TEACHING MATERIAL GUIDANCE

1) Title of the material

Choosakun, A.; Chaiittipornwong, Y.; Yeom, C. Development of the Cooperative Intelligent Transport System in Thailand: A Prospective Approach. Infrastructures 2021, 6, 36. https://doi.org/10.3390/infrastructures6030036

https://www.mdpi.com/2412-3811/6/3/36

2) Which section of the SUMP it is relevant to?

The authors presented a review of the literature and analyses related to C-ITS measures and applying them to smart mobility management. Therefore, the article can be linked to the second, third and fourth sections of the SUMP circle related respectively to the determination of planning framework, analysis of the mobility situation (in particular the analysis of problems and opportunities for all modes of transport - **subsection 3.2**.), scenario building and joint evaluation (development of scenarios of possible futures - **subsection 4.1**.) and vision and strategy development (arguments for stakeholders – **subsection 5.1**).

3) Which Mobility Manager knowledge this material is the most relevant to?

It is related to Transport and mobility planning (section 1 of the Mobility Manager competencies) especially 1b (employment of ITS/ICT and smart measures) and also to section 5 Data analysis for mobility planning especially 1a (data collection and analysis).

4) Problem approached and content overview

Problem approach – general understanding of the role of C-ITS (cooperative Intelligent Transportation System) and applying them to city management. An example of Thailand using Intelligent Transport System (ITS) to improve traffic and transport services is presented. This paper argues that automated transport in Thailand has succeeded through cooperative ITS (C-ITS). This paper examines evidence-based cases of ITS development from six areas: Singapore, South Korea, Japan, China, the European Union and the United States of America to explain how C-ITS conditions support ITS success. The study uses a SWOT (Strength, Weakness, Opportunity, Threat) and TOWS (Threat, Opportunity, Weakness, Strength) analysis matrix to identify influential factors from the six areas and compare them with Thailand. The authors identified seven components that relate to the success of C-ITS in Thailand. These include pragmatic policies to implement pilot projects; close collaboration between stakeholders; working criteria for C-ITS development; standard and framework architecture; sharing of experience with current technology; capacity to implement C-ITS; and a clear statement on data sharing and exchange. These findings represent both a threat and an opportunity to improve traffic and transport in Thailand through the C-ITS approach. The findings presented can be applied to C-ITS implementations in cities.

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A proposal for an appropriate procedure to encourage the development of C-ITS in Thailand is gathered from the strength of six area case studies to find out how to bridge the development gap. By matching the strengths and capabilities, the existing ITS should be strengthened with beneficial technology to achieve the objectives of the master plan.

Opportunities from lessons learned and research capabilities can overcome the weakness of lack of knowledge. The formulation of architecture and standard will become the base platform for C-ITS development. Once the committee is established, the responsible agencies should guide the vague development of open data policy. To promote professional skills, knowledge transfer and workshops should raise the level of sustainable capacity development.

Technological progress has led to the evolution of ITS towards C-ITS, which is more complex and automatic. Therefore, Thailand needs to achieve the goal of a smarter transport system through a smart mobility strategy. However, there are many risks including isolated development, non-standardisation, policy-driven and vague declarations of public and private cooperation. For Thailand to achieve C-ITS development for smart transport, the following factors need to be clarified and established: inclusive policy statement and declaration, pilot project initiation, standard formulation and inter-agency cooperation. Not only proximity and solid cooperation have a profound impact on the implementation of C-ITS in Thailand, but also the factor of policy and capacity building.

5) Who could be interested in this material?

The article is aimed at students and those looking for inspiration in C-ITS implementations in Intelligent Transport Systems services when such measures are applied in SUMP.

6) What is worth mentioning as an innovative factor for the reader?

In line with the SWOT and TOWS analysis presented, a set of strategies and actions are presented to set guidelines for C-ITS development in Thailand, which can also be applied to the situation in Poland (taking into account the European Union guidelines in this regard).

The responsible agency that carries out the ITS Master Plan must address the C-ITS development policy to guide the initiation of the C-ITS development pilot project and its timely implementation.

ITS committee meetings should be scheduled and should continue to strengthen cooperation between stakeholders, ultimately leading to project evaluation and follow-up.

The C-ITS development working group established by the ITS committee must act as the lead entity and steering group for C-ITS development.

The members of the group should come from all stakeholders related to C-ITS development in Thailand and should be responsible for creating a convenient and comfortable platform for communication and coordination.

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Architecture should be designed for the C-ITS development standard and framework agreed by all stakeholders. The architecture is to formulate the basic requirements and specifications. The architecture also assumes the communication system, data exchange and sharing conditions for all major components of C-ITS, including the vehicle standard to address safety issues.

Lessons learned should be integrated with current technological knowledge before being applied and used to improve the existing system. In turn, C-ITS developments in other countries should be followed to understand new and advanced technologies.

These benefits will help to either adapt the current system or reduce the cost of equipment and installation.

The result of collaboration between the public and private or academic and business sectors is the transfer of knowledge on C-ITS and related technologies enabled by the workshop programme, which can potentially be a key performance indicator (KPI) for those involved.

A statement on data sharing and exchange, among other issues, can be specified in a Memorandum of Understanding (MOU) and Memorandum of Agreement (MOA) to clarify the differences between open and private data.

Clear objectives for the development of C-ITS from the government side must be defined to ensure the purpose of system development. In this regard, private sectors from the automotive industry must recognise the direction of automotive transformation to serve the C-ITS policy.

7) Limitations

The problem was analysed at a high level of generality for the country Thailand. Nevertheless, the presented general conclusions may serve as an inspiration for Polish cities regarding problems that may occur during C-ITS implementations (comprehensive implementations in this field are missing in Poland).

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