



**Imperial College  
London**

**Railway and Transport Strategy Centre**

# The Operator's Story

## **Case Study: Kuala Lumpur's Story**

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# **The Operator's Story: Notes from Kuala Lumpur Case Study Interviews**

*July 2017*

## **Purpose**

The purpose of this document is to provide a permanent record for the researchers of what was said by people interviewed for 'The Operator's Story' in Kuala Lumpur. These notes are based upon 6 meetings between 14<sup>th</sup>-16<sup>th</sup> March 2016. This document will ultimately form an appendix to the final report for 'The Operator's Story' piece. Although the findings have been arranged and structured by Imperial College London, they remain a collation of thoughts and statements from interviewees, and continue to be the opinions of those interviewed, rather than of Imperial College London. Prefacing the notes is a summary of Imperial College's key findings based on comments made, which will be drawn out further in the final report for 'The Operator's Story'.

## **Method**

This content is a collation in note form of views expressed in the interviews that were conducted for this study. Comments are not attributed to specific individuals, as agreed with the interviewees and Prasarana. However, in some cases it is noted that a comment was made by an individual external not employed by Prasarana ('external commentator'), where it is appropriate to draw a distinction between views expressed by Prasarana themselves and those expressed about their organisation.

## **List of interviewees**

Internal Prasarana views:

- Ahmad Nizam Mohamed, CEO Rapid Rail
- Megat Khairulazhar Khairodin, Chief Financial Officer
- Mohd Azharuddin Mat Sah, CEO SPAD
- Dato' Mohd Zahir Zahur Hussain, CEO PRIDE
- Dato' Ir. Zohari Sulaiman, CEO PRAISE
- Ng Choo Chong, Executive Vice President, Commercial Department, PRIDE
- Firdaus Effendy Mokhtar, Executive Vice President, Commercial Department, PRIDE
- Dato' Azmi Abdul Aziz, President and Group CEO, Prasarana
- Ahmad Nizam Mohamed Amin, CEO, Rapid Rail
- Abdul Hadi Amran, COO, Rapid Rail
- Muhammad Isom Azis, COO Mass Rapid Transit, RapidKL
- Norliah Noah, Project Director, LRT3
- Lee Wai Fong, Head of Group Reporting & Revenue Monitoring, Prasarana

External commentators:

- Mohd Azharuddin Mat Sah (SPAD CEO)
- Farizul Hazli Baharom (Head, Legal Division).

## Key Messages: Relevance to International Learning about Metro Operators

Kuala Lumpur provides lessons, both positive and cautionary, for public policy, Governments and Operators elsewhere. The Government stepped in to proactively manage and integrate fragmented private sector concession into a public transport system. Prasarana now provides a strong and accountable institution to operate the system and develop new lines. This case study illustrates the following international lessons about metro operations:

- The Prasarana transit system is **supported directly by the Prime Minister** of Malaysia, lending political might to decisions needed for project success. An interviewee noted that *“you need a strong leader to execute and get it done, that’s why the Prime Minister is the one in charge”*. A key learning is that although the institutional gap between public transport operations and the Prime Minister is wide, this level of political will is useful in a rapidly developing context, providing that public transport is a priority.
- A **fares formula** from the outset of operations balances fairness against both the customer and the operator, providing it is not deviated from without just cause. Sustainability depends upon **fares increasing to account for inflation**. Kuala Lumpur learned this lesson from 20 years of no fare increase.
- **Capacity, connectivity and competition** are three key influencers of rapid growth in demand. Notably, these can be achieved by investing in wide trains to maximise proven returns to density, connecting isolated transport projects into a system, and competing credibly against the highway network. By incorporating these elements into the organisation’s culture and project development, Prasarana are increasingly moving towards being an urban development catalyst, rather than “just” a rail operator.
- Prasarana have experienced a multimodal shortage of qualified personnel (in engineering design for example), and are now aiming to address this through the creation of a **railway-specific university institute feeding into roles at the company**. Operators must be able to plan for their labour needs, in particular the **level of skill required to deliver the product**. Even using consultants for major pieces of work requires some in-house knowledge and competence to provide effective oversight.
- A **simple target** – for example, Kuala Lumpur’s target of **40% public transport mode share** by 2030 – can be used to create a common purpose with urgency at its core: *“we are very clear in terms of what role we need to play to support the Government’s agenda.”* The target must of course also be committed to by the operator’s wider authority.
- **Operating requirements** must be a primary consideration in project design and the alignment must go as close as possible to passengers’ destinations, not where is cheaper or easier. *“We call it public transport, so the interests of the public must be the first agenda”, “you cannot build the line in no man’s land”*.
- Prasarana suggest that planning should focus on the right allocation of resources between modes. The **regulatory framework** should be able to give one authority **multi-modal decision power** and decide between priorities, including between stakeholder requests at the planning stage. An integrated land and transport planning authority equipped with **accountability for integration** will create and embed interest in the positive development of public transport at the authority level and will advocate for it to Government. Proactive engagement is the way ahead – *“all stakeholders need to be involved at planning stage”*.
- Prasarana are trying to develop a model for **Transit Oriented Development (TOD)** in a context without an existing framework for such development. Prasarana realise that TOD must not be an after-thought and a long-term operating model can be sustained by establishing the right business and planning mechanisms so that the benefits of TOD can fund the metro system: *“it all comes back to ridership”*. The railway is paramount in

successful TOD; as integrated transport and land use develops, the Operator must act to protect and enhance the railway as much as possible.

- **Prioritising integration from the outset** of developing a system will create a more successful public transport network. Creating integration between lines, modes and commercial development opportunities retrospectively is difficult although Kuala Lumpur proves it can be done. This includes station integration, ticketing integration and also compatibility of systems (e.g. rolling stock). The experience in Kuala Lumpur has shown that metros in medium population megacities may not attract sufficient demand to be financially sustainable without good integration.
- Good **corporate governance** is key to ensuring project success in a relatively young organisation: the processes, procedures, rules and regulations should be designed and implemented to support success. Prasarana have transitioned very rapidly from a new organization, to an integrator of fragmented urban rail lines, now accountable for the development of this system. This transition has brought with it a role for Prasarana as an **urban development catalyst** in a rapidly growing and changing urban context. Prasarana advise to **learn by doing** and only become better with experience; do not expect to start high up the learning curve.

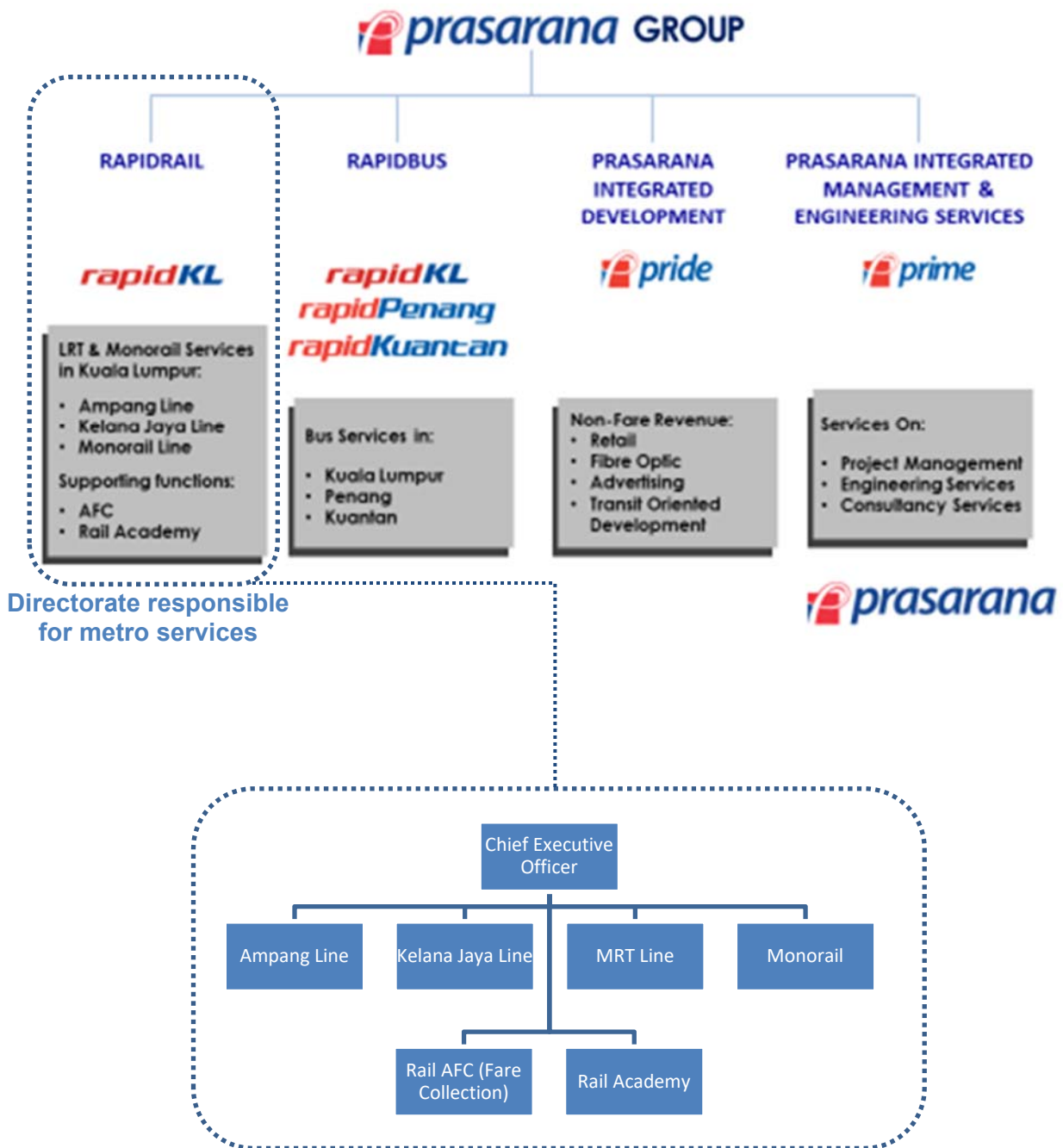
## Transit Map

# PETA TRANSIT BERINTEGRASI LEMBAH KLANG KLANG VALLEY INTEGRATED TRANSIT MAP



<sup>1</sup> <http://www.spad.gov.my/sites/default/files/new-land-public-transport-master-plan.pdf> (accessed 5/7/16)

