

Learning at Industrial Speed: From Talent Pipeline to Learning Interface

Automotive companies can no longer wait for education systems to deliver graduates who are then slowly adapted to work over several years. **That adjustment period is shrinking.** Software-defined vehicles, electrification, AI, cybersecurity and automated production are changing faster than many curricula, and the old sequence — school, degree, hiring, company training — is becoming too slow.

Current education still provides an important foundation, but **many gaps sit in the space between theory and application.** Firms need high-voltage safety, battery management, embedded software, cybersecurity, AI, data analytics, digital twins, functional safety and systems engineering. Yet the missing competences are not only technical. Several respondents point to analytical independence, communication, leadership, responsibility, resilience and the ability to keep learning. **There is also a warning against presenting the future as if traditional engineering no longer matters:** a car still contains steel, aluminium, wiring, glass, plastics and rubber, so mechanical and materials knowledge remain part of the next vehicle.

The practical bridge is often too thin. A six-week internship may give students contact with industry without enough time to complete meaningful work, while one-year models allow them to understand processes, people and constraints. **Teaching becomes more relevant when instructors have industrial experience,** when companies open laboratories and factories, and when students encounter real production before their first job. **Public education is accessible but often slow to adapt;** private training can be more targeted, but the cost usually falls on companies, which hesitate when retention is uncertain.

This is why partnerships matter, though “partnership” is too weak a word when the task is to redesign learning itself. Specialised industry-academic programmes, industry-designed master’s degrees, internal PhD programmes, university courses, school visits, summer practice, bootcamps and company academies all point in the same direction: **firms are moving upstream into education because waiting until recruitment is too late.** Some companies work with more than 100 universities; smaller firms may lack the time to engage at all.

The next step is not more courses in isolation. **Training has to be modular, practical, personalised and fast enough for people already at work,** using simulation, digital twins, mentoring and AI-supported learning where they shorten the distance between knowledge and application. The future pipeline is less a pipeline than a constantly maintained connection between schools, firms and the shopfloor.

This brief draws on the TRIREME report [Skills for the Mobility Transition: An Industry Perspective](#), based on structured interviews with 60 industry stakeholders across the automotive and mobility value chain in 2025.



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