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LIST OF ABBREVIATIONS

AADK	Agensi Antidadah Kebangsaan	MOF	Ministry Of Finance
API	Application programming interface	MOE	Ministry Of Education
APM	Angkatan Pertahanan Awam Malaysia	MOTAC	Ministry of Tourism, Arts and Culture
BASTW	Bahagian Alam Sekitar, Tasik dan Wetland	MKN	Malaysia National Security Council
BIM	Building Integrated Modelling	MRF	Material Recovery Facility
BPH	Bahagian Pengurusan Hartanah	MGTC	Malaysian Green Technology Corporation
ВТМК	Bahagian Teknologi Maklumat & Komunikasi	NGO	Non-Government Organisation
BPTKP	Bahagian Perancangan Tanah dan Kelulusan Pelan	NUP	New Urban Policy
CCTV	Closed-circuit television	NGV	Natural Gas for Vehicles
C-RAN	Centralized Radio Access	OKU	Orang Kurang Upaya
DO	Development Order	OSC	One Stop Centre
EPU	Economics Planning Unit	PJH	Putrajaya Holding
EV	Electric vehicle	POINT	Putrajaya Open Innovation Terminal
FGD	Focus Group Discussion	PBAR	Putrajaya Bebas Asap Rokok
GHG	Greenhouse Gas	PAPTT	Pengangkutan Awam Putrajaya Travel & Tour
GPS	Global Positioning System	PCC	Putrajaya Command Centre
loT	Internet of Things	PDRM	Polis Diraja Malaysia
JKR	Jabatan Kerja Raya	PTGWP	Pejabat Tanah dan Galian Wilayah Persekutuan
JPS	Jabatan Pengairan dan Saliran	PSP	Professional Submitted Person
JKPTG	Jabatan Ketua Pengarah Tanah dan Galian (Persekutuan)	SWCorp	Solid Waste Management and Public Cleansing Corporation
JAS	Jabatan Alam Sekitar	SPAH	Sistem Pengumpulan dan Penggunaan Semula Air Hijan
JPJ	Jabatan Pengangkutan Jalan	SCADA	Supervisory control and data acquisition
JAWI	Jabatan Agama Islam Wilayah Persekutuan	SDGs	Sustainable Development Goals
JKM	Department of Social Welfare Malaysia	SYABAS	Syarikat Bekalan Air Selangor Sdn. Bhd.
КРКТ	Ministry of Housing and Local Government	SPAN	Suruhanjaya Perkhidmatan Air Negara
MESTECC	Ministry of Energy, Technology, Science, Climate Change and Environment	SEDA	Sustainable Energy Development Authority Malaysia
KOSPEN	Komuniti Sihat Pembina Negara	DFTZ	Digital Free Trade Zone
KKM	Ministry of Health	ТМ	Telekom Malaysia
LPRS	Licenses Plate Recognition System	UKAS	Unit Kerjasama Awam Swasta
МОТ	Ministry of Transport	JPWP	Jabatan Pendidikan Wilayah Persekutuan
BPM	Bahagian Pembangunan Mampan	KPM	Kementerian Pendidikan Malaysia
BKPPP	Bahagian Komersial, Pembangunan Perniagaan & Perlesenan	MPP	Majlis Perwakilan Penduduk
BKK	Bahagian Komunikasi Korporat	PPAM	Perumahan Penjawat Awam Malaysia
BSIB	Bahagian Senibina dan Inspektorat Bangunan	PJC	Putrajaya Corporation
JPNIN	Jabatan Perpaduan Negara & Integrasi Nasional		



1.0

URBANISATION CHALLENGES AND TRENDS



Urban challenges vary, while many are experiencing unprecedented rates of urbanization and population growth, others are experiencing shrinking populations. The rapid urbanization that has taken place in the last decades has resulted in various urban issues such as congestion, pollution, security and deterioration of natural resources. Many of the associated challenges are omnipresent: people are living longer leading to increased demands on healthcare, the climate is changing resulting in extreme and often-catastrophic weather events and rising sea levels, burning of fossil fuels and improperly treated effluence discharge into surface waters is resulting in large-scale pollution in cities.

PUTRAJAYA <mark>SMART CITY</mark>

BLUEPRINT

Regardless of how city is being affected by these challenges, one thing remains constant, the need to provide core urban infrastructure and deliver city services as efficiently and cost effectively as possible to all city dwellers. To address urban issues such mentioned above, smart city is a new approach in urban management and development to make Malaysia's cities more sustainable and livable. Information Technology applications make smart city more practical and convenient for urban population and city managers.

The Fourth Industrial Revolution offers huge potential to transform and realign our economic and societies. There is an increasing realization that the 4th Industrial Revolution helps address society's environmental and social challenges and the 4th Industrial Revolution is the fastest period of innovation ever. Previous industrial revolutions advanced economic development, but have largely come at the expense of the planet. According to the findings by Scientist at The Stockholm Environment Institute, have identified that four out the Earth's nine Planetary Boundaries have already been crossed, namely climate, biodiversity, land system changes and biogeochemical cycles. Risks will only heighten as population swells to a projected 9 billion by 2050, increasing food, materials and energy needs. In parallel, society today is under growing social and economic strain, from mounting inequality, youth unemployment, automation, and geopolitical volatility.

These global challenges of today are framed by the United Nations' 17 Global Goals for Sustainable Development (SDGs). The SDGs provide an action agenda for people and planet by 2030. There is a window of opportunity now, to make sweeping advances of the 4th Industrial Revolution help government, business and society to achieve these goals not make them harder to attain.

Today's technology driven revolution have impact on cities transformation and for the government and policy makers, it is vital that the enabling mechanisms are put in place for the 4th Industrial Revolution to be a sustainable revolution. Governments and regulators will need to adapt quickly with the rapidly evolving 4th Industrial Revolution landscape and provide enabling environment, encourage public-private partnership and maximise positive social. It is all a game changing in technologies and solutions for people and the planet.





1.1 WHAT IS SMART CITY?

What is the definition of Smart Cities? Smart Cities are all cities that use ICT and technological advances to address urban issues including to improve quality of life, promote economic growth, develop sustainable and safe environment and also encourage efficient urban management practice. In the global context, smart cities are used as one of the approaches to resolve urbanization issues and improving the quality of life in the city. ICT and digital technologies supporting city management are at the heart of a global market in rapid expansion. According to the study conducted by the Department of Business Innovation and Skills

(BIS) the Global market for smart urban technology supported services is expected to reach an annual USD400 billion in 2020 and it is expected that this include USD220 billion for the smart energy alone.

The Smart City concept directly grew out of the sustainable cities movement and is widely considered to have the potential to transform cities. The term that often been used with such concepts as the "digital city", "intelligent city", or "knowledge-based city". Generally the common understanding of a smart city is a city monitored through information and communication technology (ICT) and digital technologies.

The concept of Smart City also described with the idea being that enhanced real-time data, automated utility systems and digital communication tools will increase the cost-effective provision of urban services and governance. Across Malaysia an internationally, cities are increasingly recognising the role of innovation and technology in enhancing all areas of urban life. Appropriate integration of technology is quickly becoming a defining feature that sets cities apart in terms of economic advantage and competitiveness.

The fifth edition of the index analyses the level of development of 165 cities from 80 countries, across nine dimensions considered key to being a smart, sustainable city, human capital (developing, attracting and nurturing talent), social cohesion (consensus among the different social groups in a city), economy, environment, governance, urban planning, international outreach, technology, and mobility and transportation - ease of movement and access to public services . Most of the top ranking Global Smart Cities have positioned themselves well due to its advanced ICT infrastructure and its movement towards adoption of Internet of Things (IoT) an other emerging technologies.

The IESE Business School in Barcelona has released the data for the world's smartest cities for 2018. For the second year in a row, New York has been declared the smartest city in the world, according to the IESE Cities in Motion Index. London and Paris also maintain their positions just behind the big apple, taking the second and third spots respectively.







1.1.1 ANATOMY OF A SMART CITY

There is no doubt that the city will be the defining feature of human geography for the 21st century.

Globally, there are 1.3 million people moving to cities each week — and by 2040, a staggering 65% of the world's population will live in cities.

