



# Innovation TIMES

ISSUE 53, July 2019



## Nikola Tesla

(10 July 1856-7 January 1943) was a Serbian - American inventor and a contemporary of other great innovators Edison, Westinghouse and Marconi. Nikola Tesla was a giant of innovation and is credited with the design of the modern alternating current (AC) electricity supply system. Tesla, Inc, the American automotive and energy company that specializes in electric car manufacturing has been named as a tribute to Nikola Tesla.

## INSIDE OUT

2 ► INNOVATION AS  
ORGANIZATIONAL CULTURE

3 ► THE FUTURE OF AUTOMOTIVE  
TRANSMISSION TECHNOLOGY

4 ► THREE IN A  
ROW

6 ► TÊTE-A-TÊTE

7 ► "CAN" DO SPIRIT

8 ► GAMEPLAY

# EDITORIAL

## INNOVATION AS ORGANIZATIONAL CULTURE



Much is being written about and commented on, on the need for innovation to drive economic growth for individual firms and the Indian economy as a whole. People can see and recognize innovation when its impact strikes society and the economy. And yet, very few organizations have a comprehensive, holistic, and coherent understanding of how organizational processes and culture nurture or stifle innovation.

Edgar Schein, the doyen of organizational culture, taught that culture has three layers: the artifacts of a culture – our symbols and signs; its overtly espoused values – the things we say we believe; and, most important, its underlying assumptions – the way things really are. Many organizations have impressive artifacts and espoused values. Inspiring messages of values, mission, and shared vision are displayed across the organization, as they should be. In the current context, the importance of innovation is reiterated again and again.

The problem usually is what lies underneath all this: the way things really are despite what is overtly expressed and sought to be disseminated. Cultures are dysfunctional when the underlying assumptions do not line up with the values we claim to hold dear. Resolving the dissonances by changing underlying assumptions takes leadership, time and resources. The arduous effort, however, is worth it. Culture change is the surest sign of a learning organization whose hallmarks are open mindedness, humility, customer focus, curiosity, and continuous experimentation to learn the next basis of competitive advantage.

Organizations that are innovative have cultures that are highly conducive to efficient processes that promote and accelerate innovation. Typically, they have class-leading technologies and market and product initiatives that drive and sustain innovativeness of the organization. To learn continuously, the organizational culture is entrepreneurial, or intrapreneurial as some have called it; very down-to-earth with a fierce drive for results and achieving meaningful intermediate objectives that sustain a high sense of purpose; where people have a can-do spirit and do not hesitate to take on challenges as they know that the risk-taking appetite of the organization supports them in their endeavours. Above all, these organizations are continuously investing in building and developing competencies of individual people so that organizational competencies to deliver breakthrough products and services are continuously enhanced. These organizations have a clear sense of what their needed competencies are, and work assiduously to hone them.

The connection between culture and competencies is a short and direct one. The obvious litmus test of an innovative organization is breakthrough products and services. To achieve this there is a climate of entrepreneurship and a culture of risk taking and challenging the status quo. This requires skilled leaders and managers who can deal with paradoxical situations and manage conflict. This requires creative perspective drawing, and as they solve problems, the ability to learn continuously, on the fly. Finally, innovative organizations work hard to develop leaders who are skilled innovation managers - who can bring organizational speed, business acumen to be agile, and who have a nose for talent management. In the marketplace these organizations appear spectacularly fast, nimble and agile, highly customer focussed and deliver customer satisfaction and indeed that rare experience - customer delight!

# FEATURE STORY

## THE FUTURE OF AUTOMOTIVE TRANSMISSION TECHNOLOGY - AN INDIAN PERSPECTIVE

Contributor

Hiren Divgi  
Executive Director

The automotive world is going through a phase of significant disruption. So, here's a uniquely Indian perspective on the future of automotive transmission technology.

The current predominant share of manual transmissions and the low penetration of low end automated manual transmissions at the entry level bracket the Indian automotive consumer and market into an extremely price sensitive market, averse to very high technology and very sensitive to fuel economy and cost of spare parts.

