

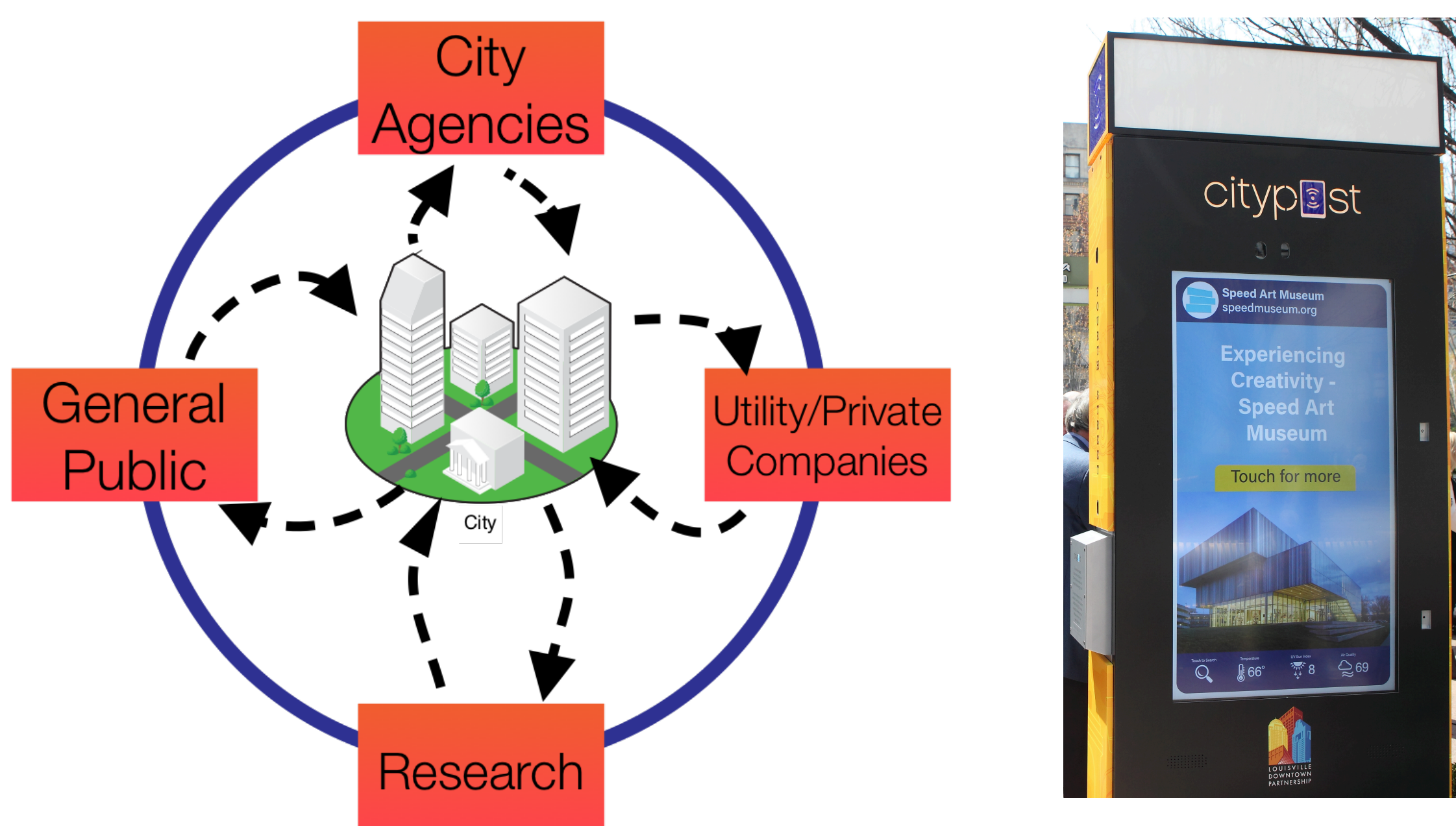
Low-cost Smart Cities: Designing Affordable Smart Cities for All Communities

