ANALOGUE METHOD DEVELOPMENT IN A DIGITAL AGE

Design method to translate analysis to early concept designs

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Concept for future submarine Combat Information Central

WOW!

Oh...

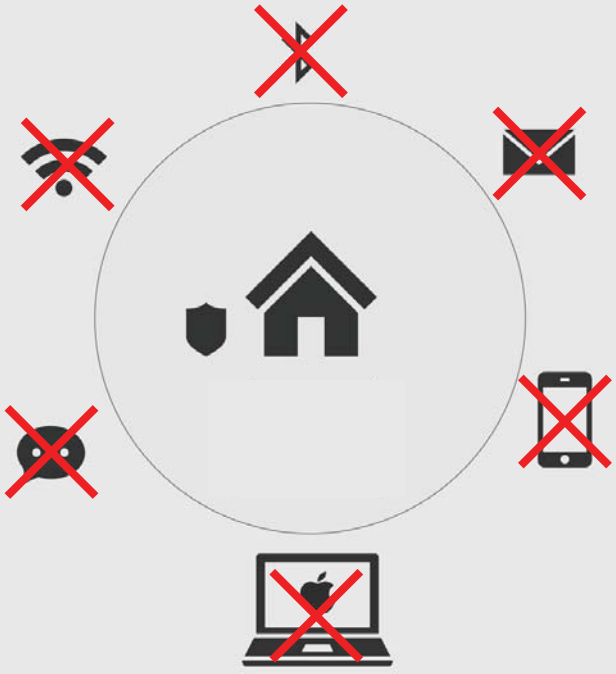
As a designer to say it just feels right, does not hold in the safety-critical industry.

(Lurås, 2015)

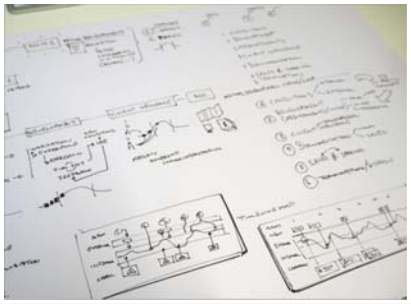
Industrial PhD focus

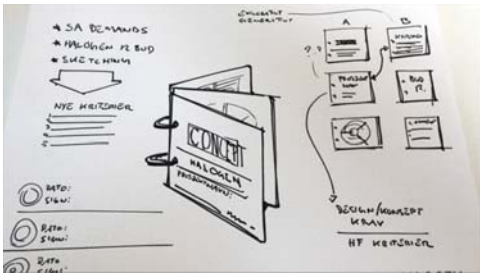
Develop an Situation Awareness informed method
to support the translation of analysis to early concept designs.