But the Indian consumer is not foolishly price sensitive. There is deep appreciation for value in terms of ownership costs, reliability, durability, and comfort if priced rightly. A few examples below:

### The Motorcycle Story:

Up until the mid 1980's, 2 stroke motorcycle technology was the predominant technology. Yet Hero Honda's 4 stroke technology launched in 1985 in the 100cc segment with a price premium of minimum 18% to 20% over the 2 stroke models became number one within 5 years.

### The Diesel Car Story:

Tata Motors' Indica, with a custom designed, more fuel efficient and powerful CRDi technology diesel engine forced Maruti Suzuki, in 1998, to respond likewise. The investments by OEMs in effecting the technology had significant cost implications to the end consumer but they became the hottest selling models.

### The Digital Divide Story:

The smartphone and icon driven applications debunked the digital divide theory between semi-literate and literate groups on literacy levels and the cost of accessing the internet. In fact, it brought tremendous opportunity to these semi-urban and rural masses.

The above stories highlight the smartness of the Indian consumer in ferreting out value when a

larger choice of technology is offered to them, be it a motorcycle, a choice of engine in a car or a smart phone. Features such as power steering, air-conditioning, ABS, etc. are no different and automatic transmissions will start taking a significant share of the market in India in the future.

With Bharat Stage VI emission norms being proposed to be implemented in 2020, the focus is shifting from manual transmissions to competing technologies - Automated Manuals (AMTs), Dual Clutch Automatics (DCTs), Conventional Stepped Automatics (ATs) or Continuously Variable (CVTs)

AMTs and DCTs seem to be the most suited technologies for the Indian market. As the number of speeds increase and customers expect better drive quality and features enhanced by software, AMTs will give way to wet DCTs for their sheer durability with options of hybridization to P2 or P2.5 levels. CVTs, though promising, face the challenge of large gear manufacturing capacities getting redundant and dependence on a few globally very powerful chain and pulley suppliers.

**For sceptics who feel that sophistication, price and serviceability pose threats to the DCT technology, the following comments provide insights:**

- India is one of the largest markets for multidisc wet clutches, though on motorcycles.
- Rural India is quite adept at handling complex hydraulics, though in agricultural tractors.
- Semi urban India is quite adept at handling sophisticated electronics, though in smart phones

The Indian consumer could surprise all if given the choice to experience and evaluate the value proposition of a wider range of technology.

## THREE IN A ROW

### Divgi-TTS becomes Gold Partner yet again at "Transmission Tech 2019"

In our Innovation TIMES issue No. 49 of April, 2018, we had shared that "Transmission Tech", an annual Conference organized by Auto Tech Review on transmission technology, provided us with just the perfect platform to showcase our core strengths to the automotive OEM transmission top brass and exchange notes with them on how the strengths could be leveraged to mutual benefit.

The 3rd edition of this event this year, Transmission Tech 2019 Conference - cum - mini exhibition was held at the Leela Ambience, Gurugram on 24 April, 2019. Divgi - TTS was a "Gold Partner" to the event yet again. It had also set up a stall with a display of its range of transmissions - the 6 DCT 300, the 6-speed Manual Transmission docked with Divgi's transfer case and the Electric Vehicle Transmission.

Ashok Bhandwale, Head of Transmissions (retd.), Tata Motors and Consulting Head - Advanced Transmission Products at Divgi - TTS presented a

brief on prevailing global transmission technologies and the penetration of specific technologies by geography. Mr. Bhandwale highlighted the trends in future mobility and suggested some ways to improve efficiency and skillsets.

Hirendra Divgi, Executive Director, Divgi - TTS, a panelist at the conference, shared his views about emerging disruptive technologies and how to address those challenges.

The contacts generated at the event have instilled confidence in Divgi - TTS that it is on the right road to introducing India's first truly indigenous 7-speed Dual Clutch Automatic Transmission System into the Indian automotive market space. The Dual - Clutch Transmission is designed for handling engine torque capacities between the 240 Nm and 300 Nm range and is most suited for sedans and crossover vehicles.





