

# PROPELSI OCTOBER 2022



Rane's Digital Transformation
- A Journey of Continuous Improvement



### 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) ZF Rane Automotive India Pvt. Ltd. (ZRAI) -Occupant Safety Division (OSD) - Steering Gear Division (SGD) Rane Holdings America Inc. (RHAI) Rane Holdings Europe GmbH (RHEG) Rane t<sub>4</sub>u Private Limited





Please send in your feedback and queries to corporate.communications@ranegroup.com

Copyright 2022 Rane Holdings Limited All Rights Reserved

Content Partner Growth Mechanics Infomedia, which also publishes The Smart CEO magazine

### TABLE OF CONTENTS



12 Business Roundup Overview of Rane Aftermarket Business



Outside In A Chat with KN Radhakrishnan, TVS Motor

4



15 Rane for Good News from Rane Vidyalaya and Polytechnic Campus

16 Employee Spotlight On Quality Assurance



Digital Transformation for Continuous Improvement



Awards, Accolades, and more

## Electrification, Sustainability Drive Future of Mobility

K N Radhakrishnan, Chief Executive Officer, TVS Motor, holds a Master's degree from the Indian Institute of Technology, Chennai, and completed a Management Education Program from the Indian Institute of Management, Ahmedabad. He started his career as Management Trainee in Sundaram-Clayton Limited, a TVS group company, and has held many senior positions in the company. He was responsible for various initiatives in manufacturing, product layout and cellular manufacturing systems.

As the CEO, KNR has played a crucial role in transforming TVS Motor to become a reputed two-wheeler manufacturer in India and among top 10 two-wheeler manufacturers globally. He helped the organization adopt strategic planning, strict quality control, focused cost reduction, cash generation and expansion of product range, including achieving two million two-wheelers per annum.

Some of the other accolades the company won under his stewardship include receiving the prestigious Deming Application Prize in 2002 and the TPM Excellence Award from Japan Institute of Plant Maintenance in 2004.

Rane Propel discusses the future of mobility, electrification, sustainability, and plans for the growth of TVS Motor with KN Radhakrishnan. Excerpts:

#### Over the years, FM has become a buzzphrase. How do you see it impacting urban transportation globally in the short and long term?

Today, the two-wheeler industry is looking at green and sustainable future of mobility solutions spanning electric, hybrid and alternative fuels like Ethanol- and hydrogen-based vehicles. This is alongside the rapid adoption of electric vehicles, which have been a growing phenomenon in India and around the world.

Electric scooters are at the forefront of bringing electric mobility to India. With the initiative of FAME II subsidy from the government, the policy direction is clear and consistent. With the recent enhancement in subsidies, the establishment of the electric vehicle segment is further accelerated. The electric ecosystem relies on the

availability of charging infrastructure, and urban cities have seen systematic growth in the development of this infrastructure. Hence, scooters, more of an urban mobility solution. have been among the first segment to be electrified. The response from consumers has been very enthusiastic. We see this segment proliferate and lead the way to consumers adopting electric mobility. This phenomenon is seen in many developed and developing nations across the globe. With falling battery costs, sustained policy support and product launch investments, customer acceptance will accelerate by 2025.

#### Please share the key technologies and design trends that are shaping the future of the automotive industry, especially 2 & 3-wheelers.

In what is seen as an indicator of the revival of the Indian two-wheeler industry, the sales numbers for scooters have increased substantially in the current FY. We estimate growth in the scooter industry to continue in the future, backed by increased demand as things get back to normalcy post-COVID. Additionally, TVS Motor has been investing in electric technologies for more than ten years. To further increase our presence in the electric mobility space, we are excited about the opportunity to scale up the business, both in India and international markets.

Our established in-house and worldclass capabilities on powertrain and vehicle tech have been proven through segment-leading best products in the industry that deliver excellent riding experience, aspirational design, delightful features, connectivity, infotainment, robust safety and reliability.

TVS Motor was the first established OEM to bring an indigenous battery management system, more than 100 connected features and a completely digital buying experience into TVS iQube Electric, in 2020. Our batteries are designed and manufactured in-house from day one, and we are focussed on quality and investing in this.

TVS Motor has designed intelligence for our electric vehicles, on the one hand, through battery management hardware and software, controllers and infotainment. On the other, rich data from more than 3 crore customer km goes into enriching our extensive simulation models and can be used for further developing a robust system for analytics. Many features are loaded today on TVS iQube, and the digital interfaces with customers are powered by AI-based platforms.

The technological advancements in the "connected" features and artificial intelligence-enabled sub-systems will build the future of the auto industry across the world.

#### TVSM has announced its plan to build a 'sustained dominant play' with a focus on EV segment adopting COCs with an agile working approach. Can you tell us more about this strategy?

For the two-wheeler industry in 2022, there are three things that will be important – sustainable mobility, connectivity and customer delight. While these may not seem to be new, their interpretation has evolved.