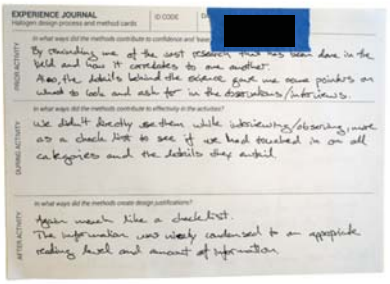
REAL-WORLD SETTING: SECURITY MEASURES & RESTRICTIONS

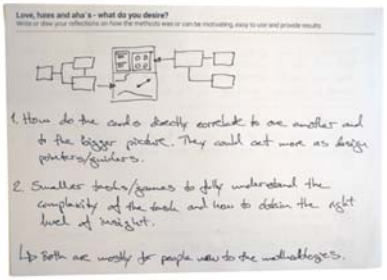


ANALOGUE DATA COLLECTION AND ANALYSIS



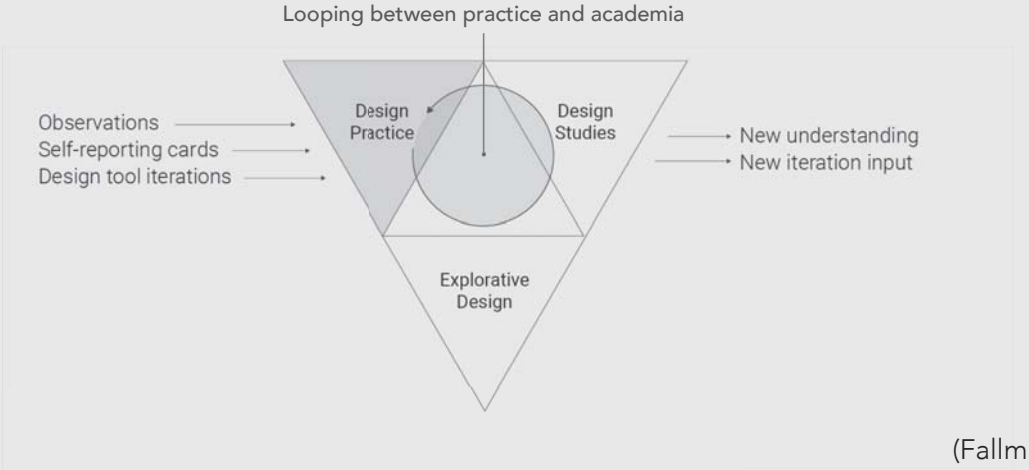






INTERACTION DESIGN RESEARCH TRIANGLE:
PROTOTYPING AND ANALYSIS TOOL

1. Adaptable to a given situation (Dalsgaard, 2014; Peirce, 1974)
2. Ability to seek and achieve insights for design arguments (Jones, 1970; Schön, 1983)
3. Provide an adequate foundation for design judgment (Cross, 2006; Nelson & Stolterman, 2012)



(Fallman, 2008)