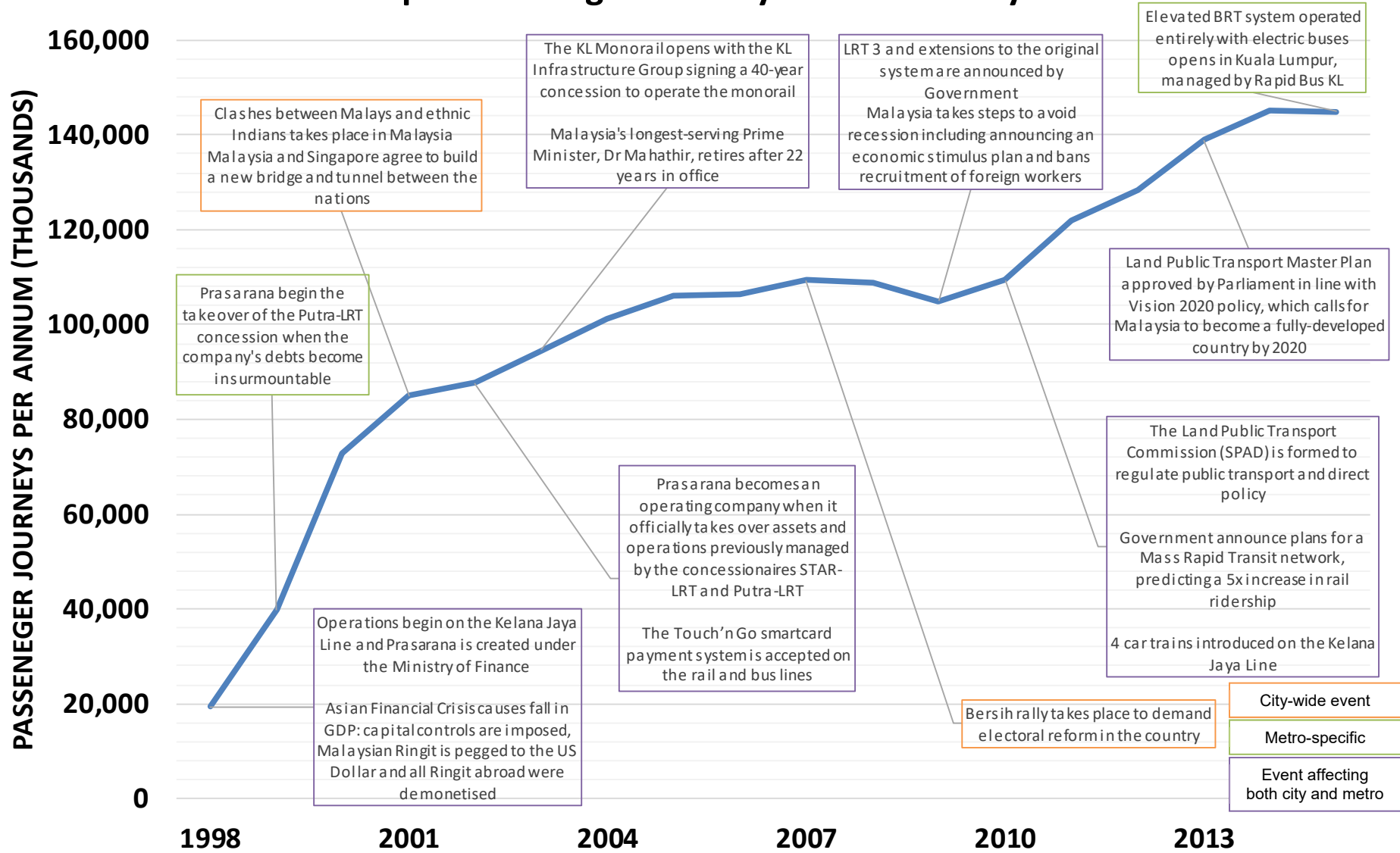
## Structure of Prasarana and Other Public Transport Institutions under the Ministry Of Finance



## Growth in Passenger Journeys and Key Events in Kuala Lumpur

The following graph demonstrates Prasarana's growth in passenger journeys per annum from 1998 – 2015 and includes selected key surrounding events that took place in Kuala Lumpur or nationally in Malaysia, and selected events in the history of Prasarana.

# Kuala Lumpur: Passenger Journey Profile and Key Events



## General Summary of Kuala Lumpur

GENERAL SUMMARY		
Background and history	<ul style="list-style-type: none"> <li>▪ The public transport system in Kuala Lumpur and its environs is known as the Klang Valley Integrated Transit System and consists of two commuter lines, four light rail lines (including one monorail), one bus rapid transit (BRT) and an airport train service.</li> <li>▪ The Ampang Line (originally the STAR-LRT concession) opened in 1996 and the Kelana Jaya Line (originally the PUTRA-LRT concession) opened in 1998. This was the first fully-automated line within Kuala Lumpur's rail transport network (Grade of Automation 4).</li> <li>▪ The Bandar Utama-Klang Line, a new LRT line, was announced in 2013. It is expected that this line will be operational in 2020 and will use Automatic Train Control (ATC) and will be CBTC-equipped.</li> <li>▪ The Klang Valley Mass Rapid Transit Project intends to construct three new Mass Rapid Transit (MRT) lines in the Klang Valley Integrated Transit System.</li> </ul>	
	1988	Mahathir Mohamad becomes Prime Minister of Malaysia following a constitutional crisis.
	1989-1990	Plans for a 14km monorail in Kuala Lumpur's central commercial district are approved to be constructed in two phases by 1992-1993.
	1992	A 60-year concession is signed with STAR-LRT to deliver the first phase of an LRT line (now the Ampang and Sri Petaling Line).
	1991-1994	Major infrastructure works begin in Kuala Lumpur, including the construction of the Kuala Lumpur Tower, Petronas Towers and Kuala Lumpur International Airport.
	1994	Putra-LRT concession contract signed (now the Kelana Jaya Line) to design, construct, finance, operate and maintain the Klang Valley LRT system. At the time, this was the longest fully automated metro in the world.
	1995	A new phase 2 concession agreement is signed with STAR-LRT to deliver two new sections of the Ampang LRT line.
	1995	The first KTM Komuter services begin operating on the Seremban Line and Port Klang Line.
	1996-1998	Operations begin on the Ampang Line.
	1998	Operations begin on the Kelana Jaya Line, in time for the 1998 Commonwealth Games.
	1997-1998	The Asian Financial Crisis affects Malaysia and its economy goes into recession. Various economic sectors including construction, manufacturing and agriculture experienced significant shrinkage and Malaysia's GDP decreases by 6.2%. The two LRT concessionaires (STAR-LRT and Putra-LRT) are unable to pay their existing loans. Construction work on the monorail line are halted.
	1998-1999	Prasarana is formed in 1998 to integrate and transform the public transport system, and is placed under the governance of the Malaysian Ministry of Finance, directly within the Prime Minister's control. The takeover of the Putra-LRT concession commences in 1999 when the company's debts become insurmountable.



