

More Design Thinking

Antonio Rizzo, Alessandro Rossi, Martino Lorusso, Giovanni Burresti
Interaction Design Lab - Università di Siena

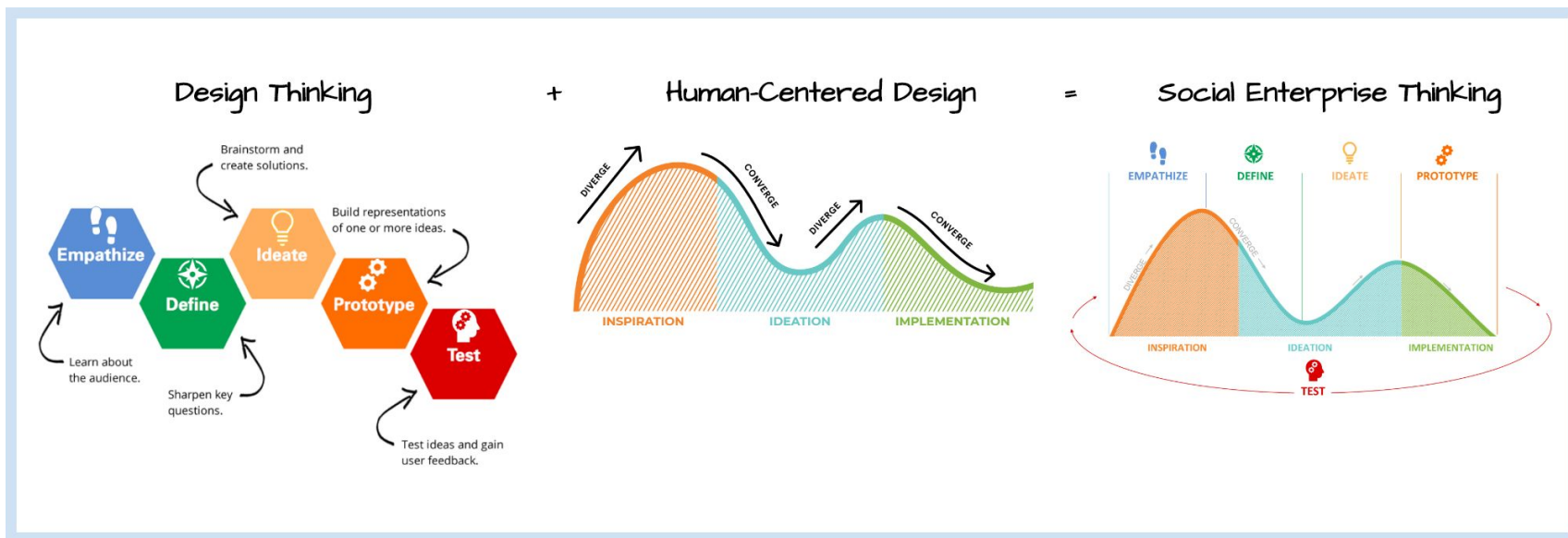
What theories and design methodologies should be used for creating AI systems that best empower people?



Paradigm change

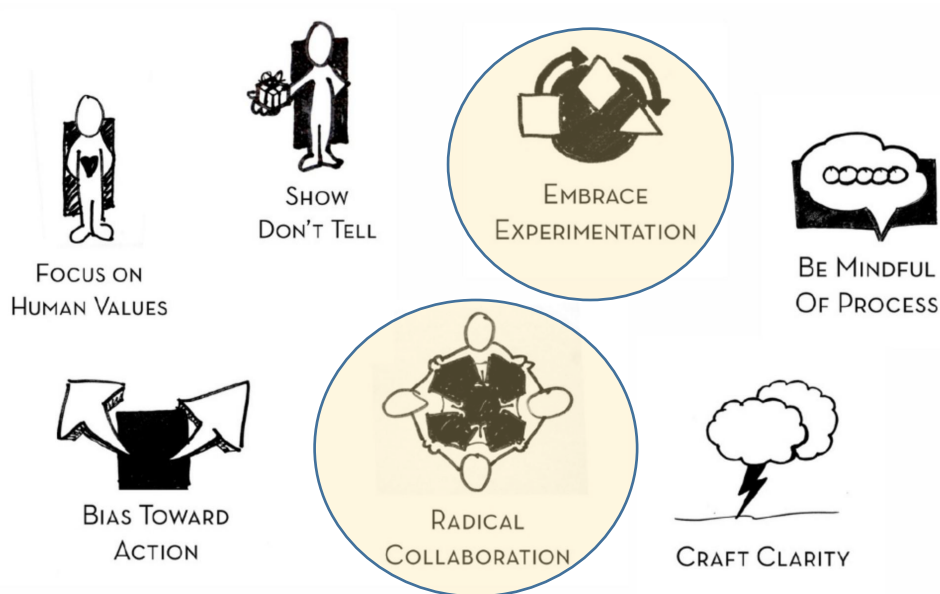
ML, Design Thinking and Human-Centered Design

1) Machine Learning does not question the core pillars of Design Thinking and Human-Centered Design. Which are: A) People Centered Design - *Empathize*. B) Creative approach to design challenges - *Define and Ideate*. C) Experimentation and iteration - *Prototyping*.



Design Thinking Mindsets

- Machine Learning has a big impact on most of the Mindsets of Design Thinking, two in particular: Embracing Experimentation and Radical Collaboration.



Design together the ML solution and the Human activity

Following the seminal work of Licklider (human-computer symbiosis) and Engelbart (Augmenting the Human Intellect) and avoiding the Ironies of Bainbridge

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Brief Paper

Ironies of Automation*

LISANNE BAINBRIDGE†

Key Words—Control engineering computer applications; man-machine systems; on-line operation; process control; system failure and recovery.

Abstract—This paper discusses the ways in which automation of industrial processes may expand rather than eliminate problems with the human operator. Some comments will be made on methods of alleviating these problems within the 'classic' approach of leaving the operator with responsibility for abnormal conditions, and on the potential for continued use of the human operator for on-line decision-making within human-computer collaboration.

Irony: combination of circumstances, the result of which is the direct opposite of what might be expected.

Paradox: seemingly absurd though perhaps really well-founded statement.

designer errors can be a major source of operating problems. Unfortunately people who have collected data on this are reluctant to publish them, as the actual figures are difficult to interpret. (Some types of error may be reported more readily than others, and there may be disagreement about their origin.) The second irony is that the designer who tries to eliminate the operator still leaves the operator to do the tasks which the designer cannot think how to automate. It is this approach which causes the problems to be discussed here, as it means that the operator can be left with an arbitrary collection of tasks, and little thought may have been given to providing support for them.

1.1. *Tasks after automation*. There are two general categories



Lisanne
Bainbridge

Doug
Engelbart