Ubicomp Implications

Dagstuhl
Summer School

Vlad Coroama

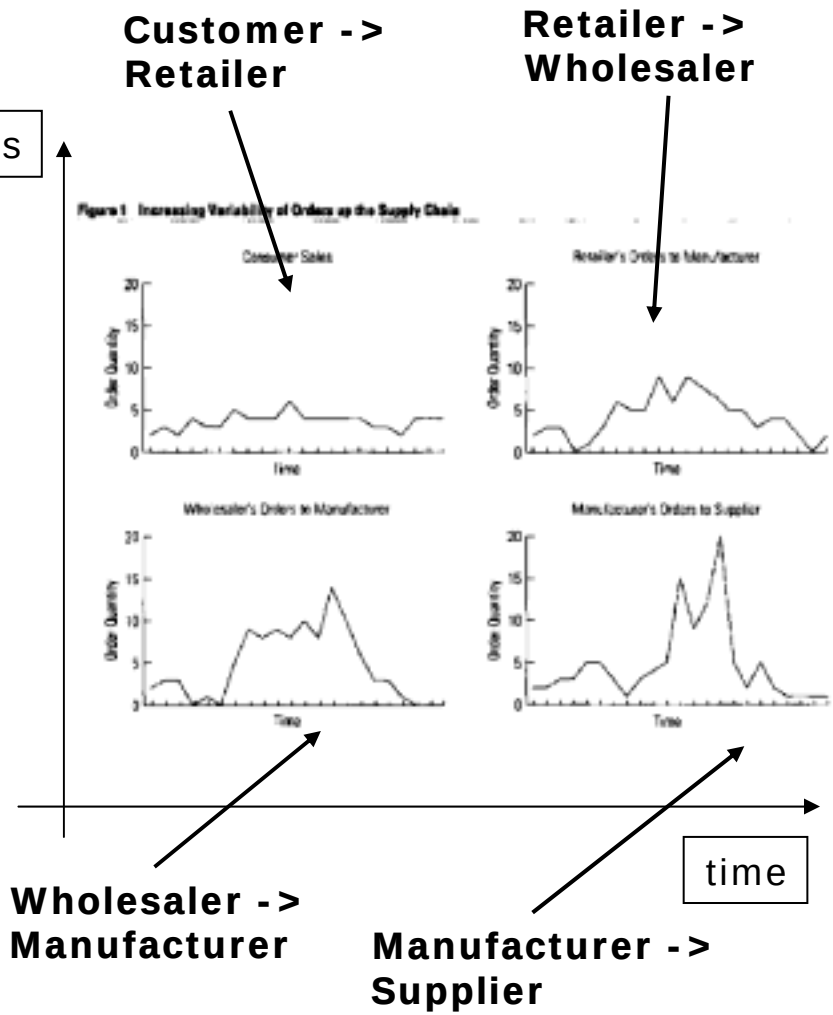
ETH Zürich

As we may live

- "As we may live – Real-world implications of ubiquitous computing"
- authors:
  - Marc Langheinrich
  - Jürgen Bohn
  - Michael Rohs
  - Vlad Coroama
- analyzing Ubicomp implications on:
  - privacy
  - economics
  - dependability
  - psychology (Ubicomp criticism)

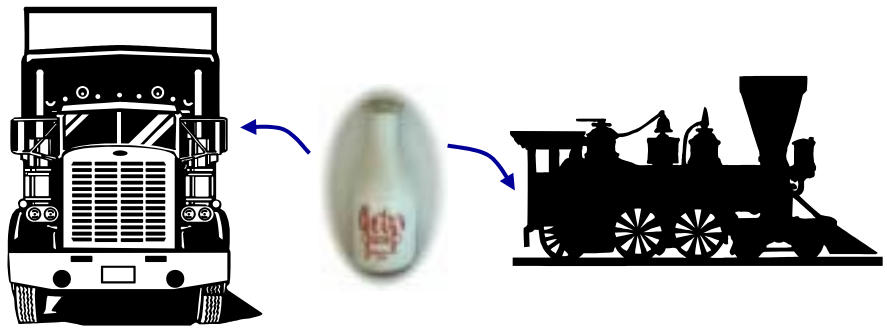
Economic impact

- tracing goods: location, state
  - decrease inventory
  - improved order fulfillment
  - no inventory assesment
  - minimize “bull-whip”-effect
  - decrease turn-around-time
- creating better markets
  - highly dynamic prices for goods
  - less expired products
  - *supermarket becomes stockmarket*



Economic impact

- new business models
  - pay-per-use paradigm
  - sensor-influenced insurance rates
- government may also benefit
  - congregating data over the economy
    - e.g. flu spreading
  - dynamic taxation
- negative
  - putting economy on autopilot may be dangerous
    - stockmarket crash 1987



Tax: 0.30 CHF

Tax: 0.05 CHF

Dependability

- delegation of control to smart devices - loss of:
  - reliability – steadingly more and smaller devices
    - probability of failure increases proportionally
  - predictability - invisible, unobtrusive devices hide in the background
  - persistence - what is now, will not hold next second
  - comprehensibility/manageability
    - how to manage myriads of devices?
  - control – my fridge gives me no more beer
  - accountability – my devices automatically conclude business transactions all over the day
    - humans out of the loop

Ladenburg Kolleg

- "Living in a Smart Environment – Implications of Ubicomp"
  - started spring 2002
  - interdisciplinary research on consequences of Ubicomp
    - social, economic, legal
- sponsored by Daimler-Benz-foundation
  - www.daimler-benz-stiftung.de
- long-term goal
  - raise Ubicomp awareness in the society
    - and among politicians

Gottlieb Daimler- und Karl Benz-Stiftung

Ladenburg Kolleg

- 7 groups participating
  - Friedemann Mattern, ETH Zürich
  - Günter Müller, Uni Freiburg
  - Kurt Rothermel, Uni Stuttgart
  - Michael Beigl, TecO Karlsruhe
  - Norbert Streitz, FhG Darmstadt
  - Dirk Timmermann, Uni Rostock
  - Alexander Rossnagel, Uni Kassel
- methodology
  - scenario development
  - building prototypes
  - showcases
  - regular workshops

Ladenburg scenarios

- hospital/drugstore/support for elderly people at home
  - data transfer from ambulance to hospital
  - configuration of operating room; alerting doctors
- shopping tour
  - guidance
  - dynamic prices or insurance rates
- office
  - intensive use of localization
- support for disabled people

- can we come up with really relevant issues?
  - category 2 of scenarios