



# A CONTEXT-AWARE MULTI-AGENT SYSTEM FOR AMI ENVIRONMENTS

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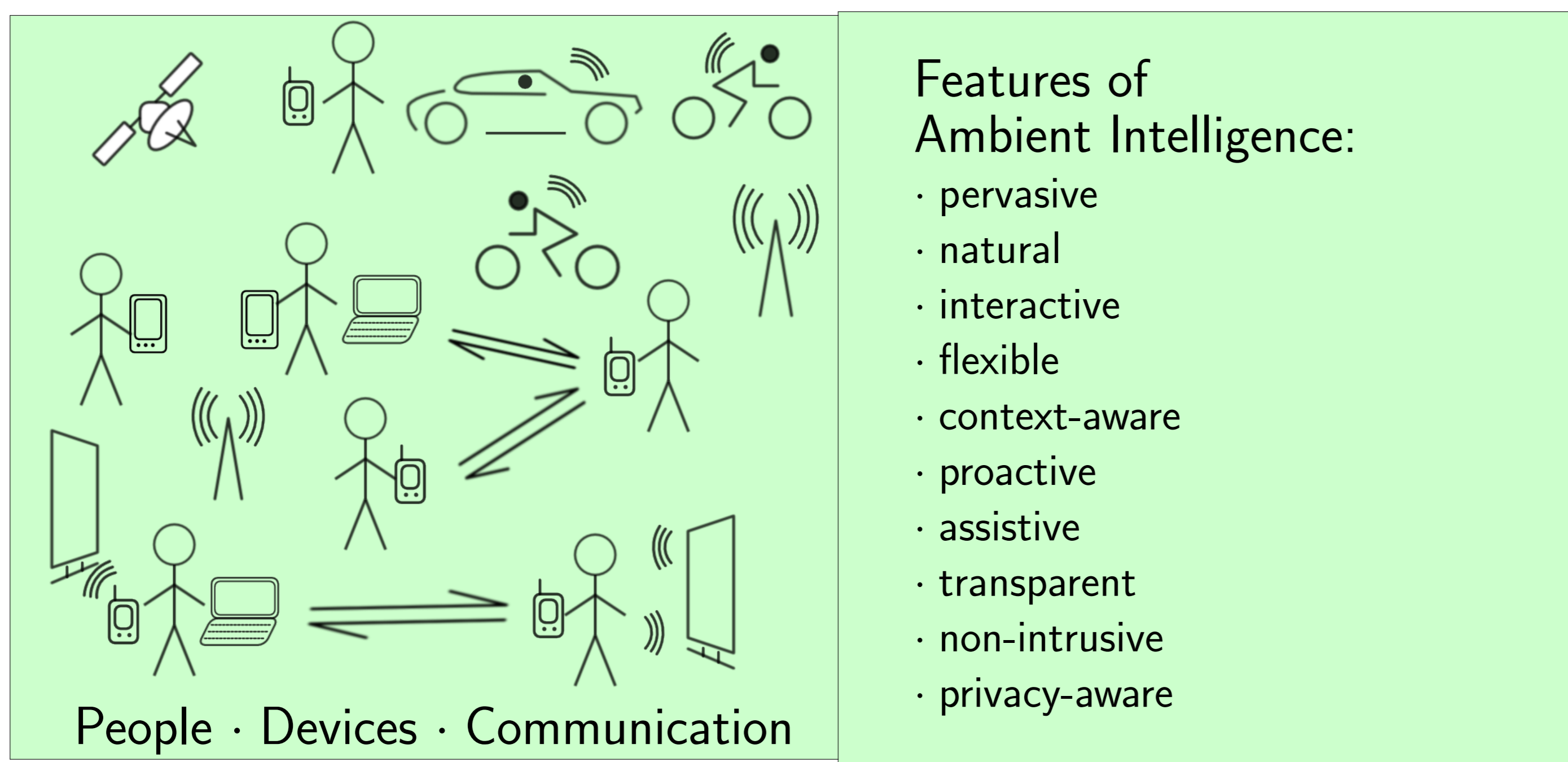
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