What is the future of KTM?[1]

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The recent hype over upcoming railway developments such as the Light Rail Transit (LRT) Extension, the Mass Rapid Transit (MRT), the East Coast Rail Line (ECRL) and the High-Speed Rail (HSR) from Kuala Lumpur to Singapore, appears to have cast the oldest railway operator in the country, Keretapi Tanah Melayu, better known as KTM[4], by the wayside. Ridership on the KTM Komuter Services in the Klang Valley has been declining and could decline even further as it suffers from competition from the further expansion of the LRT and MRT lines. On top of this, the expected rollout of the Rail Network Access Agreement (RNAA) that will allow other cargo operators to use the train tracks currently used exclusively by KTM will almost certainly reduce its cargo operations revenue. Currently, the only bright spark in KTM's ridership is the Electric Train Service (ETS), initially from Kuala Lumpur to Ipoh, and now extended to the north up to Padang Besar, Perlis and to the south to Gemas in Negeri Sembilan.

How much will the completion of the double tracking and electrification project from Gemas to Johor Bahru help increase KTM's revenue and profitability? Will the double track project upgrading in the Klang Valley increase the reliability of KTM's service and attract more passengers and revenue for KTM? Will KTM's relationship with the Railway Asset Corporation (RAC), the statutory body which owns the KTM stations and the tracks, help or harm KTM's profitability moving forward, as RAC seeks to monetize more and more of its physical assets?

This report will examine these issues and by doing so, shed some light on the answer to the question of a viable future for KTM in this country.

[4] While KTM is the popular name, the actual name of the entity which currently exists is Keretapi Tanah Melayu Berhad (KTMB), a company which is 100% owned by the Ministry of Finance Incorporated. This report will use the popular name which is KTM in place of the name of the legal entity, KTMB.

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1 History and Purpose of KTM

The history of the railway network in Peninsular Malaysia can be traced back to the era of British colonialism. Back then, the need for the transportation of natural resources like timber and tin ore from the hinterland to coastal ports provided the raison d'etre for many of the early railways[5]. The first railway line in Malaysia, opened in 1885, ran from Taiping to Port Weld, and was built for the transportation of tin ore.[6] These railways were owned and managed by separate companies such as the Muar State Railway and the Selangor State Railway, to name a few. These separate railways were then consolidated into a single company called the Federated Malay States Railways (FMSR) in 1901, under the direction of the first British Resident-General, Frank Swettenham. The North-South line connecting Seberang Prai in the North[7] and Seremban in the south was completed in 1903.

The FMSR network came under Japanese control during the Japanese occupation of Singapore and Malaya from December 1941 to September 1945. FMSR operated under its original name for up to three years after the end of the war and changed its name to the Malayan Railway Administration (MRA) to reflect the change of the Malayan Union to the Federation of Malaya. In 1962, its name was translated into Malay as Keretapi Tanah Melayu or KTM for short. Three decades later, its name was changed to Keretapi Tanah Melayu Berhad (KTMB) in 1992 as part of a corporation exercise.

In 1997, a consortium by the name of Merak Unggul, jointly owned by Renong (50%), DRB-Hicom (25%), Bolton Bhd (20%) and Jasa Meta Sdn Bhd (5%), was allowed to manage KTM as part of a move to reduce the government's financial burden in enhancing and expanding the railway's infrastructure. However, in 2001, the government cancelled this arrangement and scuppered plans for a KTM privatization due to the high debt levels of Renong and the failure of this consortium to inject capital into KTM.[8]

Today, KTM is 100% owned by the Ministry of Finance Incorporated.

The main purpose of Peninsular Malaysia's railway network has changed since its colonial origins. Initially, railway companies were privately owned and served purely economic interests such as transportation of tin and coal to the ports in the West coast. The emphasis on economic and extractive functions reflected the priorities of the British administration. In contrast, little emphasis was placed on intercity connectivity and passenger travel. However, when Malaya gained independence, connectivity became a central element in the operation of the railway. In tandem with the growing

[5] Source: Amarjit Kaur, "The Impact of Railroads on The Malayan Economy, 1874-1941," The Journal of Asian Studies 39, no. 4 (1980): 694, doi:10.2307/2055178.
[6] http://www.mysinchew.com/node/94363
[7] Ibid, p. 695
[8] https://www.thestar.com.my/business/business-news/2011/12/21/many-wonder-why-mmcs-interested-in-railway-and-how-it-can-turn-it-around/

population, the focus of KTM (then MRA) shifted away from transportation of natural resources to the transportation of passengers and other types of cargo.

The reliance on KTM for long distance intercity travels, for example between Penang and KL, KL and Singapore, and to Kota Bahru in the east coast, peaked in the first two decades of post-independence. This was largely due to the limited and fragmented road network in Peninsular Malaysia. As Peninsular Malaysia experienced rapid industrialization in the 1980s and 80s, the road network expanded significantly. At the same time, the focus of economic activities also shifted from a resource-based economy in areas which were connected by KTM to a manufacturing-based economy in areas along the West Coast of Peninsular Malaysia.

By the time the North South Expressway (NSE) was fully operational in 1994, the transport landscape has shifted almost completely to being automobile and road-based especially for intercity travel. Towns like Kluang in Johor, an important commercial center that is serviced by KTM, were completely bypassed by the NSE. The railway network in Peninsular Malaysia gradually shrunk as spur lines (short secondary tracks branching out from the principal artery of the rail system) like the Batu-Arang, Port Dickson and Teluk Intan tracks went out of service and were dismantled. For a period, there was little or no new investment in rail infrastructure and rail modernisation. It was only after the launching of the start of the double track and electrification project in the late 1990s that the railways started to regain back some attention. Even then, railways were not envisioned to be playing a major role in both passenger and freight transport moving forward.

Today KTM's operations span all states except for Terengganu with two main rail lines running from Padang Besar, Perlis to Johor Bahru along the West Coast of Peninsular Malaysia and from Gemas in Negeri Sembilan to Tumpat in Kelantan. But its importance as a form of inter-city transportation has waned considerably in the face of better road networks, greater competition from express buses and more recently, cheaper air fares via low cost airlines.

2 Understanding the components of KTM's revenue stream

To understand KTM's future moving forward, we must firstly understand its present situation from a business and service offering perspective. We need to understand the sources of KTM's revenue, changes in the segments of these revenue streams and future projects stemming from the various service offerings.

Today, KTM has diversified revenue streams and operates a range of railway services in Peninsular Malaysia. As mentioned previously, KTM is present in all states in Peninsular Malaysia except for Terengganu. This section of the report will analyse the different components of KTM's operations, namely the intra-city commuter services, cargo, electric train services and intercity services as well as some ancillary businesses such as advertising and car park management.

2.1 KTM Komuter

KTM Komuter is an intra-city commuter service introduced in 1995 to serve the Klang Valley region (which includes Kuala Lumpur) and parts of southern Perak and Negeri Sembilan. Two lines currently serve the Klang Valley, namely the Batu Caves – Tampin / Pulau Sebang line and the Tanjung Malim – Port Klang line, with a total of 55 KTM Komuter stations: 29 stations along the Batu Caves – Gemas route; and a further 22 stations along the Tanjung Malim – Port Klang route. Both lines are connected by 4 stations (KL Sentral station, the Kuala Lumpur station, the Bank Negara station and the Putra station) which are all located in the city centre of KL. Figure 1 below shows the route map for the KTM Komuter intra-city service in the Klang Valley for all the stations at the time of writing.

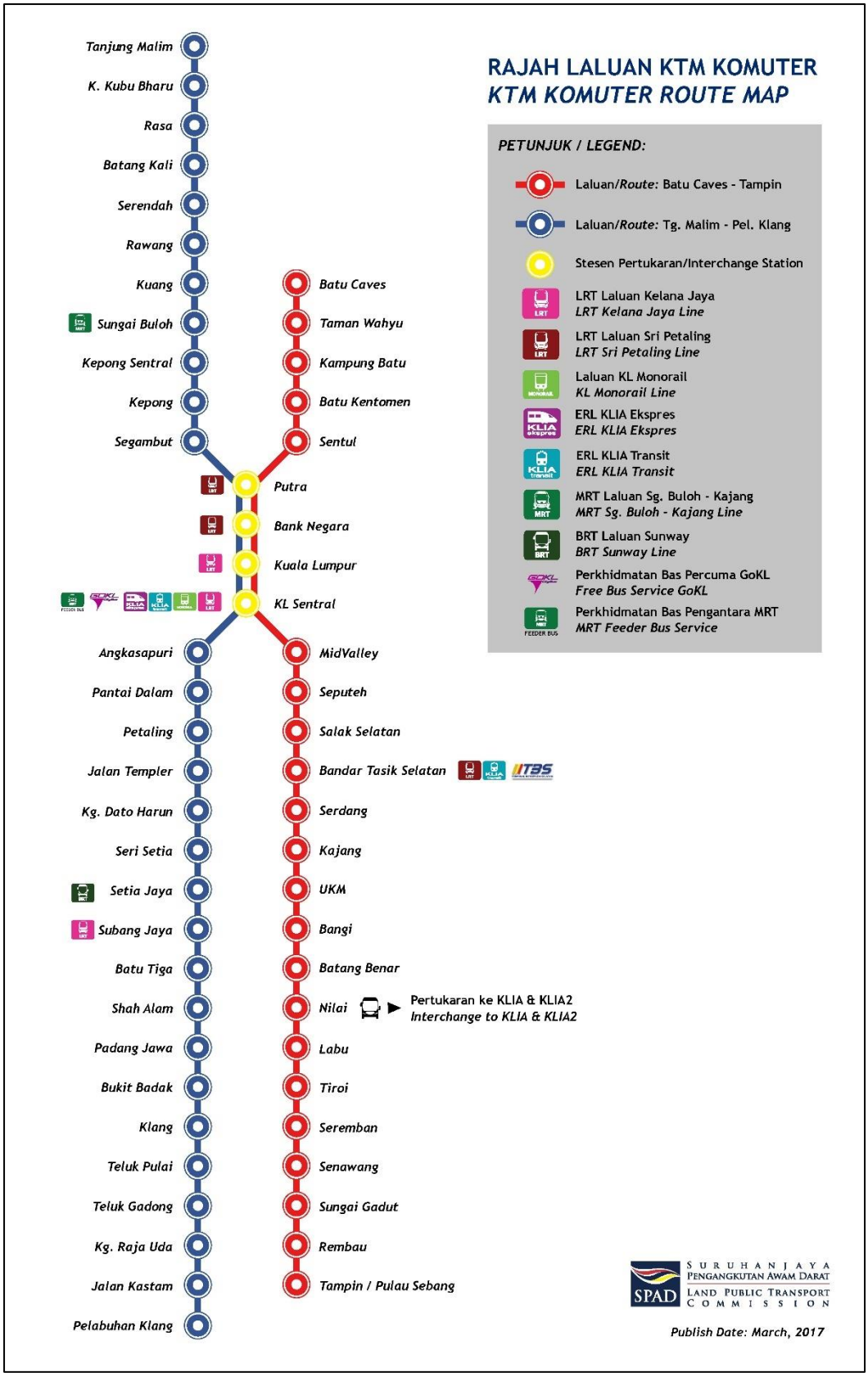

Figure 1: Route Map for the KTM Komuter service in the Klang Valley. Source: Suruhanjaya Pengangkutan Awam Darat (Land Public Transport Commission)

In 2015, with the completion of the double tracking and electrification project for the Ipoh-Padang Besar route, KTM commuter services were introduced in the Northern region servicing mainland Penang, Kedah, Perlis and Northern Perak. For the northern sector, there are two lines originating from Butterworth, namely the Butterworth – Padang Besar line and the Butterworth – Padang Rengas line (See Figure 2 below).

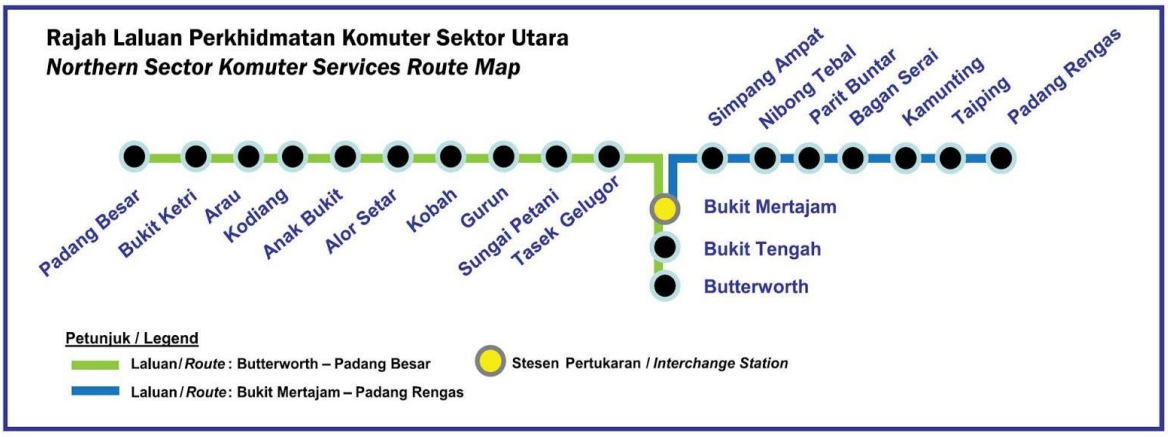

Figure 2: Route Map for the KTM Komuter Service in Norther Peninsular Malaysia. Source: KTM website.

