



THE UNIVERSITY *of* EDINBURGH

Design Process

NLP-RR: Researching Responsible and Trustworthy Natural Language Processing

Caterina Moruzzi, cmoruzzi@ed.ac.uk



Overview

What is Design

What is a Design process

Design thinking

Examples of Design processes



THE UNIVERSITY *of* EDINBURGH

What is Design?



THE UNIVERSITY *of* EDINBURGH

What is Design?

Realisation of a concept or idea into a product that meets a set of needs.



What is Design?

Realisation of a concept or idea into a product that meets a set of needs.

Approaching a problem from multiple perspectives.

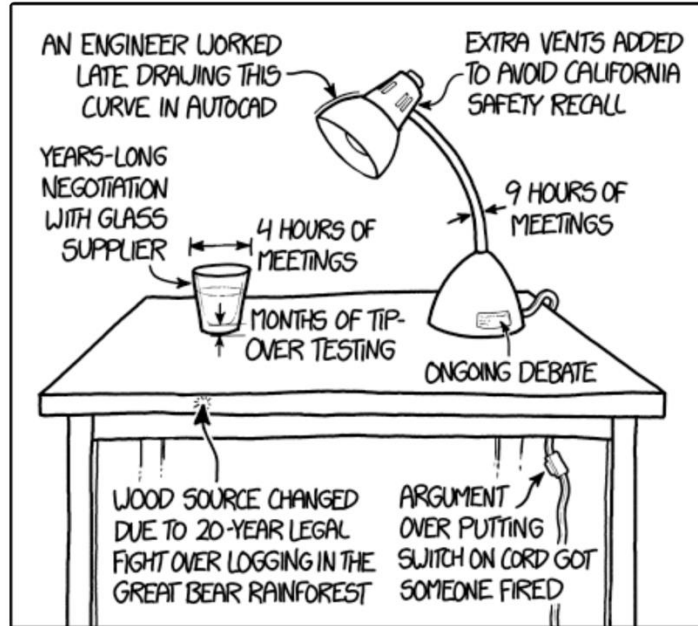
Exploiting failure.

Externalising ideas.

Seeking critique.

Justifying decisions.

- Graphic design
- Visual Communications
- Industrial Packaging
- Retail Environment
- Engineering Social
- Game Interaction
- Fashion Urban
- Car Product
- ...



SOMETIMES I GET OVERWHELMED THINKING ABOUT THE AMOUNT OF WORK THAT WENT INTO THE ORDINARY OBJECTS AROUND ME.



Prescriptive

Descriptive

Idiosyncratic

Engineering

Design

Art



Control

Chance



What is a Design process?

Process to solve complex problems, usually in a human-centred way.

Highly iterative.

Involves making and interpreting throughout.

Requires communication of ideas.

Involves consideration of bigger picture of data-driven technology.



Design Thinking

Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.

—Tim Brown

Design thinking is a way of finding human needs and creating new solutions using the tools and mindsets of design practitioners. When we use the term 'design' alone, most people ask what we think about their curtains or where we bought our glasses. But a 'design thinking approach' means more than just paying attention to aesthetics or developing physical products. Design thinking is a methodology. Using it, we can address a wide variety of personal, social, and business challenges in creative new ways.

— David and Tom Kelley



Design Thinking

What is design thinking? It means stepping back from the immediate issue and taking a broader look. It requires systems thinking: realizing that any problem is part of a larger whole, and that the solution is likely to require understanding the entire system.

— Don Norman



Design Thinking

1940s psychological studies on creativity.

1980s human-centred design.

Symposium on Research in Design Thinking, Delft University 1991.

IDEO design consultancy, one of the first design companies to showcase their design process.



