



Divgi-TTS

Innovation TIMES

ISSUE 57 | July 2022

DISRUPTION AHEAD

INSIDE OUT

COVID AND THE DISCIPLINES OF EXCELLENCE
AND RESILIENCE

02

FACE OF PRODUCT LEADERSHIP

08

A MULTI-PROLONGED STRATEGY FOR
ELECTRIFICATION

04

ON WHEELS

09

DOTTING THE I'S AND CROSSING THE T'S

06

BOOSTER SHOT

10

A BRIDGE TO PRODUCTIVITY

07

COVID AND THE DISCIPLINES OF EXCELLENCE AND RESILIENCE

In March-April of 2020 as the ugly face of COVID began to unfold, it looked like we were staring into an abyss of unimaginable economic horror, a 2009 redux, if you will. As we brainstormed to anticipate various scenarios and prepare for them, a realization gradually dawned on us – that while there were many things beyond our control, there were many things that we could take control of and do something about it. A big learning and insight for our organization had been that the principles and practices of QUALITY SYSTEMS were not just about quality, but about how to bring about organizational culture change and to that extent a tool for change and adaptation to new circumstances. Using our insights, we had trained ALL our management team members in the art and practice of QUALITY SYSTEMS developing simple insights and tricks of the trade along the way. We decided to put them to use!

Taking a cue from our QUALITY SYSTEM BASICS, we devised what has come to be known as CSB in our company – COVID System Basics. The core insight is that an organization has to train itself in key practices based on sound principles to get good at anything. Standardization helps repeatability and reproducibility that in turn enables one to get good at it as the adage 'practice makes you perfect' suggests. In this process constant communication and education and training are key. Top management commitment that is visible is indispensable. Very quickly, our HR, Quality Systems Group that also manages our Safety and Environment Certification Systems, and the Operations Team instituted with great energy

and enthusiasm the first edition of our CSB framework. It was backed up by an unhesitating commitment to the safety and well-being of our people. The system was backed up by resident doctors in all our plants, rapid testing infrastructure with partner-testing agencies, special COVID insurance for hospitalization and round the clock monitoring of employees who were down with the infection. The focus was on doing our obligatory duty as senior members of our team who had to take care of all our members, permanent and contract employees. Despite the best of our efforts, we had a few very critical cases and two tragic heartbreaking fatalities of our dear colleagues. But we did not let this dampen our focus and continued to improve the implementation of our CSB.

With this as our safety net, we also placed our faith in our quality and management methods and processes to ensure we got things right the first time all the time. Against tremendous odds, the people of Divgi-TTS came out on top and how! The modernization of our plants continued and in the middle of COVID we pulled off capacity expansion to cater to a surge in demand from China and Korea. We continued shipping to Russia and the USA with ZERO PPM. At a time when foreign travel was simply not possible, we shipped to all parts of the world with ZERO complaints and took care of our customers.

We completed historic new technology and product development projects including three path breaking programs for Mahindra & Mahindra that are powering their SUV revival. We completed

the first phase of our DCT technology transfer and became the first Indian company to start the development of a complex 7 speed automatic transmission. We became India's first company to win high technology drivetrain aggregate business from Chinese OEM's, including the development of torque management software. At Force Motors, we developed an impressive range of synchronizer solutions for their entire range of transmissions demonstrating to the industry that product invention and innovation was not the preserve of multinational companies from the US, Europe, and Japan. We completed the production release of our brand new dual offset large transfer cases for light commercial vehicles that have a diverse range of applications globally.

Read on to learn more about how the disciplines of excellence help build resilience and adaptability and, therefore, enhance the sustainability of a business enterprise. COVID provided the baptism by fire for Divgi TTS and renewed and reinforced our faith in our Management Systems. In the ultimate analysis, our ability to meet the exacting standards of our global customers and get their appreciation is really the best reward for us.

A portrait of Jitendra Divgi, a middle-aged man with grey hair and glasses, wearing a white button-down shirt. He is smiling and looking towards the camera. The background is plain white.

