

PRESS RELEASE

Foundation for Advancing Science and Technology (FAST India) releases State of Industry R&D in India for the Automobile and Components sector in collaboration with IIFL Securities

Key Takeaways

- Global firms outperformed Indian firms in all parameters studied - R&D Intensity, the proportion of PhD qualified employees, patents and publications per billion USD revenue. Of these, the highest disparity was seen in the count of patents per billion USD revenue where global firms produced **30x** patents as compared to Indian firms.
- Ferrari N.V. performed best in three of the four indicators studied. It had the highest R&D intensity (15.2%), the largest number of PhD employees as a proportion of total employees and the largest number of publications per USD billion revenue (935) overall. BYD performed best in patents per USD billion revenue.
- Mahindra & Mahindra stand out for its high R&D intensity amongst Indian firms, investing significantly in innovation compared to its peers. It spends the highest among all Indian firms on R&D amounting to 335 USD MM, more than 3.5x the second highest Indian R&D spender, Maruti Suzuki.
- TVS Motors ranks third amongst all firms (global and Indian) for the proportion of PhD employees indicators. TVS Motors displays an exceptional number of patents relative to revenue. It ranks second amongst all firms (Global and Indian) on the parameter. It has the highest patent count across Indian firms, 2548, around **6x** the second highest, Mahindra & Mahindra.
- Bosch has the highest number of publications per billion USD revenue count across Indian firms and ranks second on this parameter amongst all firms, Global and Indian. Bosch has **1.7x** publications per USD Billion revenue than Tesla which ranks next.
- The top two firms in terms of publications per billion USD revenue amongst Indian firms feature in the low revenue cluster—Bosch and TVS Motors.

20 June 2024, New Delhi: FAST India released its sectoral brief on the Automobile and Components sector for its series on the State of Industrial research and development (R&D) in India in collaboration with IIFL Securities. The latest brief presents an in-depth analysis of R&D trends, innovation outputs, and comparative performance metrics of major Indian Automobile and components firms against their global counterparts. The report underscores significant disparities in R&D intensity, the proportion of PhD employees, patent output, and publication rates, providing important insights for policymakers and industry stakeholders.

The report reveals critical insights into the performance of Indian automobile and component firms in various domains of R&D and innovation, comparing them with their global counterparts as well as categorising Indian firms into high-revenue and low-revenue clusters to provide a more nuanced analysis:

1. **R&D Intensity:**

- a. Ferrari N.V. has the highest R&D intensity at 15.2%, significantly ahead of other firms. Overall, the global automotive firms show **3x** higher R&D intensity compared to the Indian firms.
- b. Mahindra and Mahindra has the highest R&D intensity amongst Indian firms studied (5.7%), almost double the second-best R&D intensity of an Indian company, Bosch (2.9%).

2. **Proportion of PhD Employees:**

- a. Global firms outperformed Indian firms in the proportion of PhD employees by a factor of **3x**.
- b. TVS Motors ranks third amongst all firms (global and Indian) for the proportion of PhD employees indicators.
- c. Many Indian low-revenue cluster firms have negligible/zero PhD qualified employees.

3. **Publications:**

- a. Overall global firms produced **2x** publications per USD billion revenue than Indian firms.
- b. Ferrari N.V. maintains its first rank in publications per USD billion revenue by publishing more than **9x** the second-ranked firm, Bosch.
- c. TVS Motor and MRF rank fourth and fifth in publications per revenue amongst all firms, global and Indian.
- d. Indian low-revenue cluster firms - Bosch and TVS Motor perform well for this parameter.

4. **Patent Output:**

- a. Indian firms significantly lag in patent output, with global firms producing **30x the** number of patents per billion USD revenue as compared to Indian firms.
- b. Amongst Indian firms, TVS Motors, which falls in the low-revenue cluster, has the highest patent count. It ranks first amongst Indian firms for patents per USD billion revenue, and second amongst all firms (global and Indian) studied for this parameter.

Conclusion

The Indian automobile sector is poised for continued growth, driven by significant achievements in R&D and innovation. However, to maintain and enhance its global position, the industry must address the gaps in patents and publications per revenue. By fostering a culture of innovation and investing in intellectual property, Indian automobile firms can secure a competitive edge in the global market.

For a detailed analysis and further information, the full brief is available for stakeholders and interested parties.

About FAST India:

The Foundation for Advancing Science & Technology (FAST India), a nonprofit initiative co-founded by Ashish Dhawan (Founder, of Ashoka University and The Convergence Foundation) and Varun Aggarwal (Co-founder, of Aspiring Minds and The Change Engine), is dedicated to enhancing the Science and Technology ecosystem in India.

In the coming decade, FAST India aims to position India as one of the top three global giants in Science and Technology, harnessing India's immense potential to drive progress on the economic and societal fronts. In the short term, FAST India's objectives include propelling five Indian universities into the top 100 research ranks, tripling the R&D expenditure in the industry, and ensuring that five Indian firms feature in the world's 100 most innovative companies list.

To learn more about FAST India and its transformative initiatives, please visit <https://fast-india.org/>. For press inquiries, please reach out to info@fast-india.org