2001	Southeast Asian Games are held in Kuala Lumpur without major incident. A new national stadium was built and games venues were clustered to take advantage of supporting public transport.
2001	Corporate Debt Restructuring Committee (CDRC), part of the Malaysian Government, restructures the debt of STAR-LRT and Putra-LRT. This transfers rights, benefits and entitlements included in the terms of the concessionaire agreements to Prasarana. The existing debt is secured against bonds guaranteed by the Malaysian Government to the various lenders to which debt is owed.
2002	The Touch'n Go smartcard payment system is accepted on the rail and bus lines within the Klang Valley Integrated Transit System. This allows for transferring at interchanges without buying a new ticket.
2002	Prasarana becomes an operating company when it officially takes over assets and operations previously managed by the concessionaires STAR-LRT and Putra-LRT. Prasarana also takes over the Putraline bus service.
2002-2003	A safety wheel falls off a monorail train during testing and hits a pedestrian, causing significant injury. An MYR 5 million negligence suit was filed against the companies involved in the design, installation and operation of the trains, as well as the Director-General of Railways. The planned opening of the monorail system is delayed.
2003	The KL Monorail opens with 11 stations and 8.6km of elevated track. The KL Infrastructure Group, who owned the monorail, sign a 40-year concession to operate the monorail.
2004	RapidKL created as a separate company by the Ministry of Finance to operate the STAR and PUTRA LRT systems and two major bus organisations. Prasarana maintains asset ownership.
2005	A tyre bursts on the monorail system, injuring two passengers and requiring service suspension while the incident was resolved.
2006	An LRT train breaches the end of its elevated tracks at a station on the Ampang line and part of the first car is suspended above ground.
2007	Prasarana agrees with the KL Infrastructure Group company to operate the KL Monorail, and incorporates the company's debt. Prasarana had also been a minor shareholder in the KL Infrastructure Group. Although the monorail has not been extended since its opening, projects underway include upgrades to increase access and egress capacity at major stations, the installation of Platform Screen Doors and the potential for additional cars to increase capacity (existing two-car capacity is 158 passengers).
2009	RapidKL becomes a subsidiary company of Prasarana.
2009	The High Court issues a ruling over a previous 2002-2003 accident where a safety wheel fell off a monorail train during testing. KL Infrastructure Group were deemed liable and suggested that the company was unable to provide a satisfactory explanation as to how the incident occurred.
2010	The Land Public Transport Commission (SPAD) is established as a planning authority and public transport regulator.
2010	Female-only buses are introduced in Kuala Lumpur and Malaysian Railway trains introduce female-only cars on their services.

	2010	The Government announce intentions to build a Mass Rapid Transit (MRT) network as part of the 10 <sup>th</sup> Malaysia Plan. This is approved in December 2010 and is expected to substantially increase the density of public transport in Greater Kuala Lumpur and a 5x increase in rail patronage.
	2012	The Greater Kuala Lumpur Masterplan is approved by SPAD.
	2012	Single integrated ticketing and fare collection system starts.
	2012	A train breakdown and power failure on the monorail system traps 183 passengers on-board for two hours. A further breakdown occurred during the same week, trapping 200 passengers for 30 minutes.
	2013	Prasarana launches Go Forward Plan 2.0 including major restructuring of its existing corporate structure
	2013	Land Public Transport Master Plan approved by Parliament in line with Vision 2020 policy, which calls for Malaysia to become a fully-developed country by 2020.
	2013	A new 37km LRT line is announced by Prasarana, the Bandar Utama-Klang Line. It is expected that this line will be operational in 2020 and will use Automatic Train Control (ATC) and will be CBTC-equipped.
	2013-2014	MRT Corp created to develop the MRT 1 and MRT 2 lines. Prasarana will operate MRT1 and MRT2 will be tendered.
	2015	Elevated BRT system operated entirely with electric buses opens in Kuala Lumpur, managed by Rapid Bus KL.
	2015	Prasarana implement a new distance-based fare structure for their LRT and monorail services. The new system calculates a fare based on blocks of decreasing fare per kilometre rates as a passenger travels further. Customers using cashless fare payment and new periodic travel cards (7 days and 30 days) receive the best value fares, offering a potential 18-35% decrease on cash fares.
	2016	The Ampang Line and Sri Petaling Line are officially considered separate, as the Sri Petaling Putra Heights extension is completed.
Current ownership and oversight		<ul style="list-style-type: none"> <li>▪ Prasarana Malaysia Berhad, known as Prasarana: 100% Government-owned company established under the Malaysian Ministry of Finance. Prasarana is the owner of Kuala Lumpur's public transport assets and also manage bus assets and operations in Penang.</li> </ul>

<p>Complementary public transport and non-motorised transport services</p>	<p><b><u>Buses:</u></b> There are several bus operators in the Klang Valley Integrated Transit System including Rapid Bus (the largest bus operator in Malaysia), Metrobus and Triton. Rapid Bus restructured the bus network to create a network of express routes, city shuttles, trunk routes and local shuttles. Cityliner buses also serve the wider Klang Valley.</p> <p><b><u>Pedestrian infrastructure:</u></b> Overseen by Kuala Lumpur City Hall’s Urban Transportation Department. Priorities currently include pedestrian accessibility on footways and safety around transport hubs (e.g. anti-climb fences).</p> <p><b><u>Car sharing:</u></b> GoCar operates in Malaysia and COMOS operates electric vehicle car sharing.</p> <p><b><u>Cycling:</u></b> Overseen by Kuala Lumpur City Hall’s Urban Transportation Department. Available funding is being used for cycle lane projects and cycle parking at public transport hubs.</p> <p><b><u>Taxis and other ride sharing schemes:</u></b> Standard and executive taxis operate in Kuala Lumpur to cater for different budgets. Easy Taxi and MyTeksi allow app-based booking of taxis for customers with smartphones. SPAD are responsible for managing the taxi industry and formulate policies for the sector, such as the Taxi Transformation Programme.</p> <p><b><u>Surface trains:</u></b> Two commuter rail lines are operated by Keratapi Tanah Melayu (KTM) to connect the centre of Malaysia with outer suburbs. Two commuter rail extensions were opened in 2015-2016. Intercity rail is provided by the largest railway operator in Malaysia, Keretapi Tanah Melayu and is part of the Trans-Asian Railway, connecting Malaysia to Singapore and Thailand. These are accessible from the main railway station of Kuala Lumpur, KL Sentral station, providing interchange with commuter rail services, the Kelana Jaya Line, monorail and airport express.</p>
<p>Technical and operational summary as of 2015</p>	<ul style="list-style-type: none"> <li>▪ <i>No publicly available data.</i></li> </ul>
<p>Regulatory, oversight, and policy bodies:</p>	<p><b><u>Land Public Transport Commission (SPAD):</u></b> SPAD regulates all road transport, public and freight transport throughout Malaysia. In particular, SPAD sets policy direction, owns and manages masterplans and ensures public transport businesses are sustainable.</p>

<p>Summary of legal and policy framework:</p>	<p><u>Minister of Finance (Incorporation) Act 1957</u>: Prasarana was established under this law in 1998 as a corporate body and equips it with ownership over public transport assets.</p> <p><u>Federal Territory (Planning) Act 1982</u>: This Act allows for structural plans to be drafted for Federal Territories in Malaysia, of which Kuala Lumpur is one.</p> <p><u>Kuala Lumpur Structure Plan 2020</u>: Kuala Lumpur's strategic plan for a twenty-year period. This includes a vision and policies to guide development. Particular transportation policies include equity of access, increase public transport demand, optimise capacity, integrate land-use and transport planning. Particular initiatives proposed include the extension of the STAR LRT line to serve new centres and the development of a Transit Oriented Development Strategy.</p> <p><u>Public Land Transport Commission Act (2010)</u>: Establishes the Land Public Transport Commission (SPAD) as a statutory body to create public transport policy and to regulate and enforce public transport in Malaysia.</p>
<p>Key stakeholders:</p>	<p><u>Land Public Transport Commission (SPAD)</u>: As described above.</p> <p><u>PRIDE</u>: A subsidiary of Prasarana, PRIDE manages commercial development around major transport projects. This includes leading on Transit Oriented Development (TOD) to secure future demand for public transport.</p> <p><u>PRAISE</u>: A subsidiary of Prasarana, PRAISE manages major project management around public transport projects.</p> <p><u>MRT Corp</u>: A separate company created by the Malaysian Ministry of Finance to deliver three Mass Rapid Transit (MRT) projects in Greater Kuala Lumpur.</p> <p><u>Dewan Bandaraya Kuala Lumpur (Kuala Lumpur City Hall) and Kuala Lumpur District Councils</u>: The Mayor is appointed for three years by the Minister of Federal Territories. The District Councils are extensively consulted with during project development.</p> <p><u>Unions</u>: Trade unions are subject to regulation under the Trades Unions Act (1959) and the Industrial Relations Act (1967). The majority of employees working in public transport fall under the Malaysian Trades Union Congress, which has several local chapters in public-related industries.</p>

## Summary of Key Views from Interviews

Malaysia's public transport institutions and current systems are linked to the Asian Financial Crisis of 1998 and the subsequent decisions taken by Mahathir Mohamed, then Prime Minister, which set Malaysia on an unconventional development path. A key component of his vision was transforming Malaysia into a developed society within 30 years (Vision 2020).

Malaysia has focused on developing domestic private sector enterprises to lead this change, and has sought to use infrastructure development to achieve the following objectives: to drive forward and integrate the Malaysian economy; to champion and market Malaysia internationally as a high-tech society; to create 'champion' entrepreneurs, with the objective of reducing the economic disparity that Malays had traditionally encountered; and to access private finance to be the engine of change.

An interesting feature of Malaysia's approach to public transit is the strong linkage that its institutions have directly to the Prime Minister. This is by virtue of the Prime Minister's dual role since Mahatir Mohamed's time as both Prime Minister and Minister of Finance. More recently, the Land Public Transport Commission Act of 2010 positions the Prime Minister as the key decision maker for important public transport considerations such as approval of fares, and approval of major projects. From this perspective, the development and operation of public transport in Malaysia very much reflects a centralised approach and a single person's vision.