JITENDRA DIVGI

Managing Director, Divgi TTS

“APPROACHING AUTOMOTIVE ELECTRIFICATION WITH MULTIPRONGED STRATEGY”

Hiren Divgi in an interview with T Murralli, Managing Editor, Mobility Outlook

Hiren Divgi, Director, Divgi TorqTransfer Systems, says the company has a strategy to map every phase of the transition in the industry, and be future-ready with product technologies and the means to deliver them.



Hirendra B Divgi

Hirendra B Divgi is the Executive Director of Divgi TorqTransfer Systems. He has over 30 years of experience in advanced gear manufacturing processes and their influence in drive train products. Divgi-TTS supplies transmission and transfer case components and subsystems for small cars, utility vehicles and commercial vehicles.

Can you share some experiences that have challenged the company's prowess and how were they mitigated?

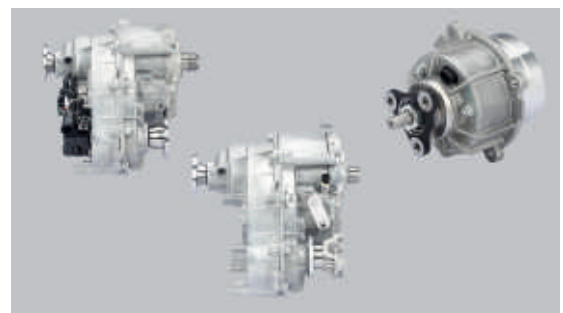
Over five decades of the company's history, there were innumerable experiences that challenged the company's prowess. However, one that stands out is the opportunity we got in the early 2000s to design, develop, manufacture, and supply an advanced Electric Shift on the Fly (ESOF) 4X4 transfer case to Ford for their JV with Mazda, located in Thailand. The mandate was to design this transfer case to mate with an automatic transmission built by Ford at their plant in France but to be supplied in Thailand, where Ford would integrate it. The other challenges were to meet a tight target price at a relatively low volume and manage the complexity of programme management between stakeholders spread over North America, Japan, and Thailand.

We focused on training our best engineers with generous inputs from BorgWarner in programme management and coupled that with engineering support from BorgWarner and the supplier ecosystem we had in Pune that could handle the lower volume challenge. Further, we brought in our experience in frugal engineering in tooling to put together a set-up that I am proud to say delivered first time right and a warranty incident-free track record over the programme's lifecycle that lasted seven years.

What are the opportunities that came when India moved to BS-VI?

While BS-VI impacted companies involved in the supply of engine components and related subsystems more directly, for us as an automotive drivetrain systems supplier, it is more important to track the evolving trajectory of emission norms in which the implementation of BS-VI is only one, though a significant step.

Most Indian automotive OEMs invested heavily in upgrading their engine technologies in meeting the BS-VI standards in time, based on the earlier experience of the Government of India's strict implementation of the BS-IV norms. In my opinion, this, along with the pressures of launching new models, consumed all the engineering resource bandwidth of Indian OEMs, leaving open some vulnerabilities that we, as an independent drivetrain systems supplier, can fill and support our OEM customers retain their competitive edge. This would be primarily the field of automatic transmissions and AWD systems.



What are the new opportunities that you see in the domestic market?

The recent event of Ford exiting the Indian market has demonstrated that the Indian market and the Indian customers are extremely value sensitive. It has time and again been demonstrated that leading global brands cannot take the Indian customer for granted by offering shoddy outdated products or products that do not have features that appeal to the Indian value perception.

Many carry the misconception that the Indian market is price sensitive. It is not; the failure of the Tata Nano, in contrast to the tremendous success of the Tata Tiago, Nexon and Altroz that have propelled Tata Motors' market share back into the double digits, demonstrates that the Indian customer is much savvier than made out to be, in ferreting out true value combined with safety, features and aesthetics and is willing to pay for better products and features, if 'sensibly' priced.

Hyundai's tremendous success in India in contrast to Ford's failure in the same time frame, the tremendous market response to the new Mahindra Thar, Tata Safari and the close to a cult following for the Royal Enfield are the other examples of success stories, where companies have paid close attention to the Indian customers' value perception.

At Divgi-TTS, we have a slew of products that tap into this value perception, and we continue to see opportunities collaborating with our OEM customers to bring them to market fruition.

