

# Social Impacts of Technology

**INSC 702: Advanced Topics in  
Information Science**

**Shimelis Assefa**

# Agenda

- E-governance.
- Digital Innovation – in fintech, agriculture, healthcare.
- Social Informatics.
- Urban Informatics.
- Case Studies.

# E-Governance

- Online services,
- E-service to Citizens, businesses, and communities
- Public administration
- Digitalizing public sector services
- Public sector services – electricity, water, trash collection, traffic tickets, tax, ID & passport services, public transport, business license, etc.
- Govt efficiency & effectiveness
- Democratic accountability, transparency

# E-governance ...

- Smart City - facilitate the planning, construction and intelligent services of the cities
- The case of ESTONIA – e.g. - <https://e-estonia.com/>

# The evolution of digital public service



## Pain

Lack of money, resources, or manpower



## Understanding

Digitalisation can resolve these issues, by increasing accessibility to services



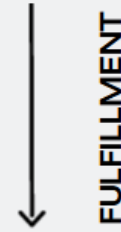
## Support

Political will and societal support to improve the situation, IT literacy and knowhow



## Legal framework

Compulsory e-ID, de-centralisation and once-only policy, trust-by-design approach, no legacy policy



## Private sector

Cooperation with the private sector



## Foundations

e-ID, X-Road (data exchange), cybersecurity-by-design, data protection



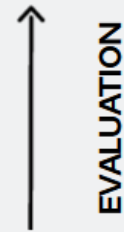
## Design

Connectivity (internet), service design, not copying paperwork to digital, different kind of mindset

