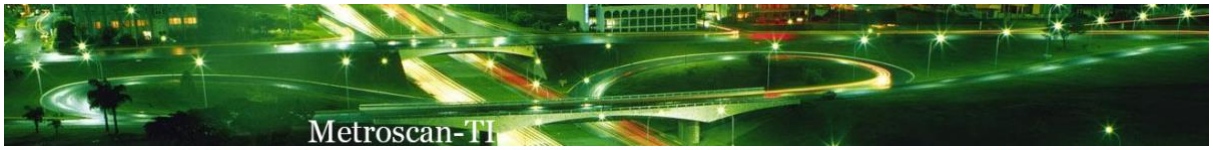

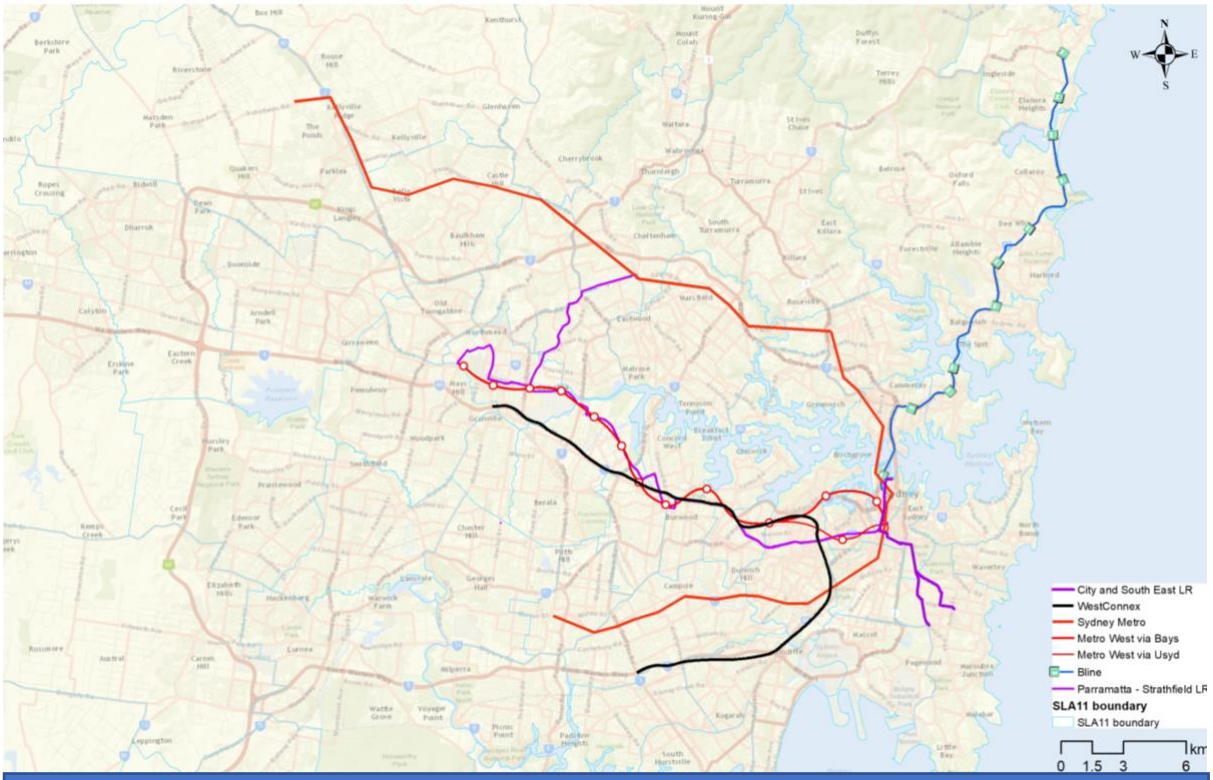

MetroScan-TI: All-in-One Forecasting and Scanning System for Transport Policy and Project Evaluation

