TRACKS TO INDIA: THE OPPORTUNITIES FOR THE AUSTRALIAN RAIL INDUSTRY
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INTRODUCTION

The Australian rail industry has a long history intertwined with Australia’s history and progress. Over the years, the energy and enterprise of the private sector has resulted in the Australian rail sector emerging as a significant source of development and innovation for the global rail sector.

India is one of the world’s largest and fastest growing economies. Its own railways play a significant role in this remarkable growth story. With colonial roots, just like in Australia, the railways in India are now a formidable part of India’s national infrastructure. As such, it is also among the top five markets for global rail suppliers.

The pitch of activity in the rail sector in India is a beacon for the Australian rail industry to take note of the potential export opportunities that exist in the near and long term.

Austrade has commissioned this report to assist Australian rail suppliers to take a first step towards understanding the potential opportunities for them in India. This report seeks to introduce the Indian Rail Industry. It also lays out the areas of high interest to Australian rail suppliers linked to proven Australian expertise and capabilities and the overall commercial opportunity that is potentially accessible. The report further suggests strategies and approaches to maximise the potential for success.
Indian Railways is one of the oldest and largest rail networks in the world.

The British founded it in 1853, when Indian Railways began its stretch of 53 Km between Mumbai and Thane.

Today, it is the world’s largest railway network under a single management. Currently, Indian Railways is the national railway system operated by the Ministry of Railways, Government of India (GOI).

It moves a massive number of people and freight across the length and breadth of this vast nation every day.

**The Railways is truly a lifeline of India as it plies 23 million travellers and 3 million tonnes of freight every day, across the country.**

The rail sector in India is significantly diverse. While Indian Railways continues to be the dominant player in the sector with full ownership and operational control of the main passenger and freight segments, state, city and public-private owned and operated commuter rail networks are proliferating across the country.
Indian Railways is among the largest railways in the world. On the world map, it ranks fifth with a track length of 68,525 Km. It is the second largest when measured on Passenger Kilometres and the fourth in Freight Kilometres. In 2017-18, it carried 8.26 billion passengers, the highest in the world and transported 1.16 billion tonnes of freight. It is the eight-largest employer in the world with a workforce of 1.308 million employees.
The railways are a critical part of India’s national and economic infrastructure. It keeps the nation together and keeps India moving. Being an integral part of the country’s socio-economic infrastructure, it is heavily subsidised to make rail travel accessible and affordable to millions of Indians. Much of this subsidy is funded by freight traffic.

**Indian Railways total revenue by segment (Revenue Breakup - FY18)**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Revenue (AUD Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>66%</td>
</tr>
<tr>
<td>Sundry</td>
<td>5%</td>
</tr>
<tr>
<td>Passenger</td>
<td>27%</td>
</tr>
<tr>
<td>Other Coaching</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

While Indian Railways is one of the largest in the world, it has been facing issues with maintaining and increasing revenue growth. They have now undertaken several measures to boost revenue in both the passenger and freight rail segments.

In the passenger rail segment, new trains have started along with the introduction of premium trains running at dynamic pricing. Special trains run during peak seasons to leverage the increase in passenger demand and traffic.

In the freight segment, Indian Railways has withdrawn the port congestion charges and reduced the distance of mini rakes.

They are also planning to introduce a number on non-fare revenue earning streams like advertising at stations, train branding and the rail-radio schemes that will increase their overall revenue.

**The Railway Budget for 2018 has a significant focus on modernisation and expansion. This comes on the back of a clear mandate laid out by the Government to improve overall service quality and revenue for Indian Railways.**
Indian Railways is led by a Chairman and houses a seven-member Railway Board. The Chairman reports to the Ministry of Railways (MOR). 17 geographically based Zonal Railway Authorities (ZR) deliver the Indian Railways infrastructure and services. These zones are further sub-divided into 68 operating divisions, who are responsible for the operation and maintenance of the assets of Indian Railways. A number of units like engineering, signal and communication, stores, personnel, safety and security and accounts come under the divisions that are headed by Divisional Railway Managers.

Indian Railways also has within its direct control, several specialist organisations. These provide specialised skills and competence ranging from commercial support, funding and planning to project management, construction and operations.

### Indian Railways Subsidiaries

**Financing, construction and project implementation**
- Indian Railway Finance Corporation (IRFC)
- RITES Limited
- IRCON International Limited
- Railway Vikas Nigam Limited

**Land and station development**
- Rail Land Development Authority
- Indian Railway Stations Development Corporation (IRSDC)

**Rail Infrastructure**
- Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL)
- Pipavav Railway Corporation Limited (PRCL)

**Container Operations**
- Container Corporation of India Ltd (CONCOR)

**IT and communications**
- Centre for Railway Information System (CRIS)
- RailTel Corporation of India Ltd. (RCIL)

**Catering and tourism**
- Indian Railway Catering and Tourism Corporation (Indian RailwaysCTC)

### Upgrading, Modernising and Expanding Rapidly

Indian Railways operates in a competitive, free market environment and there is an increasing need to modernise and upgrade the railways. This is to improve their efficiency, service, profitability and the overall competitiveness.

