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The Indian Railways

On track for transformation.

By Philip Zerrillo

The transformation that has taken place in India's South Central Railways has been an amazing journey—something that the country has rarely witnessed. It started with policy changes effected by the Transformation Cell of the Ministry of the Railways that resulted in process, structure and culture reforms. These transformative changes have led to a change in organisational behaviour, helping to galvanise over a million employees nationwide to perform better. Productivity has improved, as has the image perception of the railways. Ultimately, all this has translated into improved service delivery for customers and has prepared Indian Railways to be the engine of economic growth and development of the country.

The Indian Railways is the world's fourth largest transport system that carries more than 8.3 billion passengers and transports over 1,160 million tonnes of freight every year along a massive track network that runs nearly 70,000 route kilometres. The 166-year-old government-run corporation is also one of the biggest employers in the world with about 1.3 million employees spread across the country, under a single management.

As the Indian economy focuses on future growth models, its railway system has been an integral part of this, undergoing a phased transformation since January 2017. The railways are set to progress towards a modern, efficient, and digitised network with a focus on improving insights, efficiencies, and capabilities. By 2030, the Indian government plans to spend US\$70 billion to upgrade its railway network into an electric and digitised platform. It is also opening up the state-owned conglomerate to private companies for operating passenger trains, manufacturing coaches and locomotives, and redeveloping railway stations.

While funds have been allocated to revamp various railways projects, the Indian Railways continues to face three big challenges—underinvestment for the creation of infrastructure, people management, and the need for technology upgrade.

Manoeuvring infrastructure challenges

The biggest challenge facing the Indian Railways is infrastructure development across a huge network that covers North, South, East, and West of India. A high volume of freight and passenger traffic makes it a busy and congested transport system. The Golden Quadrilateral and its Diagonals of about 10,000 kilometres

route connecting the four major metros of India (Delhi, Kolkata, Chennai and Mumbai), and other Highly Utilised Networks of about 23,000 kilometres, together carry nearly 96 percent of the nation's freight and passenger traffic. The congestion has resulted in extremely low average speeds of about 23 kilometres per hour (kmph) for freight trains and about 55 kmph for mail express trains.

Over the past 70 years, traffic carried on the Indian Railways has gone up 17 times, but the network expanded only by about 26 percent. The inadequate expansion of the network has led to a reduction in the railways' market share of freight business from about 80 percent in the 1950s to about 25 percent in 2017. Similarly, the share of passenger business has come down to about 10 percent in 2017, even as the unmet demand for passenger business in 2017-18 was around 100 million passengers. For travel from New Delhi to Mumbai, one needs to book tickets two to three months in advance because of high demand and limited availability. At the same time, if a coach is designed for 80 passengers, it is very often occupied by 200-250 people who are travelling unreserved but with a ticket. Fares have not increased in 15 years. For mainline passengers, fares are as low as 51 paise (about half a Rupee or around one U.S. cent) per passenger kilometre (pkm); for the suburban passenger, the fare is 21 paise per pkm.

Currently, the railways have mixed traffic—passenger and goods—on the same track. Passenger trains run on timetables while goods trains do not. Priority is often given to passenger trains while the goods trains languish in the yard until they get clearance to journey on the track, often leading to long delays. Sometimes goods trains get delayed by two to three days, which not only holds up the delivery of goods, but also impacts the turnaround of the trains and sends mixed messages to would-be shippers. At the core of the problem is underinvestment in infrastructure development. But plans to bring about focused, economically viable expansion are afoot, as dedicated freight lines on the Eastern and Western routes of the Indian Railways network are also being built. Private modern passenger train operations are being planned. While freight corridors are expected to be commissioned over the next two years, the private passenger train operation may become a reality by the end of 2022.