The Institute of Transport and Logistics Studies (ITLS)
The University of Sydney Business School

The Gap between Existing Transport Models and Policy Forecasting

Transport models are applied by governments worldwide at the local, regional, and national levels. These models are of great importance in providing advisory inputs or the government's decisions on infrastructure investments and long-term transport policies. Transport models are typically large-scale models covering many travel zones but generally focusing only on the trip, destination, mode and route choices. They are not designed for quick-scans to allow comparisons of alternative policies for long-term forecasts and vastly insufficient in assessing broader economic impact analysis (EIA) or providing an in-depth benefit-cost analysis (BCA) for policymakers. MetroScan Transport Infrastructure (MetroScan-TI) or MetroScan for short, is a quick-scanning system developed by ITLS to fulfil this gap. MetroScan is currently fully operational for the Greater Sydney Metropolitan Area of New South Wales, Australia.

Targeting the Gap with MetroScan

MetroScan complements existing strategic transport models with strong capabilities, evaluating transport and land use initiatives including benefit-cost analysis and economic impact analysis, with prompt input and output processes. It complements existing strategic transport models with capabilities of making long term forecasts; for example, covering over thirty years from 2020 to 2056, and has extensive reporting of impacts on the economy and the environment. It is a system in which policymakers and transport planners can select variants and set up scenarios. It performs scanning and forecasts on project-specific plans, including policy, infrastructure and transport-level changes across a broad list of spatial and non-spatial variables. The system operates on high-performance computer servers to utilise models, databases, and scenario programs to provide project-specific forecasts.

To ensure consistency in forecasting, MetroScan can incorporate current road networks and transit services, population or household characteristics, origin-destination based travel demand matrices, and other vital components of existing transport models used by governments. What makes MetroScan unique is the inclusion of an extensive class of models beyond the existing data and models. Each scenario run generates an extensive library of forecasting outputs for transport planning, benefit-coast and economic impact analysis for each year. Users can view these outputs in tables and graphs online or download output files for policy insights.

Using MetroScan to Investigate Policies and Projects

MetroScan is capable of analysing large-scale transport and infrastructure projects, such as the expansion of road infrastructure, the introduction of specific new public transport lines, or the introduction of toll roads. Policymakers can use MetroScan to investigate the impact of both non-spatial and spatial policies. Examples of non-spatial policies are fuel taxes, congestion charging, public transport fare changes, more flexible work practices, the introduction of more fuel-efficient vehicles, etc. Spatial policies include changes in travel times by car, increases in the frequency of public transport between certain areas, local parking policies, changing residential densities, etc.

The Breadth and Depth of MetroScan Reports

MetroScan reports offer a year by year and line by line comparison of the present and future baseline forecasts without any policy changes and the alternative present and future forecasts with policy changes. The reports offer both broad and in-depth coverage of critical indicators. For example, the information includes residential and employment locations, industry and occupation, economic activity patterns, model and time of the day travel patterns, demographics and commuting, freight shipments, environmental impacts, tax revenue impacts, business outputs, jobs and firms created, operating and maintenance costs of the project and net benefits of the target project.

