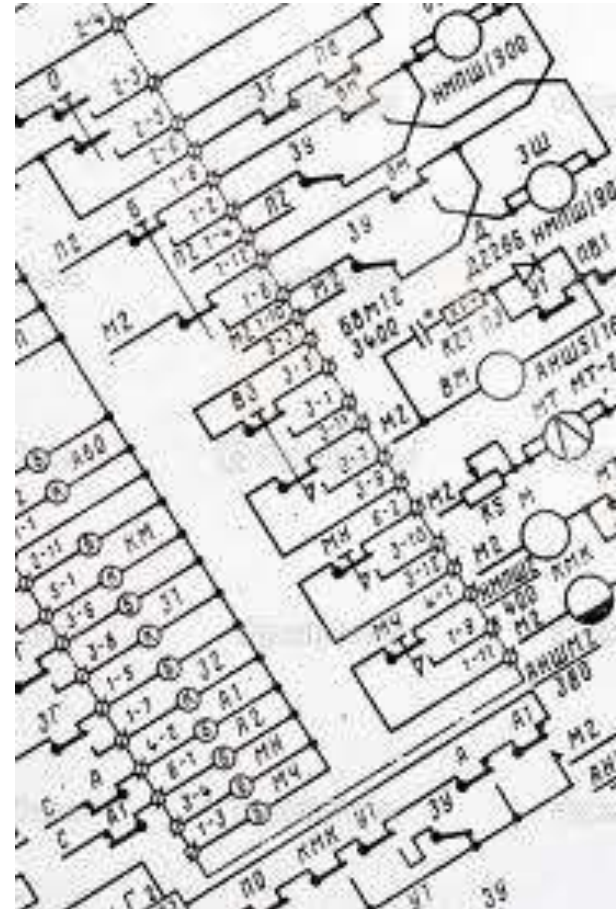
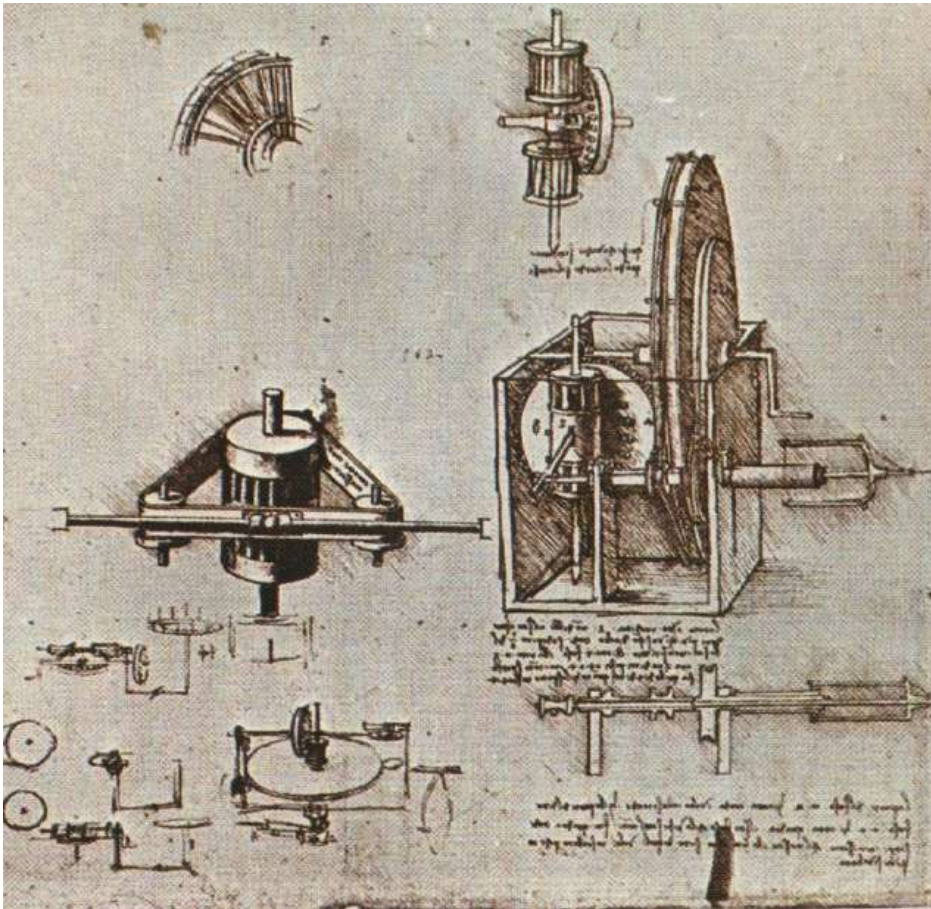


