



Divgi-TTS

Innovation
TIMES

ISSUE 56 | August 2021

FRUGALITY

IN MANUFACTURING

INSIDE OUT

REDEFINING FRUGAL MANUFACTURING 02

BEYOND BORDERS 08

LESS IS MORE 04

SENSE OF PRIDE 10

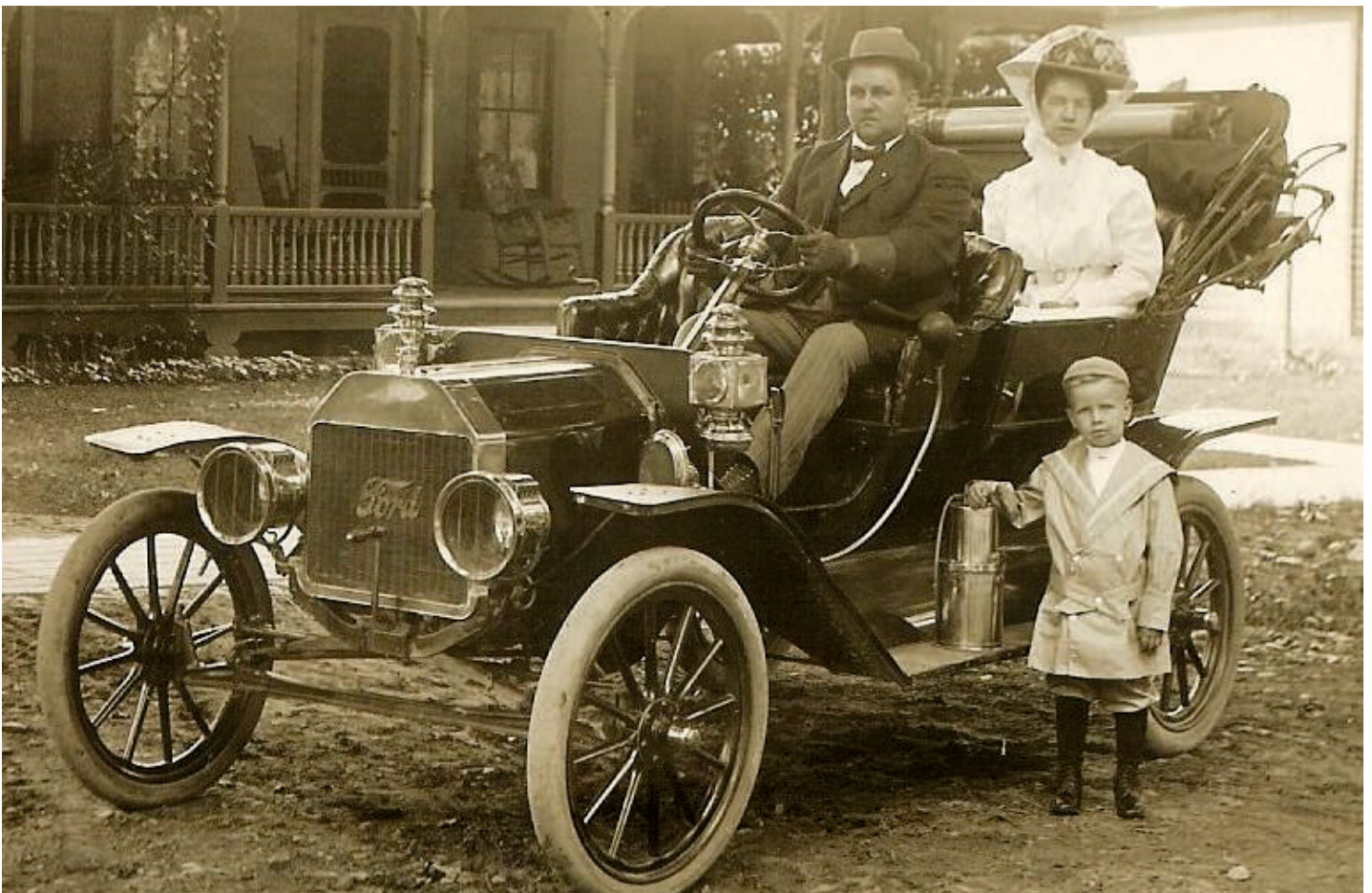
また (MATA) ENCORE 06

BOOSTER SHOT 12

REDEFINING FRUGAL MANUFACTURING

In August of 1909, Henry Ford introduced his revolutionary Model T car at an incredulous price of around USD 250 when most handcrafted cars were selling for over USD 1000, and started a revolution in mobility. Within a span of 10 years, he changed the landscape of the United States of America from horse-drawn carriages to his Model T that could travel at a max speed of over 60 kmph! By the early 1920's, it was produced in 14 countries in over 25 factories reaching a staggering production rate of almost 10,000 cars a day. Henry Ford could justifiably be called the pioneer of frugal manufacturing who made mobility available to the majority of Americans and propelled an era of unprecedented prosperity in the United States of America.

