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THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

RNI No 71129/98

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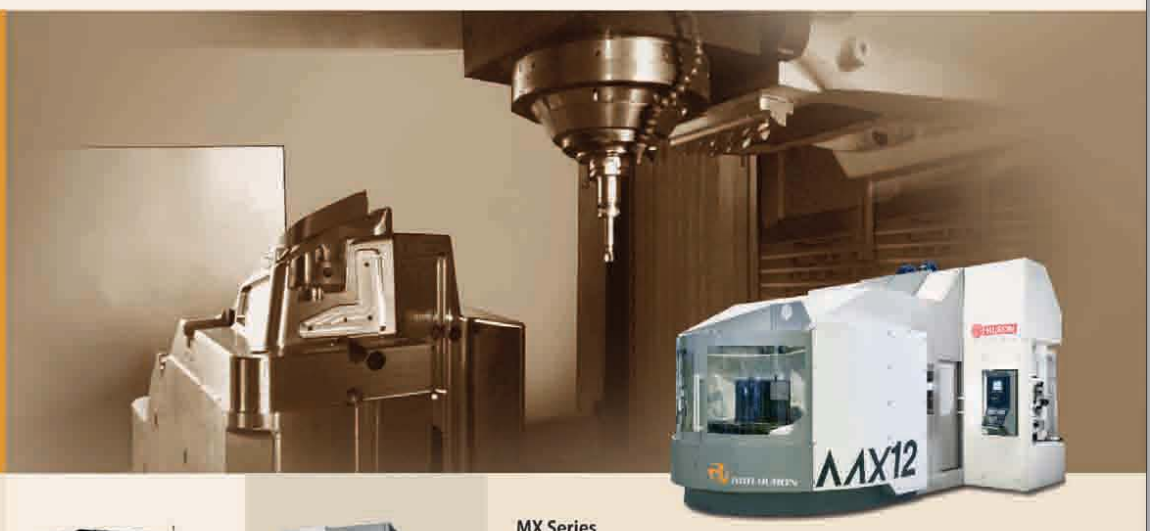

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Twin Spindle Twin Turret
Multi Tasking Turn Mill Center
TMX 200

Mu Tech Series
(5-Axis) Machining Center
MU^{mo}6

MX 4
(5-Axis) Bridge Type
Vertical Machining Center
with Linear Motors

KX Five Series
(5-Axis) Bridge Type
Vertical Machining Centers
K3X 8 Five, K2X 10 Five

KX Large Series
(5-Axis) Double Column
Vertical Machining Centers
KX 50 M, KX 50 L, KX 100, KX 200, KX 300

KXG Series
(5-Axis) Gantry Type Machining
Centers with Linear Motors
KXG 45 - 14, KXG 45 - 23, KXG 60 - 23,
KXG 90 - 23

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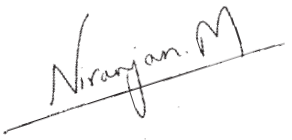
Celebrating 'Super' Shopfloors

Excellent, first-class, remarkable, magnificent, wonderful, splendid, exquisite, peerless, extra-ordinary... these are just some of the words in various dictionaries that explain the meaning of the word 'Super'. Now think of this word in the context of shopfloors. Well, a place that shapes the future of the manufacturing industry can never be ordinary. But then, to be truly accepted as 'Super' requires special qualities. And it is these qualities that separate the 'best' from 'good'.

So we decided to find out what these qualities are through an editorial initiative where we invited views from experts on what they think makes a shopfloor 'Super'. We published these viewpoints in the December 2014 issue. While doing so, we also realised that it only makes better sense to create a forum where the qualities of the finest shopfloors can be demonstrated - and that too with a competitive spirit. That is how 'The Machinist Super Shopfloor 2015' Awards platform was born - as an endeavour to identify, recognise, honour and celebrate the best of India's shopfloors.