Train frequency varies from route to route and is also contingent on the travel period. In the Klang Valley, train frequency is every 15 minutes during peak hours and 30-90 minutes during off-peak hours, whereas in the North, frequencies are between 30-60 minutes during peak hours and 2-3 hours during off-peak hours. In the Klang Valley, waiting times are expected to be halved to 7.5 minutes during peak hours after the completion of the RM1.4 billion Klang Valley Double Track (KVDT) project in 2019.[9] (See discussion below on train delays affecting KTMB).

Figures 3 and 4 below show the monthly and daily ridership figures respectively for KTM Komuter from Q1 2014 to Q4 2017[10]. Based on these figures, ridership for the KTM Komuter has been declining since Q4 2015. What are the possible reasons for this decline? Some reasons are raised here. Firstly, in December 2015, travel fares for KTM Komuter were increased from 11 sen per km to 15 sen per km. This increased the price of KTM Komuter tickets, with an increase of RM7.10 as the highest increase for a single trip[11]. Secondly, in May 2016, KTM started its Klang Valley Double Tracking (KVDT) upgrading project (expected to be fully completed in 2019). During this period, peak hour train frequency remains at 15 minutes. However, off-peak frequency lengthens from 30 minutes to one hour.[12] Thirdly, the launch of the MRT Sungai Buloh-Kajang Line 1 in July 2017 took away passengers

[9] http://www.thestar.com.my/news/nation/2016/12/14/liow-ktm-komuter-wait-times-to-be-reduced/
[10] Unfortunately, the Ministry of Transportation does not provide a breakdown for the KTM Komuter services in the Klang Valley and in the Norther Sector.
[11] https://www.thestar.com.my/news/nation/2015/11/02/new-ktm-komuter-fares/
[12] https://www.thestar.com.my/metro/community/2016/05/26/longer-waiting-time-for-train-users-tanjung-malimrawangport-klang-routes-to-be-affected-by-project-t/

from KTM Komuter, especially in places like Kajang and Sungai Buloh, where the KTM and MRT stations are co-located. Daily ridership for the KTM Komuter peaked in Q1 2015 at 137,500 passengers. By Q4 2017, it had fallen to 89,554 passengers, translating to a 34.9% decline in a period of 3 years.

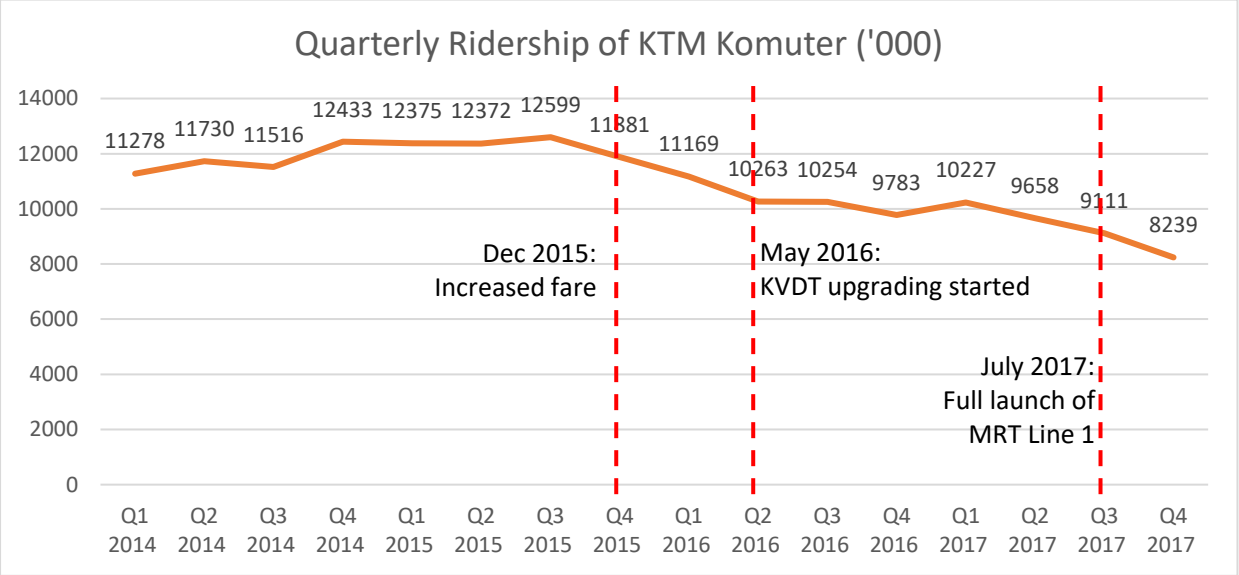

Figure 3: Quarterly Ridership Figures for KTM Komuter[13]

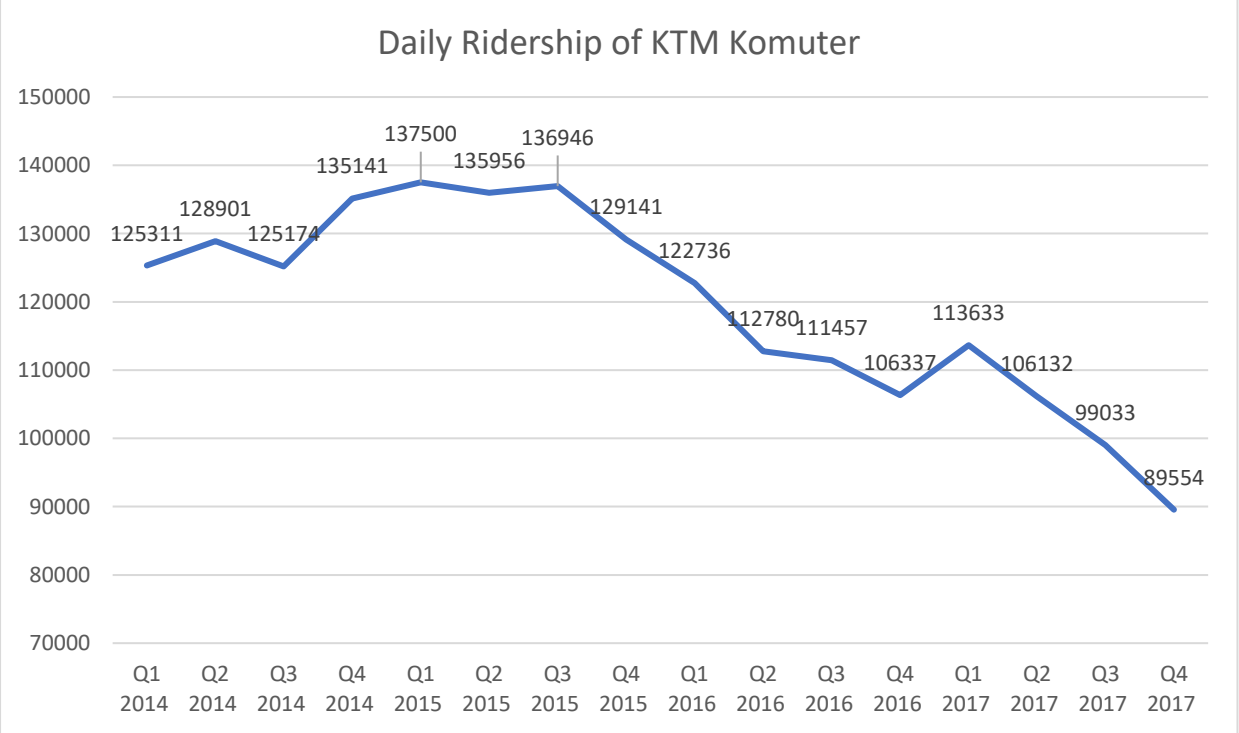

Figure 4: Daily Ridership Figures for KTM Komuter[14]

[13] http://www.mot.gov.my/en/resources/rail-statistic
[14] http://www.mot.gov.my/en/resources/rail-statistic

2.2 KTM Intercity

			Number of passenger ('000)						
Service	**Route**	**Region**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Express Rakyat[15]	JB Sentral – Butterworth	West Coast	381	392	328	363	369	436.6	156.7
Express Langkawi[16]	Hat Yai – KL Sentral	West Coast	477.1	388.1	376.2	400.5	391.3	482.6	152.3
Senandung Sutera[17]	Ipoh – JB Sentral	West Coast	316.4	263	255.5	273	265.7	246.8	69
Express Sinaran[18]	JB Sentral – KL Sentral	West Coast	235	368.7	354	208	177	107.4	0
Express Wau	KL Sentral – Tumpat	East Coast	442.4	422.2	379.3	341	294.5	0	0
Express Timuran	JB Sentral – Tumpat	East Coast	503	414.1	327.3	317	254	69.6	240
		Total:	2354.9	2248.1	2020.3	1902.5	1751.5	1343	618

Table 1: Yearly Ridership Figures for KTM Diesel Intercity Train Service

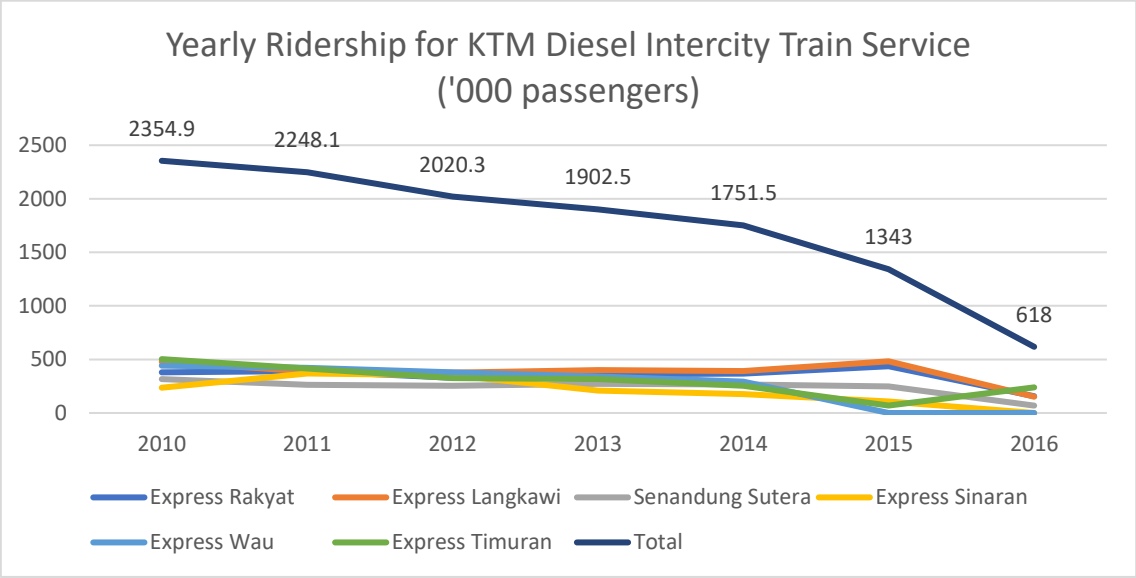

Figure 5: Yearly Ridership Figures for KTM Diesel Intercity Train Service

Table 1 and Figure 5 above show the names of the train services and the routes of the KTM Intercity service. In general, KTM's Intercity networks is divided into the North-South Sector and the East-West sector which passes through the 'Jungle Railway'[19] on its way to Peninsular Malaysia's East Coast.

[15] Service was cancelled as of 9th May 2016; replaced by ETS
[16] Service was cancelled as of 19th May 2016; replaced by ETS
[17] Service was cancelled as of 19th May 2016; replaced by ETS
[18] Service was cancelled as of 1st Sept 2015; replaced by ETS
[19] A popular name for the Gemas-Tumpat East Coast line (https://wikitravel.org/en/Jungle_Railway)

Overall, yearly ridership for the KTM Intercity services has been steadily decreasing from 2010 to 2016. Going from 2.35 million passengers in 2010 to 618,000 passengers in 2016, there was a 73% drop in ridership over a 7-year period.

On the West Coast route, the KTM Diesel Intercity train services were gradually phased out in stages from 2015 to 2016 and replaced by the ETS service from Padang Besar (North) to Gemas (South). For the East Coast region, the intercity train services have been very volatile. The Ekspres Wau service was cancelled for the most of 2015 due to serious flooding in the East Coast of Malaysia, which damaged KTM's train tracks and stations.[20] And has since remained inactive.[21] Meanwhile, ridership for the Express Timuran service from JB to Tumpat plummeted from 503,000 in 2010 to 69,600 in 2015, also due to the East Coast floods. In 2016, ridership climbed back up to 240,000, but this was still a lower figure than the 254,000 ridership figure recorded in 2014. Currently, the East Coast railway is serviced by Express Rakyat Timuran and a few shuttle trains between the rail stations in the East Coast region[22]. The frequency of train services is very low. Express Timuran runs two services daily and there are ten daily shuttle train services operating between the stations in the East Coast. As KTM intercity services in the East Coast have become more unreliable and prone to delays, it is not unlikely that passengers would turn to other alternatives including flying, driving and taking buses.

As of 1 August 2017, KTM Intercity only operates two services: Express Timuran (JB Sentral – Tumpat) and Tebrau Shuttle (JB Sentral – Woodlands). The train leaves Tumpat, Kelantan at 1800hrs and arrives at JB Sentral at 1110hrs the following day, while the train from JB Sentral departs at 1900hrs, arriving at 1305hrs the following day. In total, it takes 17 hours to complete the Tumpat-JB Sentral route and 18 hours for the return leg. As a comparison, a quick search on the popular bus ticket booking website www.catchthatbus.com revealed that the time taken to travel by express bus from Johor Bahru to Kota Bharu ranges from 7 hours 15 minutes to 9 hours 30 minutes. KTM charges passengers RM50 for a one-way adult ticket whereas a bus journey costs RM64-66 one way, depending on the bus operator.