Henry Ford's inventiveness and innovations gave us the discipline of industrial engineering which the Japanese would build on after World War 2 to rebuild their shattered country and become a manufacturing powerhouse by the 1960's. In India the term frugal manufacturing has become fashionable to tout our competitive advantage over the West that is saddled with high social welfare costs and shortage of skilled labor. In reality it is nothing but a brutal arbitrage of relatively very low labor costs and abundant supply of labor. This relatively easy availability of literate and minimally trained labor masks the lessons of economic and social history that this critical factor of production can become scarce and expensive over time. The Japanese were



quick to realize this and kept the innovative approach of continual improvement, or kaizen, with appropriate technology to keep costs under control. As India seeks to become a modern manufacturing economy, our manufacturing entrepreneurs would do well to remember that sustaining frugal manufacturing is hard work and requires constant attention to the interplay between variable and fixed costs. The technology that enables the right fit between fixed and variable costs is what might be called “appropriate technology”. As India seeks to compete with China in global markets, we would do well to remember these fundamentals and apply the resources from our ecosystem intelligently and judiciously. At Divgi TTS, this approach informs our quest for manufacturing excellence without which we cannot bring our product leadership to the market successfully. We seek to combine our technology-led product innovations with manufacturing excellence and financial discipline to bring best-in-class value propositions for our customers globally. In the last 5 years we have invested in cutting edge state-of-the-art manufacturing technology to provide customers across the industrial world class leading quality in our supply solutions at best-in-class prices. As the world transitions to electric mobility and other unconventional technologies for propulsion, our frugal

manufacturing technologies help innovators realize their design solutions for the new requirements that are emerging.

Our moment of epiphany has been that in the ultimate analysis frugal manufacturing and sustainability in its most fundamental sense are the same thing. It is the bedrock of sustained competitiveness and comes from an integrated approach that incorporates and amalgamates customer-centric thinking; high quality design for manufacturability; efficient delivery of solutions; efficient utilization of natural resources; concern about profitability through ethical means and appropriate use of profits; and care and compassion for people and the environment.

JITENDRA DIVGI

Managing Director, Divgi TTS



LESS IS MORE

Divgi-TTS retrofits earlier generation machines as part of its frugality drive



"I think frugality drives innovation, just like other constraints do. One of the only ways to get out of a tight box is to invent your way out."

- Jeff Bezos,
Founder and CEO, Amazon.com, Inc.

Bringing significant benefits to customers by applying elements of frugality in its manufacturing journey has been one of Divgi-TTS' strongest planks ever since its inception in 1964. Today, frugality is second nature to Divgi-TTS.

Divgi-TTS exploited this ideology to the maximum in the ramp up phase of the joint venture with BorgWarner in 1995. For the manufacture of the BorgWarner's transfer cases that required specialized gear operations such as broaching, hobbing, shaping, shaving, chamfering, honing and grinding, it purchased several speciality machines of reputed make. They were also vintage – from the 1940's till the 1980's – but fully operational, from BorgWarner at resale prices. Divgi-TTS just bought them all. It knew that with application of innovative frugal ideas – identifying local component suppliers & training its maintenance staff – these specialized machines could be put to good operational use. Some of these machines were made operational right from inception. Others were made operational as and when volume increase demanded additional operational capacities.

However, with the advent of CNC-based systems in the late 1990's, Divgi-TTS realized



Retrofitted Barber-Colman Gear Hobber

that the need of the hour was automation to sustain standardization and achieve productivity. Mindful of the perils of high capital investments in the ramp-up phase, Divgi-TTS adopted the CNC retrofitment route to sustainability, the frugal yet tenable way to effectively recondition and retrofit them with CNC controllers.



Retrofitted HMTLiebherr H400 Gear Hobber

Digi-TTS identified a total of 15 machines covering the entire cycle of gear cutting operations for potential reconditioning/ retrofitting. Within a span of 10 years, all machines were transformed into sleek CNC-based machines that provided increased number of manufacturing programs, greater flexibility in their control and ease of their use.