We are not surprised with the robust response that we have received so far. In fact, nominations have been flowing in steadily even while sending this issue to print. And many more plants are working on their nominations. Of course, it is only natural that plants which think and believe that they are 'Super' will participate in this programme irrespective of their size or brand. And we appreciate that confidence. Ultimately, it is this confidence which will catapult these champions in the limelight on our awards day. Hope to see you there.

THE MACHINIST SUPER SHOPFLOOR 2015 AWARDS PLATFORM WAS BORN AS AN ENDEAVOUR TO IDENTIFY, RECOGNISE, HONOUR AND CELEBRATE THE BEST OF INDIA'S SHOPFLOORS.



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Worldwide Media Pvt. Ltd.

CHIEF EXECUTIVE OFFICER
Deepak Lamba

CHIEF FINANCIAL OFFICER
Subramaniam S

PUBLISHER, PRINT & PRODUCTION CONTROLLER
Joji Varghese

EDITOR & CHIEF COMMUNITY OFFICER | **Niranjan Mudholkar**
niranjan.mudholkar@wwm.co.in +91 9819531819

ASSISTANT ART DIRECTOR | **Sanjay Dalvi**
sanjay.dalvi@wwm.co.in

SUBSCRIPTIONS
subscriptions.rmd@timesgroup.com
022 22733274 / 66354083

BRAND PUBLISHER | **Rishi Sutrave**
rishi.sutrave@wwm.co.in +91 9820580009

ADVERTISING

SOUTH | **Mahadev B**
mahadev.b@wwm.co.in +91 9448483475

WEST | **Ranjan Haldar**
ranjan.haldar@wwm.co.in +91 9167267474

NORTH | **Shashin Bhagat**
shashin.bhagat@wwm.co.in +91 98250 13439

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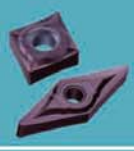

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STRONGER FASTER SUPERIOR

NEWS

'Make in India' is a national movement, not just a brand or slogan: Prime Minister Modi

While inviting German companies to invest in India, Prime Minister Narendra Modi has underlined the significance of the 'Make in India' campaign. "Whatever we choose to do, from reaching the cutting edge of industry to meeting the most critical social need, we require investment and technology, industry and enterprise. That is why for me, Make in India is not a brand. Nor is it simply a slogan on a smart lion! It is a new national movement," he said speaking at the inauguration of Hannover Messe 2015. While highlighting India's demographic advantage, Modi

assured that his government is working to turn this potential into a reality.

Acknowledging that investors require not just an attractive destination but also the assurance that it is open, easy to reach and work in, the Prime Minister said that his government is creating a stable economic environment that inspires confidence at home and abroad. "We are removing unnecessary regulations and simplifying our procedures. We are using digital technology to eliminate multiple approvals and endless wait. We will guide you and walk with you in your project" he said. Underlining Hannover Messe's choice of India as a Partner Country, Modi said that it reflects the new confidence in India. "Our decision to be here in the first year of my Government reflects our priority."

Scania opens first bus manufacturing facility in India

Scania Commercial Vehicles India has opened its bus manufacturing facility in Narasapura near Bangalore. The bus manufacturing plant's current capacity is about 1,000 units per year and will employ 300 people in its first year. Martin Lundstedt, President and CEO, Scania CV said: "The vision for Narasupura is clear – it is a world class facility serving both the Indian market and becoming a hub for exports to other markets in Asia." Over the next five years, Scania aims to double its capacity by 2,500 units of buses and 5000 units of trucks and recruit about 800 employees by the end of 2017. Anders Grundströmer, MD, Scania India and Senior VP, Scania Group said: "We entered India with a vision to provide sustainable transport solutions. This bus manufacturing facility plays a major role in realising this vision for India."

Bosch to recruit 3,200 trained graduates in India

In 2015, Bosch plans to recruit 12,000 trained graduates worldwide. Of this, 3,200 new hires are planned in India. In addition to a number of prospects for mechanical and electrical engineers, the chances for graduates with an IT background are especially favourable. The associates needed for software design and development will continue to rise in the future. Countries with the greatest need for recruiting trained graduates

besides India are China (2,600 new hires) and Germany (1,200 new hires).

