A Context Taxonomy Supporting Public System Design

Pisa, June 13th, 2011

DRESDEN
concept
Exzellenz aus
Wissenschaft
und Kultur

Outline

- Motivation
- Structure of the Taxonomy
- Context Taxonomy
- Usage of Context

Motivation

- Public systems use different services, devices and data
- Ubiquitous technologies can integrate them and be used by all people
→ Different types of usage which are affected by context

- Context is important but hard to grasp
- To model systems related to context is difficult

→ A Context Taxonomy can be used to solve the problem of „how to model ubiquitous context-sensitive systems" (combined with e.g. Interaction Cases)

Structure of the Taxonomy

Context:

- information that characterizes situations or circumstances of an entity (person, place, object) (Dey & Abowd, 2000)
- can be a combination of different context criteria/types/specifications

Context criteria:

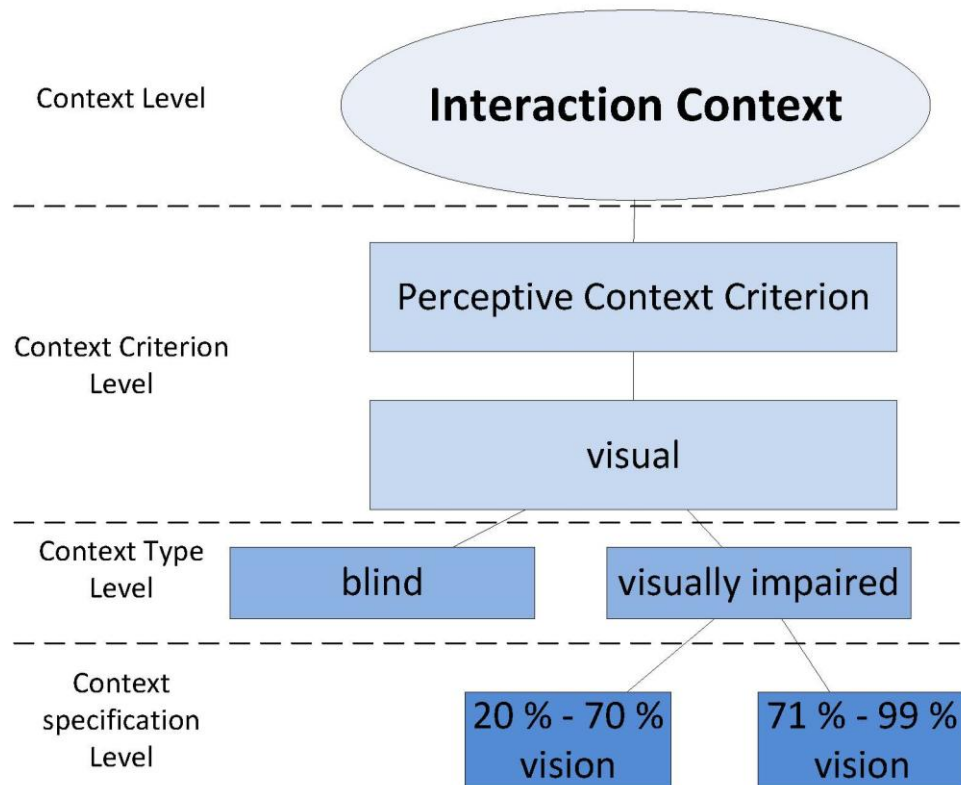- different hierarchically organized categories of context on an abstract level

Context type:

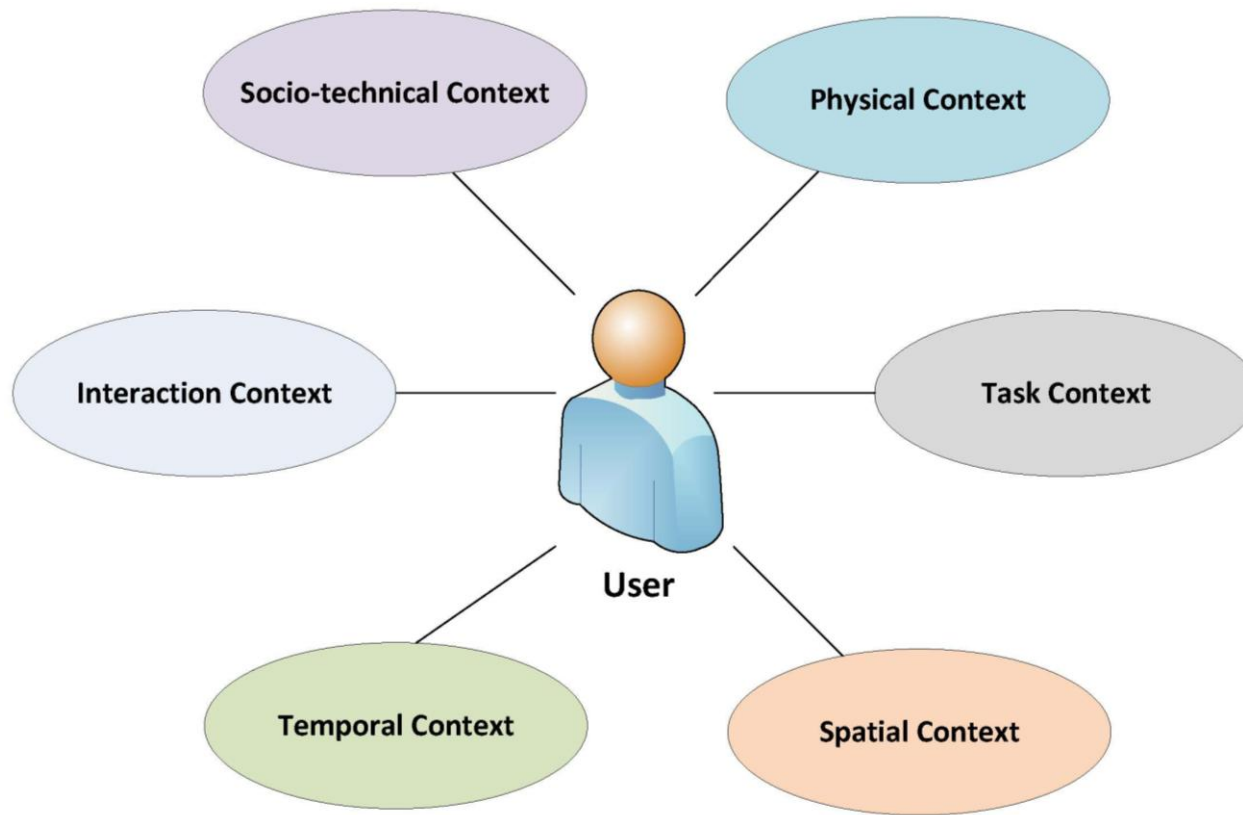- sub-category of context criterion (from abstract criteria to more specific type)