At the same time, the 600 biggest urban areas already account for 60% of global GDP, and this will only rise higher as cities become larger and more prosperous. In fact, experts estimate that up to 80% of future economic growth in developing regions will occur in cities alone.

1.1.2 THE SMART CITY: A NECESSARY

As cities become an even more important driver of the global economy and wealth, it's becoming crucial to ensure that they are optimized to maximize efficiency and sustainability, while enhancing the quality of life in each urban conglomeration.

Today's infographic from Stratfor helps define the need for smart cities, and it also gives great examples of how technology can be applied in urban settings to facilitate cities that work better for their citizens.





Source : https://worldview.stratfor.com/article/





Source : https://worldview.stratfor.com/article/



1.1.3 FEATURES TO TOMORROW'S CITIES

Smart cities will use low power sensors, wireless networks, and mobile-based applications to measure and optimize everything within cities. Here are just some examples:



Source : https://www.visualcapitalist.com/

Smart city solutions will fall into six broad categories, transforming the urban landscape:

1. Infrastructure

Smart lighting is one of the most important solutions that will be implemented in citywide infrastructure. While smart lighting sounds trivial at first glance, it's worth noting that lighting alone consumes a whopping 19% of the world's total electricity.

2. Buildings

Heating, energy usage, lighting, and ventilation will be managed and optimized by technology. Solar panels will be integrated into building design, replacing traditional materials. Fire detection and extinguishing is tailored to individual rooms.





3. Utilities

Smart grids (used for energy consumption monitoring and management), water leakage detection, and water portability monitoring are just some smart city aspects on the utilities side.

4. Transport

Intelligent, adaptive fast lanes and slow lanes (cycling, walking) will be implemented, while charging stations through the city will power EVs.

5. Environment

Air pollution control, renewable energy, and waste management solutions will make for greener cities. Rooftop gardens or side vegetation will be integrated into building designs, to help with insulation, provide oxygen, and absorb CO₂.

6. Life

There will be citywide Wi-Fi for public use, while real-time updates will provide citizens information on traffic congestion, parking spaces, and other city amenities.

1.1.4 THE EFFECT?

Cisco estimates that smarter cities will have impressive increases in efficiency: using many of the above concepts, cities can improve energy efficiency by 30% in 20 years.

Simultaneously, it's estimated that the broad market for smart cities products and services will be worth \$2.57 trillion by 2025, growing at a clip of 18.4% per year on average.







1.2 CONCEPT OF SMART CITY GLOBALLY

The concept of smart cities typically has 3 elements among action plans and papers in several countries, namely:

- a.Using information, communication and digital technology to address urban challenges, improve urban management and quality of life, sustainability, efficiency and security.
- b.Increased economic and business activities

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c.Continuous public participation and urban innovation.

Generally, there is no universally accepted definition of smart cities. Although there is no standard for defining smart cities, it can still be seen and measured from the management efficiency and improvement of the municipal and urban quality of life. Among the smart city's definition refined by researchers across the globe are as follows:

Figure 1.1 : The Smart City's Definition Refined by Researchers Across the Globe

A city that **monitors and integrates** conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens (Hall, 2000)

A city well performing in a **forward-looking way in economy, people, governance, mobility, environment, and living,** built on the smart combination of endowments and activities of self-decisive, independent, and aware citizens (Giffinger et al., 2007)

A city to be smart when investments in **human and social capital** and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance (Caragliu et al., 2009)

Information technologies represent the key concept. The vision of an intelligent city is not confined to economic excellence that can be led by information technologies, but an integral part of that vision is its concern for **the quality of life for the ordinary citizen** (Mahizhnan, 1999)

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A Smart City is a city well performing in a forward-looking way in six 'smart' characteristics, built on the 'smart' combination of endowments and activities of **self-decisive**, **independent and aware citizens**. (www.smart-cities.eu)



1.3 WHY SMART CITY INITIATIVE IN MALAYSIA

The emphasis towards making Malaysian Cities into smart cities are strengthening digital infrastructure has been the fore front of Malaysia's development plans such as Eleventh Malaysia Plan (11MP), National Physical Plan 3 (NPP3) and National Urbanization Policy 2 (NUP 2).

The Government of Malaysia has started to encourage all local authorities to generate new ideas and new mode of promoting smart city planning, smart city management services and smart city administration. With that, PLAN Malaysia has started to prepare the overall framework for Smart Blueprint for Smart Cities development in Malaysia. The blueprint will provide broad guidelines to all local authorities in Malaysia in the implementation and monitoring mechanism on Smart City Development. The development of smart cities is also to uplift Malaysia Cities Competitiveness and to prove Malaysia commitment to embark on global agenda such as Sustainable Development Goals (SDGs). Key players such as TM Malaysia also has prepared the Communications and Multimedia Action Plan (CMAP) 2020 to ensure full supporting technological enablers in supporting smart city development. The action plan also provide assistance in raising Malaysia's digital capabilities to pursue innovation.

It is important to note that Smart City models have different purposes and areas by region, and it is important for Putrajaya to identify its city's goal and objectives in defining the Putrajaya Smart City.

The vision for Putrajaya is to transform itself from a Garden City into a Green City by the year 2025. In doing this, it has identified 4 Big Moves (as shown in figure 2.1) and 8 Policies in its gazette Structure plan. These 2025 long-term plans are key fundamental attributes of a smart city and hence the current planning and development of Putrajaya sets the pathway towards such transformation.



2.0 INTRODUCTION

PUTRAJAYA <u>SMART</u> CI1

BLUEPRINT



The seat of the Federal Government administration was shifted from Kuala Lumpur to Putrajaya in 1999. The city was planned as a Garden and Intelligent city. The part about being a Garden City was fully implemented with 38% of the city is reserved for green spaces. The City master plan incorporated a network of open spaces and wide boulevards, so much so that the Federal Administrative Capital is indeed green in its physical outlook.

However, the second part of the plan – that being the Intelligent City – has not been fully materialised. In the era of globalization and city competitiveness, many cities have embarked and leveraged on new emerging technologies to further their economic growth and sustenance. Hence, the City of Putrajaya now has seriously looked at the concept of being a "Smart City" to meet up with the two-pronged vision as initially set out at its inception.

2.1 PUTRAJAYA AS A SMART CITY

The city of Putrajaya has come a long way since its conceptualization in 1995. Putrajaya was planned as a Garden and Intelligent City and it has progressed remarkably well since its inception. The landmark buildings now stand tall in the heart of Putrajaya, portraying Malaysia as a modern and developing country. With the progression of Putrajaya becoming a Smart City, it is hopes that with the implementation of Internet of Things (IoT) and other information and communication technology (ICT) innovations, Putrajaya Corporation can further propel the city becoming global model city. Though there is no standard definition of "smart city", we would like to refer a smart city as a city which aims at a better quality of life and sustainability utilizing information and communication technology. As an effective measure to respond to urban challenges and climate change, smart city projects has been increasingly implemented in many countries across the world since 2010.

Today most cities primary purpose of smart cities is to deal with climate change issues in developed countries and to enhance urban competitiveness in developing countries, including China and India, whose sizable, government-led smart city projects capture the world's attention.

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Figure 2.1 : The 4 Big Moves stated in the Putrajaya Structure Plan 2025

Transforming Putrajaya into a green city, one Invigorate the city through a more diverse that commits towards continuously improving economic activities, allowing activities and the quality of living environment by ensuring that creating spaces that encourage a more vibrant its urban activities and redevelopment reduces city that is livable carbon emission, encourages green business and green lifestyle Holistically addressed a greener travel plan Further enhanced the government Precinct, the for the city and connectivity between the city core Island and the Civic Precinct to be more and its surrounding areas. These includes distinct in its function and legibility within the providing facilities and infrastructures that encourages people to walk, cycle and use public city's context. transportation on their daily activities



2.2 PUTRAJAYA SMART CITY AND THE NEW URBAN AGENDA (NUA) AND SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Putrajaya Smart City can play a major role in the implementation of the New Urban Agenda and the Sustainable Development Goals. New technologies are tools that can be put to use to achieve the 17 goals of the SDGs. For example, the use of technology can be used to develop baseline data for informed decision making and capacity building.

