PHILIPS
sense and simplicity

Human Interface Group
GIVING TECHNOLOGY A HUMAN FACE

VTT

Inter-usability and intelligent communication:

Usability aspects in a multi-device personal attentive system

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  - What is inter-usability?
  - Use case: Personal Attentive System
- Our 2 challenges
  - Inter-usability
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What is inter-usability?

- Ambient Intelligent systems often consist of multiple, interconnected devices. Therefore, in designing the user interaction of such systems, one should ensure a **seamless user experience across devices** (inter-usability).

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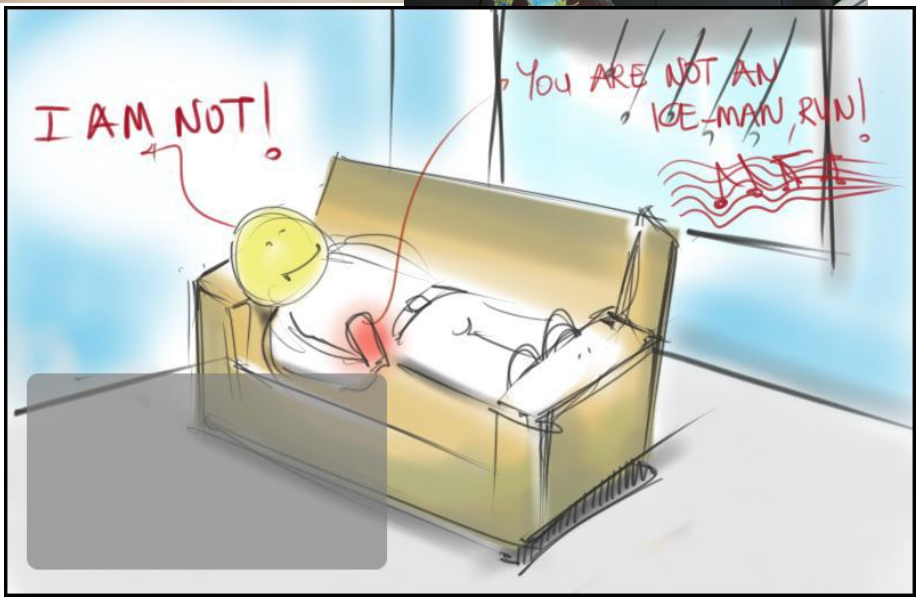
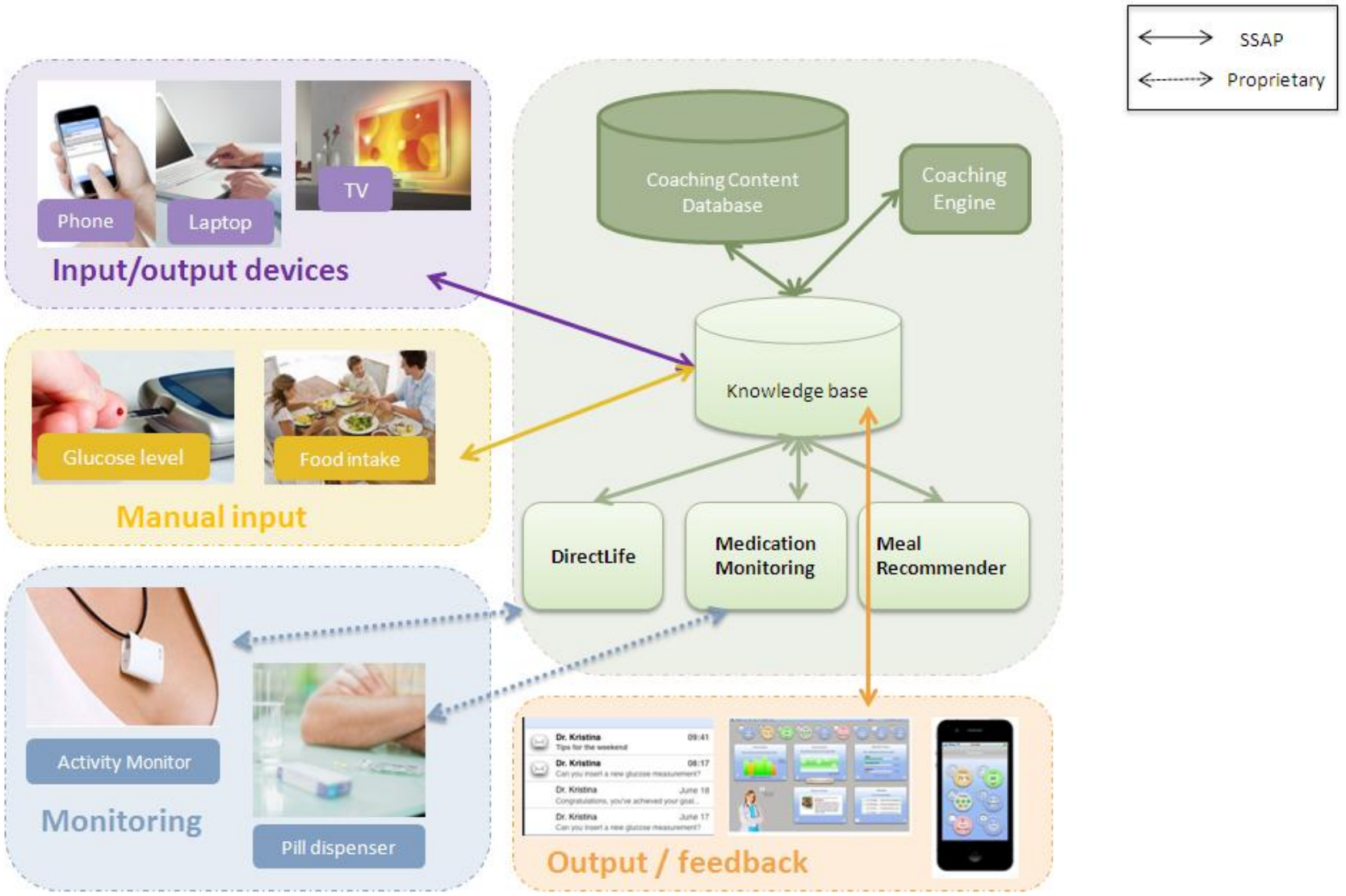
Use case: Personal Attentive System