This is clearly seen with the Railway budget for 2018, which has seen the largest budgetary allocation for the railways so far. There was threefold increase in capital expenditure, with the capital expenditure outlay amounting to AUD 29.3 billion for the year. This is a 24% increase from the 2017-18 revised estimates.

A quantum leap in the capital expenditure outlay demonstrates a strong drive to transform Indian Railways into a modern, high-tech rail system to achieve sustained results.

There are several projects like station redevelopment, electrification, doubling certain line works and gauge conversion, have been initiated to improve infrastructure and eliminate capacity constraints. This expansion and modernisation require Indian Railways to access world-class technology and expertise in addition to developing indigenous solutions to specific challenges.

#### Strategic focus on up gradation of infrastructure and quality of services in the Indian Railways budget 2018-19

**Passenger**
- State of the art, world class train sets
- Institute to be set up in Vadodara, Gujarat - to train manpower for high speed rail projects
- 600 major stations to be redeveloped
- CCTV cameras, WiFi on all trains and stations
- Focus on safety, track maintenance given importance. “Fog safe” and “Train protection and warning system” to be used
- Escalators on stations with footfalls more than 25000 passengers

**Freight**
- Increase in freight loading - 1165 MT to 1216 MT
- Augmenting goods movement, increase in wagon numbers from 7120 in 2017 to 12,000 in 2018-19
- East and west freight corridors work-in-progress

**Commuter**
- In Bengaluru, sub-urban train coverage will be increased by 160 kilometres at an estimated cost of AUD 3.3 billion
- In Mumbai, an additional 150 kilometres of sub-urban network has been planned, including elevated corridors at a cost of about AUD 7.8 billion. 90 kilometres of double track line at the cost of AUD 2.17 billion
Open for International Business

Over the years, Indian Railways has developed significant internal capabilities across all functional areas. It is a leading player in developing the rail infrastructure in many developing countries. Organizations like CONCOR, DFCCIL, RVNL and RailTel have been playing a leading role in contributing to the development of the railways in India.

However, given the rail development agenda for India over the next decade, there are several capability gaps, which have been identified. Many foreign companies and countries have come forward to help fill these gaps and leverage the growing market that the Indian Railways has to offer. The Railways in India provide a significant opportunity for the global rail industry.

Areas opened for Foreign Direct Investment in the Indian Railways

Given the scale of expansion plans and budgetary allocation, the rail market in India has emerged as one of the top global markets for rail suppliers from around the world.

India stood fourth in rail infrastructure investment against the top seven countries in the world. These numbers and the commitment to better railway systems, infrastructure and quality of service has only grown over the years, making India an attractive market for suppliers around the world.

Comparative rail infrastructure investment (AUD billion, 2014 – 2016)

Indian Railways has laid out a clear roadmap in order to beat its nearest competitor, the Indian National Highways, in the years to come.

The investment plan of AUD 171.2 billion for 2015-19 is nearly twice the outlay laid out in the fifteen years between 2000 and 2015.
Systematic planning and changes like capacity development, regulatory reforms and the profitability that will be obtained post completion of the Dedicated Freight Corridors, set out a clear picture of the growth opportunities being laid out by Indian Railways. This paradigm shift opens a plethora of opportunities, both in investment numbers and projects announced by Indian Railways.

While the Railway Budget does not demarcate the allocation of capital expenditure between the various segments, our analysis shows that one can expect approximately 66% for freight rail related projects.

A large chunk of budget has been sanctioned for the Eastern and Western Dedicated Freight Corridors.

A look at the overall capital expenditure budgeted and planned in the current Rail budget clearly indicates that freight rail is the number one priority for the Railways.

Most private sector opportunities in the Indian Railways come through extra budgetary resources (EBR). EBR includes market borrowings, financing from banks and external investments. External investments in Indian Railways could be in the form of Public Private Partnerships (PPPs), Joint Ventures (JVs), or market financing by attracting private investors to buy bonds or equity shares in the Railways.

Indian Railways laid out a budget of close to AUD 29 billion in 2018-19, 24% higher than last year. A 19% increase in the EBR of this year, along with a 38% increase in the Gross Budgetary Support (GBR), a whopping change that signals the intent of the government to further develop and modernise the railway in India.

According to the 2015-16 budget, about 45% of the EBR was through PPP. Thus, the overall opportunity for PPP in Indian Railways, in 2018-19 is to the tune of AUD 7.74 billion.

Of this, freight rail accounts for approximately AUD 4.83 billion and Passenger rail accounts for AUD 1.99 billion. Clearly, freight rail is of the highest priority for up-gradation and expansion.

