NASSCOM urges setting up of super innovation clusters to accelerate auto ER&D

With a dynamic track record in software-related research and development in India, the national association of software and service companies – NASSCOM – is now pushing for all-encompassing regional hubs to drive a new wave of innovation in engineering and R&D to benefit various sectors including automotive. Mayank Dhingra reports.

Ever since India, along with the rest of the world, raced to find immediate response measures to the outbreak of the Covid-19 pandemic earlier this year in March, IT and digital solutions have emerged as key enablers ensuring business uptime even in a remote working environment, when the majority of the global workforce has been working from home to avoid social gatherings.

Being a superpower in software, and with its vast reach and a healthy global clientele, India is a hotbed of digital companies in the space of IT and software that are driving research and development (R&D) to innovate newer technologies for making people's lives easier. Now, with the entry into the post-Covid era, there are new avenues opening up for India to explore its capabilities in the engineering, research and development (ER&D) space and tap the humongous opportunities lying ahead.

To discuss the underlying scope for diversification and enhancement of India's technical abilities, especially in the field of software, the annual NASSCOM-*Autocar Professional* industry roundtable, which was held virtually for the first time, drew various experts having an expansive experience in ER&D, particularly related to the application of software systems in the automotive sector.

The Covid-19 pandemic has accelerated the widespread adoption of digital technologies and moved the world closer towards being a fully-connected ecosystem in a comprehensive manner.

The discussion which was moderated by *Autocar Professional's* Sumantra B Barooah, spanned across various topics including the Covid-19 impact and its associated challenges. The general consensus among the National Association of Software and Service Companies (NASSCOM) members was that India needs creation of super innovation clusters to accelerate the pace of ER&D and enable the country to emerge as an even bigger global powerhouse by allowing talent to flourish in a collaborative environment.

Kicking off the discussion, **KS Viswanathan, vice-president, Industry Initiatives, NASSCOM**, said, "The trustworthiness factor of India as a capability centre for global IT solutions has grown manifolds over the past six months after the outbreak of the coronavirus pandemic and the enforcement of the first nationwide lock-down on March 24. Within a span

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KPIT Technologies' Kishor Patil: "Since the role of software in vehicles is going to increase, OEMs will need their partners to scale it up and do it at the right cost. This is a very big opportunity."

MBRDI's Manu Saale: "After the pandemic, automotive seems to have a renewed vigour in using digitalisation to redefine mobility. We will see more software going into cars from India two years down the line."

QuEST Global's Ajay Prabhu: "Of the 2,000 largest engineering spenders, only 50 percent are doing something relevant in India. So, there's a vast opportunity lying ahead of us."

Electra EV's Samir Yajnik: "Expect collaborations, acquisitions and consolidation. A super innovation cluster offers a shared infrastructure and enables faster development of technology."

of 24 days, almost four million people across the country were moved to working from home and close to two million assets were moved to home-office environments. Business was also as usual for more than 90 percent of the customers within a span of 22 days."

While businesses were impacted and the severity of a complete closure of all non-essential activities wreaked havoc on lives and livelihoods together, there, however, has been quick progress in terms of initiation of recovery at least in some sectors like automotive. "On the whole, the industry is moving towards recovery much faster than what we had expected and the trust for India to be a global development centre for the world, especially for engineering is increasing," said Viswanathan.

"The Covid-19 pandemic has just generally accelerated the drive to digitisation in the automobile as well as aerospace sectors and therefore, in the next three to five years, the recovery will be much sharper with a sort of a double-head engine driving the power," he added.

With a US$ 32 billion (Rs 236,832 crore) industry that serves 11-sub verticals including semiconductor, automobile, telecommunications and aerospace, India's thriving ER&D space can unlock more potential in the recent upticks observed in healthcare and energy services, which have been triggered by the pandemic as well as crashing of the global crude prices, respectively. So, how can we go about making India an advanced centre for innovation and global research and development?