### Context of Transport in Kuala Lumpur

Historically, Kuala Lumpur had undertaken transport studies that had recommended balanced policies between public and private transport. However, few interventions materialized other than highway development. Public transport was by the end of the 1980s mainly facilitated by unpopular minibuses. The origins of change were the foreign (Taylor Woodrow/ Adtranz) Build Operate Transfer (BOT) proposal for the STAR Light Rail Transit (LRT) project (now known as the Ampang Line). Government approved this and at the same time, kick-started a period of creative development for Kuala Lumpur and its region.

The decision was taken to extend the success of highways privatisation to new areas – KTM (State railway) and urban public transport in particular. The result was the addition of PUTRA LRT (now the Kelana Jaya Line), and the KLIA (new international Airport) Express Rail Link. The Commonwealth Games precipitated the need for STAR to be extended and the timing of PUTRA – for Kuala Lumpur was to be Malaysia's showcase to the world. The Monorail proposal developed as the spine to a 12km 'linear city' that was developed in the heady property days of the early to mid-1990s.

Kuala Lumpur is today a medium population megacity (an urban agglomeration with a population of approximately 7 million). For a settlement of this size, it is markedly green, as its topography channels sprawling development between radial ranges of hills. The economy has grown continuously and there are developed capital markets and an entrepreneurial workforce. According to interviews, urban sprawl makes it difficult for Prasarana to concentrate demand and invest in targeted areas.

### Rail Transport Context

Kuala Lumpur has considerable experience of transit, the first concessions being signed in 1992 (STAR) and 1994 (PUTRA). Both lines are known locally as LRT, although following capacity increases both can legitimately be classified as metro lines, as evidenced by their membership of the Nova metro benchmarking group. There are four rail transport modes referenced in this report: Monorail, Light Rail Transit (LRT – Ampang Line, Kelana Jaya Line, and LRT3), Mass Rail Transit (MRT), and the suburban commuter railway called 'KTM Komuter'.

For the purposes of this study, both LRT and MRT should be considered metro lines. “There’s no clear line” between the two types, for instance, the Ampang line ‘LRT’ trains have a capacity of 1050 passengers, whereas the MRT1 trains will have a capacity of 1000. The distinction is more to do with the technical body construction of the rolling stock, and subsequent marketing of the mode. Additionally, the LRT lines have grown into full metros. For example, the Kelana Jaya Line started off as 2-car trains which could reasonably be called a ‘light metro’, but the line now runs 4-car trains and provides a ‘metro’ level of capacity. Furthermore, the two existing ‘LRT’ lines are members of the Nova international metro benchmarking group and are internationally comparable.

Throughout this report the lines will be referred to as LRT and MRT to reflect local terminology, but it should be remembered that the LRT lines are not true ‘light rail’ but rather metro lines that happen to use a slightly lighter vehicle construction. Whilst there is a short-term marketing benefit to the novelty of ‘MRT’, in the future once MRT1 and LRT3 are open, Prasarana may rename all the LRT/MRT lines as ‘Metro’ to signify that they comprise an integrated system with equal levels of service throughout.

## Prasarana

Prasarana was established in 1998 under the Malaysian Ministry of Finance to integrate and transform the public transport system in Kuala Lumpur. This consisted of incorporating the previous concessionaire lines in the city and embarking on a long-term programme of physical, brand and increasingly fares and ticketing integration.

The company objectives are aligned with those of the urban transport Masterplan.<sup>2</sup> These include connectivity, affordability, and accessibility: “*the first key objective we are looking at is connectivity*”. Separate subsidiaries have been formed to establish clear objectives and points of responsibility/accountability that the Board can monitor. Prasarana aims to ensure that all company activities are aligned to their common purpose. These public transport subsidiaries aim to address various stages within the development and operation of major projects:

- Rapid Rail – LRT/metro operations
- Rapid Bus – bus operations
- Integrated Management and Engineering Services (PRIME) – managing infrastructure and facilities for LRT and metro operations
- Integrated Development (PRIDE)
- Rail and Infrastructure Projects (PRAISE)
- Integrated Solution and Management (PRISM) – primarily managing insurance for public transport projects and financial management services.

According to interviews, the decision to create subsidiary companies for operations (Rapid Rail and Rapid Bus) allows Prasarana to take a strategic approach and focus on developing an integrated system, while expert companies manage operating requirements. This strategic approach was summarised by an interviewee noting that “*Prasarana see it from both ends*”, an example of which is Prasarana’s effort to ensure that buses and rail complement each other to create whole journeys for customers, and avoiding “*unhealthy competition*” between operators. However, according to interviews, there can also be conflicting objectives between the subsidiaries, for example, a drive to complete the LRT3 line within a narrowly-defined timeframe makes successful and effective integration of wider commercial development unfeasible.

As these are all subsidiary organisations of Prasarana, they are also effectively within the control of the Ministry of Finance. A parallel public organisation, MRT Corp, is the project

developer for the MRT1 and MRT2 metro projects. This is owned by the Ministry of Finance and will not carry debt on its balance sheet. MRT1 will be handed over to Rapid Rail to operate upon completion.

### **Decision-making**

The Ministry of Finance (MoF) approves the appointment of Prasarana's CEO and Board, who then have considerable freedom to run the business. In Malaysia, the Prime Minister adopts the role of Minister for Finance, bringing accountability for Prasarana directly within the Prime Minister's control. New megaprojects require the approval of the Board and the approval of the Prime Minister. Both SPAD and Prasarana report directly to the Prime Minister's office, although SPAD also have their own minister, creating a tight and centralised governance structure that in part lends it the political might necessary to effect change: *"you need a strong leader to execute and get it done, that's why the Prime Minister is the one in charge"*. This is recognised more widely, and Prasarana is often viewed as an indicator of the Government's economic health: *"We are a Government company, anything we do gives signals to the market"*, and therefore politically sensitive decisions (such as staff retrenchment for example) need approval from the Ministry of Finance.

In an economy that has previously suffered setbacks, this governance structure could be precarious for the Government. It is partly this risk that drives Government's strong involvement with Prasarana, for example, through the advancement of projects: *"everyone knows we work for the Prime Minister so they are keen to help"*. A Delivery Unit, established by the Prime Minister, closely monitors the development of Kuala Lumpur's public transport system. The Prime Minister personally chairs monthly meetings in which road-blocks are identified and mitigated and pressure applied to keep to target. One example is the major new metro project MRT1, which was approved in 2010 and will open 7 years later in 2017. The project timeline was achieved because the Prime Minister intervened to solve inter-departmental issues such as those regarding land acquisitions: *"the chief secretary of Government was chairing weekly meetings to make sure MRT gets done."*

#### *Role of the Land Public Transport Commission (SPAD)*

SPAD (Land Public Transport Commission) regulates all road transport, passenger and freight in Malaysia. Their focus in Kuala Lumpur is co-ordinating public transport operators and projects, setting policy and ensuring public transport businesses are sustainable. Prior to the formation of SPAD, there was no effective integrated transport planning in Kuala Lumpur.

SPAD was established in 2010 to integrate planning, develop service standards, and enforce laws and regulations. The immediate priority was to establish a direction for the Greater Kuala Lumpur region, and the publication of the 2012 Greater Kuala Lumpur Transport Masterplan defined the major corridors for transit with rail seen as the backbone of a coherent public transport system; and an Urban Rail Masterplan followed. During the preparation of these plans, 10 local authorities in the city and the Kuala Lumpur City Hall were key stakeholders. Interviewees noted that the views of operators were sought, however operators now are more confined and required to follow the corridors defined in the Masterplan. The operator identifies the actual route within the corridor, which in turn requires SPAD's approval.