A human resource focus

The confidence in future expansion plans and the optimism that has begun to permeate all levels of the organisation has its roots in many of the experimental activities that began in 2017, under the leadership of V. K. Yadav, the then-General Manager

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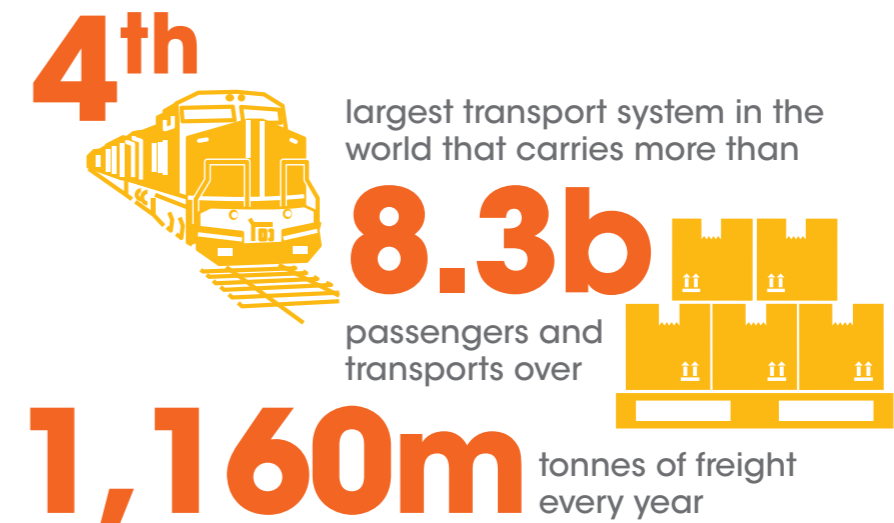
of the South Central Railways, headquartered in Hyderabad. Many of the initiatives undertaken were in recognition of the fact that transforming a 166 year-old organisation would not be easy, and it would certainly not be possible without the support of the employees.

Upgrading the old railway system to modern standards with limited resources was a challenging task, and it was decided that it would be best to start at the core—by developing its employees. Undoubtedly, managing and motivating people to adapt to new processes and futuristic tools is a mammoth task. Furthermore, the railway network is operational 24/7, which makes it a formidable task to upgrade processes without shutting down the system. The entire network is maintained and manually patrolled round the clock by trackmen, and providing facilities to even these lowest-ranking employees is a huge part of the transformation process. Human resources are being given utmost attention by the railway department. People who work for the railways need to be motivated, trained and aligned to the purported objective of a modern system, and that in itself is a tough task, but one that is already underway.

The first step in the journey of transformation was to energise the people, teach them to question the *status quo* and explain to them why change was needed. This was achieved through a programme of intensive training. Training a workforce of 1.3 million requires planning and strategy. So the railways took a bottom-up approach, beginning with the South Central Railways which has about 100,000 employees. They began by assessing the needs of these employees and organising training sessions for them in a time-bound manner. The South Central Railways also took the lead to develop software to monitor the training of the entire Indian railways. Training began at every level, from enhancing technical competencies and nurturing emotional intelligence to implementing early career leadership programmes for young leaders.

The railways strived to provide an empowering and employee-centric atmosphere for its staff so they could utilise the benefits of their training. Workplace facilities were carefully thought out to focus on those which were impactful

The Indian Railways



yet did not cost much. This required a change in mindset. However, giving priority to employee facilities has clearly proved to be a very efficient and effective means to gain the support of the staff in creating a 'can-do' culture.

Improvements were also undertaken at workspaces in a very detailed manner. For trackmen in charge of network maintenance, improvements were made to their clothing, footwear, and tools, as some items were heavy and weighed the staff down, especially during winter. It was also mandated for them to have a proper resting place after every five to six kilometres of track maintenance. For the first time ever, they were provided with bottled water. They were also provided with clean restrooms, as well as facilities to warm their food, all of which went a long way to motivate and encourage them. These inexpensive facilities and basic human welfare improvements have resulted in improved asset reliability and safety. For women employees, the railways have ensured that they are provided with separate changing rooms and restrooms at their workplace.

Thus human resource management lies at the core of the transformation plan to ensure its employees are well taken care of. To these ends, the organisation introduced several interesting incentives and proposals for its workforce. One such programme was an event called 'Passport Mela' in collaboration with the Indian passport office. The passport officers came to railway premises and issued passports to railway employees in Hyderabad, as many wanted to visit their relatives in the Gulf countries. Another initiative was holding a job fair for the adult children of employees, where hundreds of companies in and around Hyderabad were invited to participate for two days. There were nearly 10,000 jobs offered to the wards of railway employees at this fair.