Ford opens manufacturing & engine plant in Sanand, Guj

Ford Motor Company has inaugurated its integrated manufacturing facility including a state-of-the-art vehicle manufacturing facility and a world-class engine plant in Sanand, Gujarat. The Ford Figo Aspire, a new sub-four-metre compact sedan, will be the first car to roll-out from the new plant. "With the opening of our plant in Sanand, we have taken our growth commitment to a new high in India," said Mark Fields, Ford President and CEO, who attended the event. "We are doubling our manufacturing capacity in India, creating good jobs and serving our customers around the world with great products."Since breaking ground in September 2011, Ford has invested over US$1 billion in the two facilities in Sanand, which, spread over 460 acres, include stamping, body, paint and assembly operations for vehicle manufacturing, as well as machining and assembly operations for engine manufacturing. The vehicle plant in Sanand will have an initial annual capacity of 240,000 units, while the engine plant will have an initial annual capacity of 270,000 engines.

Innovation is not an option but an ATTITUDE

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Indian economy has strong growth outlook: IMF Chief

According to Christine Lagarde, MD, International Monetary Fund (IMF), growth in India has picked up, even as the world economy is faced with subdued demand conditions. Lagarde said this during her meeting with Finance Minister Arun Jaitley in New Delhi last month. During the meeting, issues relating to the Indian and the global economy, key priorities of Government of India as well as issues relating to the IMF quota and governance reforms were discussed. "India is among the few major economies with a strong growth outlook. IMF estimates that GDP growth in India this fiscal will be 7.2 to 7.4 per cent," Lagarde said. Jaitley said that the Indian economy is fundamentally strong and forward looking.

GCC countries have significant opportunities for investors from India, say experts at Bahrain India Forum by IISS

At the recently held Bahrain India Forum organised by the International Institute for Strategic Studies (IISS) speakers evaluated the changing dynamics of Gulf-Asia economic and diplomatic links, and discussed regional demographic and labour market trends and opportunities for Indian businesses to access fast growth in the Gulf, using Bahrain as an example of successful economic diversification. Sir John Jenkins, Executive Director, IISS said: "The six economies of the Gulf Cooperation Council (GCC) are diversifying their economies and have rapidly expanding affluent populations. This presents significant opportunities for international investors, particularly those in Asia, and especially India, given the two regions historically close ties."

Indian and Korean IT SMEs sign MoU for investment in manufacturing capabilities & know-how exchange

SME Chapter of MAIT has signed a Memorandum of Understanding (MoU) with Busan IT Industry Promotion Agency (BIIPA) recently in Bengaluru. The MoU aims to bring together Indian and Korean SMEs to promote local manufacturing by regular exchange of information on technology know-how, software development, talent exchange with a strong focus on Industrial development in both the countries. The MoU was signed by Rahul Gupta, Chairman, SME Chapter of MAIT and by Mr Seo Tae Geon, CEO of Busan IT Industry Promotion Agency in the presence of SMEs from MAIT and Korea.

SITA Project launched to boost India's trade with Africa

The United Kingdom of Great Britain and Northern Ireland's Department for International Development (DFID) mandated the International Trade Centre (ITC) to design and implement a project, called 'Supporting India's Trade and Investment Preferences for Africa' (SITA). The Confederation of Indian Industry (CII) is the implementation partner for the project in India. Despite an enormous untapped potential for trade expansion between India and Africa, data reveal that a limited number of products are currently being traded. India's trade with Africa is concentrated in certain sectors and countries, and it is dominated by exports of primary commodities. While the potential for export diversification exists, it may not be realised without targeted intervention.