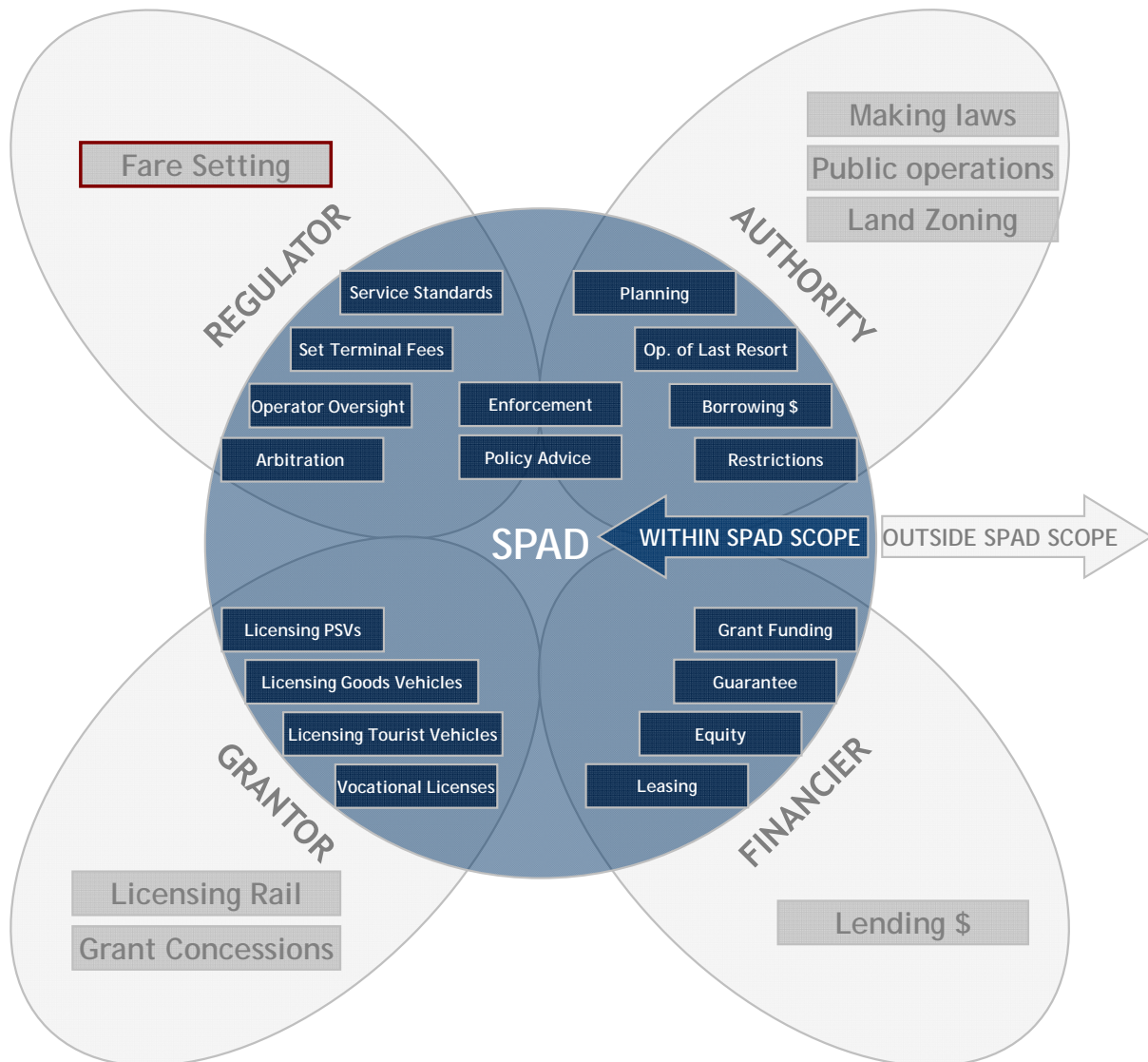
More widely, interviewees described SPAD as being open to stakeholder influence, while acknowledging the importance of the agreed masterplan as creating common goals to work towards.

There are 11 bus operators and the main competition issue concerns feeder services to transit stations. Prasarana controls 60% of the market. A Bus Network Revamp has been undertaken to ensure route integration, with gross cost operating contracts used to ensure best value for public money. Extensive consultation with Kuala Lumpur's District Councils and communities has taken place as part of this process. Bus licencing also were previously managed by the

Ministry of Transport and have been moved under SPAD, aiding SPAD’s capability to regulate the market and manage competition.

Prasarana have a major role in carrying out feasibility studies with SPAD, and justifying the optimised project to them on economic grounds. A (high) 21% EIRR (Equity Internal Rate of Return) is required for approval.

The following diagram illustrates SPAD’s full roles and responsibilities:



*Roles and responsibilities of SPAD. Source: World Bank*

#### *Relationship between SPAD and Prasarana*

SPAD considers that “Prasarana is a good developer and operator”. Moreover, SPAD views Prasarana as a trusted delivery partner and defers to Prasarana’s operating expertise. SPAD has a stated policy of not intervening in operations: “the structure in Malaysia is right...we’ve got very competent operators and developers”. SPAD also value Prasarana’s position as a multi-modal operator to “see it from both ends”; if they are feeding rail with their own buses, they “are able to focus on an integrated system”.

According to interviews, there are some areas where SPAD has requests of the operator that they cannot fulfil. For example, SPAD has asked Prasarana (specifically the Rapid Rail subsidiary) to increase enforcement of the eating and drinking ban on public transport, as SPAD does not have the staff resources to do so itself. However, the Act that confers



enforcement powers, confers these upon SPAD, not Rapid Rail. Rather than working together to find a legal solution to this problem, it appears that SPAD has not taken any serious actions and continues to channel complaints to Rapid Rail. Similar issues relating to enforcement powers include the ability to manage car parks, and even the ability to remove intruders from the railway tracks – in those cases, the police have to be called. It would appear that SPAD have an opportunity as yet untaken to smooth the way for Rapid Rail to operate more effectively, by helping draft and promote whatever laws are needed so that Rapid Rail can enforce laws and bylaws on their railway.<sup>3</sup>

### *Overseas Activities*

Interviewees noted that Prasarana is actively exporting its expertise and becoming aware of practices elsewhere. Its focus has been with Organisation of Islamic Cooperation countries: operating the Mecca Metro in Saudi Arabia and providing technical advice for Jakarta Metro Line 1. It is also training drivers for Bangkok's Purple Line. This work is perceived as a key source of sustainability: "*to enhance revenue, to be not solely reliant on fare revenue but have other transportation interests.*" However, these projects do have an impact on availability of staff for Prasarana's core businesses in Kuala Lumpur, which can create competition for good staff between operational managers and those responsible for overseas business.

### **Fares and Finances**

Prasarana's LRT operations are financially viable (with a farebox ratio close to 1). Sustainability, however, depends upon fares increasing over time to account for inflation, and until 2016/2017 there was no fares formula. Fares were increased in 2015 by 20-30% after 20 years of no increase. Prasarana can request a fare increase, but the eventual decision is by the Government through SPAD, who determine the increase and the structure of the fare system. Prasarana had been promoting a new fare structure since 2009, through SPAD, which were repeatedly not approved.

The structural change to an integrated 'base + distance' structure is also generally positive as it brings together all the lines under a single fare regime. Crucially, this base + distance structure is scalable, allowing easy integration of new lines into the same structure. However, there are some issues with the way it has been implemented. The distance portion of the fare is not 'pure distance,' but instead is set in zones. This has had the unintended result that in a limited number of cases, it is cheaper to travel further. For example:

- KLCC → Asia Jaya = 11 stops = MYR 3.30
- KLCC → Taman Paramount = 12 stops = MYR 3.20

This has understandably caused consternation amongst passengers, which has reflected on the operator: "*This situation makes it difficult to explain...people expect some simple logic, that's all.*" However, the fare structure was actually set by the Land Public Transport Commission (SPAD), who may have overlooked this disparity. Fare restructuring appear to have reduced passenger numbers by a modest 5-8% in the early months. Evidence from the Sunway Bus Rapid Transit (BRT) system indicates that more understanding of supply and demand economics may assist in achieving mode shift to public transport. The BRT fare set by Government is MYR 5.20 for 7km (higher than an equivalent distance on the LRT), and the buses are only half full. Whilst fares may need to be high to ensure sustainability, fares need

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<sup>3</sup> An example of how this can be done comes from London, where parking infringements and bus lane violations were changed from a criminal offence to a civil offence, so that it could be enforced councils rather than the police. This dramatically improved enforcement, because local councils could hire enforcement agents according to their needs, whereas parking enforcement is not a priority to the police. <http://www.publications.parliament.uk/pa/cm200506/cmselect/cmtran/748/74805.htm#a4> (accessed 5/7/2016)

to balance the equation of each passenger paying their way vs. stimulating/suppressing demand.

Bus operations are not financially self-sustaining and these require ongoing subsidy by the Ministry of Finance, the reason being many social and immature routes as well as a sprawling, irregular city layout makes it difficult to create an efficient bus network: *“bus has shortfalls because there are a lot of social routes”*. Based on international benchmarking experience, it is not likely that bus operations are not financially self-sustaining solely because of transfer pricing on integrated trips. However, because Prasarana is an integrated operator it recognises that although the buses may not themselves be self-sustaining, they contribute to the sustainability of the metro: *“we make sure our [Rapid] Bus counterparts will have buses passing through the stations...in some cases where buses are operated by other companies they are reluctant to feed people to train service because it’s lost revenue for them.”*

Prasarana finances its new projects but the cash flow is inadequate to service debt. A Government guarantee exists to reassure creditors. Its first bond issue In February 2016 was 2.8 times over-subscribed by 52 local financial institutions. Prasarana does not receive direct funding from Government, but the Government guarantees its bonds. In the past, Prasarana’s borrowings from the Ministry have also been written off / converted to equity which has effectively provided a form of capital subsidy.

Prasarana sees the next step towards financial sustainability as the ability to quantify and leverage its external economic value, recognising that this is critical to Government’s ongoing support: *“You somehow need to convert the economic benefits to financial benefits, but you need political will for that”*. Specific initiatives that Prasarana is taking in this regard include the growth of the PRIDE subsidiary in particular (leading on commercial development). Further information on PRIDE and its current role can be found on p22-23.

### *Ticketing*

Travellers in Kuala Lumpur can choose between two smartcards with different validity. The ‘Touch’n Go’ system was initiated in the early 1990s by a private company, with Rapid Rail allowing the equipment in their stations. This made sense at the time when the two LRT lines and the monorail did not have integrated fares.

However, when the systems were integrated, Touch’n Go became an increasing burden to Prasarana. Prasarana perceived that they had to do *“the hard part”* of installing the physical equipment and sourcing funding for this capital expenditure, yet the Touch’n Go supplier required payment by Prasarana on a per-validation basis. As a result Prasarana implemented its own ‘MyRapid’ system that now operates in tandem with Touch’n Go, but only on RapidKL (Rapid Rail and Rapid Bus) branded services. KTM Komuter travellers must use Touch’n Go, which can also be used on RapidKL branded services. Prasarana is now looking to Hong Kong’s Octopus system and exploring the potential for MyRapid to be used in shops for small purchases. Cashless bank card payments are also planned, driven by SPAD.