The Tebrau Shuttle is becoming increasingly popular for passengers travelling from Johor Bahru, Malaysia to Woodlands, Singapore. The train fares are SGD5 and RM 5, for departure from Woodlands JB Sentral respectively. Initially, frequency of services amounted to 14 trains per day, but this has since increased to 31 trains,[23] to serve the growing demand for cross-border commuting. The Tebrau Shuttle is an attractive alternative for users to cross the Causeway as it only takes 5 minutes from JB Sentral to Woodlands. However, this shuttle is due to cease operations within the first six months following

[20] http://www.utusan.com.my/berita/nasional/10-stesen-ktmb-ditenggelami-banjir-1.41416
[21] Passengers who want to go from KL to Tumpat will have to buy two separate tickets – one ETS ticket from KL to Gemas and a non ETS ticket from Gemas to Tumpat
[22] http://intranet4.ktmb.com.my//ktmb/uploads/files/train%20schedule/Website_Jadual_Tren_ETS_Intercity_18_Dis_2017_5.pdf
[23] https://www.thestar.com.my/news/nation/2018/01/17/second-link-toll-cut-will-ease-causeway/

the commencement of operations of the Singapore-JB Rapid Transit System (RTS).[24] The Singapore-JB RTS is expected to be completed by year 2024 and will be operated by a joint venture between Prasarana Malaysia and SMRT Singapore[25]. The cross-border urban railway service is an hourly service that will connect the Bukit Chagar station, linked to JB Sentral, and the Woodlands North MRT station in Singapore with a carrying capacity of up to 10,000 passengers per trip. In comparison, the Tebrau Shuttle can only ferry 320 passengers per trip, with a total of 9,920 passengers with 31 trips every day.

2.3 KTM Cargo

KTM's cargo operations are split into three main parts, namely container cargo, conventional cargo and land bridge cargo. It is worth noting that a majority of its operations are focused in the Northern region[26]. KTM's container cargo operations may be further classified into three fields, namely South Thai Cargo, land feeder transfer and inter-terminal transfer (ITT).

The South Thai Cargo operations link the Padang Besar Land Port to the North Butterworth Container Terminal (NBCT) in Penang, mainly transporting goods from southern Thailand to be exported via the NBCT. The KTMB land feeder services, on the other hand, are made up of railways connecting the sea ports and land ports in Peninsular Malaysia, delivering containers used for import/export activities.

In 2015, KTM partnered with MMC Corp through its subsidiary KTM MMC Cargo Sdn Bhd to manage its container cargo operations, focusing on inter-terminal transfer (ITT)[27]. KTM MMC Cargo manages the linkage networks between shipping companies, freight companies and also KTM as a railway operating company. Currently, the main routes operated by the subsidiary are the Port Klang – Johor Port and Tanjung Pelepas – Port Klang route with a frequency of five trains per week, adjusted to market needs.[28]

KTM also provides a conventional cargo service, transporting a variety of goods in bulk ranging from cement and clinker (material produced in the kiln stage during cement production that is used as the binder in many cement products) to processed foods. For example, KTM partners with manufacturers such as MSM Holdings Malaysia to transport processed sugar from the main manufacturing plant in Prai to the MSM Depot in Sungai Buloh and the Tampoi depot, for distribution in the Klang Valley and the Southern region.

[24] http://www.channelnewsasia.com/news/singapore/singapore-jb-rapid-transit-system-to-begin-passenger-service-by-9079116
[25] http://www.straitstimes.com/politics/smrt-and-prasarana-to-form-joint-venture-by-june
[26] http://www.spad.gov.my/land-public-transport/rail/freight-services-ktm
[27] http://www.thestar.com.my/business/business-news/2015/12/01/ktm-and-mmc-in-rail-freight-transport-joint-venture/
[28] https://www.mmc.com.my/04042016%20-%20KTMB%20MMC%20CARGO%20EXTENDS%20ITS%20CONNECTIVITY%20TO%20PORTS%20IN%20JOHOR.pdf

Figure 6 and Table 2 below show the freight traffic for KTM cargo services, by freight category, from 2010 to 2017. The two largest freight categories are the maritime container service and the cement & clinker service. From 2010 to 2017, these two categories averaged 48.2% and 34.4% of the total KTM cargo freight traffic, respectively.

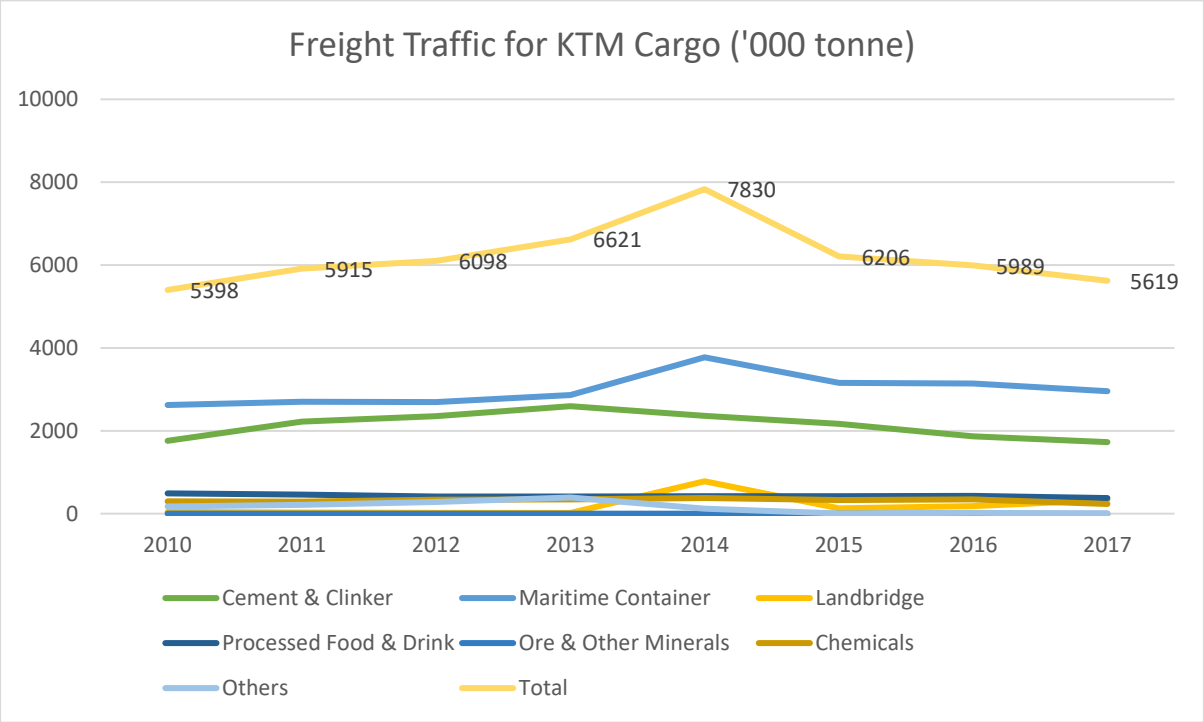

Figure 6: Freight Traffic for KTM Cargo[29]

	Freight Traffic ('000 tonne)							
Type of Cargo	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2016***	***2017***
Cement & Clinker	1762	2224	2353	2594	2361	2166	1870	1727
Maritime Container	2622	2703	2691	2864	3773	3157	3138	2955
Landbridge	43	26	20	19	782	131	185	326
Processed Food & Drink	490	460	417	413	418	421	431	377
Ore & Other Minerals	3							
Chemicals	300	287	338	341	378	327	348	234
Others	178	215	279	390	118	4	17	
Total	5398	5915	6098	6621	7830	6206	5989	5619

Table 2: Freight Traffic for KTM Cargo[30]

Total freight traffic for KTM Cargo peaked in 2014 with 7.83 million tonnes of carried cargo. Prior to that, the volume of cargo recorded a steady increase from 5.40 million tonnes in 2010 to 7.83 million tonnes in 2014, or a 45% growth rate. Since 2014, however, the volume of freight traffic dropped significantly, from 7.83 million tonnes in 2014 to 5.62 million tonnes in 2017, a fall of 28.2%. One

[29] http://www.mot.gov.my/en/resources/rail-statistic
[30] http://www.mot.gov.my/en/resources/rail-statistic

possible reason for the decline in demand for KTM's cargo services may be the increase in the cargo fare in 2015[31], which likely diverted customers to other modes of freight transportation.

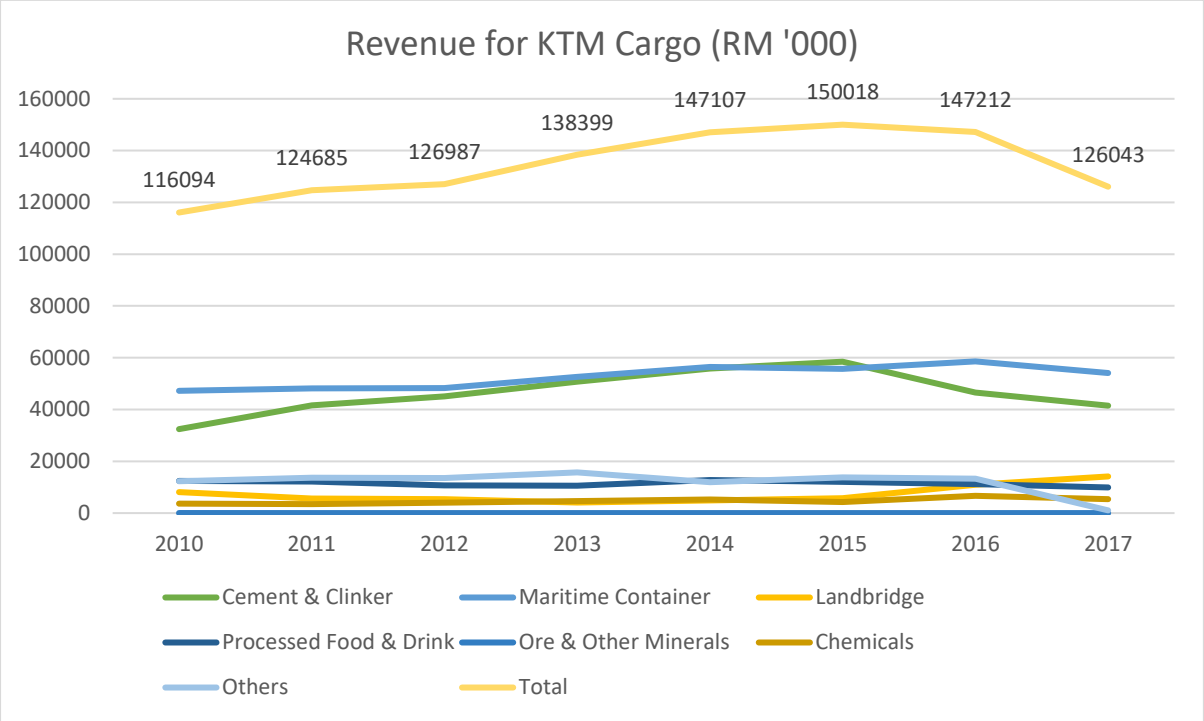

Figure 7: Revenue for KTM Cargo[32]

	Revenue of KTM Cargo (RM '000)							
Type of Cargo	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2016***	***2017***
Cement & Clinker	32421	41627	45037	50722	55807	58473	46593	32969
Maritime Container	47217	48132	48326	52607	56454	55688	58585	41121
Landbridge	8054	5610	5366	4072	4893	5740	10929	10734
Processed Food & Drink	12435	12232	10742	10606	12764	12027	11183	7963
Ore & Other Minerals	23	0	0	0	0	0	0	0
Chemicals	3653	3459	3961	4678	5269	4255	6667	3838
Others	12291	13625	13555	15714	11920	13835	13255	1039
Total	116094	124685	126987	138399	147107	150018	147212	97664

Table 3: Freight Traffic for KTM Cargo[33]

The revenue of KTM Cargo peaked in the year 2015, a year after cargo volume peak, at RM150 million. While the volume of cargo decreased 20.7% from 2014 to 2015, the revenue from cargo operations increased slightly, from RM147.1 million to RM150 million or approximately 2% (See Figure 7 and Table 3 above). This may have been due to the hike in cargo charges in 2015[34] which compensated for

[31] http://www.therakyatpost.com/business/2014/11/20/ktmb-raising-cargo-rates-2015/
[32] http://www.mot.gov.my/en/resources/rail-statistic
[33] http://www.mot.gov.my/en/resources/rail-statistic
[34] http://www.therakyatpost.com/business/2014/11/20/ktmb-raising-cargo-rates-2015/

the drastic drop in the volume of freight traffic. In 2017, the revenue from KTM Cargo dropped down to RM126 million.

	2010	2016	Total Growth
GDP - Transportation & Storage (RM billion)	29.0	42.9	48.1%
KTM Cargo Revenue (RM '000)	116,094	147,212	26.8%
KTM Cargo (Traffic) ('000 tonne)	5,398	5,989	11.0%

Table 4: Total Growth of GDP (Transportation & Storage Sector), KTM Cargo Revenue and KTM Cargo Traffic from Year 2010 to 2016

The stagnation and subsequent decline of KTM Cargo's volume and revenue figures are somewhat surprising, given that the transportation & storage sector of the economy has been increasing healthily since 2010. According to Table 4, transportation and storage sector GDP rose by 48.1% between 2010 to 2016, from RM29.0 billion to RM42.9 billion, while KTM Cargo volume and revenue increased by merely 11.0% and 26.8% respectively during the same period. KTM Cargo was clearly unable to fully exploit the opportunities from a growing transportation and storage sector GDP.