Honda to expand production capacity in India

Honda Motorcycle & Scooter India Pvt. Ltd. (HMSI) and Honda Cars India Limited (HCIL) have each decided to expand annual production capacity in line with the expected continued future growth of the Indian market. HMSI will expand its 3rd motorcycle production plant, and HCIL will expand its 2nd automobile production plant, both currently under operation. HMSI will newly invest approximately Rs5.85 billion and build another production line within the existing Narsapura site. The new production line is scheduled to become operational in 2016 and expand annual production capacity by 600,000 units. HCIL will newly invest approximately Rs3.8 billion to further strengthen the Tapukara plant with facilities such as the extended assembly line. These measures will be taken in 2016 and expand the annual production capacity by 60,000 units.

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Mark your diary

A list of key events happening between May 2015 to November 2015, both nationally and internationally

RA en

May 18-21, 2015, Long Beach, California, USA
www.rapid3devent.com

R anufac urin and ec no o y conference and rades o

June 8-10, 2015, Illinois (US)
www.nasfsurfin.com

Asian Tyre and Rubber Conference

June 12 - 13, 2015, Chennai
http://atrc.in/

Au o o i e anufac urin

June 24-27, 2015, Bangkok, Thailand
www.automanexpo.com

India Warehousing Show

July 1-3, 2015, New Delhi
http://indiawarehousingshow.com/

Automotive Engineering show

July 7-9, 2015, Chennai
automotive-engineering-show.in.messefrankfurt.com

Au o a ion

August 24-27, 2015, Mumbai
www.iedcommunications.com/index.php

A u iniu ndia

September 7-9, 2015, Mumbai
http://www.aluminium-india.com/

aser or d of o onics

September 9-11, 2015, New Delhi
www.world-of-photonics-india.com/

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September 24 - 25, 2015, Bangalore
http://www.amsi.org.in/Conference.htm

A

October 5-10, 2015, Milan
www.emo-milano.com/en/home

A T C

November 9-12, 2015, Chicago, USA
www.fabtechexpo.com

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August 20-23, 2015
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SUMIT MAZUMDER IS NEW CII PRESIDENT

Sumit Mazumder, Chairman & Managing Director, TIL Limited, has been elected as the President of CII for the year 2015-16. He succeeds Ajay Shriram as the new President. Mazumder is also the Executive Chairman of TIPL (Tractors India Pvt. Ltd.). A graduate of St Xavier's College, Calcutta, Mazumder obtained a Master's in Business Administration from Sam Houston State University, Texas, USA. He also undertook the Advanced Management Program at Harvard University, Massachusetts, USA.

Dr Naushad Forbes, Director, Forbes Marshall, has become the President-designate of CII for the year 2015-16. Dr Forbes is on the Advisory Council of IIT Bombay; Board of Directors of Godrej Industries, Kirloskar Oil Engines and Jump Associates, California; Governing Council of National Institute of Design and India Design Council; Trustee of Ruby Hall Clinic.

GAURANG PANDYA IS PRESIDENT, UTC INDIA PRESIDENT

UTC Building & Industrial Systems has announced the appointment of Gaurang Pandya as president of its India operations. UTC Building & Industrial Systems is a unit of United Technologies, a leading provider to the aerospace and building technologies industries worldwide. In his new position, Pandya will have the responsibility for leading UTC Building & Industrial Systems' business in India, which includes leading brands such as Carrier, Otis, Edwards, Chubb and Kidde. Pandya previously served as MD for Carrier Air-conditioning & Refrigeration Limited in India, providing oversight for a large portfolio that included commercial air-conditioning, fire and security solutions.

His appointment is effective immediately.

KN NEELKANT IS EXECUTIVE VP & PRESIDENT, CG'S INDUSTRIAL BUSINESS UNIT

Avantha Group Company CG has appointed KN Neelkant as Executive Vice President and President of Industrial Business Unit. Neelkant will also be a member of CG's Executive Committee. Neelkant brings with him twenty years of rich experience in Strategy Formulation and Deployment, Project Management, Supply Chain Management and Manufacturing across sectors including infrastructure, power transmission and distribution and engineering. Neelkant is an electrical engineer from the University of Pune. He has also completed multiple management programmes from institutes such as IIM-Bangalore and ASCI-Hyderabad.