The Retrofitted Machines

Hobbing

- Barber Coleman (1)
- Cooper (1)
- HMT H400 (4)
- Russian Hobber (2)

Shaping

- Fellows 10-4 (1)
- Russian Shaper (1)

Shaving

- Red Ring (2)

Honing

- Fassler D-250 (2)
- Fassler K-300 (1)

The conversion injected a significant boost to existing capacities for delivering components at par with new the generation CNC-based machines.



Retrofitted Fellows 10-4 Shaper



Retrofitted Red Ring Gear Shaver - ARK

By converting machines considered as “dead” into a thriving “new line” of gear production with absolutely no compromise on quality and deliveries from systems eliminating significant investments in the process, Divgi-TTS strongly demonstrated the application of frugal techniques into its manufacturing business. And all of this with the single-minded approach of delivering maximum product quality at minimum price to its customers.



Retrofitted Fassler K-300 Honing Machine

Indeed, “Less is More”

また (MATA), ENCORE

Divgi-TTS ties an exclusive agreement with Toyota Tsusho for promoting its products to Japanese OEMs

A routine morning call from MR. Muthu Vignesh from Toyota Tsusho India Pvt. Ltd. (TTIPL) triggered it all. Established as a JV unit of Toyota Tsusho Corporation, Japan and KSL in 1999, TTIPL implements the Global Toyota's Plan project. TTIPL business spans 7 continents and 45 countries. Its business in the automotive segment includes integrated logistics and matters related to import and export for TKM and its parts suppliers on various materials. Besides the automotive space, TTIPL handles businesses in metals, chemical and electronics and machinery, energy and plant projects. Toyota Tsusho India Private Limited is headquartered in Bengaluru, Karnataka and runs its business operations from New Delhi, Manesar, Ahmedabad, Visakhapatnam, Mumbai, Pune, Bengaluru and Chennai.

Toyota Tsusho Corporation was scouting, through its India office, TTIPL, seasoned domestic suppliers of automotive transmission synchronizers for supply to Japanese OEMs globally. Divgi-TTS surfaced as one of its most attractive choices. What caught the immediate attention of the evaluation team is the uniqueness and advantages of the Divgi-TTS steel-based synchronizers over other brass-based manufacturers. On understanding of our complete range of high engineered products, the team was quite convinced about Divgi-TTS' role as a prominent player in its "value chain."

Events unfolded very quickly thereafter. Visits and detailed discussions were held with Toyota's



team of Tadashi Onishi San, Senior Vice President, SBU Head & GPLD Head, Masato Suzuma San, Vice President, North Operations, Harish Kumar San, Sr. Manager-Business Development and Muthu Vignesh San, Officer, New Business Team. Divgi-TTS' standardized quality manufacturing processes were evaluated in detail.



The Toyota Tsusho's team's conviction on Divgi-TTS' quality and reliability of products coupled with its estimation of significant potential for such quality products within the Japanese automotive fraternity world-wide made its decision very simple. Immediately thereafter, Toyota Tshusho expressed its desire to sign an exclusive rights contract with Divgi-TTS for distribution of its products to Japanese companies world-wide. The agreement was signed on 10th June 21.



Divgi-TTS views this contract as an excellent opportunity for both parties to expand further into the global supply chain and increase footprint.



As for Divgi-TTS, after its successful entry into Toyota Motors, India's supply chain since 2016 with supply of piece gears, it is indeed a very proud moment to be shaking hands, yet again, with a group that's one of the world's best – the Toyota Group.



Toyota Tsusho Business Development Team with Divgi-TTS Managing Director, Jiten Divgi and his Customer Lead Team.



In our Innovation TIMES Issue 52, we had covered how Ulyanovsk (Russia) based OEM, UAZ conducted its vehicle level tests on its Patriot SUV fitted with a Divgi-TTS Electric-shift Transfer case (ESOF) in the Archedinsko-Don steppes of the Volgograd region to investigate the endurance of the product. In the most hostile of terrain on the vast Astrakhan steppes, the Patriots were tested in temperatures ranging from -20 deg Celsius to +40 deg Celsius. End of the exercise, The Russian team acknowledged the ruggedness and quality of the transfer case and favoured Divgi-TTS with its business of transfer cases. By the end of 2019, Divgi-TTS had begun to supply 50% of the share of its manual transfer case business and the entire 100% of the share of its automatic transfer case business on the Patriot SUV.

