CONSIDERATIONS & CHALLENGES IN BUILDING SMART CITIES IN THE PHILIPPINES

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Theme: The rise of Smart Cities and Communities

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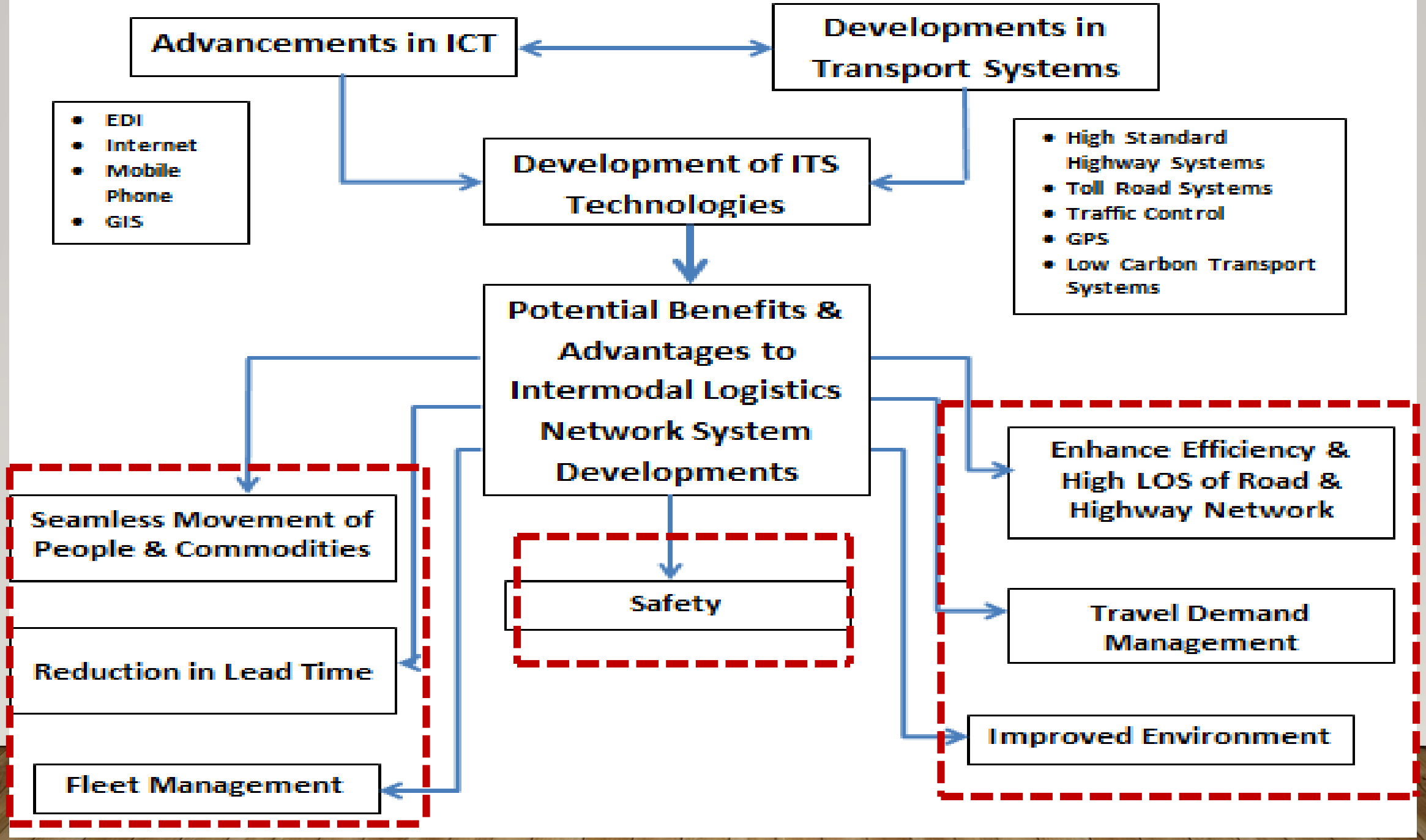
THE ADVENT OF ICT/IT IN DEVELOPMENT PLANNING

- **Efficiency in delivery of urban services – health, water, security**
- **Ensuring seamless movement of people and commodities in intermodal logistics network and harmonizing and integrating transport systems and information systems supporting development of intermodal logistics network systems - Intelligent Transport Systems (ITS)**
- **Developing critical infrastructure (transport, water and power) –DRRM/CCA and humanitarian logistics response**
- **Enhancing environmentally sustainable urban development**

Improving QoL, urban economy and LOS of transport systems
Promoting inclusive mobility, reduction of carbon emission

Incorporating ICT in urban planning: Smart City Concept


Advancements in ICT
Developments in Transport Systems
EDI
Internet
Mobile Phone
GIS
Development of ITS Technologies
High Standard Highway Systems
Toll Road Systems
Traffic Control
GPS
Low Carbon Transport Systems
Potential Benefits & Advantages to Intermodal Logistics Network System Developments
Seamless Movement of People & Commodities
Reduction in Lead Time
Fleet Management
Safety
Enhance Efficiency & High LOS of Road & Highway Network
Travel Demand Management
Improved Environment

Definition - What does *Smart City* mean?

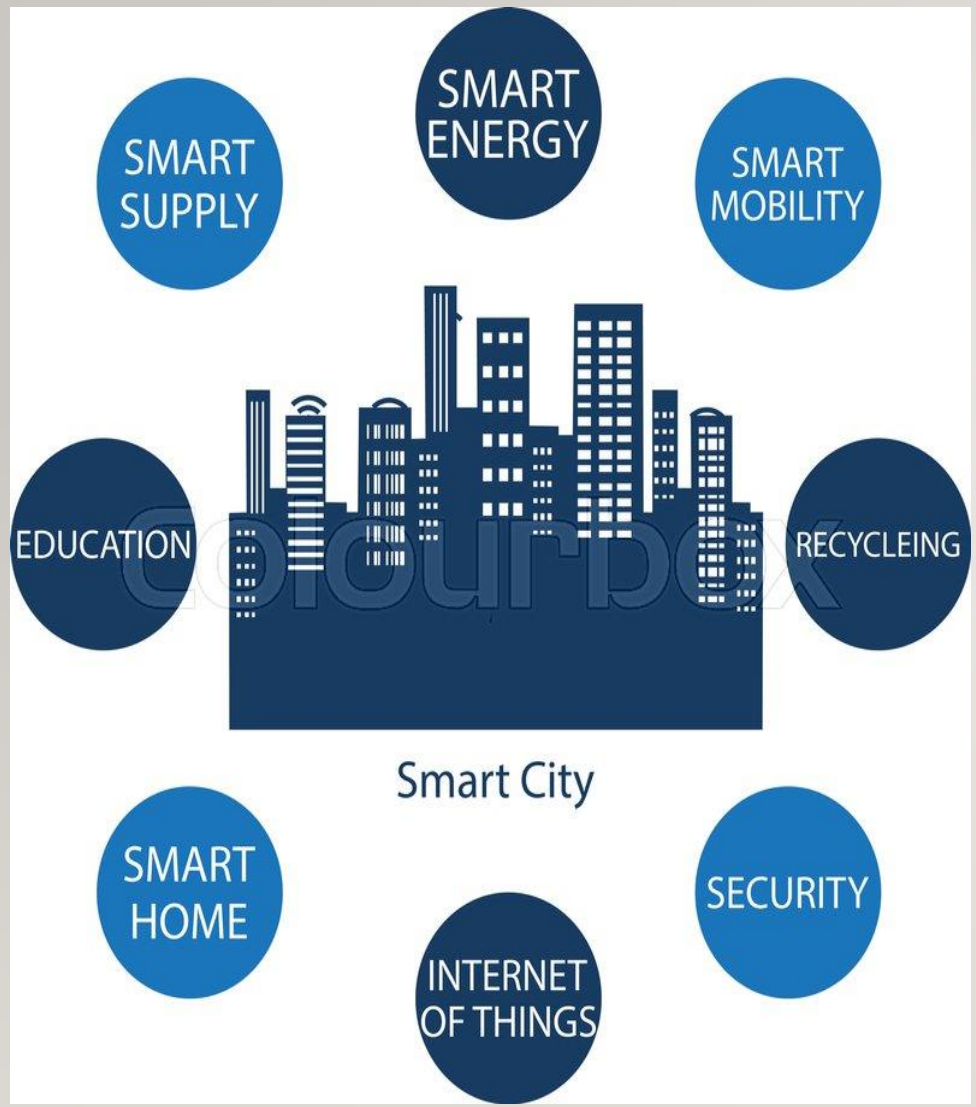
A smart city is a designation given to a city that incorporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs. The overarching aim of a smart city is to enhance the quality of living for its citizens through smart technology.