PETER CARRIER IS SENIOR VP & MD, ASIA PACIFIC, SIEMENS PLM SOFTWARE

In this role, Pete and his team are responsible for sales, sales support and services delivery in the Asia Pacific region. Pete will be based in Siemens PLM Software's Asia Pacific headquarters office in Hong Kong.

Pete joined Siemens in 2005 as VP, Global Operations prior to which he held the senior level sales and operations management roles at Hewlett Packard Corporation and Compaq Computer Corporation. His extensive experience have helped build the strong leadership qualities that Pete brings to Siemens. Pete has a Bachelor's degree with honours in mechanical engineering from the US Naval Academy. He also has a certificate in executive management from UCLA and has completed executive leadership courses in the US from Babson College and the Wharton School.

SPECIAL DATES NEED NOT APPEAR JUST ONCE EVERY YEAR.

DELHI
MACHINE TOOL EXPO 2015
20 - 23 AUGUST
Pragati Maidan, New Delhi

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PERKINS GETS NEW SALES & DISTRIBUTION DIRECTOR FOR ASIA PACIFIC

Perkins has appointed Daniel (Dan) Bentley as the new sales and distribution director for the Asia Pacific region, which includes India, following Jaz Gill's move to the post of global marketing director.

Dan, who has already spent time talking to and meeting Perkins Generator Original Equipment Manufacturers (GOEMs) in India, is responsible for engines sales in the region and the development of the aftermarket business.

"This is an exciting time for Perkins in India," said Dan, "as we continue to focus on developing our customer relationships, raising awareness of our product offering and prepare to open our purpose built, state-of-the-art 4000 Series manufacturing facility in Aurangabad."

JAGUAR LAND ROVER APPOINTS NEW ENGINEERING DIRECTOR

Jaguar Land Rover has announced that with effect from April 2015, Nick Rogers will succeed Dr Ziebart and assume board-level responsibilities for Jaguar Land Rover's global engineering operations, reporting directly to Chief Executive Dr Ralf Speth. Dr Ziebart will continue to work with Jaguar Land Rover, focusing on technology development.

Commenting on the new appointment, Dr Ralf Speth said: "Nick has worked for Jaguar Land Rover for more than 30 years and has broad experience across Engineering, Manufacturing and product delivery. His experience, skills, passion and dedication to Jaguar Land Rover will make him a great leader for the Engineering team."

HERO MOTOCORP AUGMENTS LEADERSHIP TEAM

Riding into the next phase of consolidation and expansion across the globe, Hero MotoCorp, the world's largest two-wheeler manufacturer, further strengthened its Leadership Team with the induction of Ashok Bhasin as the Head of Sales, Marketing & Customer Care function for the key India market. Bhasin will report directly to Pawan Munjal, VC, MD & CEO, and will be part of the Leadership Team. The company also brought in Dr. Markus Braunsperger as the Chief Technology Officer (CTO) from BMW, Germany and Markus Feichtner from Austria's AVL to head its newly-created division of New Engines Design & Development within the R&D function. Hero also appointed Rajat Bhargava from McKinsey & Co. to head its Corporate Strategy and Performance Transformation function, and Sanjay Jorapur from Honeywell, as the Chief Human Resources Officer.

NCR APPOINTS ANAND GAROLLU AS SERVICES GM FOR INDIA

NCR Corporation has announced the appointment of Anand Garollu as Services General Manager for its India operations. As part of this role, Anand will lead the service delivery team and will be responsible to deliver the highest level of services to NCR's partners and customers in India. Anand will work directly with Nick Vreugdenhil, NCR Vice President for service delivery in Asia Pacific. "India is an exciting and complex country and NCR has been investing and reinforcing its commitment to the Indian market that offers substantial growth opportunities," said Nick Vreugdenhil, NCR vice president for Asia Pacific service delivery. "Anand will lead a broad service delivery group, supported by service enablement and services support teams to take NCR to the next level of growth, efficiency and customer satisfaction across industries in India."