**Sustainable mobility** – sustainability is the key theme driving mobility and many areas of the economy. TVS Motor is investing significantly



We have a great talent pool of over 500 engineers committed to the future of electric and digital platforms at the company.

in electrification and sustainability across the value chain. The EV ecosystem, including fast charging, is also coming together, representing an international opportunity across global markets.

**Connectivity** – with continuous tech advancements, various forms of vehicle connectivity will soon become the base expectation, both from a personal and commercial usage standpoint; these will need to solve customers' explicit and implicit needs intuitively.

**Customer delight** – today's customer is increasingly aspirational, and they demand the best; at every segment level, consumers will need to be continuously delighted through exciting products, the latest technology, aspirational features and much more.

TVS Motor Company had announced INR 1.000 crore investment that will be used toward the manufacture and development of electric vehicles. The vehicles developed through this will not just be sold in India but across TVS Motor's extensive global network. We have a great talent pool of over 500 engineers committed to the future of electric and digital platforms at the company. We have also been strengthening our internal team and strengthening our engineering centres in India and UK to lead the technology development in EV and green fuel, thereby leading the way to the electrification of the two-wheeler segment in the country. We have also brought in global experts for our electric mobility division. in line with our roadmap towards a robust journey in future mobility. We have saved 159 metric tonnes of CO2 so far with our TVS iQube Electric since its launch in 2020, continuously contributing towards our efforts for a sustainable future.

Our focus on the EV two-wheeler segment is clear, and we are

#### **OUTSIDE IN**

committed to playing a leading role in this space.

#### Please share your plans to develop the vehicles jointly with BMW. What will the two companies bring to the table and how do you see this impacting the 2-wheeler market?

TVS Motor Company and BMW Motorrad have been sharing a long-term partnership for almost a decade now and have agreed to work on the joint development of new platforms and future technologies. including Electric Vehicles, recently. This comes on the back of a successful partnership between the two companies that resulted in a milestone sales of 100.000 units of the sub 500cc motorcycle comanufactured by BMW. Based on this decision, TVS Motor's scope will include the design and development of future BMW Motorrad products and delivering world-class quality, supply chain management, and industrialisation. Under this enhanced cooperation, both companies have identified a range of products and technologies to deliver significant business benefits

BMW Motorrad and TVS Motor Company will develop common platforms by mutually tapping the emerging technologies in the future mobility space keeping in mind the global requirements of customer segments in various markets. Exclusive products for both companies will be developed on these common platforms, and the companies will retail the products globally. TVS Motor Company will continue to bring on board engineering prowess in design, manufacturing and supply chain capabilities and provide best-in-class quality and economic advantage. The first product through this cooperation will be showcased in 24 months.

#### EVs in India seem to be taking off in a big way. Do you see the

With a projection of the contribution of electric vehicles in new two-wheeler and three-wheeler vehicle sales to rise to 50% and 70%, respectively, by 2030 in India as per the latest McKinsey & Company report, building the entire ecosystem becomes necessary.

### infrastructure as being ready to support this? What do you think is needed?

As per the reports by the FADA (Federation of Automobile Dealers Association), total sales of electric two-wheelers in India in the last financial year amounted to over 2.31 lakhs units, with electric threewheelers coming close to sales of over 1.77 lakh units. The demand for electric vehicles continues to be on an upswing backed by a supportive regulatory environment around the EV ecosystem, lower registration fees and goods and service tax (GST) for EV buyers, and lower maintenance cost as some of the many reasons.

As the industry continues to expand, penetration of public charging infrastructure across the country becomes equally critical. More and more residential and business complexes are developing EV charging stations, in addition to the increased state-owned charging stations that are being set up across cities. With a projection of the contribution of electric vehicles in new two-wheeler and three-wheeler vehicle sales to rise to 50% and 70%, respectively, by 2030 in India as per the latest McKinsey & Company report, building the entire ecosystem becomes necessary.

### Tell us about the impact today's development has on the need for newer skills in an automotive company like yours.

TVS Motor has transformed itself into a digital age company with a connected, sustainable and electric brand. We have a great talent pool of over 500 engineers committed to the future of electric and digital platforms at the company.

We have also been strengthening our internal team and strengthening our R&D centres in India and UK to lead the technology development in EV and green fuel, thereby leading the way to the electrification of the twowheeler segment in the country.

We are focused on fast-paced innovation and value creation teams that are high energy, agile, open, talented and cohesive. Many of these teams are on new capabilities of battery tech, electrical powertrains, infotainment, connected services, software, Al and ML. Soon you may see our strength in these capabilities at par with digital companies.

We have also brought in industry leaders as technical advisors for our future mobility division.

#### In these times of quick developments and uncertainties, what would your advice be to young leaders within the auto industry?

The automotive industry is growing and changing dramatically, with a focus centered on sustainability. The future of the industry continues to be bright, and the opportunity for Indian auto companies in the global markets is huge. Leaders have to embrace change gracefully and proactively. It is critical to be open, agile and keep learning to be able to carve your growth story, while continuing to bring in innovation in your business. The automotive space is set for great disruptions and youngsters must be ready to use this as an opportunity to evolve and grow.