Indian auto component manufacturers have to some extent benefitted due to geopolitical imbroglio. What has been your experience? Elaborate.

We have seen new interest from our existing global customers and through new inquiries for sourcing from India because of the geopolitical situation. However, due to the continued disruptions in the industry on account of the 2nd and 3rd waves of the pandemic and more immediate challenges like the shortage of semi-conductor chips, this has not the shortage of semi-conductor chips, this has not yet

realised its full potential. So I would say it is a work in progress, but the opportunities for the Indian auto components industry as a whole, are definitely there.

Can you tell us about your contribution to PHEVs and pure Evs?

We are approaching the electrification of the automotive industry with a multipronged strategy to ensure we are ahead of the curve in its adoption. This means being nimble-footed in addressing the market needs as it transitions from ICE through some stages of automation/hybridisation to pure electric. This impacts product technology and process technology and the tectonic shifts it causes in the supply chains. By having a strategy to map every phase of this transition and be future-ready with product technologies and the means to deliver them, we support our Indian and global customers in the even bigger challenges they face.

Can you tell us about the initiatives taken to make the products flawless? What's the current average PPM at which you supply to your customers, and what is your target?

All our manufacturing facilities are compliant with the latest quality, safety, and environmental protection standards, the IATF16949: 2016, OSHAS 45001: 2018 and ISO14001: 2015 EMS. We are currently at zero ppm level at our major customers' level for the past three years and at a double-digit level at our manufacturing facilities. In addition, we have ongoing Kaizen programmes to keep the continuous improvement culture alive.

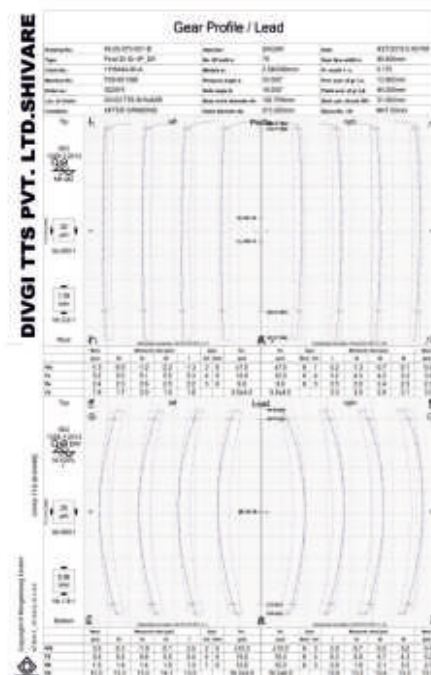
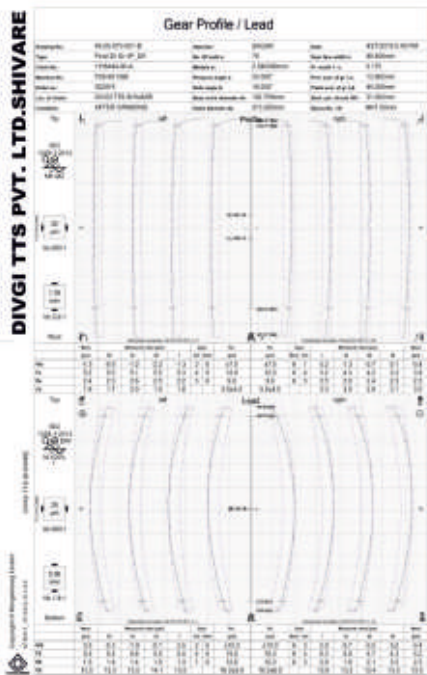
Further, for the last five years, we have been practising sustainability reporting as per the GRI guidelines, which have now been converted into standards and audited by independent auditors. It is our desire to protect the quality of our operations beyond the realm of product quality into the realm of sustainability by transparently reporting and assuring our customers that they are receiving quality assured products manufactured in a safe, environment-friendly fashion, meeting specific sustainability development goals.

