



# PROPEL

ISSUE 25 | APRIL 2021



A Special Series  
on Future of

**Mobility | Manufacturing | Talent | Market**

with  
**Dr. V. Sumantran**  
Celeris Technologies

with  
**Vijay Kalra**  
Mahindra & Mahindra

with  
**Anita Ramachandran**  
Cerebrus Consultants

with  
**Girish Wagh**  
Tata Motors



# *The World of Rane*

*Rane Holdings Limited (RHL)*

*Rane Brake Lining Limited (RBL)*

*Rane Engine Valve Limited (REVL)*

*Rane (Madras) Limited (RML)*

*- Steering & Linkages Division (SLD)*

*- Light Metal Casting India (LMCI)*

*- Rane Auto Parts (RAP)*

*- Rane Light Metal Castings Inc (LMCA)*

*Rane NSK Steering Systems Private Limited (RNSS)*

*Rane TRW Steering Systems Private Limited (RTSS)*

*-Occupant Safety Division (OSD)*

*- Steering Gear Division (SGD)*

*Rane Holdings America Inc. (RHA)*

*Rane Holdings Europe GmbH (RHEG)*

*Rane t4u Private Limited*



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publishes The Smart CEO  
magazine

# INSIDE THIS EDITION

Welcome to Rane Propel's milestone 25th edition. We look back at the journey so far with a certain pride and also with a little apprehension. We have to continue to meet the expectations and deliver issues that are informative and maintain the standards set so far. We expect the journey forward to be exciting and challenging, and with your continued support, hope to deliver on our promise.

In the current issue, we share a snapshot of how Propel was started and display the covers of the 24 issues and some views and reviews in our cover story.

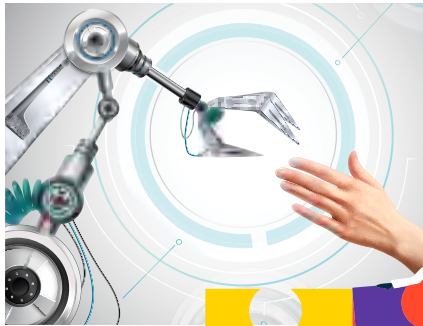
As we plan our future issues of Propel, we also bring you a **Future of special series** covering the changes happening in Mobility, Manufacturing, Talent and Market. We feature excerpts from discussions between Rane's senior management and industry experts on these topics.

Rane is known for its inclusive approach to work. As part of that, we celebrated Women's Day grandly honouring our women employees. Don't miss the photographs from this event.

In the photo story, we take you on a tour through our seat belt factory in Singaperumal Koil, Chennai.

We hope you enjoy the issue as much as we did putting it together.

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## Celebrating Rane Propel's



I am delighted that we are publishing our 25th edition of our Group's Corporate Magazine - PROPEL. In early 2012, I vividly remember the discussions with Mr. L. Lakshman, our Chairman Emeritus, and Mr L. Ganesh, our Chairman, on the need for creating a Group Magazine that will not only help connect with all our employees but also with all our important stakeholders. It gives us an opportunity to share our stories, celebrate our successes, showcase our efforts at continuous improvement and our capabilities. It continues to act as a platform to exchange perspectives from our customers, board members and suppliers. It continues to serve as a medium to share all our social responsibilities beyond business – especially Rane Polytechnic Technical Campus and Rane Vidyalyaya.

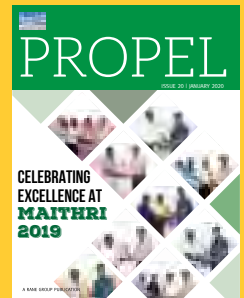
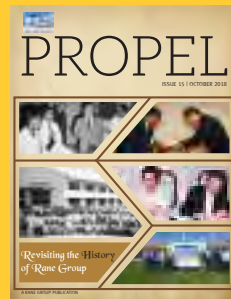
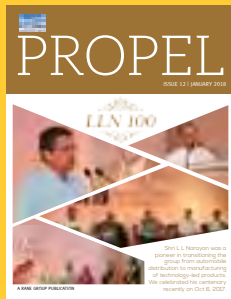
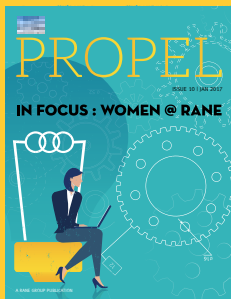
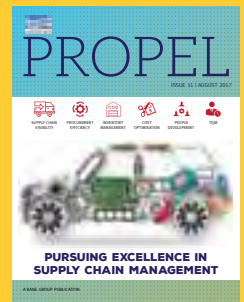
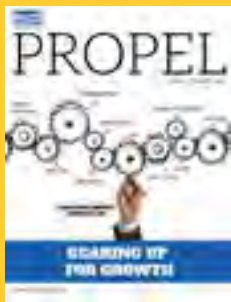
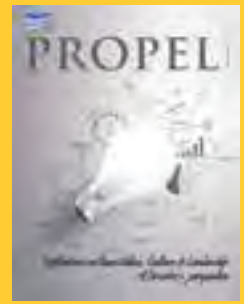
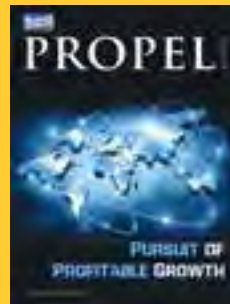
We were always inspired by Sanmar Group's corporate publication MATRIX and it motivated us to initiate PROPEL. Nine years and 25 issues later, it is gratifying to look back to August 2012 when we launched our first Issue. Over the years, the magazine has undergone changes to the layout, format, topics and even the periodicity. The magazine has won the ABCI (Association of Business Communicators of India) award, and continues to be published with equal fervour and conviction.

We take this opportunity to thank all the esteemed contributors who have been featured in various editions of Propel. Their perspectives benefited all our readers.

I hope you enjoy reading this Issue # 25 and we look forward to many more years of Propel.

**Harish Lakshman**

*Vice Chairman – Rane Group*





# Views and Reviews

Hearty congratulations to Rane Propel on the completion of its 25th issue. It is no mean achievement to create a magazine of such quality issue after issue, providing insights on the industry, economy and the company. I also had the privilege and pleasure to have shared my views in the magazine as a board member and been a part of the journey. I wish the magazine all the very best for many more such high quality issues.

**S. Sandilya,**  
Independent Director, RBL

"Being a relatively recent entrant (2.5 years) to Rane group, I have found reading the old issues of Propel to be very enlightening. In addition to learning about the long history of the group, I have seen remarkable consistency in these issues on operational excellence, customer focus and employee involvement. I wish many more issues of Propel to come."

**Murali Rajagopalan**  
– President, REVL

It's really great to see that our Rane Propel has been part and parcel of our company for these many years and it is a well-deserved silver jubilee.

1. Way of education: Propel really served as a great tool for spreading the word to all employees about the organization on how our business operates, what kind of developments are taking place and also the ideology of the top management.

2. Boost awareness: It also serves as a portal for sharing the latest updates, advancements and also the important events occurring in the industry.