Use case: Personal Attentive System



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Our 2 challenges

Properties, concepts & elements important for a successful AmII

- **Inter-usability**

- **Intelligent communication**

Our 2 challenges

Properties, concepts & elements important for a successful AmII

- **Inter-usability:**
  Designing the **interaction with multiple devices** in such a way that the user experiences the system as a **coherent whole** and full use is made of the **capabilities of each device**.
- **Intelligent communication**

Our 2 challenges

Properties, concepts & elements important for a successful AmI

- **Inter-usability:**
  Designing the **interaction with multiple devices** in such a way that the user experiences the system as a **coherent whole** and full use is made of the **capabilities of each device**.
- **Intelligent communication:**
  The user interaction does not only entail usage of the system's devices in a reactive sense, but also **proactive communication** of the system with the user via multiple devices. Moreover, this communication deals with a sensitive subject; the system provides feedback on the user's unhealthy lifestyle. This communication needs to have the **right content**, it needs to be delivered on the **right device**, in the right **modality** and at the **right time**

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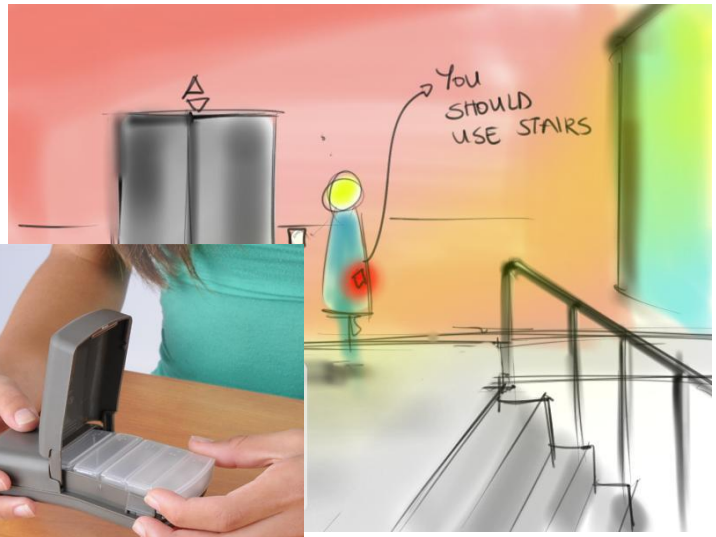
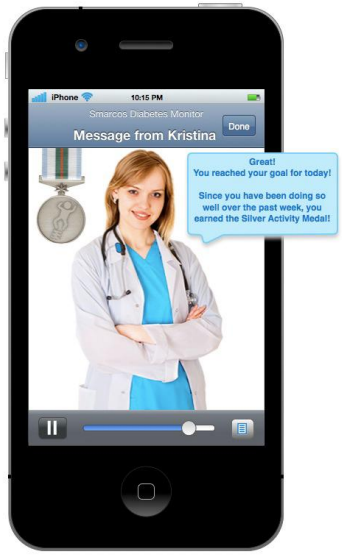
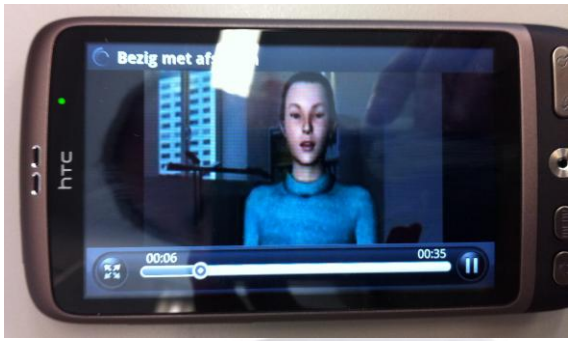
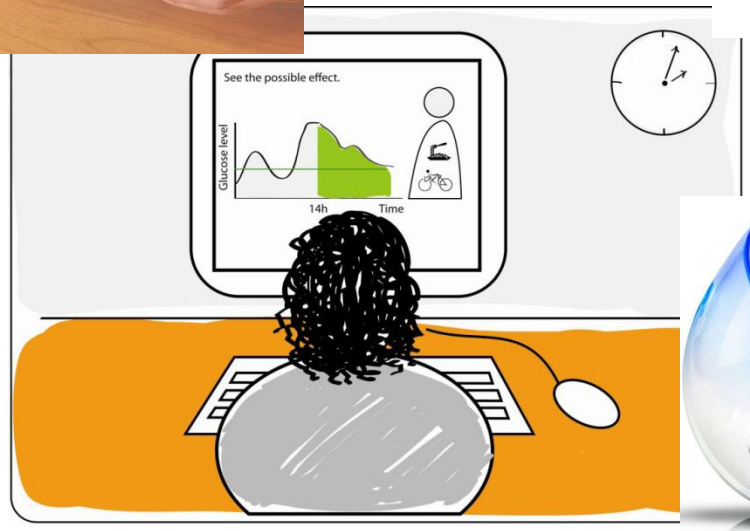
Inter-usability

