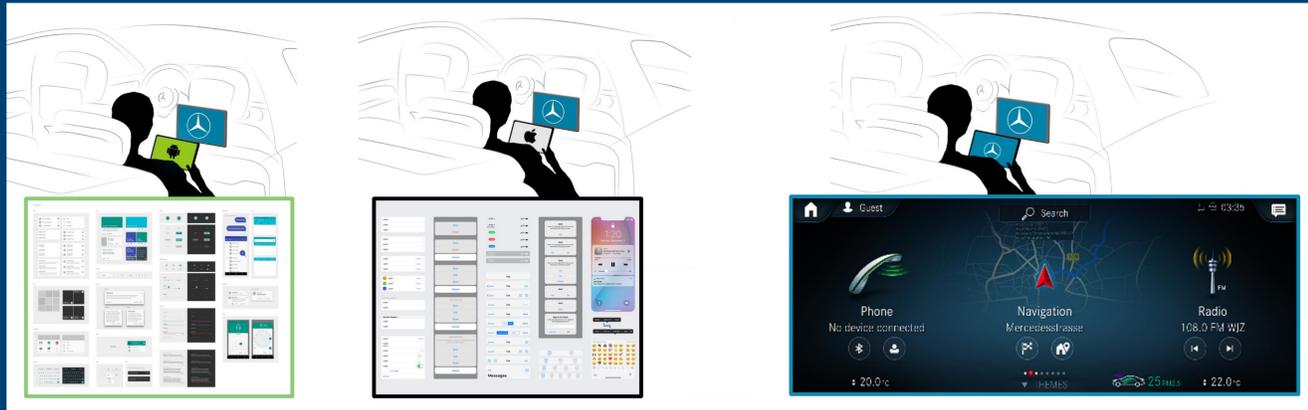


Design Decisions in Multi-Device Cross-Platform Environments



What should touch-based **user interface design** for an application be like when

- a **variety of devices from different vendors (multi-device)**
- **cooperate or used separately** but **synchronized** over all involved operating system (**cross-platform**)?



Multi-device cross-platform user interfaces can be **as consistent (1) as possible**, as **adapted to the device platform (2)** as possible, incorporating their specific human machine interaction patterns or can be in a **balance between adaption and consistency (3)**. **Which approach is** most appropriate for the User Experience (UX) in this context?

Degree of consistency

(1) Multi-Device Cross-Platform User Experience

Degree of platform adaption

Degree of consistency

(2) Multi-Device Cross-Platform User Experience

Degree of platform adaption

Degree of consistency

(3) Multi-Device Cross-Platform User Experience

Degree of platform adaption



Step 1: Interviews

(presented study & foundation for further studies)

Participants n = 11 (m = 6, f = 5) | Selection Criteria = work experience in the field of user interface development | Duration = 1 hour | Preparation: literature review and creation of structured guideline for the interviews | Evaluation: audio record and protocol

How are multi-device cross-platform user interfaces designed today in the context of cars?

Problems

- Except for use cases, **no valid guidance** (including studies, methods and tools) for design decisions
- **No valid knowledge** if adaption or consistency are most important for optimal m.-d. c.-p. User Experience
- **No time and capacity** within daily business to **address specific challenges**

Assessments

- **Habits, daily practiced patterns** and **established paradigms** were named as possible reasons for a platform specific **adaption** (referring to expectation and platform experience of users)
- **Acknowledgement** between devices, fast **orientation** and **product-specific** experience were named as reasons for **consistent** user interfaces among involved devices
- Advantages of both approaches could not be applied and are not trivial
- A **balance** between **adaption** and **consistency** is **preferred** – even not knowing how to achieve it

Estimations

- As possible candidates for adaption experts expect **application architecture** (information architecture and navigation concepts) and **interaction elements** (buttons, sliders) – as well as a combination of both
- As possible candidates for consistency experts expect **graphical design** (font, forms and colors)
- No knowledge how to achieve concrete balance and generate a **holistic product experience**
- Today's design decisions are made by designers and their work experience or they are made by stakeholder requirements

Step 2

Benchmark Analysis
Analysis of Human Interface
Guidelines and Patterns



Step 3

Low fidelity Testing of meaningful user interface adaption for specific parts (Architecture, Interaction elements or Layout) according to users



Step 4

Testing of high fidelity prototypes of a multi-device cross platform application



Multi-device cross platform guideline for touch-based user interface.

Stable knowledge about what parts of an user interface need to be consistent across all device and which adaption to the device specific platform and patterns should be made for an optimal User Experience

Authors

- Maximilian Kautetzky | University of Regensburg | Daimler AG
- Dr. Tobias Schwarz | Daimler AG
- Prof. Christian Wolff | University of Regensburg