Interestingly, the Railway Ministry has laid out an ambitious investment plan of AUD 706 billion by 2032. This is broken up into 5 year plan periods as per the Central Government’s 5 Year Planning cycle.

A total planned investment of AUD 342.4 billion is to be made between 2015 and 2023. Of this, approximately AUD 234 billion has already been invested, leaving around AUD 108.4 billion yet to be invested.
Considering all factors, we have estimated that approximately 45% of the total investment outlay will be available for the global rail industry to bid for.

We estimate that the total opportunity for the global rail industry in India is to the tune of AUD 212.4 billion between now and 2032. Of this, AUD 7.74 billion is available in the current financial year.

The Active Global Rail Industry in India

Since November 2014, the Government has offered 100% Foreign Direct Investment (FDI), opening up several opportunities to international companies.

A number of companies have engaged in infrastructure projects like the sub-urban metro lines, electrification projects, high-speed rails and freight related projects. They have also been involved in the manufacturing of rolling stock and signalling, safety and traffic control systems. Apart from infrastructure, the Indian Railways is keen on leveraging the latest technology and conducting employee trainings in order to upgrade stations and improve the overall quality of service and to gain higher customer satisfaction.

FDI inflows have amounted to approximately AUD 5.39 billion from 2014 to 2017. This number is steadily increasing with the Ministry of Railways signing a Memorandum of Understanding (MoU) with countries like Japan, South Korea, Sweden, China, France, Spain, United Kingdom, Slovak Republic, Russia and Germany. The MoUs enable countries to conduct visits to study the technical aspects and exchange technical experts and take on pilot projects or engage in feasibility studies.

<table>
<thead>
<tr>
<th>Plan Period</th>
<th>Budget Outlay</th>
<th>Already Invested</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 - 2019</td>
<td>171.2</td>
<td>154</td>
<td>17.2</td>
</tr>
<tr>
<td>2019 - 2023</td>
<td>171.2</td>
<td>80</td>
<td>91.2</td>
</tr>
<tr>
<td>SUB TOTAL</td>
<td>342.4</td>
<td>234</td>
<td>108.4</td>
</tr>
<tr>
<td>2018 - 2032</td>
<td>706</td>
<td>234</td>
<td>472</td>
</tr>
</tbody>
</table>

SOURCE: BUSINESS STANDARD REPORT ON THE RAILWAY MINISTRY REPORT TO THE PARLIAMENTARY COMMITTEE
Every major railway supplier around the world is looking at India as a very large emerging opportunity. There are several global railway suppliers actively engaged in India. Some of the leading countries and companies working within the rail sector in India are:

**Major foreign companies participating in Indian rail projects**

<table>
<thead>
<tr>
<th>Foreign participant</th>
<th>Working with the Indian Railways</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALSTOM Transport Holdings B.V (ALSTOM Transport India Ltd) - France</td>
<td>Supply rolling stock manufactured in Andhra Pradesh, India to the Metro projects of Chennai, Kochi, Lucknow. Executing signalling and power supply systems for the 343 Km section on the Eastern Dedicated Freight Corridor. Electric locomotive factory at Madhepura, Bihar for manufacture and supply of 800 high horse power (12,000HP) electric locomotives over 11 years and the depot at Saharanpur. The ministry has 26 per cent stake in both the Joint Venture (JV). Has also set up an Engineering Centre of Excellence in Bangalore, this is the HQ for Alstom in India for RS Engineering, signalling and global IT.</td>
</tr>
<tr>
<td>SNCF and its subsidiaries - France</td>
<td>Four priority areas: High-speed lines, station renovation, upgrades of India’s existing rail network, urban and regional transport services. In 2010, Systra contributed to a technical pre-feasibility study for the Pune-Mumbai-Ahmedabad high-speed rail line. It has also participated in various phases of metros in Delhi, Mumbai, Bangalore and Calcutta, as well as engineering works on dedicated freight lines launched by Indian Railways.</td>
</tr>
<tr>
<td>BOMBARDIER Transportation Holdings (BOMBARDIER Transportation India Pvt Ltd) - Canada</td>
<td>Engaged with the Indian Railways since 1993</td>
</tr>
</tbody>
</table>

While a number of companies are actively engaging with the railways, at a high level, there is significant government-to-government and industry level engagement. Countries like Japan and France have already begun work in India with the Indian Railways.