Hiren in rapt attention



Mr. Bhandwale felicitated by the event organizers.



Hiren in conversation



Mr. Bhandwale in the midst of his presentation



Visitors at the Divgi-TTS stall



Zubair with visitors

# TÊTE-A-TÊTE



**Sadashiv Manjari**

Sr. Manager Sales & Customer Support

<b>Education</b>	: Diploma In Electrical Engineering
<b>Total Experience</b>	: 30 Years
<b>With Divgi TTS</b>	: 23 Years
<b>Career Goals</b>	: Be Action-Oriented & Motivational
<b>Hobbies</b>	: Watching News On Television & Newspaper Reading
<b>Family Details</b>	: Spouse: Geeta, Housewife: Son, Pratik, Student, Engineering

## What is your current role in Divgi-TTS?

As head of Sales and Customer Support, I manage monthly sales forecasts based on customer schedules, assess market situations and government policies and translate them into monthly sales revenues. I also monitor on-time delivery, inventory control, debtors recovery and periodic product pricing settlement with customers as well as line and warranty concerns.

## What has been your experience with Divgi-TTS?

I joined the Divgi group in 1996 as a Maintenance Engineer at the Sirsi Plant but in the first three years got involved in plant start-up activities - plant setup and liaison with government agencies. The next three years gave me the real exposure to machine operations and maintenance, manufacturing process and systems, tools fixtures and gauges. My transfer to the Bhosari facility in 2011 to lead the Sales and Customer Support function helped me develop other challenging skills - customer interactions, both domestic and international, on techno commercial issues. The role has taught me a great deal on human relationship management as well.

## What has been your contribution in Divgi-TTS Product Leadership Initiatives?

Setting up the Sirsi Plant and formulating many new manufacturing processes, amongst others, have been some of my significant contributions to the Product Leadership Initiative of Divgi-TTS. The 23 years in Divgi-TTS has also made me very well-versed with the company's Maintenance, Growth & Launch, Production, Sales and Customer Support and even HR and Finance functions.

## What do you believe are some of your notable achievements at Divgi-TTS?

The continuing journey of 23 years with Divgi-TTS has fulfilled most of my personal and professional goals with ample scope to fulfill many more in the years to come. Some of the achievements are:

- Installation, commissioning of new equipment, upgrading existing CNC and conventional machines to new-age machines at Sirsi.
- Implementing Total Predictive Maintenance (TPM) System.
- Implementing QMS (QS9000/ ISO TS16949) process and EMS Certifications at Sirsi
- Implementing Poka Yoke systems in shopfloor processes
- Handling major complex and critical domestic programs - W201 Synchro, TKAP and Export components in the launch stage.
- Blending customer business and work ethics with Divgi-TTS' internal processes

## Rapid Fire

<b>Favorite Quote</b>	: <i>Work is Worship</i> <i>by V.V. Narayanaswamy</i>
<b>Favorite Book</b>	: <i>My Experiments with Truth</i> <i>by Mahatma Gandhi</i>
<b>Life is</b>	: Very Simple
<b>Family is</b>	: God's gift to me
<b>On Sundays</b>	: Relax with family.

## “CAN” DO SPIRIT

### Divgi-TTS' 32-bit Electronic Control Unit is now CAN-enabled



With the application of mechatronics becoming mainstream in industrial products since the 70s, automotive manufacturers, amongst others have introduced a host of features that enhance end-user experience; ease of operation, convenience and other technological advantages that improved robustness and reliability of their products significantly. Divgi-TTS had an 8-bit microprocessor-controlled transfer case for four-wheel drive systems since the company's inception in 1995. However, with the ever-demanding requirement for unmatched product robustness, vehicle stability and performance, Divgi-TTS decided to leapfrog into the future.