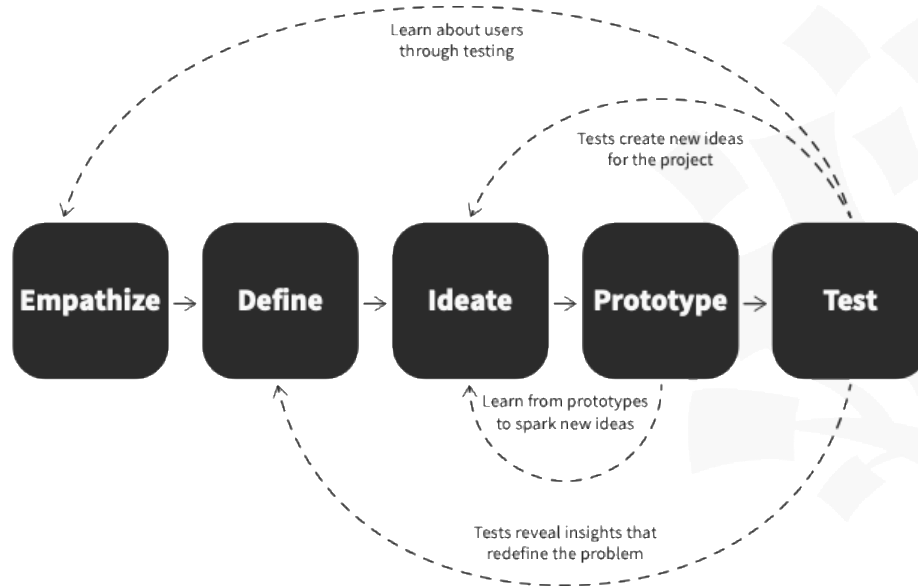
Design Thinking

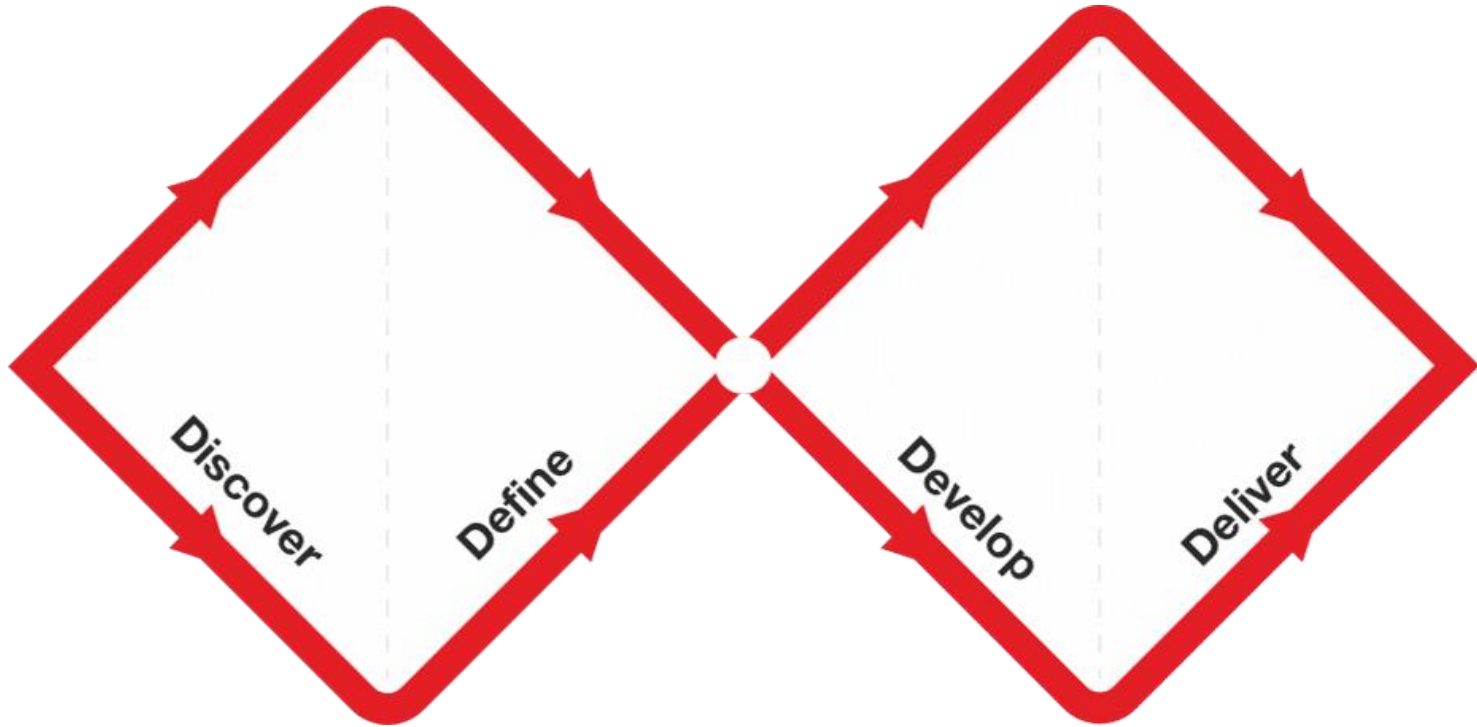
Deal with different types of design problems.