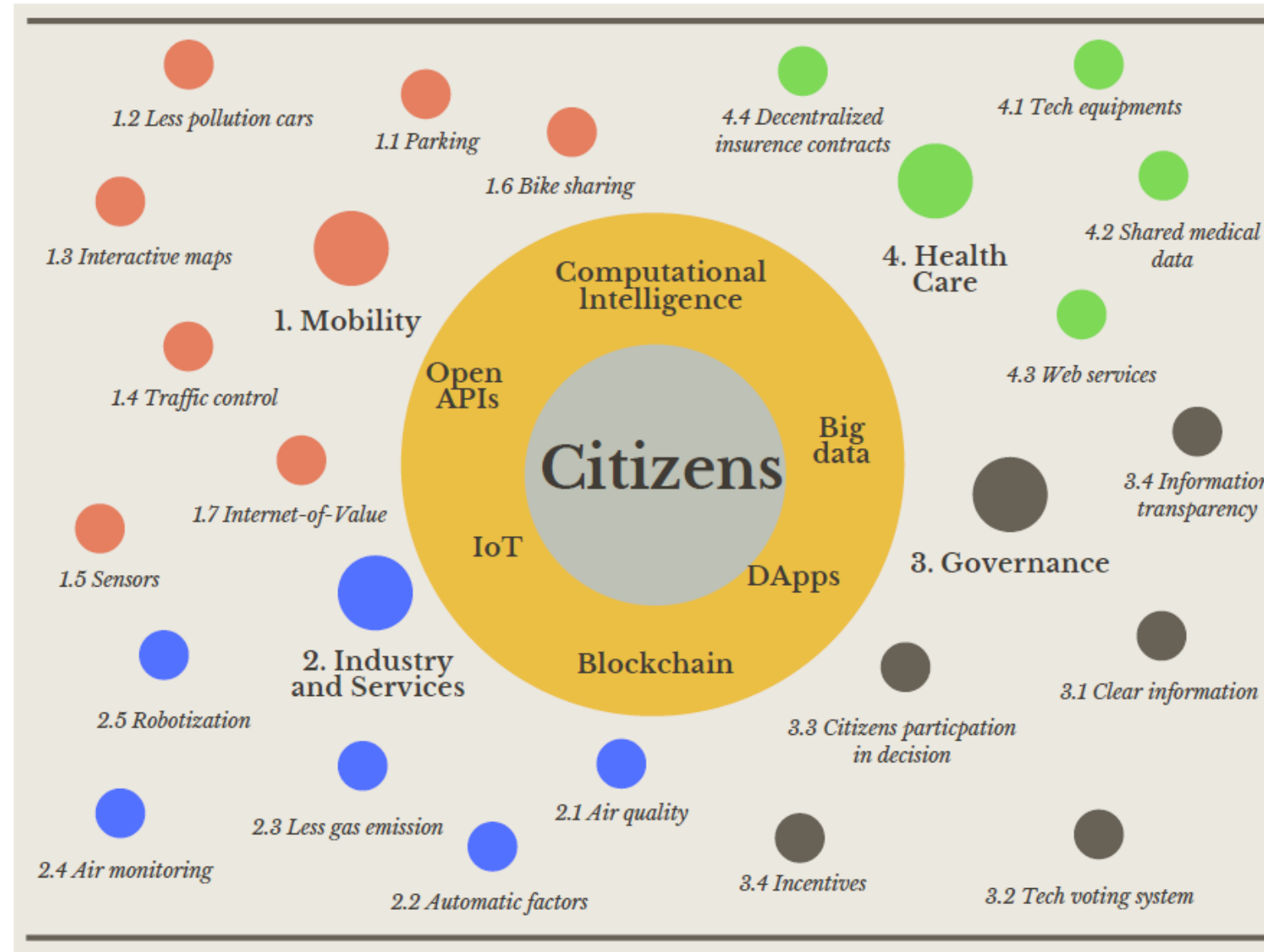


## Interest to first e-services

e-Tax, digital signature, e-Prescription, justice & public safety



**Figure 1.** Google Trends search with the term “smart city” in different languages.



**Figure 2.** Some areas of expertise and topics covered in the scope of smart cities. Blockchain can be seen as a potential trend.

# Digital Innovation

- Digital innovation refers to the application of new technologies to existing problems or practices allowing individuals or organizations to initiate and deliver new and innovative ways of working.
- Often digital innovation is applied to businesses, but there are also aspects you could use in your academic work.

