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Sustainable Urban Mobility: Analysing Service Quality Gaps Between App-Based and Traditional IPT in Gurugram

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Introduction

- Urban population in India stands at 31.6% (MOUA).
- By 2036, 40% of India's population will live in urban areas.
- From 2001 to 2011, decadal urban growth rate is 17.64%.
- Rapid urbanization is putting pressure on transport infrastructure.

- Public transport offers a solution for mass movement.
- Rigidity of routes and schedules often fails to meet the growing demand for flexibility and comfort.
- Intermediate Public Transport (IPT) bridges the gap between public transport and private vehicles.
- Flexible schedules, semi-fixed routes, and door-to-door service.
- Integration of Information Technology.
- Rise of App-Based IPT.

Need of the study

- Saturation of IPT services in cities, making it difficult to meet the evolving needs of passengers.
- Shifting customer Base due to app based IPT.
- Passenger expectations and decision-making.
- Understanding passenger behaviour.

Objective

- To identify the degree of influence of service measures on the decision making of trip maker.
- To find the quality of service measures for app-based and non app-based IPT services by Numerical Rating approach.
- To find out the service quality gap of service measures for both services.

Methodology

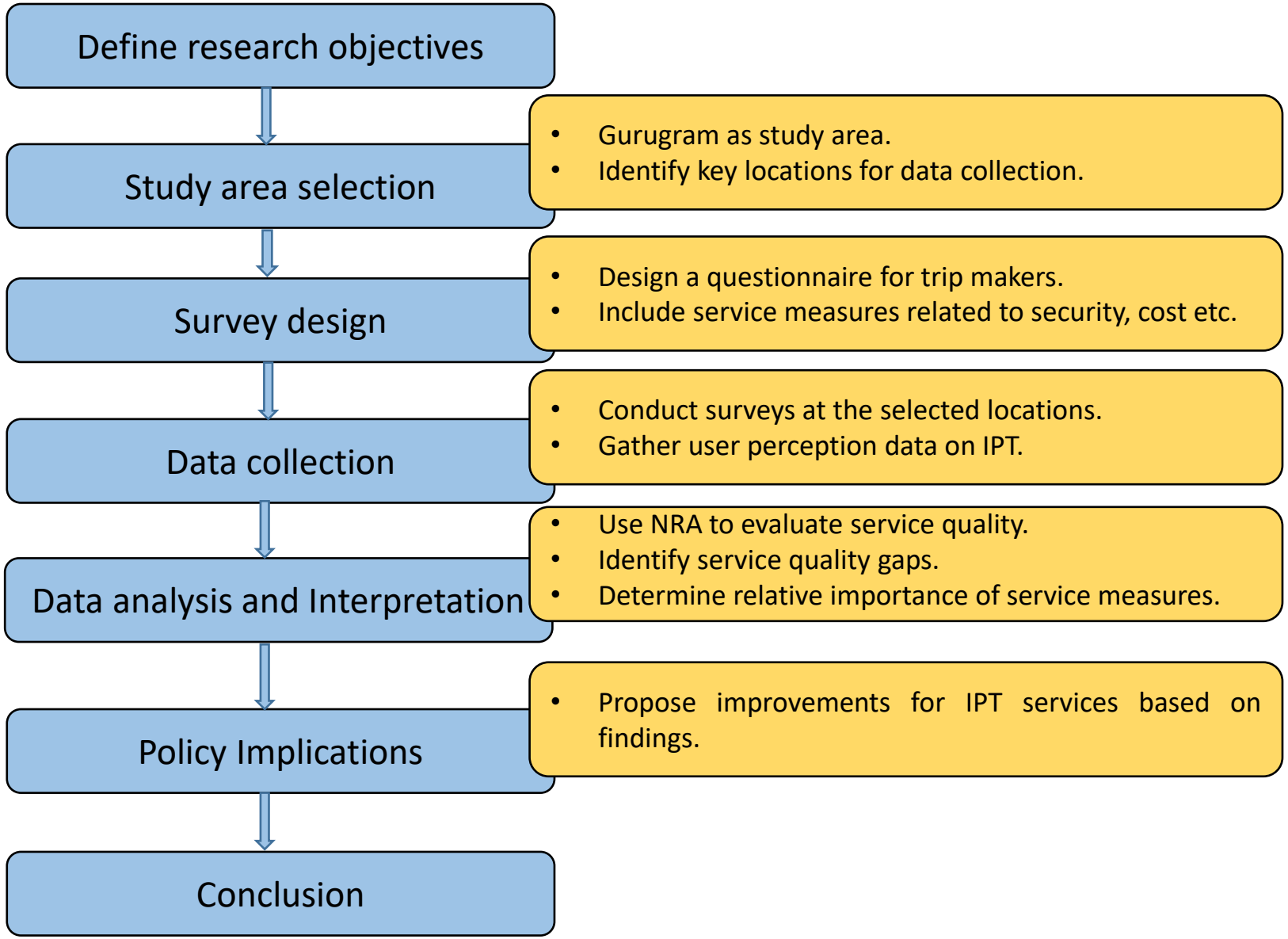


Fig. 1 Flow chart showing methodology

Study area

- Gurugram also known as millennium city.
- Home to numerous multinational companies and industries, leading to a high demand for transportation services.
- Fastest-growing city, with a decadal growth rate of 73.96% (2001–2011).
- IPT dominates the short distance travel within city.
- Rapid growth, diverse commuting needs, and the competition between app-based and non-app-based IPT services make it an ideal case study area .

Service measures

- Aesthetic (in terms of appeal and cleanliness)
- Comfort (in terms of air conditioning, driver handling, seats)
- Driver Behavior
- Easily Available (in terms of ease in booking and availability)
- Hour of Service
- Passenger Information System (in terms of prior information available regarding fare, journey time and GPS tracking)
- Perceived Security (in terms of feeling safe)
- Service Acceptance
- Reliability
- Travel Cost

Data collection

- Commuter survey at using random sampling at major locations across Gurugram.
- Questionnaire structure
  - Part 1 : Demographic data of passengers.
  - Part 2 : Importance of various service attributes .
  - Part 3 : Evaluated the current service quality based on the same attributes.
- Total 408 valid response obtained.

