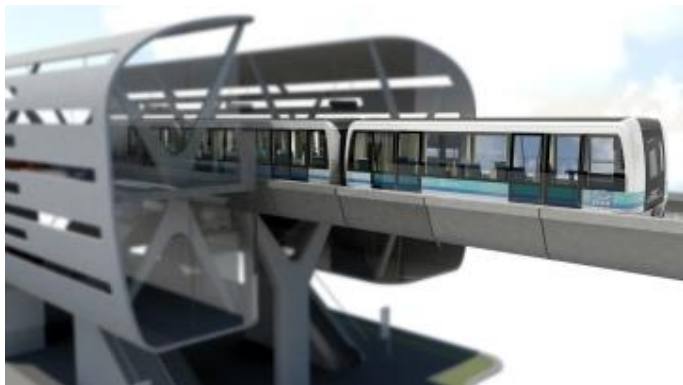# Parliamentary Inquiry into automated mass transit
Siemens Mobility SAS Submission

Madam, Sir

Siemens Mobility SAS, as supplier of transportation solutions, is pleased to contribute to this inquiry into automated mass transit.

Modern cities need feeder lines and medium-capacity metro infrastructure which are high performing, energy saving, and able to adapt nimbly to changing capacities.

Meanwhile, the number of airports is increasing world-wide at the same times as they are growing in size and they require efficient and reliable interconnection between terminals, and towards intermodal transport systems.

Both are constantly seeking clever ways to maximize their investment in transportation solutions.

We know that Australia's largest cities have a fairly high traffic density and the need of strengthening the various transport solutions is growing. We also know that large cities aim to be connected and that a full and integrated intermodality offer between the different transportation modes is necessary. We believe that our new generation Val system can efficiently support you to face your mobility challenges.

The smartest transportation investment for cities and airports
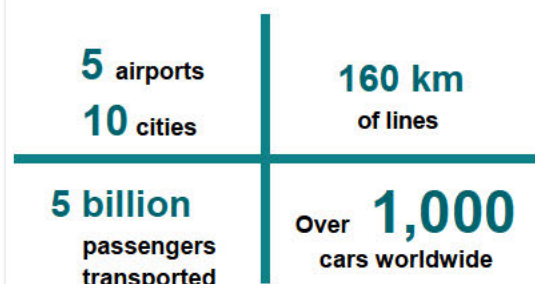
The latest generation Val is a fully Automated People Mover (APM) solution on rubber tires that guarantees unequaled safety, efficiency and availability (higher than 99.8%), it offers the lowest total cost of ownership for cities and airports with a modular design and great flexibility. This transportation solution is the result of 40 years of experience in fully automated mobility solutions and benefit from the latest CBTC automation and monitoring technology for an optimized daily operation. It equips a growing number of cities and airports worldwide, such as the city of Rennes (France), and will soon be fitted in the Bangkok and Frankfurt airports.

SIEMENS
Ingenuity for life

PARLIAMENT of AUSTRALIA

Siemens Val references – A proven turnkey experience

The Siemens Val system has been a reference in the field of driverless metros since the opening of the first line in Lille (France) in 1983.

VAL / Cityval / Airval	Status	KM	No. of cars	No. of stations	Operation	Application
Frankfort - Fraport Airport	Under construction	5,6	24	3	2023	Airport
Bangkok - Suvarnabhumi Airport	Under construction	1	12	2	2020	Airport
Rennes – Line b (France)	Under construction	12,6	50	15	2020	Urban
Uijeongbu (South Korea)	In service	11	30	15	2012	Urban
Paris – CDG Airport L2 (France)	In service	0.9	22	3	June 2007 + June 2012	Airport
Paris – CDG Airport L1 (France)	In service	3,3	14	5	April 2007	Airport
Turin – Line 1 (Italy)	In service	14,8	104	15	2006	Urban
Rennes – Line A (France)	In service	9,3	48	15	2002	Urban
Taipei (Taiwan)	In service	10,8	102	12	1996	Urban
Toulouse – Line B (France)	In service	16	112	20	June 2007	Urban
Toulouse – Line A (France)	In service	12,5	82	18	1993	Urban
Chicago – O'Hare Airport (US)	In service	4,3	15	6	1993	Airport
Paris – Orly Airport (France)	In service	7,2	16	4	1991	Airport
Lille – Line 2 (France)	In service	31,8	178	44	1989	Urban
Lille – Line 1 (France)	In service	13,2	108	18	1983	Urban

5 airports **160 km** of lines
10 cities

5 billion passengers transported Over **1,000** cars worldwide

The latest generation Val is equipped with the Siemens CBTC Technology which makes it possible to have the best performance, availability, safety and security in the market. It also includes solutions to fight against cyber-attacks always ensuring the safety of passengers.

Siemens Trainguard MT CBTC

Siemens is the world leader in railway signaling and automation. The CBTC (Communication Based Train Control) meets the expectations of operators facing challenges such as the creation of new lines, the modernization of lines in operation without service interruption, or the evolution from a line with a conductor to full automation.