**It is interesting to note that several large global consultants with rail sector expertise are very actively engaged in several projects in India. These include leading consultancies such as Mott McDonald, AECOM, ETOE Rail, Arup and Atkins. These consultancies are providing services ranging from engineering consultancy to project management and specific functional area consultancy.**

India has sought China’s assistance to speed up the Bangalore-Chennai railway corridor. Countries like South Korea have also expressed interest in helping the Indian Railways on a number of occasions. The most attractive areas so far have been around setting up manufacturing facilities for rolling stock, infrastructure up-gradation, station redevelopment, maintenance, signalling, safety and control technologies and the much talked about high speed rails.
CHINA
- Sought assistance to speed up Bangalore-Chennai corridor besides redevelopment of Agra and Jhansi railway stations

GERMANY
- Feasibility study for high speed trains along Chennai-Kazipet and Chennai-Bengaluru-Mysuru routes
- SNCF working with railways on India’s first semi-high speed rail project between Delhi and Chandigarh

OTHERS
- MoU signed - Kazakhstan, Slovak Republic, Sweden, Canada

JAPAN
- Mumbai-Ahmedabad High Speed Rail (MAHSR): using Shinkansen technology
- Closely working with DFCCIL and Northern Railways safety, civil engineering and rolling stock teams

SOUTH KOREA
- MoU between RDSO and Korea Railroad Research Institute (KRRI)
- Explore planning and execution of joint research projects, including setting-up an advanced Railways R&D facility in India

SPAIN
- 2016 - Trial of Talgo trains. As of 2018 the trial was successful but stopped as unable to go through the tender route.

SOURCE: VNACS ANALYSIS
The overall opportunity addressable by the global rail industry in India is as large as AUD 7.37 billion. However, not all of this will be directly accessible to Australian companies.

The accessible opportunity is a function of various factors, most important being the inherent, acknowledged capabilities, its international competitiveness and the ambition and appetite of the Australian rail industry.

In order to estimate the accessible opportunity for Australian rail industry in India, we analysed its competitive capability and extracted the opportunity in those specific areas from the overall opportunity available to global suppliers.

In any typical Indian Railways project, civil works are given the maximum allocation followed by Rolling Stock and Rail Systems.
India’s rapid pace of development makes the continuing modernisation and expansion of the railway network a socio-economic imperative. This is clearly signalled by the union government’s significantly enhanced budgetary allocations in the current year’s railway budget. Further, since most of the large scale projects across rail segments are now funded through Extra Budgetary Resources, it opens up the entire sector to global rail suppliers.

The Freight rail segment is the biggest focus of rail infrastructure development and this should be of significant interest to Australian rail suppliers. While some Australian companies have already capitalised on this opportunity, there is a significant potential for other companies of all sizes to enter and succeed.

Our analysis of Australian exportable, competitive capability and the capability gaps within the current supply ecosystem in India shows some high potential areas for Australian rail suppliers. These are summarised below.

### We estimate that AUD 21.24 billion is the opportunity accessible by the Australian rail industry in India between now and 2032.

Of this, AUD 4.878 billion is accessible in the 10 year plan period till 2023. This opportunity is spread across the Passenger and Freight rail segments.

### The Freight rail segment is the biggest focus of rail infrastructure development and this should be of significant interest to Australian rail suppliers.

Consulting, operations and maintenance, training and skill development, and IT and Research form about 10% of the total project outlay. This makes approximately 10% of the total budget outlay in any rail project and within any plan period accessible to Australian rail suppliers.
Australia: Taking the lead in freight in India

Australian rail has a long and deep history. Developed and operated in the public sector for several decades, it is now largely operated by the private sector. It has grown and developed in line with the country’s geography and economy. It is now a global force to reckon within the freight sector.

Freight is Indian Railways’ life-blood. It brings in the profitable revenue that allows the railways to deliver on its social and developmental agenda. As such, expansion and modernisation of freight rail is a top priority for both the ministry and the government. Heavy investments have been planned and announced to enhance railways freight capability in India.

We estimate that AUD 14.01 billion is the opportunity accessible by the Australian rail industry in the freight segment in India between now and 2032. Of this, AUD 3.219 billion is accessible in the 10 year plan period till 2023.

A majority of this outlay is going into developing two major freight corridors - the Eastern and Western Dedicated Freight Corridors. These two massive projects are being undertaken by a Special Purpose Vehicle (SPV), the Dedicated Freight Corridor Corporation of India (DFCCL) created under the Ministry of Railways.

The Indian Railways’ quadrilateral links the four metropolitan cities of Delhi, Mumbai, Chennai and Howrah and is commonly referred to as the Golden Quadrilateral.

Its two diagonals connecting Delhi and Chennai and Mumbai and Howrah respectively add up to a total route length of 10,122 km. This comprises 16% of the rail routes in India that carry over 52% of passenger traffic and 58% of revenue earning freight traffic of Indian Railways.
In addition to this, the surging energy sector in India requires a significant increase in the movement of coal. This, together with a booming agricultural sector, rapid increase in infrastructure development and construction and growing international trade meant an urgent and appropriate response from the railways. This led to the conception of the Dedicated Freight Corridors along the Eastern and Western Routes.

