Space for ideas

Nodes and networks: when people talk about the new Bosch research campus in Renningen, these terms are frequently heard. After all, networking among the approximately 1,700 associates employed in corporate research and advance engineering (abbreviated “CR”) could hardly be better – physically and technologically. But that’s not all. Within Bosch, networking with others is central to what CR does: ideally, CR acts as an intermediary between academic, basic research and application-oriented research in the Bosch divisions – even when in practice, the boundaries between the two often blur.

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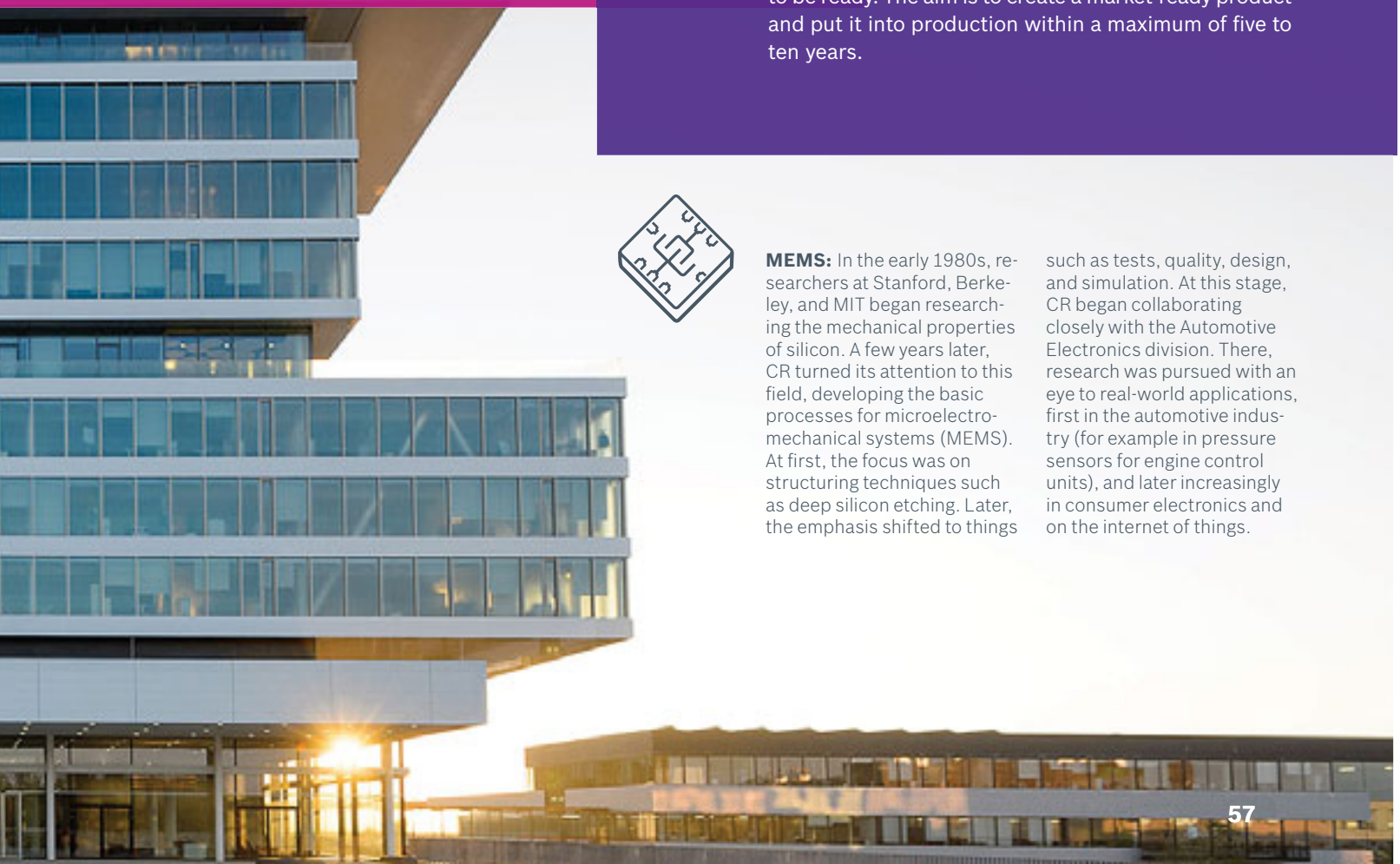
On most projects, CR also works closely with **Bosch's various divisions,** which themselves employ more than **54,000 associates in research and development** in **25 countries** worldwide. The initiative to pursue a particular research topic can come from CR as well as from the divisions themselves. Frequently, development work is done according to the principles of simultaneous engineering, with both sides working in parallel on the same topic. Two years before the likely market launch, as much research responsibility as possible is then shifted to division level.

Renningen is the node where findings from **ten other locations in the international CR network** converge: Bengaluru, Boston, Hildesheim, Moscow, Palo Alto, Pittsburgh, Shanghai, Singapore, St. Petersburg, and Tokyo. Due to their geographical positions, a number of these locations in the "innovation pipeline" often take the lead in the Bosch network.

At the start of many innovation projects, CR collaborates closely with **universities.** This collaboration is often the foundation for future CR research. One important factor affecting CR's decision to initiate research on a particular technology is when the market is likely to be ready. The aim is to create a market-ready product and put it into production within a maximum of five to ten years.



MEMS: In the early 1980s, researchers at Stanford, Berkeley, and MIT began researching the mechanical properties of silicon. A few years later, CR turned its attention to this field, developing the basic processes for microelectromechanical systems (MEMS). At first, the focus was on structuring techniques such as deep silicon etching. Later, the emphasis shifted to things such as tests, quality, design, and simulation. At this stage, CR began collaborating closely with the Automotive Electronics division. There, research was pursued with an eye to real-world applications, first in the automotive industry (for example in pressure sensors for engine control units), and later increasingly in consumer electronics and on the internet of things.