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Title

Development of a Conceptual Framework to enable the Understanding and Evaluation of Freight Railway Operational Capacity

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ABSTRACT

Operational capacity is an important consideration in Transnet's practical capacity utilisation analysis. Practical capacity utilisation is an important measure in making business decisions as part of Transnet's Long-Term Planning Framework. If Transnet wants to increase practical capacity utilisation in order to attract investors according to the definition of the practical capacity utilisation (i.e. operational capacity as a portion of used capacity) Transnet needs to either reduce used capacity or increase operational capacity. Since Transnet is already facing strained networks, reducing used capacity is not a viable option thus increasing operational capacity is the best way to increase practical capacity utilisation. Operational capacity is theoretical capacity less maintenance and operational allowances and it is this capacity that is the basis of timetable generation. Transnet typically takes operational capacity to be 65% of theorical capacity as a rule of thumb and basis for timetable generation. The proposition of this project is that it is more valuable to determine operational capacity based on the evaluation of a set of timetables, according to stakeholder-valued timetable evaluation metrics. The output of this research is a conceptual framework that can be applied in the evaluation of timetables on the basis of level of risk to achieving the stakeholder valued outcomes. In this way, timetable development, selection and operation depend on the factors of the network that are the most critical to its stakeholders.