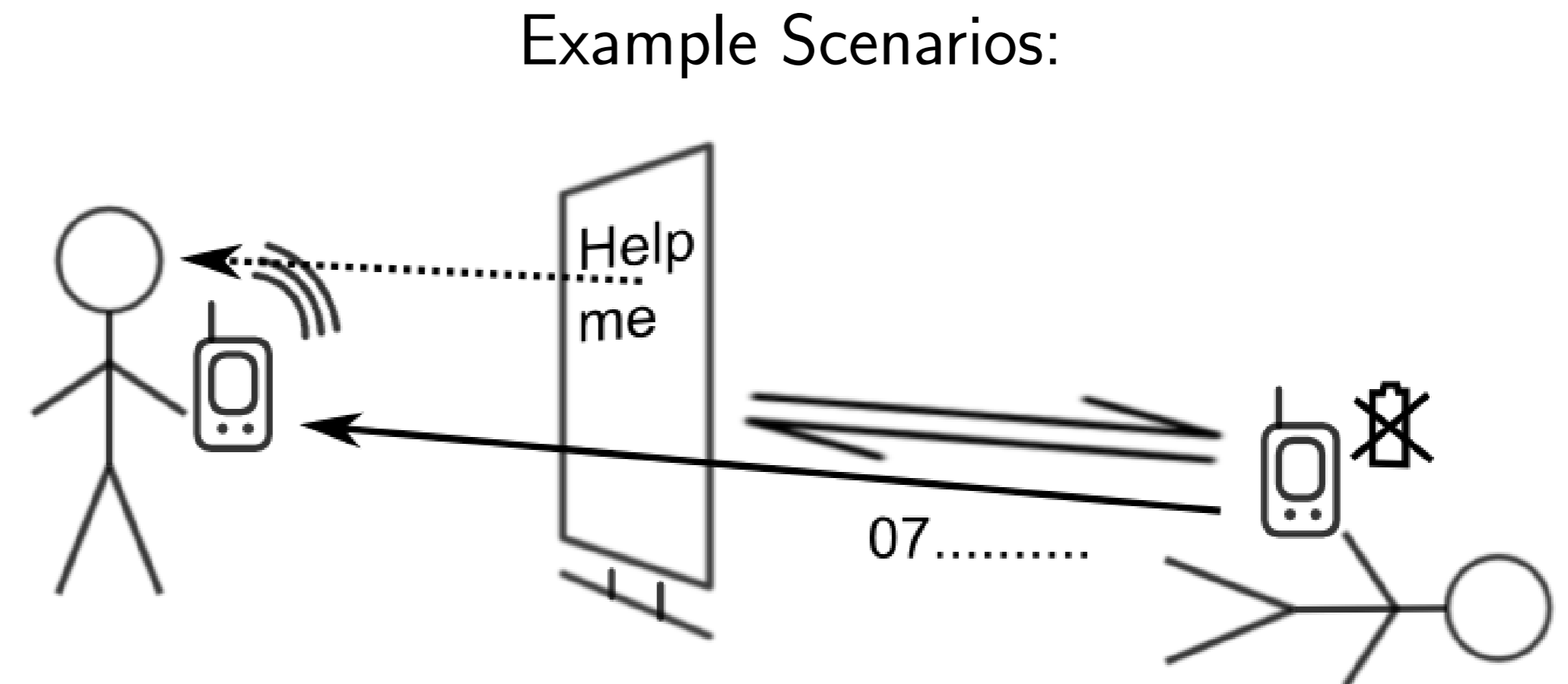
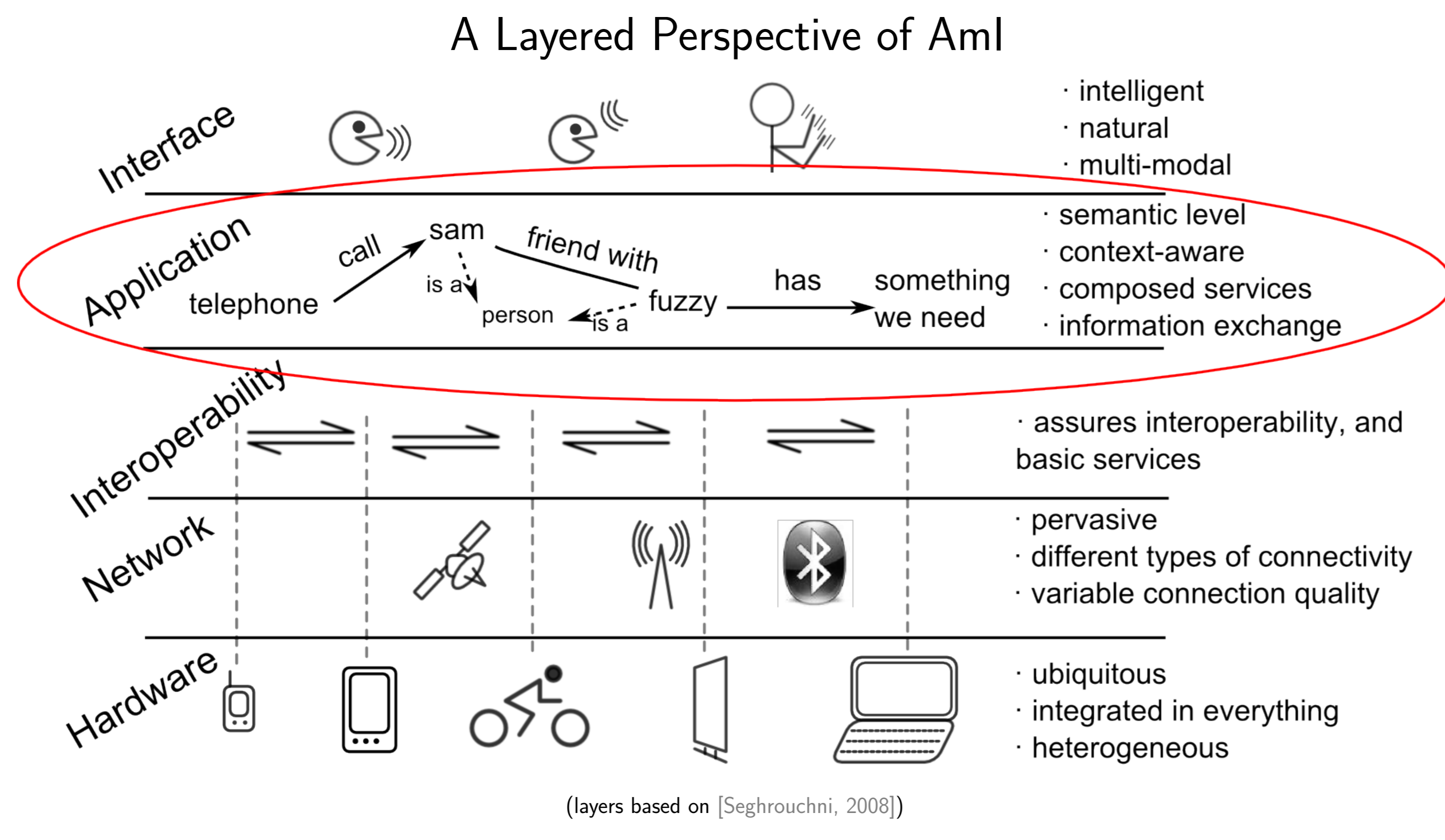
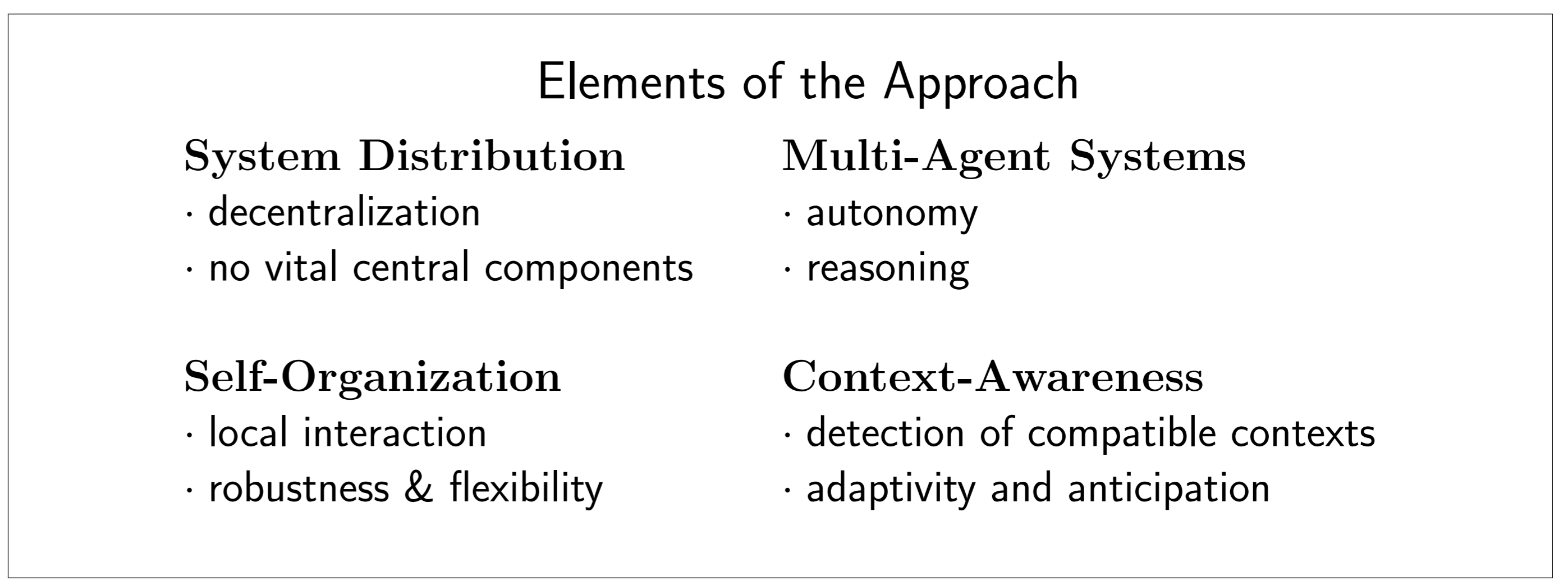
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Ambient Intelligence – or Aml – is an ubiquitous electronic environment that supports people in their daily tasks, in a proactive, but "invisible" and non-intrusive manner. [Ramos et al., 2008, Weiser, 1993]