Extra Infographics & Diagrams Demonstrating Core Components of MetroScan

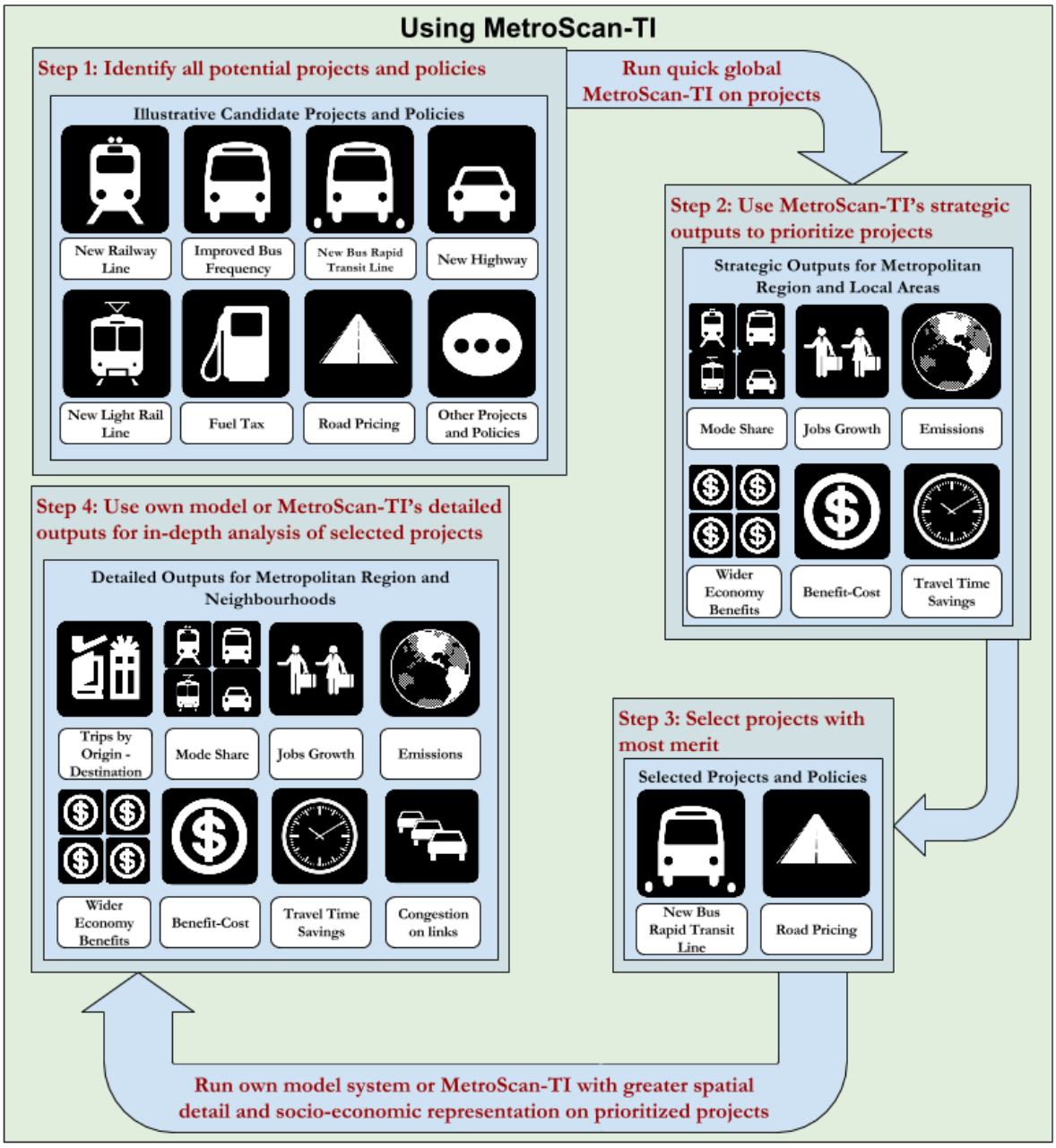

Figure 1. An overview of the practical appeal of MetroScan