**Design Context: Human and Artefacts**

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# Design Methods and Processes: Scope



**Design Context: Language for Technical Communication**



# Design Methods and Processes: Scope



**Design Context: Production**

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# Design Methods and Processes: Scope



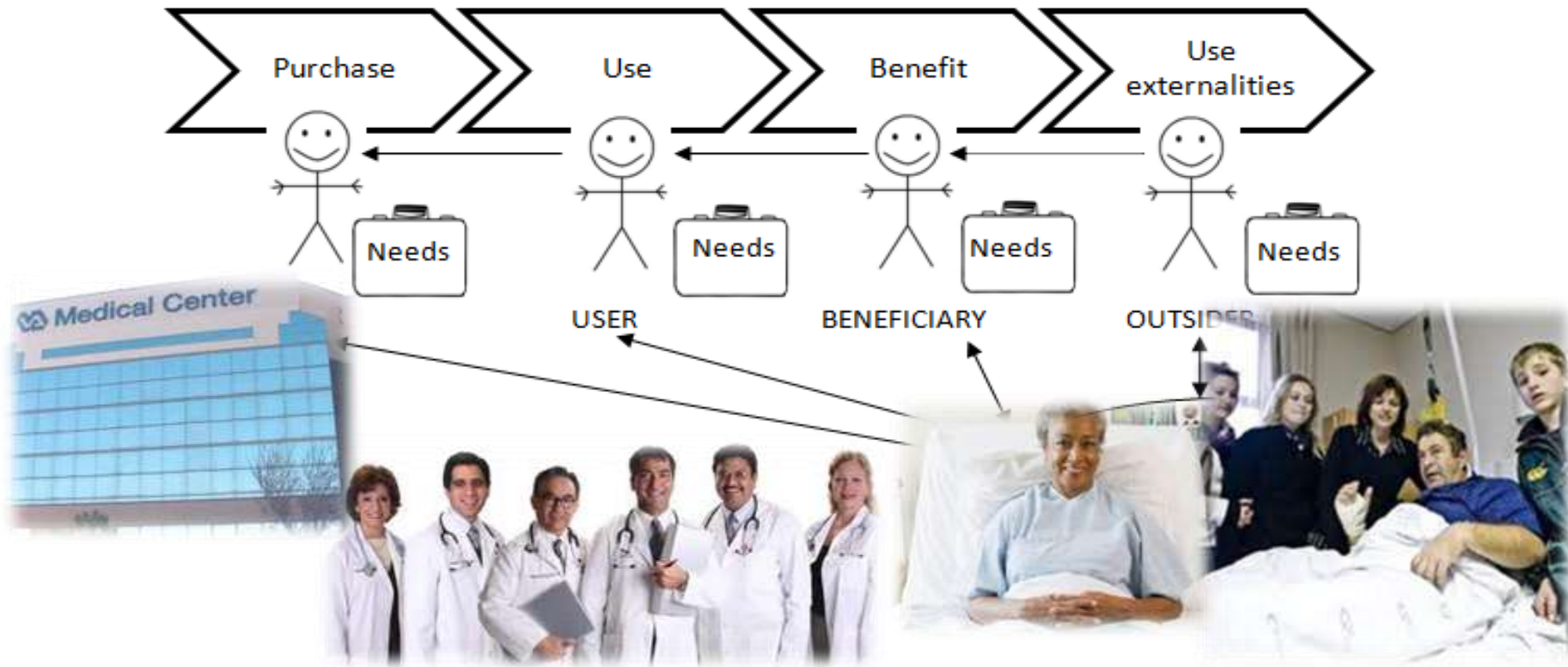
## **Design Context: Delivery**



# Design Methods and Processes: Scope

## Design Context: For Whom?

The multi stakeholder context of beyond use situations

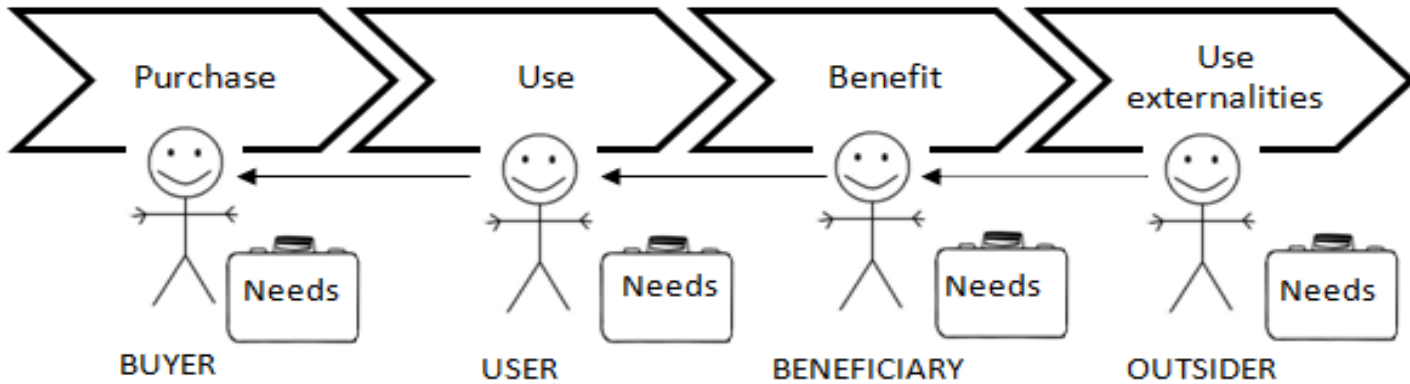


Source: Cantamessa, Cascini, Montagna (2012)