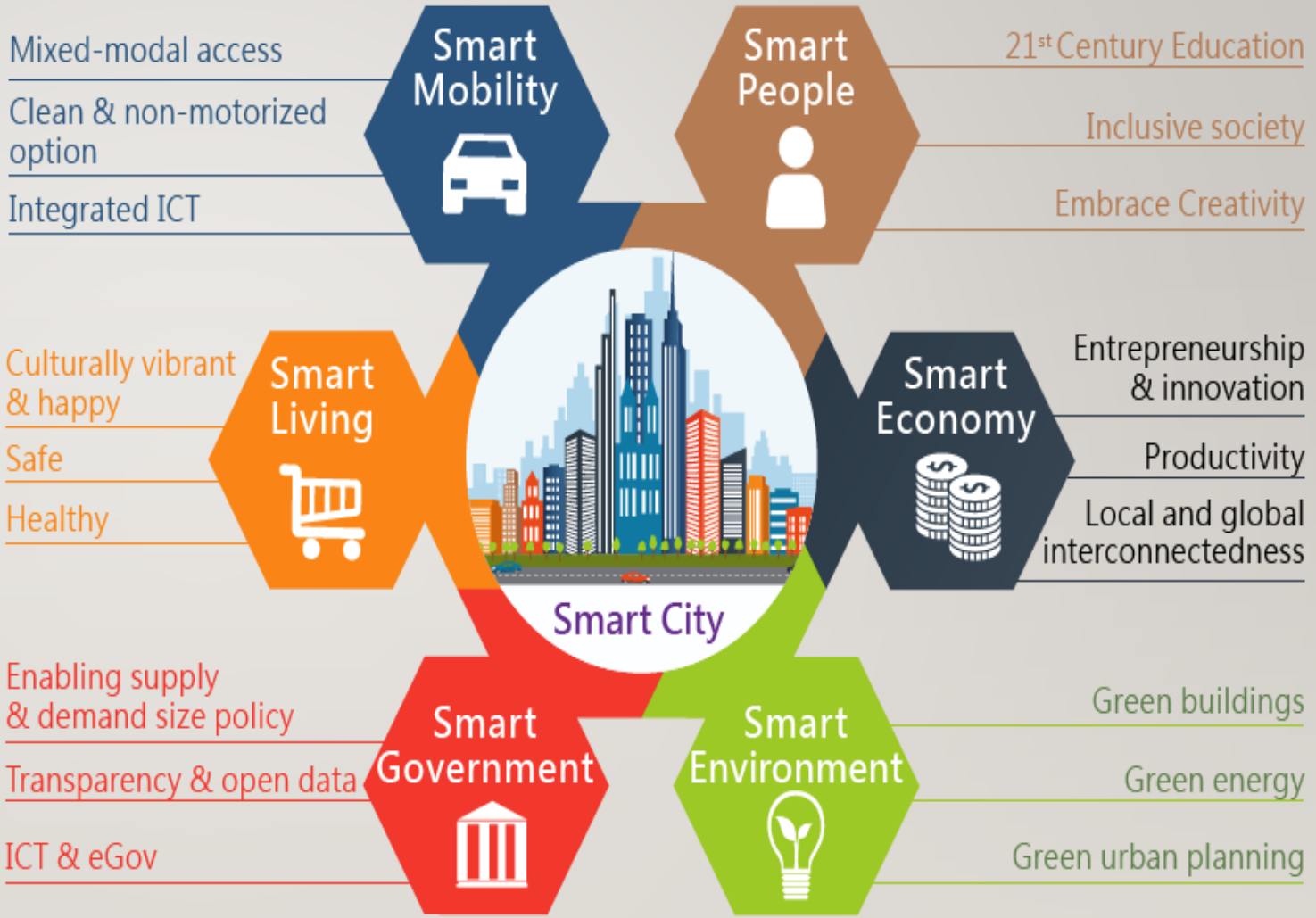
Source: Techopedia (online)

City Logistics Policy Objectives in Developing Smart Cities

- Efficiency
- Economic
- Road safety
- Environment
- Infrastructure
- Urban structure