## Rane's Digital Transformation **A JOURNEY OF CONTINUOUS IMPROVEMENT**

Rane's digital transformation initiative is driven by operational efficiency and a strong business case to facilitate flexibility and scalability

Rane adopted IT in operations early, from mid-2000, when it implemented SAP for its entire operation stream and not just finance. This has aided the company leverage data for problem-solving and improving its process efficiencies.

Digital transformation was the logical next step, and as problems started becoming more complex, the circumstances were conducive to going beyond SAP and looking at next-gen solutions. A high workforce churn, natural to the industry, along with a demand for new age skills, where demand is higher than supply, also nudged the company towards semi-automation.

#### COVER STORY



A high workforce churn, natural to the industry, along with a demand for new age skills, where demand is higher than supply, nudged the company towards semi-automation.

One more key driver to Rane's digital transformation journey was the TQM initiative that was being implemented across most of the Rane group companies. The automotive industry is migrating towards zero PPM as a mandate and also requires endto-end traceability. As these require highly precision-oriented processes and strict adherence to procedures, it was but natural that Rane looked towards automation to deliver highquality products with greater accuracy and minimum errors.

This environment pushed Rane to adopt digital transformation. IT enabled core manufacturing, and some plants started adopting newer technologies. The new age machines with in-built sensors enabled the Rane companies to have seamless access to data, speeding up problemsolving on the shop floor. With access to granular data, the company developed a digital transformation strategy to fulfill its aspiration to achieve global quality levels, ensure traceability, and drive productivity.

The company also benchmarked its initiatives with other companies that have invested quite a lot in digital transformation and learned from them. One of the findings was that several Indian companies opt for low, cost-effective automation solutions as against the global norm of investing capital to drive transformation. This helped Rane arrive at its own strategy of low-cost, need-based transformation.

#### Rane's Vision for Digital Transformation

Each of Rane's businesses is at a different stage of maturity, faces different types of problems and operates in different kinds of

environments. Even within each company, there are varying levels of maturity in terms of technology, product and people across plants, resulting in each plant having its own unique challenges. Therefore, Rane has adopted a flexible approach to digital transformation instead of setting standardized goals across businesses and plants. The businesses adopted pilot studies on pain points, evaluated them from a business point of view, identified solutions, and assessed their effectiveness and traceability with a view to overcoming the identified problems. The next step was to scale up successful proofs of concept.

One of the operations in a Rane shop floor requires the operator to wear glasses to prevent damage to the eye in case of an accident. The company provides training and creates awareness about the importance of wearing glasses, but to doubly ensure this requirement is followed, they recently leveraged technology. A simple program was developed to monitor the CCTV inputs and stop the machine in case the operator removes glasses.

In another instance, the management was able to drive conformance to standard operating procedures using CCTV inputs. Instead of depending on heavy automation, such simple yet elegant solutions improve workplace efficiency, safety, and productivity by leveraging Al-based transformational technologies.

A very robust information-sharing network across businesses accelerated the adoption of various solutions based for common problems. An internal industry 4.0 resource provided the required support to spur the transformation and was further aided by the larger team and the management during monthly and quarterly reviews. These reviews helped to prioritize projects, identify best practices, and provide the support needed to implement the projects. While these reviews are very detailed and help with the transfer of knowledge, each business also has the flexibility to modify based on its unique needs.

#### Meeting Technology and Skill Needs

Rane's digital transformation is driven by the need to service the customers better in the most efficient and effective way. To achieve this, in addition to benchmarking, the company also consulted with various knowledge partners and decided not to go with any single vendor but to adopt technologies on a case-by-case basis, choosing the solution that best meets that particular need.

One of the outcomes of this approach is that it has not created a roadmap but, rather, allows Rane to take small, steady steps to ensure value for the business. The company works with a three year-plan for each category of need, which provides for scaling of solutions within businesses across plants and also facilitating cross deployment across companies



"The core objective is to provide real-time data from our factories that provide early warning signals for immediate action. In the near to medium term, the priority areas are to improve the overall OEE of equipment to maximize capacity, capture metrics to identify equipment deterioration and enhance the life of high capital equipment, and improve 'Time to Market' using digital initiatives in marketing, supply chain and manufacturing."



GOWRI KAILASAM, President RML-SLD



This approach has worked very well for the company. Though this does create the challenge of making different technologies to talk to each other and integrate to provide a holistic view of data.

Digitisation is a key subsect of digitalisation, documenting processes and linking them to workflows. Rane Companies pursue options of

"Our endeavour is to become a smart factory in the next 3-year time period for which we are using Industry 4.0 as a building block based on importance and relevance to the business. To start with, we are focussing on asset utilization and traceability. In the subsequent phase, we will focus on energy conservation and utility management, then work on production planning and intra logistics and finally integrate everything to realize our goal."



MAKESH A, President RNSS workflows across functions to enable them to deskill business processes and automate decision making

Some of the other key aspects are cultural transformation, constant learning, market evaluation, assessing the competitive environment, and seeing how Rane can benefit from these.