# Design Methods and Processes: Scope

## Design Context: For Whom?

The multi stakeholder context of beyond use situations



**ATM**  
AZIENDA TRASPORTI MILANESI S.p.A.

**GTT**  
GRUPPO TORINESE TRASPORTI

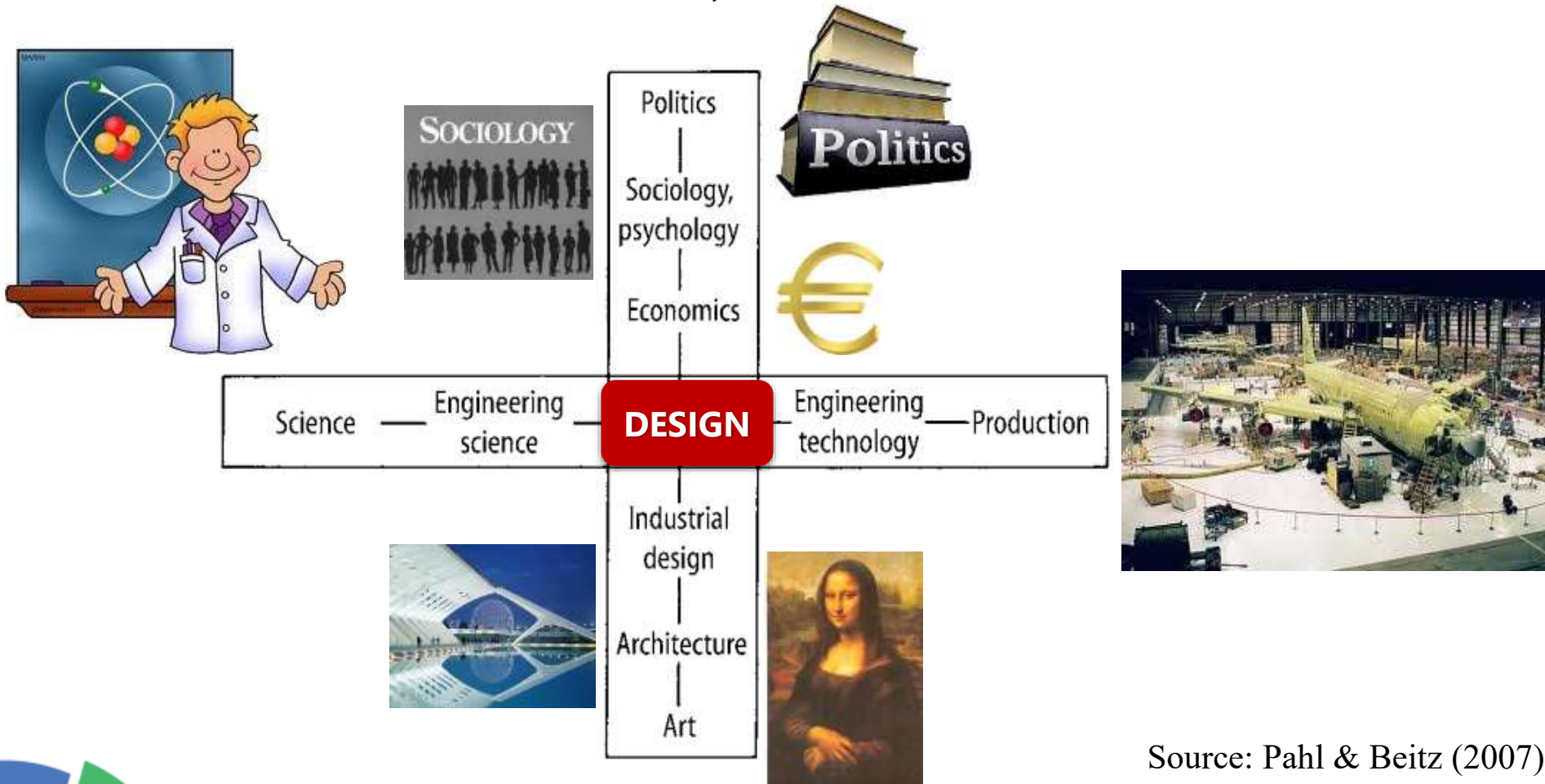


Source: Cantamessa, Cascini, Montagna (2012)

# Design Methods and Processes: Scope

## Design Context:

## From Art to Politics, from Science to Products



Source: Pahl & Beitz (2007)



# Design Methods and Processes: Design Ability

## Design ability:

### natural born gift or something to learn?

#### ❖ Experienced designers vs. novice designers

- Experienced designers are able to draw on their knowledge of previous exemplars in their field of design...
- ...but also experienced designers suffer **design fixation**: just like novice designers, sometimes they are reluctant to discard the concept and return to a search for a better alternative.
- They try laboriously to design-out the imperfections in the concept, producing slight improvements until something workable but perhaps far from ideal is attained.



