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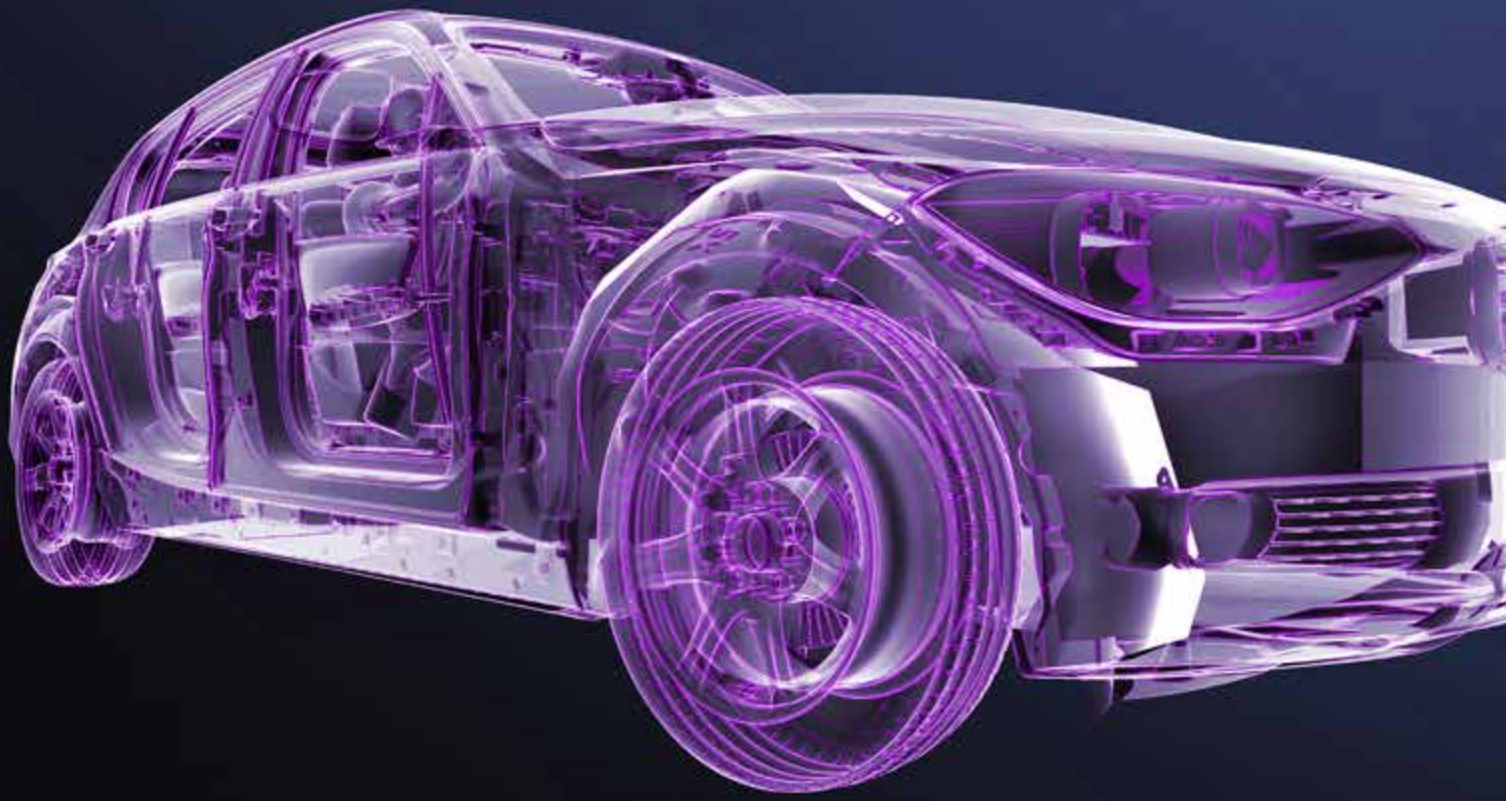
NEXT-GEN R&D FOR AUTO INDUSTRY



The future lies in pan-Asia Pacific R&D

THE FUTURE LIES IN PAN-ASIA PACIFIC R&D

A next-generation model for automotive innovation at scale

For years, Japanese automakers have been establishing R&D outposts around the world with a view to blending their highly industrialized R&D processes with an enhanced understanding and responsiveness to local market needs.