**S. Kavinraj,**  
R&D, RML-SLD

Wonderful platform for the leaders of Rane group to share their thoughts, eminent leaders from the Auto Industry to share their insights, technical experts on technology progress and employees on their ideas and achievements. I got associated with this magazine in August 2017 when I shared my thoughts and since then I have been a regular reader. Overall, the Propel is an initiative that is immensely beneficial not only to the Rane group of employees but for the auto industry as a whole I would say. Best wishes to Rane team for propelling to greater heights in the years to come with Propel.

**R. Sivanesan,**  
– President  
(Quality, Service & Parts),  
Ashok Leyland

Kudos to the Propel core team for their zest and energy in bringing out the best from across our Rane Group. The quarterly journal brings to life the happenings at Rane and showcases the same to the entire Rane family.

Most of the articles - with internal authors - are a confluence of experienced leaders and creative youngsters - offering a great platform for networking and continuous learning. Wishing the editorial team more success in the days to come. Happy Propelling

**S. Bhargav,**  
AVP – Marketing, RBL

The magazine is in line with the current scenario and keeps us abreast of the happenings at Rane Group companies. I feel it's the sense of motivation that brings in affiliation towards any organization. And this magazine serves as a great tool to have us motivated and competitive.

**Akshaya Padma Varshini,**  
CMMD, RML-SLD

I have been reading Propel for quite a few years now and I always find it to be a most informative publication. It helps me keep in touch with the latest developments at Rane and thereby also gauge what is happening in the automotive industry. The quality of the layout, the pictures and the write-ups are exemplary. I wish the publication and the Rane Group the very best.

**V Sriram,**  
Author – The Rane Story

Propel has been a well-recognised part of the Rane Group's Corporate Communication practices. It sure does connect us with the world of Rane - its views, goals and achievements, thus providing a platform for sharing views news and experiences. The "family – feel" emotion that every issue gives is unique and satisfying. As a spouse, I feel so networked with my husband's company and happy to read about the achievements and accolades.

Amidst the cataclysmic challenges and the new normal changes – it's overwhelming to await the silver edition of Propel – kudos to the entire team who meticulously plan and bring out the issues and stay connected. Congratulations and wishes for the Rane Group to Propel forward, steer ahead and expand horizons!

**Deepa Makeash,**  
wife of A. Makeash, President, RTSS-SGD

# Moving Towards a Faster, Smarter, Greener World

*From talking about the future of automobiles, the conversation has shifted to the future of mobility due to the fast-changing nature of automobiles as well as the need for an integrated and variegated mobility infrastructure that aligns with the urban infrastructure.*

*In a conversation with Rajesh Raghavan (RR), President, Rane NSK, Dr. V. Sumantran (VS), Chairman, Celeris Technologies, discusses how emission control, population density, a city's connectivity and culture and electronics in vehicles are impacting the idea of mobility.*

**When we speak of the Future of Mobility, some of the factors that will have an impact on mobility in the short-term and long-term...**

**VS:** In the short term, we see automotive pivoting to electrification. The world is talking about carbon emission and for automotive it is not just carbon emission but also tailpipe emission. With stricter emission norms for vehicles, we are seeing electric vehicles in varying degrees of adoption across continents. In the US, the headlines are about Tesla. In Europe, it is about big automakers very quickly taking big leaps. Even in India, the government policy related to FAME and newcomers such as Ather, Ola electric, etc. are capturing headlines. Parallel evolution is electric fleet companies. Amazon just got an order for 240,000 electric vehicles in the US. Even here we see the beginnings of EV fleets. Mahindra Electric has signed up with Amazon in India. The demand from the marketplace will change the requirements. We need to recalibrate the way vehicles are sold – lease, share, etc. The pace is accelerating so we must prepare to fast-track the migration to electrifying mobility.

In the longer term, CASE – Connected, Autonomous, Shared and Electrified – will remain relevant. Autonomous is taking slightly longer and moving along a slightly different trajectory, but I think higher degree of autonomy in many functions can be expected. Post-Covid, questions about urbanization and population densification have



become important. For example, related to shared mobility there are new concerns - will people be comfortable travelling in crowded clusters, whether in mass transit or ride-sharing? These are things that are going to change public perception. This will modify the trajectory that industry had planned for CASE. But by and large, greater degree of connectivity, greater degree of electrification and some degree of sharing of assets and some degree of autonomy will be inevitable going forward.

**On cross-learning from software industry and how the cars are becoming supercomputers...**

**RR:** We are seeing some level of autonomous solutions deployment apart from niche vehicles, also in mass vehicles. The electronic component in the cars is going up with lots of software not just for connectivity, music apps, or navigation apps. From being a hardcore hardware oriented the automobile is also seeing a lot of software being integrated into the vehicle. Like in the TV industry, where we moved away from fat boxes to sleek panels, can we can expect some Kodak like fast migration in the auto segment too.

**VS:** Absolutely. There has been a monotonic increase in the electronics component in a car with 45% of the value of high-end cars coming from electronics. In fact, a Mercedes S-Class that you can buy from your local dealer and get serviced from a local service centre in Chennai today has 200 million lines of software code to drive the car as against about 15-20 million lines in a Boeing 787 Dreamliner! Software and related functionality



are dramatically changing the product. The confluence of consumer electronics with mobility in the auto industry is making a very big impact. Equally, the auto industry used to be fastidious about setting up firewalls for information. Today Tesla does an over-the-air update of your operating system - which was unheard of. Also, the confluence of consumer electronics with mobility in the auto industry is bringing along with it several pure consumer electronics players such as Flex or Jabil or even Foxconn who are now becoming tier-1 suppliers to the auto industry.

When I was a young engineer in this industry, we were wondering how to package a 20-inch wheel in a car. Today the question is can we integrate a 20-inch screen inside a car!

**RR:** 200 billion lines of code! Vehicles are becoming supercomputers.

**VS:** In the last generation, we had about 120-150 CPUs on high-end cars, which was increasingly very difficult to manage. Today there is a trend towards fewer but more powerful parallel processor units, effectively making a car run on a limited number of supercomputers. This is seeing players such as Nvidia, Qualcomm, Intel etc. enter this space. This also implies more software-defined functions.

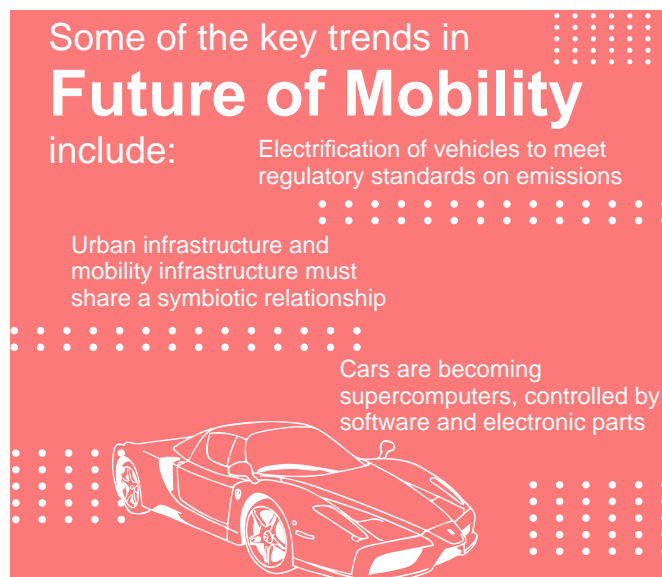
**RR:** As long as it is a niche/premium vehicle, this makes sense from a pricing point of view. But as this gets pushed to the mass vehicles, there is going to be a significant increase in the cost pressures on the industry. This will have a cascading effect on the supply chain as well. Will that also have an impact on how the industry is structured?