The DFCs will de-congest the highly saturated road network and divert freight traffic to a more efficient and reliable rail route. This shift is expected to deliver on a significant reduction of Green House Gas emissions in overall transport sector in India, saving over 450 million tons of CO2 in first 30 years of operation.

The DFCs were announced in 2005 and obtained the required funding between 2009 and 2013. The Western DFC-Phase 1 is entirely funded by a long term loan by JICA (Japan International Cooperation Agency) while the Eastern DFC-Phases 1 and 2 are funded by a World Bank loan.

The extensive participation of international companies in this project and their continuing and deepening presence in India should be a strong signal of confidence for the Australian rail industry looking to work in India.
Raftaar literally translates to ‘speed’. Mission Raftaar, which was announced in the railway budget of 2015-16, aims to increase the average speed of all non-suburban passenger trains by 25 km per hour (kmph) in the next five years.

Details of this project have been provided to throw light on how the project was executed. This also showcases the various international companies involved along with the routes taken to engage with the Railways to implement this project.

### COMPANIES INVOLVED:

- **Mission Raftaar** announced in Railway Budget 2016-17 aimed to increase the average speed of all non-suburban passenger trains by 25 km per hour (kmph) in five years.

- Twin pipe Indian Railways brake systems were introduced on freight trains, powering arrangement for freight trains with a ratio of 1.5-2.0 (international ratio is 2.0-2.5) will be implemented.

- Ghaziabad – Allahabad – Mughalsarai route which was taken up on priority basis, for increasing average speed which now has been successfully implemented.

### PROJECT COST/BUDGET:

- AUD 2-3 Billion

### TIMELINE:

- Start: Railway Budget 2016-17

### ROUTES TAKEN: (PPP, INVESTMENTS or FDI)

- 100% FDI allowed.
- Worked to be financed through EBR-IF as there is a high likelihood of favourable ROR on route basis.

### KEY GAPS AND OPPORTUNITIES TO CAPITALIZE ON

- Maximum speed of freight trains had increased up to 75 kmph/100 kmph, but the average speed still remained sluggish at around 24 kmph.

- Golden Quadrilateral routes along with diagonals (Delhi – Mumbai, Delhi – Howrah, Howrah- Chennai, Chennai – Mumbai, Delhi – Chennai and Howrah – Mumbai) were focus areas.

- Human capital: Training and skill - The railway board recognized human capital as a key resource. Hence, decided to give thrust on imparting training, skill development of the staff involved in operations and maintenance of assets so that they maintain pace with the new machines and technology.

### COMPANIES INVOLVED:

- SNCF (French railway) to explore possibilities of running trains at 200 kmph on the Delhi-Chandigarh route.

- China and Japan for training staff.
The railways in India is a large and mature enterprise. Add to this the fact that it is a public sector organisation with its own deep and diversified internal capabilities and one gets an idea of the complexities and challenges of entering and succeeding in this sector in India.

However, the Indian Railways has been actively sourcing goods and services from the international market for decades. Over the years, it has been able to build its internal competence on the basis of such global contracts and collaborations, in addition to its own approach to research and innovation.

The Indian rail sector provides a clear and sustainable pipeline of opportunities for Australian rail suppliers over the next two decades. Approximately AUD 21.24 billion worth of opportunities are accessible to Australian rail suppliers from now to 2032. Tapping into these opportunities can balance out business cycles in the international and domestic market.

Like elsewhere in the developed world, Australian rail too operates in a globally competitive environment. It therefore becomes imperative for individual companies and the industry as a whole to keep an active presence in the biggest rail markets. Not doing so can result in an erosion in global competitiveness of the Australian rail sector.
Doing Business in India is now Easier

The World Bank’s Doing Business (DB) rankings for 2018 have been recently released and India has made a very significant jump, improving its rank from 130th in 2017 to 100th. These rankings are based on the country’s performance in several areas, such as ease of starting a business, getting construction permits, getting electricity and contract enforcement. These are areas where India has traditionally had a poor track record, resulting in its global rankings hovering around the 130’s for the last decade.

This prompted the current government to initiate a slew of business friendly institutional reforms that reduce bureaucratic red-tape and delays. Simplification of tax procedures, reform in bankruptcy laws and incentives for setting up manufacturing capability in India as part of the ‘Make in India’ initiative.

All of these actions have led to the big jump in India’s current Ease of Doing Business ranking.

Suppliers from developed countries tend to view the public sector procurement process in India with some scepticism. There are significant concerns around the lack of stability and transparency. While this may have been true in the past, the country has rapidly adopted very high standards of transparency over the last decade.

Most of the major rail projects in India such as the Dedicated Freight Corridor, The High-speed Passenger Rail projects and the Metro Rail projects are funded by international agencies. Therefore, the procurement approach and culture in all these projects now conform to international standards and demonstrate the highest levels of transparency and accountability.

