

IEICE Global Plaza

—Monthly community plaza in English for students, faculties and engineers—

Essay

Smart City Development in Indonesia and Asian-African Nations

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Hi, all of IEICE members and general readers of IEICE Global Plaza I would like to overview the fundamental scheme and global activities of Smart City where I have been devoted to take the initiative of the social innovation in Asian-African region. I believe that the Smart City will be one of the driving forces for the worldwide improvement of life quality of citizens. I am grateful if this article would be useful for your academic activities, directly or indirectly and the future fruitful global collaborations.

Urgent Problem : Overpopulated Cities

The current distribution of the world's population is having a tendency to move into city areas, thus causing the cities to change into highly populated areas, in some cases even making them overpopulated. For instance, in this 2015, more than 50% of the world population live in the cities, while, in 1955 when The Asian-African Conference was held for the first time, the rate of the world cities' total population was around 30% of it in average (Fig. 1). The urgent problem at that time was to promote the unity and solidarity between the newly-independent nations, therefore to strengthen them to be developed and self-sustaining countries.

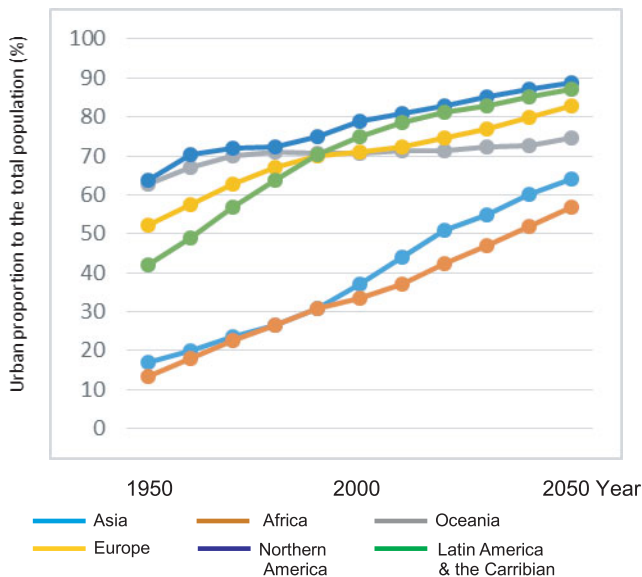


Fig. 1 World trend of urbanizing population (from the data of UN 2014)

Sixty years have passed after the first Conference was held, and now the urgent problem has shifted. There are plenty of cities in Asian-African countries facing multi-aspect problems that directly affect their citizens. Severe traffic jams, unregulated street vendors, low supply on energy, waste processing, and even high criminality rates have haunted the sustainability and comfort of the cities.

An imbalance of life quality has come out between an efficient, advanced, comfortable and safe city, and a city that is still facing such aforementioned classic problems (Fig. 2). Quite many cities

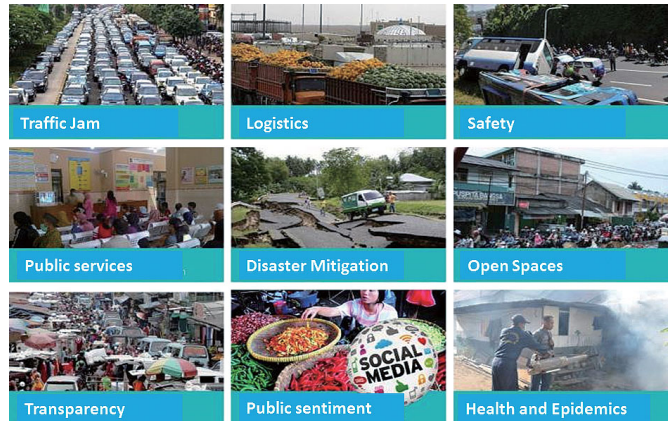


Fig. 2 Current problems in a city

have been built without balancing the real supporting capabilities of a city with its requirements or its capacity.