PAPER PROTOTYPE 1

SPRING 2016

AIM: QUICK AND DIRTY FLASH CARD

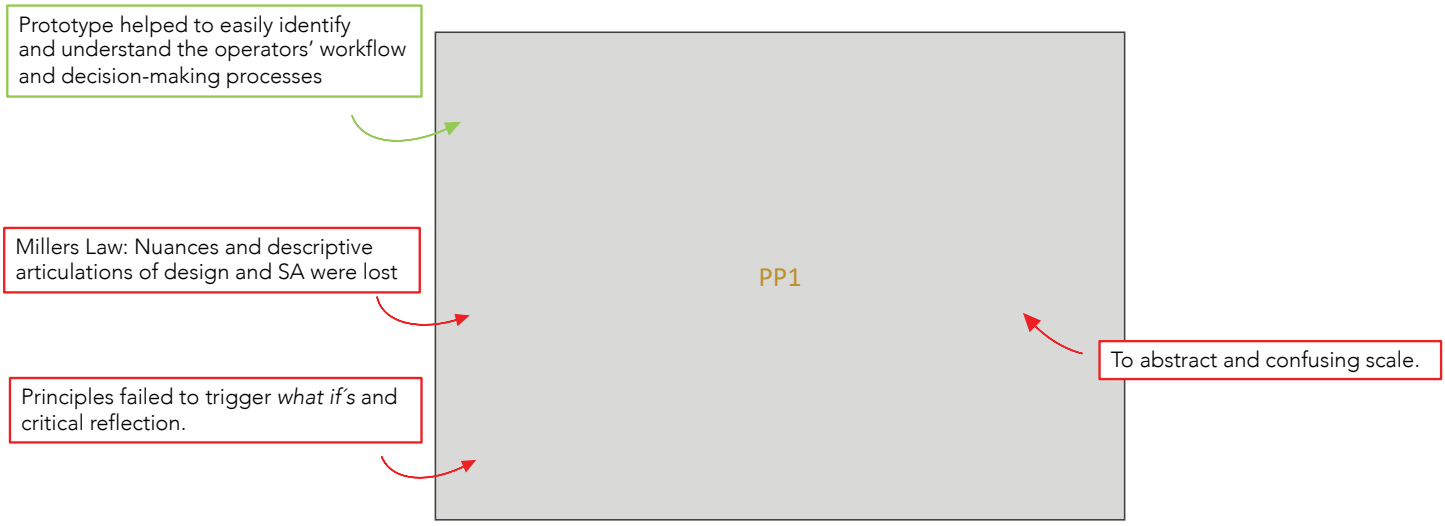
TESTS: SUPPORT INTERVIEWS, OBSERVATIONS AND ANALYSIS

FIELD TESTS

TESTS: TRANSLATING ANALYSIS IN A DESIGNERLY WAY

EARLY CONCEPT DESIGNS

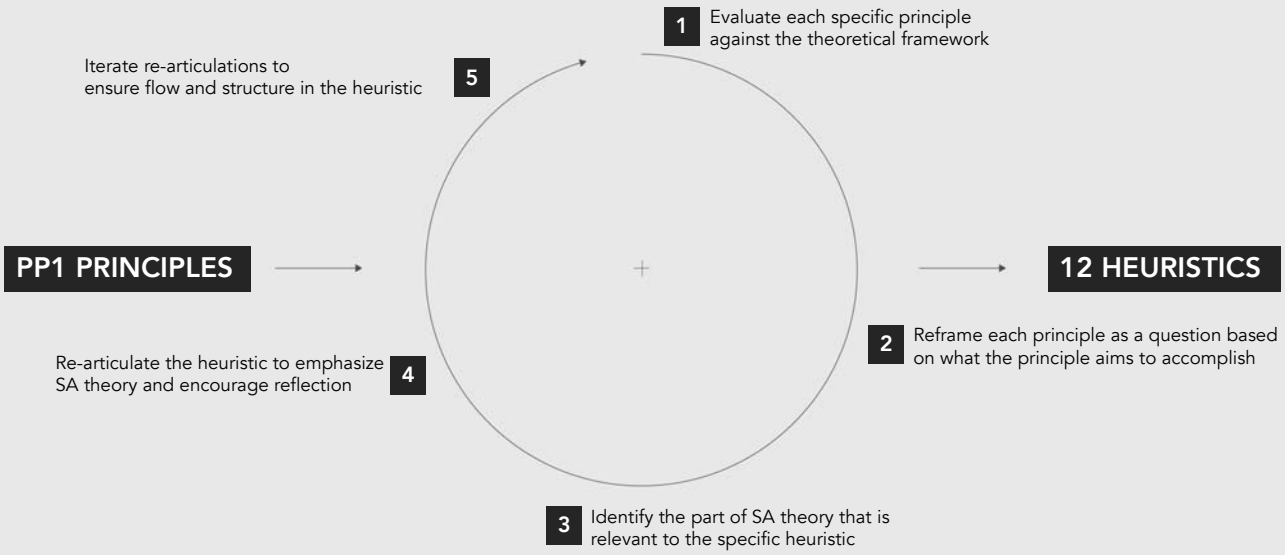
RESULTS: OK, BUT TO SIMPLE AND RIGID



