Engineering a Smarter Future

An Overview of the Key Components and Technologies of Smart Cities

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Agenda

- Smart Cities – Definitions
- Setting Strategies and Direction
- Key Leadership Factors
- What's Your Problem?
- Enabling Technologies and Trends
- Areas of Opportunity
- Key Challenges
- Collected Wisdom
- Resources

Smart Cities – Definitions

- IEEE defines a smart city:
  - …brings together technology, government and society to enable the following characteristics: a smart economy, smart mobility, a smart environment, smart people, smart living, smart governance. (Apr 2019)
- Wikipedia:
  - A technologically modern urban area that uses different types of electronic methods and sensors to collect specific data. Information gained from that data is used to manage assets, resources and services efficiently; in return, that data is used to improve operations across the city (Stephen Goldsmith, 2021)
- Key ideas from various workshops I've facilitated:
  - Finding out what the problems are in a place, and then solving them
  - Reinventing cities through ideas and technology
  - City government innovation
  - Creating resilient and liveable places
  - Smart Cities is not a destination, it is a journey

Cities: Setting Strategy and Direction

- Define: the vision

- Assess: current situation

- Involve: stakeholders

- Generate: ideas

- Develop: the plan

- Focus: on priorities

- Implement: phased approach

- Continuously: evaluate and improve

Key Leadership Factors

- Willingness to create Open Data Systems

- Listening better to what the real issues are

- Creating an internal culture of innovation and collaboration

- Understanding what are the barriers to success

- Ability to control the chaos

- Desire to build partnerships

What's Your Problem?

- Underlying culture of city government – Jamie Cuddin, Dublin, Ireland
- Capturing real time data and acting on it – Jeff Merritt, NYC
  - Many silos in the city
  - Better testing of new tech from vendors and impact measurement
- Need a sandbox and a place to play with changes – David Graham, Carlsbad, CA
- Keep the highest impact pilots going with limited capacity – Rob Lloyd, San Jose
  - Keeping a foot on the brake and the gas at the same time
- Getting effective citizen input, and ensuring understanding – Jeffrey Williams, KC
- Created a citizen lab space, but can't get any engagement – Ed Blayney, Louisville
- Don't have maps of where assets are in the city – City of Boston

Enabling Technologies and Trends

- Bandwidth and 5G technology

- Smart transportation systems, autonomous vehicles, mobility

- Internet of Things (IoT) and Digital Twins

- AI/ML for smart city management

- Data analytics for smart city decision making

- Drone technologies and GIS

Trends and Tech – 2

- Recognize the power of education
- Involve the local entrepreneur ecosystem
- Shared systems: Metropolitan Data Warehouses
- Joint Powers of Authority → regionalization
- Innovation Districts
- Unifying standards to create economies of scale

Areas of Opportunity

- Regional smart transportation and mobility

- Energy management and renewable energy solutions, smart grids

- Environment, smart waste management, sustainability

- Resilience

- Public safety, security, privacy

Opportunities – 2

- Citizen engagement and participatory urbanism

- Cybersecurity challenges and solutions

- Economic development, governance

- Don't forget about people and liveability!

Key Challenges

- Convincing all "silos" of government to work together

- Partnerships are key, but are very hard in practice

- Defining an innovation plan, learning to prototype

- What happens to initiatives as government regimes change?

Collective Wisdom

- Building off the success of others
- Understanding that technology is an enabler, not a solution
- Empathy and compassion
- Ability to fail must be an option
- Ask: How might we?
- Does there need to be a crisis for fundamental change to occur?
- Think "wholistically"

Resources

- https://en.wikipedia.org/wiki/Smart_city
- Smart Cities Council
    - Various checklists, etc.
- TMForum
- CompTIA
- Meeting of the Minds
- Leading Cities Advisory Group
- OASC - Open and Agile Smart Cities initiative
- Smart Cities Connect
- US Ignite
- CPI – Centre for Public Impact
- Smart Cities Dive newsletter

Questions?

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