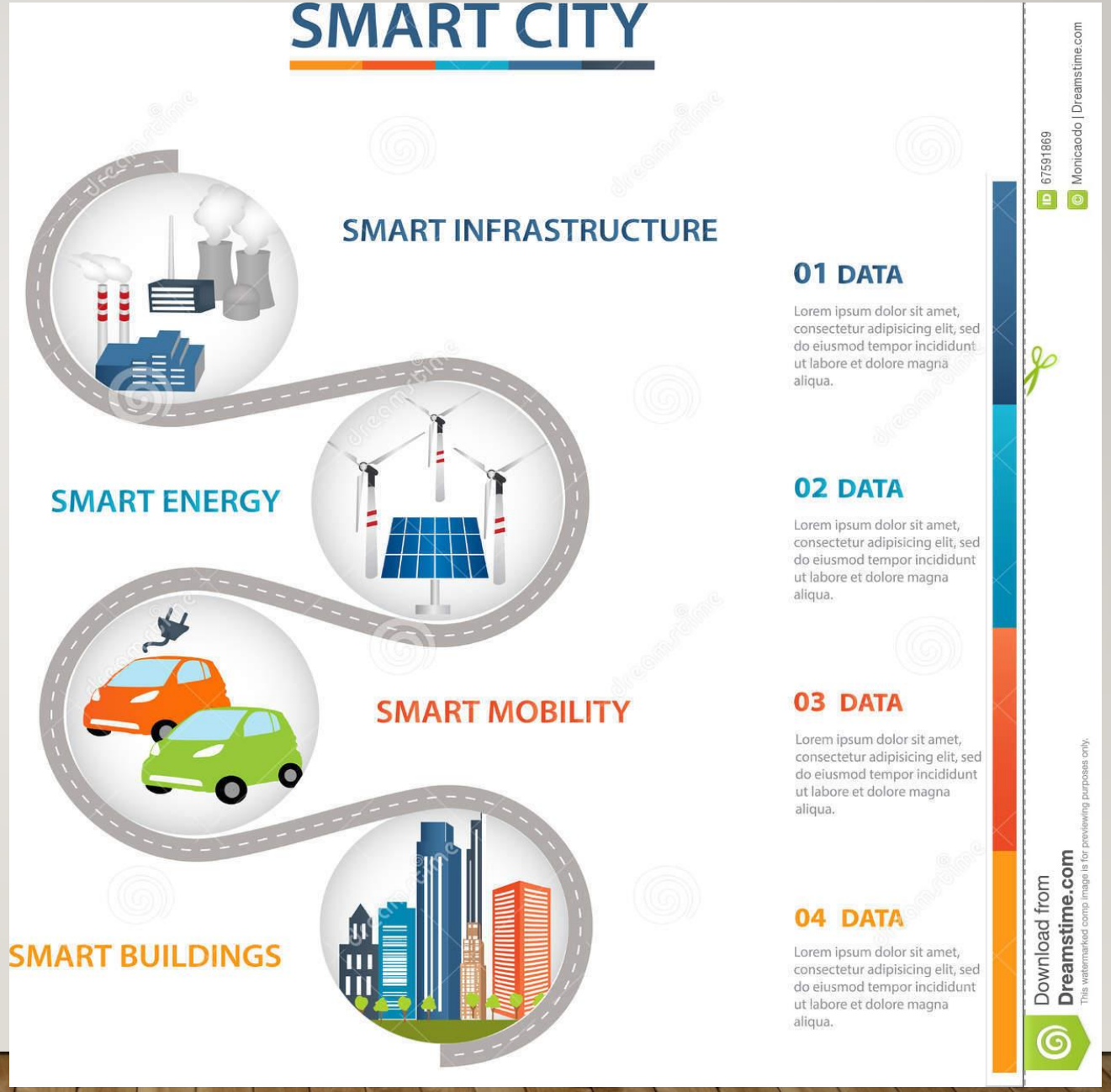
- Reduction of:
  - local pollution (carbon, Nox, lead, etc.)
  - traffic noise
  - Emissions influencing climate (CO_2, greenhouse gases)
- Slowing down of natural resources depletion

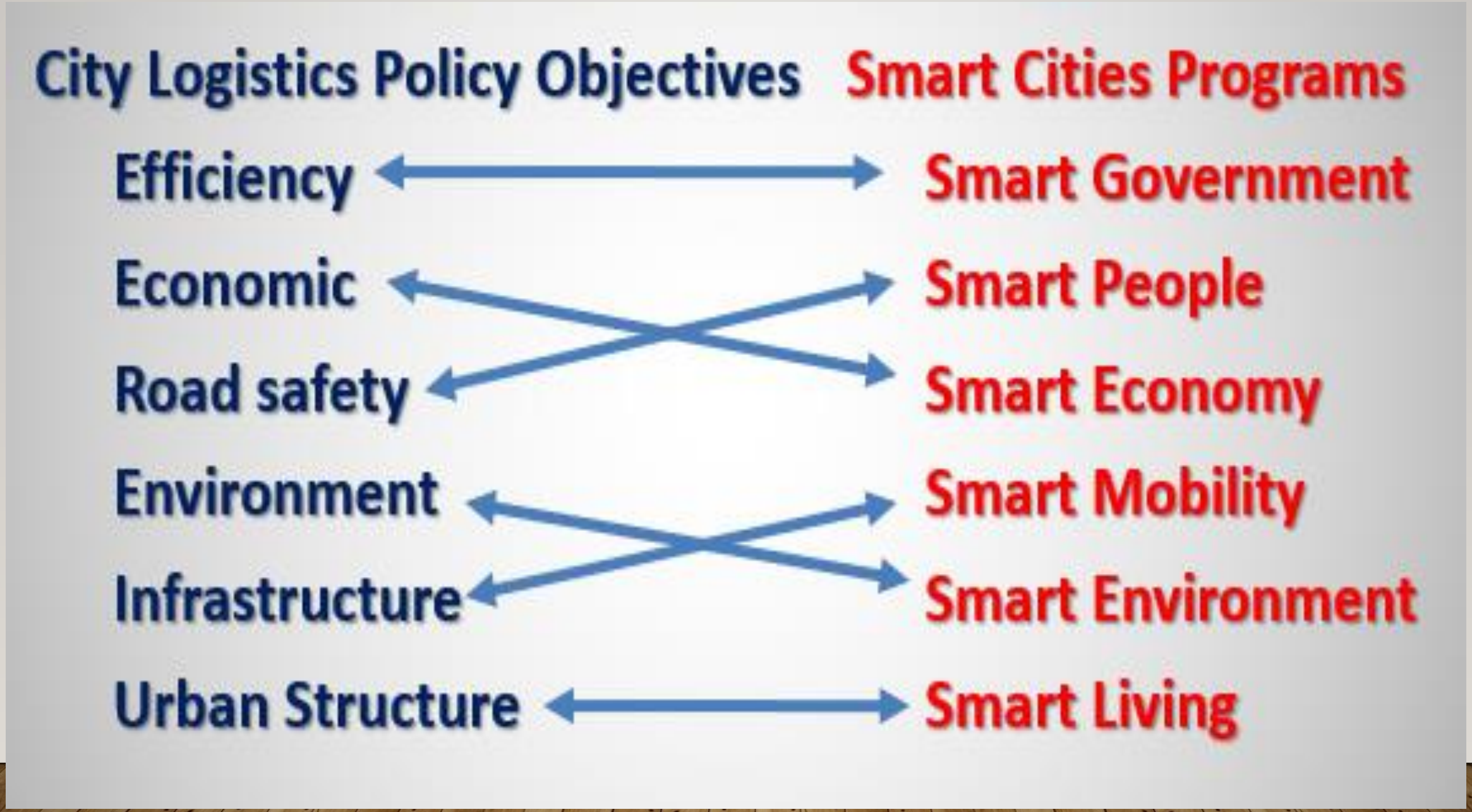

SMART ENERGY
SMART SUPPLY
SMART MOBILITY
EDUCATION
RECYCLEING
Smart City
SMART HOME
SECURITY
INTERNET OF THINGS


Mixed-modal access
Clean & non-motorized option
Integrated ICT
Smart Mobility
Smart People
21st Century Education
Inclusive society
Embrace Creativity
Culturally vibrant & happy
Safe
Healthy
Smart Living
Smart Economy
Entrepreneurship & innovation
Productivity
Local and global interconnectedness
Smart City
Enabling supply & demand size policy
Transparency & open data
ICT & eGov
Smart Government
Smart Environment
Green buildings
Green energy
Green urban planning

Specifically, in approaching Smart Cities mission, promoting cities furnishing core infrastructure and giving decent QoL to citizens, a clean and sustainable environment trough the introduction of 'Smart' Solutions

