Project Digest

(1) Project Title : Study and Capacity Building for Smart City Solutions Covering Disaster Management, Flood, Mobility, Big Data Analytics and Artificial Intelligence, Systems and Application Integration

(2) Name of City: Kuching, Sarawak, Malaysia**.**

(3) Category of Study: (C) Feasibility Study,
(D) Capacity Building Programme
(E) Experimental Implementation

(4) Justification of the Project

4.1. Sectorial Development Policy on Smart City Project

Sarawak Multimedia Authority (SMA) is a regulatory body established by the Sarawak Government pursuant to Section 3 of Sarawak Multimedia Authority Ordinance 2017 with the primary objective to spearhead, oversee and facilitate the development and implementation of the communication, multimedia and the State's Digital Economy Initiatives that include Smart City. Further reference: https://www.sma.gov.my/#about-us.

As such, all Sarawak Government agencies including local government / municipality are governed and guided by the policies, master plan, regulations and decisions of the SMA. The scope of SDE policies and initiatives comprises of 8 Digital Economy sectors and 7 enabler sectors. They are listed as follows:

Digital Economy Sectors			
Agriculture	Tourism	Manufacturing – Industry 4.0	Smart City
Digital Health	e-Commerce	Digital Government	Social
Enabler Sectors			
Digital Infrastructure	Digital and Data	Digital Skill and Talent Management	Research and Development

Cyber Security	Digital Inclusivity	Innovation and Entrepreneurship	

The objectives and strategic actions of each sector and enabler are identified in the Sarawak Digital Economy Strategy 2018-2022 document. Further reference: https://www.sma.gov.my/upload/file_folder/download/DEBooklet.pdf.

The Chief Smart City Officer (CSCO) position of Kuching City under the ASEAN Smart City Network is also held by an officer of the SMA.

Kuching Smart City development policy are encapsulated in the Kuching Smart City Master Plan. The sectors for Kuching Smart City are shown in the following diagram:

Figure 2: Kuching Smart City Conceptual Framework

This application looks at three categories of projects within the area of Smart City in Kuching.

4.2. CATEGORY C: FEASIBILITY STUDY

4.2.1. -Present Condition of the Smart City project in Kuching

Current areas of challenge are:

- Reduction of traffic jam
- Collection and dissemination of timely and useful traffic related information, including but not limited to the following:

    - Hazard mapping
    - Detection of incidents related to/ affecting traffic
    - Display/ share specific information (i.e. safety, weather, disaster, flood, accidents, and other alerts) for public awareness and action
- Integration of traffic management with public and emergency transportation

4.2.2. Outline of the Study

- To study how to improve traffic analysis by collecting data about vehicle speed, number of vehicles, and vehicle types. Combining collected data with additional relevant data to make further predictive analysis.
- Propose viable solutions to areas of challenge as per item 4.2.1 above.

4.2.3. Purpose (short-term objective) of the Study

- By identifying the trajectory and speed of the vehicles using collected sensor data, the study will find ways to predict traffic congestion information and expected travel time. Please refer to Appendix 1 for an example of traffic data analytics and prediction feasibility proposal.
- To look into an effective mechanism to integrate traffic, hydrological and disaster systems from both data and application aspects.

4.2.4. Goal (long-term objective) of the Study or entire project

- Supplement existing traffic light control and management system to improve travel time and reduce traffic jam, monitor traffic violation and accidents, and coordinate disaster related response by synchronizing traffic management with disaster management system.
- A sustainable model to integrate various smart city applications seamlessly through standards, framework and infrastructure.

4.2.5. Other relevant projects, if any

- Sarawak Integrated Operation Centre (SIOC)
- Sarawak Digital Identity (Digital Identity, Single-Sign-On and Know Your Customer platform) also known as “SarawakID”
- Sarawak Disaster Management Systems
- Hydrological (Water Level, Rainfall) Telemetry Data Management System
- State Call Centre and Public Feedback System

- Public transportation systems
- Emergency transportation systems
- All Smart City initiatives.

4.3. CATEGORY D: CAPACITY BUILDING PROGRAMME

4.3.1. Present Condition of the Smart City project in Kuching

It is critical to build the capacity of the stakeholders including government officials or municipal staff to enhance knowledge about IoT, data analysis and other digital technologies to create and implement effective smart initiatives.

4.3.2. Outline of the Study

- To provide instructor-led, professional and/or hands-on training to use IoT prototype model to connect physical world and cyber world and have data analytic experience and know-how. Please refer to Appendix 1 for an example of an IoT training programme using the prototype model of simulated flood situation.
- To cover technologies such as digital twin, video analytics, 3D geographical information analytics, comprehensive data analytics and artificial intelligence.

4.3.3. Purpose (short-term objective) of the Study

- Participants will be able to understand and implement the basic elements of IoT systems and learn its mechanism of data flow and analysis.
- Participants will be able to perform data and big data collection, advanced analytics and visualization, machine learning and Artificial Intelligence
- Participants can obtain recognized professional qualification / certification.
- With the right data skills, participants can create data analytic strategies in line with their organizational goals.

4.3.4. Goal (long-term objective) of the Study or entire project

- By orchestrating data source, data management, data modeling and continuous AI Deep Learning analytics and evolving logics, it will deploy data analytics platform to support smart initiative applications.

4.3.5. Other relevant projects, if any

- Sarawak Integrated Operation Centre (SIOC)

- Sarawak Digital Identity (Digital Identity, Single-Sign-On and Know Your Customer platform) also known as “SarawakID”
- Big Data Analytics platform and infrastructure
- Sarawak Disaster Management Systems
- Hydrological (Water Level, Rainfall) Telemetry Data Management System
- State Call Centre and Public Feedback System
- Public transportation systems
- Emergency transportation systems

4.4. CATEGORY E: EXPERIMENTAL IMPLEMENTATION

4.4.1. Present Condition of the Smart City project in Kuching

Comprehensive data (population, traffic counts, weather, flood etc.) and cross sector data management and analytics, fragmented data in various organizations, and database integration.

4.4.2. Outline of the Study

- Experimental implementation of Data Analytic Platform / Datafication (Annica) for disaster and traffic management and other relevant data use cases to orchestrate data assets. Please refer to Appendix 3 for more information.

4.4.3. Purpose (short-term objective) of the Study

- Capture data and integrate data for the purpose of data management and analysis.
- Implement scalable data analysis platform and automate complex analysis flow related to disaster and traffic.
- Provide a more efficient, effective and scalable data analysis, operation and visualization platform that can be used for a wide variety of use cases.

4.4.4. Goal (long-term objective) of the Study or entire project

- Orchestrate data source, data management, data modeling and continuous AI Deep Learning analytics and evolving logics to deploy a data analytics platform capable of supporting smart applications.

4.4.5. Other relevant projects, if any

- Sarawak Integrated Operation Centre (SIOC)
- Sarawak Digital Identity (Digital Identity, Single-Sign-On and Know Your Customer platform) also known as “SarawakID”
- Big Data Analytics platform and infrastructure
- Sarawak Disaster Management Systems
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