"

"Digital and connected world is the future, there is no doubt about it. In a manufacturing world where machines communicate with each other, we at ZRAI-OSD have implemented our own cost-effective, innovative Industry 4.0 techniques to meet the stringent PQCDS targets enabling us to 'Surprise & Delight' our customers, deliver peak performances, come out with some of the finest innovations."



AYYAPPAN B, President ZRAI-OSD

## Rane Digital Transformation CASE STUDIES

#### Safety Monitoring in Assembly Line at ZRAI-OSD at Chennai

#### SOLUTION

An AI-based solution has been implemented to verify that operators at the assembly station comply with the mandate of using safety wearables while working at the spring assembly lines. The solution captures the image of the operator using the CCTV camera and will allow the machine to be operated only when the PPE adherences are followed.

#### **BENEFITS:**

- Operator safety
- Product quality

#### Virtual Assembly Line Installation and Commissioning at ZRAI-OSD at Chennai and Trichy

#### SOLUTION:

HoloLens was used to virtually install and commission front-side airbag, rear-side airbag assembly and knee airbag line using Augmented Reality (AR). Since machine suppliers couldn't travel from Korea and Europe due to the Covid travel ban, visual instruction from the supplier helped with a successful installation.

#### **BENEFITS:**

- Remote Installation & Commissioning
- Virtual audit and approval
- Low-cost installation
- Product training, customer problem solving, etc.

Part & Process Traceability at RNSS at Bawal and Gujarat Plants

#### SOLUTION:

Implemented traceability solution at Bawal and Gujarat plants to enable end-to-end traceability of parts and processes. This helps to overcome the operational bottlenecks such as process skip detection, NG parts tracking and NG parts fixing in the assembly.

#### **BENEFITS**:

- Process skip & NG part control
- WIP & FIFO control
- Abnormal parts control
- On-time monitoring of flow of child parts

#### AI-Based Automatic Yoke Setting at RML-SLD

#### SOLUTION:

The yoke setting was automated by collecting data for 250 gears in various ranges of torque (FPT) and yoke clearance. Automatic yoke clearance correction is achieved by inputting this data into an AI-based algorithm. This helped to meet customer requirement for securing all upcoming global business and was extended to the domestic business as well.

#### **BENEFITS:**

- Horizontal deployment
- Output variation due to manual yoke setting eliminated

10 PROPEL | October 2022



#### **Traceability Process Flow at LMCI**

#### SOLUTION:

The assembly line at LMCI P2 plant was provided with a solution for product and process, end-to-end traceability. This helps to trace the product from laser marking to the final inspection station to overcome challenges such as missing operation detection and duplicate part code detection.

#### BENEFITS:

- Avoid manual data entry
- Prevent missing operation parts from being sent to customers
- Machine level, pallet and nest level traceability along with production date, shift and time

#### Vision Inspection for Valve Measurement System at REVL, P4 Aziz Nagar

#### DESCRIPTION

An automated solution to measure multiple dimensions of valves replaced the current inspection approach using conventional methods, which was skill-dependent and labor intensive. The automated solution provides rejection reduction analysis with accurate data.

#### **BENEFITS**:

- Non-contact type-scratch-free measurement for all types of valves
- Cost saving and manpower optimization
- Real-time data storage and retrieval facility

#### Quality Traceability System for Sintered Friction Module at RBL

#### SOLUTION:

As the sintered business is set to grow substantially, the quality systems have to be upgraded to international standards. To enhance the quality systems, all the processes from raw material to finishing are mapped and digitized with relevant Poka yokes. The initiative captures the process parameters in each process and ensures no missing processes through the digital quality traceability system.

#### **BENEFITS:**

- HMIs, PLCs and sensors helped overcome various challenges faced by legacy PLCs, machines and manual control systems
- Product traceability from finished to raw material was possible with a genealogy report

#### Improving Asset Performance at ZRAI-SGD

#### SOLUTION:

Real-time tracking of machines and getting data on losses such as breakdown, startup, setup tool changes, minor shops, speed, rejection/rework. Using the lean methodology and focused improvements eliminated the losses and improved OEE.

#### **BENEFITS**:

- 8-10% improvement in OEE
- Output shift of all tracked machining across plants

## An Integrated Approach to **AFTERMARKET BUSINESS WITH RAB**

Rane Aftermarket Business leverages and synergises the key strengths of Rane group companies in spare parts to derisk and ensure a balanced growth

#### The Making of the Rane Aftermarket Business

In July 2020, Rane Group decided to integrate and leverage the synergy of all the group companies in the aftermarket business and established Rane Aftermarket Business (RAB). The seeds for this business, though, were sown much earlier.

In the past two decades, all the Rane group companies have diligently worked on enhancing the 'Rane' brand and its presence in the domestic aftermarket. This has also been a critical derisking strategy to counter the fluctuating business scenario in the OEM and Exports business. Subsequently, this aftermarket business segment acted as a key growth engine to augment the sales revenue of the companies and improve their overall margins.

