SPATIAL NETWORK ANALYSIS FOR MULTIMODEL URBAN TRANSPORT SYSTEM

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CONTENTS

BACKGROUND

- Various Transport planning and design models on GIS platform:
  - Transport Demand Models
  - Integrated Transportation and Land Use Models
  - Economic Evaluation Models
  - Simulation Models
- Performance Evaluation- newer Application Area of GIS
- How better is Perth than Copenhagen in public transport service?

INTRODUCTION

- Initially a small scale tool designed by GAMUT for pedestrian and private vehicle performance assessment.
- Expansion of above methodology to multimodal transport networks.
- Further refinement to undertake before-and-after comparison and comparison of performance across different networks.

CONCEPT

SNAMUTS is GIS-based tool designed to assess:-

- 30-min. Contour Catchment

  How may residents and jobs can be accessed within 30-min. time budget to and from a service node. (see attached map-1 and 2)

- Closeness Centrality

  A journey with lowest cumulative impediment value (*average travel time along a route segment divided by the frequency of the service*) between every pair of nodes on the network. Lower index figures indicate greater centrality. (see attached map-3 and 4)

Perth vs. Copenhagen

(by Prof. Carey Curtis-Curtin and Jan Scheurer-Monash)

CASE STUDY

Data	Perth (2009)	Copenhagen (2009)	Perth (25-year plan)
Population	1,445,078	1,748,380	2,064,125
No. of activity nodes	71	128	121
No. of services (trains, buses)	169	426	374
Service intensity per 100,000 citizens	11.7	24.4	18.1
%age activities within walking distance from service	41%	72%	59%

Performance Indicators	Perth (2009)	Copenhagen (2009)	Perth (25-year plan)
30-min. Contour Catchment	11.7%	34.9%	18.1%
Closeness Centrality	56.1	25.9	40.9

CONCLUSIONS

Unlike perception of better transport system in Perth than Copenhagen, this GIS based tool-SNAMUTS revealed that even with all planned projects for future expansion of Perth urban transport system, Perth will be still behind after 25-years than what urban transport system is performing in Copenhagen at this time.

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AREAS OF FURTHER APPLICATION

Data	Perth (2009)	Copenhagen (2009)	Perth (25-year plan)
%age activities within walking distance from service	41%	72%	59%

Increased %age of taxes to be imposed on activities in closer proximity to service nodes.

Q ’n A

Thank you