IoT Enabled Smart City Workshop for City, private and public communities

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Smart City - Vision

Smart City

Improve the life of citizens

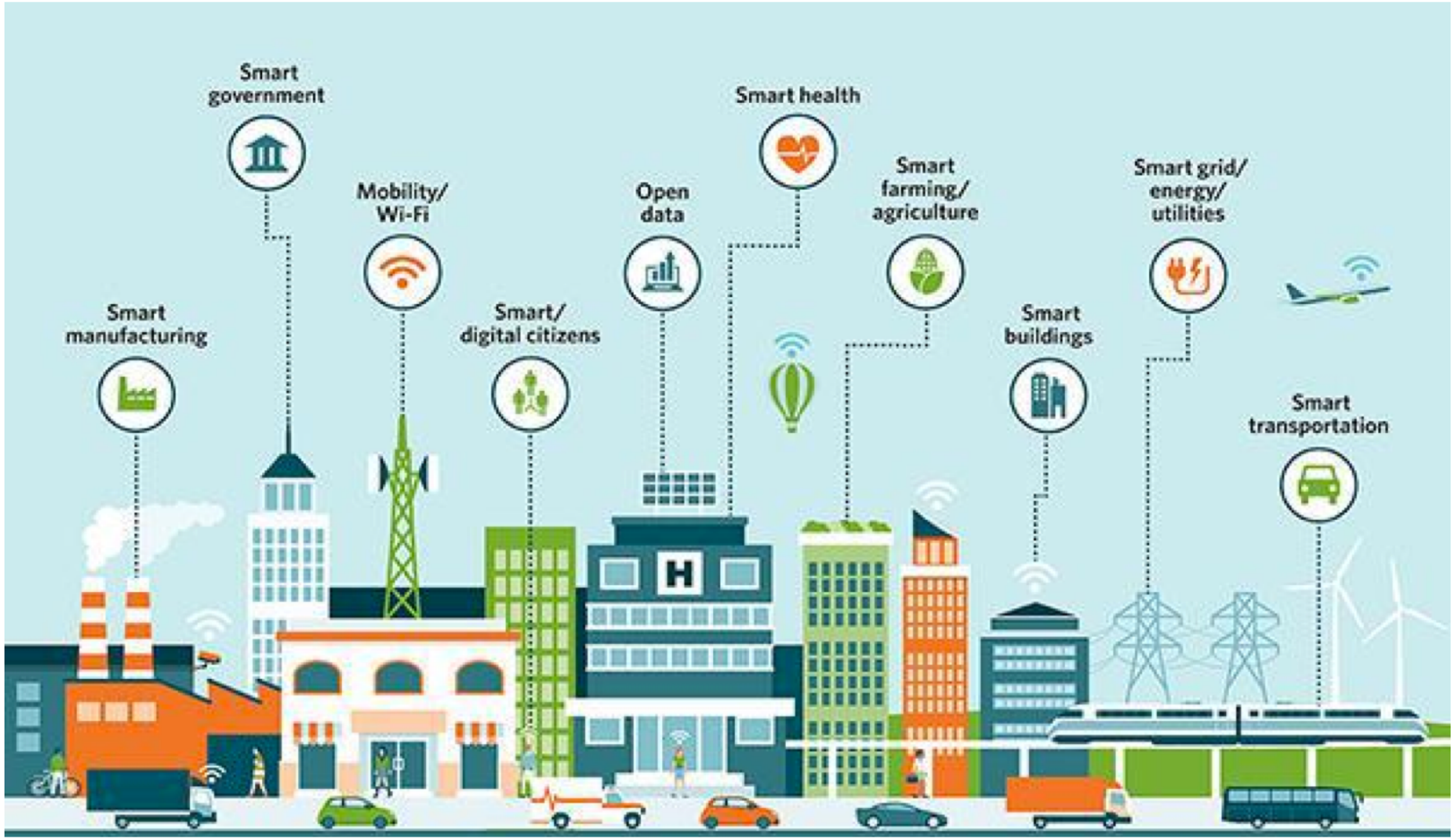
Ongoing feedback to learn about our existing ecosystem.

Goal: achieving social justice, sustainable economies, and environmental sustainability

Providing community-wide information management system and data collection process to understand the city's ecosystem and its dynamics.

More informed **choices and decisions**

Design of Smart City: Not Just Smart Sensors!