**VS:** Computing platforms are scaling up very dramatically. We are seeing compact mid-priced cars employing what used to be expensive technology such as lane-following technology, adaptive cruise control, blind spot warning - all kinds of such features. These features will also motivate the re-alignment of the supply chain as we just talked about.

### On city planning and impact on mobility...

**RR:** In your book 'Faster, Smarter, Greener', you touch on how city planning must happen. Based on your research and findings, have things changed since then? Has the adaption been faster than you anticipated or slower?

**VS:** Mobility is no longer only about cars, the environment also has a role to play such as the city planning, the streets etc. There is a symbiotic relationship between mobility architecture and urban architecture. Urban architecture is what kind of a city are you; what is your



density distribution; what is your vertical growth - are you a skyscraper city or horizontally sprawled?

In Hong Kong, barely 9% of the vehicles are privately owned, the majority 91% are either public, taxis or shared due to the dense population. Cities like Singapore are encouraging public transportation with a policy and urban architecture decides the mobility architecture where people depend on taxis, metros, trains for mobility. Shopping malls are sitting inside metro stations so that you don't know where one ends and the other begins.

Los Angeles, in contrast, is a city where urban architecture is developed around cars. It houses around 10 million people, around the same number as London, but has 8 times the area of London. LA has the most kilometers of road lanes per capita, and the most number of vehicles per capita. It also has the worst traffic congestion and the worst air quality. For us in India, we need to contemplate which kind of future we desire.

Every city's architecture has to be aligned to the culture and needs of the people. We created a CHIP framework, which stands for Connectivity, Heterogeneity, Information Integration and Personalization. This can be used to create the right kind of architecture best suited for that city with the right kind of heterogeneity. The elements that come together will depend on what the consumers want, what are the technological possibilities, what are the policies, regulations and entrepreneurship models.

What has changed since the book launched is Covid. For 150 years, the entire world had been increasingly focused on cities. In 1900, one out of every six people was urban. By 2050, 4 out of every 6 persons will be urban. Will a pandemic like Covid change our willingness to live,

commute and work in very people-dense environments? We have to see how society will accept this. Society will voice new priorities and we will need new tools and new solutions. While the boundary conditions will continue to change the CHIP framework can be used to re-balance and nudge society towards newly relevant and desired mobility architectures.

## Route to electric mobility

**RR:** When we look at carbon footprint, EVs are a solution but still we are not seeing that shift. So what can we do from a green perspective to make that change?

**VS:** From carbon footprint perspective, we need to understand the well-to-wheel picture (WTW) for EVs in various parts of the world. For example, if we take Texas and Norway - the fuel that powers the electric grid in Texas has a high proportion of fossil fuel. In Norway, their grid is fueled mostly by renewable energy. That makes a big difference between the electrification in Texas vs in Norway. The current energy basket that feeds the grid in India includes thermal power plants, hydro power plants, gas turbine plants, wind turbines, solar farms, etc. Today a detailed WTW analysis will show that EVs are roughly on par with a highly efficient combustion engine for WTW carbon emissions. But that's a static picture. What we must plan for is what it will be in 2030 and 2040. Most of the new energy coming on board in India today is substantially renewable. And when you look at the trajectory for India, by 2030, we will cross 20-22% of renewables and by 2040, you will even cross 30%. At such levels, even the extra 10% makes a huge difference in favour of EVs. This is one part of it and addresses only carbon emissions. The other problem in many Indian cities relates to local air quality caused by tailpipe emissions. With electric vehicles, you can avoid that. This helps in moving the emissions from cities to the place where power plants are located. This will make it relatively easier to control than fixing it with millions of vehicles.

For widespread adoption, EVs need to achieve cost parity and charging infrastructure must be easily available. EVs have not yet achieved cost parity and cost innovations are going to be important. The second is infrastructure. Without electric charging infrastructure, customers will be reluctant to purchase EVs. So we have to make sure that it gets deployed. Thankfully there are many hopeful developments underway in this regard.

## The changing nature of the auto industry

**RR:** One of the impacts of the cost concerns is the possibility of the industry becoming oligopolistic. Would there be greater consolidation and the evolution of tier 0 suppliers or the mega Tier 1 supplier who can control electronics and manufacturing together?

**VS:** OEMs are trying to re-architect themselves and shift to become mobility providers. Hyundai, Daimler, Toyota, Volkswagen, Ford -- all are making their presence felt in the mobility segment with investments in e-bikes, parking garages, ride-hailing services, etc. They are also cooperating to improve economies of scale -- like GM-Honda for EVs. Large supplier alliances are also being formed with vehicle makers, electronics manufacturer, battery makers, etc. For example - Foxconn has setup the MIH alliance. Fundamentally, these are motivated by a race for higher value creation amongst all these players.

One of the biggest concerns for auto OEMs had been whether the tech giants like Google and Apple would impact their market share. This can be a significant disruption. OEMs and Tier-1s will need to realign business strategies to remain relevant and add value to their customers.

There are several takeaways from these developments. One, engineered solutions will remain critical. Two, we must be proficient in mixing hardware and software to create integrated systems. Three, Innovation and IP creation will be important. Importantly, all these will work only with a good measure of cost innovation.

**RR:** What are the innovations that you see it coming?

**VS:** AI will be ubiquitous -- travel, shopping, etc. The expanding role of virtualization is another -- leading to augmented-reality, mixed-reality etc. Instead of having real-estate intensive dealership lots, car retailers will invite customers to experience the cars through VR in attractive studios. The way cars will be bought and sold will see transformation. In some cases leases and on-demand rentals may change the need for car ownership. Material innovation such as the introduction of nanomaterials and the evolution of the material processing all promise to make this a hugely exciting phase for the industry.

## Self-driving cars - will people accept it?

**VS:** For much of the last decade, every year, leaders in the pursuit of autonomous driving -- Uber, Tesla, Waymo, Cruise etc. say widespread deployment will be three years away. In reality, the full "go-anywhere, any-time, any-condition" autonomous driving is proving to be very difficult. We may not see it very soon, but we likely experience a different kind of autonomous driving in highly constrained environments. In Paris, a low-speed shuttle in a dedicated lane is being used by public. Pragmatic adoption of autonomous driving means that we will redefine the parameters and constraints and keep pushing the limits. It is not sci-fi, nor a futuristic reality as of now but sensible, practical evolution.