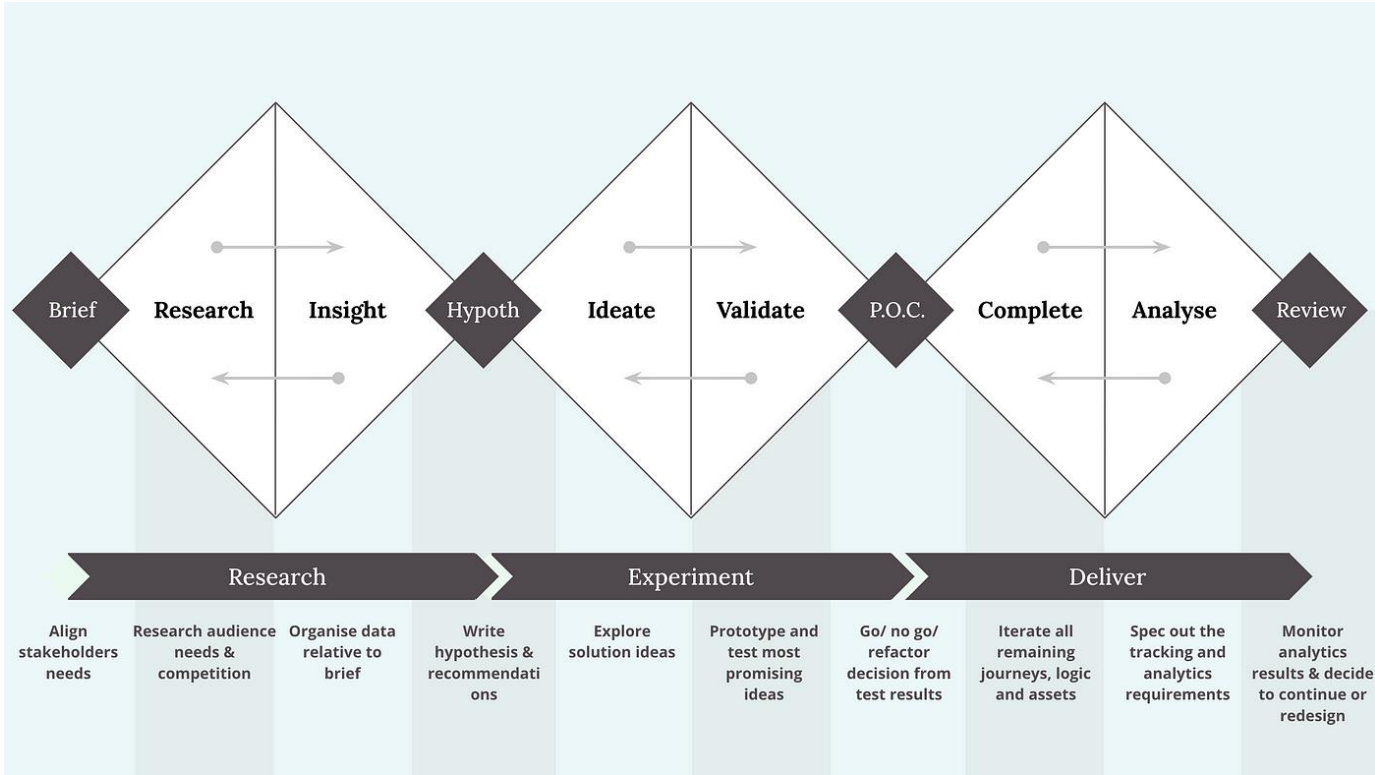
Use of abductive reasoning.