It's been a success—but only up to a point. International expansion has taken R&D activities much closer to local markets and local needs. By expanding the workforce overseas, it has tapped specialist skills found abroad and helped alleviate the challenges of Japan's shrinking working-age demographic. But it has also created some unforeseen issues.

The challenges of making localized R&D work

Because automotive R&D is asset-heavy and requires significant investment upfront, not all activities can be migrated to local R&D centres. This has restricted automakers' abilities to scale their activities and deliver on the promise of market-responsive local R&D.

On top of this, finding and retaining skilled resources has proved harder than expected. Not every geography has the right talent in the right numbers. Furthermore, automakers often find they can't offer the interesting, varied and "cutting-edge" work which that talent is looking for.

A next-generation R&D operating model

The key to solving this puzzle is to stop trying to impose uniformity on each overseas R&D centre. Instead, automakers should be making a wise pivot to a more distributed R&D model—one that recognises the unique qualities of each locality and maximizes their contribution to the value chain accordingly.

Across Asia Pacific (APAC), there are multiple clusters of specialist talent often supported by significant government funding. A successful cross-border R&D model involves establishing a pan-APAC ecosystem of R&D centres that allows the best talent in each cluster to focus on what they do best.

Toyota and BMW have both established R&D centres in Shanghai to capitalize on the large pool of skilled resources in the vibrant local AI start-up scene.[1] Japanese automotive parts manufacturer Denso has also opened an innovative satellite R&D centre in Israel to support development in autonomous driving and cybersecurity.[2]

INDIA

Huge growth potential with a rapidly expanding AI ecosystem and R&D network

29,000
AI professionals[3]

1,165
R&D centres employing ~323,000 people (almost 10% in automotive)[4]

CHINA

Vibrant electric vehicle start-up scene supported by rapid growth in R&D centres

500
electric vehicle (EV) start-ups and counting[5]

39
satellite auto R&D centres established in 2005–2017 alone[6] and 8 automotive engineering hubs

ASEAN

Automotive powerhouse region fuelled by a large expert workforce

Established automotive prototyping and manufacturing supply chain[7]

500,000
employed in Thailand's automobile and auto parts industry[8]

ISRAEL

Cybersecurity and AI innovation hothouse

166
cybersecurity start-ups (16 of which have raised more than $50 million)[9]

950
start-ups and nearly 4,000 professionals developing AI technologies[10]

Getting collaboration right

Because this type of next-generation R&D requires more flexibility and agility than many automakers are used to, it requires the right mix of next-generation technology. Artificial intelligence, for example, enables faster, more automated processes. And immersive technologies can transform remote co-working in virtual “hub” spaces.[11]

Automakers should also consider adopting model-based system engineering (MBSE)—an approach which streamlines design, testing, and collaboration, making R&D significantly more efficient, especially across a distributed network of R&D centres.

Integrating with the ecosystem

Automakers can consider taking next-generation R&D a step further. By looking to the fast-emerging networks of third-party players and start-ups in the automotive space, companies open up many more opportunities to leverage specialist expertise.

China, for example, has a large and exciting EV start-up scene. A number of emerging companies are flipping the traditional waterfall design model on its head and taking a "software-first" approach to vehicle development.

From Continental and EasyMile’s new autonomous driving centre in Singapore,[12] to FAW and Byton’s collaboration on product R&D, manufacturing, sales and services,[13] automakers are increasingly looking to the ecosystem to drive forward their innovation agendas.

The future lies in pan-Asia Pacific R&D

Innovating across borders is a challenge. But, by abandoning country-based siloes of R&D, and looking instead to a pan-Asia Pacific ecosystem, automakers have the chance to make far better use of the vibrant clusters of talent and resources the region has to offer. This, ultimately, is the key to innovating at scale.

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