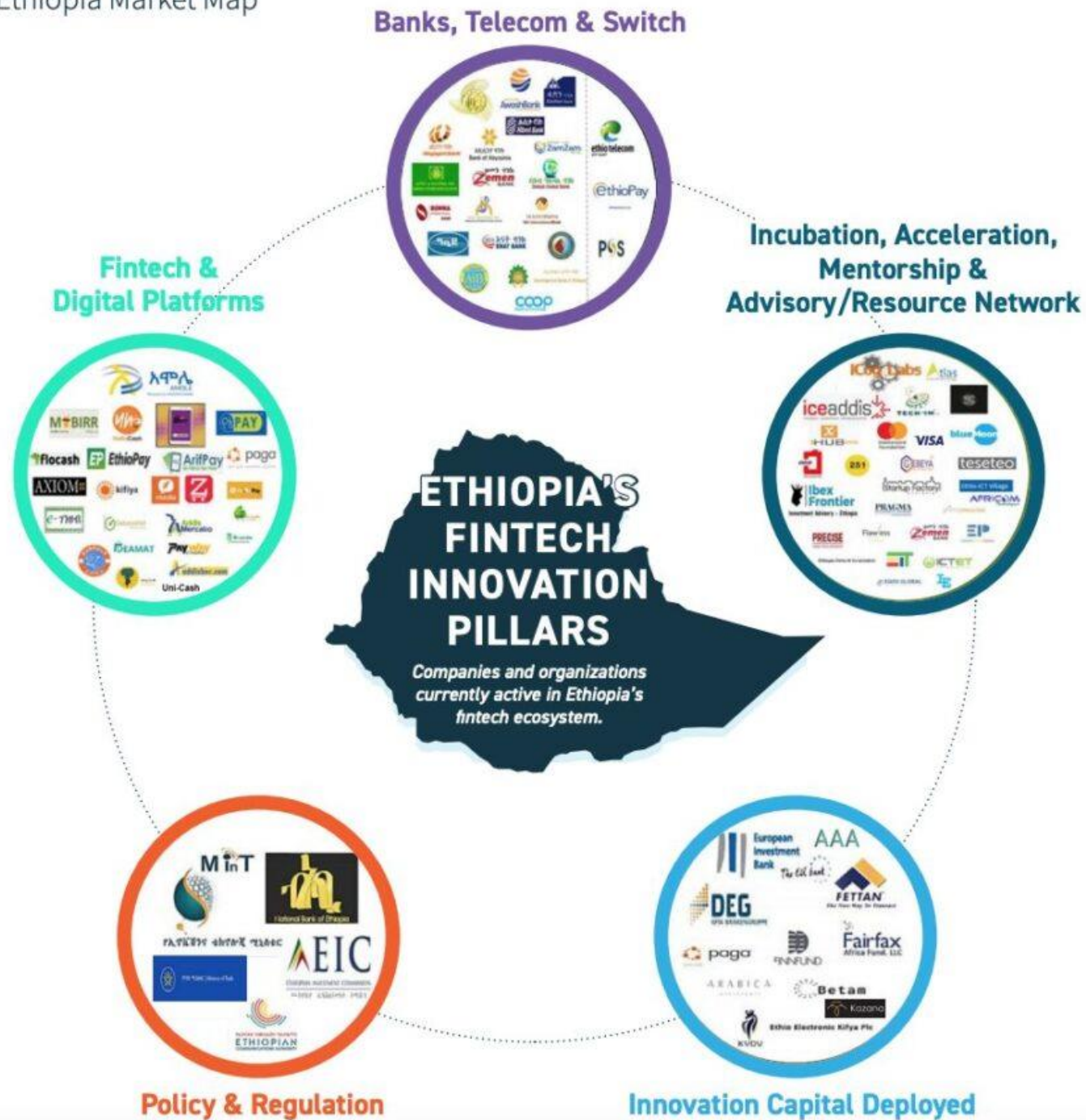
# Digital Innovation... FinTech

- FinTech – Digital Innovation in the Banking Sector
- Technology as a – manner of organizing things, coordinating processes, and performing tasks more easily
- From analog processes to telegraph to IT-based processes, to now digital innovation (digital information and communication technologies), including mobile and internet technology.
- Across the banking value chain:
  - Customers – individuals, retail, commercial, investment
  - Channels – branches, brokers, web, mobile, social
  - Financial service providers – banks, non-banks
  - Interbank providers – exchange networks



# Digital Innovation... FinTech

- FinTech Space in Ethiopia & Africa
  - Ethiopia - Amole, M-Birr,
  - Kenya – M-Pesa,
  - Nigeria – Paga, Remita - <https://www.remita.net/>
  - Kuda - <https://kuda.com/>
  - Nigeria and Kenya have emerged as FinTech hotbeds
- FinTech space Globally
  - PayPal
  - Square - <https://squareup.com>
  - Stripe -



# Digital Innovation...Healthcare

- Healthcare
  - Clinical research
  - Primary care
  - Personalized healthcare
  - Connected health devices
  - Wearable devices, etc...
- Interesting case from AMAZON - <https://clinic.amazon.com/>

# Digital Innovation...Healthcare

- A few applications
  - AI-enabled health devices
  - Mobile health apps
  - Telemedicine
  - Patient portals
  - Blockchain electronic health records

# Digital Innovation... Agriculture

- AgTech - the use of data collected by different types of technology plus the technology integrated across the supply chain
- Wide range of application in AgTech
- A few examples:
  - Water sensors for tanks, troughs and irrigation.
  - Weather stations and soil moisture monitoring.
  - Gate and fence sensors.
  - Electronic identification tags.
  - Autonomous vehicles.

# Social Informatics

- The interaction between society and information and communication technology
- Social computing
- Engages multiple disciplines
- ICPSR – The Institute for Social Science Research at the University of Michigan - <https://www.icpsr.umich.edu/web/pages/>
- The datagood project at Berkeley - <https://datagood.berkeley.edu/>
- Data for Good at Columbia - <https://datascience.columbia.edu/about-us/data-for-good/>