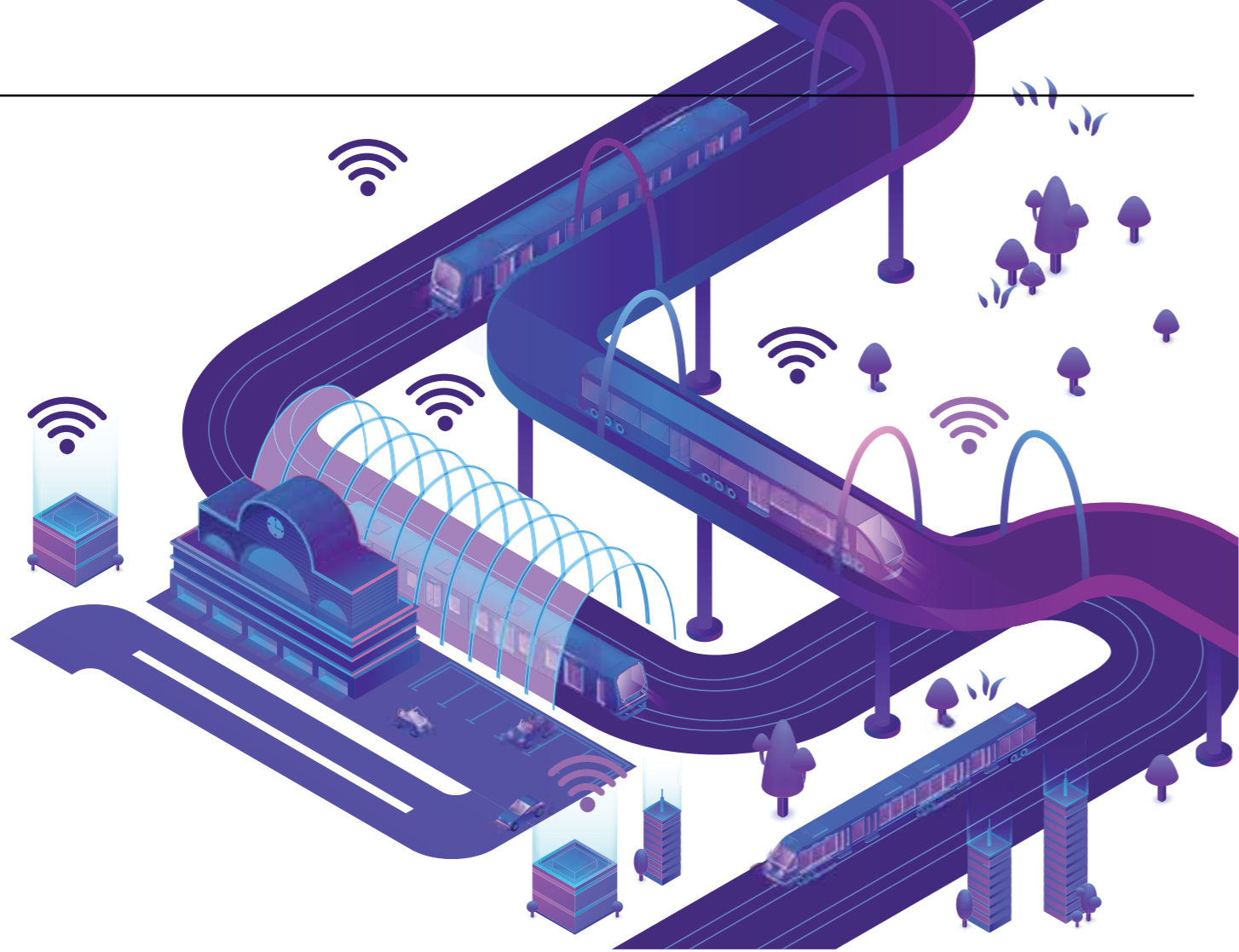
Monitoring employee performance in a systematic manner has also been an important part of the transformation,

in which key performance indicators were devised across 68 divisions. This helped in improving the performance and efficiency of the workforce.

A change in work culture and ethics is slowly seeping into the system, which is also due, in large part, to the training provided on the importance of customer service. Independent surveys have shown an outstanding improvement in cleanliness at railway stations over the last two to three years. Suggestions were taken from employees on improving processes and empowering the 68 divisions and 17 Zonal Railways, and most of it began with the South Central Railways.