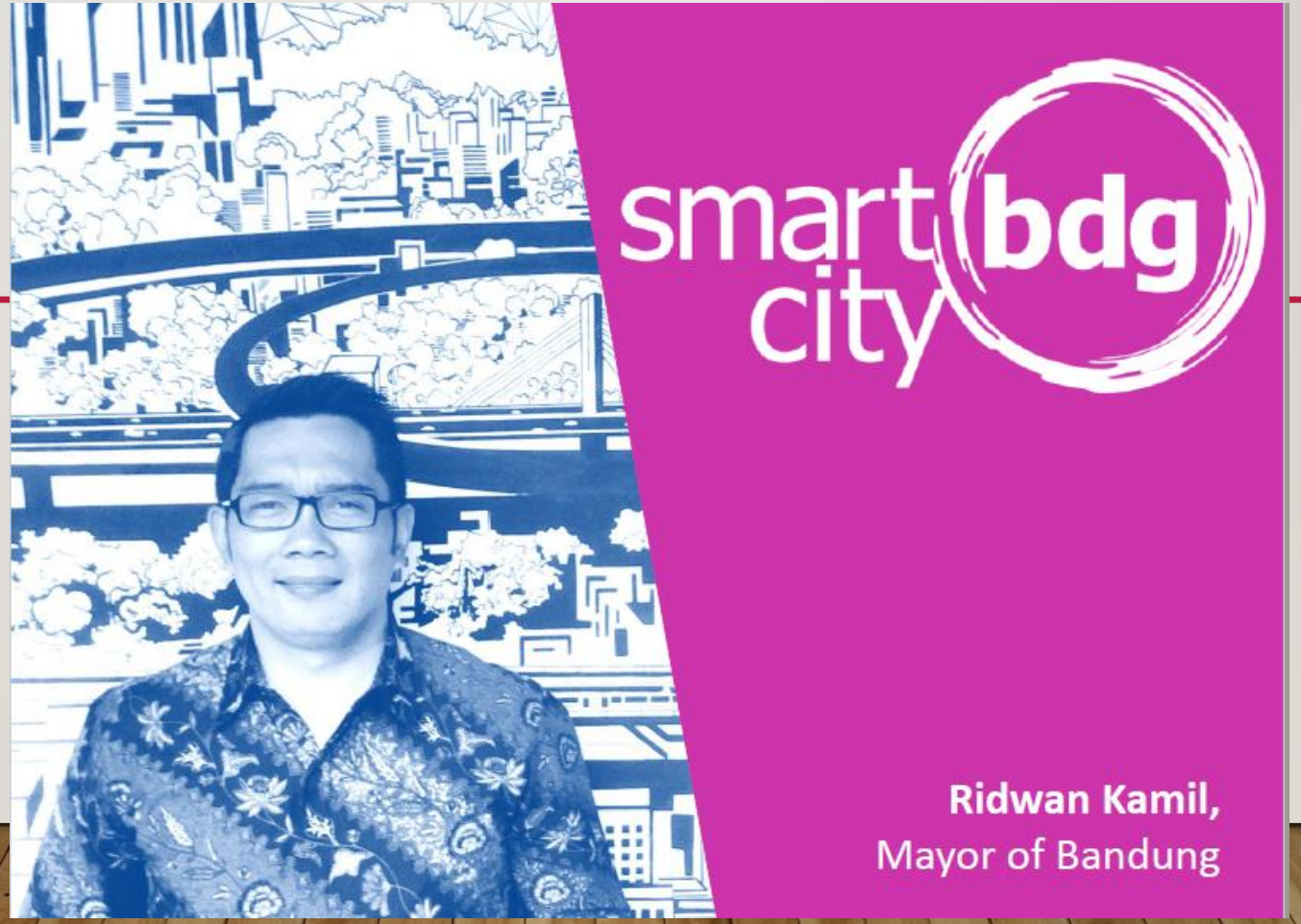
- **Smart Cities Programs**
  - **Smart Government**
  - **Smart People**
  - **Smart Economy**
  - **Smart Mobility**
  - **Smart Environment**
  - **Smart Living**

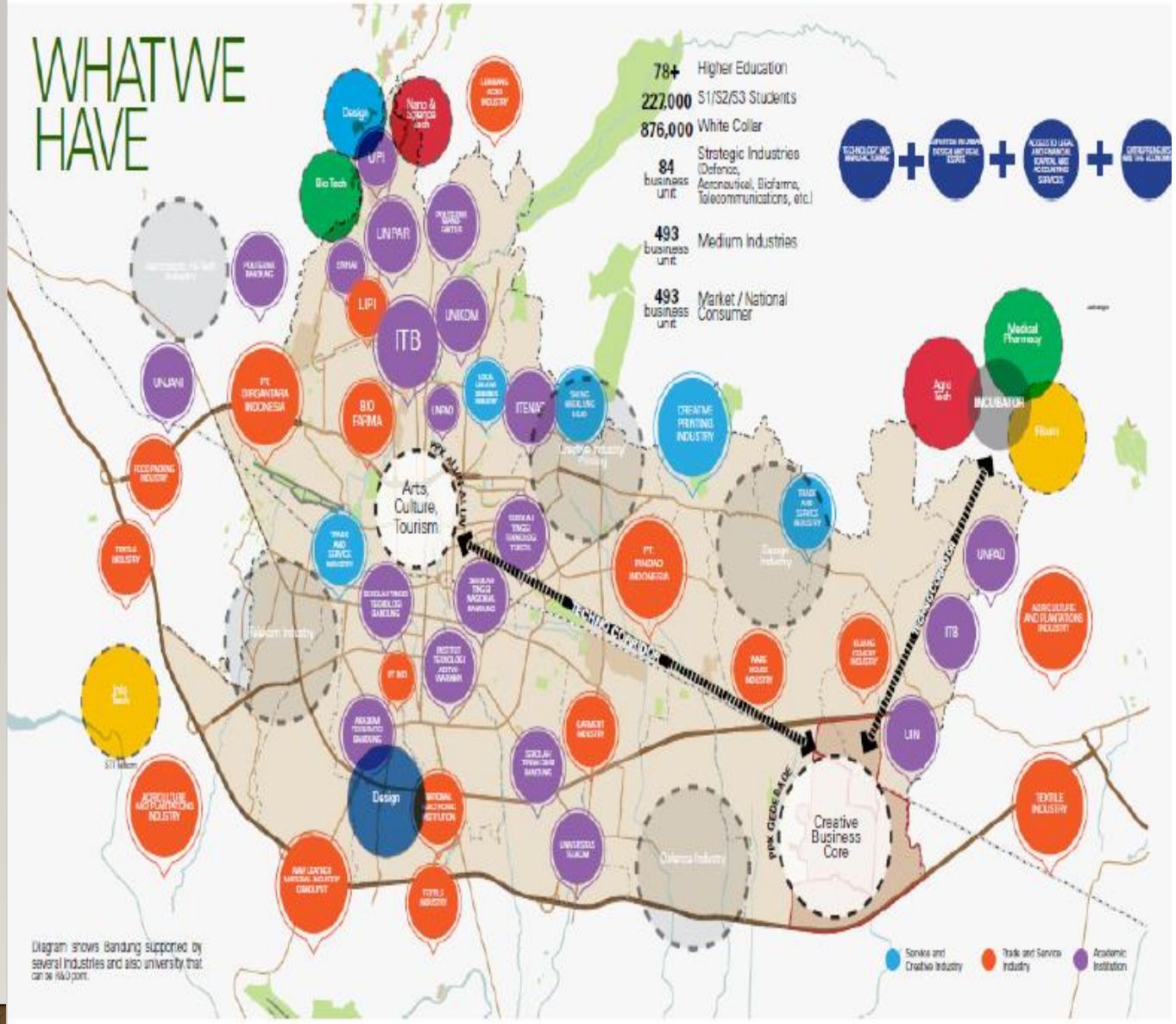



City Logistics Policy Objectives
Smart Cities Programs
Efficiency
Smart Government
Economic
Smart People
Road safety
Smart Economy
Environment
Smart Mobility
Infrastructure
Smart Environment
Urban Structure
Smart Living