According to **Ajay Prabhu, president, Technology Services, QuEST Global**, "India is projected to become the third-largest global economy by 2050 and the onus lies upon us to determine whether it would continue to be so on the back of IT and software or by becoming self-reliant in other facets such as aerospace and high-speed trains as well."

"In my view, as a nation, we should first shortlist a few domains where we have a relative advantage over other countries and then, put focused energy behind it and try to become the best in the world. While the recognition is coming from the government's end which is leading to the formulation of an exclusive ER&D policy in the country, what we would like the government to wholeheartedly undertake to create innovation super clusters," Prabhu remarked.

The idea of an innovation supercluster revolves around creation of research hubs that are inclusive of universities, government labs, investors as well as start-ups. With governance from an innovation authority, the top-down regulatory approach will promote R&D in these clusters.

"Where on one hand, we are pushing for these clusters, we also want the government to be welcoming for business. The fact is that of the 2,000 largest engineering spenders, only 50 percent are doing something relevant in India. So, there's a vast opportunity lying ahead of us," added Prabhu.

Contributing his converging views, Viswanathan added to the list of recommendations for the government's regulatory

The intuitive in-car infotainment system software titled Mercedes-Benz User Experience or MBUX is unique in its ability to learn thanks to AI. MBUX can be individualised and adapts to suit the user, creating an emotional connection between the vehicle, driver and passengers.

action and said, "To get more and more FDI in ER&D in India, what is required is a competent ER&D policy, which is currently being developed and has already surfaced in some states."

"On top of that, ease and cost of doing intellectual property and developing an ER&D technology for the current augmented capacity or identifying three to four key technologies where India can excel by diligent hard work in the future — that's how we can work on establishing super clusters of innovation. While it takes time, we are seemingly in the right direction," he added.

Digitisation redefining mobility

Bringing an OEM perspective from the automotive industry, **Mercedes-Benz Research and Development India's managing director and CEO, Manu Saale** said that the car has transformed into a software product on wheels, and that tells a lot about the dependence on software in the times to come, considering how OEMs are pitching mobility to the world. "While there is a lot of focus on customer-related functionalities that can be added as layers in a car, it all depends upon how much software can be embedded into the product and the talent required to do so, which is determined by India's demographics and competence positioning in this space," he remarked.

"For India, we'd probably be talking only about software going from the India research centres of various carmakers into their cars two years down the line, and even though there's a conscious attempt from the ER&D circles at NASSCOM for the government and industry to consider ER&D away from IT, it still has similar potential as IT because software as a generic term is playing a huge role in the redefining the automobile, or even sustainability for that matter.

"Having said that, IC-engine companies like Mercedes-Benz and an ecosystem like India with its humongous automotive vendor parc, will have a major contribution in redefining the automobile in the coming years. After the pandemic, automotive seems to have a renewed sense of vigour in terms of using digitalisation and software to change the way we look at mobility," said Saale.

Kishor Patil, co-founder, managing director and CEO, KPIT Technologies, pressed further upon the increasing footprint of software and how automotive OEMs would need to partner the right technology players for scaling it up in the coming future. "I feel we should look at building upon our strengths, of which clearly the first is software. But we are seeing some disruptions happening in that space such as cloud transformation with data moving online, OTA updates for vehicles, et al. Since the role of software in vehicles is going to increase, OEMs will need their partners to scale it up and do it at the right cost. This is a very big opportunity in my mind," said Patil.

Talking about new opportunities, he further added, "There is a lot of localisation that is required in modern technologies, for instance, autonomous driving technologies and electrification, which need to be customised to work for the Indian environment and road conditions."

Innovation driving electric mobility

The discussion also included the advent and adoption of e-mobility in the country which is one area that is largely propelled by software solutions driving hardware systems. Since an EV replaces close to 99 percent of the movable parts in an IC-engine vehicle and brings about an astonishing level of electronics and software content, it is currently witnessing a lot of start-ups and new players entering the space with their innovations and in many cases, breakthrough products such as the home-grown Ather 450X and 450 Plus electric scooters.