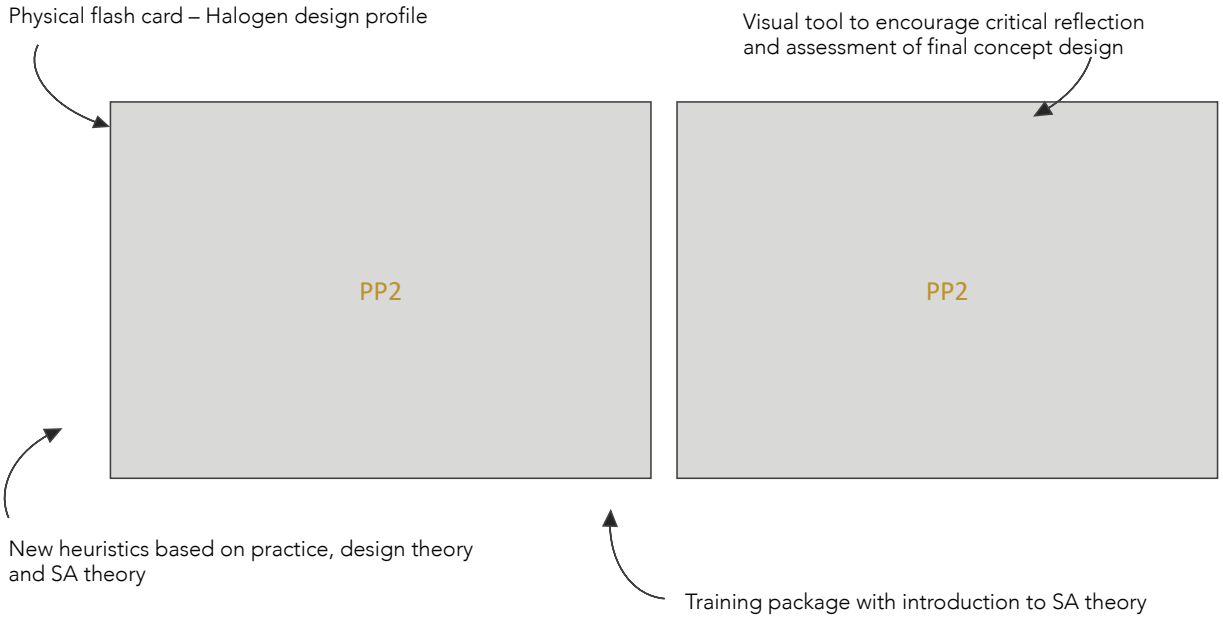
PAPER PROTOTYPE 2

FALL 2016 – SPRING 2017

PP2: RE-ARTICULATING PRINCIPLES TO DESIGN HEURISTICS



AIM: ENCOURAGE CRITICAL REFLECTION AND ARGUMENTATION



TESTS: LOOPING AND SMALL ITERATIONS

FIELD TESTS

Observations and use in context