Thus, it is necessary to explore and develop the well-defined city governance to provide appropriate services within its goals and roadmap, even under pressure from other parties covering business, politics, or other sectors' interests. Some concepts about a well-planned city including green city, livable city, digital city, have been introduced by several industries that would be active in this business area.

In this sense, the smart city is also a concept which strives to seek solutions to the city's problems comprehensively. Several multinational organizations, mainly based on EU or in USA, have proposed a measurement model or a model of a smart city itself. In answering such global trend and adapting it to the needs of Indonesia, Bandung Institute of Technology (ITB) in collaboration with the nation's foremost media group "KOMPAS" (<http://www.kompas.com/>), currently performs a nationwide smart city measurement.

City Anatomy

A city can be stated as one of systems intertwined with the underlying systems in many ways. As an example, all of transportation system, commerce system and waste management system are connected each other, sometimes in ways that cannot be comprehended through the usual observation.

To unravel this connection between the systems that make a city, there is a multinational organization called "City Protocol Society" that proposes a city anatomy which categorizes a city into three main parts : Structure, Interaction and Society. The Structure can be further divided into three layers which are environment, infrastructure and physical structures. The Interaction can be further divided into livelihood and informational context. The Society is consisted of citizens, industries and government (Fig. 3).

With the proposed city anatomy, an action or a decision made by the government in managing and operating a city can be truly justified. The capacity of resources to support positive human

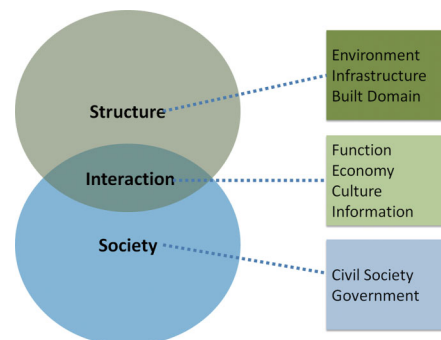


Fig. 3 City anatomy breakdown (Source : City Protocol Society)

activity can be ideally measured, while self-interests of a party can be set aside to provide a greater good. For example, it will be expected to preserve the environment in a sustainable way.

Smart City Concept

What is called as a "smart city" is a city that is able to optimally manage its resources to provide the comfort, safety and sustainability for its development. Even if a smart city cannot be separated from intensive implementations of state-of-the-art information and communication technology (ICT), the effectiveness of such technologies' implementation depends on how far the implemented technology can help solve the city's problems proportionally.

The good governance practice (GGP) would have the highest significance in a successful smart city, because smart and accurate executive decisions need to be made and carried out to create a comfortable and sustainable city. The accurate decision making and smart governance were done through the real understanding about the current problems, requirements and opportunities happening in a city. In a more practical way, however small the implementation of ICT will be, it will still support the improvement in the effectiveness of city governance.

Garuda Smart City Maturity Model

In Indonesia, ITB has developed the maturity measurement model of a smart city, called by "Garuda Smart City Maturity Model" or GSCMM in short (Fig. 4). This measurement model consists of three enabler parameters, and three clusters that can characterize a city. The three enabler parameters are human factor, governance, and technology, while the three clusters are environment, social and economy, respectively.

The environment cluster consists of energy management, city planning, and environmental preservation efforts. Main parameters of the social cluster include security and safety, health and hygiene, public services and transportation. The economy cluster can be measured with human resources capability, education, economic growth centers and industry management.

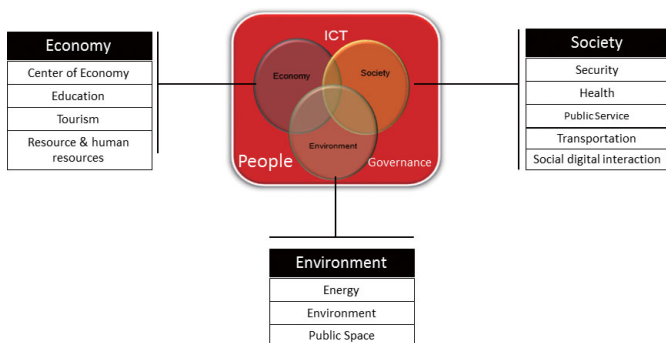


Fig. 4 Garuda Smart City Maturity Model

Through understanding the true potentials and conditions of these clusters, the real maturity of a city in adapting the smart city concept can be measured. Afterwards, a roadmap that has been adjusted to pursue the city government's short-term, mid-term and long-term goals can be made, thus supporting the city government's effort to promote their sustainable development.