BANDUNG SMART CITY BUILDING EXPERIENCE

-EXCERPTS FROM PRESENTATION OF BANDUNG MAYOR RIDWAN KAMIL

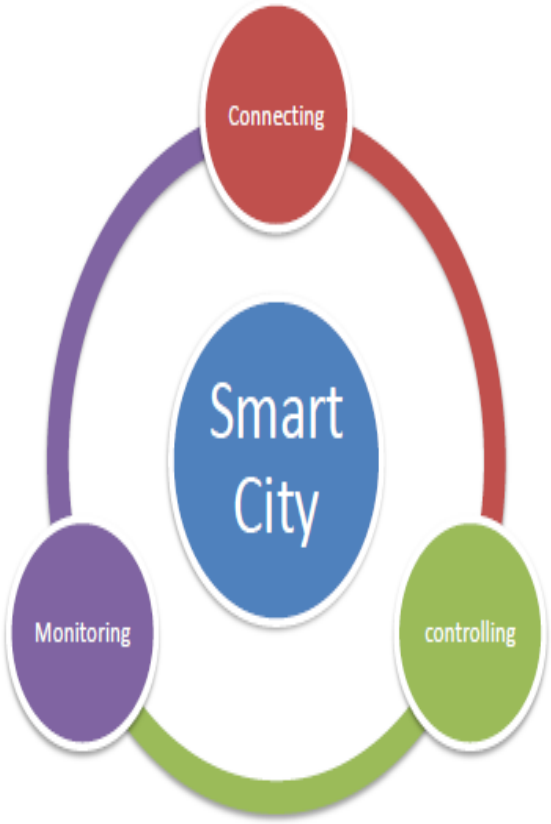



WHAT WE HAVE
78+ Higher Education
227.000 S1/S2/S3 Students
876,000 White Collar
84 business unit Strategic Industries (Defence, Aeronautical, Biofarma, Telecommunications, etc.)
493 business unit Medium Industries
493 business unit Market / National Consumer
ITB
UNPAR
UNPAD
UNIKOM
LIPI
UNJANI
BIO FARMA
ITENAS
Arts, Culture, Tourism
Design
Creative Business Core
Medical Pharmacy
Agro tech
INCUBATION
Fisum
UIN
Diagram shows Bandung supported by several industries and also university that can be R&D point.
Service and Creative Industry
Trade and Service Industry
Academic Institution


INNOVATION
Bandung
DECENTRALISATION
COLLABORATION

Smart City

Utilization of **information and communication technology (ICT)** to **connecting**, to **monitoring** and to **controlling** a variety of resources that exist within the city **effectively** and **efficiently** in order to maximize **service** to the **citizens**



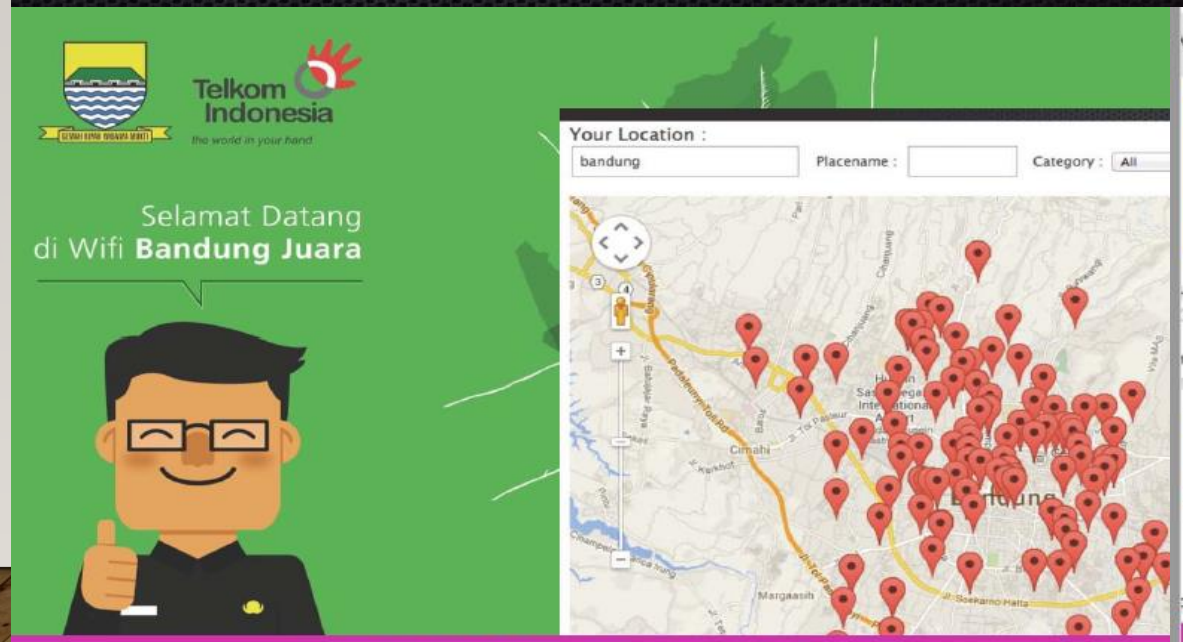
Priorities Area – Smart City Bandung

- Government (Smart Government)
- Education (Smart Education)
- Transportation (Smart Transportation, Smart Parking)
- Health (Health Smart)
- Energy (Smart Grid / Smart Energy)
- Security (Smart Surveillance)
- Environment (Smart Environment)
- Community / Social (Smart Society, Smart Reporting, Bandung Passport)
- Finance (Smart Payment)
- Trading (Smart Commerce)