DOTTING THE I'S AND CROSSING THE T'S

The Klingelnberg P-26 4-Axis CNC High-Precision Gear Measurement Device enables Divgi-TTS deliver supreme quality products

Divgi-TTS has maintained a continuous thrust on providing top quality products. In support of this value, Divgi-TTS has installed the fully automatic CNC-controlled Klingelnberg P-26 4-Axis High-precision Gear Testing System. The system is designed as a compact unit for a workpiece diameter of upto 260 mm. The machine is used to inspect cylindrical gears, pinion type cutters and shaving cutters, worms and worm wheels, hobs, bevel gears, general dimension, shape, and positional deviations of axially symmetrical workpieces, cam and camshaft measurement and rotor measurement.

Combined with a high-precision workpiece turntable, the Klingelnberg P-26 can handle a wide range of fast and accurate measurement tasks in a single clamping, suitable for coordinate, shape, gear tooth and roughness measurements.



Versatile scanning 3D tracer head with digital measurement provides acquisition in all coordinate directions delivering high basic accuracy with low tolerances.

A simple graphical programming environment and simple software operating concept provide ease of operations resulting in tremendous time savings due to quick availability of measuring results.

Gear & Lead Profiles of the Final Drive Gear

A BRIDGE TO PRODUCTIVITY

A Gantry System for automation of Piece Gear operations

As part of Divgi-TTS' thrust into improving productivity, a Gantry System has been introduced for the automated loading and unloading of both, the 1st and 2nd turning operations setup of its Piece Gear Processing Cycle .

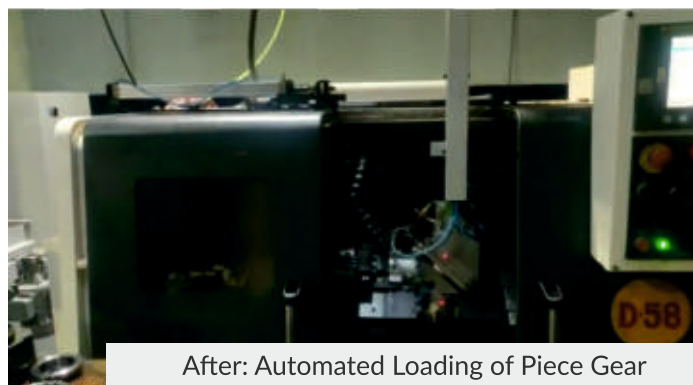


The Gantry System consists of a motion-centric overhead system. Constructed with several different components such as motion controllers and drive technologies, the Gantry System has been completely custom tailored and fully integrated with the Piece Gear turning processes. This requires complex process calibration during setup to fulfil the goal of the specific task at hand viz. turning.

The ideation by Dr. Balu Patil, Head – Operations was translated into reality with the Divgi-TTS Team of Shri Pandurang Kamat, Shri Parshuram, Shri Chidanand and Shri J. M. Gaiwad. With strong support from suppliers, Premier Evolvics, Pvt. Ltd. from Coimbatore, the Gantry System commenced operations from 28th December, 2021 as part of the Piece Gear manufacturing process.



Before: Manual Loading of Piece Gear



After: Automated Loading of Piece Gear

The introduction of the Gantry System increased productivity by around 20% and reduced manpower by half.

With the success of the first such system at our facility in Sirsi, efforts are now underway to deploy such gantry systems for other components under manufacture such as shafts and flanges.

FACE OF PRODUCT LEADERSHIP

A mindshare with the stalwarts of our workforce



MANJUNATH B. HADAPAD
Manager, Manufacturing Operations

EDUCATION	: Diploma – Mechanical Engineering, BA (Economics)
TOTAL EXPERIENCE	: 25 years
EXPERIENCE WITH DIVGI TTS	: 17 years
CAREER GOALS	: To be the key contributor in the growth of organisation with result oriented actions
HOBBIES	: Reading, listening to classical music and old songs
FAMILY DETAILS	: Nandini-Spouse (Housewife), Upasana-Daughter (Student), Avaneesh-Son (Student)

What is your current role in Divgi TTS?