New technologies are also tools towards achieving the objectives of the New Urban Agenda (NUA). The provision of communication technology is stated as a part of **Goal 1: Providing basic services for all citizens,** (including communication technologies)

11th Malaysia Plan

The 11th Malaysia Plan makes a policy statement regarding smart cities – in that "a framework will be developed to prioritise areas of focus in the development of smart cities. A fundamental initiative to realise the migration to smart cities will be the development of smart communities.

National Physical Plan 3

The National Physical Plan 3 has also included the importance of broadband technology in the effort towards further growth of the economy and better management of physical resources. It called for a 100% coverage of broadband throughout the Peninsular Malaysia in order that all development goals will be achieved by 2035.

National Urbanization Plan

The city of Putrajaya has been identified as a Global City under the National Urbanization Plan 2, Hence it is ever more urgent that the City develops its full potential as a digital smart city in order to be globally competitive.

One key effort is towards a Data Driven City that can assist Putrajaya to make better decisions. Putrajaya as a smart city must be driven by targets for better livability, greater workability, efficiency and enhanced sustainability.

Hence a smart city need a city planning and management approach that is focused on digital connectivity, interoperability and data sharing and management. This will enable us to understand the level of performance of a particular component of the city as well as allow the city to know if their investments and interventions are making a difference.

Putrajaya Smart City can also ensure that it uses the information and communication technology as well as the internet to address the urban challenges in Putrajaya. As Putrajaya grows and develops, it shall face a variety of challenges, including job creation, economic growth, environmental sustainability, city management and social resilience. Given these trends, understanding where the city is in the evolution of the Internet is inevitable and critical to future city-planning processes.

2.3 THEPROCESSFORFORMULATION OF THE PUTRAJAYA SMART CITY BLUEPRINT

The objective of the Putrajaya Smart City Blueprint is to guide and provide recommendations to the Putrajaya Corporation and all related departments / agencies in Putrajaya for formulating policies, strategies and action plans in the implementation of Putrajaya Smart City.

The blueprint consists of Putrajaya Smart City vision, goals, domains and smart city applications, initiatives and implementation timeline (quick win, short term, medium term and long term).









3.0

PUTRAJAYA SMART CITY BLUEPRINT



PUTRAJAYA <u>SMART</u>

BLUEPRINT

3.0 PUTRAJAYA SMART CITY BLUEPRINT

This part of the report will consolidate the previous reports in order to formulate the Putrajaya Smart City Blueprint. This section will table the following:

a. The objectives of each domain

- b.The smart initiatives of current and future
- c.The desired outcome of the initiatives

d.The timeline for implementation and key players of the initiatives.

3.1 THE VISION STATEMENT

The Vision of any effort or desire is pertinent so that all strategies and actions can be directed towards that one vision. To arrive at the Vision, the responses from the internal dialogue (on what is a Smart City and what will be its benefits), and the shared vision worked out from the FGD1 and FGD 2 have been collated and the most often quoted word taken and put together to form a single Vision. The vision of a smart city shall focus on improving urban sustainability and quality of life, the use of innovative technology as an enabler. It is therefore recommended that the Vision Statement for Putrajaya Smart City Blueprint is:

"SMART URBAN LIVING for SUSTAINABILITY & A HIGHER QUALITY OF LIFE"

3.2 THE OBJECTIVES

The objectives for Putrajaya to be a Smart City are:



These objectives are in line with the United Nations' SDGs and the New Urban Policy (NUP), of which Malaysia is a signatory.

Based on the outcomes from the internal dialogue and the shared vision worked out from the FGD1 and FGD2, smart city objectives should address the following four (4) urban dimensions that will then derive into seven (7) smart city domains highlighted as the catalysed in leading to the Putrajaya Smart City Blueprint.





Figure 3.2.: The Seven (7) Smart City Domains









Smart City Infrastructure

R & D: Industry Partnership : Community



4.0

PUTRAJAYA SMART CITY FRAMEWORK

The Putrajaya Smart City Framework shall be based on the 7 Domains . The applications to be developed and implemented, the objectives and desirable outcomes are described in general.

4.1 DOMAIN 1 SMART TRANSPORTATION AND MOBILITY

Objectives:

- · Provide information on available car parking spaces and their location in the city;
- · Facilitate commuters' information on availability and frequency of public transport in the city;
- Reduce carbon emission and air pollution through the use of efficient modes of public transportation
- · Alleviate traffic congestion issues through effective planning and enforcement
- · Smart services for community in order to reduce the use of transportation mode

Smart Application	Smart Initiative	Desired Outcomes
	Electronic Board displays to inform on available car parking spaces by location.	Efficient use of car parking spaces available in the city especially during peak hours and during events.
Parking Guidance System	Mobile apps for parking guidance	 Reduces circulating traffic searching for parking Convenience for drivers Clear roadways
	Illegal parking control	Prevention of illegal parking a long roads
	Pay by phone (to be integrated with Putrajaya Mobile)	
Parking & Bus Fare	Automation Ticketing & payment System	Maximize the convenience of use of public
Payment System	Cashless bus fare payment system (e.g: e-wallet)	
	Smart Traffic Lights(Advance Traffic Control System)	Continuous traffic flow for emergency vehiclesImprove emergency respond time
Traffic System &	Traffic condition & safety monitoring (Smart CCTV)	Increase and enhance road effectiveness and efficiency
Roau Salety	Traffic calming	Improve road safetyreduce accident rate
	Dedicated lane for all categories of vehicles	Reduce public transport travel time and improve safety
	Multi-lingual bus arrival information	
Transit & Traffic	Provide bus loading info using colour coding (e.g: green+available seats; yellow=standing space; red = limited standing)	To achieve Modal Split 70:30 by maximizing the
Information	App to provide real-time information on public transport	convenience of use of public transportation and general private transport user
	Variable Message Signs to display short traffic condition messages	
	Journey Planner	
	Traffic count using smart CCTV	





Smart Application	Smart Initiative	Desired Outcomes
Smart Rus Stone	Motion sensors (night time) for energy saving	Energy saying and reduction of earbon omission
Sinari Bus Stops	Sensor to monitor real time facility problems.	Energy saving and reduction of carbon emission
	Bike sharing facilities & services	Getting more people to cycle and not having to purchase their own bicycles
I and and a large	Ride sharing (e.g: GRAB)	
Low emissions	Eco ride (tourists)	Enorgy powing and reduction of earbon omissions
mode	NGV & EV buses	Energy saving and reduction of carbon emissions
inouc	Rail based transport	
	Improvement of bicycle lane and pedestrian walkways	 Increase number of people walking & cycling Improve safety for user
New age Vehicles	Autonomous Vehicles	Providing the people with an alternative clean energy vehicular mode through autonomous vehicles



4.2 DOMAIN 2 SMART HOME AND ENVIRONMENT

Objectives:

- Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality environment;
- · Provide for effective and efficient water management to reduce wastage;
- Monitoring the energy use of buildings in the city so as to reduce consumption, and save on carbon emission.

Smart Application	Smart Initiative	Desired Outcomes
	Weather monitoring (temperature, rainfall, wind speed and humidity)	Lake water pollution, weather and air quality
	Air quality monitoring	monitoring
Integrated Environment Monitoring System	Supervisory Control And Data Acquisition (SCADA) for Lake water Pollution Prevention Control.	 Pollution sensors are installed for monitoring of air quality and weather. Citizen can access the info of 24 hour API value The integrated air quality, weather and lake water
	Putrajaya Lake & Wetland Management & Operational System - PLWMOS (lake water quality, flora & fauna)	quality reporting online
Urban Sustainability Indicator	Malaysia Urban-Rural (MURNInet) National Indicators Network for Sustainable Development	Proposed opportunities and potential improvements to improve the sustainability of a city
	Real time energy use monitoring for buildings (including solar PV performance)	Optimize the energy consumption within the building throughout change of behavior and use of technologies
	Green energy	To increase the usage of renewable and clean energy in the city.
Energy Use &	Real time monitoring solar PV performance for government buildings	Help in setting the target for energy use reduction in the building
GHG Emissions Monitoring	Building Sector Energy Use & Carbon Reporting Programme (BECO ₂ R) for non residential building (online system & apps)	 To accelerate urban energy efficiency through existing building stocks. To sustain building stakeholder's continuous engagement in CO₂ mitigation. To establish common carbon metric (CCM) at city level.
	City scale GHG inventory system	Monitoring GHG emissions at city level for reduction measure review.
Water use, supply and monitoring	Real time water use monitoring	Water efficiency message to the people by the water utility company
Smart Home	 Smart home systems (sensors, solar panel, smart card access wi-fi, phone coverage, smart TV. CCTV, Home watch by smartphone), Smart Energy/Green Initiatives (solar panel, SPAH, Invertor electrical appliances), Create a special zone to implement Smart Home concept in Precinct 12,15 & 19 	Providing a choice for residents to monitor their homes, to control the air condition, and electrical appliances remotely when not in the home.