In fact, most of the procurement for the large railways projects are now made under FIDIC norms. This is evidenced by the growing number of leading global rail suppliers as well as mid-sized companies that are actively involved in the rail sector in India.

The traditional barriers to doing business in India, which largely revolved around the complexities of dealing with unstable governments and large, inefficient bureaucracies are a thing of the past. India is rapidly embracing global best practises in public sector procurement and companies with expertise and experience in the global public sector can expect a high level of professionalism, transparency and accountability in the entire procurement process.

India Offers a Long-Term Opportunity

Companies from the UK, France, Germany, Spain from Europe, Japan and South Korea from Asia and Russia have been actively involved in exporting successfully into the rail sector in India. This has been across the sub sectors of passenger, freight and commuter rail. These exports have cut across all functional areas.

The governments and rail industry associations and bodies from these countries are also actively engaged in promoting their industry capability at the government and institutional level. In addition to promotion and marketing, they also promote collaboration and sharing of best practices, information and learning. These initiatives have also managed to offer vital support through feasibility studies, research partnerships and capacity development.

While there are tactical opportunities that Australian suppliers can look at in the short term, it will be useful to take a longer term view of the Indian market.

Given the level of sophistication in the procurement process within the railways and the operating culture, companies that wish to enter and succeed need to take a long-term view of the market.

There is a strong track record of various international companies operating successfully in the rail sector in India. This includes Australian companies as well, which are involved in a few very high-profile engagements. This is a strong positive indicator for the Australian rail industry players interested in exploring opportunities in the country.

A case in point is the recent visit by the German Railway Industry Association to India. The 26 member delegation visited the country to explore opportunities in Indian railway projects and to develop industry level connects and relationships.

Andreas Becker, Vice-President, German Railway Industry Association, who led the delegation has been quoted in the press as saying that “It has become easier to work with the Indian railways under the present political regime and there has also been a visible change in the functioning of the department. For instance, the administration appears to be ‘more flexible now’ and ‘everything is prepared’. Moreover, there is an open policy in the Railways which means all communications come down right at the vendor level, as against the earlier practice where exact requirements were neither specified nor communications clear. He us further quoted as saying that “If you ask me, India will continue to be one of our (Germany’s) biggest markets over the next 10-20 years. Of course, compared to earlier years it has become much easier to work with the Railways”.

Australian suppliers who seek to participate in the rail sector in India will need to take a long term view and formulate entry strategies accordingly. They will probably need to consider a permanent presence in India and develop partnerships and associations within the Indian supplier ecosystem. This will also help with accelerating the ‘India learning curve’ while providing the opportunity to build familiarity and relationships within the buyer ecosystem.
Given the intense competition from other countries like Japan, China, Korea, France and the UK, it is very important to recognise that Australian rail suppliers will need to consider investing in terms of marketing and positioning their capabilities to Indian buyers.

Another advantage of such a long term approach is the potential to develop a strategic presence in India, using local market momentum and success to drive a more vigorous participation in other markets in the region.

Key Factors for Success in India

For Australian companies that have the ambition and will to enter the lucrative Indian rail sector, the probability of success is high if the opportunities are approached strategically.

While there are several opportunities accessible to Australian rail suppliers, the challenge is to ensure that the country and its capabilities are well positioned and understood by the buyer community in India.

The current understanding of Australian capabilities in the rail sector among the buyer community in India is inadequate.

India is a vast and complex market with most large industry sectors being well established and mature. While it is true that doing business with the public sector in India can be fraught with frustration, it has proven to be extremely lucrative and rewarding for international businesses that have made the effort to understand the market adequately.

While the export potential for Australian rail suppliers in the Indian rail sector is clearly evident, capitalising on these will require work on both the buyer and sellers’ sides.

On the other hand, Australian companies too will need to develop a better understanding of the Indian buyer. It is important to know the socio-economic dynamics that govern the rail sector in India. Very often, it is more than a straightforward commercial enterprise, having a large social and welfare agenda. An understanding of the macroeconomic realities in India and of the local culture and governments is an important determinant of success.

Given that India has a large skilled workforce, most of its public sector procurement policies are geared to arrangements that will deliver jobs and employment in India. This is one reason why up to 50% of project outlays are awarded to Indian suppliers or consortia led by them.

While the Indian rail sector is modernising and bringing in world-class services, the need for localisation is very strong. From design challenges in all functional areas to construction, civil works and rolling stock everything needs to be ‘Indianised’.

A natural outcome of localisation is immediate price competitiveness. India is a price sensitive market and large scale imports in infrastructure are not usually encouraged. Having local, India based manufacturing and delivery capability ensures a level playing field for global companies while satisfying the ‘Make-in-India’ requirements.

Having a physical presence in India also provides the opportunity to develop an India based competency that will add to competitiveness. Companies will find it easier to hire, train and retain local talent that will strengthen their long-term presence in the country.