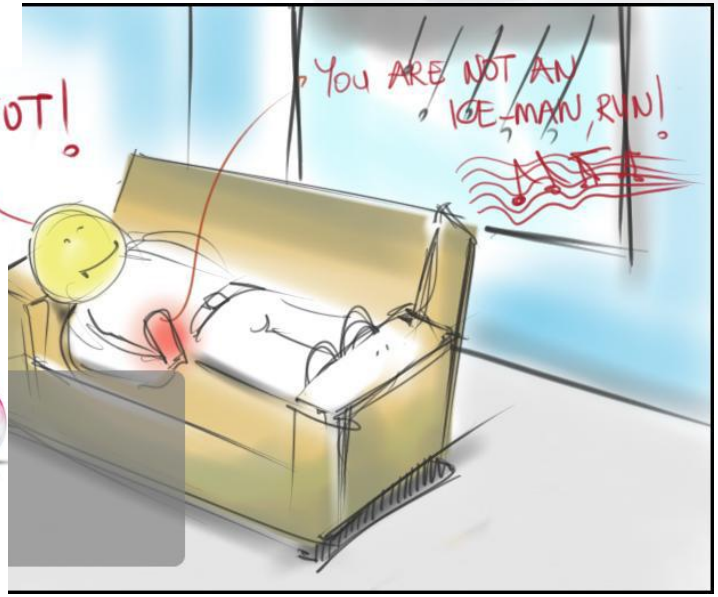
Contributions to the field











Inter-usability

'Guidelines'

Contributions to the field

It should be clear to the user

- What the **capabilities** of each device are and what functionalities are available on each device
- What **data** is available on each device
- What the **role** is of each device in the overarching system
- Whether there is **functional modularity** in the system: is there a subset of devices that can still provide some limited service when specific devices are unavailable, and if so, what is this subset and what can it do?
- What the behavior of the system will be: how **predictable** is the behavior of the system on a certain device, is it comparable to other services on the same device, or to similar services on another device?

