

FUT Symposium 2012-10-01

Urban Freight for Livable Cities:

-How to deal with collaboration and trade-offs.

B. Multi-level and multi-modal interaction: Interaction between different levels of administration and modes of transportation

Unintended consequences: dealing with logistics in economic inequality

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The cities of Johannesburg, Tshwane (formerly Pretoria) and Ekurhuleni have developed into an amorphous whole – a megacity – and form the core of the Gauteng province and the South African economy: occupying less than two percent of the country's surface while contributing a third of the country's Gross Domestic Product (GDP). That is, nearly ten percent of the African continent's GDP. Gauteng is often referred to as the "Gateway into Africa".

Nearly two decades into South Africa's democracy, economic inequality is steadily increasing. Like in many economies in transition, South Africans (and immigrants, both legal and illegal) move to urban areas in search of employment and better economic opportunities. The resulting urban form is often undesirable, being either unplanned, or the result of unintended consequences from well-intended policy. This places immense pressure on existing infrastructure, let alone extending the current infrastructure to accommodate the ever-increasing demand.

One of the contributing factors, at least in South Africa's case, was the nature of the state-of-practice decision-support tools that were unable to a) handle the scale of emerging megacities; b) deal with the heterogeneous nature of transport and transport stakeholders; and c) did not cater for emerging phenomena. Very often decision-support tools are restrictive in nature, and frame the problem in a specific way that limits the possible solutions. For example, if a problem is framed as a being "congestion", then expanding the road capacity may be one of a very few options. Conversely, framing it as "mobility", allows for a much richer set of options that may include spatial planning and transit. To complicate matters further, the planning realms in government that dealt with housing, economic development, spatial planning, and transport are all functionally isolated even though their interrelationship is apparent and their myopic decisions have frequent (negative) consequences for other stakeholders.

This presentation shares the journey from state-of-practice to state-of-art, with freight logistics' dependence on public transport as a particular trigger in Gauteng. Integrated models to deal simultaneously with people and goods movement were not available and although emerging agent-based tools showed promise, they were criticized as "only belonging in the developed world". In close collaboration with National Treasury, the South African National Roads Agency and the Council for Scientific and Industrial Research (CSIR), the University of Pretoria was persistent to develop models that are – building on George Box's anecdote – less wrong and more useful. Provincial-wide transport can be evaluated at an aggregate level without losing the richness of inter- and intra-metropolitan traffic.

Planning for transport is inherently multi-disciplinary and multi-objective in nature: requiring multiple bodies of knowledge to be translated to, and integrated into intuitive decision-support tools and models. A 'model' is merely an abstraction of the real problem. Planning models should be representative of the complex nature and behaviour of all the stakeholders it represents, while simultaneously being intuitive. They should not be means unto themselves, but rather be useful in influencing better (more comprehensive) decision-making.