# Technology + People = Success

*Adopting new technologies for the sake of it can only get one at par with the rest. To be truly competitive, it is essential for manufacturing businesses to build on strengths, adopt relevant technologies and skill/train people to use them effectively.*

**Vijay Kalra (VK), Head - Mahindra Institute of Quality & Chairman - Central Safety Council and G. Parthipan (GP), CEO, RTSS, discuss the impact of Industry 4.0 on manufacturing and productivity.**



## On the short and long-term impact of Industry 4.0 on manufacturing...

**VK:** Industry 4.0 was just a buzzword 5 years back but now is a part of common lingo used by manufacturing engineers as they realize its high impact potential. While Industry 4.0 originated from developed countries, it is important that we find our own path in adopting this concept for our needs rather than copying them as is.

India will witness an increase in the use of technology, basis the learnings from initial adoption e.g., applications such as robotics for reducing cost in complex processes, greater asset utilisation through IoT based predictive maintenance, higher labour productivity through Cobots, deskilling through Virtual Reality, e-DWM in real-time and many more, are providing good business benefits, and such applications will see a rise in the near term.

Early implementation will help one have an edge over the competition, but one will need to judiciously decide where to focus/what can wait based on capability and resources required to manage the transition.

In the long term, I see Industry 4.0 having an inevitable growth to the point where the technology becomes omnipresent like mobile phones, wireless internet, and other technologies that we take for granted today. The idea of a product/equipment talking to the other product/equipment virtually and use of AI will become the new norm. Only those companies which can get real cost / quality advantage & are agile enough to meet customer changing expectations through digital manufacturing and

SCM will survive. After all, winning happens only when you have a holistic answer better than others.

**GP:** Industry 4.0 concept was debated 10 years ago. In the first 5-6 years, we did not see much development but in the last two-three years, we see a lot of initiatives across the manufacturing segment. Earlier, even in our own facility, all our quality endeavours were in bits and pieces, missing the connection between the physical and cyberspace. With Industry 4.0 and the connectivity to the Net, the data is now well-integrated.

I expect asset utilisation to improve in the near future with predictive manufacturing and plant engineering leveraging Big Data analytics for the purpose. Labour productivity is also expected to improve. Digital controls are increasing, and, in a few years, AI/ML will have a greater role in shaping Industry 4.0 initiative. We will see the beginnings of Industry 5.0 where robots and people work together on a small scale. As the manufacturing industry, OEMs and Tier-1s get their act right on the shop floor, it will put pressure on SCM.

At the macro level, industries are going to face huge pressure due to cost competitiveness, MNC, and SCM efficiency.

## On the flexibility needed to meet the fast pace of change

**VK:** We believe flexible manufacturing capacities will be the answer to cater to the ever-changing needs of the customer. Technologies like Robotics, IoT, Digital Twins, AI



& AR / VR are the key levers for enabling lean and flexible manufacturing.

Sharing a few examples of how we are building flexibility while creating facilities/ capacities:

- Common machine shops and paint shops were always available. We started working on multiproduct assembly lines and, of late, multi-product body shops.
- The body shop is capital intensive and traditionally every product had a unique body shop. We made significant changes at the Nasik Body shop.
- The team took a challenge to convert this one-product body shop to a four-product body shop with 100% flexibility between products and 3x capacity. Using robotics/automation, we developed the capability to schedule any product any time and in any mix.

Now we are replicating similar concepts whenever a new capacity expansion is planned.

**GP:** Model changes and shorter lead times will be the biggest challenges. At the beginning of the month, we get a requirement from the marketing but by the end of the month, end-market pull causes multiple changes. Managing this becomes very important.

### Aligning the team to the new requirements...

**VK:** Of course, when you talk about automation and robotics, employees worry about their future. I think it is important to have adult-to-adult conversations with them, instead of taking a parent-child communication approach. Being truthful may cause some worry/ discomforts initially, but alignment happens when we all experience benefits. Once the employees realize the company's good is their good, they start supporting this change.

Four years ago, when there was a talk about Industry 4.0, we designed a program and invited experts to train our people in large numbers both staff and shop floor technicians in digital centres we had created for learning and development. We believe that ecosystem should willingly accept technology for their betterment instead of imposing it on them.

Additionally, we have also invested in creating 'Digital Experience Centre' (DEC) at Mahindra Institute of Quality to provide employees with an immersive experience in emerging technologies like AR/VR/MR/AI etc. The uniqueness of DEC is that world-class technologies can be explored in an informal edutainment environment.

We, at Mahindra, believe happy, engaged, and capable employees giving their best is the long-term real differentiator.

### The shifting balance between permanent and temporary workers...

**GP:** The ratio of permanent to temporary workers has reversed in the last three to four years. They need to be deskilled and provided training in the new ways is the mantra today.

**VK:** Technology is making things much simpler for both permanent and temporary workers; a classic example is the use of Smart Phones. In manufacturing shop floors too, the workstations are getting deskilled, quality and safety-related workload is being taken over by technology. There is an increase in the deployment of the flexible workforce to manage workstations that in turn helps to manage demand fluctuations.

However, these changes will require skilled technicians for managing technology. Regular associates are being reskilled/upskilled and are manning critical workstations, maintenance activities and quality inspections. Our experience has been that once front-line employees are aligned; they respond positively to not only upskilling but also contribute towards improvements through suggestions.

### Breaking mindsets to adopt the fast pace of changing requirements...

**GP:** Given the complexity of Mahindra and the wide range of products, you must have faced lots of challenges in breaking mindsets...

**VK:** Mindset is a challenge as well as an opportunity for meaningful and sustainable transformation. The basic rules of the game are changing and one needs to continuously revisit/rethink to be on top of the game. You cannot really Win a T20 match with five-day test match mindset, both need different approaches. Sharing a few thoughts on the type of mindsets that are becoming increasingly important:

- The shelf life of an idea/opportunity will be short; even short-term demand forecasts will have significant fluctuations. One needs to accept and adapt processes and practices and build facilities that help in managing these fluctuations.
- Customers will not accept anything suboptimal and we need to make sure we put resources for what is required by customers and be FTR (first time right)

and ETR (every time right). Merely doing what we can do or incremental improvement over the existing may not be enough.

- Along with cost and quality, timing and speed will be big differentiators. Achieving overall effectiveness (outcomes) is critical with efficiency being a subset.
- The goal post will be continuously redefined by competition. One will need to innovate and continuously improve at a pace higher than them for relevance.
- It is not just what one achieves, but how it is achieved is becoming increasingly important in the current environment. Apart from high-quality products and services, impeccable ethics, corporate governance, compliance, safety and sustainability will be hallmarks of good corporates.