Source: Cross (2008)

# Design Methods and Processes: Design Ability

## Design ability:

### natural born gift or something to learn?

- ❖ Typical features shared by successful designers
  - **Clarify requirements**, by asking sets of related questions focused on the problem structure
  - **Actively search** for information
  - Summarize information on the problem formulation and partially **prioritize requirements**
  - **Do not suppress** first solution ideas; they held on to them, but return to clarifying the problem rather than pursuing initial solution concepts in depth
  - **Detach** themselves during conceptual design stages from fixation on early solution concepts
  - **Produce variants** but limit their number by **periodical assessment and evaluation**

Source: Cross (2008)

# Design Methods and Processes: Design Ability

## Design ability:

### natural born gift or something to learn?

- ❖ Typical features behind poor solutions
  - Designers with **very unsystematic approaches**
  - **Too-rigid adherence** to a systematic procedure (behaving 'unreasonably' methodically)

Genius is 1 percent inspiration  
and 99 percent perspiration.  
(Thomas Alva Edison)

You've got to learn your instrument.  
Then, you practice, practice, practice.  
And then, when you finally get up there on  
the bandstand, forget all that and just wail.  
(Charlie Parker)

Source: Cross (2008)

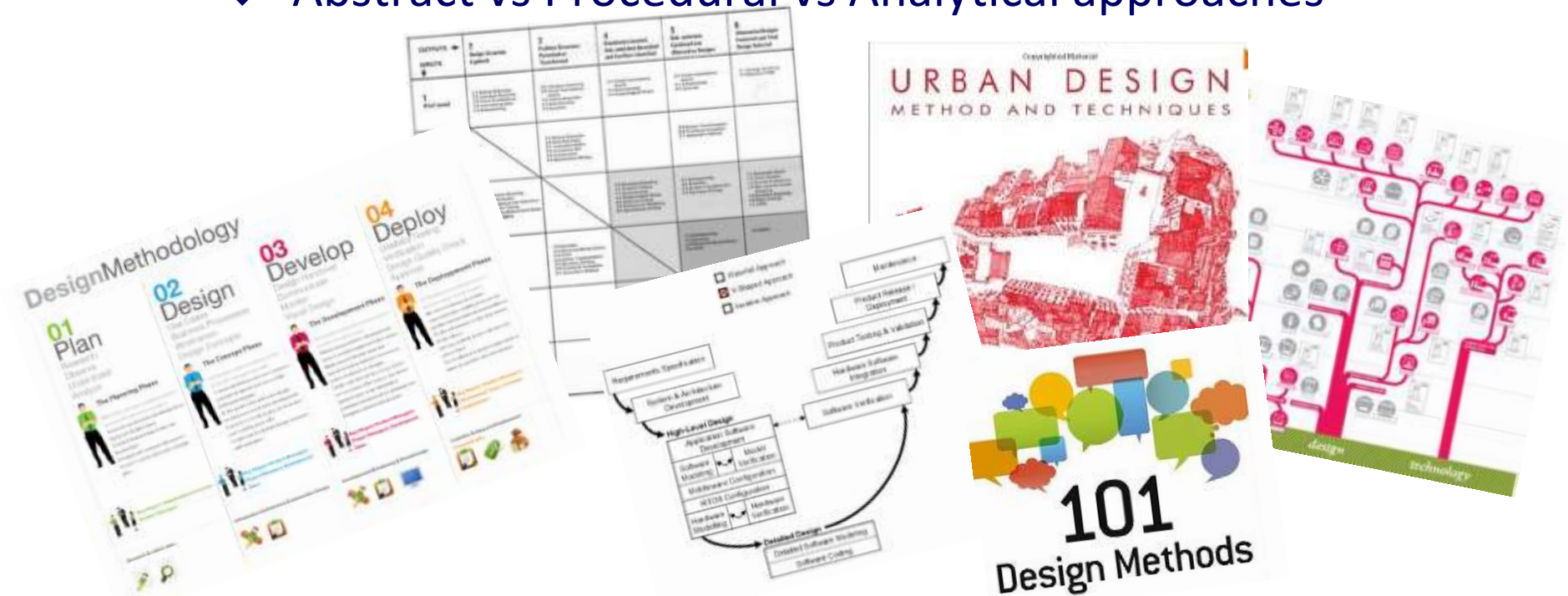


# Design Methods and Processes

## Classification schemes

(John Clarkson)

