Public Transportation. Connected:
Using intelligent platforms to transform public transport in rapidly-growing cities
Introduction

The Asia-Pacific region is marked by rapid population growth and increasing urbanisation. Between 1980 and 2010, Asia added more than a billion people to its cities, with another billion expected by 2040.\(^1\)

The key question for governments in the region is how to help growing urban populations travel in increasingly crowded urban environments. Clearly, public transport will have to play a key role to avoid cars choking cities.

In places such as Kuala Lumpur (KL), Bangkok and Jakarta, severe traffic congestion results in economic costs and pollution. In Jakarta, private vehicles make up 98 per cent of all vehicles in the city; while in Bangkok, daily private vehicle registrations have grown by 155 per cent since 1999.\(^2\)

To build effective public transport networks in the region, government authorities and transport operators cannot always simply add more trains or buses, or build new infrastructure. Instead they must harness technology to use existing resources to better satisfy commuters’ needs. A key objective is to verify that all components of the network – including buses, trains and taxis – are linked and do not operate in siloes.

However, many ASEAN countries have implemented limited technology solutions to date. Rapidly-growing cities should consider intelligent platforms that harness cutting-edge technology to match supply and demand for public transport to better address consumers’ needs, and to enable collaborations between operators and third-party service providers. These systems have the capacity to transform cities and unlock mobility.
Public transport operators and government authorities in emerging ASEAN countries face sizeable challenges in providing public transport for commuters. They need to improve their transport infrastructure and the reliability of services, which will help boost commuter satisfaction.

For instance, despite leading edge technology and infrastructure in Singapore, overall satisfaction with public transport has decreased since 2009, with waiting time cited as the biggest complaint. Commuters in Kuala Lumpur have expressed frustration at the lack of integration between different transport modes. Further, commuters in Bangkok and Jakarta stated that a lack of frequent services make them less likely to use public transport.

In ASEAN, transport operators have greater scope to introduce complex systems that can integrate commuter preferences with information systems on buses and trains, e-ticketing, road sensors, and traffic and weather data. These systems can help operators better address the needs of commuters. For instance, with the ubiquity of the internet, commuters are able to see how public transport networks around the globe operate and they are demanding greater levels of control, accessibility, reliability and comfort from their local transport options.

How can governments and operators overcome some of these entrenched challenges and deliver higher-quality public transport services?

The answer is not necessarily more trains or more roads. Instead, operators should consider how technology can be used to effectively balance supply and demand using existing resources, in an environment where commuter needs and transport conditions can change by the minute. This requires intelligent platforms that make the appropriate connections between traffic conditions, consumer preferences and fleet capacity – and deliver tailored options to commuters’ smart phones and other mobile devices.
True mobility for transport networks

Real-time, intelligent platforms can change the experience of commuters, transport operators and authorities. These platforms can learn and understand how a transport network functions, and deliver sophisticated predictions to help all parties better manage transport journeys.

Commuters gain a dynamic way to travel in a city with intelligent platforms. The platforms analyse commuter preferences (including shortest travel time, lowest cost, smallest carbon footprint) and matches these with real-time data across transport options (such as traffic data, fleet capacity, and located based-information of vehicles and commuters) to give commuters up-to-the minute personalised travel recommendations.

Operators have much greater flexibility to respond to real-time and forecast changes in commuter demand. Operators can use sophisticated analytics to track, simulate, plan and manage their vehicles in the entire transport network (and not just their own fleets). For example, bus operators can maintain a floating fleet to accommodate projected changes in commuter needs. This allows them to be highly flexible and deliver higher-quality services.

Finally, intelligent platforms help authorities to improve mobility across cities. Authorities can use the information collected by the platforms to understand how the transport network functions as a whole; identify where improvements should be made to commuter journeys; and undertake evidence-based long-term transport planning.
Facilitating collaborations with service providers

In current public transport systems, commuters, operators and service providers (such as retailers and public agencies) are all distinct groups. But intelligent public transport systems can link these three parties and offer excellent opportunities to commuters and service providers.

Based on Accenture research, commuters are interested in receiving real-time information and promotional deals that are relevant to their journey. In our experience, these approaches could help improve commuters’ experience with public transport.

For example, by using intelligent, real-time systems, commuters could be offered discounts via their mobile devices by retailers along their travel route, or public authorities (such as the police or health departments) could provide location-based updates on major events.

In offering these collaborations, all parties must be careful to safeguard the personal data of consumers and to protect their privacy. One option is to confirm commuter offers come through intelligent platforms, which means personal data would not be directly available to third parties.
Moving to intelligent decision making platforms

How can your city incorporate intelligent platforms to manage its public transport environment?

There are a number of solutions on the market, including location-based, real-time systems that integrate commuters, transport operators and authorities. But few cities are identical, and authorities or operators can’t simply implement off-the-shelf solutions. Instead, intelligent platforms must be tailored to the conditions of each individual city, and possess the functionality and flexibility needed to transform public transport networks.
A tale of four cities

Accenture research has identified major public transport challenges in four of Asia’s major cities. Common issues include low levels of public funding, infrastructure bottlenecks, and a lack of technical, operational and finance experience.

Jakarta, Indonesia

Jakarta could become a megacity of 12.7 million people by 2030 – up from around 10 million at present. However, the city is increasingly congested – with forecasts it could experience total traffic gridlock in 2014 – and it is the world’s third most polluted city (after Mexico and Bangkok). Jakarta’s residents are increasingly frustrated with public transport, and less than 20 per cent of daily trips are made by bus, train or taxi.

Bangkok, Thailand

Bangkok’s population is growing six times faster than Thailand’s rural areas, and currently around one in three people live in the capital. The city’s congestion problems are only getting worse: over the last decade, the number of cars registered in the Bangkok area has doubled. Further, the city’s public transport network lacks sufficient reach and frequency for the bulk of its residents.

Kuala Lumpur, Malaysia

Traffic gridlock in KL costs Malaysia around 2 per cent of GDP each year – the equivalent of US$3 billion. With around one in three Malaysians set to live in the city by 2020, the issue of congestion is set to get even worse. Most KL residents prefer to travel by private transport – only around 10 per cent of the city is directly served by current transit routes and the network has not followed the urban sprawl around Malaysia’s capital.

Singapore

Singapore faces major challenges in expanding its public transport network because it is a small and already densely populated nation. Despite the Government’s efforts to expand the use of public transport, private car ownership has increased at a compound annual growth rate of 5 percent over the last decade. And even with leading edge infrastructure, commuter satisfaction has declined in recent years, fuelled by rising waiting times. However, Singapore is implementing cutting-edge technology to improve its public transport system.

Source: Accenture research
About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with approximately 266,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world’s most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$27.9 billion for the fiscal year ended Aug. 31, 2012. Its home page is www.accenture.com.

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