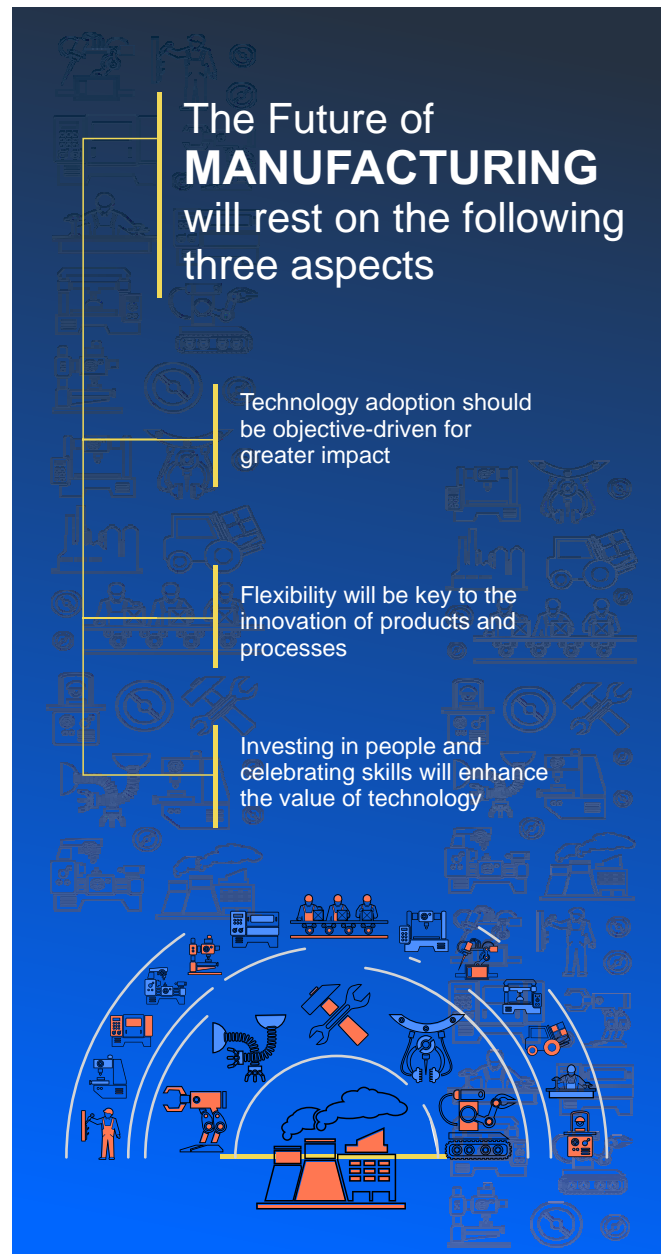
A good way to adapt to fast business changes is by challenging conventions that have set in due to past practices rather than logic. A common and simple example relates to daily production rate: A typical issue faced in many manufacturing setups is the inability to get uniform production output throughout the month. While resources remain same, one usually gets less output in the first half of the month compared to the second half. This creates significant pressure on the system to meet numbers in the later part, leading to higher costs and other concerns. Once our team realised the advantage of uniform run-rate, they challenged the past convention and turned around things quickly to achieve constant run-rate (within 1%) throughout the month.

**GP:** Even we faced this problem and we used linear production to minimize the volume variation. There were also some issues with suppliers unable to meet our demand. So, we first built an inventory for 5-6 months and then we were able to get into a good rhythm. This has been replicated across all Rane companies.

#### **Impact of Industry 4.0 adoption on logistics and SCM...**

**VK:** Logistics and SCM are an intrinsic part of manufacturing operations, with the difference being these processes are outside the traditional shopfloor. Digital technologies are enabling supply chains to become smart, transparent, agile and flexible.

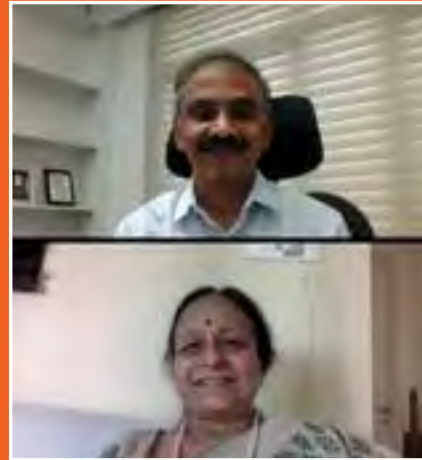
Flexible manufacturing with end-to-end connected supply chain can add huge value to any business. At Mahindra, we look at demand and supply side together. Lag indicators are being taken over by real time data points as technology offers solutions for connecting the



entire ecosystem from dealers to suppliers seamlessly. Producing against real consumption helps in reducing safety stocks that in turn unlocks significant cash for the organization.

Technology adoption is making a big impact in areas such as Resource Planning, Warehouse Management Systems, Intelligent Transportation Systems, and Information Security. IoT-enabled connectivity and data analytics provide business insights into the entire supply chain and logistic systems that enable better quality decisions.

As the industry evolves to use more AI and machine learning capabilities, we will unlock the real efficiencies in supply chain management!



# From Workbook to Playbook

*In a constantly evolving world, talent management and expectations of employees are also changing at a fast pace. From being rule-bound, the talent management function has transformed to become more facilitative, encouraging employees at all levels to be self-starters with risk-taking and adaptive capabilities. Companies expect their people to learn every day and pick up new skills that'll help them stay relevant and future-ready.*

**Anita Ramachandran (AR), Founder & CEO at Cerebrus Consultants, and R. Venkatanarayanan (RVN), President - HR, IT & CSR at Rane Group,** engage in a conversation on 'Future of Talent' and discuss how organizations will need to adapt to stay ahead of the curve.

**We kickstarted the conversation by discussing the all-important topic of why enterprises are looking for new types of talent. Companies want more specialists and, in some cases, even super-specialists. The leaders weigh in...**

**AR:** We can consider the future of talent from three broad perspectives:

- The type of talent that will be needed
- Changes in the employment models currently used to manage talent
- Changes in key HR processes

Though the type of talent we need seems to be evolving, in my 40 years of experience, I have seen the pattern repeat itself -- the

requirement has been going back and forth between generalists and specialists in 2-3 cycles. Today we need people at the junior and mid-management levels to be what I would call “super specialists.”

Additionally, with more digital processes, the types of super-specialists we need will also change.

I also believe that the very definition of a specialist itself is changing from skilled craftsmen in certain areas/processes to those who know technology and can deliver excellence and efficiency by combining technology and automation. Earlier, we used to have machine experts and the roles were broken up because the processes were broken up. But now, with automation, many processes run end-to-end. Rather than multiple specialists for the different processes, we need a specialist in automation who understands the processes overall, what drives excellence and thus output. This is happening across all functions.

**RVN:** Entry-level talent typically works for a few years and then pursues higher education before rejoining the workforce at higher levels. We need to get used to this kind of mobility, where very few “journey” with the company from the entry-level to higher levels. We, therefore, need to have an external pipeline for higher roles, which has to be built over a period of time through networking and brand building.

**AR:** Yes, earlier we thought of hiring at the junior level and giving them a growth path. Now that is changing. In both manufacturing and IT, juniors work for 5-6 years and then upskill and return, ready for more. But this also means that we don’t have to find a career path for everyone. Earlier we had to worry about 80% of our employees, but soon it will come down to 25%, so to speak. The rest will either have to reinvent themselves or remain where they are and be okay with it.