- ❖ Stage-based vs Activity-based Models
- ❖ Solution-oriented vs Problem-oriented
- ❖ Abstract vs Procedural vs Analytical approaches

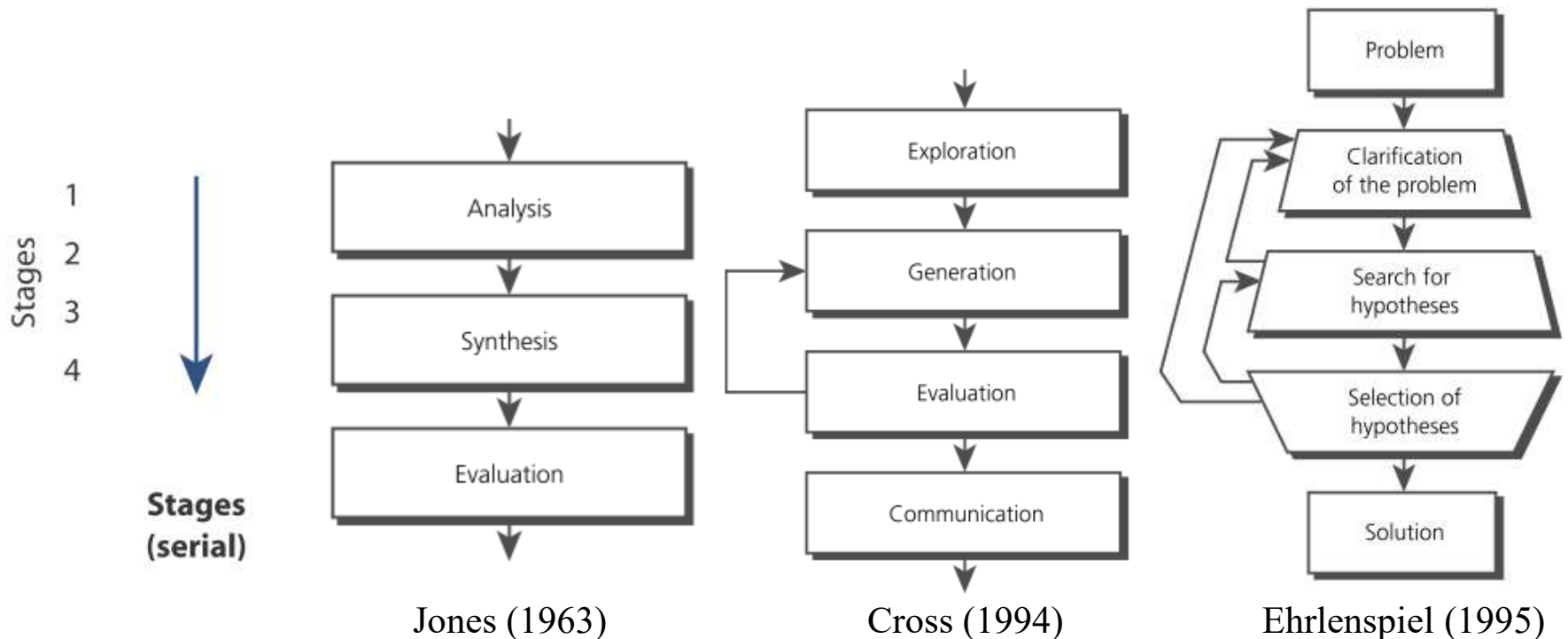


# Design Methods and Processes

## Stage-based Models

*(Blessing, 1994)*

- ❖ Stage-based structure of the project life-cycle
- ❖ Iterative problem-solving process



# Design Methods and Processes

## Main stages of Product/Service Design



**Design Task Clarification**

**Problem Framing and Idea Generation**

**Concept Formulation and Assessment**



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Thank you