With the pandemic raging in first half of 2020, the need for ambulances and essential medical transport to cover Russia's vast geographic expanse was direly felt. UAZ stood up to the task and "converted" its Patriot SUV to such vehicles. Contrary to the global trajectory of "plummeting business revenues", the demand for deliveries for the ESOF, in fact increased. Despite the strong regulations slapped on industry by the Government on account of the pandemic, Divgi-TTS lived up to customer expectations and supplied a total of 9,400 transfer-cases in FY21. Nothing could have worked better to cement the partnership between UAZ and Divgi-TTS than the seamless cooperation and coordination on these deliveries during such testing times.

The cordial relationship naturally led to the exploration of newer areas of engagement between the two partnering companies. When Divgi-TTS approached UAZ with offers to supply of manual transmissions, both 5 speed and 6 speed for its Patriot and Bukhanka vehicles, UAZ readily agreed to give it a strong consideration. The project is under review.

The success of the ESOF transfer case at UAZ has also buoyed Divgi-TTS into approaching other Russian OEMs – AvtoVAZ, GAZ & Sollers – for a slice of its 4x4 business. At Divgi-TTS we often say “Spasiba UAZ! This is only the start, we are bringing the world of transmissions to Russia”.



SENSE OF PRIDE

Divgi-TTS feels proud of its sterling performance recognition by customers

Performance Awards

FML Award



Divgi-TTS has been awarded the Certificate of Appreciation award for outstanding development support on Gears, Double Cone Synchronizer and Triple cone Synchronizer for application on T1/T2 traveller bus and Gurkha vehicle.

Mahindra Award



Divgi-TTS received a Special Appreciation Award in Supplier Excellence for our Transfer-cases development and supplies for the All New Thar.

Toyota Award

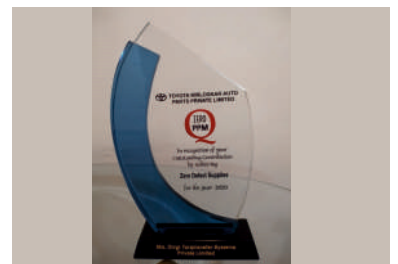
Toyota Awards -2020 for our supplies of Piece Gears (1,2,3 & 4)



Quality



Delivery



Zero PPM

SENSE OF PRIDE

Divgi-TTS feels proud about India's Independence

Independence Day

On 15th August 2021, Divgi-TTS celebrated the 75th Indian Independence Day at its three facilities. Song and dance, color and revelry was the permeating mood, with employees and their families present at the events at each facility.

At the Bhosari facility, after the customary flag hosting and singing of the national anthem, a strong remembrance of all the sacrifices our “national forepersons”, Divgi-ite Vidyadhar Virokar sang “Vande Mataram” in Raag 'Desh Bandish '- Vande giving the patriotic song a completely classical and artistic flavor. Mr. Ghyansham Kajrekar refreshed the crowd present with a brief message of the company's mission of a safe environmental future. Few of employees' children exhibited their individual talents too.



MD, Jitendra Divgi shared the importance of being independent including anecdotes of some freedom fighters from his own family and thanked all company representatives and families present at the occasion for showing their enthusiasm and for a celebration well executed.

The event concluded with sumptuous snacks for everyone.

Thank you entire HR team for the excellent arrangements and refreshments. Special thanks to Deepak Irwadkar, Smita Shanbhag, Amar Shahgadkar and Gopal Dalvi for all the good arrangements and systematic execution of the celebrations at all 3 locations.

Mind You....and all of the celebrations were conducted amid strict COVID protocols.

Stay Well, Stay Safe



JAI HIND!!!

BOOSTER SHOT

Divgi-TTS appoints **Mr. Mark John** as 'Vice President, International Commercials Operations'



Mark's primary role is to support the Divgi-TTS Teams on all aspects relating to supplier and customer assignments in Europe, North America and APAC regions as Divgi-TTS expands its footprint into the global arena.

As a member of Divgi-TTS' senior management team, Mark will also be supporting Divgi-TTS on all strategic initiatives in the domestic market.

With a career starting back in 1983, Mark brings with him over 35 years of regional and global automotive experience, gained from his stints in world renowned OEM's such as Jaguar, Ford, Getrag-Ford and Tier 1 companies like Magna.

With Mark's decades of experience, with several years in senior positions, his assignment at Divgi-TTS is an initiative towards its strategic growth plans and strengthening its international pursuits.

Mark is based in Cologne, Germany and reports directly to the Managing Director, Jitendra Divgi.

Please join us in welcoming Mark to Divgi-TTS. We look forward to your 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.digvi-tts.com