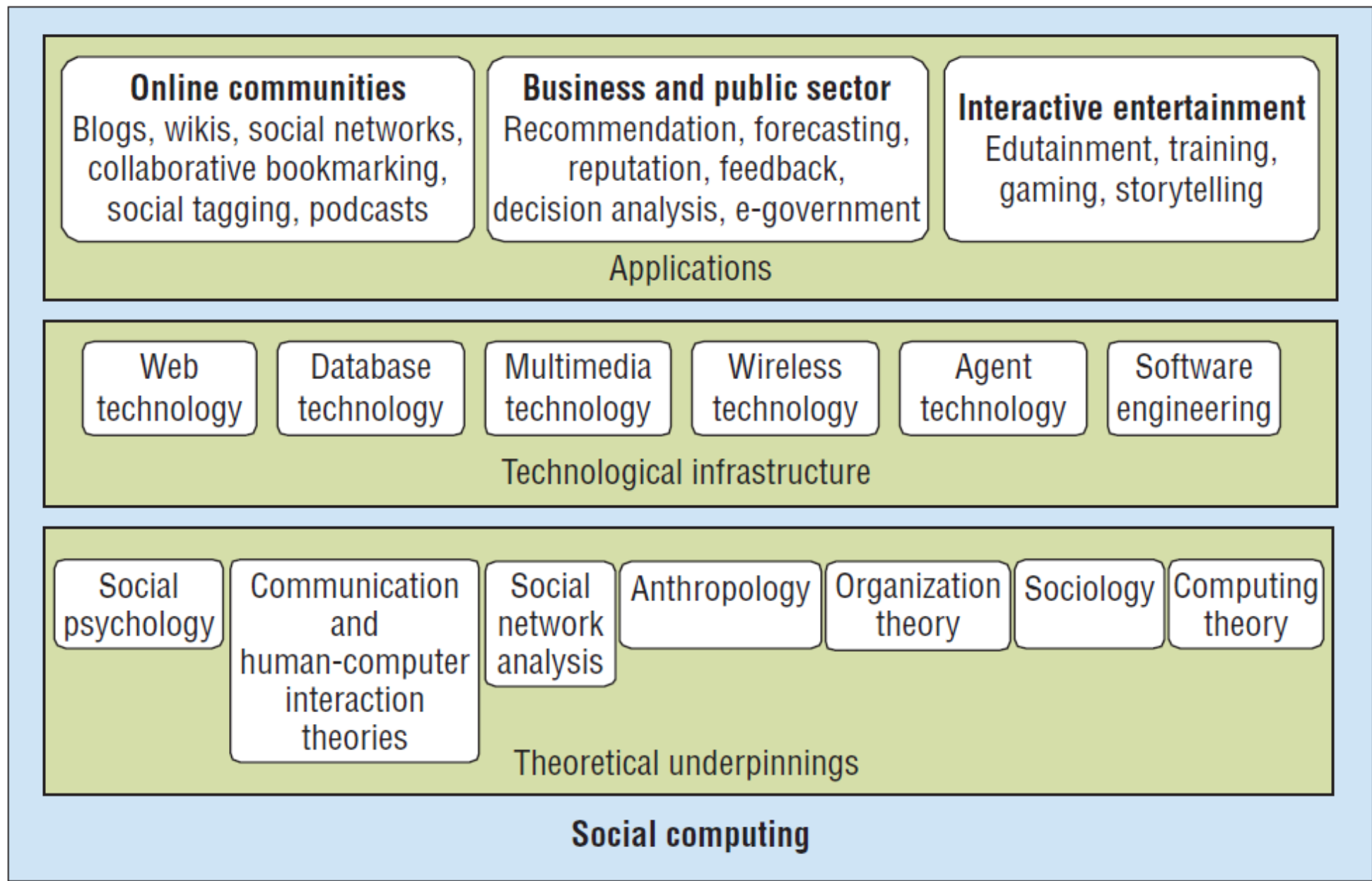
# Social Informatics ...

- Digital humanities - digital methods and computational techniques as part of its research methodology, dissemination plan, and/or public engagement
- Digital humanities at MIT, e.g. - <https://digitalhumanities.mit.edu/>
- Examples of Digital Humanities methods, processes, and activities - <https://www.dhi.ac.uk/what-is-a-digital-humanities-project/>
  - Recording source materials into a database, usually from an archive.
  - Digitising and preserving archives.
  - Conducting interviews and ethnographic studies, usually coded for thematic and discourse analysis

# Social Informatics ...

- Examples of DH
  - Coding data for qualitative and distant reading methods, including codebooks and domain ontologies.
  - Analyzing large archives, such as newspapers, journals and picture libraries.
  - Compiling and analyzing social media content.
  - Compiling and annotating audio-visual databases (audio, images and video).
  - Immersive technologies, such as 3D virtual reconstruction, augmented reality, and virtual worlds.
  - Web apps, mobile apps, websites, virtual exhibitions, online research resources, user-generated content.