Another important advantage is the ability to service contracts more effectively and build relationships within the entire ecosystem.

India is a relationship and trust based culture and economy. Forging strong relationships and an axis of trust is key to business success in India.

While formal contracts and agreements are always in place and enforceable, personal relationships are as important, if not more than written contracts.

Personal meetings are important even if remote and virtual channels are available. Taking the time to meet and ‘get to know’ each other and build a bond of trust is well worth investing in. Relationship building also takes some time so this is something that must be given adequate consideration while drawing up business plans.

Like in any new market, there will be uncertainties and unforeseen challenges during the business cycle. These could range from delays in decision making to change in the political dynamics. Therefore, it is prudent to have a good risk management strategy in place while developing an India entry strategy.

A careful evaluation of the entry strategy is important as the risks vary depending upon the entry structure a company chooses for India.

Registering and setting up an operating entity in India can be time consuming and a good

**THINK LOCAL - THINK LOCALISATION**

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**BUILD AND NURTURE RELATIONSHIPS**

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**MANAGE RISK EFFECTIVELY**

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- Retain good and reliable local advisers to provide guidance on matters relating to set-up, taxation, statutory obligations and contracting. This is particularly important in the cases of contract clauses covering IP protection and payments.

- Registering and setting up an operating entity in India can be time consuming and a good
Within the local buyer, supplier and influencer ecosystem in India, there is a perception that Australian rail suppliers might lack the ambition and appetite to make a strategic commitment to enter and succeed in India.

**Entry Strategies for India**

In order to be competitive and successful in the sector in India, Australian companies need to explore the successful methods and approaches taken by other international suppliers. Given the various procurement conditions laid down by the various funding contracts, different projects will require differing entry strategies.

While there is a lucrative market opportunity for Australian rail suppliers in India, success will depend on the ambition, sales and marketing bandwidth and a better understanding of the Indian market.

Regardless of the actual entry structure and vehicle a company chooses to enter the Indian market, it must ensure that it can demonstrate a strong local presence. This has several significant advantages.

**TAP INTO SUB CONTRACTING OPPORTUNITIES**

The recent trend in rail sector contracting in India is to award a "turn-key" contract to one large supplier as this makes it easier to manage these mega contracts and also brings in efficiencies. The prime contractors in such cases are directly accountable for the entire project delivery and work with a large group of specialist sub-contractors. These prime contractors are usually Indian entities and prefer to work with sub-contractors who have a strong local presence.

It is therefore vital to build a strategy to access the various opportunities through these large Prime Contractors. Working as sub contractors or through consortia with local or international companies is an excellent de-risking strategy and allows companies to understand the market and focus on delivering work through their core competence.

**ENTERING GLOBAL VALUE CHAIN**

The most significant outcome of having an India based capability is developing a global supply capability. India provides an excellent base to supply goods and services to the global market in a competitive manner.

Several companies, especially in rolling stock, tractions systems and SCADA have set up their manufacturing capability in India to serve the Indian market as well as to export to global markets.

For example Alstom and Bombardier set up manufacturing and engineering operations between 2008 and 2010 to tap into India’s rapidly-growing urban transportation market and are now now exporting to Australia, the Middle East and Asia markets from these facilities.

Bombardier has invested about AUD 53 million in its Indian manufacturing facility and has orders to export 450 metro rail coaches to Australia and components to Brazil, Australia and Saudi Arabia.
FORGE RELATIONSHIPS WITH INDIAN RAILWAYS SUBSIDIARIES

The Indian Railways has several large and important subsidiaries that undertake several projects across all functional areas. These organisations are major influencers in the overall decision making process and often, are also the contracting agencies. Nurturing a strong relationship with these organisations provides access to information and an understanding of the Indian rail system.

PICK SUITABLE MARKET ENTRY STRUCTURES

Generally, the most common and successful entry structures are:

1. Establishing an Indian subsidiary: This is by far the most powerful entry vehicle for companies taking a long term view of the Indian rail market. Having a direct presence on the ground with necessary investments signals strong intent and is viewed very positively by the various procuring stakeholders. This strategy has additional benefits in terms of allowing for better cost structuring, more localisation and importantly, providing a wider and deeper supply capability for the entire subcontinent and further markets.

2. Forming a Joint Venture with an established Indian company: Several Indian companies are major contractors in various rail projects in India. Their scope ranges from construction and civil works, to the supply and installation of rail systems and operations and maintenance engagements. Typically, these companies require a constant input of know-how and services that are available internationally.

3. Forming a Joint Venture with an established international company operating in India: The international companies already operating in the rail sector in India, whether on active projects or in a business development mode, require capacity and skill augmentation. Offering Australian capability in these situations can provide a powerful market entry vehicle.