2.4 KTM Electric Train Service (ETS)

While declining ridership for the KTM Komuter and Intercity services, and declining volumes and revenue for KTM Cargo, paints a rather a bleak picture, the outlook for the KTM ETS is largely positive. The ETS service represents a new phase in KTM's operations as it runs on fully electrified tracks and newer trains. The service was first introduced in 2010, plying the KL-Ipoh route with an average journey time of between 2.5 to 3 hours, depending on the type of train service. The service was extended from Ipoh to Padang Besar via Butterworth in July 2015 and from KL Sentral to Gemas in October 2015.

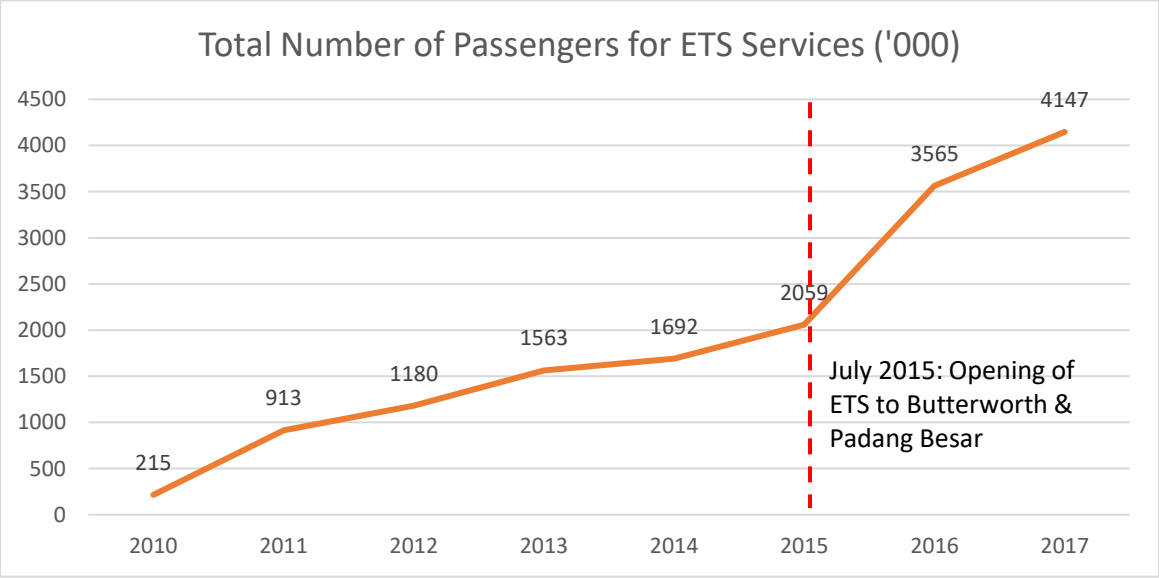

Figure 8: ETS Ridership Figures from 2010 until 2017[35]

Figure 8 above shows the total number of the ETS passengers since its introduction in 2010 until the 2017. Ridership increased by nearly tenfold, from 215,000 in 2010 to 2.06 million passengers in 2015, with a further increase to 4.15 million passengers in 2017, after two years that ETS services were extended to Padang Besar via Butterworth in the north and to Gemas via Seremban in the south. This ridership figure was higher than the peak ridership figure for KTM Intercity services (2.354 million in 2010). The popularity of the ETS is further underscored by the fact that its ridership constituted two thirds of the passenger volume for KTMB's intercity train services. Over and above the safety of its services, several factors may explain the popularity of the ETS.

At the time of writing, an ETS Silver and Gold one-way ticket from KL Sentral to Ipoh costs RM25 and RM36 respectively compared to RM19 to RM25 for an express bus. Given the better connectivity (KL Sentral is an integrated public transport hub) and the reliability, comfort and safety record of the ETS, it is not surprising that it is a competitive and often preferred option than taking an express bus for a slightly lower price.

In addition, passengers are able travel to Hat Yai, Thailand by shuttle trains via the Padang Besar station. The train service is priced at 70 Thai Baht or RM10. The ETS is also a considerably cheaper option compared to flying. This applies especially for "last minute" trips or during high demand seasons, as flight tickets will be highly susceptible to price hikes.

In summary, ridership on the ETS is expected to increase in the coming years, especially after the completion of the Gemas to Johor Bahru double tracking electrification project by early 2020 (assuming that there are no delays).[36]

2.5 Other services

Aside from providing rail services, KTM is also involved in some non-core non-rail business through ownership of several subsidiaries. In this report, three KTM subsidiaries will be highlighted: Multimodal Freight Services Sdn Bhd, KTM Distribution Sdn Bhd and KTM (Car Park) Sdn Bhd.

Multimodal Freight Services Sdn Bhd is a wholly owned subsidiary of KTM which operates out of five locations across Peninsular Malaysia - Port Klang, Butterworth, Padang Besar, Pasir Gudang and KLIA. According to its official website, Multimodal Freight is involved in four main activities, namely container haulage, container terminal handling, warehouse and freight forwarding. This means that

[35] http://www.mot.gov.my/en/resources/rail-statistic
[36] https://www.thestar.com.my/news/nation/2018/01/13/rm94bil-gemasjb-rail-project-to-start-by-end-of-this-month/

their business model relies on the transportation of cargo including containers and also storage solutions to cargo.

KTM Distribution (KTMD), another wholly owned subsidiary of KTMB, was established in 1994. KTM Distribution relies on KTM's rail network to transport mail, parcels and goods, complemented by door-to-door service delivery vehicles. KTMD also acts a courier company, providing Track and Trace services at competitive rates. Customers drop off their parcels at most train stations within the KTM network where KTMD offices are located.

Finally, KTM (Car Park) Sdn Bhd, incorporated in 1994 as KTM (Brick Yard) Sdn Bhd, and currently known as KTM Parking, is a car park management company set up to manage car parks connected to various train stations under the KTM network.

KTM has 10 dormant subsidiaries in various sectors, ranging from catering services – (KTM Catering Services) to property investment - (KTM (Sentul), KTM (Brickfields), KTM (Sungai Petani), KTM (Railway Village)) and hotel services - (KTM Heritage Hotel). It is likely that most of these subsidiaries were failed business ventures that had to be wound down in order to prevent a drain on company resources.

Nevertheless, not all of KTM's subsidiaries or joint ventures were unprofitable. For example, KTM's 30% stake in Sentul Raya, a joint venture with YTL Land, was profitable and was sold back to YTL Land for approximately RM252 million in 2016.[37] (More on this in the next chapter)

[37] https://www.thestar.com.my/business/business-news/2016/11/30/ytl-land-to-buy-remaining-30-stake-in-sentul-raya/

3 Evaluating the financial performance of KTM

The previous chapter analysed KTM's various revenue streams, focussing on patterns of change within these revenue streams, and evaluating several future projects.

This chapter will examine the profitability of KTM and the associated financial challenges. Specifically, it will analyse KTM's financial performance for the financial years 2000 to 2016. The detailed breakdown of KTMB's revenue figures, by type of operation and group profits / losses will also be analysed.

3.1 Evaluating the financial performance of KTM Group

Table 5 and Figure 9 below show that KTMB had suffered financial losses from 2000 to 2015. Based on the figures, accumulated losses from 2000 to 2015 totalled RM1.87 billion. Only in 2016 did KTMB manage to achieve a profit of RM63.22 million, due largely to a one-off asset disposal (see below for further discussion).

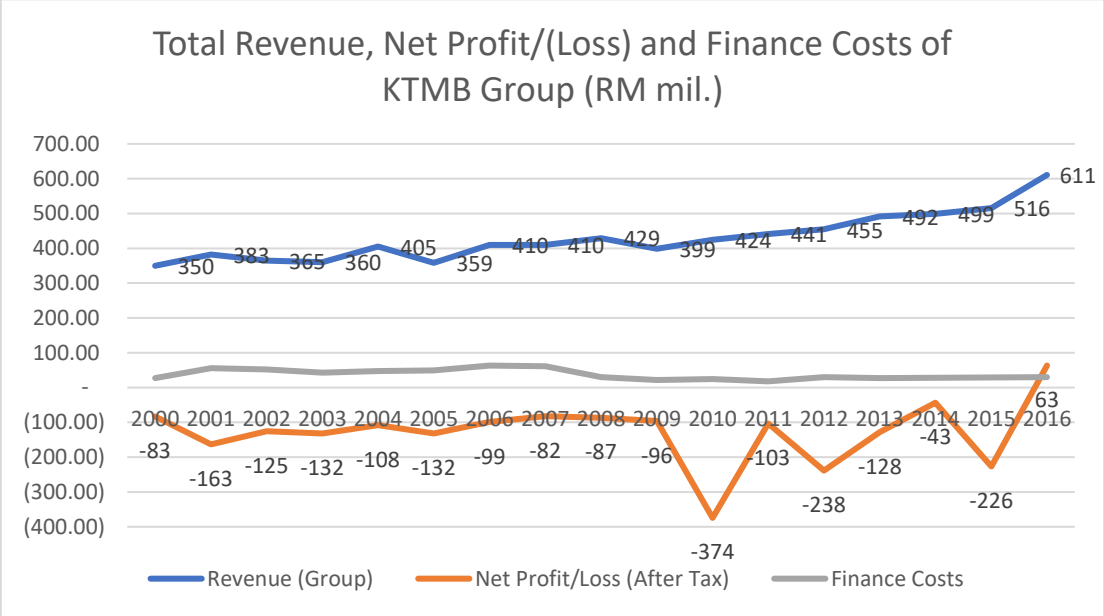

Figure 9: KTMB's Finances 2000-2016

	KTMB's Finances (RM mil.)		
Financial Year	**Revenue (Group)**	**Net Profit/Loss (After Tax)**	**Finance Costs**
2000	349.80	(82.77)	27.35
2001	382.55	(163.20)	55.84
2002	364.70	(125.26)	51.57
2003	360.05	(132.21)	42.50
2004	405.29	(108.14)	47.77
2005	358.53	(131.60)	49.63
2006	410.06	(99.24)	63.09
2007	409.98	(82.32)	61.55

2008	429.25	(87.21)	29.94
2009	398.76	(96.21)	21.24
2010	424.05	(374.37)	24.31
2011	440.96	(103.45)	17.82
2012	454.67	(238.44)	29.68
2013	491.82	(128.23)	26.79
2014	498.95	(43.48)	27.78
2015	515.80	(226.25)	29.44
2016	610.68	63.22	30.04

Table 5: KTMB's Revenue, Net Profit / Loss (After Tax) and Finance costs 2000-2016

That KTM has managed to survive despite prolonged financial losses is due to continued government support. As will be discussed later, without this explicit government support, KTM would not have been able to continue its operations.

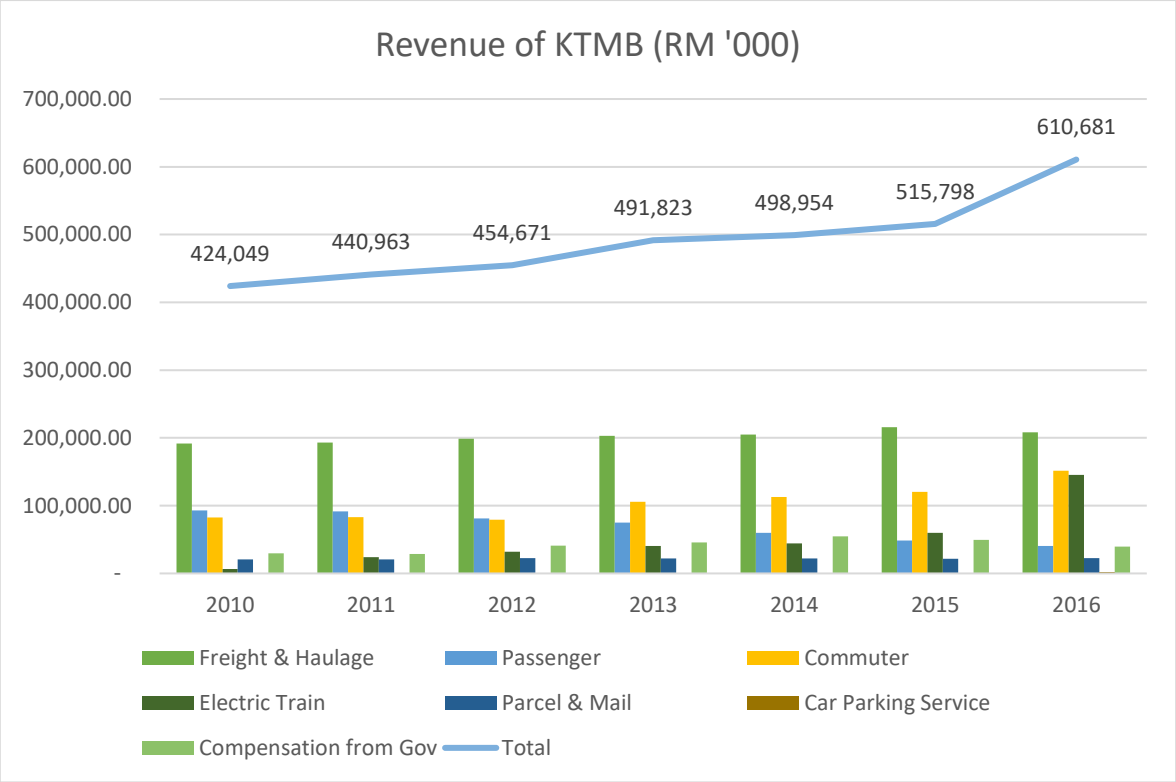

Figure 10: Revenue for KTM Berhad Group for 2012-2016[38]

Figure 10 shows the revenue breakdown from the different sectors of KTMB's operations from 2010 until 2016. After a prolonged stagnation from 2005 to 2010, KTM's revenues experienced a healthy increase, from RM424.0 million in 2010 to RM610.7 million in 2016, at a growth of 44.0% in 7 years. What were the key drivers of this healthy increase in KTM's revenues?

