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Newly Published ACM TechBrief Urges Policy Leaders to Make Smart Cities Secure, Fair and Sustainable

New York, NY, May 3, 2022 – The Association for Computing Machinery’s global Technology Policy Council (ACM TPC) just released, “[ACM TechBrief: Smart Cities](#),” which highlights the challenges involved in deploying information and communication technology to create smart cities and calls for policy leaders planning such projects to do so without compromising security, privacy, fairness and sustainability. The TechBrief includes a primer on smart cities, key statistics about the growth and use of these technologies, and a short list of important policy implications.

“Smart cities” are municipalities that use a network of physical devices and computer technologies to make the delivery of public services more efficient and/or more environmentally friendly. Examples of smart city applications include using sensors to turn off streetlights when no one is present, monitoring traffic patterns to reduce roadway congestion and air pollution, or keeping track of home-bound medical patients in order to dispatch emergency responders when needed. Smart cities are an outgrowth of the Internet of Things (IoT), the rapidly growing infrastructure of literally billions of physical devices embedded with sensors that are connected to computers and the Internet.

The deployment of smart city technology is growing across the world, and these technologies offer significant benefits. For example, the TechBrief notes that “investing in smart cities could contribute significantly to achieving greenhouse gas emissions reduction targets,” and that “smart cities use digital innovation to make urban service delivery more efficient.”

Because of the meteoric growth and clear benefits of smart city technologies, the TechBrief notes that now is an urgent time to address some of the important public policy concerns that smart city technologies raise. The TechBrief lists four key policy implications that government officials, as well as the private companies that develop these technologies, should consider.

These include:

- Cybersecurity risks must be considered at every stage of every smart city technology’s life cycle.

- Effective privacy protection mechanisms must be an essential component of any smart city technology deployed.
- Such mechanisms should be transparently fair to all city users, not just residents.
- The climate impact of smart city infrastructures must be fully understood as they are being designed and regularly assessed after they are deployed.

“Smart cities are fast becoming a reality around the world,” explains Chris Hankin, a Professor at Imperial College London and lead author of the ACM TechBrief on Smart Cities. “By 2025, 26% of all internet-connected devices will be used in a smart city application. As technologists, we feel we have a responsibility to raise important questions to ensure that these technologies best serve the public interest. For example, many people are unaware that some smart city technologies involve the collection of personally identifiable data. We developed this TechBrief to familiarize the public and lawmakers with this topic and present some key issues for consideration. Our overarching goal is to guide enlightened public policy in this area.”

“Our new TechBrief series builds on earlier and ongoing work by ACM’s technology policy committees,” added James Hendler, Professor at Rensselaer Polytechnic Institute and Chair of the ACM Technology Policy Council. “Because many smart city applications involve algorithms making decisions which impact people directly, this TechBrief calls for methods to ensure fairness and transparency in how these systems are developed. This reinforces [an earlier statement](#) we issued that outlined seven principles for algorithmic transparency and accountability. We also note that smart city infrastructures are especially vulnerable to malicious attacks.”

This TechBrief is the third [in a series of short technical bulletins](#) by ACM TPC that present scientifically grounded perspectives on the impact of specific developments or applications of technology. Designed to complement ACM’s activities in the policy arena, TechBriefs aim to inform policymakers, the public, and others about the nature and implications of information technologies. The first ACM TechBrief focused on [climate change](#), while the second addressed [facial recognition](#). Topics under consideration for future issues include quantum computing, election security, and encryption.

About the ACM Technology Policy Council

[ACM’s global Technology Policy Council](#) sets the agenda for global initiatives to address evolving technology policy issues and coordinates the activities of ACM’s regional technology policy committees in the US and Europe. It serves as the central convening point for ACM’s interactions with government organizations, the computing community, and the public in all matters of public policy related to computing and information technology. The Council’s members are drawn from ACM’s global membership.

About ACM

[ACM, the Association for Computing Machinery](#), is the world’s largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field’s challenges. ACM strengthens the computing profession’s collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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