- Leading the Gear Manufacturing Department at Sirsi; establishing, trouble shooting and standardising workstations and gear manufacturing processes.
- Preparing PPAP, SPC, and APQP & implementing ASES, BWPS, IATF16949, EMS & OHSAS systems and other such requirements.
- Implementing Poka-Yoke systems.
- Improving people and process efficiency and effectiveness.

What are the different roles you have undertaken within the company besides your current role?

I've formulated and introduced new procedures for operator skill requirement and on job training within the "Operator Licensing System". I visited Italy and China to conduct machine testing and evaluation for part quality precision. The Ring Gear Induction Hardening Process and Internal gear Scudding Process implementations at Sirsi were spearheaded by me.

What benefits have been derived from the retrofitting of earlier generation machines as part of the frugal manufacturing strategy of the company?

By retrofitting the 1940s machines available with us with latest CNC controls, we were able to maintain

both, product quality and overall productivity. The addition of latest SIEMENS and FANUC control systems allowed several other processes such as taper & crown hobbing, taper shaping, internal ring gear honing and shaping. A total of 15 machines have been re-productionized in this manner.

What do you believe are some of your notable achievements in the successful execution of this strategy?

Some of my notable achievements include:

- Drawing up guidelines of performance for maximizing machine productivity and product quality.
- Driving the retrofitting program and ensuring that the machines are rebuilt as per the specified requirements.
- Incorporating critical manufacturing concepts and formulating new procedures for operator skill requirement

RAPID FIRE

FAVOURITE QUOTE	<i>Work is Worship</i>
FAVOURITE BOOK	<i>YOU CAN WIN</i>
LIFE IS	<i>Not a race, It's a journey enjoy it.</i>
FAMILY IS	<i>My strength</i>
ON SUNDAYS	<i>Reading & spending time with family and friends</i>

ON WHEELS

Mohammed Zubair Kachi cycles 200-kms in 13 hours

Cycling is a unique hobby to begin with. But to become a randonneur* actually requires immense passion for riding, a commitment to push one's limits of endurance and an inner drive to imbibe it as a fitness life-style. And, Senior Manager, Advance Business Development, Zubair did become just that – a “Randonneur”.

On 11 Sept, 2021, Zubair participated in the Brevets de Randonneurs Mondiaux (BRM), a fixed duration, long-distance endurance cycling event organized by Audax India Randonneurs (AIR), an all-India organisation of randonneurs on the centenary day of the endurance cycling organization. In the event, he completed 200 kms. within the specified time limit of 13 hours.



Zubair's dream of riding on wheels since he was 4 years old took strong roots many years later, in 2011, when he purchased a high-end bicycle from Scott Cycles. It's the same bike that he still rides.

Congratulations to Zubair in pursuing a passion that now gains him “international” recognition as a Randonneur.

*A cyclist who participates in long distance, mass participation cycling events, covering a specified distance with a specified time limit.



BOOSTER SHOT

Divgi-TTS appoints Mr Nam Jun Kim as 'President & Country Head', South Korea



Nam Jun Kim comes on board as part of Divgi-TTS' strategic growth plans of strengthening its overseas business pursuits in the Asian region. NJ Kim will be supporting the Divgi-TTS team on all strategic business aspects relating to supplier and customer activities. He will also be assisting Divgi-TTS on all strategic initiatives for the domestic market.

As a Mechanical Engineer from Konkuk University, Seoul, Kim has over 33 years of industry experience serving reputed global brands like BorgWarner, SsangYong Motors and Hyosung Suzuki Motors.

During his 20 years of tenure with BorgWarner, he was Head - Operations for plants in Ochang (Korea) and Rayong (Thailand) and successfully executed various product launches for global customers like Ford, General Motors, Nissan, SsangYong, and the Hyundai Kia Group. His professional accomplishments include acquiring "Ford Silver Supplier" award and the first business award to BorgWarner from Nissan in the Asian region.

NJ Kim is based out of Gyeonggi-do (near Seoul), South Korea.

Please join us in welcoming NJ to Divgi-TTS. We look forward to his support in Divgi-TTS' improvement efforts in the fulfilment of its business goals and vision.



All matter in this newsletter is copyright & is meant for private circulation only.

For additional information, visit www.divgi-tts.com