

## PAMUN XVI RESEARCH REPORT— The question of Smart Cities

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### Introduction of Topic

A Smart City is an urban development idea which incorporates secure information and communication technology (ICT) solutions to run a city. A city's assets include, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services. They strive to make people lives' better using technology. ICT allows better communication and the city infrastructure and develop a better understanding of the city's problems, its needs, development, and how to make life better for its citizens. Using sensors along with monitoring systems, data is collected from citizens and devices then processed and analysed. Smart City technology could lead to sustainable development in the future, and aid human and economic development.

### Definition of Key Term

#### *ICT (information and communication technologies)*

ICT refers to any communication device or application, including common devices such as: radio, television, cellular phones, computer and network hardware and software, satellite systems as well as their functions and possible uses, services and applications that work using these technologies. These include the global positioning system, videoconferencing and distance learning. According to the European Commission, the importance of ICTs has to do with their ability to provide vast amounts of information to everyday people no matter where they are. Since the development of the internet, we have rapidly evolved towards such a reality, but we are not there yet. Many countries around the world, and organizations have established organizations for the expansion and availability of such technology, as they can create an environment of sustainable development and prosperity not just for the economically developed countries, but for everyone.

#### *Sustainable Development*

Refers to development that is able to satisfy our current needs without compromising the ability of future generations to do. Due to the economic principle of scarcity, one knows that there are infinite needs and wants, but limited resources that can be used. What Sustainable development suggests going a step further, is that if we uncontrollably use those resources, then they will not last us for long.

This can be seen with pollution and diminishing natural resources all around the world. Population is rising, and pollution has led to many problems. Smart cities should be able to solve many of those problems.

## Background Information

ICT is used to increase quality, efficiency, and performance of urban services. Smart city applications are developed in order to make tasks easier, and feedback more effective. It is equipped to tackle problems better than a city which only utilises simple communication and information techniques with its citizens. Yet, the term itself remains unclear to its specifics and therefore, open to many interpretations and subject.

Smart city technology includes solving problems regarding:

- Government services: to create more effective and transparent tax collection services.
- Transport and traffic management, to improve infrastructure for private, and mainly public forms of transport, so as to make commuters' lives easier, and give people the capability to live wherever they want, without location and distance from work being an issue.
- Energy, using renewable sources to generate the energy we need, while keeping the environment safe from harm that fossil fuels have.
- Health care, research and development on new drugs to prevent and cure diseases, as well as advanced medical equipment, and bigger ability to reach people all over the country.
- Water is the most vital source of life. Humans, industry, and entire ecosystems need it in order to survive. Thus, smart cities aim to end water crises.
- Innovative urban agriculture and waste management.

The world is changing, technology is advancing, our economic systems are being questioned and some think they have started to collapse, and climate change puts our long-term existence under consideration. The demographics of this world are fickle, as people live longer, diversity expands, and the population is increasing. In this developing world, interest is growing in smart cities. The European Union (EU) has developed a strategy for achieving 'smart' urban growth for its biggest cities. The focus is on strengthening innovation and investment in Information and Communication Technology services to improve public services and quality of life. The global market for smart city services is estimated to reach 500 billion by the end of the decade. Smart City technologies and programs have been implemented in Milton Keynes, Southampton, Amsterdam, Barcelona and Stockholm.

## Major Countries and Organizations Involved

### European Union

The European Union, an economic common market between 28 nations, has adopted policies which support the advancements of cities, and application of smart city technologies throughout its jurisdiction. It is named *The European Innovation Partnership for Smart Cities and Communities* and combines ICT technology, along with energy and transport management.

### United Nations

The eleventh goal of the 2015 sustainable development goals reads: “Make cities inclusive, safe, resilient and sustainable”. More specifically it aims to ensure high quality public services, housing, and lowering environmental effects. The United Nations Economic Commission for Europe (UNECE) and industrial partners jointly created the United Smart Cities initiative in order to ensure the economic, demographic, and environmental stability of cities, reduce their bad environmental impact, improve quality of life, and achieve those goals through public-private cooperation.