Having worked with multiple microcontrollers from makers such as Motorola, Infion and Texas Instruments and with global hardware suppliers like Hitachi and Continental since 25 years and keeping customer application variations in mind, what came out of a team of dedicated engineers-hand-picked post-graduates (M-Techs) from premier institutes of India is a highly configurable 32-bit Controller Area Network (CAN) based Electronic Control Unit (ECU) with a modular software architecture that allows rapid applications deployment on the customers' existing and upcoming applications.

Currently offered with Divgi-TTS' Electric Shift-on-the-fly (ESOF) and Torque-on-Demand (TOD) solutions, the customer derives very significant cost benefits. While the introduction of the CAN-based ECU rendered several devices such as speed sensors and complex wiring systems redundant providing great scope for vehicle cost-reduction, the modular approach of software designing allows development costs and timeframe to be optimized during customization of customers' requirements.

With such flexible architecture, Divgi-TTS can now claim to be fully capable and equipped to take future challenges in the field of vehicle control technologies in the automotive industry.

#### Salient Features

- Microprocessor - 9S12 Family
- Flash - 256 Kb
- System Clock Speed - 40 Mhz
- Oscillator Frequency - 8 Mhz
- Oscillator Tolerance - +/- 0.1% Over Operating Conditions & Manufacturing Tolerances

#### Application Features

- Single hardware for multiple applications - Part time / Full time / AWD/ TOD/ ITM / eGear drive / Electronic Disconnect systems
- Being a modular architecture, the development time is less
- Ready to support latest technologies like UDS (Universal Diagnostic System)
- Easy and fast response to hardware obsolescence issues
- Protocol developed for IVN communication with security features as per customer requirements
- Implemented various control strategies in vehicle including Vehicle Dynamic Control (VDC), Traction control

#### Data acquisition software used in Divgi-TTS for vehicle communication

- Vector Canalyzer
- Vector CANape for calibration
- Vector CANsas
- Intrepid make Vehicle Spy for diagnostics

## GAMEPLAY

### Divgi-TTS enjoys at the inter-facility cricket match event



Cricket is a game Indians are passionate about. A game of cricket requires skills, teamwork, passion and a lot of excitement.

In an organization, employees are constantly working for the betterment and progress of the organization. In return, the Management organizes events to keep the employees' spirits high. This inspired our HR function to organize a Cricket Tournament for all the three Divgi-TTS facilities. Thus Divgi Premier League was born. A total 4 teams - 2 from Bhosari & 1 each from Shivare and Sirsi participated in the tournament.

On an idyllic sunny day on 16th March'19, on a magnificent lush green cricket ground Managing Director Mr. Jiten Divgi declared the event open. The applause to his highly motivating speech echoed across the grounds. Bhosari Team A Captain Mr. Harish Deshpande, Team B Captain Mr. Ajay Jadhav, Shivare Team Captain Mr. Sudhir Mirjankar and Sirsi Team Captain Mr. Santosh Pai lead their team players in full white sporting uniform with battledress uniform caps, fully charged to execute the game. The first match was played between Bhosari A and Sirsi. Exceptionally good exhibition of cricketing was displayed by both the teams. Sirsi won the first round.

After a sumptuous lunch, arranged by HR for all players, the second match was played between Bhosari B and Shivare. Both teams played as if they were at "war" with each other. The match won was by Shivare. With smiling faces, all teams assembled for a photography session. Finals are to be scheduled in the month of October'19 at the 'Poona Young Cricketers' Hindu Gymkhana', popularly recognized as PYC ground.

The entire activity of carrying out cricket tournament was enjoyed by each and every player from Bhosari, Shivare and Sirsi. Each contributed his and her best in executing this activity. Employees were seen interacting with complete unison forgetting the boundaries of management hierarchy. The spirit of enjoyment and entertainment was seen in every eye of the employees who thoroughly enjoyed the 1st phase of this tournament.

The finalist teams are very much eager to clash and win the Divgi Primer League Trophy which will be held in the month of October'19. Hope the ignition works in team building and executing tasks with high spirit and enthusiasm.

My best wishes to the finalist teams.

