Kavach expansion puts ₹50K cr market in play

Nova, Tata Elxsi to co-develop next-gen train protection system

SHINE JACOB
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Inside track

₹50 lakh per kilometre: Cost of track-side and station equipment for Kavach

₹80 lakh per locomotive: Cost of Kavach equipment on locomotives

₹2,354 crore Spent on Kavach so far

₹1,673 crore Allocation for 2025–26

Nova Control Tecnologix, a deeptech subsidiary of e2E Transportation Infrastructure, and Tata Elxsi have decided to co-develop the next generation of India's indigenous automatic train protection (ATP) system, Kavach 4.0, and expect the Indian train protection market to witness orders worth around ₹50,000 crore during the implementation of Kavach Phase-I over the next six to seven years, two senior executives of the companies told *Business Standard*.

The companies are also targeting export markets, including Southeast Asia, Africa, and West Asia, which could boost their business in the long run. Nova announced a strategic partnership with Tata Elxsi to co-develop Kavach 4.0 in October. Nova will serve as the primary original equipment manufacturer for Kavach 4.0, responsible for manufacturing, testing, and integration, while Tata Elxsi will lead hardware and software design, prototyping, safety certification, and cybersecurity engineering.

"The average cost of installing the Kavach system per kilometre (km) is ₹50–60 lakh, and Indian Railways has about 40,000 km likely to be covered initially. For each locomotive (loco), the initial investment will be ₹70–80 lakh. This means the safety segment is expected to see enormous demand for companies in the sector. Overall, Phase-I of Kavach could see investments of around ₹50,000 crore," said Sourajit Mukherjee, director and chief executive officer, Nova. He said Kavach is expected to be rolled out across the Indian Railways network within six to seven years.

The industry expectation comes at a time when overall spending on safety by Indian Railways has nearly doubled from ₹39,463 crore in 2013-14 to ₹1.16 trillion in 2025-26.

"From a technology standpoint, we are future-proofing our architecture so that when Kavach 5.0 comes, including cybersecurity and moving block, it becomes easier to adopt within the existing solution. This way, it will not require a major overhaul after Kavach 4.0. Compared to others in the industry, we will have a more future-ready architecture, enabling a smoother rollout of Kavach 5.0 whenever it comes," said Jayaraj Rajapandian, head of aerospace, rail, and off-highway, Tata Elxsi.

"It is not possible for just two or three players to deploy the system at the pace required. The Research Designs & Standards Organisation has opened up the ecosystem, and more than 10 players have approached it for approval. For us, this is a good time to enter — the product has matured, specifications are stable, and it is ready for engineering rollout," Mukherjee said. He added that private majors see considerable export opportunities in Southeast Asia, Africa, and West Asia, where countries are scouting for cost-efficient and reliable safety systems.

Kavach is an indigenously developed ATP system that aids loco pilots in operating trains within specified speed limits through the automatic application of brakes if the pilot fails to do so. It also helps trains operate safely during inclement weather. The system is being implemented in phases. Kavach Version 3.2 has so far been deployed on 1,465 route km (rkm) of South Central Railway and 80 rkm of North Central Railway.