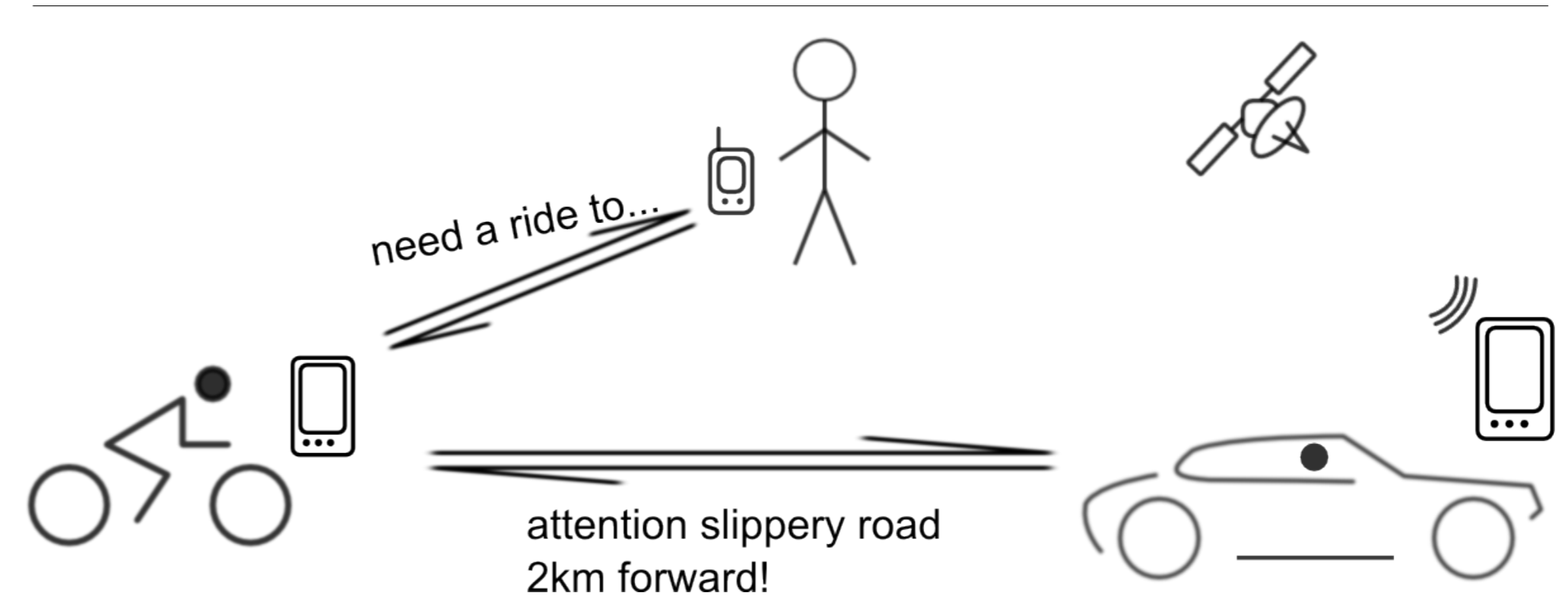
**Our Goal: Develop a multi-agent system for the application layer of an Ambient Intelligence environment.**