[38] Source: KTM Berhad Annual Reports 2010-2016

Tables 6 and 7 give the breakdown of KTM's revenue streams, according to different categories of operations and the percentage breakdown of contributions from 2010 to 2016.

	Revenue Breakdown for KTMB Group (RM 000)						
Operation	2010	2011	2012	2013	2014	2015	2016
Freight & Haulage	191,706	192,913	198,945	203,180	204,885	215,733	208,205
Intercity	93,130	91,781	81,204	74,888	59,760	48,708	40,397
Commuter	82,729	82,824	79,309	105,490	112,853	120,541	151,568
ETS	6,377	23,939	31,886	40,624	44,328	59,916	145,526
Parcel & Mail	20,614	20,686	22,500	21,894	22,213	21,517	22,501
Car Parking Service	-	-	-	-	-	-	2,803
Compensation from Government	29,493	28,820	40,827	45,747	54,915	49,383	39,681
Total	**424,049**	**440,963**	**454,671**	**491,823**	**498,954**	**515,798**	**610,681**

Table 6: Revenue Breakdown for KTM Berhad Group (%)[39]

	Percentage Breakdown for KTMB Revenue						
Operation	2010	2011	2012	2013	2014	2015	2016
Freight & Haulage	45.2%	43.7%	43.8%	41.3%	41.1%	41.8%	34.1%
Intercity	22.0%	20.8%	17.9%	15.2%	12.0%	9.4%	6.6%
Commuter	19.5%	18.8%	17.4%	21.4%	22.6%	23.4%	24.8%
ETS	1.5%	5.4%	7.0%	8.3%	8.9%	11.6%	23.8%
Parcel & Mail	4.9%	4.7%	4.9%	4.5%	4.5%	4.2%	3.7%
Car Parking Service	-	-	-	-	-	-	0.5%
Compensation from Government	7.0%	6.5%	9.0%	9.3%	11.0%	9.6%	6.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 7: Percentage of contribution of different revenue streams (%)[40]

Freight and haulage (i.e. cargo) comprises the largest portion of KTM's operations revenue. This segment saw its share of contribution decreasing from 45.2% in 2010 to 34.1% in 2016, due to the stagnation of cargo volumes and revenue that was highlighted in Section 2.3. Revenue share from KTM's Intercity services has also decreased, from 22.0% in 2010 to 6.6% in 2016, as a result of the shift in ridership away from regular intercity train services to the ETS starting in 2010. During this time, revenue from the ETS service increased significantly, jumping from RM6.4 million in 2010 (1.5% of revenue share) to RM 145.5 million in 2016 (23.8% of revenue share). It would not be surprising if revenue derived from the ETS surpasses that derived from freight & haulage as well as the commuter services in the future. Meanwhile, revenue from commuter services has also grown significantly from RM82.8 million in 2010 to RM151.6 million in 2016, but this growth will likely stagnate given the slump in ridership since the end of 2015 and continued competition from the LRT and the MRT services.

[39] Source: KTM Berhad Annual Reports 2010-2016
[40] Ibid.

Parcel and mail services, operated through the subsidiary KTM Distribution Sdn Bhd contributed, on average, 4.5% of the yearly revenue and revenue figures for this category of operations has remained relatively constant from 2010 to 2016.

KTM receives compensation from the government for un-economic activities, fare increases and concession tickets[41]. This means that KTM receives financial aid from the government for running unprofitable services including the intercity services in the East Coast. The amount of compensation from the government has varied across the years. From a low of RM28.8 million in 2011, it rose to a peak of RM54.9 million in 2014 before falling back down to RM39.7 million in 2016. The decline might be attributed to the fare increase in December 2015, where fares were increased from 11 sen per km to 15 sen per km[42]. In the same year, the government provided compensation amounts of RM30 million and RM 7 million to KTM to manage the fare increase and to implement a KTM concession card respectively.

	Government compensation (RM 000)						
	2010	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Compensation for Uneconomic Services	29,493	28,820	40,827	45,747	54,915	49,383	39,681
Contribution to Total Revenue	7.0%	6.5%	9.0%	9.3%	11.0%	9.6%	6.5%
Compensation for Fare Increase	-	-	-	-	-	30,000	-
Compensation for Concession Card	-	-	-	-	-	7,000	-

Table 8: Government Compensation to KTM for Uneconomic Services[43]

	Income Statement of KTM Group (RM million)						
Financial Year	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Revenue	424.0	441.0	454.7	491.8	499.0	515.8	610.7
Cost of services	-492.2	-494.8	-533.4	-516.5	-549.8	-579.9	-534.7
Gross Profit/(loss)	-68.2	-53.9	-78.7	-24.6	-50.9	-64.1	76.0
Other operating income	89.3	76.0	103.1	50.7	45.2	62.9	201.4
Administrative expenses	-53.8	-54.6	-162.5	-145.9	-143.1	-153.5	-134.4
Other operating expenses	-335.4	-79.2	-98.8	-12.3	-14.0	-76.0	-74.4
Results from operating activities	-368.1	-111.7	-236.9	-132.2	-162.7	-230.6	68.6
Finance income	3.6	2.3	1.3	1.3	1.4	1.5	1.5
Finance costs	-24.3	-18.4	-29.7	-26.8	-27.8	-29.4	-30.0
Share of profit of equity-accounted investees, net of tax	-388.8	-127.8	35.0	29.2	31.0	32.1	23.8
Return from joint venture arrangement	-	-	-	-	115.0	-	-

[41] Source: KTM Berhad Annual Reports 2012
[42] https://www.thestar.com.my/news/nation/2015/11/01/ktm-fares-to-go-up-december/
[43] Source: KTM Berhad Annual Reports 2010-2016

Profit/(Loss) before tax	-372.0	-103.7	-230.3	-128.5	-43.1	-226.4	63.8
Income tax credit/(expense)	-2.4	0.2	-8.1	0.2	-0.4	0.2	-0.6
Profit/(Loss) for the year	-374.4	-103.5	-238.4	-128.2	-43.5	-226.2	63.2
Without joint venture return	-374.4	-103.5	-238.4	-128.2	*-158.5*	-226.2	63.2
Without disposal of the Sentul Raya Investment	-374.4	-103.5	-238.4	-128.2	-43.5	-226.2	*-189.2*

Table 9: Income Statement of KTMB Group from 2010 to 2016[44]

Despite the 44% increase in revenue from 2010 to 2016, KTMB still had trouble achieving profitability. Table 8 shows details of KTM's Group income statements from 2010 to 2016. The figures show that cost of services was increasing together with increases in revenue. In fact, from 2010 to 2015, the cost of services was greater than the revenue. In 2016, revenue exceeded cost of services, leading to a gross profit of RM76.0 million. The main reason for this return to gross profitability was the significant increase in ETS revenue from RM60 million in 2015 to RM145.5 million in 2016, without a corresponding increase in the cost of services. Yet KTM would not have achieved net profitability after paying tax expenses in 2016 if not for a ***ONE-OFF*** gain of RM162 million when it disposed of its 30% stake in Sentul Raya Sdn Bhd to YTL Land.[45] The last column in Table 8 shows that without the Sentul Raya investment disposal, KTM would have made a loss of RM189.2 million. In other words, despite the increase in revenue from the ETS, higher administrative and other operating expenses will likely continue to keep KTM in the red for the foreseeable future. In the absence of serious cost cutting efforts, it is hard to imagine KTM achieving net profits after taxes in the coming years.

The serious losses experienced by KTM also calls into question the argument that KTMB can only return to profitability with fare increases. In December 2015, KTMB increased its KTM Komuter fares for the first time in 12 years to cover increasing costs.[46] According to the then KTM President Sarbini Tijan, the increase of 4 sen per kilometre was justified as it had then cost KTM 20 sen per kilometre per passenger. Since the government had only allowed a 15 sen increase, KTM would need a further 5 sen per kilometre subsidy from the government to cover costs. The introduction of a fare increase had helped boost KTM Komuter revenues from RM120 million in 2015 to RM151m in 2016. However, one negative side-effect was a significant reduction in its ridership figures. To this day, KTM is still struggling to recover from this (Figures 3 and 4). Should KTM decide to unilaterally hike its fares, its ridership may tumble even further, especially since commuters nowadays have other alternatives such

[44] Source: KTM Berhad Annual Reports 2010-2016
[45] https://www.thestar.com.my/business/business-news/2016/11/30/ytl-land-to-buy-remaining-30-stake-in-sentul-raya/ and KTMB Group's statement on the disposal of its Sentul Raya investment in its 2016 Annual Report.
[46] http://www.theedgemarkets.com/article/ktmb-mulls-fare-hike-mitigate-rising-operating-costs

as the MRT Line 1 and soon, the LRT 3 line to Klang and the MRT Line 2 from Sungai Buloh to Putrajaya via Serdang.

These profit and loss (P&L) statements do not tell the full story, which is that KTM's financial losses would be even greater without the government implicitly subsidizing the financing costs of KTM. These details are described more fully in the notes to KTM's annual reports.

3.2 Government subsidizing KTM's Financing Costs

KTM's financing costs of RM30 million for 2016 seems remarkably low given its non-current and current loans and borrowings of RM1.4 billion as of 2016. Even at a reasonably low interest rate of 5%, KTM's annual financing cost should be approximately RM70 million which is more than double of what it paid in 2016.

A closer examination of KTMB's 2016 accounts reveals that the Government of Malaysia is effectively subsidising its financing costs. Five term loans totalling RM880 million were provided to KTMB from 1990 to 2010. Three of these term loans, totalling RM575.5 million at an interest rate of 8% per annum, were provided to KTMB for the purchase of 80 Electrical Multiple Unit (EMU) trains. The repayment of these three loans, which would have totalled RM67.7 million per annum, was deferred for 23, 23 and 19 years respectively. These repayments start in September 2015, January 2019 and February 2015 respectively.

The fourth term loan of RM25 million for the upgrading of computer systems would require an annual instalment of RM3.1 million (at a 4% interest rate per annum) beginning in July 2015. The fifth term loan of RM280 million for working capital would require an annual instalment of RM34.5 million (at a 4% interest rate per annum) beginning in August 2024.

The details of these five term loans are summarized in Table 10 below.

Term Loan	Amount (RM million)	Loan Purpose	Date of Purchase	Interest rate	Deferred Period	First Annuity Payment	Due Date
1	97	Purchase 18 EMUs	1 Nov, 1990	8% p.a.	23 years	9,789,664	15 Sept, 2015
2	404.55	Purchase 44 EMU units	30 Dec, 1995	8% p.a.	23 years	47,263,392	13 Jan, 2019
3	73.95	Purchase 18 EMUs	16 Jan, 1995	8% p.a.	19 years	7,532,407	1 Feb, 2015
4	25	Upgrading Computer Systems	1 July, 1999	4%	14 years	3,082,274	16 July, 2015
5	280	Working Capital Financing	15 July, 2010	4%	22 years	34,521,462	25 Aug, 2024

Table 10: Summary of Details of Given Government Term Loans Provided to KTMB at 'Subsidised' Rates and Repayment Periods

Instalment payments have not begun on ANY of these give term loans, even for those loans where the repayment should have started in 2015. KTM is appealing for the annual instalments for Term Loans 1-4 to begin only in 2021. The Government of Malaysia still has not made any decision with regards to this KTM appeal. If these loan repayments were to start in Financial Year 2018 or 2019, it is almost certain that KTM would sink further into the red and would remain in unprofitable territory in the foreseeable future.

3.3 Evaluating the finances of KTMB's subsidiaries

KTMB's three subsidiaries and its joint venture with MMC also do not fare much better in terms of generating profits. Table 11 details the revenue and profit / loss after tax figures for the three wholly-owned subsidiaries of KTMB and the 51% KTM owned joint venture with MMC called KTM MMC Cargo.

Name of Company	Revenue & Profit / Loss	2012	2013	2014	2015	2016
KTM Distribution	Revenue	22,491,814	21,935,147	NA	NA	22,509,461
	Profit / Loss after tax	500,140	(2,401,297)	NA	NA	(2,245,817)
KTMB Car Park	Revenue	1,690,730	2,318,394	2,713,216	3,055,866	2,802,578
	Profit / Loss after tax	(120,856)	63,692	(30,987)	(156,750)	(89,195)
Multimodal Freight	Revenue	86,164,236	77,307,644	67,264,654	80,285,912	74,019,191
	Profit / Loss after tax	11,744,423	4,371,760	2,437,548	12,477,887	2,981,341
KTM MMC Cargo	Revenue	NA	NA	NA	NA	2,150,789
	Profit / Loss after tax	NA	NA	NA	NA	(322,327)

Table 11: Revenue for KTM Subsidiaries and KTM Joint Venture with MMC 2012-2016[47]

Based on the 2016 financial statements, three out of the four companies listed above were suffering after tax losses. Only Multimodal freight was profitable, with a RM2.98 million profit from RM74 million in total revenue in 2016. In contrast, KTM Distribution suffered a RM2.25 million loss from RM22.5 million in revenue, KTM Car Park suffered a RM89,195 loss from RM2.8 million in revenue and KTM MMC suffered a RM322,327 loss from RM2.151 million in revenue. All three KTMB subsidiaries do not seem to be experiencing any significant growth in revenue. Even then, Multimodal Freight, the only profitable KTM subsidiary, had a lower revenue of RM74.0 million in 2016 compared to RM86.1 million in 2012. KTM Distribution's revenue of RM22.51 million in 2016 was barely higher than its revenue of RM22.49 million in 2012. KTM Car Park's revenue of RM2.8 million in 2016 was actually lower than its 2015 revenue of RM3.055 million. All in all, these four companies earned RM101.5 million in revenue and contribute a net profit of RM324,002.