PEDRO MATOS IS CHIEF QUALITY OFFICER AT APOLLO TYRES LTD

Pedro Matos has been appointed as the Chief Quality Officer at Apollo Tyres Ltd. He will be based out of the company's Global Quality and Business Excellence Office in Enschede, The Netherlands and will handle the entire portfolio of quality and business excellence in the organisation. Commenting on Pedro's appointment, Neeraj Kanwar, Vice Chairman & Managing Director, Apollo Tyres Ltd said, "As we grow our business across geographies, the scope of Quality as a function has grown multifold. With Pedro's well-rounded experience in benchmarking, developing and implementing best management systems and processes, he is best-suited to handle this critical function at Apollo Tyres." Pedro will report to Neeraj Kanwar, VC & MD, Apollo Tyres Ltd.

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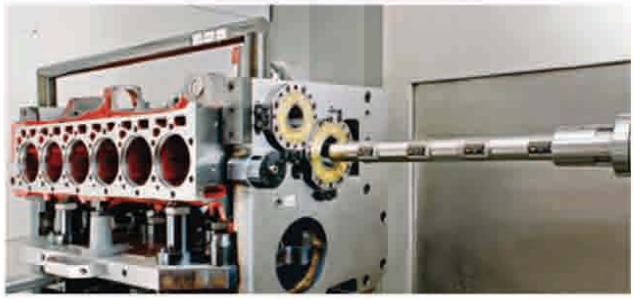

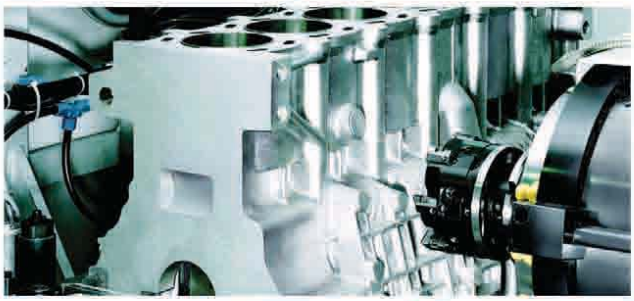

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In appreciation of the critical role played by Plant Heads in the success of manufacturing organisations, The Machinist runs a section called 'Plant Head of the Month'. We feature some illustrious plant heads in this section giving preference to the ones whose plants have accomplished noteworthy milestones.

Playing the entire '**piano**'

Plant heads have to be all-rounders to be successful, believes **Harald Friedrich**, Plant Manager, Bangalore & Head of Operations India, Continental Automotive Components (India) Pvt. Ltd.

By Niranjan Mudholkar

A plant head's job is as challenging as it can get. While an outsider may think that there are just the issues on the shopfloor, there are a lot of external factors that the plant head has to deal with. And when the Plant Head is working in a foreign country, the task becomes all the more tricky. Well, Harald Friedrich, Plant Manager, Bangalore & Head of Operations India, Continental Automotive Components (India) Pvt. Ltd., knows a few things in this regard.

"Going abroad for a new responsibility is always a challenge and I have prepared myself in the best possible way for this very responsibility. I have realised that I have to adapt to the local organisation a lot more than the local organisation to me. The biggest challenge is always finding the right balance between compromising and persevering. This applies to both on the shop floor as well as off it," Friedrich says.

From the business and company perspective, Friedrich has to think globally and act locally. He knows that to identify the challenges in different focus areas, he needs the best possible transparency. "Once we attain transparency, we can work on a

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Plant stats

Location: **Bommasandra, Bangalore**

Plant in-charge: **Harald Friedrich**

Plant size: **Shopfloor consists of 3,200 square meters of production space.**

Products manufactured: **At present, Instrument Clusters, Immobilisers, Reverse Parking Assist System, EPAS and ECUs. Airbags and ABS systems in the near future**

Manufacturing principle practiced: **Lean principle of manufacturing according to VSM (Value Stream Mapping) and VSD (Value Stream Design)**

Key clients: **At present, all major Indian automotive manufactures**

Staff strength: **Over 5000 people across seven locations in India.**

roadmap and an action plan."