### **Operations**

Prasarana’s total bus and rail demand has increased substantially, from about 200,000 passengers per day in 2010 to 465,000 passengers per day by 2015. The factors that have caused this are a combination of:

- Improved **connectivity** from the implementation of integration measures
- Improved LRT **capacity** e.g. arising from increasing Kelana Jaya Line train lengths from 2 to 4 cars
- **Congestion** is serious on the (competing) road network

Rapid Rail operates three different overall technologies<sup>4</sup> with MRT1 soon to add a fourth. Whilst technology as such is not a problem for Rapid Rail, it does note that by operating different technologies on each line they do lose some opportunities for maintenance efficiency with respect to keeping spares, training staff on different systems etc. The Ampang Line upgrade will incorporate CBTC signalling and enable UTO operation. Ironically the Ampang Line trains (the original basic specification STAR system) are more reliable than high-tech driverless Kelana Jaya Line's (PUTRA), although the driverless operations make Kelana Jaya Line more reliable as a whole.

### **Staff**

Prasarana has had difficulty recruiting a sufficient number of bus drivers. This is a factor of increasing demand for bus drivers, a shortage of recruits, availability of attractive packages and long working hours. It is Prasarana's aspiration to ensure the remuneration policy (inclusive of salary) for bus drivers is competitive and coherent with changes of the industry and market practices. Prasarana has implemented a minimum wage policy that is in line with the Malaysian Government Minimum Wage Order 2016 with the intention to enhance bus drivers' income and motivation whilst balancing pay with business and financial affordability. However, the affordability to provide higher compensation for bus drivers remains a big challenge in view of the highly regulated fare structure, which does not necessarily provide the income needed to pay the wage levels that would help with recruitment. During interviews, SPAD also noted that the lack of bus drivers reflects Kuala Lumpur's historic fare levels.

A wider issue raised by Prasarana is the shortage of specialist transport skills outside their own company's operational expertise. In particular, Prasarana has the operating and maintaining skills, but design skills are lacking and the organisation is largely dependent on overseas consultants for planning work. To tackle this, Prasarana is trying to set up a railway-specific university institute: a capacity building strategy which Governments of other countries with rapidly developing metros may wish to emulate. Outsourcing of design work may not prove an effective strategy for Prasarana in the long-term, as a shortage of in-house expertise in this area will make oversight of outsourced design work difficult.

On a management level, staff rotate between business areas, and it is clear that there is strong retention of the in-house expertise that does exist, as staff stay in the business. Another important factor is that metro management are also regular passengers: "*we use the trains all the time.*"

### **Integration: Creating a Public Transport Network from Isolated Projects**

Originally there were 3 completely separate private concessions with no integration at all between them. Prasarana was formed to adopt control over these fragmented projects and form them into a physically and organisationally integrated system. This has been achieved successfully through a four-pronged approach to integration:

- *Physical*: Wherever possible, creating greater network effects to drive ridership. This also includes land uses and Prasarana are increasingly linking major office and/or shopping developments into stations;
- *Branding and image*: A single brand, Rapid KL, incorporates both metro and buses;
- *Fares and ticketing*: This has been delivered on Prasarana-operated metro and buses through the MyRapid card, and cashless payments are being driven by SPAD;
- *Operations between modes*: Prasarana as a multimodal operator is able to structure the bus network to support the metro network, and vice versa.

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<sup>4</sup> (1) Ampang Line – basic systems, parts separately procured; (2) Kelana Jaya Line – integrated UTO system, procured as a single product; (3) Monorail.



Examples of physical integration and connectivity around the Kuala Lumpur metro

Through this achievement, the Government (through Prasarana) has effectively created a new “baseline” public transport system to develop. Previously, the realism of achieving transport policy targets could have been at risk owing to the isolation of each metro line from a wider system, removing the possibility of achieving dense network effects that drive up public transport mode share. The system is now at a stage where it can only improve and it is crucial that Government and Prasarana demonstrate that this opportunity is realised. The current expansion of the network has the potential to deliver transformation through newly created network links.

Going forward, there is recognition amongst wider Prasarana subsidiaries (e.g. PRIDE, the integrated commercial development subsidiary) that integration, and the customer experience of integrated public transport, is critical to building places and future density: *“if you only connect it assume it as an afterthought, people will use it as an afterthought”*.

### Major Projects: LRT3 and MRT 1

LRT3 and MRT1 are two of Kuala Lumpur’s major public transport investments, creating capacity and increasing the coverage of the public transport network. These projects have been developed as part of the Vision 2020 target of securing 40% of mode share on public transport, particularly aiming to drive mode shift from the private car to rail.

#### LRT3 project

LRT3 is a 37km route, with just 2km underground, 26 stations and costs approximately RM9 billion (USD 6.3 billion equ.) and is a major project in Prasarana’s portfolio to attract public transport demand from a key road corridor, in line with Vision 2020. It makes provision for 6,000 parking spaces at 10 Park and Ride (P&R) sites towards the edge of the city/where the line crosses major highways. Connectivity is the first objective when identifying new lines, and integrating them with existing lines. Then the cost must be controlled, but strictly after providing for all the necessary operating requirements: *“Every single activity, especially system design, must meet the operator’s requirements”*.

A deadline of 31 August 2020 was defined for operations to start. This deadline was based on a realistic assessment by Prasarana for what it thought was achievable (not an arbitrary finish date). This deadline once set assisted the project team, becoming very important in keeping the project on track by arguing for necessary urgent actions by others: *“You must identify the most difficult part and work on that early”*.

Workshops were held very early for Prasarana’s subsidiary companies involved in the LRT3 project. PRAISE (project developer/manager), Rapid Rail (operations) and PRIDE (commercial development) engaged to identify the key issues – illustrating good practice in bringing project developers together with the operator and those responsible for commercial opportunities. The designs are future proofed, with stations designed for 4-car trains, even though 2-car operations are planned at first. Similarly, 3 minute headways are planned for the start of operations, but the signalling system and termini are capable of 1.5 minute headways.

At the time of writing, the project is at the design stage. Prasarana's approach is to identify problematic 'hot spots', to drill down and take the appropriate actions, and are currently focusing on issues around inadequate project resources, primarily in terms of staff.

Integration has been a key focus for LRT3: *"In design of LRT system we also integrate requirements for bus operations in terms of station design, alignment and drop-off"*. This includes providing kiosks at stations for bus drivers to have rest breaks and use the facilities: *"they are a part of us...you take care of your brothers"*.

#### *Land acquisition*

Government is supportive of LRT development, and through the company's highly centralised decision-making structure, has intervened on occasion to unblock obstacles to progress. One example is relating to land acquisition, which is estimated to have taken 17 months in total. 70% of LRT3 land was private previous to Government involvement. Key recommendations from interviewees relating to this essential and uncertain component of project start-up include early engagement with stakeholders as a critical tool, starting with the highest priority sites (such as the depot, which is the largest land area to secure and its location is fundamental to future operational efficiency).

#### *MRT1 project*

The essential difference between LRT and MRT is that MRT has wider and more heavy-duty trains. RTSC's 20 years of benchmarking data indicate that metros yield significant returns to density, rather than returns to scale<sup>5</sup> – meaning that the key efficiency driver is the amount of capacity provided over a given section of track, not the length of the network. Thus one of the key decisions to get right is choosing wide trains. Wide trains create extra capacity at almost zero recurring operational cost, and therefore the initial investment increment to build wider tunnels/viaducts is one of the most sensible investments a metro developer can make. It appears that the Government has understood this in moving to MRT.

The project is being developed by another organisation, MRT Corp, and the feasibility study for the project was done by Prasarana. The Government then decided that Prasarana were too busy progressing the LRT extensions, and they would create a separate company to develop the MRT project, as part of a wider Government strategy to build Malaysia's major project development capacity. MRT Corp are therefore on a steep learning curve, and Prasarana are providing operational guidance when possible. After a period of uncertainty, it was confirmed that Rapid Rail will operate the MRT once it opens. The asset will continue to be owned by MRT Corp. It is not yet known whether MRT2 will be operated by Prasarana.

One result of the project being developed by a non-operator is that integration became de-prioritised: *"the operator's input is somehow superseded"*, *"a 200m tunnel is probably cheaper than building the stations side by side."* There are currently no completely integrated cross-platform interchanges in Kuala Lumpur of the type seen in Hong Kong, London and Barcelona. Now integration is a greater focus in Kuala Lumpur, MRT might have been an opportunity to 'design-in' cross-platform interchange, but this has not happened, although interchange on the MTR will at least be within the paid area as at Pasar Seni Station between MRT1 and Kelana Jaya Line.

There are yet some project strengths related to integration. Park and Ride facilities are planned at 10 stations, and crucially the land for these is included in the project requirements. This is a key good practice that metro developers could learn from – building the integration facilities into the project definition.