BADAN



4.3 DOMAIN 3 SMART GOVERNMENT SERVICE

Objectives:

• Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status;

PUTRAJAYA SMART CI

BLUEPRINT

- Provides the basis for a more vibrant economy ;
- · Creates a more efficient management and maintenance regime;

Smart Application	Smart Initiative	Desired Outcomes
City management & monitoring	Putrajaya Command Centre (PCC)	An integrated centre that monitors the city 24hrs on traffic, safety, disaster, crowd control, etc Express monitoring and advisory system such as vehicle recovery services – to detect accidents, or any incidences;"
Residents & Public communication	Putrajaya Mobile Apps	Citizens are provided with information regarding public administration, processes of civil affairs
Public Information Display System	Digital information boards at strategic areas for latest news/events/promotion.	Citizens are aware of situations throughout the city in order to make decisions on travel routes, and other activities
	Digitalization of land inventory and cadastral data (Land use Governance)	Assists land owners, developers in obtaining information on purchase or selling of properties;
	Community Data Profiling	Create greater convenience for citizens, saving time, energy and resources
E- Government	Electronic submission of development applications (OSC 3.0)	 Expedite development applications and increase efficiency in the monitoring of these applications; greater transparency
Services	Complaints online	
	Payment online	
	Online License Application	Create greater convenience for citizens, saving time,
	Online Booking of venues	energy and resources
	Online registration system (forum/ workshop/training)	



4.4 DOMAIN 4 SMART INFRASTRUCTURE AND UTILITIES

Objectives:

- Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status;
- Provides the basis for a more vibrant economy ;
- · Creates a more efficient management and maintenance regime;
- Saves costs for the city in the long term through better management of street lights and waste disposal.

Smart Application	Smart Initiative	Desired Outcomes
Communication	Centralized Radio Access (C-RAN)	Centralized Radio Access (C-RAN) is a centralized, cloud computing-based architecture for radio access networks that supports 2G, 3G, 4G and future wireless communication standards. This is a basic necessity towards becoming a Smart City
	Free Public Wi-Fi	Provide free communication capabilities for all citizens and visitors all throughout the city
	Wayside Equipment	
	Fiber cabling	
Street & compound Lighting	Energy saving street light	Create & maintain more energy efficiency public
	Energy saving compound light	lightings
Facilities Management	Building Integrated Modelling (BIM)	Provide data and resources for all through professionals collaborate
	City Lighting Management	To monitor all types of façade lighting and to ensure that the lighting is maintained as per Development Order (D.O.) Approval and in line with Putrajaya Lighting Masterplan.
	Sensors for on-site facilities	If something goes wrong, the PCC can detect conditions and information sent to the responsible department/ agency for immediate repairs.
	Accessible facilities information (OKU)	provide information on location of facilities in the built environment and their wayfinding that are accessible to all including the disabled, the elderly and children.
Waste Management System	Sensors in garbage bins	Sensors in garbage bins send alerts when full to enable trucks to optimize their routes to prevent trips for empty bins.
	GPS of garbage trucks	Location of garbage trucks and efficiency of collection system
	Material Recovery Facility (MRF)	Minimize the amount of waste that is being sent to landfills





4.5 DOMAIN 5 SMART SAFETY AND SECURITY

Objectives:

- Provides the infrastructure for emergency situations for the public;
- Creating a platform for citizen's assurance on the safety and security levels of the city;
- Providing for an inclusive city that does not marginalize any groups in terms of communication needs;
- Provides for an emergency response system in times of emergencies or natural disasters.

Smart Application	Smart Initiative	Desired Outcomes
Emergency & Response	Panic buttons	If a citizen shouts or screams in an urgent situa- tion, sound sensors detect this and CCTV's nearby automatically turn their angle to show the center the images of the situation
	Putrajaya Command Centre (PCC)	 Image recognition function cameras can monitor and detect whether the detected object or person (s) is in a fight, has collapsed, is wandering or is trespassing
	Communication Mode for OKU	Inclusive city that caters to special needs of its citi- zens and visitors.
Crime Prevention	Smart CCTV (safety surveillance)	 Image recognition function cameras can monitor and detect whether the detected object or person (s) is in a fight, has collapsed, is wandering or is trespassing
	Licenses Plate Recognition System (LPRS)	vehicular monitoring;collect plate number to find wanted vehicles
	Neighbourhood watch	 Educating residents of a community on security and safety Achieving safe and secure neighbourhoods
Disaster Prevention	Dam Integrity Assessment	Collects information in real time on emergencies – natural disasters – flash floods, landslides, strong winds – by connecting and integrating with external
	Possible Disaster Assessment	agencies such as the Fire and Rescue Department, the JPS, JKR, etc
Road Safety	Beat Automated Traffic Camera	Reduce road accident at traffic light junction
	Speed Awareness Sign	Improve road safety awareness

4.6 DOMAIN 6 SMART ECONOMY

PUTRAJAYA <mark>SMART CITY</mark>

Objectives:

• Provide for an attractive city platform to encourage new ways of doing businesses;

BLUEPRINT

• Allowing for information dissemination in different economic activities of the city to encourage increased services and investments.

Smart Application	Smart Initiative	Desired Outcomes
Cashless payment	e-wallet	Citizens and visitors can use on-line payment for most government services in Putrajaya
	e-kiosk	
Tourism	Smart app for city attractions (Putrajaya Mobile)	A smart app on all sites and attractions in the city with real-time information
	Real time data collection for tourists information	Data collection via GPS, apps, etc on actual numbers of tourists daily, monthly and annually to the city to assist in development, upgrading of tourism products and visitors needs.
		A feedback app for visitors to rate the sites and services of tourism attractions in the city.
	Tourism feedback (visitors to rate the sites & services)	A feedback app for visitors to rate the sites and services of tourism attractions in the city
Property	Smart app to view (property availability), sell & buy properties (real time information on transaction prices)	A special dedicated app on latest information of property developments available on the market – either just approved, under construction ; newly launched, etc.
Business Promotion & Advertisement	Digital billboards	To control from central location to blast out advertisements to digital billboards.
	Smart app for business promotion (Putrajaya Mobile)	A smart app to view, sell, buy properties within the city with real time information on transaction prices, etc.
	Digital Free Trade Zone (DFTZ) in Putrajaya	to provide incentives and encourage adoption of technology by business community
	To set up incubator/lab as to encourage business community to adopt technology	To accelerate and facilitate the development of business apps.