The initial focus in the last decade was on improving the presence and enhancing the business of each group company independently. While the aftermarket business potential is close to almost Rs 70,000-75,000 crores, Rane felt they had not even scratched the surface. To accelerate the aftermarket business and further increase its revenue generation capabilities, Rane created a new division called 'Rane Auto Parts (RAP) in 2014. Private branding of outsourced manufactured parts augmented the inorganic growth opportunities for the group.

With RAB, a matrix structure was created wherein all the aftermarket heads of the group companies report to one head while continuing to have their dotted line reporting to the respective marketing heads of the companies. This is a new business model for Rane, but it made business sense in the medium and long term. There were nearly 200 people employed in this business segment, both permanent and off-rolls, for the entire group. Opportunities need to be explored for optimising the manpower and focusing more on additional market coverage and expanding the business.

While this was one of the outlooks of this initiative, the primary objective was to utilise the vast experience and strength of the combined field force for cross-pollination of dealer networks between the companies and accelerate the overall group Aftermarket business.

Hence, the Vision of RAB is "To accelerate the aftermarket business growth through Group synergy by being a trusted and reliable supplier of auto components, offering value to all the stakeholders."

#### RAB Performance Post-Covid-19

Covid impacted the aftermarket business segment of all companies severely. One of the critical aspects of this business is the continual work at the grassroots level for demand creation and relationship building with the dealer and mechanic networks. This got affected severely, which was a big challenge. But it also opened up opportunities for exploring a



different approach to selling, such as building strong relationships through phone calls and Google Meet that reasonably compensated for the lack of face-to-face interactions.

As normalcy returned, reestablishing the connection with all the key stakeholders was smooth and seamless. In spite of losing one full month in the financial year 2021-22, RAB posted a healthy growth of 19% over the previous year in the Aftermarket business.

One of the key growth drivers was the pent-up demand in the market since Covid had resulted in a huge population of vehicles being grounded without frequent usage. Vehicle repair activities that were postponed and delayed due to the Covid got resurrected and fueled a healthy demand for spare parts.

For the group, in the aftermarket, PV segment grew at a healthy 38% followed by LCVs at 25%, UVs at 16% and HCVs at 9%. While the PV segment growth was driven mainly by the preferred shift of usage to private vehicles to avoid public transport (due to covid), the HCV growth was stunted due to the sparse running of the buses, both private and the State Transport Undertakings (STUs).

On the product front, engine, valve train components, steering and suspension products grew at an impressive 27%, and the transmission



and under-chassis components grew at 17%. The friction products experienced a big impact due to the non-operation of the bus fleets and hence could grow only by 5%.

#### **Challenges in Aftermarket Business**

"The aftermarket business growth for the Rane group could have been higher but for the very frequent commodity price increases that occurred in the last financial year. This acted as a big dampener for remaining competitive in the marketplace," explains Giriprasad T, President - Rane Aftermarket Business.

While some of the competition was inexplicably absorbing a good percentage of the increase and possibly getting hit big time on The joint effort from the RAB team is helping in the successful cross-pollination of dealer networks between the companies, opening doors and facilitating expansion.

margins, Rane decided to recover the impact from the market to protect its bottom line. There were about three to four events of price increases within the financial year that were passed on to the market. This posed quite a challenge to the topline growth due to competitiveness, but Rane's inherent product strength, brand image and perseverance of its field team stood the company in good stead to tide over this tough situation. But now, the company will focus on how to bring down this pricing impact in the coming months, as competitive pricing is key to revenue expansion, and stay relevant in this business.

#### Key Learnings from Shared Business Perspective

The first step that RAB had to address after the launching was to get the entire group aftermarket team to be oriented towards the vision and objective of this initiative. "To achieve this, we conducted our joint sales conference for the entire group companies under one roof for the first time. To energize the team, we coined the theme for the conference as ," explains Giriprasad. The acronym stands for 'Reach, Accelerate, Integrate, Synergize & Excel'. Apart from discussing the performance of the business of each company that offered opportunities for cross-learning and deployment of good practices and strategies, the conference also

#### **BUSINESS ROUND UP**



#### **REACH | ACCELERATE | INTEGRATE** SYNERGIZE | EXCEL

had several team games designed to reflect the higher success rate of ioint working and cutting across the companies' boundaries.

The teams have also started strengthening their joint promotional activities in the market and several Nukkar meets (focused mainly on mechanics) and a few Mega Dealer and Mechanic meets have been conducted in the last two years. This year, 22 Nukkar meets covering more than 700 mechanics and 150 retailers have been completed and plans are on to complete around 130 meets this financial year. Additionally, the company will be doing six mega dealer/mechanic meets in chosen hot markets to strengthen relationships with customers and exhibit the group strength to further reinforce the 'Rane' brand.

This joint effort from the team is helping in the successful crosspollination of dealer networks between the companies. For example, RML-SLD was able to bring on board 175 retailers who were part of the RBL/ZRAI/RAP network; about 10 wholesale dealers who were part of RBL/RML/ZRAI were inducted for RAP product lines; the strong presence of RBL in fleets is being leveraged by other group products; 2W networks are being synergized for both RBL and REVL products, and so on.