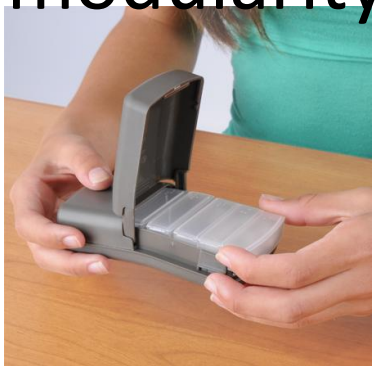
Inter-usability

Contributions to the field

Metrics for inter-usability

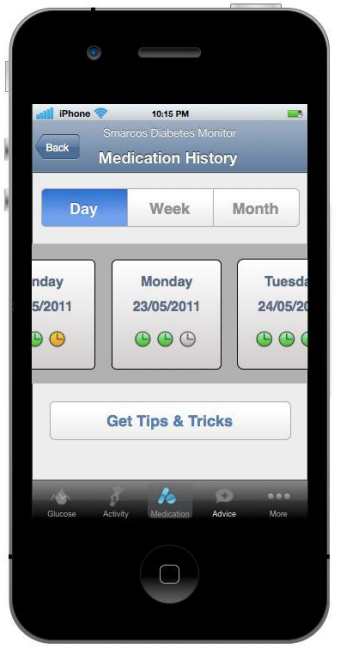
Capability

Functional modularity



Roles

Predictability



Availability of data

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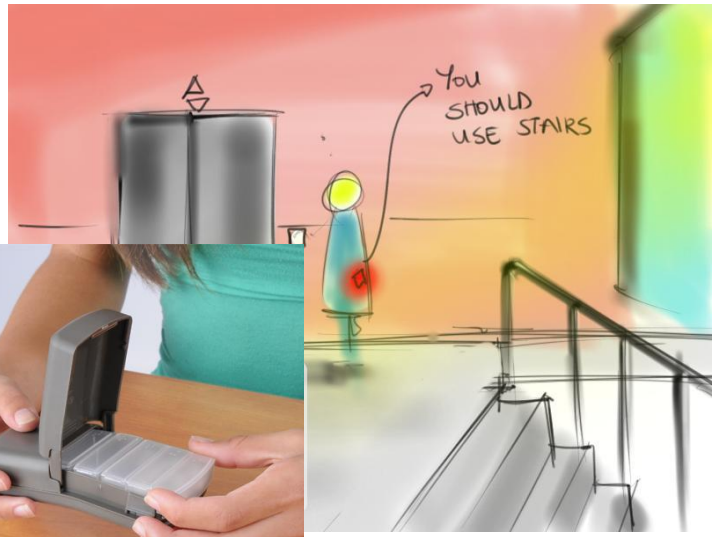
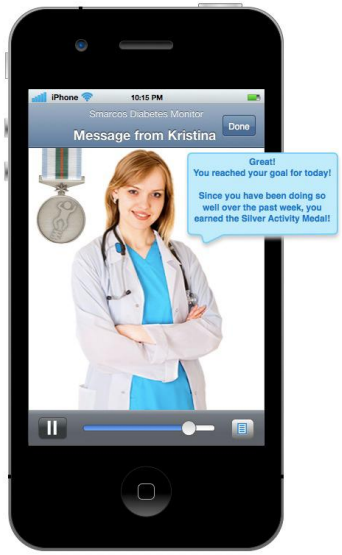
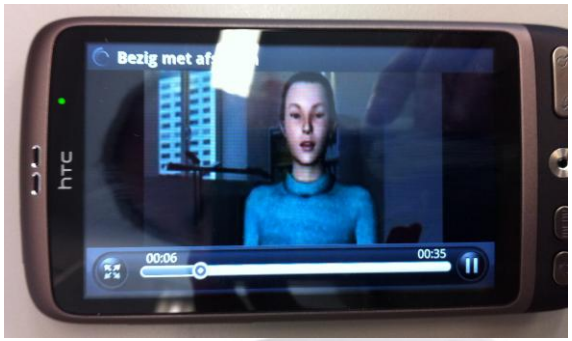
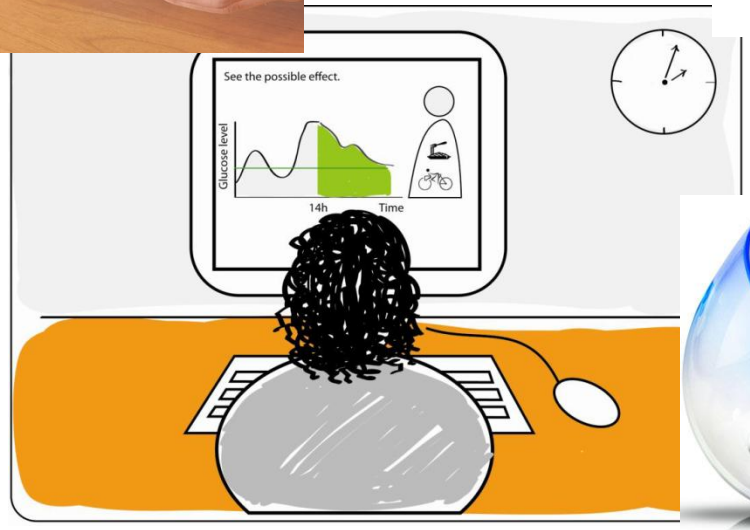
Intelligent communication

