Enabling and Sustaining Connected Communities Rooted in Solving Societal Challenges

February 6th and 7th, 2023

Carnegie Mellon University

Pittsburgh, PA

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The National Science Foundation (NSF) has funded Carnegie Mellon University's Metro21: Smart Cities Institute to host the *Enabling and Sustaining Connected Communities Rooted in Solving Societal Challenges* workshop on February 6 & 7, 2023. The goal of this workshop is to develop recommendations for how NSF can help overcome challenges that stall the integration, scaling, and sustainability of connected communities technologies. Over the past several months, Metro21 has held listening sessions with people from communities, government, nonprofits, industry, and academia to surface some of the most pressing challenges to the effective development and deployment of connected communities technologies. Lessons from those listening sessions have informed our agenda for this workshop, where we will gather ideas that will inform a set of recommendations for the NSF.

Questions we want to answer in this workshop:

- What are recommendations for NSF to better support integration and scaling of connected communities technology?
- What are the transformative and incremental research gaps that need to be filled to integrate and scale connected communities technology?
- Who should be involved in integrating and scaling connected communities technology, and what should their role be?

Agenda

Day 1

- 11:30 - 11:40 a.m.: Welcome by Karen Lightman, Executive Director, Metro21
- 11:40 - 11:50 a.m.: Opening remarks by Ramayya Krishnan, Dean, Heinz College of Information Systems and Public Policy
- 11:50 - 12:00p.m. : Framing and background by National Science Foundation
- 12:00 - 12:45p.m. : Lunch and General session: Introduction to workshop with Karen Lightman
- 12:45 - 1:15 p.m. : General session (moderated discussion with Lilian Coral and Sera Linardi): Enabling connected communities beyond pilot projects
- 1:15 - 2:30 p.m. : Breakout session (each with discussion leader & scribe)
- 2:30 - 2:45 p.m. : Break

- 2:45 - 3:15 p.m. : General session: reporting out of breakout sessions
- 3:15 - 3:45 p.m. : General session (moderated discussion with Stefanie Costa Leabo and Danae Wilson): Matching community needs with technology solutions
- 3:45 - 5:00 p.m. : Breakout session
- 5:00 - 5:30 p.m. : General session : reporting out of breakout sessions
- 5:30 - 6:00 p.m. : Survey, wrap up and preview of the next day
- 6:30 - 8:30 p.m. : Dinner at the Carnegie Museums of Art and Natural History, 4400 Forbes Ave, Pittsburgh, PA 15213

Day 2

- 8:30 - 9:00 a.m. : Breakfast
- 9:00 - 9:15 a.m. : Kickoff and Recap of Day 1
- 9:15 - 9:45 a.m. : General session (moderated discussion with Flore Marion and Kim Zarecor): Designing, deploying, monitoring and evaluating technology to ensure effectiveness, efficiency, and equity
- 9:45 - 11:00 a.m. : Breakout session
- 11:00 - 11:30 a.m. : General session: Report out from breakout sessions
- 11:30 a.m. - 12:15 p.m. : Lunch
- 12:15 - 12:45 p.m. : General session (moderated discussion with Carrie Cihak and Nalini Venkatasubramanian): Managing, sharing, and analyzing data to enhance communities' quality of life and protect privacy
- 12:45 - 2:00 p.m. : Breakout session
- 2:00 - 2:15 p.m. : Break
- 2:15 - 2:45 p.m. : General session: Report out breakout sessions
- 2:45 - 3:30 p.m. : Breakout session : Key findings and recommendations
- 3:30 - 3:45 p.m. : Vote
- 3:45 - 4:45p.m. : General session: Confirmation of key findings and next steps
- 4:45 - 5:00 p.m. : Wrap-up (and survey)

Enabling connected communities beyond pilot projects

During our listening sessions, there was a common theme that the original intent of researchers was not always aligned with the resources and/or capacity of municipal agencies to sustain, scale, or utilize connected community technologies beyond the pilot stage - to get to integration/scalability.

Discussion questions

1. What are examples of “state of the art” for deployment projects that have been scaled or integrated successfully? What are key ingredients that made them successful? How can we move technologies from controlled demonstration to real-world deployment?
2. What technologies are ripe for deployment?
3. How do we plan for and learn from cases in which technology deployments stop working or do not accomplish their goals?
4. How can we better communicate the results of both successful and unsuccessful technology deployments to relevant stakeholders so they can make informed decisions about what to try in their communities?

Matching community needs with technology solutions

During our listening sessions, several people brought up the need to match technology solutions with community needs.

Discussion questions

1. How can we better match community needs to technology solutions? Who should be involved in matching communities with technologies, and vice versa?
2. What can funders and academic institutions do to better match researchers with communities that can benefit from their expertise?
3. When deploying a new technology, how can we build or re-establish trust with communities when previous technology investments have not provided expected benefits?

Designing, deploying, monitoring, and evaluating technology to ensure effectiveness, efficiency, and equity

During our listening sessions, several people mentioned the need to monitor and evaluate connected communities technologies, and the unique challenges to deploying connected communities technologies in different built environments and different types of communities.

Discussion questions

1. What digital and physical infrastructure needs to exist for connected communities technologies to be deployed successfully? What human capacity is needed to build, maintain, and expand such infrastructure?
2. What are the unique challenges to deploying technology in different types of communities (for example, rural, urban, suburban, or indigenous)? How can we ensure that communities have equitable access to connected communities technologies?

3. What are the legal and policy factors that impact whether a technology can be deployed successfully?
4. How can we better understand how the success of technologies varies with existing infrastructure, legal and policy environment, and community context?

Managing, sharing, and analyzing data to enhance communities' quality of life and protect privacy

During our listening sessions, several people raised concerns about the ability of governments and their partners to access, manage, share, and analyze data from connected communities technologies in ways that ensure security and protect privacy.

Discussion questions

1. How do we ensure that governments and their partners have access to and can share the data they need to monitor and evaluate the impact of connected communities technology?
2. What laws and policies are conducive to securely collecting, storing, sharing, and analyzing data generated by these technologies?
3. How can we provide transparency about and accountability for how data is used and ensure that community members have recourse and influence with respect to how data is used?
4. How do we ensure that governments have the technical and skill capacity to securely collect, store, share, and analyze this data, and that the data can be integrated with data from other sources?