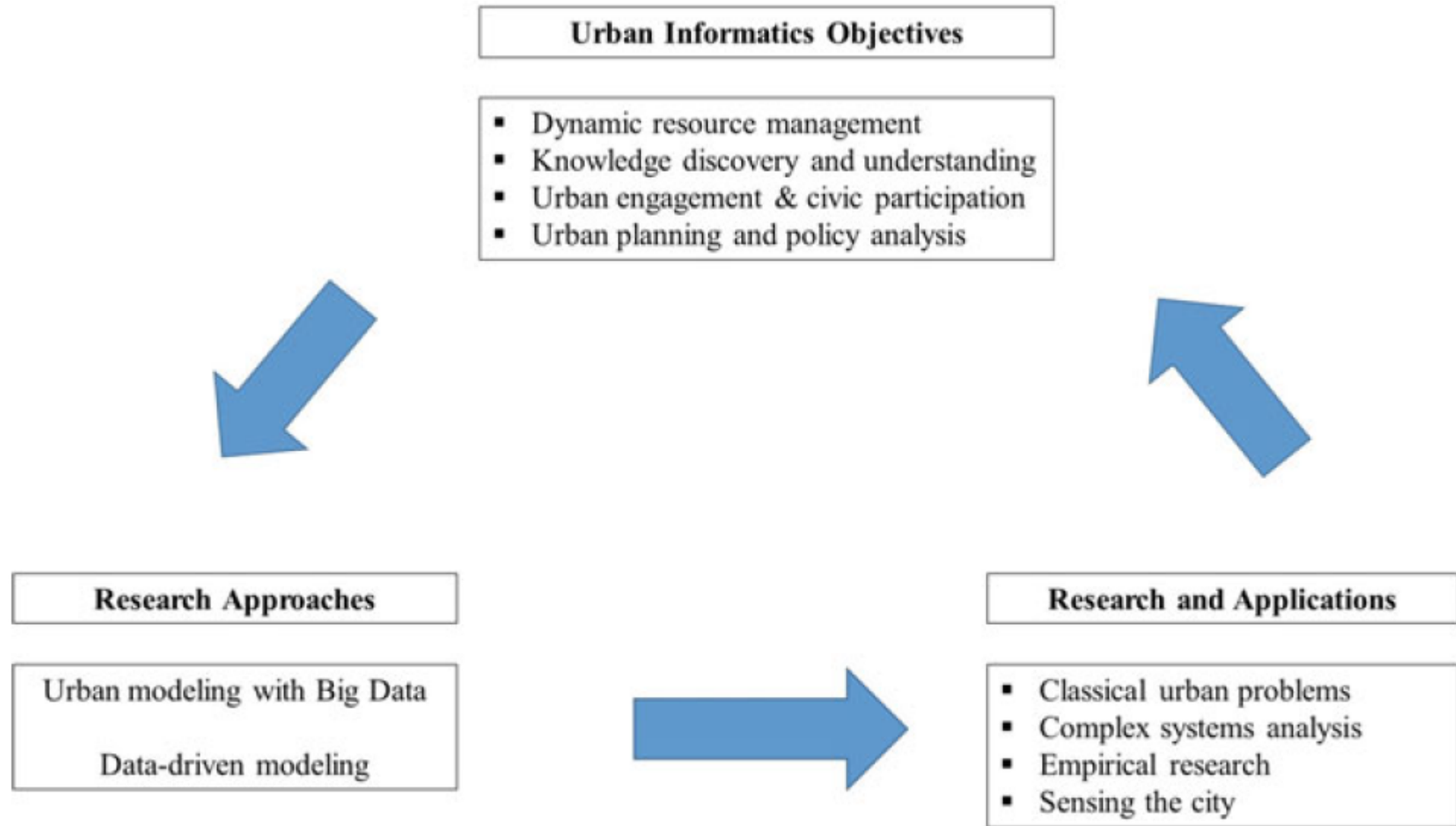




**Figure 1. The theoretical underpinnings, infrastructure, and applications of social computing.**

# Urban Informatics

- The exploration and understanding of urban patterns and processes, and that it involves analyzing, visualizing, understanding, and interpreting structured and unstructured urban Big Data for four primary objectives:
  - Dynamic resource management
  - Knowledge discovery and understanding
  - Urban engagement and civic participation
  - Urban planning and policy analysis



**Fig. 1** Relationships among Urban Informatics objectives, research approaches and applications

# Case Studies

- media and communication lab
- information literacy lab
- cybersecurity lab
- social informatics lab
- urban informatics lab
- design lab
- innovation lab

# Case studies...

- AI-lab
- e-government services lab
- agriTech lab
- data lab
- data literacy lab
- Internet-governance lab
- information security lab