

# **The Implementation Model of Smart Logistic Transport : Engineering Economic Analysis of Internet of Things (IoT)**

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## **Abstract**

Asean Economic Community 2016 has been creating more challenges in logistics industries in Indonesia. The implementation of *IoT (Internet of Things)* in logistic services is needed for increasing competitiveness leading to the establishment of so-called smart logistic transport. We propose the implementation model of the Indonesian Smart Logistic Transport, by focusing on cold supply chain system. We have conducted an engineering economic analysis of the smart logistics transport, in relation with the mobile network platform of 2G, 3G, 4G. Development of the implementation model is completed by conducting in-depth interviews with the application customers, technological vendors, regulator and network provider. Based on implementation trial in September-October 2015 and engineering economic analysis, we have found that Smart Logistic Transport is not feasible only on scenario 3 for CD6 at 4G network. Such condition is caused by the expensive price of 4Gs M2M gateway module and MDVR. Therefore, it requires the minimum amount of implemented truck to make implementation feasible. Our proposed model has signified 11 features, i.e. 2 basic feature and 9 advanced features, formulating the Indonesian smart logistics transport system. Due to the dynamic business process, customers may need specific advanced features in the future. By taking such opportunity, Indonesian local content developer can work to develop any relevant application features, which is needed by the logistic companies in the near future.

## **Keywords**

*Logistic Services, Engineering Economic, Supply Chain, Internet of Things (IoT), 4G Network*

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## **Biography**

**Muhammad, Dipl. of Engineering** is an Undergraduate Student in Industrial Engineering in Department of Industrial Engineering (IE), Faculty of Engineering at University of Indonesia, Depok, Indonesia. He earned Diploma of Engineering in Physics and Instrumentation Engineering, Faculty of Industrial Technology from Institut Teknologi Bandung (ITB), Bandung, Indonesia. He is a leader in AUAV (Autonomous Unmanned Aerial Vehicle), University of Indonesia Robotics Research Team. Member of TREC Engineering Center Research Group, Faculty of Engineering

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**Dr. Rahmat Nurcahyo S.T, M.Sc.** is currently a fulltime senior lecturer and Director of Industrial Engineering (IE) Department, Faculty of Engineering University of Indonesia. Mr. Rahmat holds a Bachelor of Engineering degree in Industrial Management from University of Indonesia and a Master of Science degree in Economic and Management Science from Faculty of Economic and Business University of Indoneisa. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He is Director of Management System of Faculty of Engineering University of Indonesia.