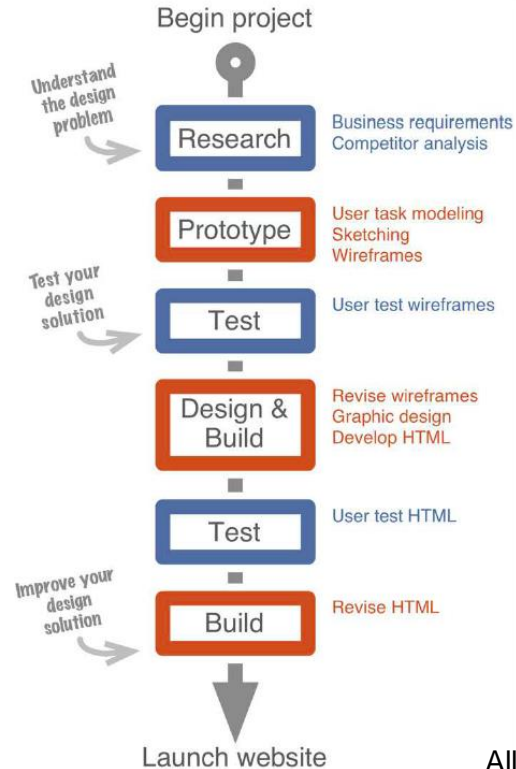
Use of non-verbal media, e.g. sketching and prototyping.