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<sup>5</sup> Graham DJ, Couto A, Adeney WE, Glaister Set al., 2003, [Economies of scale and density in urban rail transport: effects on productivity](#), [Transportation Research Part E-Logistics And Transportation Review](#), Vol: 39, Pages: 443-458, ISSN: 1366-5545

### *Integrated ticketing*

An unfortunate decision is that “*the MRT is not going to be integrated with ticketing*” – the card reader hardware will not accept MyRapid smartcards. This decision was taken without consultation with Prasarana, and interviewees suggested that the communication structures were not in place at the time to query the decision: “*I don’t know why no-one imposed that it has to be compatible with existing ticketing systems*”. This is an interesting outcome, given that both MRT1 and Prasarana are overseen by the Ministry of Finance (ultimately the Prime Minister).

The justification was that as cashless payments are planned, there will be no need to integrate with MyRapid. However, as the Integrated Cashless Payment System (ICPS) is planned for January 2018, smartcards will still be in use when the second phase of MRT1 (which integrates with the LRT) opens in July 2017. As a result Prasarana are taking action to migrate the MyRapid card back to the TouchNGo platform that will be used on MRT1, so that customers can use the same fare media on LRT and MRT. This is scheduled for completion by April 2017.

It is surprising that despite the work done to correct the mistakes of the past, an opportunity for seamless integration was missed in the project development. Fortunately, Prasarana are proactively working to rectify this before the interchange between LRT and MRT opens. They correctly realise that passengers should not have to pass through fare gates or pay different fares on LRT and MRT: the distinction between LRT and MRT should not impact the customer experience.

### **Commercial Development**

Prasarana have two subsidiaries that generate non-fare revenue: PRIDE (Prasarana Integrated Development) is tasked with commercial development, whilst Rapid Rail (as the metro operator) looks after advertising and other non-fare revenue within its trains and stations. PRIDE was described by the CEO as “*the pride of Prasarana*”. There is buy-in from leadership for its strategy to enable Prasarana to become a ‘premier Transit Oriented Development (TOD) partner’. The decision to create active subsidiary companies rather than developing Prasarana’s internal capability was taken to “*create single points of responsibility and accountability*” for different aspects of project development, in theory strengthening the outcomes from each area’s involvement.

PRIDE has a significant role in Prasarana’s strategy for financial sustainability. Commercial and integrated development is a relatively new area for Prasarana, requiring significant groundwork for successful long-term engagement between PRIDE and other subsidiaries.

### *Strategy*

PRIDE’s new CEO, an ex-Finance chief, has been appointed to increase non-fare revenue from 7% of Rapid Rail’s operating costs to 15% by 2018 and then 30%. At the time of appointment, no non-fare revenue for Prasarana was generated by TOD. A key factor in this appointment was the need immediate development of a holistic and ambitious TOD strategy for the Board. Central to achieving this target is a transformation of Prasarana from ‘just’ rail to an urban development catalyst.

The strategy is two-fold. Firstly, to use transit to enable a transformation of development at stations/depots, whereby customers’ needs are increasingly satisfied within developments with an attractive retail mix, and that are well integrated with the remainder of the transport system. Secondly, to increasingly acquire land for this purpose, and secure the uplift in value that transit brings about, to contribute to Prasarana’s finances (towards the Hong Kong Rail + Property model).

The former objective is currently being developed, and includes re-branding the system, adopting a people-centric approach that identifies customers' needs and provides for these. The challenges in implementing the second objective are well understood:

- Most land is in private ownership, and public land is owned by the Federal Land Commission;
- Land transferred from the Federal Land Commission to Prasarana must be acquired for a 'public purpose'. If it is for rail it should be used for rail facilities and cannot be multi-purpose. If it is to be used for commercial purposes to secure a profit this is problematic. Furthermore, if this precedent is approved, other public bodies may wish to share the profit. However, PRIDE believes there is hope for this: *"I think if they define TOD properly it wouldn't be considered commercial. It's part of the system of transit"*;
- PRIDE has defined a 20-stage process for acquiring land and securing approval to receive the uplift in land value. They are working through this process for 7 priority plots and making progress. When approval is secured they will then engage with local authorities to negotiate mutually acceptable arrangements for the future.

The CEO has set PRIDE a 1-year target for completing the land acquisition process, by developing the necessary Action Plan and streamlining the process.

The challenge of achieving significant revenue earning development for Kuala Lumpur's mainly elevated stations, compared with Hong Kong MTR's underground stations is recognised. Bangkok's approach of designing station concourses to facilitate future linkages into adjacent developments may offer promise: *"Every single station should just grow bigger."*

#### *PRIDE's Role in New Projects*

According to interviews, PRIDE is involved in project development, but has not yet been able to materially influence new projects e.g. LRT3 where there is a 40ha depot. There are two central issues facing PRIDE:

- PRIDE wish to be better engaged early in the planning stage (for example, in Hong Kong MTR Property is involved 'from Day 1'); and
- The tension between the engineer's imperative of 'implementing the rail project' and the longer time-frame to identify and develop the right transit and development project to meet wider objectives must be managed. There is an understandable concern that "TOD causes delay".

#### *PRIDE's Challenges*

A key challenge for PRIDE is to address the constraints of Malaysia's National Land Code. This includes specific requirements for land usage: if land is to be acquired for rail development, then this land can only be used for direct rail facilities. The Code does not currently allow for multipurpose development to support the viability of rail facilities. Interviewees suggested that amendments to this Code need to be driven primarily from a Ministerial level (Ministry of Finance representing Prasarana, liaising with the Land Ministry). Land management is overseen by the State Government level, whereas public transport is led by the national Government. According to interviews, a barrier to the amendment of the National Land Code is the concern that other Ministries will have a greater interest in land acquisition, potentially introducing conflicting priorities over land allocation and subsidy at the national Government level. Interviewees suggested that there is an emergent conflict between giving up State Government land for national Government investment: *"there is a lot of convincing we need to do"*.

Interviewees noted that the concept of TOD is still being properly defined in Kuala Lumpur and that there are several factors at play within Kuala Lumpur's context, such as selling the idea of living without a car to citizens, and convincing stakeholders to speculatively build in areas without existing demand for public transport. A challenge is this initial justification to other Prasarana subsidiaries that there is value in integrating TOD with alignment planning to create "economic potential of ready ridership".

## **Prasarana's Challenges**

Prasarana's biggest challenge is to address the balance sheet. Prasarana is facing a future situation where its debt value will be greater than its assets. It has done what it can to manage the asset value, such as unbundling some assets, extending asset life when justified. Critical to its long-term financial sustainability is the building of commercial Transit Oriented Development (TOD) on railway land, so that Prasarana can begin to service its loans, and give investors confidence that there is a sound business proposition. The strategy also is to enable Rapid Rail (as the operating arm of Prasarana) to be 'asset-light'. In managing its finances effectively with a long-term outlook, Prasarana will demonstrate the resilience necessary to survive through wider economic threats, such as a further recession or decline in urbanisation rate, should they occur.

In the field of construction, Prasarana has been a learning organisation and has a considerable capability in this area. Proactive engagement with stakeholders to reveal and mitigate problems is central to their approach.

An internal challenge is to use the data the company has on different platforms such that it becomes knowledge that can be used to solve problems. The company must also plan for the future generation who will likely be very different to most their current typical customer. Their lifestyles (YUCCIES – young urban creatives) value spontaneity and connectedness for example.

## **Conclusions**

Kuala Lumpur provides lessons, both positive and cautionary, for public policy, Governments and operators elsewhere. Kuala Lumpur's transit origins were in some ways unpromising. Three private sector concessions were developed using different technologies with no integration. All three would have failed had Government not stepped in to proactively manage the Kuala Lumpur public transport system and as a metro in a smaller city than some other case study cities for this research, Kuala Lumpur demonstrates the importance of its hard-earned integration. After some experimentation, Prasarana now provides a strong and accountable institution to operate the system and develop new lines. Three stand-out features make Kuala Lumpur's experience important.

### *Kuala Lumpur's History Confirms Kuala Lumpur's Decision not to Delay Transit Development*

In 2004 The World Bank commissioned 'A Tale of Three Cities' study that reviewed the experiences of Kuala Lumpur, Bangkok and Manila's rail concessions. It concluded that while all had experienced somewhat chaotic development, the decisions to initiate such development when they did, appears to have been vindicated. All were fast developing cities and in such cities, time matters, and opportunities missed can have long-term consequences. All projects carried large ridership (a proxy for benefits) and all costs compared well when benchmarked against systems elsewhere. All were financed by private concessionaires. Moreover, had they not been approved it appeared unlikely that Government would have undertaken them.

This conclusion generated debate. Was this a risky approach to major project development? Kuala Lumpur's experience demonstrates that it may have been the only way forward despite unintended outcomes. The 2004 experience of 3 separate light rail lines has today been



transformed into a single integrated public transport system has become increasingly effective at providing public transport services under Prasarana's leadership. This allows Government to set policy, approve projects to be developed (by Prasarana or MRT Corp in the case of MRT (metro) projects) in the knowledge that they will be developed and operated well. Separately the Government planning/regulatory agency SPAD takes the lead in planning and regulates the public transport system.