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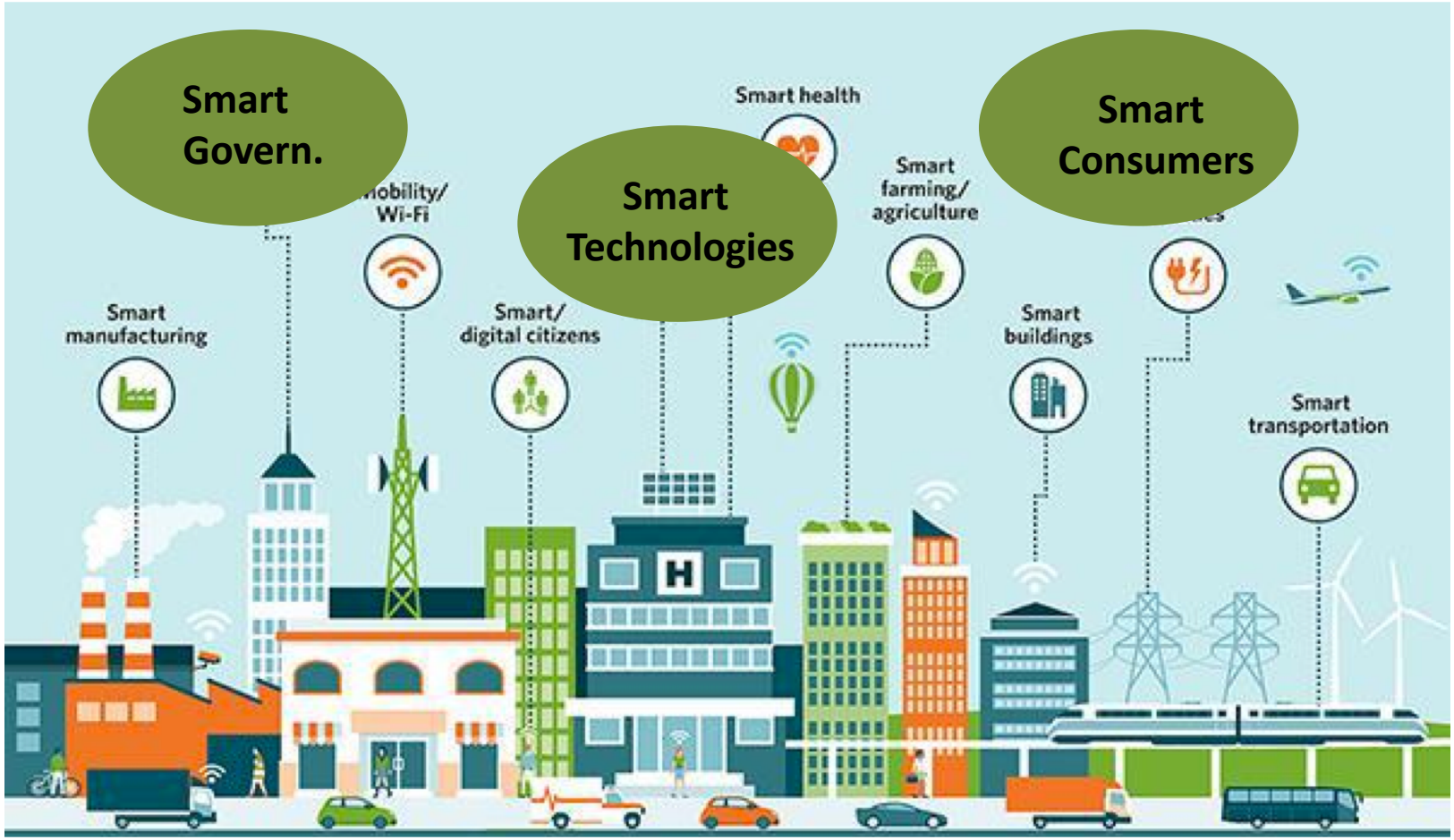