4.7 DOMAIN 7 SMART COMMUNITY

Objective:

- Enabling the infrastructure to build up a smart community towards sustainability;
- Providing opportunities for citizens to provide feedback and suggestions to address issues as well as develop new opportunities for themselves;
- · Provide opportunities for city residents to get a better education as well as to enroll in schools online
- Spread information and awareness through digital technologies

Smart Application	Smart Initiative	Desired Outcomes
Smart Education	Awareness program	Educate the community from all range of age on matters of environmental and etc
	Digital Library	Creating a platform to re-connect with others; face to face engagements as well as cross discipline engagements;
		Provide interactive displays on all subjects
	Online school admission	Partner with the Education department to provide online registration for all schools in the city
		Provide online registration for kindergartens, child care centres, etc
	Digital Classroom	 Transform traditional classrooms into digital classrooms. Integrating technology into learning process in the classroom. The computer in schools. Turning students as creators of knowledge instead being knowledge recipients.
	Innovative centre (POINT)	To create a tech-community in Putrajaya
Innovative community	Children-led climate change adaptive programme (e.g: GreenROSE@ PUTRAJAYA)	Enrich the young students with scientific knowledge infused together with values of green living, while instilling sense of responsibility and care for the environment.
Healthcare monitoring program	Tele-health services	 Providing an App for citizens that will provide: Immediate help or action for emergency cases such as collapse, fainting, etc. Immediate link for emergency help that will immediately provide connect to the nearest hospital
	Real time information of health risk areas	Partnering with the Health department to inform citizens on areas of disease outbreaks such as dengue (integrate with Putrajaya mobile apps)
	Healthy diet information & education (integration with MyNutriApps)	Intergrade apps MyNutri Apps and Putrajaya Mobile Apps
	Information for dengue hotspot area (integration with iDengue)	Intergrade Mapping Putrajaya Corporation (for community Putrajaya) with apps I Denggi.
		Give a information and warning message to the community when in the hotspot area (Denggi hotspot area)





Smart Application	Smart Initiative	Desired Outcomes
Healthcare monitoring program	Information for dengue hotspot area (integration with iDengue)	Intergrade Mapping Putrajaya Corporation (for Community Putrajaya) with apps I Denggi.
		Give a information and warning massage to the community when in the hotspot area (Denggi hotspot area)
	Putrajaya Bebas Asap Rokok (PBAR): - centre/facility for stop smoking - online/app for list of non smoking areas in Putrajaya, tips/information to stop smoking - digital signage for non smoking area	List of non smoking area KOSPEN (Komuniti Sihat Pembina Negara) Tips / information to stop smoking"
Interaction & Inclusivity	City You-tube channel	Sharing city activities and news on you tube
	Community interaction platform	Encouraging discussions on issues and solutions





5.0

PUTRAJAYA SMART CITY APPLICATIONS AND INITIATIVES



This document only provides the framework for the City of Putrajaya to become a Smart City. There needs to be further works to further detail the Initiatives listed in part 5.0 above. The first step in the way forward is to identify the project or program that will be required to further implement each smart initiative and then to identify the potential financing of the project.

Secondly, the action plan for each program will need to be developed with the identification of the time frame, project partners, the implementing agency and the key indicators. All the programs and projects identified will be prioritized into quick win (less than 1 year; 2018), short term (1-2 years; 2018-2020); medium term (3-4 years; 2018-2022) and long term (more than 5 years; 2018-2025). The blueprint consist of seven (7) domain. Each of the domain is differentiate by colours. Table below shows the example of each domain and the smart initiative.



DOMAIN 1 SMART TRANSPORTATION AND MOBILITY

BLUEPRINT



SMART APPLICATION 1.1 : PARKING GUIDANCE SYSTEM

PUTRAJAYA <u>SMART</u> CITY

Smart Initiatives: Electronic board displays to inform on available car parking spaces by locationObjective: Provide information on available car parking spaces and their location in the city





DOMAIN 1 SMART APPLICATION 1.1

: SMART TRANSPORTATION AND MOBILITY : PARKING GUIDANCE SYSTEM

PUTRAJAYA SMART CI1

BLUEPRINT

Smart Initiatives : Mobile apps for parking guidance

Objective : Provide information on available car parking spaces and their location in the city





DOMAIN 1 SMART APPLICATION 1.1

: SMART TRANSPORTATION AND MOBILITY : PARKING GUIDANCE SYSTEM

: Smart services for community in order to reduce the use of transportation mode

Smart Initiatives : Illegal parking control

Objective




Objective

DOMAIN 1 SMART APPLICATION 1.2 : SMART TRANSPORTATION AND MOBILITY : PARKING & BUS FARE PAYMENT SYSTEM

Smart Initiatives : Pay By Phone

: Smart services for community in order to encourage the use of public transportation mode



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 1 SMART APPLICATION 1.2

: SMART TRANSPORTATION AND MOBILITY : PARKING & BUS FARE PAYMENT SYSTEM

Smart Initiatives : Automation ticketing and payment system

Objective : Smart services for community in order to increase the use of public transportation mode





DOMAIN 1 SMART APPLICATION 1.2

: SMART TRANSPORTATION AND MOBILITY : PARKING & BUS FARE PAYMENT SYSTEM

PUTRAJAYA SMART CI

BLUEPRINT

Smart Initiatives: Cashless bus fare payment system (e.g: e-wallet)Objective: Smart services for community in order to reduce the use of transportation mode





DOMAIN 1 SMART APPLICATION 1.3

: SMART TRANSPORTATION AND MOBILITY : TRAFFIC SYSTEM AND ROAD SAFETY

 Smart Initiatives
 : Smart traffic light (advance traffic control system)

 Objective
 : Alleviate traffic congestion and safety issues through effective planning and enforcement





Objective

PUTRAJAYA SMART CITY BLUEPRINT

DOMAIN 1 SMART APPLICATION 1.3

: SMART TRANSPORTATION AND MOBILITY : TRAFFIC SYSTEM AND ROAD SAFETY

Smart Initiatives : Traffic calming

: Alleviate traffic congestion and safety issues through effective planning and enforcement





DOMAIN 1 SMART APPLICATION 1.3

: SMART TRANSPORTATION AND MOBILITY : TRAFFIC SYSTEM AND ROAD SAFETY

 Smart Initiatives
 : Dedicated lane for all categories of vehicles

 Objective
 : Alleviate traffic congestion and safety issues through effective planning and enforcement





DOMAIN 1 SMART APPLICATION 1.3

: SMART TRANSPORTATION AND MOBILITY : TRAFFIC SYSTEM AND ROAD SAFETY

 Smart Initiatives
 : Traffic condition & safety monitoring (Smart CCTV)

 Objective
 : Alleviate traffic congestion and safety issues through effective planning and enforcement





: SMART TRANSPORTATION AND MOBILITY

: TRANSIT & TRAFFIC INFORMATION

Smart Initiatives : Multi-lingual bus arrival information

DOMAIN 1

SMART APPLICATION 1.4

Objective : Facilitate public transportation information on availability and frequency of public transport in the city;





DOMAIN 1 SMART APPLICATION 1.4

: SMART TRANSPORTATION AND MOBILITY

PUTRAJAYA <u>SMART</u> CI

BLUEPRINT

: TRANSIT & TRAFFIC INFORMATION

Smart Initiatives : Provide bus loading info using color coding

Objective : Facilitate public transportation information on availability and frequency of public transport in the city;



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 1 SMART APPLICATION 1.4

: SMART TRANSPORTATION AND MOBILITY : TRANSIT & TRAFFIC INFORMATION

Smart Initiatives: Application to provide real-time information on public transportObjective: Facilitate public transportation information on availability and frequency of public transport in the city;





DOMAIN 1 SMART APPLICATION 1.4

: SMART TRANSPORTATION AND MOBILITY : TRANSIT & TRAFFIC INFORMATION

PUTRAJAYA <u>SMART</u> CI

BLUEPRINT

 Smart Initiatives
 : Variable message sign to display short traffic condition messages

 Objective
 : Alleviate traffic congestion and safety issues through effective planning and enforcement



PUTRAJAYA <u>SMART CITY</u> BLUEPRINT



: SMART TRANSPORTATION AND MOBILITY : TRANSIT & TRAFFIC INFORMATION

Smart Initiatives : Journey Planner

SMART APPLICATION 1.4

Objective

DOMAIN 1





DOMAIN 1 SMART APPLICATION 1.4

: SMART TRANSPORTATION AND MOBILITY

PUTRAJAYA <mark>SMART CI</mark>

BLUEPRINT

: TRANSIT & TRAFFIC INFORMATION

Smart Initiatives : Traffic count using smart CCTV Objective : Facilitate public transportation' information on availability and frequency of public transport in the city