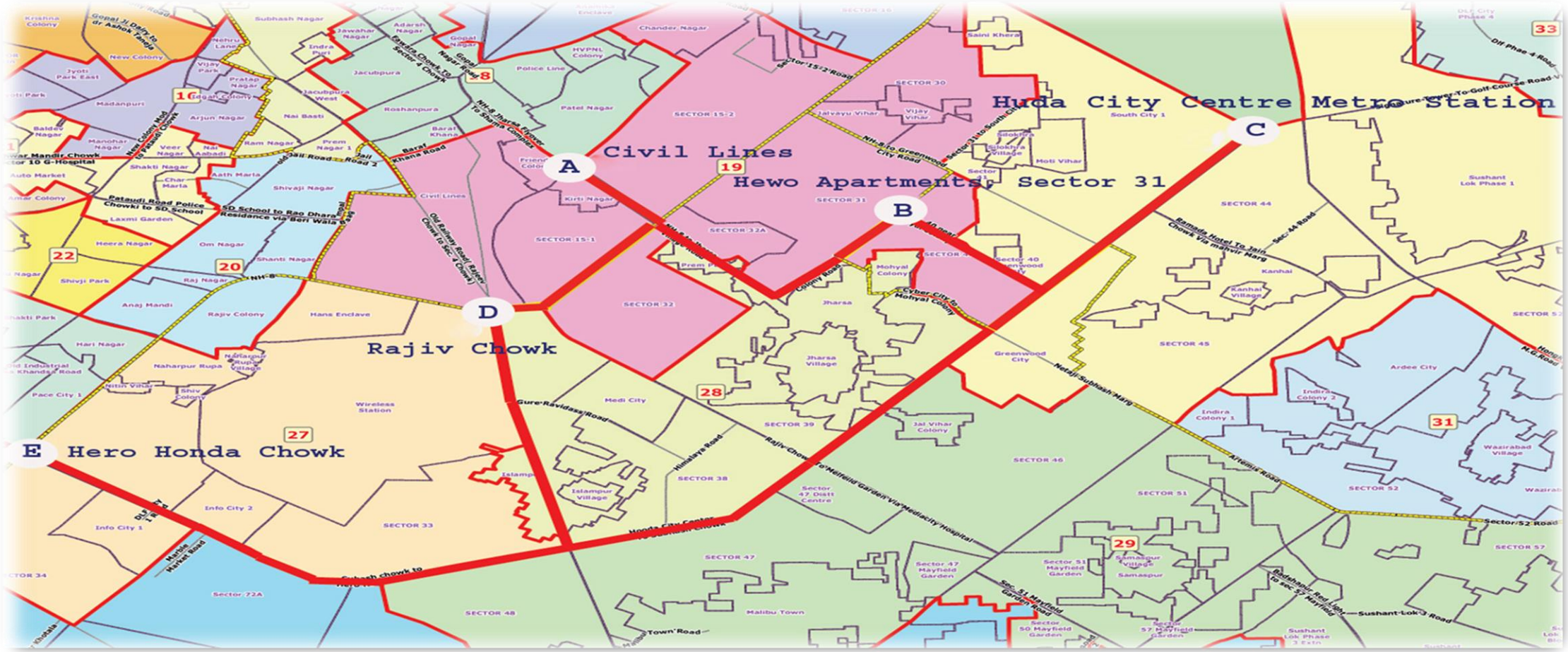


Fig.2 Different locations of commuter survey

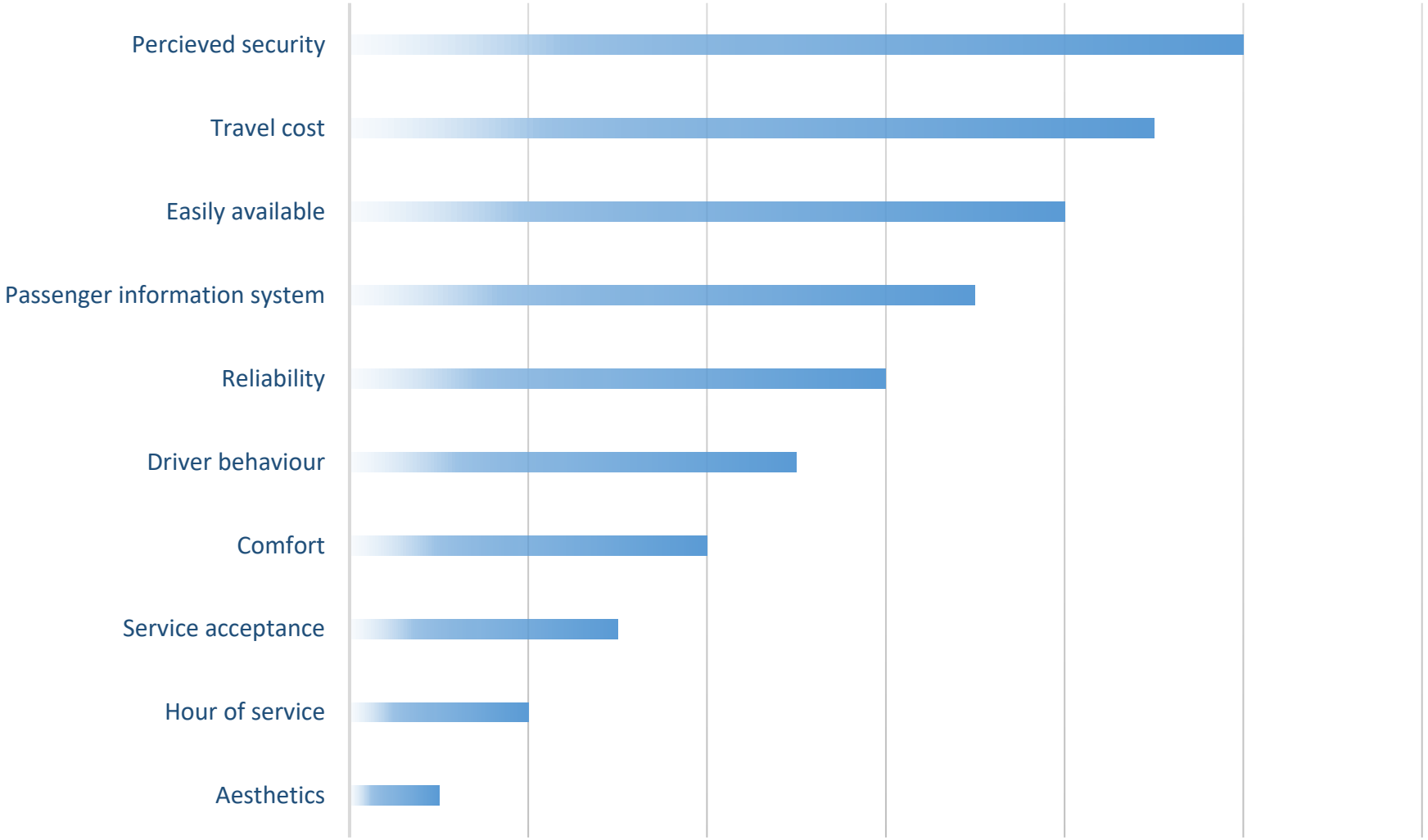
Descriptive statistics

- Gender distribution: 75% male, 25% female.
- Age groups: majority (45%) are between 15-30 years, followed by 35% in the 30-45 age range, then 20% above 45.
- Income levels: The largest income group (38%) earns between ₹6-12 lakhs annually, followed by ₹3-6 lakhs (34%).
- Recent trip modes:
  - 31% used app-based taxis.
  - 24.3% used non-app-based taxis.