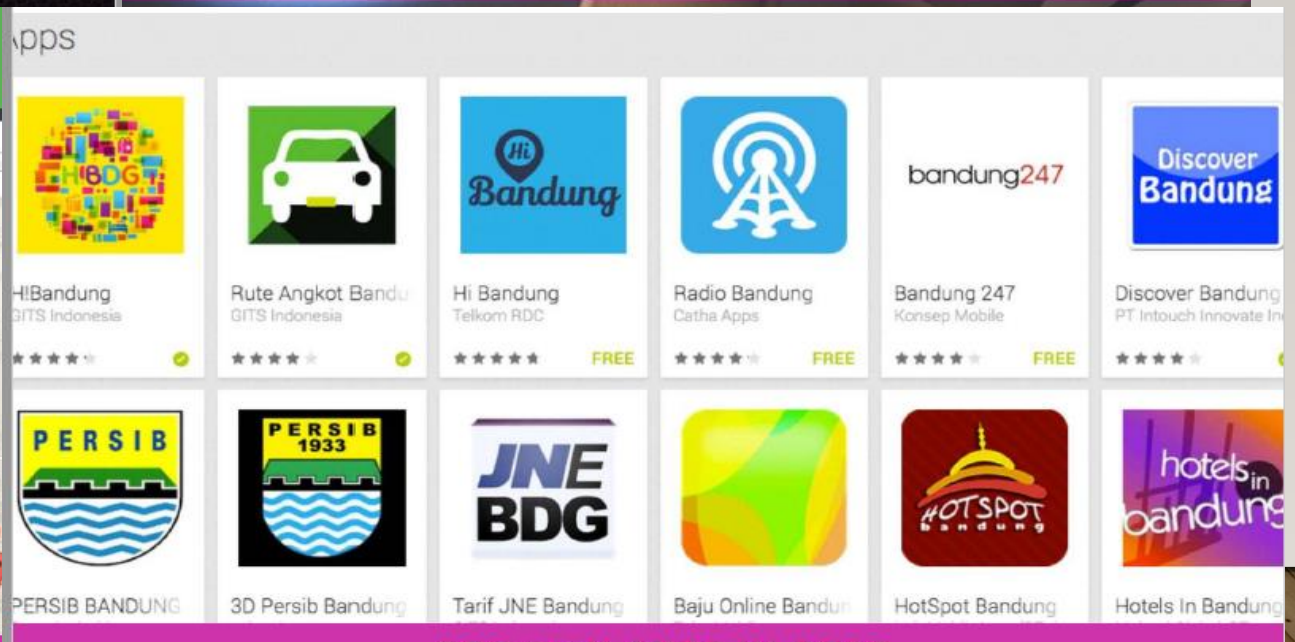
BANDUNG SMARTCITY MILESTONE

- INFRASTRUCTURE
  Internet Access 4 All
- SMART GOVERNMENT
  Technology-oriented Government
- OPEN GOVERNMENT
  Transparency, Share & Collaboration
- EMPOWERMENT
  Internet Literacy, Citizen Engament & Vibrant Digital Industry
- TECHNOPOLIS
  ICT based Economic Exclusive Zone

Bandung Command Center

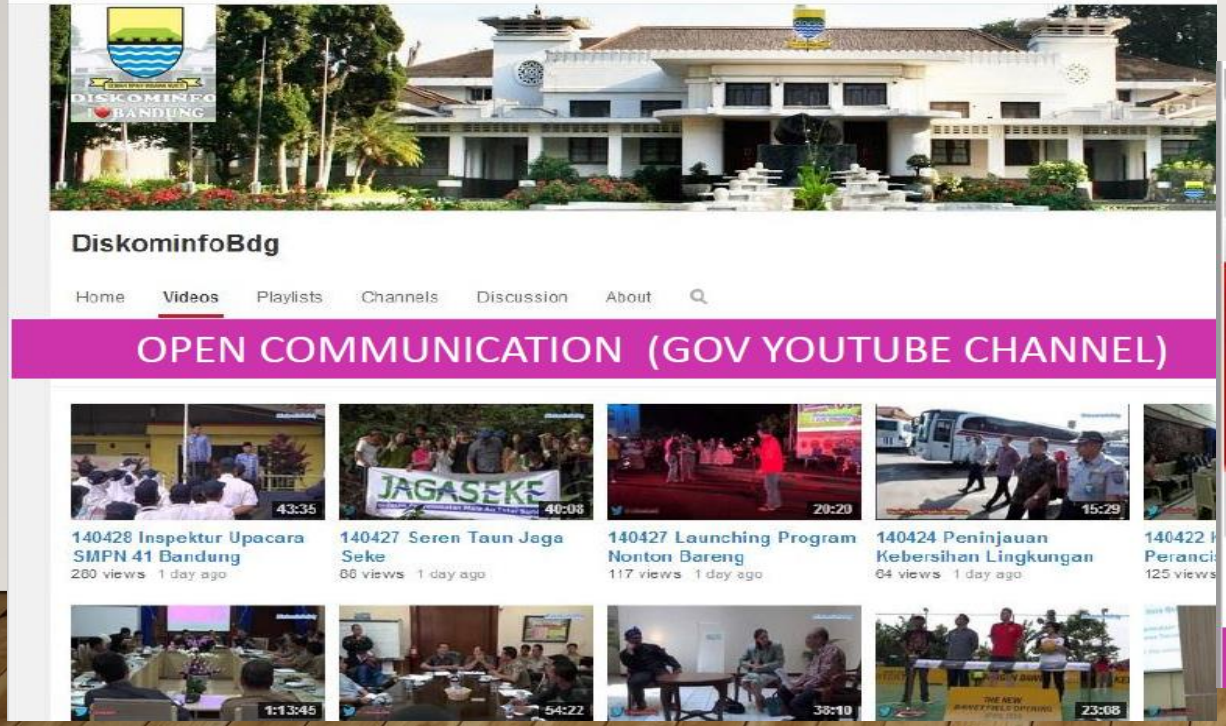


10,000 FREE WIFI ACCESS POINT

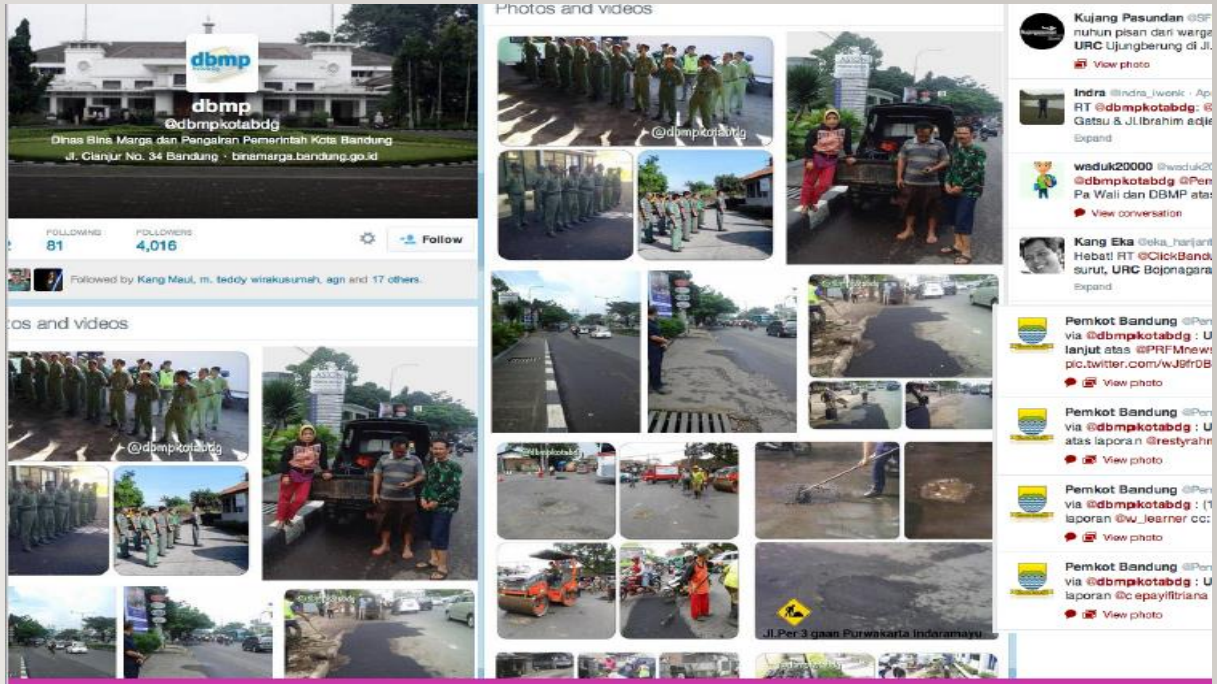


300 CITY APPS IN 2016

OPEN GOVERNMENT (CITY BUDGET ONLINE)