**RVN:** We also have to work with gig workers in several areas where deep specialization is needed. For example, areas such as cloud and cybersecurity. We don’t have the bandwidth to develop the expertise in-house and specialists in some of these fields don’t want to work full-time with any one organization.

Additionally, subject matter experts in several areas are best sourced from specialist organisations. The



organisation’s leadership team should be progressive and learn to deliver in an ecosystem of internal and external talent configuration.

### **The evolving role of leaders and why risk-taking will become part and parcel of a leader’s arsenal.**

**AR:** Senior managers and leaders will need to be technocrats with leadership qualities. They will need skills beyond people management, be risk-takers and adaptive. The horizon for strategic planning has reduced to two years from the earlier five years, because of which they should be good at both execution and keeping pace with changing trends.

Also, today, risk-taking capabilities, risk mitigation, agility and nimbleness have all become important for leaders. How far people will go in their careers will depend on the kind of risks they are willing to take. Specialists can also go far but, I believe, the real growth is for those who can take risks.

**RVN:** Earlier, a line manager’s primary goal was to meet production numbers. Today it’s much more. It is about

management, technology, communication and people.

Here's a specific example from within the Rane Group. Industry 4.0 initiatives around use of AI, analytics, RPA, bots, and IoT are getting added into the manufacturing process. We have an Industry 4.0 team that collaborates with people from across all departments and factories. We are building a support system of internal and external specialists who drive this technology initiative. To reiterate what we said before, it is not enough for a line manager to meet numbers. It's important but not enough. The leader must be able to continue to deliver on new initiatives like Industry 4.0 which requires cross-functional, multi-dimensional capabilities.



### On skills, capabilities & competency building for the future

**AR:** Another area that will determine growth is business development, which was not well-rewarded in the past, if I may say so. However brilliant an idea or a product may be, the future is for those who can sell their ideas, products and services. Market communication, influencing and selling are key competencies for growth.

Self-learning and development will become essential for career growth for the employees who must treat performance reviews as much more than an opportunity for just a salary hike or promotion. They must seek feedback from their seniors proactively on their skills, capabilities and competencies.

**RVN:** Digital and soft skills are the foundations on top of which leaders will need to develop their strategic outlook. We redesigned the learning programs at REID, enabling self-learning for juniors while personalizing courses for senior and mid-level managers. Those who are transitioning need individual attention.

**AR:** Employees should invest in personal learning and development and not wait for employers to do it for them. While certifications are important, they are not enough. Skill development is even more important and possible

only through personal coaching and mentoring. Employees must also develop a personal leadership style of their own.

### The re-emerging need for Industrial Relations

**RVN:** Industrial relations is also re-emerging due to legislative and market-related changes and forcing people to come together for collective bargaining. The unions will be more aware and aligned to local and global developments. This will make engagement with unions very important for businesses.

**AR:** I agree. We are certainly seeing the re-emergence of Industrial Relations with a bang but with a difference. Due to legislation changes and hardness in the market, collective bargaining is coming back but we have more educated unions. The leader will be more informed and better connected with globally aligned demands. The governance aspect will become important.

### What has not changed when it comes to people and HR?

**AR:** I still think people want to be recognized for what they do. It is critical for enterprises to understand that.

**RVN:** I agree. In line with the same thought process, it is not all about technology only in the future. The "human connect" and real connection with people are crucial.



# Driven by Technical, Functional and Emotional Needs of Customers

*Pandemic and digitization have had a widespread impact, with customers expecting doorstep delivery not only of products but even services. This trend is also having an impact on the market development of automobiles.*

**Girish Wagh (GW) President, Tata Motors Ltd, and S Parthasarathy (SP), Advisor Business Development & Business Excellence, RHL, discuss how this trend along with policy changes are changing the Future of Market of the automobile industry, especially the commercial vehicle segment.**

**On emission control, electrification and mobility impacting market development, efficiency, and new opportunities.**

**SP:** With BSIV to BSVI transition and digitization etc. how do you expect the Future of Marketing to unfold in the short and long term?

**GW:** Electrification is a major trend that was discussed even 3-5 years ago. With tighter regulations, the cost of IC engines has been going up, while with evolving technology, the price of the battery in terms of Dollars per kWh has been falling, which is making electric vehicles increasingly attractive.

The BSIV to BSVI transition will provide further impetus to this trend, as CO2 emission is also coming under regulatory purview apart from the tailpipe pollutants (CO, SOx & NOx), requiring greater fuel efficiency. Currently, the electric vehicle doesn't emit any CO2 from tank to wheel and as more and more electricity is generated by renewable sources, even well-to-wheel CO2 emission will be attractive. Different segments will adopt electrification at a varied pace.

The jump to electrification will not happen immediately. Alternate, cleaner fuels such as CNG and LNG are becoming important. In India, people are also looking at ethanol and biofuel. This will reduce the dependence on oil imports and support the economy in immediate terms before large-scale electrification happens.



Another important market development is in after-sales service. The CV industry has an ecosystem that goes beyond the OEMs and the customers, there are several stakeholders who serve the customer such as financiers, body-builders, mechanics, insurers, channel partners, dealers, etc. The integration of the entire ecosystem in order to serve the customer better will increasingly become important.

Several revenue streams are also coming up downstream in aftersales and service areas, making it attractive for an OEM.

The next critical trend is connectivity, as all of us are becoming digitally savvy if not digital natives. We will see the emergence of driver-to-vehicle connectivity, then vehicle-to-vehicle and finally vehicle-to-infrastructure. This connectivity will also enable managing vehicle and transportation businesses in a remote manner.

Within the organization, the increasing cost structures due to tighter emission control, electrification, etc., will make product cost optimization and streamlining of material and production costs important. These will be pivoted to customer value.

Finally, capability development in ACES - Autonomous, Connected, Electrification and Shared Mobility - will be another key trend. It should be done to improve operational efficiency as that will be important from a financial point of view.

**SP:** While improving the new vehicles and making the transition from BS IV to BS VI, the quality of maintenance of old vehicles is not up to the mark. We need a good system to make sure that a vehicle that is 3-5 years old is not emitting badly and countering all the efforts being made with the new vehicles, because, after all, only 10% vehicles are getting added each year.

**GW:** Yes, absolutely, whatever we do in the area of emission reduction has to be sustainable. Recently announced scrappage policy emphasises the importance of emission while assessing the health of the vehicle, and will help reduce emissions by retiring vehicles that don't meet the emission limit. Digitalization is eliminating the possibility of malpractices. Initiatives such as the Fastag are taking us towards a cleaner and faster system and will help in reducing emissions also in a manner of speaking.

### Pandemic has changed the way businesses interact with customers...

**SP:** The pandemic has changed the way we do marketing. Even at Rane, we had to find alternate ways to interact with customers in a fruitful way. From a B2C perspective, OEMs would have had to reconfigure their marketing approach, be it connecting with customers, dealing with potential buyers, product launches, marketing, and so on. What would be the changes?