In short, while they contribute to the overall income of the KTM Group, KTM subsidiaries do not contribute much to the overall profitability of the group.

[47] Source: SSM Company Profiles of Respective Companies

3.4 KTM as a going-concern

According to the 2016 Annual Report, as of 31 December 2016, the current liabilities of KTM Group have exceeded the current assets by RM326.7 million. As of 31 December 2016, KTM Group has a capital deficiency of RM1.2 billion as a result of accumulated losses incurred in prior financial years. The Group is also currently negotiating with the Minister of Finance Incorporated to reschedule the repayment of its government loans and borrowings which totalled RM1.253 billion as of 31 December 2016.

Without the explicit backing of the Minister of Finance (Incorporated) and the Government of Malaysia to continuously support KTM Group financially, the ability of KTM to survive as a going-concern would be very much in doubt. This is acknowledged by auditors in the annual report.

4 The Railway Asset Corporation (RAC), the Railway Network Access Agreement (RNAA) and the impact on KTM

The Railway Asset Corporation (RAC) is a federal statutory body established under Article 89 of Act 463 or the Railways Act 1991. Under the act, Railway Asset Corporation (RAC) was to be fully operational by [1] August 1992 in line with the corporatisation of KTM.

RAC was established to manage the assets of the KTM railway, namely the track and the stations, in order to free KTM from costs such as track and station maintenance and enhancement. RAC also has a role to play in developing the railway infrastructure so that KTM can focus on its role as a railway operating company[48]. Under this model, RAC would be the main asset manager of railway assets in Malaysia and KTM would be the main service provider by utilising assets owned and managed by RAC.

The Railway Network Access Agreement (RNAA) was signed between KTM and RAC on 22 December 2016. This agreement, which runs for a period of 30 years and was targeted to come into effect on January 2018, will see all land and rolling stocks ownership transferred from KTM to RAC by 2018, whereby KTM would lease the rolling stock i.e. the trains to RAC. RAC will also manage properties previously owned by KTM[49]. According to Deputy Transport Minister Datuk Abdul Aziz Kaprawi, this agreement will enable KTM to focus on the operational aspects of its business such as the ETS[50]. Under this agreement, there will be a clear demarcation of roles between RAC as the Rail Asset Owner (overseeing asset maintenance) and KTM as a Rail Operator (overseeing asset operations). RAC will bear the cost of major maintenance of the rolling stock while more minor maintenance works would be borne by KTM.

This system of dividing rail assets management and railway operations between separate bodies is not a concept unique to the RAC and KTM. The United Kingdom adopts a similar model under the arrangement between Network Rail, train operating companies (TOCs) and freight operating companies (FOCs). Network Rail is a public company, answerable to the Department of Transport. To date, this company owns most of the railways in England, Scotland and Wales and also over 2500 rail stations in the UK. Under this model, rail infrastructure is leased to TOCs and FOCs.

Network Rail is responsible for the upkeep and maintenance of railways. However, during the privatisation of railways in 1995, Railtrack, Network Rail's predecessor, was given the duty to manage railway assets in the UK.[51]

[48] http://www.rac.gov.my/index.php/pages/view/1?mid=158
[49] http://www.theedgemarkets.com/article/transport-ministry-says-agreement-will-not-cost-4000-job-losses-ktmb
[50] ibid
[51] http://news.bbc.co.uk/1/hi/business/2267597.stm

The main differences between the UK and Malaysia's models lies in the nature and number of stakeholders. In the UK model, TOCs and FOCs are private entities and operate primarily without government restriction, hence prices are set according to the market. In Malaysia, the sole TOC and FOC – namely KTMB - is still fully owned by the government. The RAC is also a very small organisation, with only 38 employees according to its 2016 Annual Report. This suggests that there may be insufficient resources to see to the efficient maintenance of KTM stations and tracks, let alone ensure that there is full capitalization on the development of physical assets, such as the land which the KTM stations sit on.

What does the RNAA mean for KTM and RAC? Firstly, the agreement will see all assets related to the rail infrastructure transferred to RAC, meaning that KTM will no longer be in charge of maintaining the railways and rolling stocks. In January 2017, Malaysian Trades Union Congress (MTUC) expressed concern over potential job losses that would arise from the change in structure and urged the Government to review the agreement as it is feared that about 4,000 jobs will be lost as a result[52]. Nevertheless, this concern was refuted by Datuk Abdul Aziz Kaprawi in a press conference, as RAC plans to absorb KTM's workers.[53] This is a welcome move, given that the RAC, as it is currently configured, does not have sufficient manpower and expertise to carry out track and rolling stock maintenance.

Secondly, the agreement was made in the interest of improving KTM's financial status. By transferring assets to RAC, KTM would theoretically trim its operational costs as it would no longer need to be responsible for maintenance of the track and rolling stock, nor would it need to have maintenance workers on its payroll.

KTM's 2016 annual report states that "going forward, RNAA would eliminate certain expenditure and commitments which previously had to be incurred by the Company and consequently, improve the financial position of the Group and of the Company in the future".

Whether or not the RNAA has a positive impact on KTM's bottom line remains uncertain. While it is true that the maintenance cost for the rolling stock and the railway lines will be taken off the company's books, this has to be weighed against the additional charges payable to RAC, including (i) track access charges (for rail infrastructure including stations and depots) (ii) rolling stock lease charges (iii) ancillary lease charges (for office and car parks) and (iv) staff quarters lease charges. A

[52] https://www.nst.com.my/news/2017/03/224739/no-ktmb-employee-will-lose-their-jobs-over-rnaa-establishment
[53] http://www.themalaymailonline.com/malaysia/article/ktmb-employees-affected-by-railway-agreement-will-not-lose-jobs-deputy-mini#xehQ8dKygDQl6o6U.97

comprehensive assessment of these incurred additional charges should be carried out in order to determine if the RNAA will bring a nett positive effect to KTM's bottom line.

In addition, one of the RNAA's main objectives is to allow other freight operators to compete with KTM for cargo transportation services. While this may be positive for the freight cargo industry as a whole and may result in more efficient transportation of cargo around the country, KTM Cargo's own revenues (and hence, profitability) would almost certainly be negatively affected. Recall that KTM Cargo comprises the largest percentage of KTM's overall revenue[54].

Thirdly, it is uncertain if any of KTM's debt will be transferred to RAC as part of a larger financial restructuring strategy. If KTM's debt remains on the books, and if the Company fails to extract further concessions from the Ministry of Finance with regards to its already deferred debt repayments, the likelihood of returning to a position of profitability is highly doubtful.

Fourthly, no mention is made in the RNAA whether RAC would be willing and able to pay for the acquisition of more assets such as rolling stock to increase the frequency of the very popular ETS service from KL to Padang Besar via Ipoh and Butterworth. If as highlighted above, the ETS is the one bright shining hope for KTM, it will need more trains to maximize its revenue and profitability for the northern route, and many more trains when the Gemas-JB double tracking and electrification project is completed. More trains will also be needed for the KTM Komuter services upon the completion of the Klang Valley Double Track (KVDT) project in 2019.[55]

Taken together, the issues raised above cast some doubts as to the long-term benefits of the RNAA to KTMB's finances.

[54] Refer to Table 6 and Table 7 above.
[55] http://www.spad.gov.my/land-public-transport/rail/klang-valley-double-track-project-kvdt

5 Other challenges for KTM

Other challenges facing KTMB, which negatively affect its revenues as well as profitability, include: (i) delays in infrastructure upgrades (ii) recent delays and service disruptions (iii) ticket integration with other rail operators in the Klang Valley (iv) competition with other public transport operators.

5.1 Delays in Infrastructure Upgrades

Large scale infrastructure projects are usually very costly and prone to cost overruns and delays. The double tracking and electrification of the railway tracks from Rawang to Ipoh and subsequently from Ipoh to Padang Besar was an example of such a project. The RM6 billion Rawang-Ipoh double tracking and electrification project was originally targeted for completion in 2003 but this was only achieved in 2008, and ETS operations only began in 2010. The estimated cost over-run amounted to a sum of approximately RM1.14 billion and was featured in the Auditor General's Report and probed by the Public Accounts Committee (PAC) in parliament in 2009.[56] Two other double tracking and electrification projects, the RM 12.5 billion Ipoh-Padang Besar and RM 3.45 billion Seremban-Gemas projects, were originally scheduled for completion in 2013 and 2012 respectively, but each of these projects experienced a year-long delay in completion.[57][58]

The final stage of the double tracking and electrification railway project in the West Coast is from Gemas to Johor Bahru. After many stops and starts, the RM8.9 billion project was finally awarded to a consortium of three China-based companies in 2016 – China Railway Construction Corp Ltd (CREC) (40%), China Railway Engineering Corp (CREC) (30%) and China Communications Construction Co (CCCC) (30%).[59] But the project experienced major delays due to difficulties in appointing a local contractor. Finally, in December 2017, YTL Corp was appointed as the local contractor, assuming what is expected to be a 50% share of the total contract.[60] Construction was targeted to start in January 2018 and is expected to be completed in 2022.

In total, the entire double tracking and electrification project from Padang Besar to Johor Bahru is expected to incur a total cost of RM36 to 40 billion to the federal government.[61]

Although KTM does not bear the cost of installing double tracking and electrification infrastructure, it is likely that the delays in the completion of these projects have opportunity costs for the Company,

[56] https://www.thestar.com.my/news/nation/2009/11/06/rm6bil-ipohrawang-track-plan-has-cost-overrun-reaching-rm114bil/
[57] https://www.thestar.com.my/business/business-news/2008/12/17/doubletracking-project-delayed/
[58] https://www.thestar.com.my/news/community/2010/01/26/rm345b-serembangemas-electrified-line-is-33-completed/
[59] http://www.theedgemarkets.com/article/newsbreak-doubletracking-project-moving-again
[60] https://www.thestar.com.my/business/business-news/2017/12/14/big-rail-catalyst-around-the-corner-for-ytl-corp/
[61] http://malaysiaproject.blogspot.my/2013/03/double-tracking-to-cost-rm40b.html and http://www.kinibiz.com/story/issues/174845/making-ktm%E2%80%99s-rm36-billion-double-tracking-project-work.html

in terms of lost revenue (and perhaps profits) from ETS operations. It remains to be seen if the Klang Valley Double Track (KVDT) project will be completed in 2019 as scheduled.[62]

Another example of a railway infrastructure project that has suffered numerous delays is the Skypark Terminal line extension from the Sultan Abdul Aziz Shah Airport (the old Subang airport) to the Subang Jaya KTM station. The rationale for this extension was to serve commuters travelling from the low-cost airport to KL and other parts of the Klang Valley using the existing KTM Komuter and LRT services in Subang Jaya station (See Figure 11 below). In addition, it would also serve as an additional corridor for KTM Cargo to transport freight cargo to and fro from the low-cost airport.

The Subang Skypark Rail Extension project is in fact as merely the first phase of a wider freight relief project under the Greater KL Public Transport Masterplan 2011 (see Figure 12 below). Future phases of this project include plans to further extend the rail line from Skypark Terminal (in Subang) northwards to Sungai Buloh or Rawang to become a freight relief line. With the extension of the rail line, freight transport to and from Port Klang, in the future, need not enter the congested rail corridor in downtown Kuala Lumpur, and may instead be re-routed through the Subang – Sungai Buloh Bypass Line. This by-pass was already included in the Greater KL Public Transport Masterplan since 2011. However, this project has yet to be implemented. The Subang Skypark Rail Extension project, can be seen as the first phase of the Subang – Sungai Buloh freight bypass (See Figure 12 below).

The target deadline for completion of the Subang Skypark Rail Extension project was originally February 2016[63], but due to delays, the project has been further extended to June 2017[64]. To date, there has not been any official announcement made regarding the completion and launching of the project.