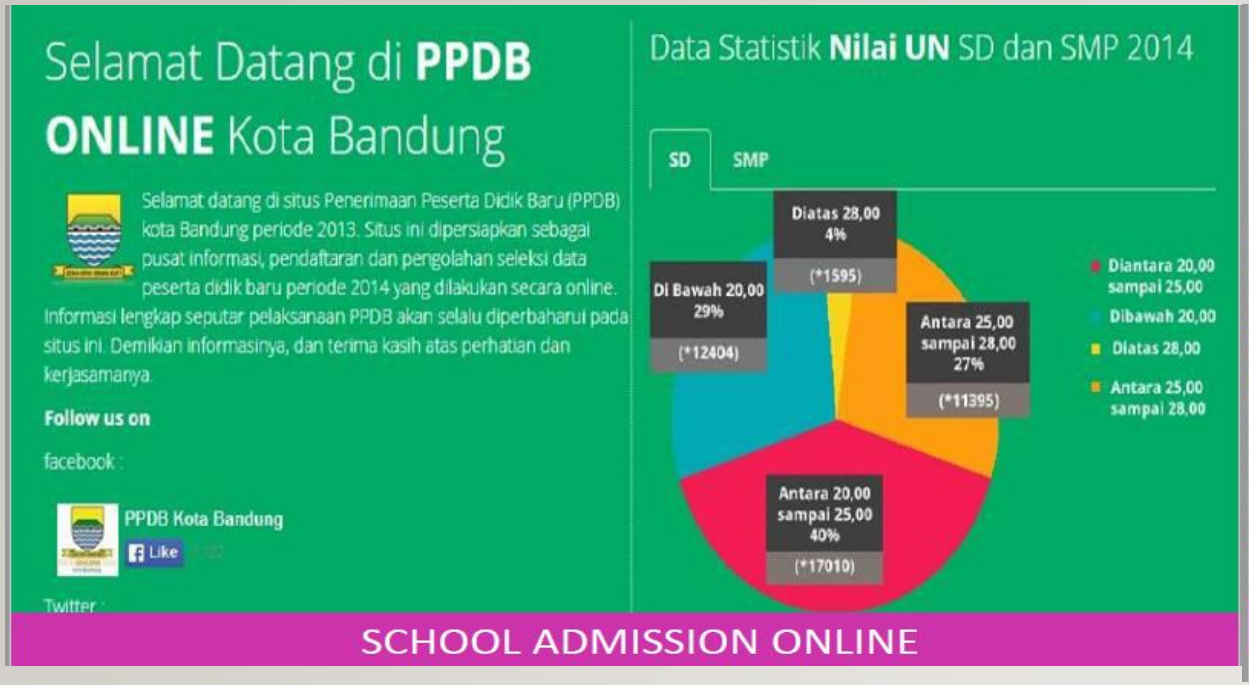


OPEN COMMUNICATION (GOV YOUTUBE CHANNEL)



OPEN COMMUNICATION (SOCIAL MEDIA)

CITIZEN COMPLAINT ONLINE



SCHOOL ADMISSION ONLINE

Bandung Creative and SmartHub

Design Stores, Gallerys, Cafés, Theater, Workshop/ Studio, Classroom

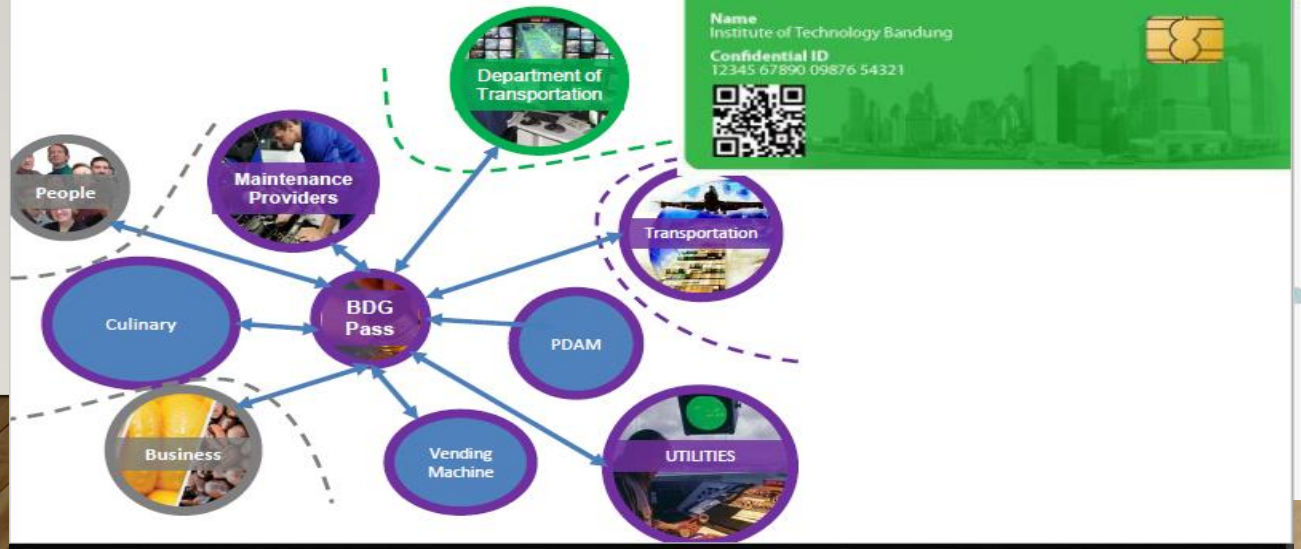
SMART HEALTHCARE SERVICE

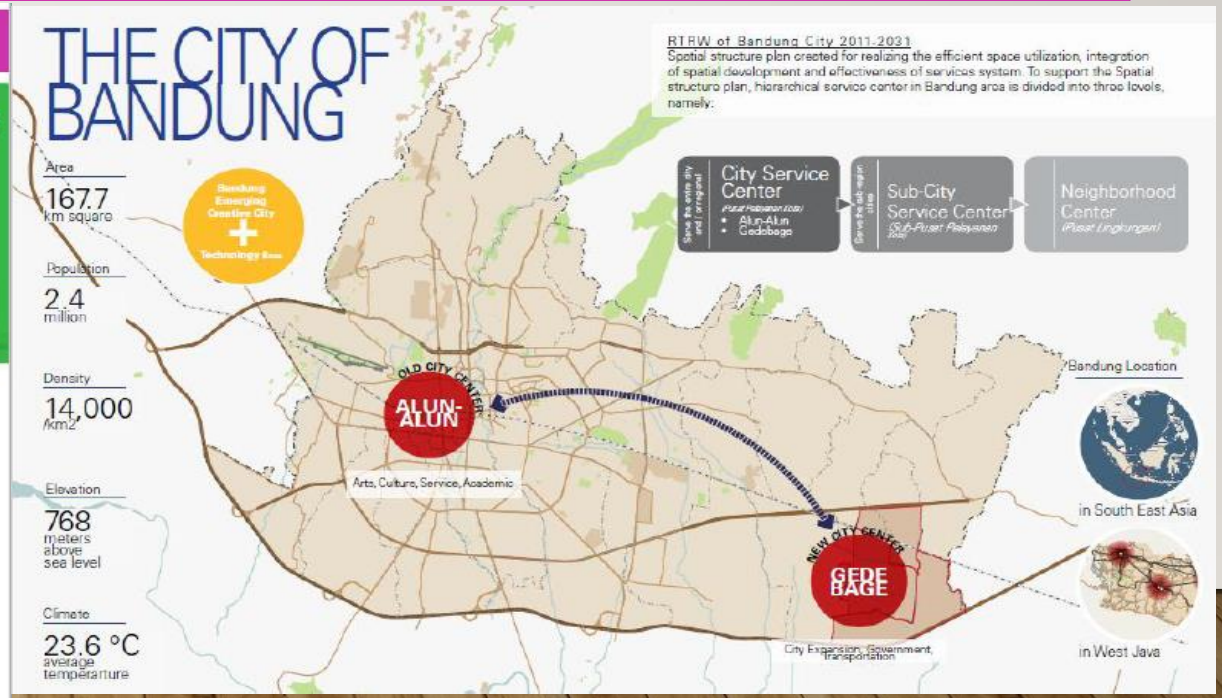
Bandung Digital Valley (for startup)