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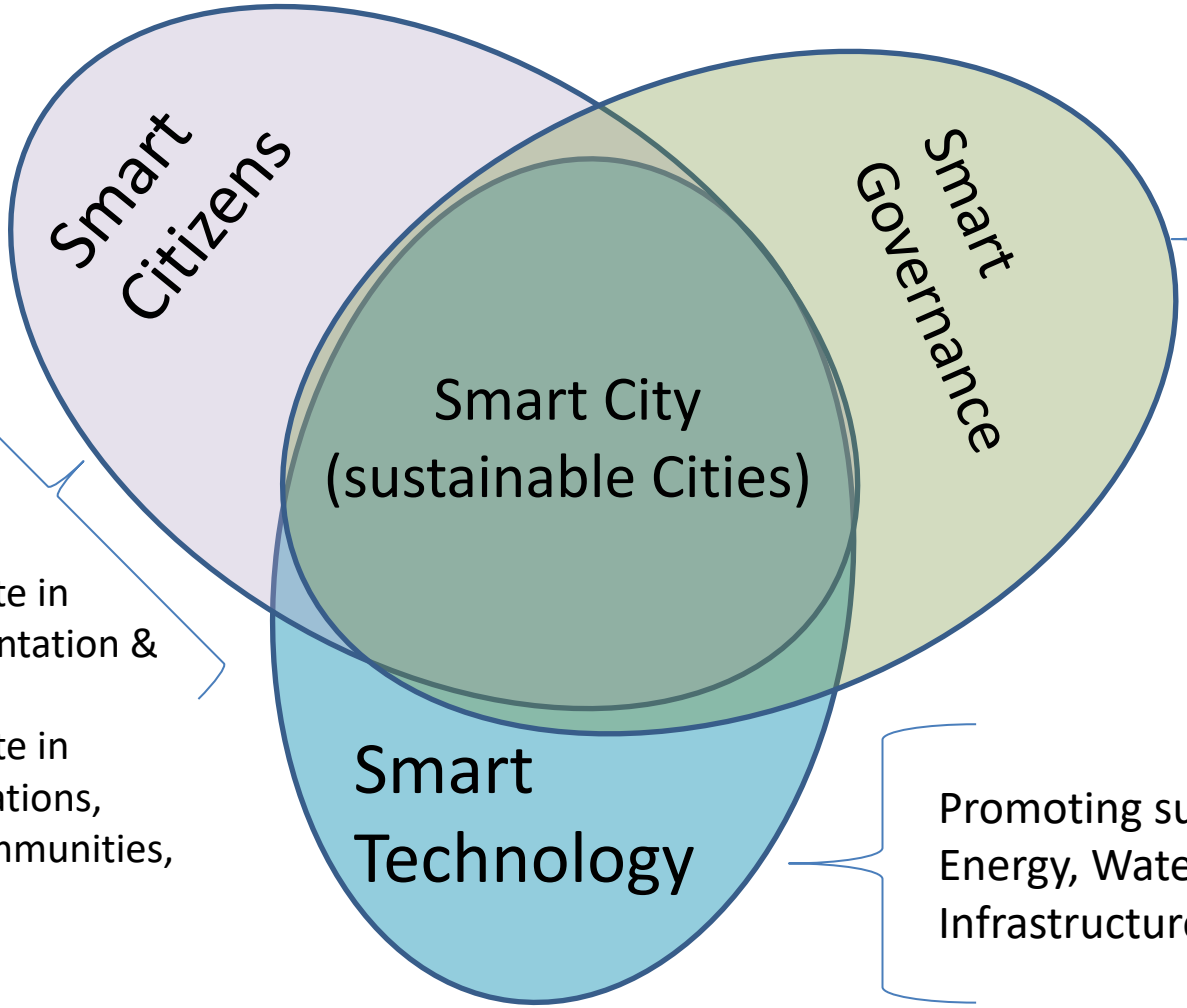
Smart City Components



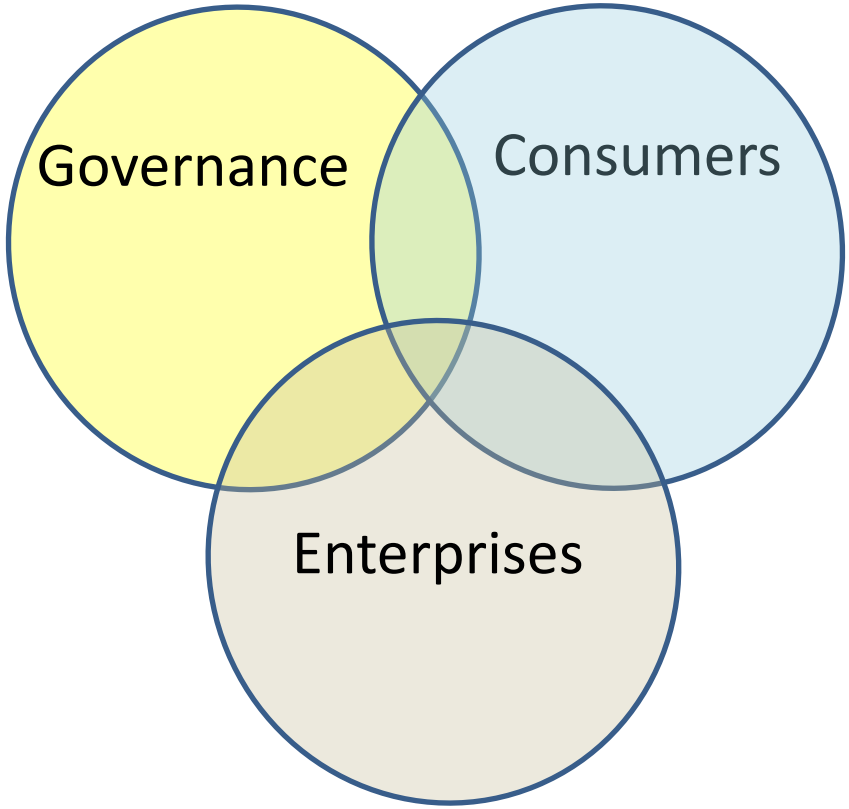
Activism,
Participate in Implementation & planning,
Participate in Collaborations,
Build communities,
etc.