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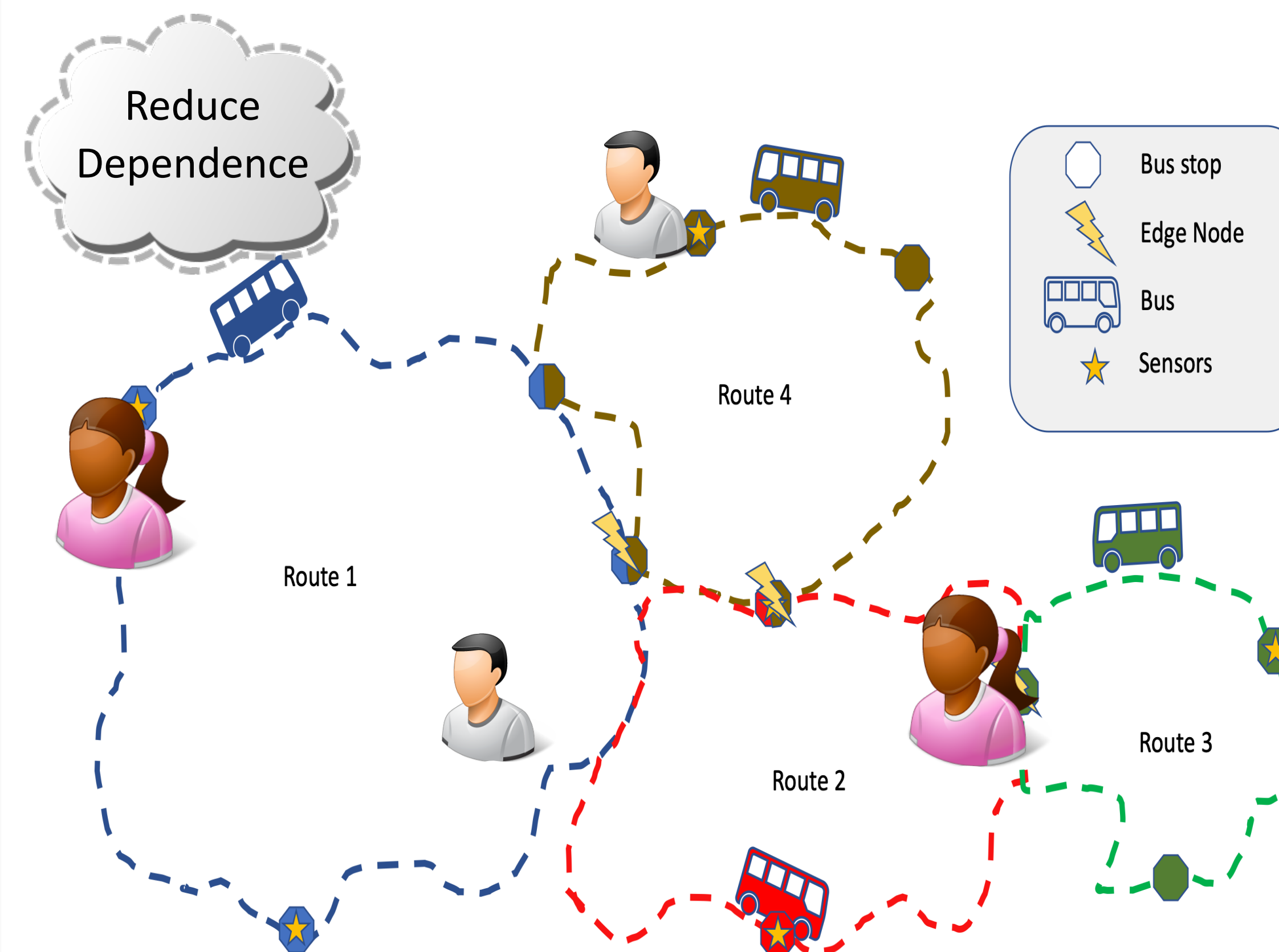
Overview

Enable any community to become a smart city at a fraction of the cost

- Use opportunistic D2D communication as a low-cost backbone to disseminate time-insensitive data
- Tailoring technology to general public needs while respecting privacy concerns