DOMAIN 1 SMART APPLICATION 1.5

: SMART TRANSPORTATION AND MOBILITY : SMART BUS STOPS

Smart Initiatives : Motion sensors (night time) for energy saving

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation





DOMAIN 1 SMART APPLICATION 1.5

: SMART TRANSPORTATION AND MOBILITY : SMART BUS STOPS

PUTRAJAYA SMART CI

BLUEPRINT

Smart Initiatives : Sensor to monitor real time facility problem

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation





: SMART TRANSPORTATION AND MOBILITY **SMART APPLICATION 1.6** : LOW EMISSIONS TRANSPORTATION MODE

Smart Initiatives : Bike sharing facilities and services

DOMAIN 1

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation





PUTRAJAYA <u>SMART</u> CI BLUEPRINT

DOMAIN 1 SMART APPLICATION 1.6 : SMART TRANSPORTATION AND MOBILITY : LOW EMISSIONS TRANSPORTATION MODE

Smart Initiatives : Ride sharing

: Reduce carbon emissions and air pollution through the use of efficient modes of public transportation



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 1: SMART TRANSPORTATION AND MOBILITYSMART APPLICATION 1.6: LOW EMISSIONS TRANSPORTATION MODE

Smart Initiatives : Eco Ride (tourists)

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation





DOMAIN 1 SMART APPLICATION 1.6

: SMART TRANSPORTATION AND MOBILITY : LOW EMISSIONS TRANSPORTATION MODE

PUTRAJAYA <u>SMART</u> CI

BLUEPRINT

Smart Initiatives : NGV & EV Buses

Objective

: Reduce carbon emissions and air pollution through the use of efficient modes of public transportation **DESIRED OUTCOME** 1. Energy saving and reduction of carbon emissions **IMPLEMENTATION APPROACH** 1. To increase the use of EV buses and NGV buses 2. Policy for electricity tariff for EV buses has to be put in place **KEY PLAYERS Internal Department** Agency 1. PAPTT 2. Private





DOMAIN 1 SMART APPLICATION 1.6

: SMART TRANSPORTATION AND MOBILITY : LOW EMISSIONS TRANSPORTATION MODE

Smart Initiatives : Improvement of bicycle lane and pedestrian walkways

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation





DOMAIN 1 SMART APPLICATION 1.6

: SMART TRANSPORTATION AND MOBILITY : LOW EMISSIONS TRANSPORTATION MODE

PUTRAJAYA <mark>SM</mark>ART CI

BLUEPRINT

Smart Initiatives : Rail Based Transport

Objective : Alleviate traffic congestion and safety issues through effective planning and enforcement



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 1 SMART APPLICATION 1.7

: SMART TRANSPORTATION AND MOBILITY : NEW AGE VEHICLE

Smart Initiatives : Autonomous Vehicle

Objective : Reduce carbon emissions and air pollution through the use of efficient modes of public transportation







DOMAIN 2 SMART HOME AND ENVIRONMENT



SMART APPLICATION 2.1 : INTEGRATED ENVIRONMENT MONITORING SYSTEM

Smart Initiatives : Weather monitoring (temperature, rainfall, wind speed and humidity)

Objective : Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality environment





DOMAIN 2 SMART APPLICATION 2.1

: SMART HOMES AND ENVIRONMENT

: INTEGRATED ENVIRONMENT MONITORING SYSTEM

Smart Initiatives : Air quality monitoring

Objective : Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality environment





DOMAIN 2 SMART APPLICATION 2.1 : SMART HOMES AND ENVIRONMENT : INTEGRATED ENVIRONMENT MONITORING SYSTEM

PUTRAJAYA <mark>SMART CI1</mark>

BLUEPRINT

 Smart Initiatives
 : Supervisory control and data acquisition (SCADA) for pollution prevention control

 Objective
 : Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality environment



SURRADAN A

DOMAIN 2 SMART APPLICATION 2.1 : SMART HOMES AND ENVIRONMENT : INTEGRATED ENVIRONMENT MONITORING SYSTEM

Smart Initiatives : Putrajaya lake and wetland management operational system (PLWMOS) – lake water quality, flora and fauna Objective : Provide for effective and efficient water management to reduce wastage





DOMAIN 2 SMART APPLICATION 2.2

: SMART HOMES AND ENVIRONMENT : URBAN SUSTAINABILITY INDICATOR

Smart Initiatives: Malaysian Urban Rural (MURNInet) National Indicators Network for Sustainable DevelopmentObjective: Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 2 SMART APPLICATION 2.3 : SMART HOMES AND ENVIRONMENT : ENERGY USE & GHG EMISSIONS MONITORING

Smart Initiatives: Real time energy use monitoring for buildings (including solar PV performance)Objective: Monitoring the energy use of buildings in the city so as to reduce consumption, and save on carbon emissions





DOMAIN 2 SMART APPLICATION 2.3 : SMART HOMES AND ENVIRONMENT : ENERGY USE & GHG EMISSIONS MONITORING

PUTRAJAYA <u>SMART</u> CI

BLUEPRINT

Smart Initiatives : Green Energy

Objective : To mitigate the long term effects of climate change in relate to energy consumption.





DOMAIN 2: SMART HOMES AND ENVIRONMENTSMART APPLICATION 2.3: ENERGY USE & GHG EMISSIONS MONITORING

Smart Initiatives : Building Sector Energy Use & Carbon Reporting Programme (BECO₂R) for non-residential building (online system & apps)

Objective

: Monitoring the energy use of buildings in the city so as to reduce consumption, and save on carbon emission





DOMAIN 2 SMART APPLICATION 2.3 : SMART HOMES AND ENVIRONMENT : ENERGY USE & GHG EMISSIONS MONITORING

PUTRAJAYA <mark>SMART CI1</mark>

BLUEPRINT

Smart Initiatives : City scale GHG inventory system

Objective : Monitoring the GHG emissions in the city so as to reduce energy consumption and carbon emission.



PUTRAJAYA SMART CITY BLUEPRINT SUTRALN'

DOMAIN 2 SMART APPLICATION 2.4 : SMART HOMES AND ENVIRONMENT : WATER USE, SUPPLY & MONITORING

Smart Initiatives : Real time water use monitoring

Objective : Provide for effective and efficient water management to reduce wastage





DOMAIN 2 SMART APPLICATION 2.5 : SMART HOMES AND ENVIRONMENT

: SMART HOME

Smart Initiatives : Create smart home for people

Objective : Monitoring the energy use of buildings in the city so as to reduce consumption, and save on carbon emission.





DOMAIN 3 SMART GOVERNMENT SERVICE



Smart Initiatives : Putrajaya Command Centre

Objective : Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status





DOMAIN 3: SMART GOVERNMENT SERVICESSMART APPLICATION 3.2: RESIDENTS AND PUBLIC COMMUNICATION

Smart Initiatives : Putrajaya Mobile Apps

Objective : Creates a more efficient management and maintenance regime;



SERBADANA SUTRALANT

DOMAIN 3 SMART APPLICATION 3.3

: SMART GOVERNMENT SERVICES : PUBLIC INFORMATION DISPLAY SYSTEM

Smart Initiatives : Digital information boards at strategic areas for latest news/ events/ promotion Objective : Creates a more efficient management and maintenance regime;




DOMAIN 3 SMART APPLICATION 3.4 : SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives : Digitalization of land inventory and cadastral data (land use governance) Objective : Creates a more efficient management and maintenance regime;



PUTRAJAYA SMART CITY BLUEPRINT SUTRALAY P

DOMAIN 3 SMART APPLICATION 3.4 : SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives : Community data profiling Objective : Provides the basis for a more vibrant economy





DOMAIN 3 SMART APPLICATION 3.4 : SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives: Electronic submission of development applications (OSC 3.0)Objective: Creates a more efficient management and maintenance regime



PUTRAJAYA SMART CITY BLUEPRINT

DOMAIN 3 SMART APPLICATION 3.4

: SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives : Complaints on line

Objective : Creates a more efficient management and maintenance regime





DOMAIN 3 SMART APPLICATION 3.4

: SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives: Payment online/ applicationObjective: Creates a more efficient management and maintenance regime



DOMAIN 3

RBADAN

: SMART GOVERNMENT SERVICES **SMART APPLICATION 3.4** : E-GOVERNMENT SERVICES

Smart Initiatives : Online license application Objective : Creates a more efficient management and maintenance regime