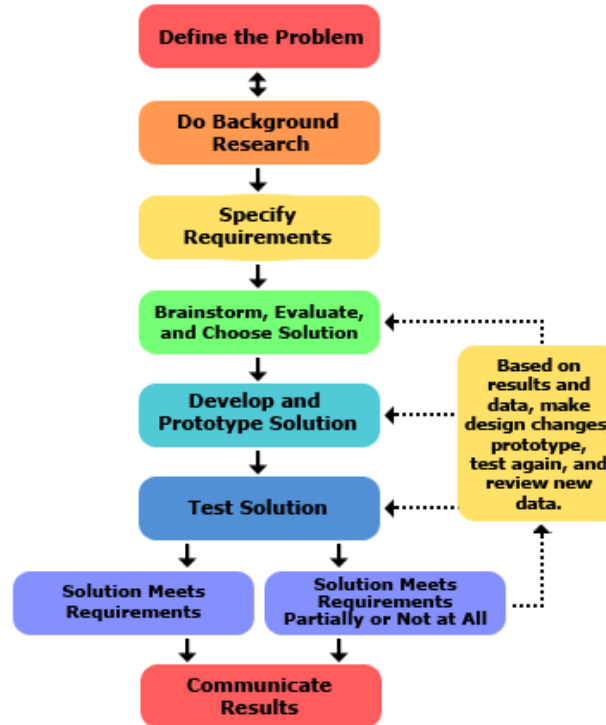
Design Thinking: A Non-Linear Process



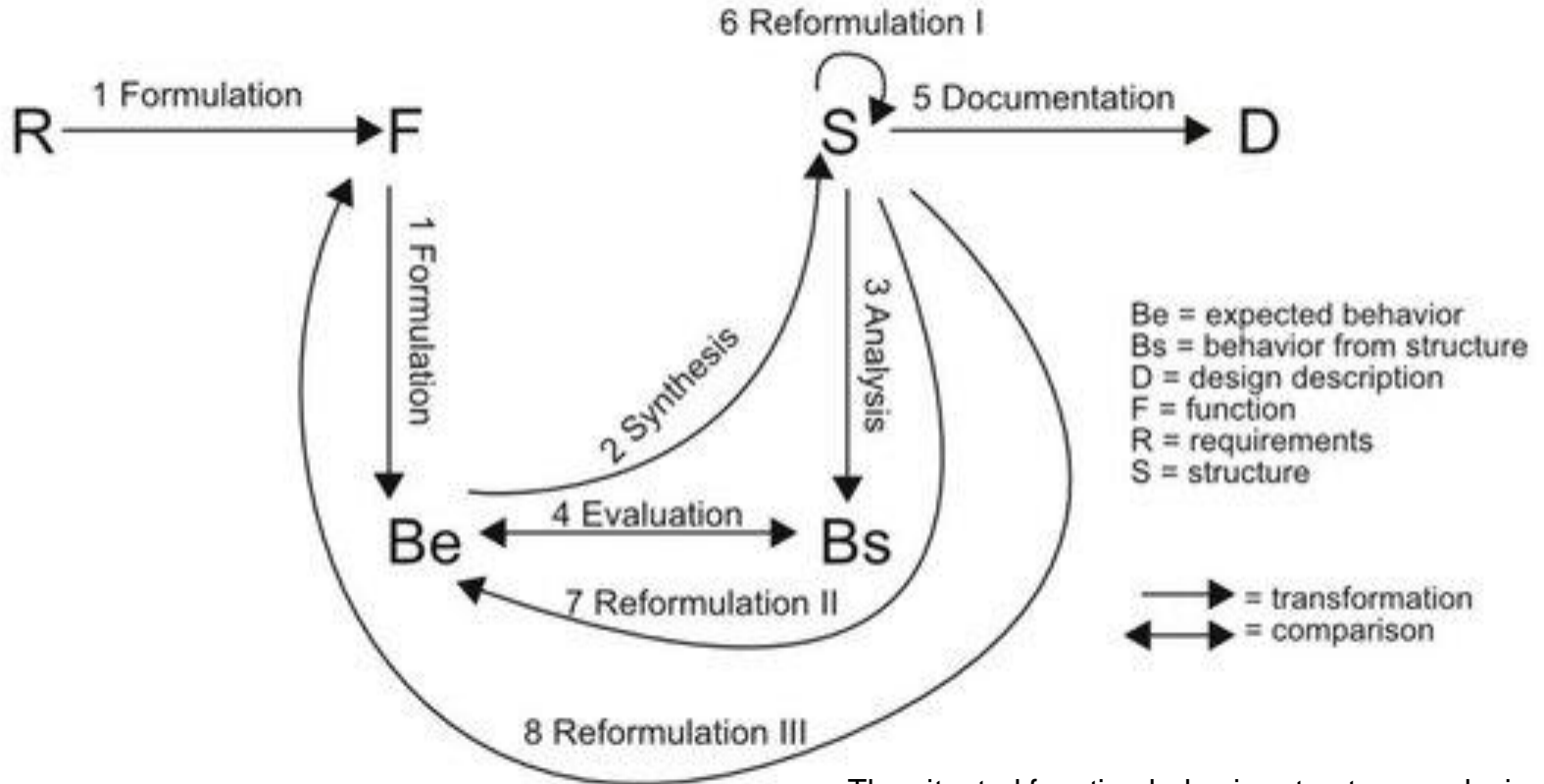








Engineering design process,
retrieved from
www.sciencebuddies.org/science-fair-projects/engineering-design-process/engineering-design-process-steps



The situated function-behavior-structure co-design model
Gero and Milovanovic (2021)



THE UNIVERSITY *of* EDINBURGH

Activity

Go to the Miro board: <https://edin.ac/3zUS2Dp>



Resources

- Allen and Chudley. 2012. Smashing UX Design. Wiley, London.
- Brown, T. (2008). Design thinking. Harvard business review, 86(6), 84.
- Brown, T. and B. Katz. "Change by design." Journal of product innovation management 28.3 (2011): 381-383.
- Buchanan, R. (1992). Wicked problems in design thinking. Design issues, 8(2), 5-21.
- Cross, N. (1982). Designerly ways of knowing. Design studies, 3(4), 221-227
- Gero, J., & Milovanovic, J. (2021). The situated function-behavior-structure co-design model. CoDesign, 17(2), 211-236.
- Kelley, T. (2001). Prototyping is the shorthand of innovation. Design Management Journal (Former Series), 12(3), 35-42.
- Leonard, D., & Rayport, J. F. (1997). Spark innovation through empathic design. Harvard business review, 75, 102-115.
- Norman, D.A. (1988) The Psychology of Everyday Things. Basic Books.
- Norman, D. A. (2007a) Emotional Design. Basic Books.
- Norman, D. A. (2007b) The Design of Future Things. Basic Books.
- Norman, D. A. (2013) The Design of Everyday Things. Basic Books.
- Saffer. 2009. Designing for Interaction. New Riders, New York.