
University College
of Southeast Norway
Business Perspectives on Smart Cities
Sensors, Big Data
Lasse Berntzen

Please note:

- These slides were modified after the keynote presentation:
  - Some comments from audience have been added (Thanks!)
  - A few slides on big data was removed due to copyright concerns (my figures, but they will appear in another publication soon).

About me

- Professor (Information Systems) at University College of Southeast Norway
- Eight campuses located south and west of Oslo, 18.000 students
- Department of business, history and social sciences (Vestfold campus)
- Multidisciplinary team working on digital transformation and smart cities
- Several papers, book chapters and articles on smart cities

Smart Cities

- Smart city is a concept, many definitions exist
- Most definitions include the use of computer technology
- Main objective is to improve quality of life for its citizens
  - Provide better services
  - Reduce environmental footprint, sustainability
  - Facilitate citizen participation

Application Areas

- Communication
- Culture
- Energy
- Emergency services
- Environment/climate
- Health
- Safety and security
- Tourism
- Transport
- Work

In other words, the Smart City is about everything that happens in the city.

Public Service Delivery

- New expectations: Citizens expect public sector to be just as user-centric as the private sector. (e.g., banking)
- But: Most services are delivered by city employees, not by computers
  - Some services can completely be delivered online
  - Other services can be supported or enhanced by digital means

Public Service Delivery

- Services that can be completely digitalized
  - Requesting information
  - Applying for permits
  - Tracking interactions with government/municipality

Public Service Delivery

- Services that can be supported or enhanced
  - Applying for physical services, e.g. kindergarten or nursing home
  - Making appointments and reservations for physical services
  - Payments for physical services
  - Providing feedback on physical services

Efficiency and self service

- City of Copenhagen, Denmark
- Average costs of citizen contact:
  - Personal appearance: 10 Euro
  - Telephone: 5 Euro
  - Digital self-service: 40 Cent
- Note:
  - Investments is not calculated
  - User experience/satisfaction is not discussed

Example Service: Prescriptions

- Electronic prescriptions
- Faster – just a click to transfer prescription from the medical doctor to the pharmacy
- Better quality / less mistakes (it used to be handwriting)
- Harder to misuse

Business Perspectives

- We need to understand the value chains of the smart city
- New ways of value generation and distribution
- Multiple value chains, and often complex ones

Stakeholders

- **Citizens**
- Business
  - Local
  - National
  - International
- City Administration
- Politicians (local government)
- National government and its agencies

Transport

- Use big data to make better traffic flow
  - Where are traffic jams? Suggest alternative routes
  - Use traffic data to control traffic lights
  - Where to find an available parking spot?
    - Avoid driving around to find a free one
- Real time information on public transport

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Environment

- Monitor environmental conditions
- When to enforce traffic restrictions (control pollution levels)
- Better public transport solutions (to reduce car use)
- Smart street lights (to conserve energy)
- Using renewable energy (solar, earth, e-cars)
- Teleworking (to reduce car use)

Safety and security

- Improved emergency response services
- Surveillance cameras, sound detection
- Crime and hazard prediction
- Send messages or do automated phone calls to alert citizens of emergencies.

A business perspective

- What are the business opportunities?
- Developing and delivering:
  - smart city platforms
  - products
  - services
- Integration between platforms, products, services

Public or private service delivery?

- Business opportunities exists, but depends on city policies:
  - Should the city do its own development?
  - Should the city deliver services by itself, or should service delivery be done by third parties?
- At least some services may be delivered by third parties

Development

- Reasons for doing own developments:
  - Complete customization
  - Ownership
  - Building competence
- Reasons for not doing own developments:
  - Reduce costs and use of resources
  - Buying competence the city does not have

Service delivery

- Reasons for not outsourcing
  - Full control of service delivery
    - Quality of service
    - Employee rights
    - Privacy concerns

- Reasons for outsourcing:
  - Reduce costs (through competition)
  - Citizens may choose among several providers (flexibility)
  - Contractual agreements (SLA´s)

Example: Kindergartens

Smart sharing cities

- New ways of consumption
  - From physical media to streaming/downloading
  - Sharing economy
- New ways of financing
  - Crowdfunding
- Shared spaces / mobile workers
- ICT enables new forms of social interaction (social media, dating)

The smart city as enabler

- Creating opportunities
  - How to handle the evolving sharing economy?
    - Uber, AirBnB, BlaBlaCar
  - How to help create shared spaces and entrepreneurship?
  - How to promote innovation?

Conclusion

- Yes, there are business opportunities
- But depends on the willingness of the city to get into private-public partnerships to make better solutions – political climate
- The selling arguments for business can be:
  - Better services
  - Sustainability
  - Citizen involvement

Thank you for listening

If you are interested, please stay in touch

lasse.berntzen@usn.no