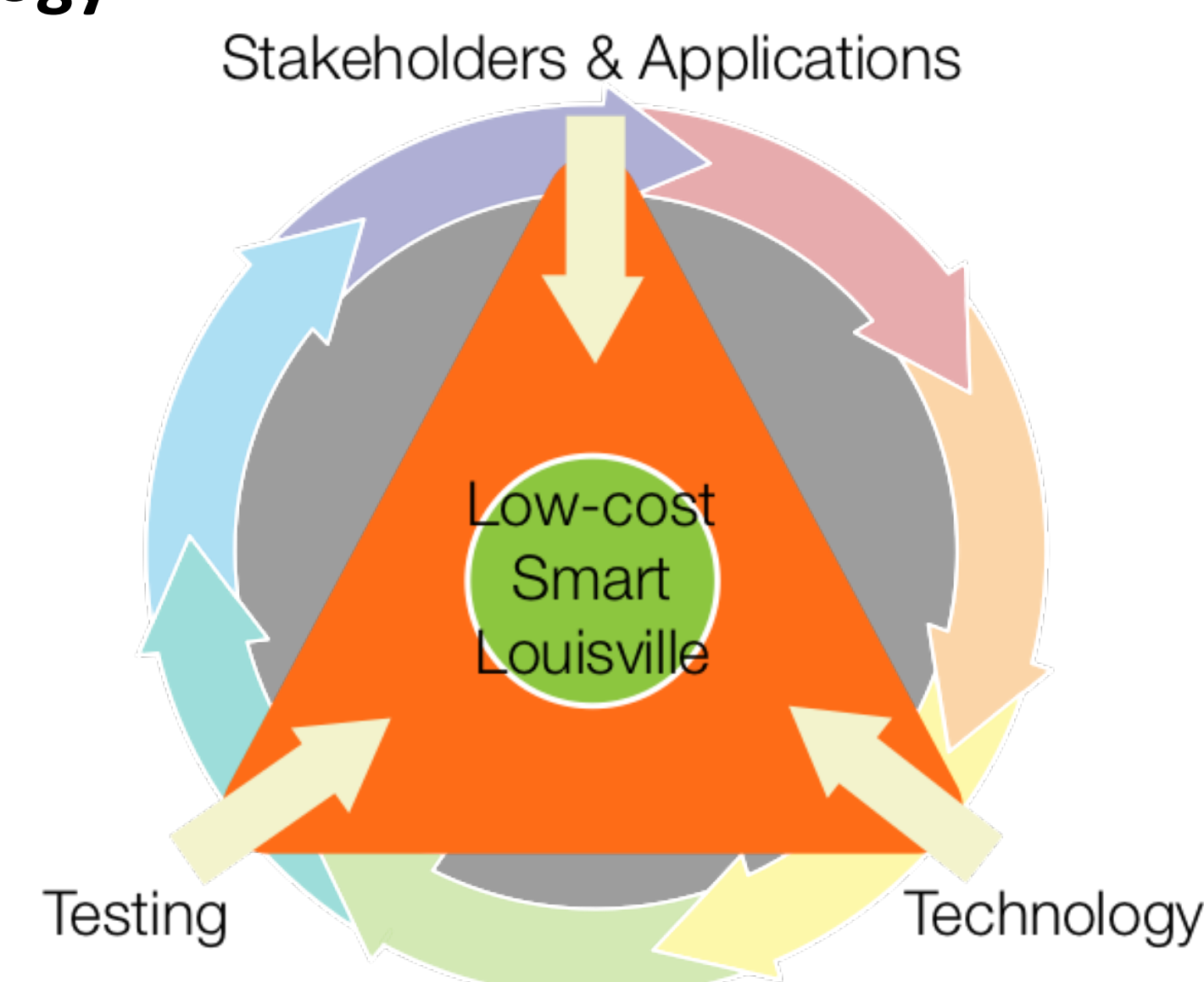


Low Cost Smart City



Co-Design

- Bi-weekly team meetings (even)
 - Includes the whole team (researchers & partners)
 - Discuss high level strategies & planning
- Bi-weekly inter-organizational sub-team (3) meetings (odd)
 - Stakeholders & Applications
 - Technology
 - Testing



Use-Inspired Research

- Smart cities offer the potential to improve public health, safety and welfare by integrating intelligent technology into the built environment
- Cities such as San Diego, New Orleans, London, and Songdo have either proposed or invested in smart city projects that cost between \$30 Million and \$40 Billion (a significant amount is cellular)
- *The City of Louisville, Louisville Downtown Partnership, Duke Energy, and researchers at UK and OU propose to transform the community of Louisville, KY into an efficient low-cost smart city*

Activities

- Sharing of data (public & NDA)
 - Louisville is part of the open access city network
- Established inter-organizational teams
- Preliminary research
 - Downtown pedestrian counting
 - Opportunistic smart city communication
- IRB Exempt Status
- Non-disclosure agreements
- Study: Covid vaccination effect on city vibrancy
- Study: Citizens willingness to accept city technology

Outputs

- Publications
 - "Enabling opportunistic low-cost smart cities by using tactical edge node placement" - IEEE WONS 2021 (Selected top paper)
 - Fast tracked to Elsevier COMCOM Journal
 - "A latency-defined edge node placement scheme for opportunistic smart cities" - IEEE PerAwareCity 2021
 - "Considerations for designing private and inexpensive smart cities" - IARIA ICWMC 2020

Team

Universities



Community Partners