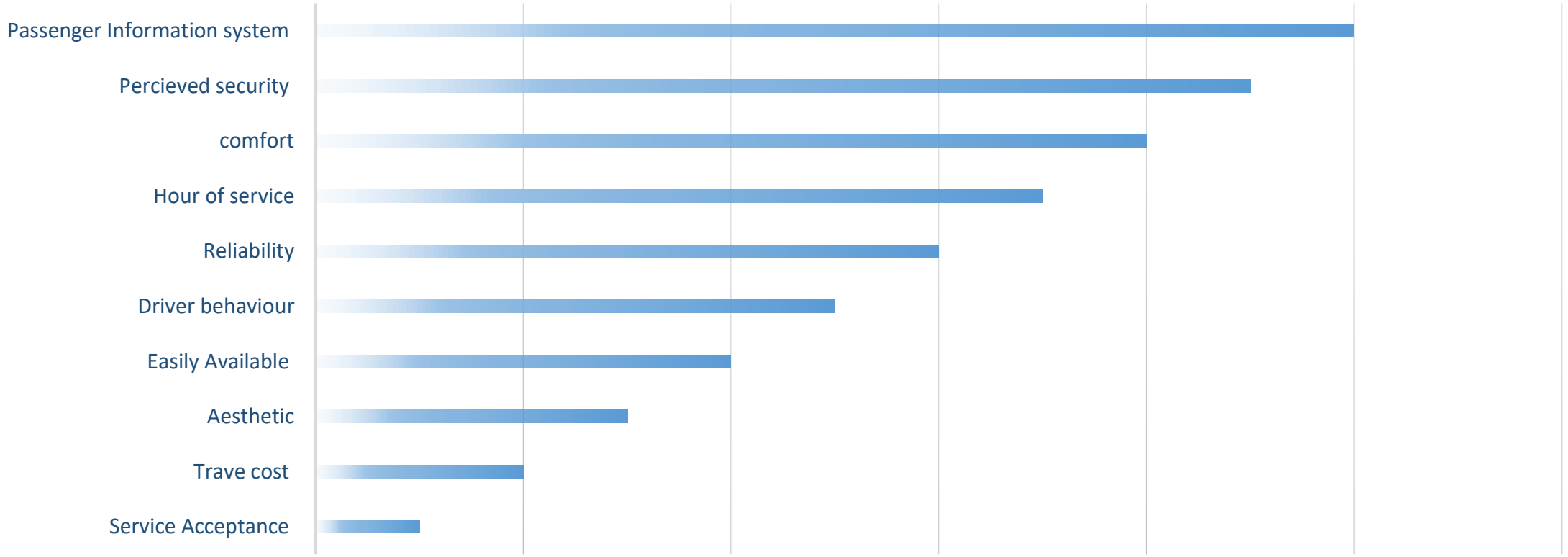
Result and discussion

- The Quality of Intermediate Public Transport Service (QOIPTS) scores was generated to determine acceptance rate for IPT.
- QOIPTS scores:
  - **App-Based Services**: 78.71%
  - **Non-App-Based Services**: 65.99%
- Furthermore, NRA was used to find relative weightage for service attributes and service quality gap between app based and non–app based IPT.

Relative Weight Of Service Attributes



Gap Between Service Measures For App Based And Non App Based IPT



Conclusion

- The study highlighted the service attributes related to quality of IPT.
- Perceived security , travel cost and availability are most important service attributes for passengers.
- The acceptance rate of app-based services is 78.71%, compared to 65.99% for non-app-based services.
- Largest gaps between app-based and non-app-based services were found in the Passenger Information System and Perceived Security.

Recommendations

- Enhance Passenger Information Systems: Provide real-time info on fare, journey time, and GPS tracking for non-app-based services.
- Boost Perceived Security: Introduce verified driver profiles and improve vehicle lighting during night for non- app based services.
- Improve Driver Behavior through training programs.
- Encourage Collaboration with App-based Platforms to integrate some features into non-app-based services.
- Introduce Incentive Programs for drivers to improve service quality and customer satisfaction.

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