On shop floor level, one of his main tasks is to prepare the organisation for the expected growth. For this purpose, the organisational and operational structure is the focus. The next task is to have the best possible plant cost structure in place, to be attractive in this competitive environment. The main contributors have to be known and improvement opportunities clearly identified.

So, how did Friedrich and his team overcome these challenges? "We did it by defining our vision and developing a clear roadmap for our strategy of how we like to support our vision. This theory can be worked out by known methods, and the outcome is the hard facts. Working on the soft facts, on the one hand we have prepared ourselves that in some areas we need to accept and drive a change as fast as possible if required. And on the other hand, we have improved our ability to work in a team. We know that in a true team approach we are dependent on each other and if one of us fails, we all fail."

Off the shopfloor, Friedrich has been interested in understanding the culture, practices and behaviour of the people as fast as possible. "The best way to accomplish that is to be open-minded, let the impressions sink in and to travel and experience this wonderful and multifarious country. That is what I like to do in my free time; to learn and understand as much as I possibly can."

> "Restructuring is and always was modern. It is a good practice to question the status quo in order to find out what the right approach for your own organisation is.

Key milestones

While talking to colleagues about achievements, Friedrich very often hears, 'we have increased productivity', 'we have reduced customer claims by so and so percent', 'we have reduced the scrap numbers by this much', and so on. "The higher the number, the greater the pride! These are very valid arguments which I do not like to question. There is always room for improvement in every organisation and continuous improvement is a key driver for success."

Friedrich believes that it is not enough to singularly focus on certain areas only. "We always have to consider the picture as a whole and to apply a standardised approach or concept in order to get the requested information and to define the actions for further improvement."

His philosophy is to focus on planning/frontloading first, 'failing to prepare is preparing to fail' and to set the goals (P). "Once an accurate plan is developed, we have to execute it accordingly, strictly adhering to the standards and policies (D). The first results are only visible after some time. It is critical to evaluate and analyse these results, to have evidence about the achieved performance (C). Based on the results, we have to define actions of improvement (A)."

Strictly following this PDCA cycle, the Plant could visibly improve the transparency of its organisational and operational structure. With a strong focus on frontloading, standardisation and continuous improvement, the Plant always keeps working on enhancing its overall performance. "The key areas in focus are People, Quality, Processes and Finance. Bringing these four areas into balance was a key achievement for the plant in 2014. For the years to come, we have developed a clear strategy to support our overall plant vision. This strategy is under continuous review and if requested, aligned," says Friedrich.

The role of Quality

With increasingly intense competition, quality plays a key role in differentiating manufacturers and their products in the market. While metrics like productivity and efficiency play a key role within a manufacturing organisation, what the customer values most is quality. But many times quality is sacrificed to cut costs or to ensure productivity. In this light, what is Friedrich doing to build quality management within the manufacturing system? "Talking about quality is always difficult until we understand exactly what quality is. Philip Crosby defines quality as 'conformance to requirements'. Practically, we have to understand the customer's expectations. Once these expectations can be quantified, we know what they

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are willing to pay for and they certainly aren't willing to pay for unrequested features. This will unquestionably influence design and production costs in many ways. I don't see any contradiction between quality and cost competitiveness. If we do things right the first time every time, we can avoid additional costs for the company," Friedrich explains.

"Considering that, I am now getting to a very significant aspect. What we have to avoid is delivering products which do not comply with the requirement or are even faulty. In this case, we talk about non Quality or failure. Customers won't pay for that and it will lead to additional cost of replacement, warranty, compensation and additional internal resources for handling the complaints," he adds.