4. Retained Representation with local agents in India: Using local partners or agents to provide representation is a common mode of engagement by foreign rail companies in the Indian rail industry. This approach affords a direct and relatively speedy entry into the Indian market. However, given the intensity of competition, the tough business environment and long procurement cycles, it is important to choose the right partner or agent that have the required credibility, financial and human resources, reach and access to decision makers and the right technical and sales capability.

In conclusion, we believe following are the factors that have come together in India to present a very important export opportunity to the Australian rail industry:

In order to capitalise on this opportunity, Australian suppliers will need to consider a strategic approach. The fundamental elements of such an approach will include:

These steps, taken in tandem with an appropriate risk management strategy where adequate due diligence has been performed will provide a strong foundation for success in India. Australian suppliers that make this strategic commitment will have a very high probability of winning rewarding and profitable work in the Indian rail sector. Such an outcome can only be mutually beneficial to business and to our two closely allied and friendly nations.
ANNEXURE:

The tables below illustrate the technical upgrades that the DFCs will make to the existing Indian Freight rail system.

### Specifications for the Dedicated Freight Corridors

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>FEATURE</th>
<th>ON DFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.9t/25t</td>
<td>AXLE LOAD</td>
<td>25t. Bridges and formation designed for 32.5 t</td>
</tr>
<tr>
<td>8.67 t/km</td>
<td>TRACK LOADING DENSITY</td>
<td>12 t/km</td>
</tr>
<tr>
<td>75 kmph</td>
<td>MAXIMUM SPEED</td>
<td>100 kmph</td>
</tr>
<tr>
<td>Up to 1 in 100</td>
<td>GRADE</td>
<td>1 in 200</td>
</tr>
<tr>
<td>Up to 10 degree</td>
<td>CURVATURE</td>
<td>Up to 2.4 degree</td>
</tr>
<tr>
<td>25 KV</td>
<td>TRACTION</td>
<td>Electrical (25 KV AT Feeding)</td>
</tr>
<tr>
<td>7 - 10 km</td>
<td>STATION SPACING</td>
<td>40 km</td>
</tr>
<tr>
<td>Absolute/Automatic with 1 km spacing</td>
<td>SIGNALING</td>
<td>Automatic with 2 km spacing</td>
</tr>
<tr>
<td>Emergency/automatic with 1 km spacing</td>
<td>COMMUNICATION</td>
<td>Mobile Train Radio</td>
</tr>
</tbody>
</table>

### Specifications for the Rolling Stock in the Dedicated Freight Corridors

- **EXISTING**
  - Container Train: 4,265 m
  - Single Stack: 3,280 m
  - Double Stack: 3,660 m
- **ON DFC**
  - Container Train: 7,815 m
  - Single Stack: 5,050 m
  - Double Stack: 5,550 m
  - Triple Stack: 6,050 m
  - 5,000 ton: 13,000 ton

### Organization Chart: Indian Railways

- **MINISTER OF RAILWAYS**
  - MINISTER OF STATE
  - RAILWAY BOARD
    - CHAIRMAN – RAILWAY BOARD
      - MEMBER TRACTION
      - MEMBER STAFF
      - MEMBER INFRASTRUCTURE
      - MEMBER ROLLING STOCK
      - MEMBER TRAFFIC
      - FINANCIAL COMMISSIONER
- **ZONAL**
  - General Manager (17 Geographical Zones)
  - Zonal Operations & Development
- **PRODUCTION**
  - Zonal Production
  - RDSO
- **RAIL STAFF COLLEGE**
  - RDSO
- **FINANCIAL COMMISSIONER**

*Only main entities have been included in the chart*
Research Methodology

This report has been developed by VNACS in collaboration with Austrade. The research undertaken by VNACS was to understand the railway opportunities in India and map out specific recommendations keeping in mind Australian rail capabilities. The study was conducted in all three sectors of the Indian Railways – passenger, freight and commuter, with a special focus on freight rail and the areas of strength of Australian companies within the freight sector.

Secondary, desk-based research has formed the basis of the report along with primary research in the form of discussion with a few rail sector SMEs in Austrade, from the rail sector in Australia and in India.

All the data used and presented in this report was collected between July 2018 and August 2018.

Credits

The Commonwealth of Australia represented by the Australian Trade and Investment Commission (Austrade) has commissioned VNA Consulting Services to develop this report and the report has been authored by Vijay Narayanan, Founding Partner - VNA Consulting Services.

We are grateful for inputs from Brian Marsden, Director at TRAC Services Pty Ltd and Ravi Ravitharan, Director, Institute of Railway Technology, Monash University.

We are also grateful for the significant inputs on Indian Rail Industry provided by Neelesh Dixit, MD, RENMAKCH India Pvt. Ltd.

Disclaimer

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The primary and secondary information collected for the purpose of this report has been duly referenced / sourced.

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