- **Performance**

Siemens' CBTC ensures optimal transport capacity by minimizing the interval between trains. It optimizes energy efficiency through its many integrated functions for improving the electricity balance.

- **Safety and security**

The priority given by Siemens to the safety of its transport automation systems means that CBTC solutions comply with the international standards and provide very high levels of security, approved in the all over the world by organizations of independent control, including on the busiest networks.

- **A recognized lead in the world**

Siemens technology is one of the most referenced technology for GoA4 applications, and the latest successes are confirming this leading market position : for example, it has been chosen by the Société du Grand Paris for the future lines 15, 16 and 17 of the Grand Paris Express, by RATP for GoA4 driverless lines 1, 4, and 14 of the Paris metro, Siemens also contributes to the construction of the future metro 100% automatic from Riyadh (Saudi Arabia) by providing its systems CBTC automation systems.

SIEMENS
Ingenuity for life

PARLIAMENT of AUSTRALIA

A large proven track record for Siemens automated metro solutions

The following study conducted by Wavestone on automated metro lines in the world reveals that among 12 most efficient driverless metro lines worldwide 8 out of 12 are equipped by Siemens.
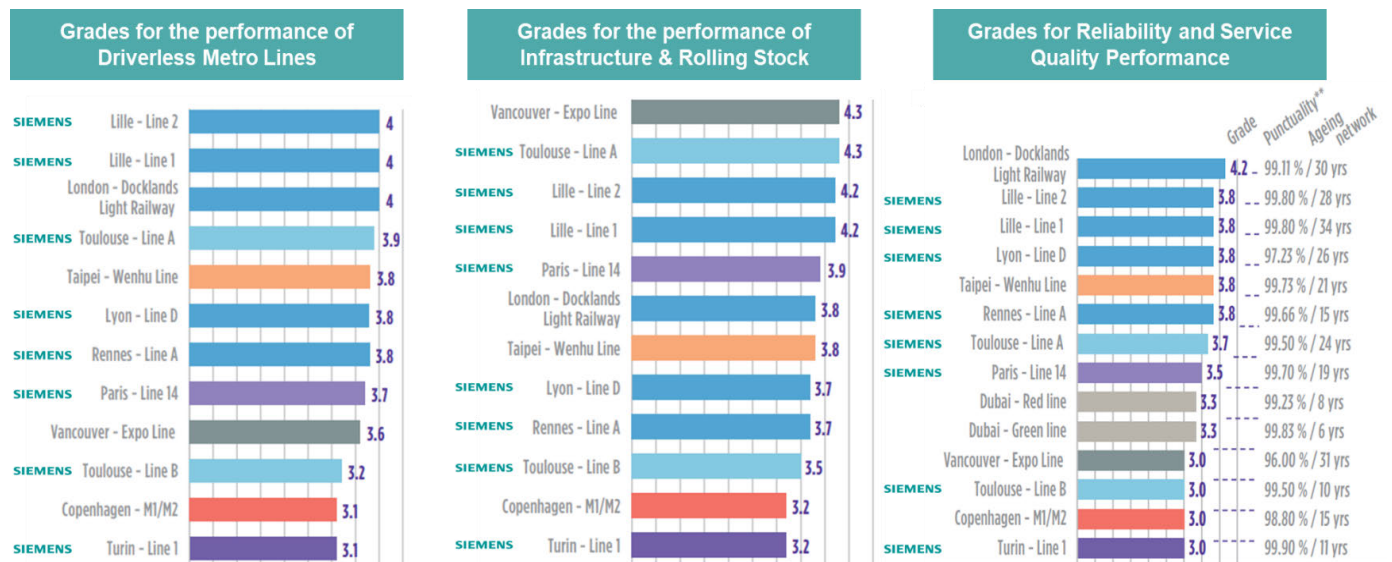
We know that for the Australian government, environmentally friendly transport development is an important issue and we are aware of your CO2 reduction targets for the transportation sector in particular.
Therefore, our solution fulfills your development plan in this field and Siemens engineers designed this product and selected materials with a specific focus to propose the best eco-friendly solution.

Environmental friendly concept

The Val new generation system has been designed to maximize energy savings. The permanent magnet motors, the 100% electrical braking down to zero speed, regenerative power supply substation contribute to regenerate about 40% of the energy, the system is also designed to be the most respectful of the environment; it is made of 95% recyclable materials.

In addition, Siemens is recognized as the most sustainable company in 2017 by the Forbes magazine. We put the ecological aspect at the center of our projects and infrastructure design like in the Cityval of Rennes (France) green depot design (solar panels, waste management,...).

Val new generation is compliant with the most stringent standards regarding noise and vibration, considering the various possible train speeds, the situation at station as the train arrives or departs and when the train is stopping.

Scalability, Modularity and Easy Integration

The rubber tire technology and optimized size of cars enable a large flexibility for track alignment: tight curves, short vertical curve radius, high gradient. The latest generation of Val system is perfectly suited to highly constrained city and airport environments thanks to shortened stations, hoppers, viaducts, tunnels and small depot footprint. Combined with high performances and short headway, civilwork costs are drastically reduced, by up to 30 %.