#### The Digital Initiatives of RAB

The digitalization of business processes has been accelerated across several segments post-Covid. including at RAB. Some of the areas where work has been started are given in the image here.

As a first step, Rane integrated all the Apps used by individual companies separately to enable existing and potential dealers to easily browse through the various offerings by the group. At present, nearly 14000 customers have registered with this App and the target is to reach 20000 by the next guarter. In the next phase, the company is planning to expand the analytics from this App to facilitate a deeper analysis for effective management actions.

"We also standardized the various MIS dashboard reports that were used for business analysis and have completed the automation of 5 of these 12 critical reports. This has cut down our report preparation time and is facilitating quick sharing of information to the team for timely actions," explains Giriprasad. Rane has now created a database library of more than 25000 mechanics in SAP itself to help companies easily access the key mechanics in the areas where they want fitment enhanced so that actions are taken effectively. The automation of order management from the distributors has brought down the processing time from 6 hours to 5 minutes while eliminating several errors that occur during manual transactions and processing. The company has also embarked upon digital promotional campaigns like using the WhatsApp platform for sharing small videos and messages with dealers and mechanics. More such initiatives would be taken up to

ensure that the NVAs are eliminated and the team can focus on doing the groundwork to enhance demand generation in the market.

#### **Key Milestones of RAB**

Some of the key milestones that RAB is targeting as we move forward are:

- a. Consolidation of the warehouse operations that are fragmented currently.
- b. Complete the automation of the ordering system across all Rane distribution houses.
- c. Entry into e-commerce space three of the group companies have already started in a small way with a few players in this arena.
- d. Initiate business expansion into multi-brand vehicle service centres like Kimobility, Bosch car service etc..

The last financial year also saw RAB achieving the important milestone of Rs. 500 crores revenue from the aftermarket business.

#### The Next Big Milestone

"In line with our vision of accelerated business growth, we would like to aspire for a CAGR between 12 and 15% as against the past levels of 6 and 8%. Our team slogan is 'M1K'. which translates as 'Mission 1000 crores' turnover in the next five years," says Giriprasad as he signs off.

#### DIGITAL INITIATIVES OF RAB



Dealer / Mechanic Database

Dashboard Automation



**Distributor Order Management** 

#### RANE FOR GOOD

#### Rane Vidyalaya – Sports Day 2022 RPTC – 12th Batch Inauguration

ports have become an integral element of presentday education. They teach students the qualities of discipline, sportsmanship, team spirit and leadership.

Rane Vidyalaya celebrated its 3rd Annual Sports Day on August 13, 2022. N Haribabu, Former Advisor - TQM & Business Excellence, Rane Holdings Limited, was the chief guest of the event. The Sports Day was started by lighting the flame and preceded by the march past of the four different houses. Various students participated and competed against each other in various games and events.

Rajalakshmi B, Head of Educational Initiatives, Nagarajan, Principal, and the chief guest gave prizes to the winner and the runners-up. The events of the day came to an end with the vote of thanks and the National Anthem.



ane Polytechnic Technical Campus (RPTC), a CSR initiative of the Rane Foundation, stepped into the 12th academic year on July 25, 2022. They had the induction ceremony for the new batch of students joining the Diploma in Mechanical Engineering and Diploma in Mechatronics Engineering courses.

RPTC had a total of 76 students in the first year of its establishment and 1694 have graduated since then. In the current academic year, 143 students were admitted, including 32 lateral entries.

S Ramanathan, Plant Head - Rane Brake Lining Limited (Trichy), was invited as the special guest, congratulated the students for joining RPTC and motivated them. Rajalakshmi B, Head - Educational Initiatives, Rane Foundation, highlighted the uniqueness of RPTC in developing students to be industry-ready. Joshua Arul Kumar - Principal. HoD and Staff members of RPTC welcomed the students.







## DRIVING A CULTURE OF QUALITY

Quality Assurance team members from across the Rane group share their experiences, learnings, and contributions



**M Muthumani** Assistant General Manager - Quality, RBL-Trichy

#### Memorable Experiences

I got to work with Nisshinbo - QA/NPD Team from development to the mass production stage. During this time, I trained at Nisshinbo, Japan (Tatabayashi plant), and learnt the friction material global manufacturing practices, followed during the development and manufacturing processes. I was instrumental in adopting some of the best practices at RBL Trichy Plant.

RBL Trichy plant won the ACMA national awards for Manufacturing and NPD, which I coordinated. I also played a role in participating and winning kaizen awards in Nisshinbo global kaizen conferences/QCC awards/QIT awards for RBL Plant.

#### Greatest Learning

Working with the Nisshinbo team to drive the kaizen culture across the plant and for the Nisshinbo Global Benchmark practices and process audit requirements were great experiences. The High Potential Leadership Development (HPLD) training programs helped me to improve my leadership qualities and also understand my strengths and areas for improvement.

