

Status and Recommendations for ICT Use in Road Infrastructure Development and Management in Sri Lanka



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Declaration

I certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a degree or Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also here by give consent for my dissertation, if accepted to be made available for photocopying and for interlibrary loans and for the title and summary to be made available to outside organizations.

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Abstract

Sri Lanka has recognized needs of a modern and an efficient road network to promote faster economic development. Road transport accounts for about 92% of all passenger and freight transport, of which around 76% is carried by national highways. Though the road density is higher in the country, it has been noted that there is significant pressure on the development and maintenance of road infrastructure. Therefore it has been identified that road infrastructure development need to be efficiently done and therefore ICT should be used appropriately. It is observed that the road development can incorporate ICT in many ways such as use of computers, and related equipment software, telecommunication technologies, internet, networking facilities etc.

The present study is carried out to identify the current situation of the country through an assessment of the status of ICT use by carrying out survey of road infrastructure development professionals and organizations. The objective of the study can be stated as to evaluate the status of ICT use in the road infrastructure development of Sri Lanka's road sector through a stake holder survey and make recommendations to contribute towards national development.

Possible methods and components with respect to ICT usage in road infrastructure development were identified with the use of a literature survey. Questionnaire surveys were carried out to identify the status of ICT usage in various sub tasks of road infrastructure development. In this aspect feasibility studies, detailed engineering design, construction and operation and maintenance and their components were analyzed through a survey of individuals employed in major road development organizations.

Questionnaires were developed, tested and improved to carry out surveys of individuals and also leading organizations. In case of organizations a detailed questionnaire was developed to assess the experience, enabling environment, institutional role, and management instruments

and their sub components. The study included the survey of 104 individuals and 15 leading organizations.

Results indicated that the Feasibility Studies and Engineering Design are the strongest uses of ICT for road infrastructure development. The study also identified the status pertaining to sub tasks for each major use.

In the organizational survey, the average ICT usage was 39% in the overall context of Enabling environment, Institutional Role, and Management Instruments. The strongest use was identified as Institutional Role with 52%. The study has identified seven key conclusions with four key recommendations for the strengthening of ICT use in the road infrastructure development. In case of Sri Lanka promotion of suitable policies, enhancing the critical mass of literate personnel, increasing the availability of management instruments are several of such recommendations that have to be addressed.



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List of Abbreviations

ICT	Information and Communication Technology
LAN	Local Area Network
LGN	Lanka Government Network
GPR	Government Process Re-Engineering
FOSS	Free and Open source Software
ICTA	Information & Communication Technology Agency
ROMADS	Road Measurement Data Acquisition Systems
HDM	Highway Design & Maintenance
VOIP	Voice Over Internet Protocol



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