[62] https://www.thestar.com.my/news/nation/2017/04/21/on-track-for-end2019-completion-phase-one-of-ktm-klang-valley-double-track-project-32-completed-says/
[63] https://www.themalaysianinsight.com/s/24777/
[64] http://www.themalaymailonline.com/malaysia/article/audit-overdue-ktm-link-to-skypark-still-incomplete-funds-sat-idle-for-five#fJOdhXrkBmZd8p2H.97

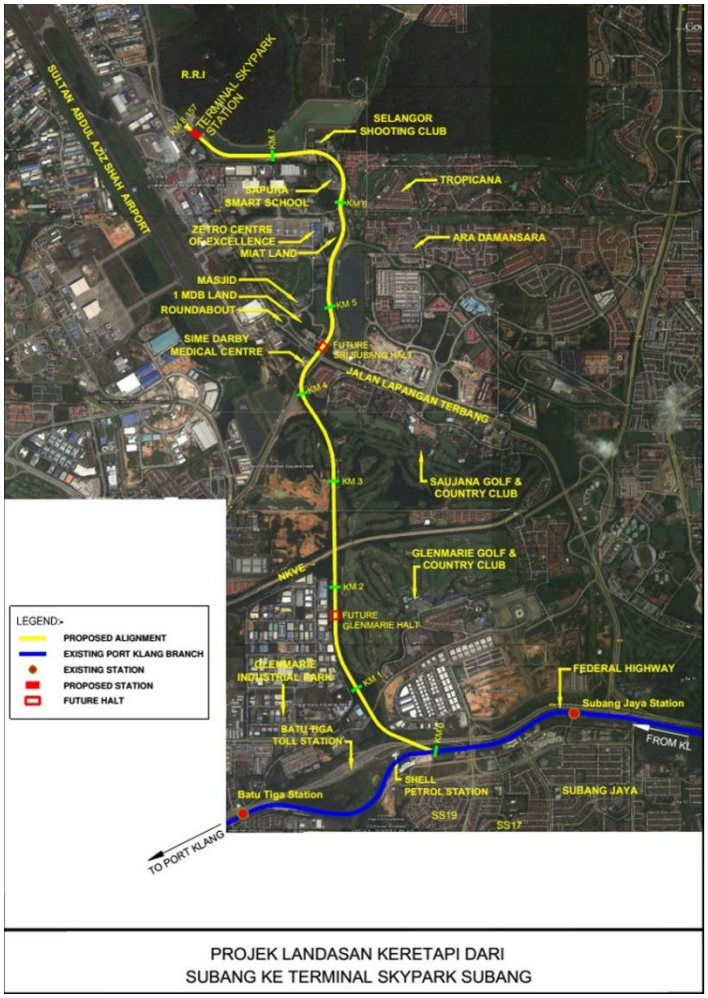

Figure 11: Delayed KTM extension from the old Subang Airport to the Subang Jaya KTM station

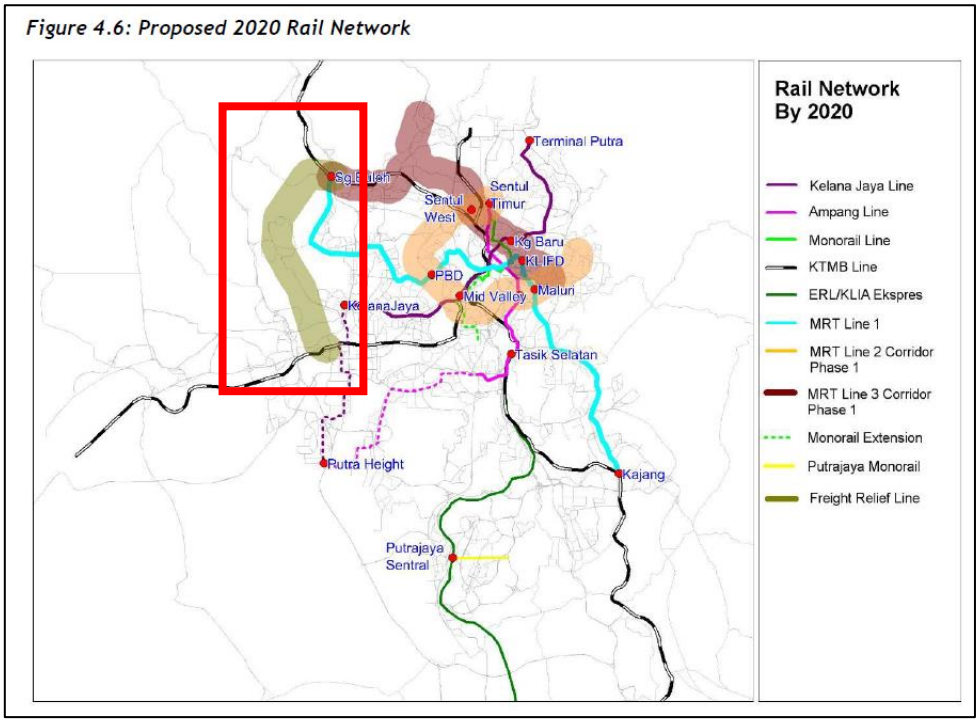

Figure 12: The Proposed 2020 Rail Network in the Greater KL/KV Public Transportation Master Plan which includes the Freight Relief Line from Sungai Buloh to Subang (highlighted in red)

5.2 Recent delays and service disruptions

Delays and service disruptions are common experiences for KTM users especially in the Klang Valley. In recent years, the frequency of these disruptions, especially for the KTM Komuter train service, has increased noticeably. Table 12 below gives a record of KTM-related accidents occurring since 2016 which led to service disruptions, the most serious of which lasted almost 2 weeks.

Date	Causes	Impact
May 7 2016	Collision of trains near Batang Kali station	▪ Three were injured. KTM Komuter service suspended at Rawang station. Delay in ETS services for more than 30 mins.
Oct 30 2016	Cargo train derailment near Batu Gajah station	▪ Kampar-Ipoh ETS services suspended for 2 days
June 30 2017	Cargo train derailment in Pasir Gudang	▪ Cargo train rolled onto the road.
Aug 19 2017	Cargo train derailment at Bank Negara Station	▪ Delay in Komuter and ETS services for 15 to 30 mins
Aug 21 2017 ~ Aug 27 2017	Cargo train derailment	▪ No trains service between Kepong-KL Sentral station. Passengers are required to take ETS at Sungai Buloh station via MRT
Sept 23 2017	Snapped cable between Kuang-Rawang	▪ KTM Komuter and ETS service between Kuang and Rawang was temporarily suspended
Oct 2 2017	Cable disruption between KL Sentral-Kepong and KL Sentral-Batu Caves	▪ Temporary suspension of train service between KL Sentral-Kepong and KL Sentral-Batu Caves
Oct 10 2017	Technical disruption between Sentul-Salak Selation and Kepong-Petaling station	▪ Temporary suspension of train service between Sentul-Salak Selation and Kepong-Petaling
Oct 11 2017	Technical disruption between Sungai Buloh-Kuang station	▪ Delay in KTM Komuter service between Tanjung Malim-Klang and Tanjung Malim-Sungai Buloh
Oct 13 2017	Technical disruption between Persimpangan Perlabuhan Klang-Petaling station	▪ Delay in KTM Komuter service between Port Klang and KL Sentral
Oct 19 2017	Snapped cable between Rawang-Sungai Buloh station	▪ Temporary suspension of train service between Rawang-Sungai Buloh
Oct 21 2017	Technical disruption between Batang Kali-Tanjung Malim station	▪ Delay in KTM Komuter and ETS services
Oct 28 2017	Burst pipe between Salak Selatan to KL Sentral station	▪ Delay in KTM Komuter (Tampin-Batu Caves) for 20~30 mins
Nov 3 2017	Intercity train derailment between Kempas Baru and JB Sentral	▪ Closure of track between KB and JBS for 3 days (Sat until Mon)

Date	Causes	Impact
Nov 4 2017	Landslide on rail track between Dabong and Bukit Abu station (East Coast)	▪ Intercity train service suspended between Gua Musang to Tumpat station
Nov 4 2017	Tree fall on track and snapped cable between Bukit Mertajam - Tasek Gelugor	▪ Delay in KTM Komuter and ETS services
Nov 23 2017 ~ Dec 03 2017	Cargo train derailment in Bank Negara Station	▪ No trains service between Kepong-KL Sentral station. Passengers are required to take ETS at Sungai Buloh station via MRT
Nov 28 2017	Flood on train track	▪ Closure of track between Tumpat and Tanah Merah
Nov 30 2017	Tree fall on track	▪ Delay in KTM Komuter service between Port Klang and KL Sentral
Dec 17 2017	Locomotive caught fire near Kluang	
Dec 22 2017 ~ Aug 31 2018	KVDT between KL Sentral-Sentul and Kuang-Sungai Buloh	▪ 60-minute frequency for Komuter service during peak hours ▪ Shuttle train between Batu Caves-Sentul -> free shuttle bus to LRT Sentul and KL Sentral (additional time) ▪ Only 41 full route train services (Tanjung Malim-Port Klang-Tanjung Malim) out of 75 trips per day ▪ Only 45 full route train services (Batu Caves-Seremban/Tampin-Batu Caves) out of 88 trips per day
Feb 03 2018 ~ further notice	KVDT between KL Sentral-Sentul	▪ Komuter trains from Tampin/Pulau Sebang stop at KL Sentral, trains from Batu Caves stop at Sentul; no train service from this line at Kuala Lumpur, Bank Negara and Putra.
Feb 05 2018	Technical Disruption in Northern Komuter Line	▪ Suspension of KTM Komuter in some hours: 5 trips of Bukit Mertajam/Butterworth-Padang Rengas is cancelled; 4 trips of Padang Rengas-Butterworth; 2 trips of Buttorworth-Padang Besar; 1 trip of Padang Besar-Butterworth

Table 12: Disruptions in KTM Train Services in Recent Years[65]

A majority of the occurrences were due to train derailment, with the most recent case taking place on 23rd November 2017 at the Bank Negara station, (a station with a long history of past derailments). These derailments often led to the temporary suspension of train services, ranging from 2 days to a week. Besides this, KTM's railway tracks are also prone to external calamities, such as landslides, snapped cables, flooding and falling trees. The usual consequences are train delays and / or temporary suspension of certain train services which result in more time 'wasted' for the passengers. Moreover,

[65] Source: KTM Berhad Official Facebook Page; The Star Online; New Strait Times

some of the service disruptions forced passengers to disembark at the Sungai Buloh KTM station and transfer to the MRT service, thus increasing the travel cost. In the long run, passengers might even decide to permanently switch to MRT services to avoid future inconvenience.

At the time of writing, it is not certain if these train derailments have anything to do with the ongoing KVDT project. SPAD is meant to carry out an investigation into some of the more serious derailment cases but to date, no public reports have been issued.

On 3rd February 2018, KTMB introduced a revised Komuter service schedule as a means of pre-empting potential disruptions caused by the Klang Valley Double Track (KVDT) project works. For the Batu Caves-Tampin / Pulau Sebang - Batu Caves line, trains from the Batu Caves route will terminate at the Sentul station whilst trains from the Pulau Sebang route will terminate at the KL Sentral station. This change was introduced in order to facilitate the railway track rehabilitation work between the KL Sentral and Sentul KTM stations. In the meantime, free shuttle bus services are provided to ferry commuters from the Sentul KTM station to the Sentul LRT station and to KL Sentral, and vice versa. In the new timetable, the Port Klang-Tanjung Malim line does not stop at KL Sentral station.

In theory, the revised train service schedules should have effectively accommodated passengers' needs, yet KTM Komuter services still suffers from many unscheduled delays. These delays often frustrate commuters, some of whom have taken to social media to voice their complaints. The most common type of complaint directed to KTM's Twitter account (@ktm_berhad) has to do with the late arrival of trains, especially trains for the KTM Komuter service. These delays range from between 15 to 45 minutes. Furthermore, since KTM does not provide any compensation for serious train delays or ticket refunds (unlike train service providers in developed countries such as Japan and the United Kingdom, where this is common practice), customer dissatisfaction will increase. Over time, this may lead to many customers deciding to boycott KTM's services, as evident in the decrease in ridership figures for KTM Komuter, from 10.2 million passengers in Q1 2017 to 8.2 million passengers in Q4 2017.

5.3 Ticket integration with other rail operators in the Klang Valley

A major challenge faced by public transport users in the Klang Valley is the lack of a single and integrated integrated ticketing system which covers all forms of public transportation. RapidKL, which operates Rapid buses, the monorail, LRT and MRT lines, has its own RapidKL ticketing system, while KTM Komuter also has its own ticketing system.

The Touch & Go card can be used across all platforms but it is not integrated, in that a passenger still has to pay for separate trips if he transfers from an LRT or MRT train to the KTM Komuter and vice versa. For example, if a passenger were to take a RAPID KL bus followed by an MRT Train followed by

a KTM Komuter train, he would have to pay separately for the bus ride, the MRT ride as well as the Komuter ride which drives up the overall cost of the trip. By contrast, the integrated and distance-based pricing used for public transportation in Singapore calculates the price of a public transport trip based on the distance of the trip, regardless of the mode of public transportation and whether or not the user switches from a bus to a train or vice versa.

Instead of trying to integrate its ticketing system with other public transport operators in the Klang Valley, KTM ventured out to implement its own ticketing system with disastrous results. In 2011, KTM awarded a RM85mil Automatic Fare Collection (AFC) contract to Hopetech Sdn Bhd, a company with a dubious track record and a 18% higher bid compared to the two other bidders. Two years later, in 2013, the contract was cancelled due to Hopetech's inability to fulfil their end of the deal. The presence of unwrapped and unused AFC machines was indeed a white elephant around the Klang Valley. Instead of coming up with a new fare collection system for the KTM Komuter, it would have made more sense for KTM to align itself with the intended objectives of SPAD, namely to have an integrated ticketing system among public transport operations in the Klang Valley.

At the time of writing, a single ticketing system – using the Touch & Go payment system – will only be implemented in 2019, according to the Minister in the Prime Minister's Department in charge of public transportation, Nancy Shukri.[66] The slow roll-out of the integrated ticketing system is disadvantageous to KTM Komuter since it is already compromised by its comparatively lower train frequency (compared to the LRT and the MRT). Between taking the KTM Komuter or the LRT / MRT, most passengers will choose the latter because of greater comfort, frequency and reliability.