DOMAIN 3 SMART APPLICATION 3.4

: SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives : Online booking venues

Objective : Creates a more efficient management and maintenance regime



DOMAIN 3 SMART APPLICATION 3.4 : SMART GOVERNMENT SERVICES : E-GOVERNMENT SERVICES

Smart Initiatives: Online registration system (forum/ workshop/ training)Objective: Creates a more efficient management and maintenance regime



Example Of Illustration & Best Practices

RBADAN





DOMAIN 4 SMART INFRASTRUCTURE AND UTILITIES



SMART APPLICATION 4.1 : COMMUNICATION

Smart Initiatives : Centralized Radio Access (C-RAN)

Objective : Provide the basic infrastructure to upgrade the city's capabilities and capacities



SUTRAJANT

DOMAIN 4 SMART APPLICATION 4.1 : SMART INFRASTRUCTURE AND UTILITIES

: COMMUNICATION

Smart Initiatives : Free Public Wi-Fi

Objective : Provide the basic infrastructure to upgrade the city's capabilities and capacities





DOMAIN 4 SMART APPLICATION 4.1

: SMART INFRASTRUCTURE AND UTILITIES : COMMUNICATION

Smart Initiatives : Wayside Equipment

Objective : Provide the basic infrastructure to upgrade the city's capabilities and capacities



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DOMAIN 4 SMART APPLICATION 4.1 : SMART INFRASTRUCTURE AND UTILITIES

: COMMUNICATION

Smart Initiatives : Fibre Cabling Objective : Provide the ba

: Provide the basic infrastructure to upgrade the city's capabilities and capacities





DOMAIN 4 SMART APPLICATION 4.2 : SMART INFRASTRUCTURE AND UTILITIES : STREET AND COMPOUND LIGHTING

Smart Initiatives : Energy saving street light

Objective : Saves costs for the city in the long term through better management of street lights





DOMAIN 4 SMART APPLICATION 4.2

: SMART INFRASTRUCTURE AND UTILITIES : STREET AND COMPOUND LIGHTING

Smart Initiatives : Energy saving compound light

Objective : Saves costs for the city in the long term through better management of street lights





DOMAIN 4 SMART APPLICATION 4.3

: SMART INFRASTRUCTURE AND UTILITIES : FACILITIES MANAGEMENT

Smart Initiatives : Building Integrated Modelling (BIM)

Objective : Creates a more efficient building management through data base information;



Example Of Illustration & Best Practices

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: SMART INFRASTRUCTURE AND UTILITIES : FACILITIES MANAGEMENT

Smart Initiatives : City Lighting Management

SMART APPLICATION 4.3

DOMAIN 4

Objective : Creates a more efficient management and maintenance regime;





DOMAIN 4 SMART APPLICATION 4.3 : SMART INFRASTRUCTURE AND UTILITIES

: FACILITIES MANAGEMENT

Smart Initiatives : Sensors for on-site facilities

Objective : Creates a more efficient management and maintenance regime;





: SMART INFRASTRUCTURE AND UTILITIES

: FACILITIES MANAGEMENT

Smart Initiatives : Accessible facilities information (OKU)

DOMAIN 4

SMART APPLICATION 4.3

Objective : Provide the basic infrastructure and facilities that are useable and accessible for all type of people





DOMAIN 4 SMART APPLICATION 4.4 : SMART INFRASTRUCTURE AND UTILITIES : WASTE MANAGEMENT SYSTEM

Smart Initiatives : Sensors in garbage bins

Objective : Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status

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DOMAIN 4 SMART APPLICATION 4.4 : SMART INFRASTRUCTURE AND UTILITIES : WASTE MANAGEMENT SYSTEM

Smart Initiatives : GPS of garbage trucks

Objective : Saves costs for the city in the long term through better management of street lights and waste disposal.





DOMAIN 4 SMART APPLICATION 4.4 : SMART INFRASTRUCTURE AND UTILITIES : WASTE MANAGEMENT SYSTEM

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Smart Initiatives : Material Recovery Facility (MRF)

Objective : To effectively managing the waste disposal in the city area and reduce the quantity of waste sent to landfills.





DOMAIN 5 SMART SAFETY AND SECURITY

SMART APPLICATION 5.1 : EMERGENCY RESPONSE

Smart Initiatives : Panic Buttons

Objective : Provides for an emergency response system in times of emergencies or natural disasters.





DOMAIN 5 SMART APPLICATION 5.1

: SMART SAFETY AND SECURITY : EMERGENCY RESPONSE

Smart Initiatives: Putrajaya Command CentreObjective: Provides the infrastructure for emergency situations





DOMAIN 5 SMART APPLICATION 5.1

: SMART SAFETY AND SECURITY : EMERGENCY RESPONSE

Smart Initiatives : Communication Mode for OKU

Objective : Providing for an inclusive city that does not marginalize any groups in terms of communication needs





DOMAIN 5 SMART APPLICATION 5.2

: SMART SAFETY AND SECURITY : CRIME PREVENTION

Smart Initiatives : Smart CCTV (safety surveillance)

Objective : Provides for an emergency response system in times of emergencies or natural disasters



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: SMART SAFETY AND SECURITY **SMART APPLICATION 5.2**

: CRIME PREVENTION

Smart Initiatives : License Plate Recognition System (LPRS)

DOMAIN 5

Objective : Creating a platform for citizen's assurance on the safety and security levels of the city





DOMAIN 5 SMART APPLICATION 5.2 : SMART SAFETY AND SECURITY : CRIME PREVENTION

Smart Initiatives : Neighborhood Watch

Objective

: Provides for an emergency response system in times of emergencies or natural disasters





: SMART SAFETY AND SECURITY

: DISASTER PREVENTION

Smart Initiatives : Dam Integrity Assessment

DOMAIN 5

SMART APPLICATION 5.3

Objective : Provides the infrastructure for emergency situations for the public





: SMART SAFETY AND SECURITY : DISASTER PREVENTION

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Smart Initiatives : Possible disaster assessment

Objective : Creating a platform for citizen's assurance on the safety and security levels of the city



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DOMAIN 5 SMART APPLICATION 5.4 : SMART SAFETY AND SECURITY : ROAD SAFETY

Smart Initiatives : Beat Automated Traffic Camera

Objective : Creating a platform for citizen's assurance on the safety and security levels of the city





DOMAIN 5 SMART APPLICATION 5.4 : SMART SAFETY AND SECURITY : ROAD SAFETY

Smart Initiatives : Speed Awareness Design

Objective : Provides for an emergency response system in times of emergencies or natural disasters.



DOMAIN 6 SMART ECONOMY



SMART APPLICATION 6.1 : CASHLESS PAYMENT

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Smart Initiatives : E-Wallet and E-Kiosk

Objective : Encourage the use of technology by introducing to the new way of shopping and businesses.





DOMAIN 6 SMART APPLICATION 6.2

: SMART ECONOMY

: TOURISM

Smart Initiativ Objective

Smart Initiatives : Smart application for city attraction (Putrajaya Mobile Apps)

: Allowing for information dissemination in different economic activities of the city to encourage increased services and investments.





DOMAIN 6: SMART ECONOMY SMART APPLICATION 6.2 : TOURISM

Objective

Smart Initiatives : Real time data collection for tourists information : Allowing for information dissemination in tourism activities within the city to improve in term of investment and services





DOMAIN 6 SMART APPLICATION 6.2

: SMART ECONOMY

: TOURISM

Smart Initiative Objective

Smart Initiatives : Tourism feedback (visitors to rate the sites and services)

: Allowing for information dissemination in different economic activities of the city to encourage increased services and investments.



DOMAIN 6 SMART APPLICATION 6.3 : SMART ECONOMY : PROPERTY

Smart Initiatives : Smart application to view, sell and buy properties

Objective : Provide alternative platform for properties business within Putrajaya development



Example Of Illustration & Best Practices

BADA


Objective

DOMAIN 6 SMART APPLICATION 6.4

: SMART ECONOMY

: BUSINESS PROMOTION & ADVERTISEMENT

Smart Initiatives : Digital Billboards

: Allowing for information dissemination in different economic activities of the city to encourage increased services and investments.

