

MONASH INDUSTRY TEAM INITIATIVE (MITI)

TRANSDEV AUSTRALASIA HOURS ANALYSIS AND THE STANDBY AND RELIEF UTILISATION

Miji Kim - Master of Information Technology

Andrew Pham - Master of Information Technology

SCOPE

Transdev Australasia is one of the largest multi-modal public transport providers in the Australia and New Zealand regions. For a fast-paced and diverse country like Australia, commuters rely on a structured bus networks, supported by over 3500 bus drivers in Melbourne. Transdev Australasia has asked the MITI team to analyse the data from operational requirements and develop an efficient data model and visualisation that accounts employee variables such as employee types, activities, operational, non-operational, and training hours. The analysis is limited to Transdev Melbourne from 2019-03-01 to 2020-02-29.

PROCESS

Employees and their working hours optimisation are the important factors of the bus industry. To effectively allocate resources to appropriate times, it is paramount to understand the challenges encountered. The MITI team has met with various stakeholders within the Rostering and Scheduling team to gather information and requirements, as well as working under the Data Services team. The project consisted of conducting an in-depth analysis of the Transdev bus business in Melbourne, understanding how they work in terms of time allocation to deliver a data model and visualisation which helps provide an effective and reliable resource allocation.

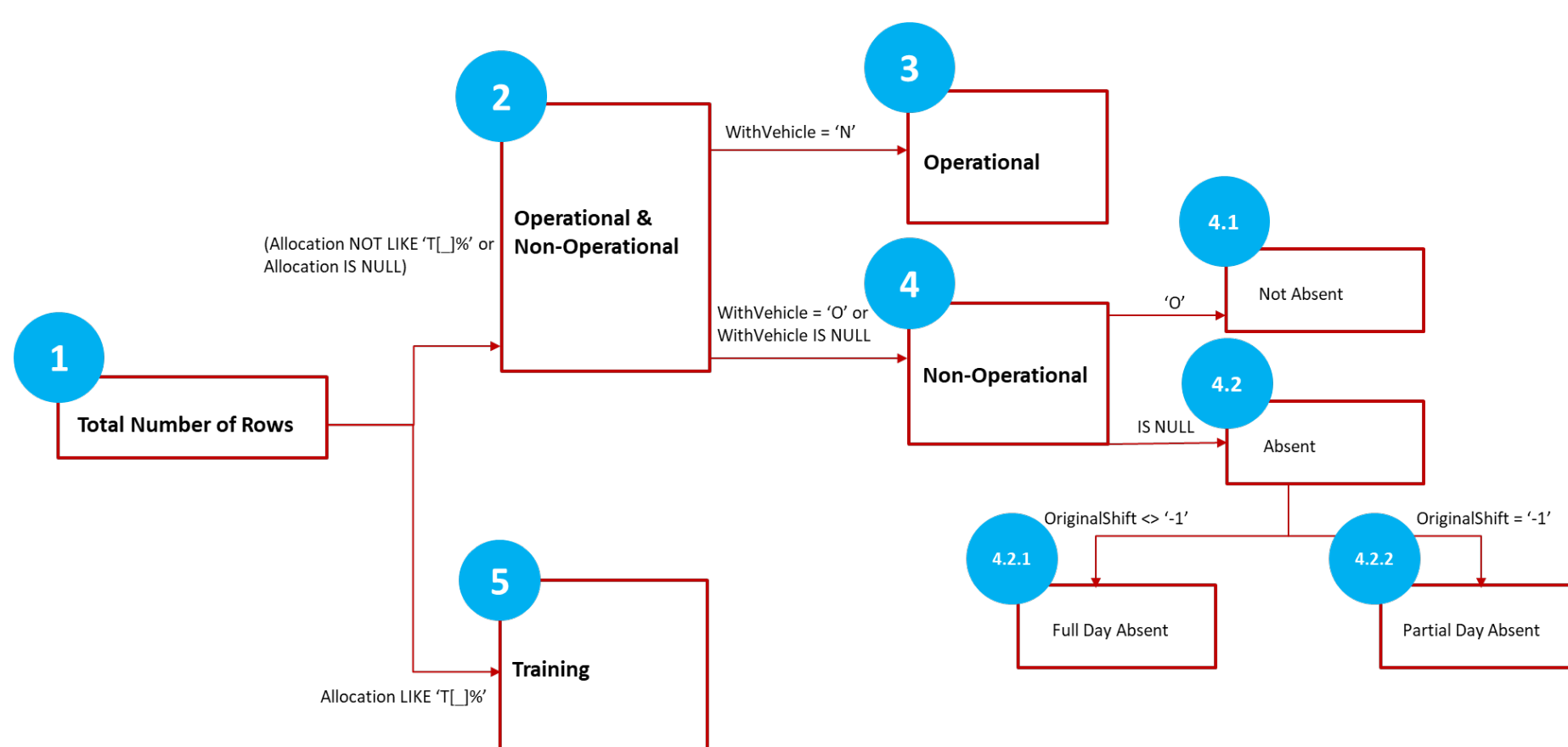
OUTCOMES

Identifying the complexities of the transport industry, the MITI team came up with solutions comprising of:

- Data model of operational, non-operational, and training hours
- Data model of hours analysis for standby and relief drivers

NON-OPERATIONAL, OPERATIONAL AND TRAINING HOURS

The team developed queries to analyze operational, non-operational, and training hours.

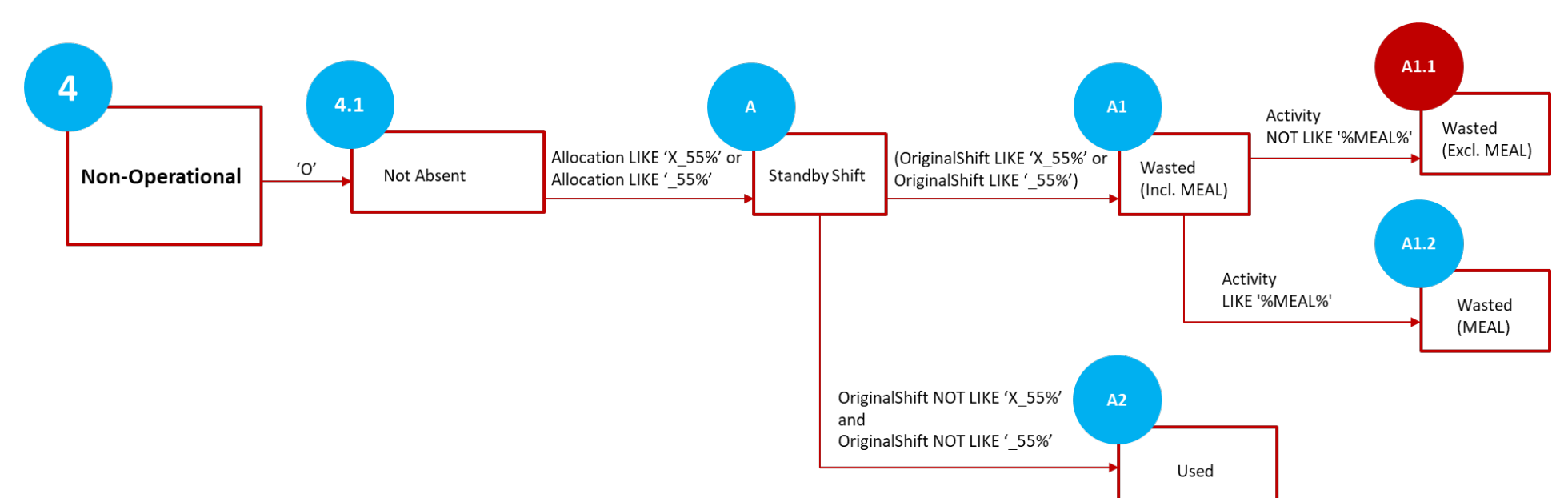


Algorithm flow diagram for hours analysis



STANDBY AND RELIEF UTILISATION - DRIVING AND NON-DRIVING ACTIVITIES

Standby has two types: Efficient Standby and Inefficient Standby. When the second and third positions of Allocation column and OriginalShift column are 5, such standby activity is considered as inefficient standby.



Algorithm flow diagram for standby activity

LEARNINGS

Education sessions provided by Data architect and BI developers

- SQL Server Architecture
 - SQL Query Writing
 - Business Intelligence (BI) Framework and documentation
- Practical learning based on theoretical concepts
- BI framework
 - MS SQL Server Management Studio
 - MS Visual Studio
 - T-SQL

Understand the rostering and scheduling operations at Transdev

Perform analysis on the data

- Behaviors of drivers/Vehicle events including speeding, accelerating, and idling

The environment strongly promoted open-mindedness to changes and innovations, and to proactively handle hurdles along the way.