Generated new understandings and prototype iterations

TESTS: DEVELOP DESIGN CONCEPTS AND VOCABULARY

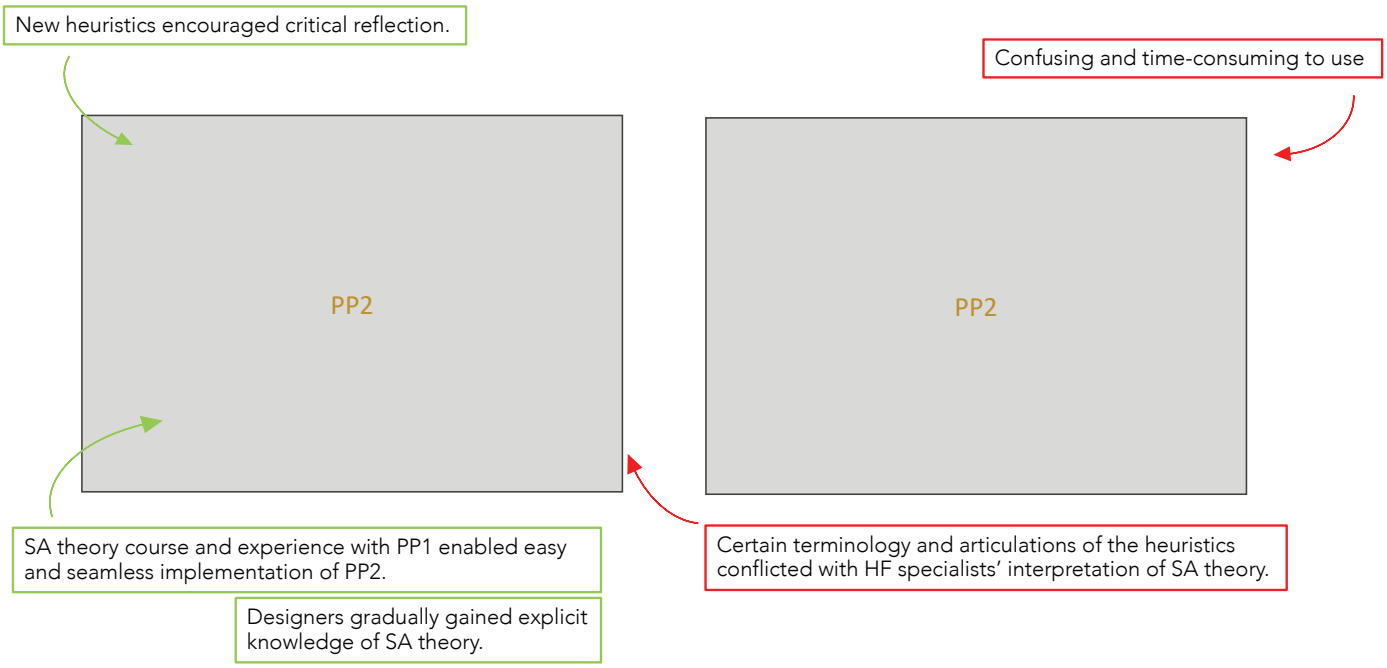
PP2

EARLY CONCEPT DESIGNS

EARLY CONCEPT DESIGNS

Test on small prototype iterations

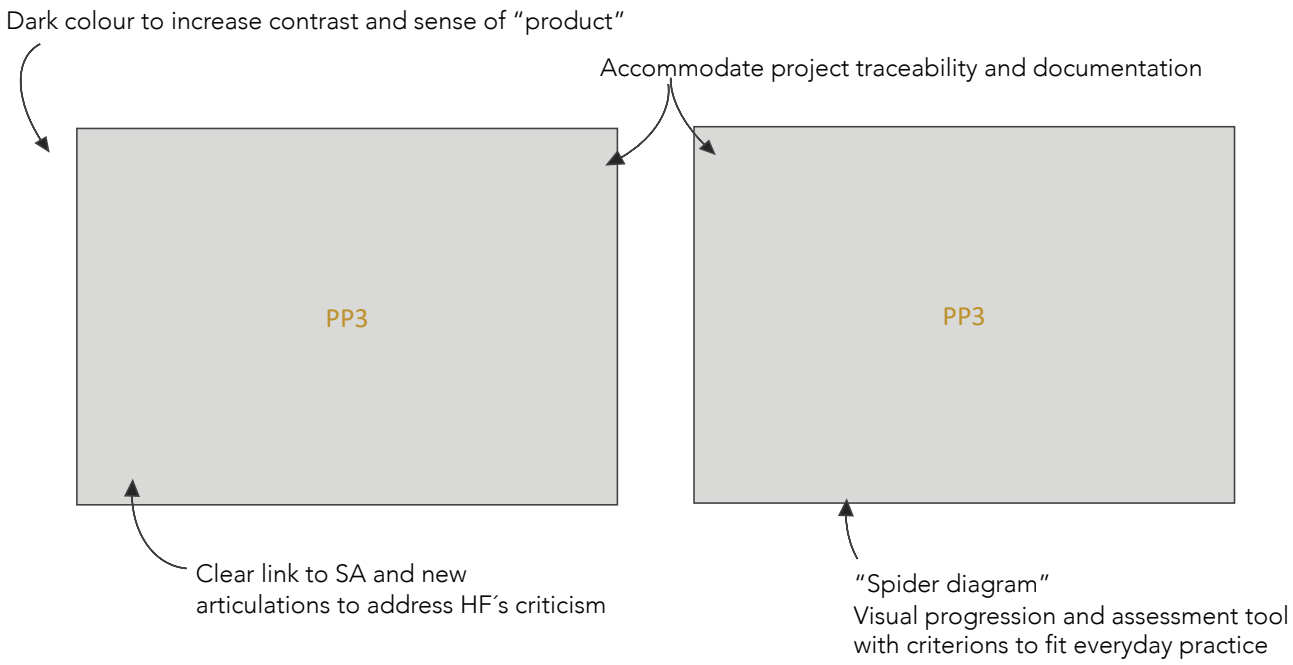
RESULTS: ACCEPTED AS A METHOD, BUT LACKS PRECISION