**GW:** The pandemic has been a black swan event, full of challenges but also lots of learnings. There has been a change in customer needs and expectations. All the companies had a physical channel to engage with the customers. That has changed dramatically. Just like employees learned to work-from-home, customers too want to engage digitally. Even after the end of lockdown, it has not gone back to physical but has become 'phygital' (Physical+Digital).

In B2C, a large part of the purchasing process will transition to digital, that too, with the customer engaging with his or her own device. Therefore, we have to ensure that the customer is updated sufficiently through digital communication, where the purchase decision can be made. Digital sales platforms and how we engage with them will therefore become important.

Just like e-commerce, in our business too, the customers will start expecting doorstep delivery and service with payment through digital apps.

From the earlier focus on BTL activities, ATL will also start becoming important with digital and social media as the main medium. Pushing content in a focused manner to the

customers you want to address through hyper-localization is another emerging trend.

Another aspect is that when the pandemic struck, there was a liquidity crunch. During a black swan event or if you are in a cyclical industry, you must conserve cash and also restructure some of the fixed costs.

A broken supply chain is the third impact of the pandemic. We used to take the supply chain for granted earlier. If I bought the steering system from Rane, it was not our concern how or from where Rane got it. But even before the pandemic struck India, the parts coming from China had become a bottleneck. Therefore, de-risking the supply chain and developing viable alternatives becomes important.

Of late, we are facing a short supply of semiconductors. Due to reduced demand in the auto industry, the semiconductor manufacturers diverted their capacities for consumer electronics. Now the demand in the auto industry has picked up. It is going to take some time to regain balance. So de-risking the supply chain is a big learning.

### Changing customer expectations over the years...

**SP:** What has been your experience with regard to changes in customer expectations over the years? Do different geographies have different requirements for a product, for instance?

**GW:** The biggest change one is seeing in terms of customer expectations in different geographies is in the power to weight ratio, which is changing the vehicle configuration. In North American markets, this ratio is the highest followed by west European markets, China and then Indian.

Traditionally, the market is segmented based on geographies or products. Now it is also based on micro-markets, which is a combination of application and geography. For instance, oranges are grown in and around Nagpur and have to be distributed and transported across the country. In Karnataka and Andhra Pradesh, chilli is grown in large quantities. In Chennai, water distribution is a big business. These are micro-markets and each of these have a different requirement.

Third, service or aftersales expectation is also changing. Take the e-commerce segment. We serve the transporters who serve e-commerce companies such as Amazon or Tatacliq, who require goods to be delivered within the committed time. For every delay, the transporter has to pay a penalty. The transporters expect us to give them an



uptime guarantee so that if we don't meet that guarantee and the delivery is delayed, then the penalty is passed on to us. An uptime guarantee is possible only when your product is robust and reliable. We delivered this value-added service during the year. We are now also offering this service to the tipper manufacturers as well. In an infrastructure project, the cost of the tipper is less than 5% of the total project cost whereas if the tipper breaks down, then the cost of overrun and delay is very high. So they are willing to value the uptime guarantee.

### On tapping new opportunities

**SP:** You can monetise it, you make your product great and you have the chance to make your end customer assured of revenue stream. Instead of Tata Motors saying work around my products, you are working around the needs of your micro markets. It requires so much product planning, which is impressive. If you want to enter a new product or geography, do you have some kind of a system?

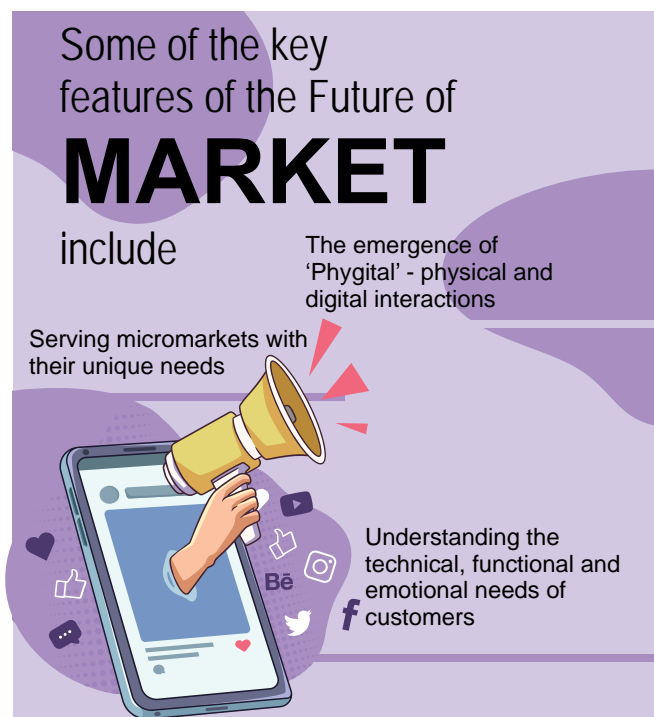
**GW:** When we enter a new country as a market, we first do a PESTEL analysis - Political, Economic, Social, Technological, Environmental and Legal - to understand the market, then we do a market attractiveness study and prepare a very high-level business case. Following this, we engage with the customer to understand which product will work and do in-market testing. After agreeing upon a business case, we finally start looking at channel partners and sign-up. Then we start building the capability, establish a network, initiate training, processes, tools, branding etc.

For a new product, the starting point is the segmentation of the market by different cuts - by tonnage, price, application, geography, and power-to-weight ratio. Understand customer needs and target those segments that are going to be attractive for us. Finally, we have to conceptualize the product.

For this, one has to start spending time with their customers, understand how they are meeting the needs currently and what the gaps are, which could be technical, functional or emotional. The most difficult need to understand is the emotional one, but that's what tells us how to conceptualize and position the product. This requires immersive interactions and building of trust through transparency as only then the customer will be willing to share openly.

### On the challenges, auto manufacturers would face as the future unfolds...

**SP:** A vehicle is a means of transportation, of course, but there is also a sense of pride in ownership. A sense of having arrived is also very important. What are some of the challenges auto manufacturers would face as the Future of the Market unfolds?



**GW:** How to mould yourself to address the megatrends is the major challenge. The development of capabilities, the amount of development work to be done and the money to be spent on an uncertain future will play a critical role.

We will have to become digital native to leverage digitalization to meet customer needs better and improve internal efficiencies.

### Balancing policies with customer needs...

**SP:** Government policy is shaped by the public and industry behavior is influenced by the policy. But this has to be brought together in the most efficient manner, balancing end customer needs on the one hand and the government policy that is based on larger good on the other. Sometimes industry itself accelerating electrification - which may not be good for the economy due to lack of infrastructure. As a country, how should we work together to make this happen?

**GW:** In the current environment, it is about addressing and balancing the needs of all the stakeholders. The businesses capture the customers' needs so we understand them better. We also work with other stakeholders so we understand their needs as well. The government now is engaging with the industries through the industry bodies on new policies, and this is an opportunity for us to make a very balanced proposition to the government on what kind of policy or set of policies will be in the best interests of the nation at large, the government, the industry itself and all the stakeholders. This is the way we can promote advocacy.