## Timeline of Event

Date	Description of event
1986	1 <sup>st</sup> municipal open data in London. Open data is data that can be freely-used by anyone with the requirement being to attribute the creator. For the first time, copyrights are not a constraint, and people are able to better share their knowledge and data without restrictions.
1992	UN conference in Rio develops the “smart growth” agenda including goals for: <ul style="list-style-type: none"><li>• Social and economic dimensions (e.g., international cooperation to accelerate sustainable development in developing countries, combating poverty, changing consumption patterns, promoting sustainable human settlement development);</li><li>• Conservation and management of resources for development (e.g., protection of the atmosphere, planning and management of land resources, promoting sustainable agriculture and rural development);</li><li>• Strengthening the role of major groups (e.g., women, children, indigenous people, workers and trade unions); and</li><li>• Means of implementation (e.g., financing, technology transfer, promoting education and public awareness, international legal instruments).</li></ul>

1997

“Smart communities” global forum foundation is created presenting implementation guidebook for cities to “go smart”. At the same time, Smart Growth is introduced in EU and related industries

2010

Yokohama and Masdar city in Abu-Dhabi present plans to adopt such technologies, specifically reducing carbon emissions, introducing electric vehicles and renewable energy, as well as less energy consuming grids and Information technology to promote carpooling.

21 June 2011

The EU *Smart Cities & Communities Industrial Initiative* is officially launched. The predecessor of the European Innovation Partnership for Smart Cities and Communities, it covers transport and energy. EU companies now have access to 75 million euro funds

2013

London develops a smart city plan and Songdo Eco City in Korea expands such technology.

2015

Smart cities are added as a goal to the UN Sustainable Development Goals.

## Main Issues

### Smart Energy

New energy systems in smart cities will be able to better adapt to energy usage, so as to conserve energy. According to estimates by companies in the tech field, such energy systems will be able to reduce energy consumption by at least 30%. Through the use of renewable energy sources such as photovoltaic cells, wind turbines, or dam electricity generators using the flow of water, pollution will dramatically decrease. Managing water supply and have a waste management system, cities can save energy.

### Smart Mobility

Smart mobility strives to find more sustainable transport options. Most of the worlds’ large cities suffer from terrible traffic jams and traffic problems. As cities grow and become vast thanks to urbanization, new transportation solutions need to be developed. An example of this is new public transport systems

such as the Hyperloop or high-speed trains or better road that can withstand more traffic and reduce accidents. This could save governments vests amount of money in the long-run, as commuting becomes faster, so people do not waste their time getting to work every day, and the lower expenses of accidents. Walking, cycling and public transport could stop the problem of traffic in big cities. By collecting data about driving in the city, and traffic statuses driving and movement patterns can be identifying and minimize the accident probability. Finding new and improved solutions to solve the problem of traffic and commuting in large cities will reduce costs and have a positive environmental impact.

### Smart Infrastructure

Smart infrastructure is necessary for smart solutions. By using new technology to collect information, development can happen in a way which will satisfy future demand. Existing systems can be improved.

### Smart Public Services

Making authorities easier to reach and communicate with using new technologies will make cities safer, cleaner and a better place to live in. By using a database where residents can report problem with the city's infrastructure, or hygiene, authorities can act faster to solve problems they otherwise would not be aware of.

### Smart Care

The development of healthcare services will be able to respond to the problem of overpopulation, and change in demographics as people live longer, the healthcare system needs to evolve. Smarter care will reduce costs and provide better service through connectivity. Giving caretakers access to patient information will help doctors find ways to give the best patient care possible.



Taken from: <http://www.slideshare.net/palakshah9822/smart-cities-30035206>

## Possible Solutions

Making the idea more accessible is imperative at this stage. Not a lot of officials know about smart cities and the effect one of them might have in the economy and overall quality of life in a country. There are many who do not like the idea of camera surveillance, and a breach of the privacy. Thus, it is evident that questions need to be answered, and there should be general education regarding smart cities. Giving a city smart technologies can be extremely expensive, so international bodies could aid in funding such projects in order to stimulate sustainable development in cities where the government would not be able to afford such programs. Lastly, there is fear over such great technology to be misused leading into an Orwellian dystopia in the not too distant future. This is where governments use ICT technology not to merely improve efficiency and improve public services and security, but to control civilians and create a state with no democracy or respect for human privacy. Such questions should be asked so as to determine what we want as a future for our planet. Lastly, smart cities could solve many of the environmental problems faced. Previous examples have shown that correct policy and awareness can rollback many of the problems we have caused to our planet. The ozone layer depletion was a large problem in the beginning of the century, and by simply diminishing the use of gases which caused ozone to decrease in volume have managed to heal the hole. In 2015, scientists estimated that the hole will have been completely fixed by 2050. The large problem we face now, is Global Warming, which is

caused by the increase of greenhouse gases in the atmosphere as a result of industrial production. Smart cities could act against this problem, by planning to produce energy using renewable sources such as sunlight or air. Another way through which smart cities can promote sustainable energy is by limiting trash.

## Bibliography

<http://www.un.org/sustainabledevelopment/cities/>