With trains ranging from **2 to 9 cars**, with or without inter-car gangways, the system can easily handle an increase in ridership from **1 000 to 45 000 passengers per hour and per direction** through headway adjustment and dynamic reconfiguration.

Smart Data processing for an improved maintenance and operation planning
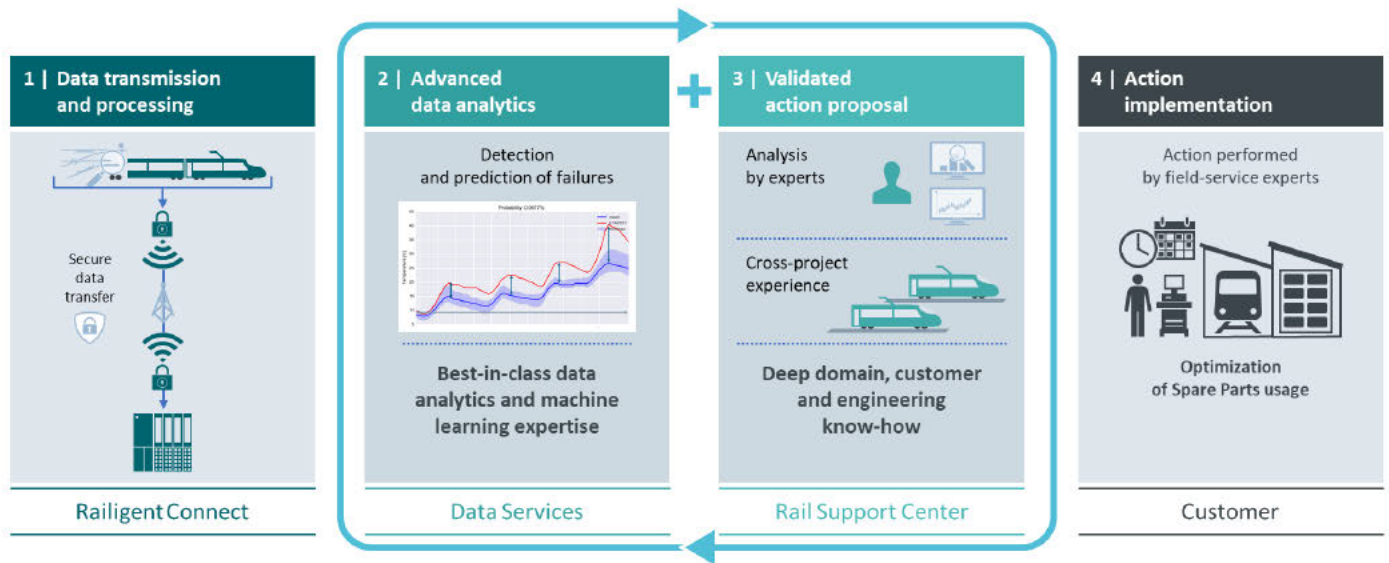
The platform Railigent intelligently uses data to optimize the outcome of your overall system.
Siemens Digital Services – encompassing Smart Monitoring, Smart Data Analysis, and Smart Prediction – enable our customers to remotely monitor systems, perform fast diagnoses, and predict failures before they ever happen.

- **Optimized operation planning**
To reduce delays in mining train operations, a large number of data points are generated by the operation control system as well as interlocking and point machines are analyzed. Smart Data Analysis is used to find outliers for dwell times and to identify the critical track segments causing these issues. Concrete countermeasures are proposed to fix the root causes resulting in minimized risk profiles in the infrastructure.

- **Predictive maintenance**
Sensors which monitor critical components on trains provide over series data points. With Smart Data Analysis and Smart Prediction, those data points can be analyzed efficiently, and failure events can be identified before they happen. This ensures the avoidance of unplanned outages.

SIEMENS
Ingenuity for life

PARLIAMENT of AUSTRALIA

1	Data transmission and processing	2	Advanced data analytics	+	3	Validated action proposal	4	Action implementation

Secure data transfer

Detection and prediction of failures

Analysis by experts

Action performed by field-service experts

Cross-project experience

Best-in-class data analytics and machine learning expertise

Deep domain, customer and engineering know-how

Optimization of Spare Parts usage

Railigent Connect | **Data Services** | **Rail Support Center** | Customer

Premium passenger experience

Val new generation is the latest automated people mover design on the market with fully customizable aesthetic, this transport solution uses connected train allowing WI-FI connection, entertainment system and real-time information synchronized with airport information or other transportation system for example.

This modern design consists of floor to ceiling glazing, wide entrance doors (1.95m), wide passages without step or technical equipment.

We think such a transportation system is a proven and however very modern solution to be considered in your transportation plan, we remain at your disposal for any further information you might need regarding the automated metros in the world or any specific request concerning the Val system.

Yours sincerely,

Bertrand Picard
Senior Vice President head of Sales

Siemens Mobility SAS
France

Guillaume Scallie
Sales Manager

Siemens Mobility SAS
France