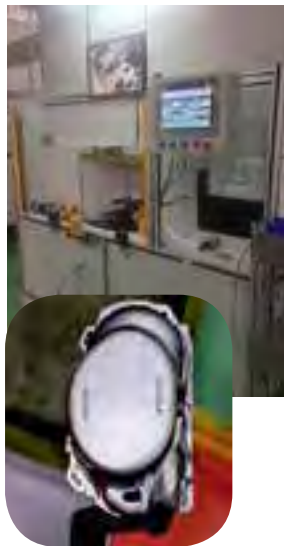
# Seat Belt Manufacturing

*Seat belts are safety-critical and a high technology product. In this section, we showcase the manufacturing process of the seat belt in the Occupant Safety plant at Singaperumal Koil, Chennai, through photos of some of the key processes.*



## Base Bending

In the base bending process, the spool and frame are kept inside the nest and inspected automatically through a vision camera. The flat sheet metal frame will be bent according to the specified dimension with the help of a hydro-pneumatic cylinder. Then the dimensions of the frame will be ensured by LVDT checking.



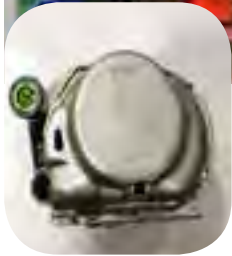
## Laser Welding

In this process, parts from the preceding two stations are assembled together and verified by using various sensors. Machine weld housing and retractor assembly together are done by using a laser beam of 4000 Watts.



## Reinforcement Plate Press and Spring Winding

The machine is specially designed with a four-index rotary table. It does four operations simultaneously: in the first station, it will crimp the reinforcement plate by using four pneumatic cylinders. Then vision cameras are provided to check the orientation of the parts and servo is used to wind the part. Finally, it will be unloaded automatically and it will be moved out by using a conveyor.



## MGG - Tube Forming

This machine is equipped with a specialized spinomatic spindle; it is used to form the tube where the MGG fits inside the tube. It has an automatic cleaner to clean the burrs formed and the orientation of the MGG will be checked automatically by a vision camera.



## Upper Stay and Lower Stay Riveting

These machines are equipped with a hydro-pneumatic cylinder, which presses the rivet. The height of the rivet is checked using LVDT.



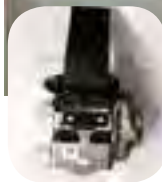
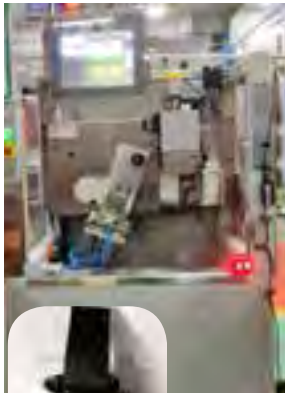
## Sensor Cover Pin Press

In this operation, the retractor subassembly and the cover subassembly will be kept inside the nest and it will be checked by two vision cameras, after which both parts are assembled together. The height of the pin is checked by LVDTs.



## Function Tester

This machine validates the function of the seatbelt retractor assembly. It will check the vehicle sense, web sense and tilt angle of the seat belt as per the customer requirement.



## D-Ring, Tongue & Anchor Assembly

D-ring, tongue and anchor are assembled into the webbing, the anchor is kept inside the jig to detect the orientation and it starts stitching automatically.



## Packing

Each seatbelt will be scanned and checked after which it will be packed as per customer packing standard and palletized.



# Celebrating Women

*Women at Rane came together in groups to celebrate their achievements on the occasion of International Women's Day. The group companies conducted varied initiatives and fun-filled, theme-based events to make it extra special for their women employees.*

## Theme Events

A one-of-the-kind program called 'Kaleidoscope' was hosted virtually for women employees and homemakers to help them build joy through their day-to-day activities. Key takeaways were Celebrate Yourself, Mirror Exercise, Music Therapy and the importance of Meditation.

A five-day, daily thematic connect program on the themes Healthy Life, Best Bonders, Chef Special, Care Specialist and Virtual Quiz was organised for employees and the women at home.

## Supporting Women

A Women@Work (WOW) group was created to support women in their personal and professional development.

Certification courses such as tailoring, embroidery course, CADD, handicraft products, etc., were organized for the temporary workforce based on their interests and were felicitated on course completion on March 8th.

Visits to women NGOs were organised at a few locations to spread awareness on women empowerment and development.

Male counterparts shared the positive qualities of women through a collective greeting card.

## WOMEN EMPOWERMENT AWARD

Rane TRW Steering Systems Private Limited – Occupant Safety Division was recognised as the 'Best Organization for Women Empowerment' by Ooruni Foundation, an NGO that anchors, augments and advocates the pivotal 3Es of human life – Education, Environment and Equal Opportunities for sustainable community development.

Out of the 52 companies that competed for the award, Rane TRW Steering Systems Private Limited was recognized for its welfare activities and safety facilities.



*"While diversity and inclusion are important, diversity is about numbers and inclusion is about making the numbers count."*

– R. Venkatanaryanan

## ACMA Excellence Awards 2020



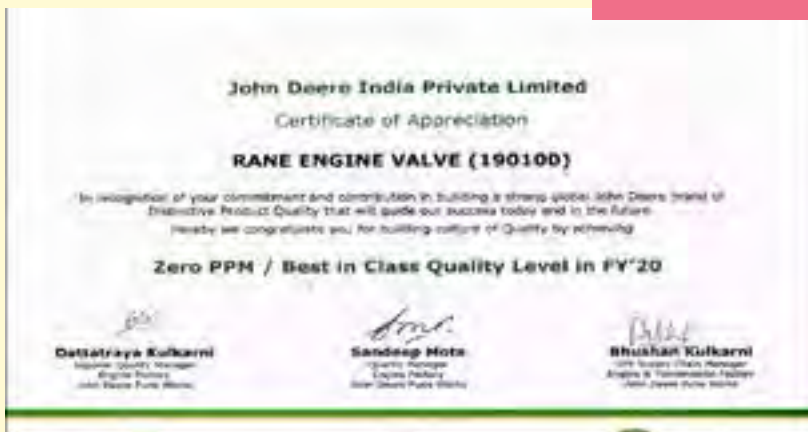
Rane Brake Lining, Trichy Plant received the "Excellence in Manufacturing - Gold Award" under Large Category in the ACMA Excellence Awards 2020.

Rane Brake Lining – NPD team received the "Excellence in New Product Design & Development - Silver Award" under Large Category in the ACMA Excellence Awards 2020.



Rane NSK Steering Systems, Bawal Plant, received the "Excellence in Health, Safety & Environment - Silver Award" under Very Large Category in the ACMA Excellence Awards 2020.

## John Deere Award 2020



Rane Engine Valve Limited, Tumkur Plant, received Quality Appreciation Award for "Zero PPM/Best in Class Quality Level in FY'20" from John Deere India.





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