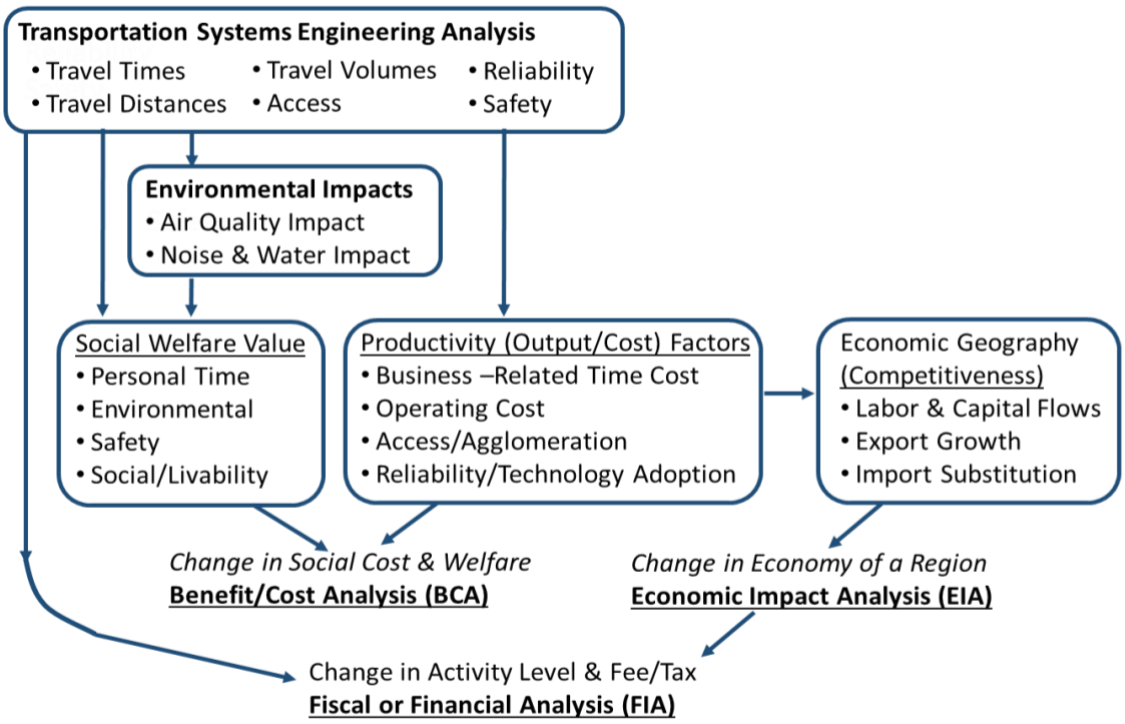

Figure 2. A schematic overview of MetroScan

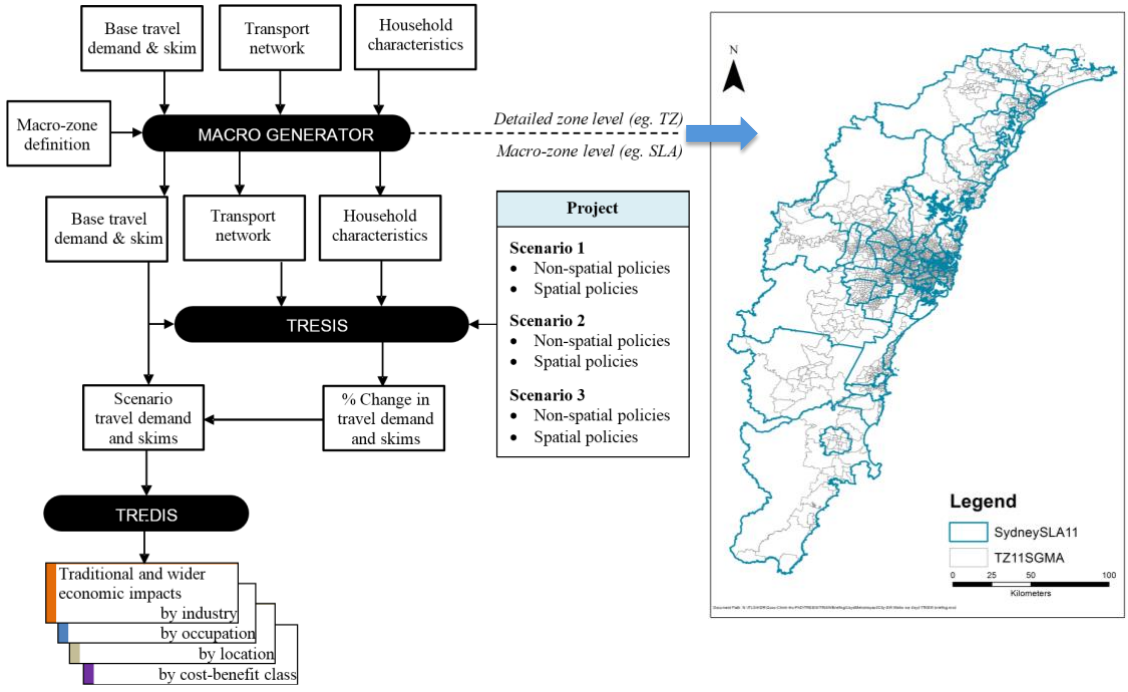

Figure 3. MetroScan Framework