#### **Key Contributions**

- a. I was part of the core team implementing state-ofthe-art manufacturing plants for Passenger Car Lining. Was involved in the equalization of process parameters and product characteristics with Nisshinbo global manufacturing locations.
- b. Implemented various quality improvement projects (including Poka yoke controls, Skill Dev and Deskilling of process) to achieve and sustain benchmark in-process rejection PPM levels and single-digit customer line rejection PPM and the number of occurrences.
- c. Coordinated and implemented SPC practices in manufacturing.
- d. Achieved the highest plant score for best 'Q' practices among Nisshinbo Global plants.
- e. Seamless launch of NPD products.

#### **Keeping Pace**

I follow Industry 4.0 practices in manufacturing and quality systems, vision inspection systems and auto gauging systems for manufacturing as part of defect prevention and continuous risk reduction.

Rane in One Word: Nourishing

#### Memorable Experiences

Establishing 15 CIL parts at a time in REVL Plant 2 was a very challenging task to execute with high customer demand on delivery other hand quality of the parts as its going for validation, understanding the new standards, aligning with customer-specific requirements/cross-plant learnings and implementation at the shop floor are some of my greatest experiences at Rane. We also successfully supplied parts with zero defects and got the award from Cummins for Best Quality.

#### Greatest Learning

TQM way of working is my greatest learning. I learnt soft skills from REMP, managerial effectiveness and HPLD programs. They changed the way I look at and react to any situation.

#### **Key Contributions**

Under the strategy of "Focus on Variable Cost Reduction", with the support and guidance of top management, I have focused on rejection cost reduction in Plant 6, by addressing the TOP 5 high-cost parts/ customers. Taking action through Fault Tree Analysis, I was able to reduce the rejection from 6.46 to 4.24%.

#### Keeping Pace

Since joining Rane in 2007 as a Deputy Engineer, REMP, HPLD and other RIED training programs helped me to accept the changes and expand my roles and



**Sivasubramani S,** Assistant General Manager - Quality, ZRAI-OSD

#### Memorable Experiences

At the time I joined, our product technologies were more than 35 years old and nowhere were these technology parts produced in any of the ZRAI-OSD locations at that time. We initiated some design modifications and process improvements to maximize 100% yield. This helped to attain a 100% customer delivery and quality performance rating.



Arul Sundaram A, Manager - Quality, REVL-Tumkur

responsibilities. I progressively grew in the organization to lead the QA department in 2015.

I have also continuously focused on DRM practices and updated myself on understanding customer requirements to exceed customer satisfaction. HPLD training has helped me in practicing leadership skills and understanding myself.

#### Rane in One Word: Challenging

#### Greatest Learning

I am impressed with our Rane culture and approach, especially in our OSD plant, since our top management gives full freedom to all the employees to showcase their talent and dare to drive.

#### **Key Contributions**

The transformation of the Rs 84 crore to a Rs 500 crore business requires robust quality in supplier parts and mostly depends on tool life and condition. We introduced centralized tool life monitoring and inspection of tools. It helps reduction of rejection due to tool wear out and unexpected breakdown.

#### Keeping Pace

As part of the individual development plan, Rane provided good opportunities to improve my leadership skill through the HPLD program. I improved a lot in soft skills, especially team building and inter-departmental relationships.

Rane in One Word: Ethical

#### KNOW THE PRODUCT

### How Brake Friction Materials Work

#### INTRODUCTION TO BRAKE SYSTEM:

The aim of a brake systems is to generate a braking torque to stop the vehicle.

Friction material is the key component of the brake system, which decelerates the vehicle by transforming the kinetic energy of the vehicle into heat, via friction, and dissipating that heat to the surroundings. This can be achieved using two main types of brake systems:

- Disc brake system, consisting of pushing two brake pads on a disc.
- Drum brake system, consisting of pushing outwards brake shoes mounted inside a drum against the inner surface of the drum.





#### WORKING PRINCIPLE:

**Brake Pads:** Brake rotors of disc brakes rotate with the wheels, and brake pads, which are fitted to the brake calipers, clamp on these rotors to stop or decelerate the wheels. The brake pads pushing against the rotors generate friction, which transforms kinetic energy into thermal energy and stopping the vehicle. Brake pads convert the kinetic energy of a vehicle to thermal energy through friction. Two brake pads are contained in the brake with their friction surfaces facing the rotor. Friction coefficient is the key performance parameter in the brake pad.



#### FRICTION MATERIAL (MAIN LAYER):

- The main layer of the brake pad is the key component consisting different materials each with different functions to deliver the function of the brake pad in terms of Performance, Life, Strength & NVH.
- Composite consisting of Fibers / Fillers / Lubricants / Abrasives / Functionalizer.
- Friction Material design is both an art and science to achieve the correct tradeoff between performance, Life, Noise & Cost.

#### FRICTION MATERIAL CLASSIFICATION:

- NAO "Non-Asbestos Organic", sometimes referred as "Non Ferrous or Low ferrous" Usually less than 10 % of copper, iron and their alloys.
- LS Low steel / low metallic 10 ~30% of iron, steel, copper and their alloys.
- SEMI METALLIC More than 30% of steel and iron compounds and its alloys.