Much of the credit for what has been achieved arises from:

- Strong and consistent Government policy: Central to the thinking of everyone is the target that the Kuala Lumpur public transport mode share must increase from about 21% today to 40% by 2030. This widely accepted target constantly challenges all concerned to do more, faster, more effectively. *"For now that is our bible."*

SPAD who lead on planning report directly to the Prime Minister's Office and the Prime Minister personally monitors progress with weekly meetings. There is a strong commitment from the top that is undoubtedly important.

- A public service ethos: All those interviewed took the wider public interest, and think about customers first. This extends through operations but also critically in planning and developing new projects
- The experience and expertise of Prasarana staff has accumulated over 20+ years: Most of the senior staff have operational experience (dating back to PUTRA/STAR) and they automatically 'think operations'.

Their shared experience is no doubt assisted by changes in position within the industry (CEO is ex-SPAD, SPAD CEO is ex-Prime Minister's Office, PRIDE CEO is ex-CFO, and several interviewed are ex-PUTRA).

What is clear in Kuala Lumpur is that from a difficult start those in Government have moved up the learning curve quickly and steadily. Many have operational experience and have adopted customer-focused approaches to decision making. Kuala Lumpur developed its transit system at a critical time in Malaysia's overall economic development trend. As new projects are opened, there is a strong potential for network benefits to increase ridership markedly. Equally important is the shift in thinking around public transport from being system-focused to focusing on Kuala Lumpur's development. This has led to a much more proactive planning approach that seeks to use transport as a catalyst for economic development.

#### *It is Never too Late to Retrofit the Public Transport System to Benefit City Development*

Kuala Lumpur's story is a best case example of retrofitting integration. The difference in Kuala Lumpur's public transport system between 2004 and today, barely a decade later, is extraordinary. There is a single system and "Rapid" brand, not three separate systems. Ticketing and fares are integrated – a single smartcard provides hassle-free access to all systems (including KTM commuter services). Physical integration between lines has been retro-fitted impressively with covered walkways and stations are well integrated with buses, taxis and in some cases cars too. Insofar as it is possible 'after the event' Kuala Lumpur has greatly increased the seamlessness of its public transport system.

A central tenet of Prasarana's strategy is to progressively implement Transit Oriented Development (TOD) at stations/depots. This is advocated because it makes sound planning sense, increasing density where accessibility is high. In addition to the basic TOD approach Prasarana is moving towards Hong Kong's MTR's 'building communities' concept. Doing this is much more challenging than in Hong Kong, because most land is privately owned, and there are issues in making profit from acquired public land. But these issues are being worked through, change is happening (it is early days and the scale of activity will always be modest) and there is support from the top in Prasarana.

It is envisaged that TOD profits, together with other non-farebox revenues, and with a proposed revaluation of assets (recorded at value not original cost) could provide a mechanism for Prasarana to manage its otherwise increasing debt, taken on as new lines are constructed.

*Kuala Lumpur Provides an Example of Public Sector Institutions Serving the Public Interest Effectively*

The Malaysian Government has created effective public transport institutions that are implementing its major policy imperatives. These combine a consistent ethos to serve passenger needs, and do so by proactively engaging with stakeholders. There is pressure from the top of Government for the organisations to perform, as expectations are high and Prasarana is within the sight of the Prime Minister. This provides Government with a direct ability to plan Kuala Lumpur's future development.

Transport policy more widely remains an issue. The car industry is a national priority and cars are low cost, thus widely owned and sought after, leading to problematic traffic congestion. Meanwhile improving the public transport system provides the important 'carrot' to secure the targeted 40% modal share by 2030. The result is that increasing numbers of Kuala Lumpur's residents will be able to 'live with congestion' by being isolated from its impacts, because there is an attractive, efficient and growing transit system.

## Quotations

### Operating a Metro

Quote	About
“We call it public transport, so the interests of the public must be the first agenda. Design of alignment must meet the requirements of the public to move. Facilities must meet needs of the general public with respect to universal access, way in and out.”	Why the operating requirements should rule the design
“There’s a lot of challenges to keep running and do modernisation.”	Modernising an operating line
<b>“We are in expansion mode, so we need to make sure that productivity improves and increase multiskilling so we don’t have to recruit that many.”</b>	RapidKL are seeking productivity improvements by spreading existing staff onto new lines
“As leaders we need to manage them, reskill them, and motivate them.”	On the importance of motivated, skilled staff.
“We travel on the trains all the time.”	Metro management are also passengers

### Governance, Regulation and Leadership

Quote	About
“It was the beginning of the dark ages”	The initial division of Prasarana and RapidKL into different companies
“We are a Government company, anything we do gives signals to the market.”	Prasarana would theoretically have to seek Government approval if they wanted to make mass redundancies as their actions may imply wider economic difficulties
“The problem for Malaysia is at the same time as targeting public transport increase, we are manufacturing cars.”	On competing policy objectives
“You need a strong leader to execute and get it done, that’s why the Prime Minister is the one in charge.”	The Prime Minister is essentially the minister in charge of public transport, to deal with the complexities and number of ministries involved
“Everyone knows we work for the Prime Minister so they are keen to help.”	
“Chief secretary of Government was chairing weekly meetings to make sure MRT gets done.”	Very senior politicians pushing projects forward
“When you are the regulator you shouldn’t be the implementer”	Why SPAD regulates, but Prasarana and MRT Corp implement
“Separate companies exist to create single points of responsibility and accountability”	Prasarana’s organisation and subsidiaries

## Integration and Connectivity

Quote	About
"In some cases where buses are operated by other companies they are reluctant to feed people to train service because it's lost revenue for them."	RapidKL can sometimes get a special license to operate routes if bus competitors won't feed customers to the metro
"[Retrofit] is harder to do, but somehow we managed."	
<b>"Of course putting it under one roof helps with the integration."</b>	On multimodal integration
"Pathway between lines should be an experience...how do you make people <u>want</u> to walk?"	If an interchange tunnel is long, people don't notice the distance if there are shops along the sides
"You need to be less of a politician and more of a CEO."	On getting different agencies to work together for integration
"Even though we've done it badly, we're not going to repeat mistakes. We change as we go along."	Learning from prior non-integration
<b>"[the buses] are part of us...you take care of your brothers."</b>	
<b>"The Government decided to integrate with KTM commuter even though it's difficult to construct stations over live line, but connectivity is very important to the public so we do it."</b>	On pursuing integration despite construction difficulties
<b>"We believe the connectivity is important because we want public to leave their car at home."</b>	Public transport has to make itself equally or more convenient than its main competitor
"There's an evolution of the role of buses"	Changing from point-to-point towards feeders where there's a rail line

## Major Project Development & Planning

Quote	About
"What is lacking in this company for rail business is the knowledge, we are dependent on experts from overseas."	On the need to use consultants extensively due to local skills gap. They are setting up a railway-specific university institute.
"The thing that we achieved was the completion of construction. That's where the private sector plays a role. If it hadn't been given to the private sector, I don't think we'd have made it on time."	On the benefits of PPP in getting the first two LRTs built before the 1998 commonwealth games
"Here in Kuala Lumpur, the sprawling makes it harder to extract economic value. The network has to be so big so there's less concentration."	On the importance of agglomerations and TOD
<b>"Can we bring Disneyland to the last station of LRT3? Because at the end of the day, I'll have ridership at weekends."</b>	Thinking big to drive ridership
"The intention was purely to do a new line. They never think about paying it back."	On LRT3 planning

<b>“We started the planning from day 1 together with the operations people and the property people.”</b>	
“Every single activity, especially system design, must meet the operator’s requirements.”	PRAISE staff are all originally from operations so understand the issues
“We don’t base 100% on consultants’ report.”	PRAISE recognise that consultants are not operators and do not always understand operations
“Operational requirements are of utmost importance to us, we value that number 1.”	Value engineering never touches the operational requirements
<b>“Sometimes tenderer puts the cheapest price but in fact they cannot do it.”</b>	...so they keep raising variation orders and the cost escalates
“It’s the management prerogative to do things so the project will complete on time.”	PRIDE consider the ability to deliver to timeline and so spread packages between contractors
“You can have very futuristic and good facilities but that cost is of no practical use.”	On controlling cost by avoiding gold-plating
<b>“You cannot build the line in no-man’s land.”</b>	On the need to build where the ridership is, not where it’s easy.
“The first key objective we are looking for is connectivity.”	
“When projects are delayed they cost more – and that is public money!”	On public objections delaying projects

### Paying for the Metro

Quote	About
“Prasarana continues to survive because they’re funded by Government, but in RapidKL we depend on fare revenue to survive.”	
“People expect some simple logic, that’s all.”	On the difficulty of explaining the quirks of RapidKL’s new distance/zonal fare-based system
“If you want to have an asset-light group, you have to park that asset somewhere.”	With metro capital assets, there will always be loss-making assets
“The value is not being captured back into rail.”	Metro is creating but not capturing land value
<b>“There’s no reasonable ROI because it’s a 50 year or 100 year investment”</b>	On new metro lines viewed alone...and the reason property development matters
“I think if they define TOD properly it wouldn’t be considered commercial. It’s part of the system of transit.”	A philosophical view on blockages to commercial development on expropriated land
<b>“Investment into public transport is not a successful private venture”</b>	Because capital investment doesn’t pay
“If we cannot value our own assets, you can’t expect others to see that value.”	On a station being worth more than the sum of the assets it is built from
<b>“The integration portion will obviously generate higher ridership.”</b>	