Software is the burly force behind modern breakthrough technologies such as autonomous driving and vehicle-to-vehicle communication, which are set to drive improvements in road safety.

Samir Yajnik, executive director, Electra EV, mentioned, "Electrified cars have far lesser number of parts compared to conventional cars. In that sense, there are half-a-dozen ambitious new companies which are aiming to enter the space and dream of evolving into full-fledged OEMs. And since the competency in EV technology exists in India through presence of Tier I suppliers such as Bosch and KPIT, the new entrants are trying to solve local market challenges and finding solutions to existential problems such as last-mile connectivity and delivery.

"I foresee that the trend in India would go towards establishment of super innovation clusters which would push invention of relevant technologies. On the business side, we expect people to build innovative business models in the digital future," he added.

With respect to collaborations in the EV space, Yajnik mentioned, "Today, everything is sub-scale in the electrification space. Even OEMs are falling shy of committing full investments and are therefore collaborating with other players including Indian start-ups or those from China and Japan which are willing to bet on these new technologies."

Citing an example of collaboration at Electra EV, he added, "We currently have two consortiums – one with IIT which is working with large companies on electrification, and secondly, we have got a partner for connected technology as well as a collaboration to get the chassis (glider) upon which we integrate our electric powertrain.

"In the near-term, we are going to see a lot of collaboration and even acquisitions happening at the smaller scale while in the longer term, I do see some consolidation happening. This is the exact reason why we are pushing for a super innovation cluster to be created to offer a shared infrastructure and enable faster development of technology," said Yajnik.

Skilling enhancing R&D

The panellists at the roundtable also touched upon the key aspect of skilling, which plays a crucial role in determining the progress of R&D in any company or country for that matter.

According to Patil, "From the government's side, the biggest infrastructure that we need is skilling as that is the very fundamental requirement to drive ER&D, and technical as well as people skills need to be of top-notch level in this regard."

"While NASSCOM has been working for quite some time, but specifically in embedded software, there is a lot of time required for engineers to get ready. It becomes easy as one keeps things relevant with the times and needs of the market," added Patil.

The gap between academia and industry readiness has been perennial according to Mercedes-Benz R&D India's Saale. "While there has been a constant effort from various pockets of the industry, starting from the initial times when NASSCOM put together the syllabus for different domains of electronics and software, from an MBRDI perspective, even today there is a six-month wait before one exposes a technical talent to the outside world. And while technical skills are quite good, what is lacking is interpersonal and cultural skills."

With the demand for in-vehicle connectivity growing by leaps and bounds, the software content in automobiles is growing stratospherically.

NASSCOM has been undertaking various reskilling and upskilling initiatives to bridge the gap between industry's needs and academia's readiness.

"Having said that, the intensification of the efforts between industry and academia is very heartening to see as universities now want industry experts to be on their advisory board and also take regular lectures. NASSCOM has been working on reskilling and upskilling which is a commendable effort and is helping bridge the gap in the best possible way," remarked Saale.

According to Prabhu, "We have also experienced similar things and on an optimistic note, the induction time for a new employee has reduced from one year to three to six months. We cannot put the entire responsibility on the education system. The university's job is to create a think force that is able to learn; it is not their job to prepare the student for every set of job or domain that the industry offers.

"The ability to learn and screen the best talent from the crowd should be their key role and responsibility as engineering is a very passionate domain and we ourselves want people to explore things for some time, before taking on their responsibility and becoming productive in their jobs," he concluded.

So, as the discussion came to a conclusion, the key takeaways from the NASSCOM-*Autocar Professional* roundtable were that even as there is some recognition from the government's end as regards the industry's capabilities, the establishment of super innovation clusters would be the bigger driving factor in enhancing India's position as a global R&D base and invite more innovation and IP into the country. With digital technologies quite literally having the back of a predominant part of humanity after the Covid-19 outbreak, one cannot leave even a single software unclicked to ride the surging wave of digitisation and be catapulted into the dynamic future. ■