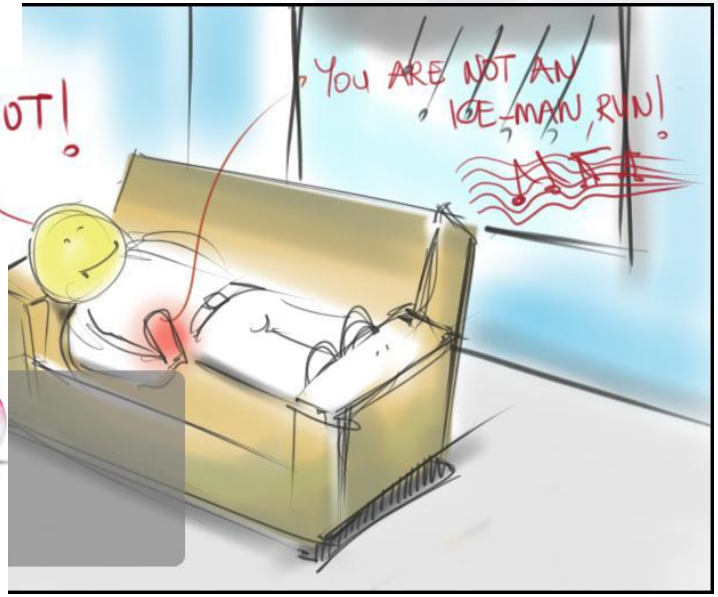
Contributions to the field





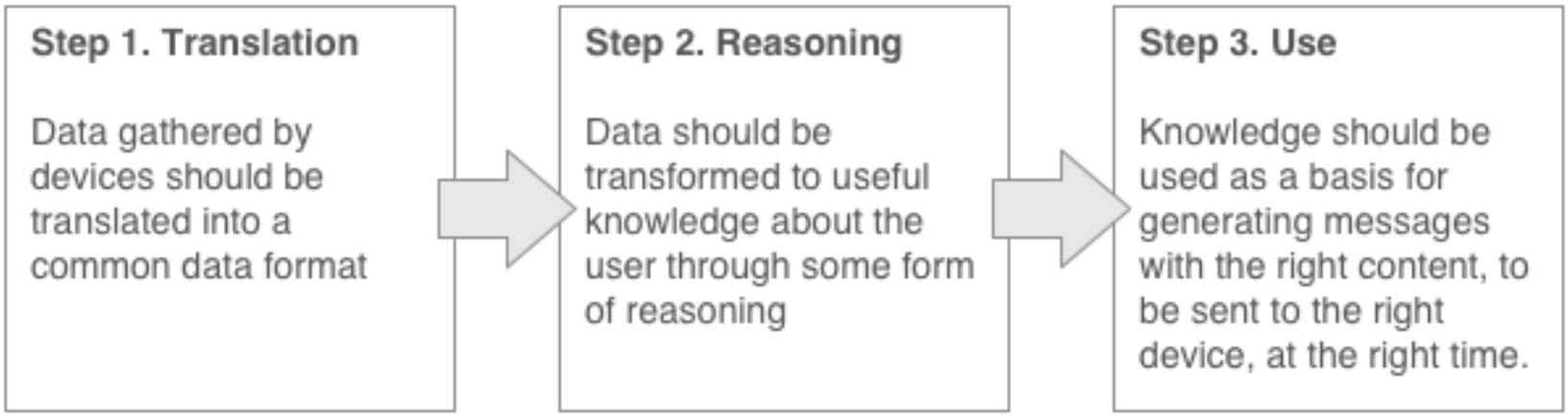






Contributions to the field

Intelligent communication



Intelligent communication

Contributions to the field

Gathering knowledge – user modeling

Step 1. Translation

Data gathered by devices should be translated into a common data format

Step 2. Reasoni

Data should be transformed to us knowledge about user through som of reasoning

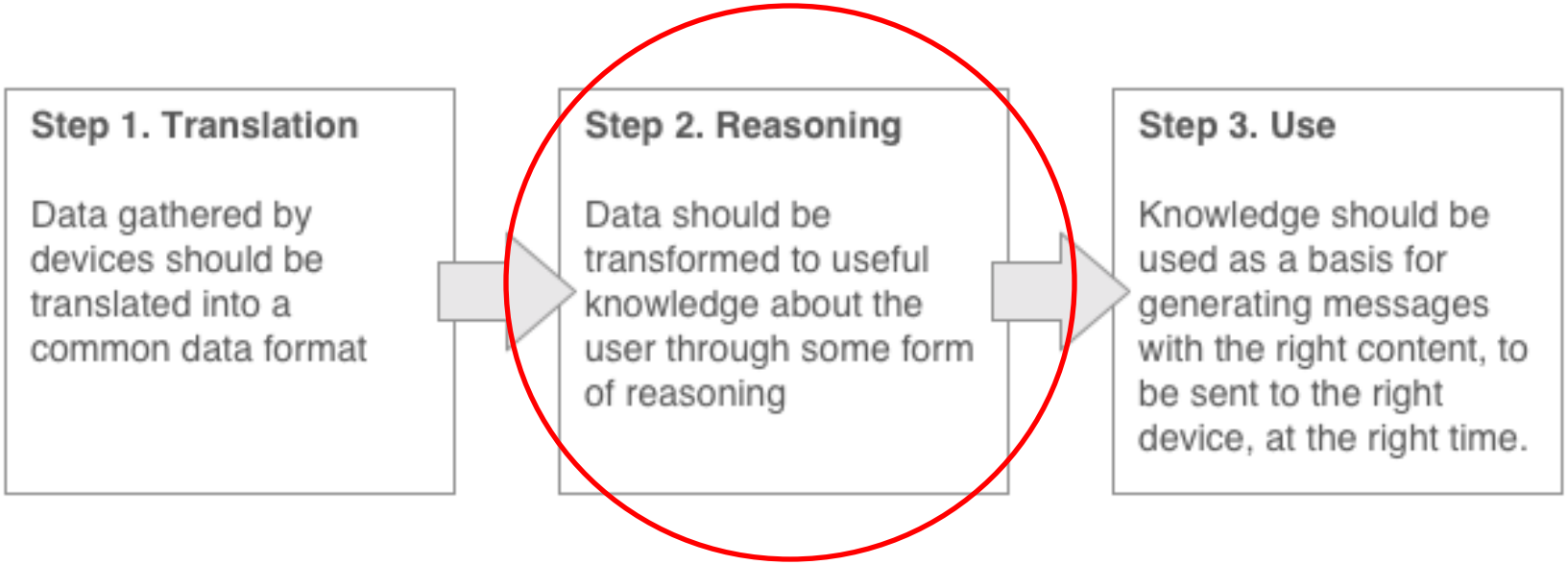
Intelligent communication

Contributions to the field

Reasoning – update rules