5.4 Competition to KTM from other public transport operators

The Mass Rapid Transit Sungai Buloh-Kajang (MRT SBK) Line 1 started full operations on 17 July 2017. It has a few interchange stations which are integrated with the KTM Komuter service, namely the Kajang, Sungai Buloh, KL Sentral and Pasar Seni stations. Both MRT and KTM trains have a ferrying capacity of around 1,200 passengers per train. However, MRT has proven to be a more popular choice for the commuters as train frequency is 4 minutes during peak hours, and 10 to 15 minutes during off-peak hours, compared to KTM Komuter's waiting time of 15 to 30 minutes during peak hours, and 45 to 60 minutes during off-peak hours. In addition, the MRT provides direct access for the commuters wanting to travel to retail and business districts such as Bukit Bintang, One Utama and IKEA Cheras and Damansara, whereas KTM Komuter passengers have to change to the Monorail / LRT and the MRT lines, incurring additional fees and time.

[66] http://www.thesundaily.my/news/2017/09/18/single-ticketing-system-public-transport-2019-updated

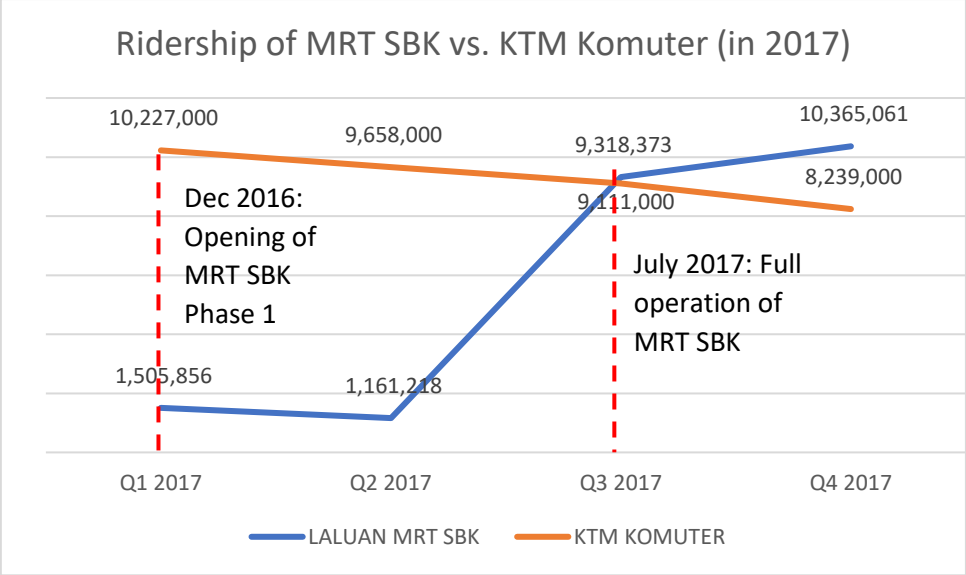

Figure 13: Ridership Figures for the KTM Komuter and the MRT SBK Line 1[67]

Figure 13 above compares the ridership figures for KTM Komuter and the MRT SBK Line 1. Phase 1 of the MRT SBK line was opened up in December 2016, connecting Sungai Buloh to Semantan, and the line was fully operational to Kajang by July 2017. In tandem with the opening up of the MRT SBK line, ridership of KTM Komuter decreased by 19.0%, from 10.3 million passengers in Q1 2017 to 8.2 million passengers in Q4 2017, the latter being KTM Komuter's lowest recorded ridership figure since 2014[68]. In contrast, the MRT SBK Line 1 has grown by 588% in terms of its ridership, from 1.5 million passengers in Q1 2017 to 10.4 million passengers in Q4 2017, which has surpassed the ridership of KTM Komuter at the same period. The hassle-free journey to KL city centre offered by MRT SBK and the frequent KTM Komuter service delays are some of the factors influencing the decline in ridership for the latter service. On top of this, the on-going KVDT project work in KL Sentral-Sentul and Sungai Buloh-Kuang from December 2017 to August 2018 are expected to further decrease the demand for KTM Komuter during this period.

The free ride and 50% discount promotions that were introduced during the launching period of the MRT SBK in December 2016 (for Phase 1) and July 2017 [69](for Phase 2) posed yet another challenge to KTM. The promotion was reserved for users of the LRT, MRT and Monorail services, all of which are operated by Rapid Rail, a subsidiary of Prasarana. Though these promotions were valid only during the launching period, it is possible that KTM Komuter would have lost a significant number of long term customers who were successfully attracted by the cheaper prices of LRT, MRT and Monorail

[67] Source: MOT Statistics
[68] See Figure 5
[69] https://www.nst.com.my/news/nation/2017/07/258034/free-ride-mrt-sbk-line-today-50-discount-mrt-lrt-monorail-until-merdeka

tickets during this period and subsequently made the switch to using these services for the long-term.[70]

KTM Komuter will face even greater competition in the near future with the construction and subsequent roll out of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line 2 and the LRT 3 Bandar Utama-Klang line. The MRT SSP line serves passengers in Kepong, Sentul, Kentonmen, KL city centre, Serdang and Putrajaya, areas which are also currently served by KTM Komuter. Once the MRT SSP line comes into full operation in 2022, KTM Komuter may well suffer another serious drop in ridership unless it manages to come up with competitive offerings in terms of frequency, reliability and comfort of services.

The LRT 3 Bandar Utama-Klang line will serve passengers in Shah Alam and Klang, areas which are currently only served by KTM Komuter. Judging by the impact of the first MRT SBK line opening, , the opening of LRT 3 in 2020 may also have a similar negative impact on the KTM Komuter's ridership.

Meanwhile, KTM's monopoly of East Coast train service is set to be challenged by the proposed East Coast Rail Link (ECRL) that connects Kelantan, Terengganu, and Pahang to an Integrated Transport Terminal (ITT) in Gombak in Phase 1; with an added extension from ITT Gombak to Port Klang in Phase 2. It will shorten the travelling time from Kota Bharu to Gombak to 4 hours, which is a much faster period compared to the current KTM Intercity service from Kelantan to KL via Gemas. Besides the passenger train services, the ECRL also includes freight train services with stations at Kertih Port, Kuantan Port and Port Klang. As mentioned previously, maritime container cargo is one of the most lucrative source of revenue for KTM, constituting half of KTM Cargo's revenues. Thus, the opening of ECRL, coupled with the increased competition from the RNAA, is highly likely to produce a significant blow to the business profitability of KTM Cargo.

[70] https://www.thestar.com.my/news/nation/2016/12/22/nawawi-ktmb-needs-to-increase-fare-to-break-even/

6 An alternative model to ensure KTM's survival?

What are the options available to KTM moving forward, given the many financial and operational challenges it is facing and will have to face in near future?

One option for KTM is to keep to the current trajectory and hope that its revenues will increase and its losses will decrease after the completion of ongoing infrastructure upgrades such as the KVDT, the Gemas-JB double track and electrification and the Skypark-Subang connection. Passenger services, namely the ETS and the KTM Komuter, will need to be KTM's main focus, especially if the RNAA leads to KTM Cargo's business being affected by other new entrants. In this model, KTM's losses can be justified because its larger objective is to provide a reliable and affordable public transportation option to the population especially for those in the lower income brackets. But this approach is getting harder and harder to defend for a variety of reasons.

Firstly, KTM is competing against the private sector, such as bus operators and low-cost airlines in some of its intercity services. Many of these private sector operators can compete with KTM on pricing and convenience, while also making a profit. Hence, the idea of low ticket prices as a necessary 'cost' of operating a public good is getting less and less traction, especially in the context where there seems to have been few attempts to control rises in KTMB's cost of services and other operational expenses.

Secondly, KTM, especially KTM Komuter, is competing against other government-owned public transport operators such as Rapid Rail and Rapid KL, both of which are owned by Prasarana, a 100% Ministry of Finance Incorporated owned entity. As entities such as Prasarana face increasing pressure to minimize their financial losses, KTM will also be forced to face such pressures. The pressures of operating in an increasingly limited financial space has forced the Malaysian government not only to cut direct subsidies to the public (such as the petrol subsidy), but also to government owned entities such as Prasarana and KTMB. Rather than waiting for the axe to drop, a better alternative would be to come up with a few alternative business models for KTMB in order to ensure its ongoing survival.

One alternative would be to re-examine the rationale of the RNAA. The issues relating to RAC being ill-equipped to manage and enhance the physical assets linked to KTMB (rolling stock, stations, track and land) have already been discussed previously. We can look at Network Rail's experience in the UK as an instructive lesson. The separation of ownership and operation did not prevent the asset owner, (then known as Railtrack) from suffering unsustainable financial losses and the occurrence of serious train accidents, such as the disastrous Hatfield train crash which killed 4 people and injured 70 others. Eventually, Railtrack had to be wound up and replaced with a government-owned entity, today's Network Rail. The separation of ownership and operations also had the consequence of pushing fares

up without any noticeable improvement in the level of service. [71] Granted, the situation in the UK was somewhat different in that the ownership entity, Railtrack, was privatized and listed on the stock exchange and the operators were privately owned entities. But some of the underlying lessons and principles still apply to the KTM situation, which is that separation of ownership and operations does not necessarily increase the efficiency and transparency of either the asset owner or the operator(s).

A less radical approach in reviewing the RNAA and the position of the RAC would be to return the ownership of the rolling stock back to KTMB and to not charge the Company for the use of the track or the rolling stock. This would reduce the possibility of any significant increases in the operational expenses of KTM. A more radical approach would be to return the asset ownership of the tracks, stations and land back to KTMB so that it may monetize some of these assets to subsidize ticket prices. In the past, KTMB had benefitted financially from property development projects on its land, including the KL Sentral development by Malaysian Resource Corporation Berhad (MRCB) and the Sentul development by YTL. Rather than going into property development itself, KTM can enter into joint ventures with property development companies to develop and monetize its assets – namely land and stations. To take a step further, rather than selling off its stakes in these JVs and getting a one-off gain, KTMB should take a longer-term view and monetize these assets over a longer period of time. In doing so, the financial upside for KTM would also be higher since the value of these property assets, especially in prime areas, are likely to increase over time.

At the same time, KTM could use these assets to increase its non-fare revenue in other areas such as retail and advertising. This is a strategy which has been undertaken by almost all rail operators in developed countries including Singapore and Australia.[72]

On the fare revenue side, KTM can do much more to enhance its ETS sales. At the time of writing, one can only pre-book tickets for the ETS service up to 30 days in advance. Contrast this to the more sophisticated schedule operated by a low-cost airline such as Air Asia where bookings can be made at least 6 months in advance. Extending the period for ETS ticket booking would allow KTM to offer customers the option of pre-booking advance travel dates. Without this option, some customers may prefer to choose other travel options instead such as taking a flight or taking a bus.

On the cost side, a detailed examination of the main cost drivers of KTM's operations needs to be conducted. Right now, there is no breakdown of the factors driving the increase in the cost of services for KTM even as its revenues are rising. Without adequate cost control measures, it is difficult to

[71] http://neweconomics.org/2017/01/railways-failed-next/
[72] http://ongkianming.com/2016/08/09/press-statement-five-reasons-why-public-transportation-in-malaysia-is-more-expensive-compared-to-singapore/

imagine KTMB returning to profitability, even if its revenues continue to increase as a result of increased demand for the ETS service.

7 Closing Remarks

To conclude, the future for KTM does not appear to be very bright. Increasing costs, uncertainty on the deferment of debt repayments, increased competition from and lack of integration with other public transport operators in the Klang Valley, an anticipated increased in competition from other train operators resulting from the RNAA, the limited revenue from non-fare businesses, frequent delays and service disruptions due to upgrading works and train derailments are just some of the many challenges faced by the Company. The only bright spark in KTM's operations is the high demand for its ETS services, but the ability of KTM to maximise its revenue stream from the ETS is limited by the number of trains currently in service. It remains to be seen if the RNAA framework will allow KTM to push for more trains to be purchased for the ETS.

At the same time, the ability of KTM to increase its fare revenue by increasing its ticket prices is constrained by a few factors. Firstly, the Land Public Transport Commission (SPAD) regulates the prices of train tickets including the fares of the LRT, MRT and KTM. SPAD would not allow KTM to increase its ticket prices too steeply because it wants to keep public transportation affordable. Secondly, even if KTMB were allowed to increase its ticket prices either on the KTM Komuter or on the ETS, the amount of increase would be limited given that it faces competition from other sources, such as the LRT and the MRT in the Klang Valley, and express buses and low-cost airlines for inter-city travel. As noted, KTM ridership for the KTM Komuter services dropped after fare hikes were introduced in 2015.

Right now, KTM can continue operating as it is, without any assurances that it will turn a profit after the completion of the KVDT and the Gemas-JB upgrading, and remain dependent on the government for continued (and perhaps, increased) subsidies. But a better option would be for KTMB to reconfigure and realign its operations and operating structure so that the turn-around process can begin now. Moving forward, some priorities for KTM and the government would include re-examining the RNAA, allowing KTMB to increase its non-fare revenue through joint ventures on property development, and pushing for KTMB to increase its non-fare revenue through retail and advertising and sensible cost cutting measures.

Moving forward, the government needs to rethink its approach towards rail transportation, not just in terms of its economic impact but also its impact on climate change. In recent decades, the revival of rail transport in Europe and other places has largely been riding on larger environmental concerns and the green agenda. Rail transportation is much more environmentally friendly compared to automotive travel, hence shifting public travel behaviour from automotive transport to trains is part and parcel of a basket of policies to reduce carbon emissions in developed countries. The Malaysian government needs to consider the possible benefits of increasing rail traffic, both passenger as well

as freight, on reducing our carbon emissions and how this will help our overall commitment towards climate change mitigation policies.