SMART AND GREEN BUILDING LAW IN 2015

SMART PARKING SYSTEM IN 2015

BANDUNG SMART CARD IN 2016

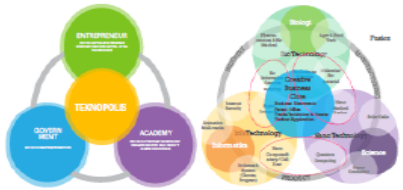




TECHNOPOLIS

TECHNOPOLIS TRENDS ACROSS THE GLOBE

TECHNOPOLIS; COLLABORATION BETWEEN ACADEMICS, INVESTORS AND GOVERNMENTS

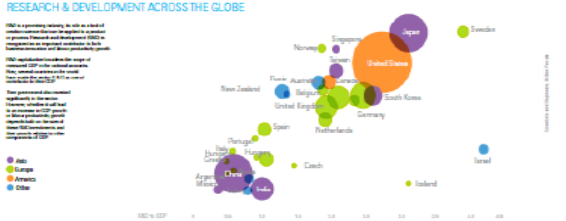


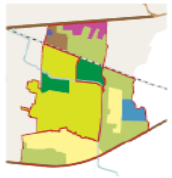
SPECIAL ECONOMIC ZONE in Indonesia

Local and International Investment + Technology base job creation + Improve Physical Environment and City Infrastructure + Growth and Welfare + Sustainable Economy + Improve Human Resources Quality +

TECHNO POLIS & TECHNO CLUSTER

RESEARCH & DEVELOPMENT ACROSS THE GLOBE






PEDESTRIAN ORIENTED
GREAT STREET
STREET CAFE/ RESTO

CHALLENGES FACING THOSE ADVOCATING SMART CITY SOLUTIONS:

- Infrastructure
- Security and Hackers
- Privacy Concerns
- Educating & Engaging Communities
- Being Socially Inclusive

CONSIDERATIONS IN ADDRESSING CHALLENGES

- **Infrastructure**
  - **Complications and cost implications in infrastructure development and maintenance: Critical Infrastructure**
  - **Replacement of old infrastructure**
  - **Fund allocation for new infrastructure, especially for requirements of Smart City technologies and systems**

- **Consider (critical) infrastructure early in the planning stage – introduce phasing of development**
- **Consider PPP in funding Smart City infrastructure**
- **Solicit support of private sector**

CONSIDERATIONS IN ADDRESSING CHALLENGES

- **Security and Hackers**
  - **Smart technology attract threats such as hacking and cyber security risks/cyber-terror threats**
  - **vulnerability and outdate power grids**
  - **skepticisms and grave concern on technology and security must be addressed or considered**

- **Investing more funds and resources into security and at the same time encourage tech companies to create/develop solutions with new built-in mechanisms against hacking and cyber-crimes**
- **Looking means to consider encryption technical to enhance security, especially in new apps**

CONSIDERATIONS IN ADDRESSING CHALLENGES

- **Privacy Concerns**
  - **Need for balance between QoL and invasion of privacy**
  - **Installing CCTVs considered deterrence to crimes, but also instill fear and paranoia**
  - **Amount of data being collected from smart sensors citizens come into contact daily**
- **Ensuring transparency, education and info drive in the Smart solutions**
- **Assurance from LGUs of privacy protection**

Considerations in addressing Challenges

- **Educating and Engaging the Community**
  - **Ensuring citizens are smart-ready or "smart" and understands advantages of new technologies**
  - **Implementation requires educating communities on Smart City benefits**

  - **Community participation/social experiments**
  - **Online campaigns**
  - **Up-to-date information and dissemination**
  - **Involvement of the academic communities, civic organizations, etc.**

CONSIDERATIONS IN ADDRESSING CHALLENGES

- **Being Socially Inclusive**
  - **Inclusive development and considerations of all groups of people**
  - **How will smart technology reach and benefit all members of the communities (elderly population, PWDs, low-income persons, etc.)**

  - **Smart City planning must consider inclusiveness (all sectors of the communities**
  - **Technology should always be working to bring people together**
  - **Considering these communities, in conjunction with other concerns mentioned, will promote overall success of a solution beyond realm of tech-savvy users**

CONSIDERATIONS IN ADDRESSING CHALLENGES

- **Technological Capability Building**
  - Identify weak points of LGUs in providing technological requirements for Smart City Development
  - Provision of Smart City nomenclature and internationally comparable equipment and technology
- **Advocacy for Critical Infrastructure**
  - Restructuring existing infrastructure to meet high standards of critical infrastructure development
  - Identifying reliable and dependable power supply
  - Providing high internet service and communication to meet requirements of Smart City
- **Incorporating Smart City development in LGU's planning process**
- **Identifying LGUs resources (natural and human) that will meet demands of Smart City development**
- **Considerations on DRRM and CCA in the development of Smart Cities**
- **Coming up with a roadmap for Smart City development**

  - Close coordination and collaboration of LGUs, private sector, technology providers and the academe
  - Inclusiveness and total support and understanding from the communities affected
  - Assurance of funding for Smart City development, operation and maintenance
  - Continuous evaluation and monitoring

WHAT NEED TO BE DONE?

- Ascertain whether Smart City Technology is really what LGUs need
- Determine if Philippine LGUs prepared to welcome Smart City Technology
- Assess whether urban infrastructures are designed as critical infrastructure
- Come up with a research agenda that includes development of Smart City technologies responsive to Philippine environment
- Include in development plans of LGUs introducing Smart City concept appropriate to requirements of LGUs
- Enhance PPP as among the implementation/development mechanisms for Smart technologies, especially in conceptualization and materializing such technologies
- Proper evaluation, monitoring and update of Smart City technologies

Suggested Smart City Definition in the Context of the Philippines:

A developed low carbon urban area, anchored on sustainable economic inclusive development, yielding high QOL (quality of life) for all by excelling in multiple complementing key areas (economy, mobility, green environment, people, living and governance) supported by a strong and firm human and social capital resources and augmented by a network of seamless intermodal logistics network systems, ICT infrastructure facilities and supported by a system of critical infrastructure

ROADMAP FOR SMART CITY DEVELOPMENT IN THE PHILIPPINES

- *Roadmap:*
  - Development of process and implementation of smart city concept
  - Come up with research agenda on Smart City technology development and evaluation
  - Establishment of criteria for piloting smart city concept
  - Information/advocacy drive for smart city promotion/support/acceptance
  - Tapping funding for piloting smart city (PPP, ODA, etc.) and counterpart scheme/s for pilot cities
  - Institutional mechanisms and capacity building requirements for the smart city implementation, including evaluation/monitoring, etc.
  - Development of a final Smart City framework for the country

THANK YOU VERY MUCH FOR YOUR TIME

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