Context specification:

- context types directly defined by values or value ranges

Example of a context hierarchy

Context Taxonomy - Overview

Context Taxonomy – Interaction Context

→ different types of devices/systems, different possibilities to interact

System's interaction context
- Input Context Criterion
- Processing Context Criterion
- Output Context Criterion

User's interaction context
- Perceptive Context Criterion
- Cognitive Context Criterion
- Acting Context Criterion

Context Taxonomy – Socio-technical Context

User-centered socio-technical context:
- Sociological Context Criterion
- Organizational Context Criterion

System's socio-technical context:
- Operational Context Criterion
- Technical Context Criterion

Context Taxonomy – Other Context

Physical context
- Temperature, humidity, ambient noise level etc.

Task context
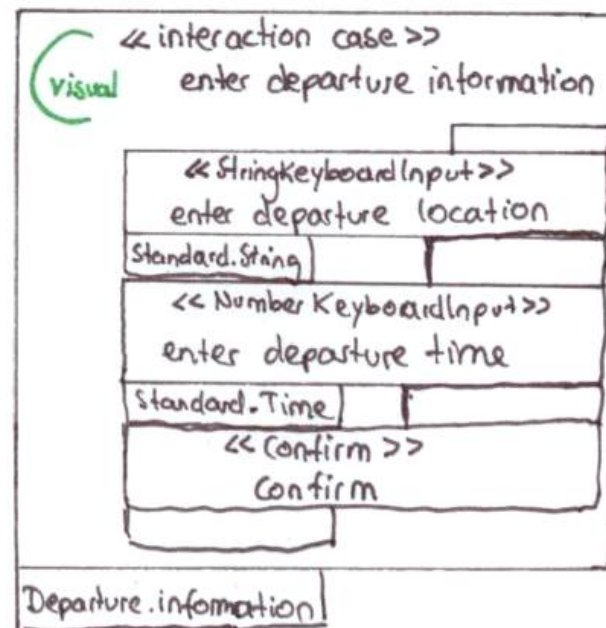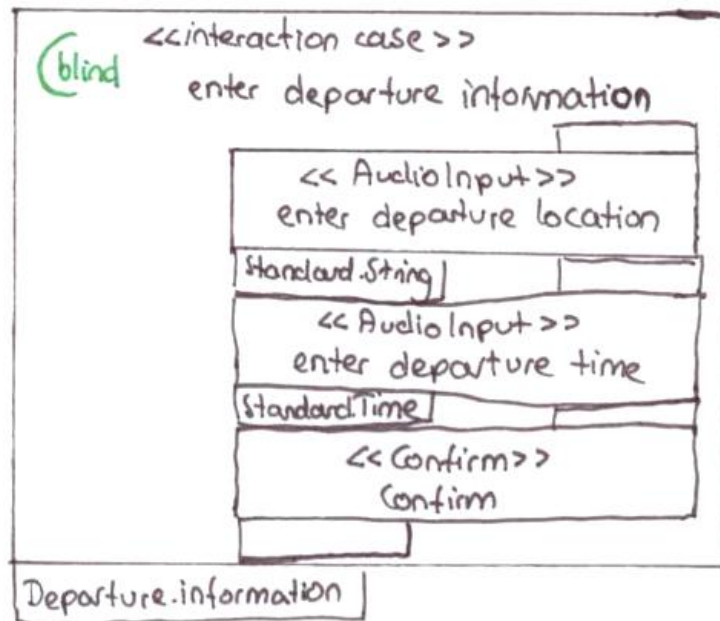- Depending on the task the user wants to fulfill

Spatial context
- location-based
- Describes movements or special locations

Temporal context
- Absolute and relative time affect e.g. presentation (Schlegel & Keller, 2011)

Usage of Context

»Wissen schafft Brücken.«

References

Dey, A. K. and Abowd, G.D. *Towards a better understanding of context and context-awareness.* In: Computer Human Interaction 2000 Workshop on the What, Who, Where, When, Why and How of Context-Awareness (2000).

Schlegel, T. and Keller, C. *Model-based ubiquitous interaction concepts and contexts in public systems.* (2011, accepted).