PAPER PROTOTYPE 3

SPRING 2017 – FALL 2017

AIM: IMPLEMENT AS AN OPERATIVE METHOD

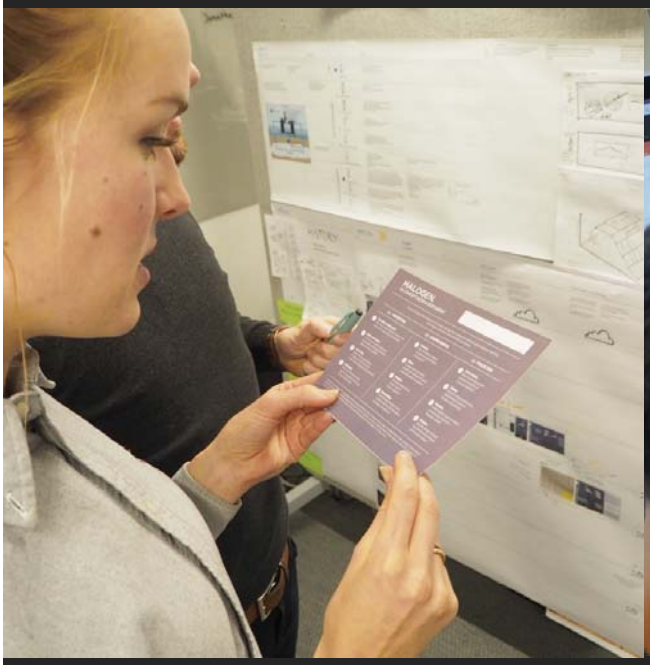


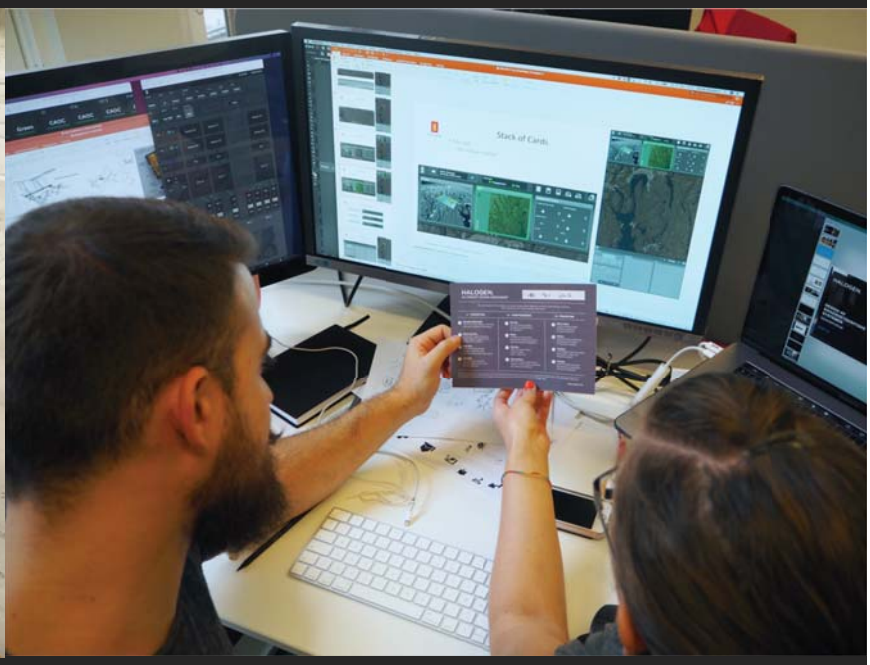
TESTS: DESIGN ARGUMENTATION AND JUDGMENT

EARLY CONCEPT DESIGNS

EARLY CONCEPT DESIGNS

TESTS: OTHER PROJECTS AND DESIGNERS





RESULTS: APPLIED AS A RELEVANT METHOD TO PRACTICE

Designers apply the method to build argumentation and validation of a concept design.