Latitude & Longitude => Current Address

Current Address == Home Address => At Home

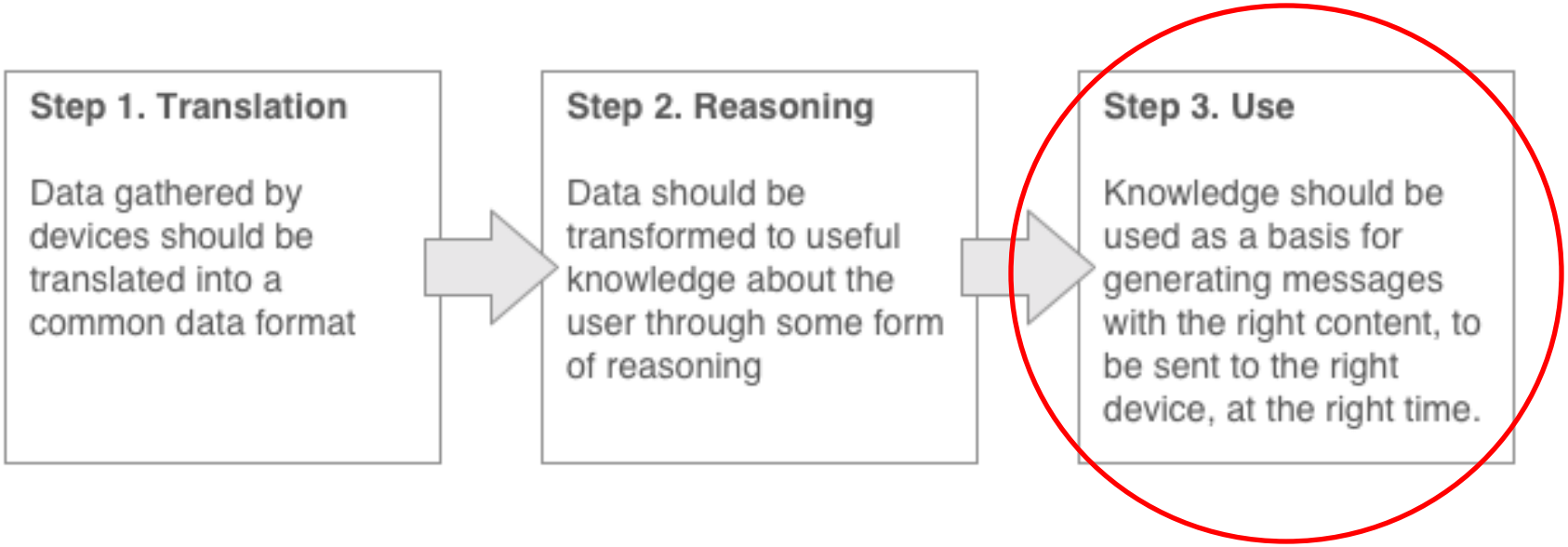


Intelligent communication

Contributions to the field

Use – intervention rules

At Home & TV on => Progress overview on tv in modality video

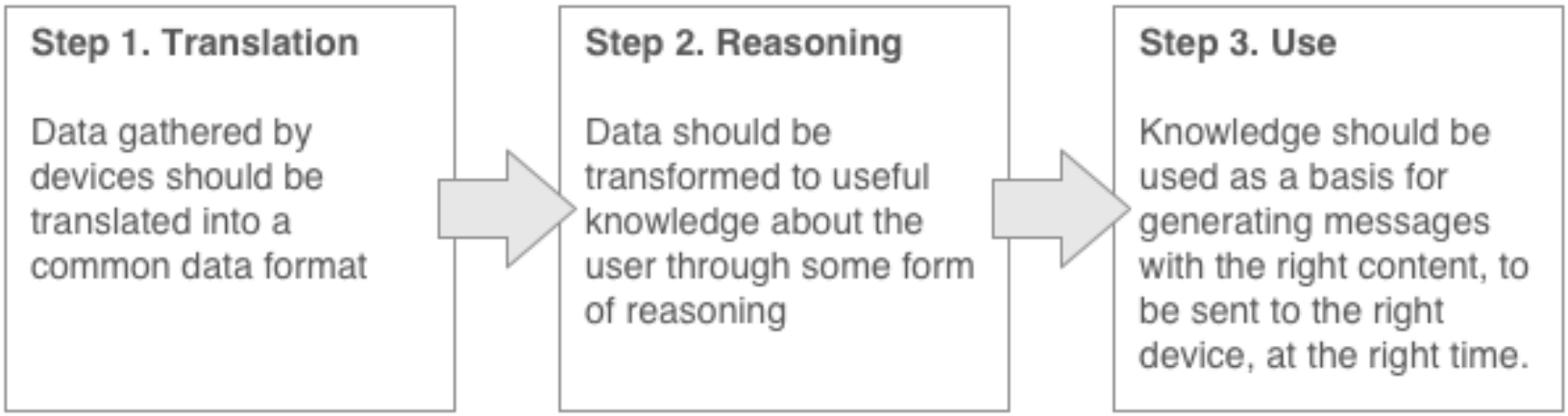


Intelligent communication

Contributions to the field

Use – intervention rules

How do we get it? ⟵ Which knowledge do we need? ⟵ Start here: which messages & when? (domain expert)



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Contributions to the field

Summary

- **Inter-usability**: *extend guidelines and metrics* for usability with guidelines and metrics for capability, availability of data, roles, functional modularity and predictability w.r.t. other services on the device.

- **Intelligent communication**: method where *domain & usability experts* are involved from the beginning, *simplifying communication* across disciplines.

Conclusion

Next steps

- Detailed, concrete guidelines
- **Use** the guidelines & metrics
- **Use** the method for designing intelligent communication

- **Pay attention to the user!**
  - ➢ *Improve cross-disciplinary communication*