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DOMAIN 6 SMART APPLICATION 6.4 : SMART ECONOMY

ATION 6.4 : BUSINESS PROMOTION & ADVERTISEMENT

Smart Initiatives : Smart application for business promotion (Putrajaya Mobile Apps)







: SMART ECONOMY : BUSINESS PROMOTION & ADVERTISEMENT

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Smart Initiatives : Digital Free Trade Zone (DFTZ) in Putrajaya

Objective : Provide for an attractive city platform to encourage new ways of doing businesses;



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DOMAIN 6 SMART APPLICATION 6.4 : SMART ECONOMY : BUSINESS PROMOTION & ADVERTISEMENT

Smart Initiatives : Set up incubator/ lab as to encourage business community to adopt technology Objective : Provide for an attractive city platform to encourage new ways of doing businesses







DOMAIN 7 SMART COMMUNITY



SMART APPLICATION 7.1 : SMART EDUCATION

Smart Initiatives : Awareness program

Objective : Providing opportunities for citizens to provide feedback and suggestions to address issues as well as develop new opportunities for themselves;





DOMAIN 7 SMART APPLICATION 7.1 : SMART COMMUNITY : SMART EDUCATION

Smart Initiatives : Digital Library Objective : Enabling the ir

: Enabling the infrastructure to build up a smart community towards sustainability;





: SMART COMMUNITY : SMART EDUCATION

Smart Initiatives : On-line school admission

Objective : To insure the effectiveness for students registration



PUTRAJAYA SMART CITY BLUEPRINT



DOMAIN 7 SMART APPLICATION 7.1 : SMART COMMUNITY : SMART EDUCATION

Smart Initiatives : Digital Classroom

Objective

gilai Classiooni avida atudanta with mara flav

ive : Provide students with more flexibility through a self-directed approach to learning.





: SMART COMMUNITY : INNOVATIVE COMMUNITY

Smart Initiatives : Innovative Center (POINT) Objective : Enabling the infrastructure to build up a smart community towards sustainability;



SERBADANA SUTRAINS

DOMAIN 7 SMART APPLICATION 7.2 : SMART COMMUNITY

: INNOVATIVE COMMUNITY

Smart Initiatives : Children–led climate change adaptive programme

Objective : Expose and educate young children on the climate change and enhance their creative ideas.





: SMART COMMUNITY : HEALTHCARE MONITORING PROGRAM

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Smart Initiatives : Tele Health Services

SMART APPLICATION 7.3

Objective

: Enabling the infrastructure to build up a smart community towards sustainability;



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DOMAIN 7 SMART APPLICATION 7.3

: SMART COMMUNITY : HEALTHCARE MONITORING PROGRAM

Smart Initiatives : Real time information of health and risk area

Objective : Enabling the infrastructure to build up a smart community towards sustainability;





: SMART COMMUNITY : HEALTHCARE MONITORING PROGRAM

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Smart Initiatives : Healthy diet information and education Objective : Spread information and awareness through digital technologies



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DOMAIN 7 SMART APPLICATION 7.3 : SMART COMMUNITY : HEALTHCARE MONITORING PROGRAM

Smart Initiatives : Information for dengue hotspot area

Objective : Spread information and awareness through digital technologies





: SMART COMMUNITY : HEALTHCARE MONITORING PROGRAM

Smart Initiatives: Putrajaya Bebas Asap Rokok (PBAR)Objective: Spread information and awareness through digital technologies





: SMART COMMUNITY

: INTERACTION AND INCLUSIVITY

Smart Initiatives : City You-Tube Channel

SMART APPLICATION 7.4

DOMAIN 7

Objective : Providing opportunities for citizens to provide feedback and suggestions to address issues as well as develop new opportunities for themselves;





: SMART COMMUNITY

: INTERACTION AND INCLUSIVITY

Smart Initiatives : Community interaction platform

Objective : Providing opportunities for citizens to provide feedback and suggestions to address issues as well as develop new opportunities for themselves;

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APPENDIX



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Quick Win (Less Than 1 Year; 2018), Short Term (1-2 Years; 2018-2020); Medium Term (3-4 Years; 2018-2022) And Long Term (More Than 5 Years; 2018-2025).

SMART INITIATIVES	TIMELINE	PAGE
Mobile apps for parking guidance	Quick win	26
Illegal parking control	Quick win	27
Automation Ticketing & payment System	Quick win	29
Cashless bus fare payment system (e.g: e-wallet)	Quick win	30
Dedicated lane for all categories of vehicles	Quick win	33
Journey Planner	Quick win	39
Traffic count using smart CCTV	Quick win	40
Bike sharing facilities & services	Quick win	43
Ride sharing	Quick win	44
Supervisory Control And Data Acquisition (SCADA) For Lake Water Pollution Prevention Control	Quick win	52
Putrajaya Mobile Apps	Quick win	62
Digitalization of land inventory and cadastral data (Land use Governance)	Quick win	64
Electronic submission of development applications (OSC 3.0)	Quick win	66
Complaints on line	Quick win	67
Online License Application	Quick win	69
Online Booking of venues	Quick win	70
GPS of garbage trucks	Quick win	83
Awareness Programme	Quick win	104
Online school admission	Quick win	106
Innovative centre (POINT)	Quick win	108
Children-led climate change adaptive programme	Quick win	109
Real time information of health risk areas	Quick win	111
City You-tube channel	Quick win	115





PUTRAJAYA SMART	CITY
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SMART INITIATIVES	TIMELINE	PAGE
Electronic Board displays to inform on available car parking spaces by location.	Medium term	25
Traffic condition & safety monitoring (Smart CCTV)	Medium term	34
Multi-lingual bus arrival information	Medium term	35
Motion sensors (night time) for energy saving	Medium term	41
Sensor to monitor real time facility problems	Medium term	42
Eco ride (tourists)	Medium term	45
Improvement of bicycle lane and pedestrian walkways	Medium term	47
Rail Based Transport	Medium term	48
Real time energy use monitoring for buildings (including solar PV performance)	Medium term	55
Building Sector Energy Use & Carbon Reporting Programme (BECO ₂ R) for non-residential building (online system & apps)	Medium term	57
City scale GHG inventory system	Medium term	58
Real time water use monitoring	Medium term	59
Create smart home for people	Medium term	60
Centralized Radio Access (C-RAN)	Medium term	72
Wayside Equipment	Medium term	74
Building Integrated Modeling (BIM)	Medium term	78
City Lighting Management	Medium term	79
Sensors for on-site facilities	Medium term	80
Accessible facilities information (OKU)	Medium term	81
Sensors in garbage bins	Medium term	82
Communication Mode for OKU	Medium term	87



Dam megney Assessment		51
Possible Disaster Assessment	Medium term	92
Real time data collection for tourists information	Medium term	97
Smart application to view, sell and buy properties	Medium term	99
Digital billboards	Medium term	100
Digital Free Trade Zone (DFTZ) in Putrajaya	Medium term	102
To set up incubator/lab as to encourage business community to adopt technology	Medium term	103
Digital Library	Medium term	105





SMART INITIATIVES	TIMELINE	PAGE
Pay By Phone (to be integrated with Putrajaya Mobile)	Long term	28
Traffic Calming	Long term	32
Provide bus loading info using colour coding	Long term	36
Application to provide real-time information on public transport	Long term	37
Variable Message Signs to display short traffic condition messages	Long term	38
NGV & EV buses	Long term	46
Autonomous Vehicles	Long term	49
Green Energy	Long term	56
Fiber cabling	Long term	75
Energy saving street light	Long term	76
Energy saving compound light	Long term	77
Licenses Plate Recognition System (LPRS)	Long term	89
Beat Automated Traffic Camera	Long term	93
Speed Awareness Sign	Long term	94
Digital Classroom	Long Term	107
Tele-health services	Long term	110
Putrajaya Bebas Asap Rokok (PBAR)	Long term	114







PERBADANAN PUTRAJAYA

Kompleks Perbadanan Putrajaya 24, Persiaran Perdana, Presint 3, 62675, Putrajaya Malaysia. Tel: 603-8887 7000 Fax: 603-8887 5000 www.ppj.gov.my