Spider diagram creates confidence and awareness of a design concepts strengths and weaknesses

PP3

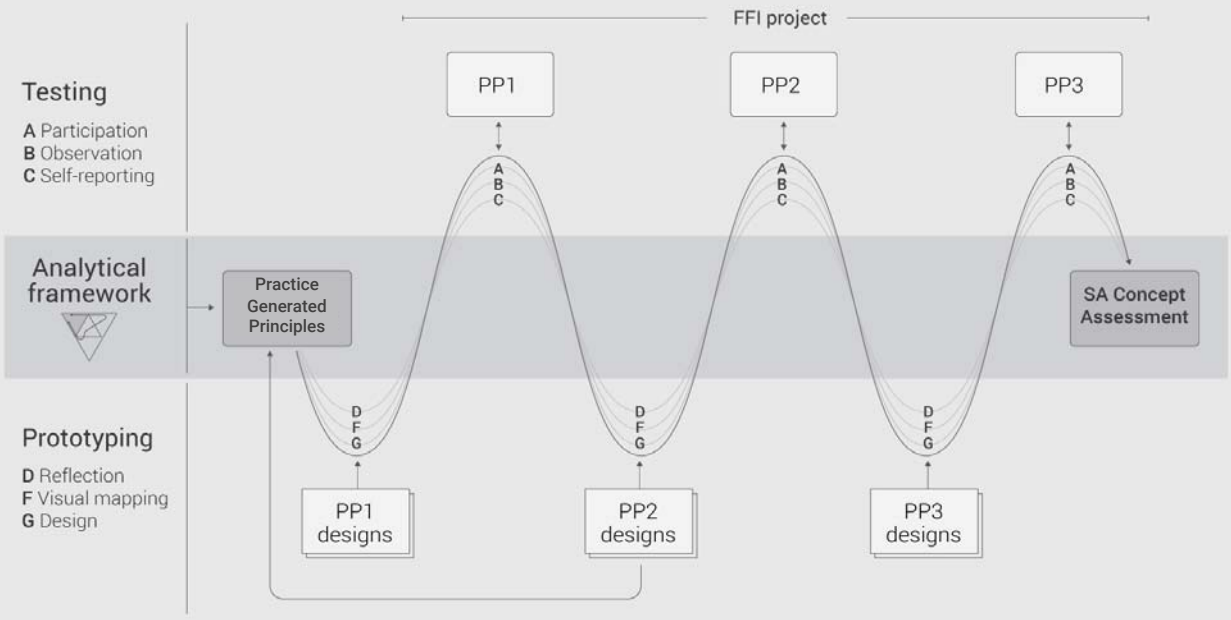
PP3

Working alone over long period of time and high workloads triggered biased behavior towards the designers. Identified through observations and looping in the Fallman triangle

Proprietary method – limitations to dissemination and access

MAIN TAKE AWAYS

ANALOGUE PROCESS: ITERATIVE AND USER-CENTRED DEVELOPMENT



ANALOGUE PROCESS: ITERATIVE AND USER-CENTRED DEVELOPMENT

1. Inexpensive and analogue design tools demonstrated an effective and low-barrier approach for implementing a method in a real-world setting.
2. An iterative and user-centric approach gradually trained the practitioners in use of the design method.
3. Through this training process, unfamiliar theory was introduced and iteratively learned through practical application.
4. Looping in the Fallman Triangle supported the development process to build rigor and relevance to the final method.

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