This kind of effort is currently a new and emerging innovation in Indonesia, considering that the smart city concept itself is a new and novel idea globally. As a developing country, Indonesia has many similarities with the other developing countries, especially Asian-African nations in general.

Asia-Africa Smart City Summit

Asian-African cities facing similar problems have urged the government of Bandung City to make an initiative in holding the Asia-Africa Smart City Summit, in conjunction with the 60th anniversary of Asian-African Conference Celebration. This Summit was held in Bandung, Indonesia on April 22-23, 2015, and more than 400 people from 65 cities of 39 countries joined the Conference. It provided an opportunity for the involved nations to study and share the current problems in Asian-African cities, while at the same time looking for viable solutions that could be applied widely. (See it at <http://asiaafricasmartcity.com/>)

Through this opportunity, several pressing issues in a city have been discussed covering environment, energy, transportation,

payment, human resources, entrepreneurship, youth, governance, and an ideal model of smart city.

With a purpose to strengthen the development of smart cities in Asian-African countries, the Asia-Africa Smart City Summit has called upon every involved party to support the following goals:

- (1) To commit to the development and building of a sustainable, smart city model through building a network of knowledge, managerial and technology sharing, mainly by local governments, academicians, business, industries and communities in Asia-Africa region.
- (2) To make great efforts towards the creation of environmentally-friendly cities, smart public services and utilities, particularly in the field of sustainable transport, renewable energy resources, and the prevention and mitigation of disasters within Asia-Africa.
- (3) To invest in the development of smart communities through better education and healthcare in order to improve the quality of life of the people.
- (4) To promote the utilization of smart economy systems and to provide the support for smart young generation to enhance their creativity and entrepreneurship for the continuous growth of sustainable and smart cities.
- (5) To further promote and advocate the networking and collaborative partnership for the building of smart cities, through the establishment of the Asia-Africa Smart City FORUM/NETWORK/ALLIANCE that will improve the lives of citizens in Asia and Africa.

The aforementioned goals are the necessary foundations for strong multilateral relationships among Asian-African countries, particularly in the development and adaptation of the concept of smart city in the future. Through cooperation and collaboration in our shared interests, we can solve our problems together for the better future of our world and civilization. Thus, most participants in Asia-Africa Smart City Summit have high hopes that Asian-African civilizations can progress rapidly and stand at the same level as other developed nations in the coming thirty years.

Note by the Editor, Prof. Kenzo Takahashi

The author, Prof. Suhono has taken the global initiative of Smart City development and set up the Asia-Africa Smart City Summit on the occasion of the 60th Anniversary of Bandung Conference, remembering the initiatives taken by the great world leaders. This article will encourage the general readers, above all, younger generation who will be involved in the socio-economic development through evolving ICT.

Announcement

Let's Join English Session BS-6 in 2015 IEICE Society Conference

2015 IEICE Society Conference will be held at Tohoku University in Sendai, Japan, on September 8-11, 2015. The English Session BS-6 entitled "Network and Service Design, Control and Management" will be organized by Technical Committee on Information Communication Management (ICM) of IEICE Communications Society and provided during the Conference.

Topics of interests: Network, Service, Wireless or Optical issues
Paper length: 2 pages in principle (one page is acceptable as well)

Proceedings: To be published and quotable through I-Scover

Paper submission deadline: 17:00, July 1, 2015

(See it at http://www.toyoag.co.jp/ieice/E_S_top/e_s_top.html)

Message from TFIPP Secretariat

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