Policies,
Facilitate public participation
Promoting equity & Social Justice
Investment
Fosters Collaborations,

Promoting sustainable useable of Energy, Water, Building Infrastructures, Healthcare, etc.

Smart City Challenge: Education

- Educating, guiding, and bringing together smart consumers, smart governance, and smart enterprises
- Establishing strategic relationship
- Creating authentic communications



Education Cluster Objectives

- Reach out to all the stakeholders
- Best practices
- Prepare educational workshops for the stakeholders and share the material
- Establish an educational platform to cover topics related to creating smart cities at the local level
- Identify the most critical problems requiring smart solutions
- Share information about appropriate technologies and test cases
- Address funding opportunities
- Create networking opportunities between stakeholders

Workshop Curriculum

Session 1 : Introduction to IoT and smart cities

- An Overview of Smart City
- Block diagram and Schematic flow of IoT based Smart City
- Various components for architecting Smart City
- Few use cases
- List of possible smart city projects – A case study
- Citizens expectations

Session 2 : Hardware, OS and Networking Technologies

- Overview of Internet of Things (IoT) for Smart Cities
- Review of networking fundamentals
- Overview of IoT Hardware platforms and Sensors
- Protocols and Standards
- Bill of materials (BOM) for smart city projects
- Programming/device drivers for smart city hardware and sensors

Session 3 : Cloud and Analytics

- Cloud technologies for smart city
- User interface and Dash boards
- Database technologies
- Analytics and machine learning
- Interfacing hardware, sensors with cloud

Session 4 : Cybersecurity and Privacy

- Overview of Cybersecurity and Privacy Concepts
- Smart city : Privacy and Trust Concerns
- Cyber attack scenarios
- Threats and Vulnerability Prevention Checklist
- Intersection of IoT, Cybersecurity and Blockchain
- Hardware and Software tools for auditing risk in Smart Cities
- Estimating impact & cybersecurity for smart city systems

Session 5 : Prototype to high volume production

- PCB design
- Mechanical housing – 3D printing
- System Integration
- Testing and QA
- Usage of Maker's lab at Sonoma State University
- System Integration
- Final acceptance test procedure

Session 6 : Conclusion

- Recap
- Brainstorm with all attendees and list down the problem area's
- Discuss next action items
- Feasibility of getting grants from NSC or other Government agencies
- Connecting to possible funding from corporate and private investment group
- Set a date for next review meetings and action plans

Session	Duration	Topics	Content
1	1 Hr.	Introduction to IoT and smart cities	• Overview of IoT, smart city and real time use cases. • Building blocks of smart city. • Bill of materials of smart city. • Citizens needs and expectations.
2	1 Hr.	Hardware, OS and Networking Technologies	• Various types of hardware such as ARM mbed, Intel family. • Hardware protocols; GPIO, I2C and UART. • IoT networking components includes; IPv4, IPv6. • Connection standards Wi-Fi, Zigbee, Bluetooth, LoRA, Sigfox and operating systems.
3	1 Hr.	Cloud and Analytics	• Cloud technologies such as AWS IoT, IBM Blue mix, Microsoft Azure, GE (Predix) . • IoT protocols such as MQTT,CoAp • Dash boards. • Database technologies. • Analytics and machine learning.
4	1.5 Hr.	Cybersecurity and Privacy	• Overview of Cybersecurity and Privacy Concepts. • Smart city : Privacy and Trust Concerns. • Cyber-attack scenarios. • Threats and Vulnerability Prevention Checklist. • Intersection of IoT, Cybersecurity and Blockchain. • Hardware and Software tools for auditing risk in Smart Cities. • Estimating impact & cybersecurity for smart city systems.
5	1.5 Hr.	Prototype to high volume production	• Mechanical housing – 3D printing • System Integration • Testing and QA • Usage of Maker's lab at Sonoma State University • System Integration • Final acceptance test procedure
6	1 Hr.	Conclusion	• Brainstorm with all attendees and list down the problem area's • Discuss next action items • Feasibility of getting grants from NSC or other Government agencies • Connecting to possible funding from corporate and private investment group • Set a date for next review meetings and action plans

Thank you

Contacts

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