

Body of knowledge in research of air traffic management: case study in Indonesia

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Abstrak

Air Traffic Management (ATM) is a discipline that manages the movement of flights in the air and on the ground. Its functions are to maintain the safety level required by the authority and to provide the capacity required by the airlines. The challenges in ATM come from the in-balance between the market growth and the available infrastructure and also the gap between the regulations and the technology. The research in ATM provides the solutions by introducing new methods or technologies to cope with those challenges. The effort in organizing and cataloging the Body of Knowledge (BOK) in research of ATM is presented in this report. This BOK is a complete set of research concepts and activities in term of managing the air traffic to improve the air transportation safety and its capacity. Considering the latest publications in the last 5 years, the BOK consists of five areas of operation which are enroute, arrival, terminal, departure and connectivity. Each area of operations consists of several knowledge units that contain several research topics. In this report, a special attention is given to the development of ATM research in Indonesian. It characterizes with the challenges that commonly faced in Indonesia such as high density air traffic, insufficient infrastructure/technology, in-balance demand and supply during peak hours and major disruption by natural disasters (volcanoes and earth quakes). The report summarizes that the trend of ATM research in Indonesia is in the knowledge unit of capacity optimization. Additionally, it recommends to explore research activities by implementing new air traffic concepts such as the trajectory based operation and the integrated of departure and arrival management to improve capacity, efficiency and safety.