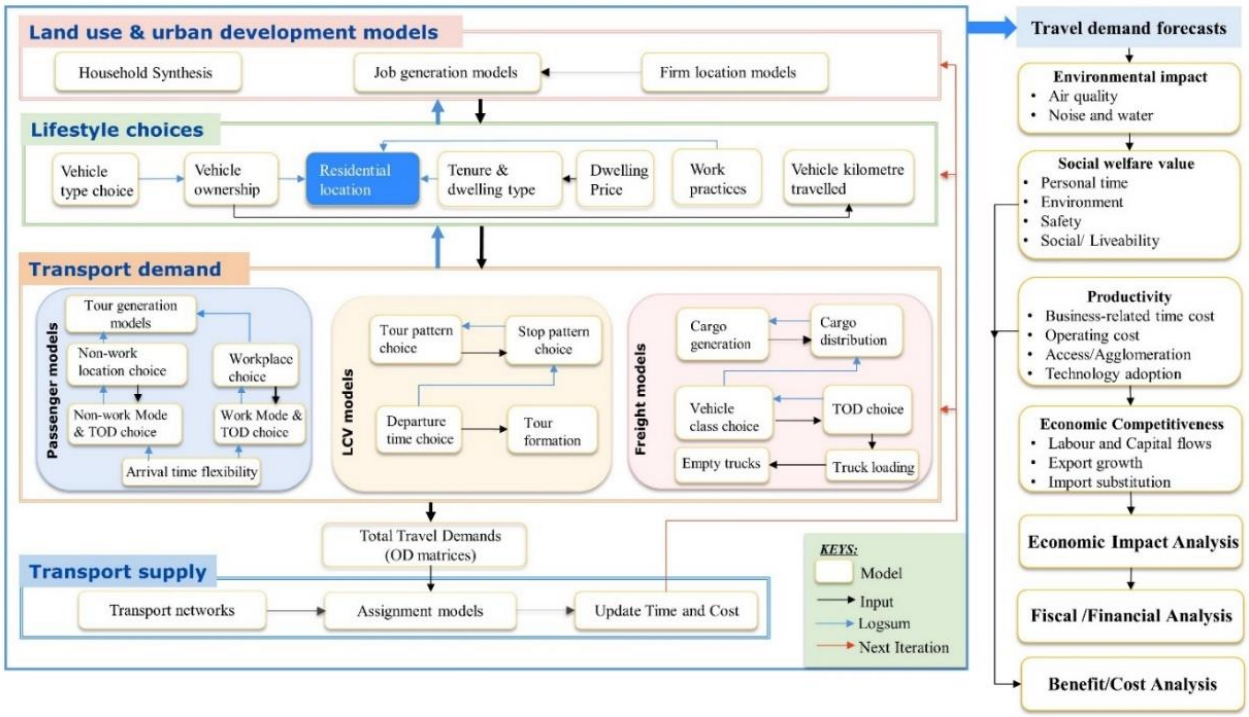

Figure 4. The demand-side behavioural model system for passenger, light commercial and freight travel activities and the BCA and Economic impact modules