- Challenges**
- How to make Aml reliable and dependable?
  - How to manage the huge quantity of information generated by sensors and devices?
  - How to provide only interesting information to the user in every situation?
  - How to make Aml privacy-aware and trustable?



- a senior person falls on the street, in a less visible place.
- the smartphone detects the fall, but it cannot make a GSM call.
- it sends a short message to a nearby intelligent advertising panel.
- a person decides to help, receives the phone number and makes the call.



- a person needs a ride, having previously specified that motorcycles are accepted.
- the system contacts a motorcycle driver nearby that accepts the ride.
- the same system picks the information about slippery road up ahead.
- the information is conveyed to the motorcycle driver and instructs him to be careful.

[Ducatel et al., 2001, Seghrouchni, 2008]

- Research Steps**
- Develop a **multi-agent system based model** for Aml's application layer.
  - Propose **scenarios** that emphasize the **requirements** of real-scale Aml.
  - Develop a **simulation testbed** that implements the scenarios.
  - Implement the developed model and **experiment** with the scenarios.

[Ducatel et al., 2001] Ducatel, K., Bogdanowicz, M., Scapolo, F., Leijten, J., and Burgelman, J. (2001). Istag scenarios for ambient intelligence in 2010. Technical report, Office for Official Publications of the European Communities.

[Ramos et al., 2008] Ramos, C., Augusto, J., and Shapiro, D. (2008). Ambient intelligence - the next step for artificial intelligence. *IEEE Intelligent Systems*, pages 15–18.

[Seghrouchni, 2008] Seghrouchni, A. E. F. (2008). Intelligence ambiante, les defis scientifiques. presentation, Colloque Intelligence Ambiante, Forum Atena.

[Weiser, 1993] Weiser, M. (1993). Some computer science issues in ubiquitous computing. *Communications - ACM*, pages 74–87.