#### **KEY FUNCTIONS OF FRICTION MATERIAL REQUIREMENTS:**

- Deliver the required friction coefficient μ (Mu).
- Friction coefficient stability at different brake pressure, vehicle speed and disc and pad interface temperature
- Deliver pad life and rotor life
- No brake noise

**BRAKE NOISE:** (also called NVH – Noise, Vibration and Harshness) Brake noise control is currently a crucial concern in the design and development of brake pads.

While performance and life are relatively easier to design, Brake Noise is a function of both the brake system and vehicle aggregates and requires extensive friction material design, testing and simulation to arrive at NVH countermeasures.

Brake noise, a principal component of vehicle noise, is among the most critical measures of vehicle quality. It is measured in decibel (dB) as shown in the schematic.

The ride comfort of a vehicle can be substantially improved by reducing brake noise; therefore, noise control of disk brakes has become a focal research area in vehicle noise, vibration, and harshness (NVH) engineering.



#### MATERIAL FUNCTIONS



cheapen end products, corrosion protection, colorants, increase or reduce heat transfer, noise reduction, etc.

	dB(A)	
Extremely Loud	120	Aircraft at take off
	110	Car Horn
	100	Subway
Very Loud	90	Truck, Motorcycle
	80	Busy Cross
Loud	70	Noise level near a motorway
	60	Busy street through open windows
Moderate	50	Light Traffic
	40	
	30	Quiet Room
Faint	20	
	10	Desert
	0	Earing Threshold

#### RANE NEWS

## RHL signed a facilitation MoU for Rs. 800 Cr investment in Tamil Nadu



Rane Holdings Limited signed a facilitation MoU with the Government of Tamil Nadu in the august presence of Honourable Chief Minister Thiru. M.K. Stalin for Rs. 800 crores investment in the state. In the process, the group will create employment for 2,000 people.

#### **Rane Business Services Inaugurated**





**Rane Business Services (RBS)**, a centralized shared service for group-level support functions, was inaugurated on August 22, 2022, by Chairman L Ganesh. Vice Chairman Harish Lakshman and several other business heads participated in the event.

RBS has been set up for enhancing the quality of support processes for business units, standardization and creating a higher degree of strategic flexibility by leveraging technology.

## Training Programs to **Create Leaders**



TOP GEAR (Transforming Organization and Profitability through Growth, Engagement, Actions and Results) at Great Lakes Institute of Management was commenced for the seventh batch of High Potential Leadership Development (HPLD) participants. TOP GEAR is an intensive leadership development program that would help the mid-level managers develop the ability to think and lead across an organization. 26 high potential managers from various functions across the group attended the program.



The third batch of Leader as Coach (LAC) was commenced. It is an intervention as part of Executive Leadership Development (ELD) with 15 leaders from various functions across the group. LAC was launched with the objective of enabling high-performance leadership through a coaching culture. The 10-month-long learning intervention consists of three phases on the themes 'Elements of Development', 'Coaching Skills for Sustainable Development' and 'Deeper Reflection about Human Development'. This helps the participants gain deeper insights into the process of behavioral change and individual development. Each phase is followed by a one-on-one conversation with the coach that provides them further insights on their development as well as progressing with the team member's development.



The Young Leadership Development (YLD) program for the year 2022-23 was initiated in partnership with SDM Institute for Management Development, Mysuru. YLD is aimed at enabling mature, individual contributors to transition into firsttime managers successfully. It is a five-day program spread over three modules and is designed to develop foundations of strong leadership. Thirty two young leaders from various functions across the group went through this program.

#### CUSTOMER ACCOLADES

## RML-SLD Wins Supplier Samrat Runner-Up Award from Ashok Leyland



Rane Madras Ltd (RML) -Steering & Linkages Division won the runner-up award in Ashok Leyland's National Supplier Samrat competition in the Proprietary category for the Financial Year 2022. RML - SLD has received this prestigious award for the first time while competing with 45 suppliers that participated in the competition.

#### **RBL Wins Best Supplier Award from Brakes India**



Rane Brake Lining Limited (RBL) has won the Best Supplier Award under the Friction Category from Brakes India Private Limited. Brakes India recognizes supplier performance across seven categories, and RBL has been awarded the highest level of recognition in the Friction Category.

#### LMCA Wins Excellence Award from North American Die Casting Association



Rane Light Metal Castings America (LMCA) has won the award for Excellence in Aluminum Die Casting in the category of 1-10 Lbs from the North American Die Casting Association (NADCA).

#### **RBL - Puducherry Wins National Quality** Championship Award



Rane Brake Lining Ltd. (RBL) - Puducherry plant won first place in the 17th Quality Circle (QC) National-Level Competition-2022 conducted by ACMA India. RBL Puducherry plant was bestowed with the National Quality Championship Award at the 62nd ACMA Annual Convention Session held on 14th September 2022.





Rane Corporate Centre "Maithri" 132, Cathedral Road, Chennai - 600 086. India. Phone: +91-44-28112472/73