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
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