The policy directives were issued by the Transformation Division of the Ministry of Railways, where the Transformation Cell headed by Sudheer Kumar empowered the field units in an unprecedented manner. This reduced

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the bureaucracy of the organisation and therefore, lessened interdependencies and fast-tracked decision making, thereby improving service delivery. Divisional Railway Managers, who had a minimum of 25 years of experience, were empowered to make almost all decisions relating to operation, maintenance, safety, and revenue, as well as ensuring that the employees are provided with a pleasant work environment. The Transformation Cell of the Railway Board has brought out more than 200 policy directives in various fields of railway operations, which are showing perceptible improvements in safety and other operational areas. All these were initiated with the intention of improving insights, efficiencies, and capabilities with the locus of control moving from the Railway Board to Divisions and Zonal Railways. Remote monitoring, coordination, and policy intervention have all come about by embracing new technology and building trust in Divisional Railway Managers.

Digitisation

The other big challenge facing the Indian Railways is technology upgrade, especially in signalling and rolling stock, to make its operations independent of human alertness for safety on one hand, and digitisation of the network for better asset management on the other.

The transformation of freight networks is taking place as the railways build independent freight corridors to carry goods, and unfold a 3,500 route km rail network in places where freight density is high. It is expected that over the next two years, the corridors of Delhi-Mumbai and Delhi-Kolkata will be able to run freight trains at 100 kmph.

Today, the procurement of goods and works worth US\$25 billion has almost completely moved to an e-platform. This has led to greater transparency, as well as helped to shorten the procurement cycle and bring down procurement costs.

By March 2024, the Indian Railways expects all of its railway tracks to run on electricity, and that would make it the first railway network in the world to have 100 percent electrification.

The railways have also introduced a human resource management system whereby almost 80 percent of the data on its 1.3 million employees has been digitised. It is expected that in 2020, all human resource functions will be managed through the digital platform. Another development, which was also initiated by South Central Railways, is that 60 percent of railway offices are now on an e-office platform, simultaneously improving transparency and sustainability through reduction in paper use.

In order to tide over the late and, hence, unplanned arrival of passenger trains, the Indian Railways partnered with the Indian Space Research Organisation (ISRO) to develop a Real Time Train Information System (RTIS). Nearly 50 percent of locomotives have been fitted with a global positioning system (GPS) which is connected via satellite. With the help of two satellites, the location, status, and speed of trains are updated every 30 seconds. This real-time information is integrated and helps in controlling train movement and allows for better utilisation of network capacity and the railway stations. The RTIS also helps in monitoring the performance of drivers, and system alerts are generated if the driver is not following the speed limit. By the middle of 2020, all the locomotives will be fitted with a GPS device which will be mapped onto RTIS and monitored through satellite, optimising network capacity.

Plans are also in place to run electric trains and increase the average speed of current trains. By March 2024, the Indian Railways expects all of its railway tracks to be electrified, and that would make it the first railway network in the world to achieve 100 percent electrification. The pace of electrification is about 6,000 route kms per year, with 60 percent of the network electrified so far.

Technologies are also being upgraded for high-powered electric locomotives, and all the electric locomotives are adopting regenerative braking (i.e., when brakes are applied to stop the train, regenerated electricity will be fed back to the system). The railway expects to run only energy-efficient electric trains in five years' time, all of which will have regenerative braking.

Looking ahead

For the first time in the history of state-owned Indian Railways, the colossal task of modernisation involves infusion of private capital. The bidding process for the operation of private passenger trains has been initiated. This is expected to bring in investment of about US\$3 billion for running 150 train sets. The social benefit of the Indian Railways is evident in the government's reluctance to raise passenger fares in the past 15 years. The Indian Railways is encouraging private

firms to offer modern rolling stock for customers seeking a different experience. Delhi-Mumbai and Delhi-Kolkata sectors are also being upgraded to operate passenger trains running at 160 kmph, which will allow private operators to run modern trains and reduce journey time by 20-30 percent. For this process, the organisation hopes to get state-of-the-art technologies from private operators. Funding of freight corridor projects is being provided by the World Bank and Japan International Cooperation Agency.

Starting with South Central Railways, the Indian Railways has proactively undertaken numerous transformative initiatives to upgrade its railway infrastructure and enhance its quality of service. Through its metamorphosis, South Central Railways has improved service delivery to customers while taking care of its employees. The focus on employee training and motivation, along with process improvements through privatisation and digitisation, and the development of requirement-driven infrastructure serve as an example of transforming the old railway systems into a modern, service-oriented organisation.

As the Indian economic engine revs up, the railways is playing its part in nation building. The path is right; and the Indian Railways is well on track to get modernised and become the true engine of economic growth for the nation.

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