In summary, it is necessary to understand the customer's expectations first. Next is defining a robust product design based on DFSS (Design For Six Sigma) or DFM (Design For Manufacturability), followed by implementing capable and robust production processes based on the lean principles. "Then we have to choose the right suppliers who understand, accept and follow our philosophy. And not to forget, we need to empower our people accordingly so that we have the right person for the right job. Combined with a Continuous Improvement Culture, we can create the best possible cost structure without sacrificing Quality and in fact, attain Quality almost for free due to avoidance of non Quality," Friedrich says.

> "In today's world, plant managers have to be as flexible as possible and able to play the entire 'piano'. They often have to respond to problems based on the situation and the complexity of the task. Basically, they must be all-rounders.

Evolving role

Today's manufacturing plants are all about centralisation of functional areas such as IT, procurement, warehousing, and even HR and accounting. In this scenario, how is the role of the 'Plant Head' evolving? "From my perspective, the organisational approach, centralised or decentralised, is not the key question. Many companies are following the current main stream in the industry, once in one and then in the other direction, like a sinus curve. Restructuring is and always was modern. It is a good practice to question the status quo in order to find out what the right approach for your own organisation is," says Friedrich.

Considering the local environment and circumstances, a new structure might be an improvement. If a change has been made, it has to be sustained at least for some time. "We have to understand that every organisational change has a negative impact on performance at least in the beginning, until the organisation gets stabilised. Only after stabilisation will we have evidence whether our change was successful or not. That will take some time and adjustments can be made if requested."

With the same or even more importance as the organisational structure itself, Friedrich believes that it is important to clearly define tasks (processes) and based on that, the roles and responsibilities. Once the process is defined and the role and responsibility is understood and accepted, the organisation is able to act successfully without wasting valuable resources. Coming to the role of the plant head, the prime task is having the best possible performance in the organisation, he says. To know about that, the plant manager has to monitor the performance, identify processes which are not running as expected and take action to improve.

The focus is on continuous improvement and if the result of this process is restructuring, it has to happen at the right moment. "If some functional areas have to be centralised, we have to go for a modern structure like a Matrix Organisation. In a Matrix Organisation, the plant head has to ensure that the roles and responsibilities are defined and the right team spirit can be developed. Without the right team spirit a Matrix Organisation will not work. Soft facts, mind sets and company culture are becoming more and more important," Friedrich adds.

Supply chain partners

We all know that the automotive industry is very competitive. And automotive suppliers need to have very high standards in place. To follow TS 16949 and ISO 14001 is mandatory in this business. "Due to that, we are forced to have capable and transparent business processes in place. This is expected


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because automotive suppliers are key stakeholders for OEMs. For our customers, we are very much like an open book. They have to have evidence of our capability, performance, flexibility and especially reliability. We have to be a really good partner that they can trust."

Friedrich says, this is prompting automotive suppliers to focus on all stakeholders. "Therefore our supply chain partners are essential for us as well. My expectation is that our suppliers fully understand and accept their role. Further, to respect the standards in the automotive industry fully and support our role in the supply chain one hundred percent. As high quality of delivered parts and services is expected from the very first day, they have to be the reliable suppliers to us as we are for our customers. It has to be a partnership in the truest sense of the word."

Parameters for success

The ability to understand the business and the correlations is fundamental. Nevertheless, a plant head must primarily be a strong leader and manager. "In today's world, plant managers have to be as flexible as possible and able to play the entire 'piano'. They often have to respond to problems based on the situation and the complexity of the task. Basically, they must be all-rounders."

Friedrich considers himself a team player, motivating the involved parties to contribute in the most effective way. "That is because I am convinced that a group is always more successful than an individual. From another perspective, I am also a fan of standards. Standards give us guidance and provide security to act within a known and safe range. Compared with a standardised process, we talk about reproducible and comparable results." Beside company values, Friedrich also follows some personal values as well. "For example, being honest, staying fair, building trust, being dependable, being accessible to people, and being a part of the picture, among a few others."

From an organisational standpoint, he tries to give the best possible guidance, like developing a clear vision and strategy with a roadmap for short, mid and long term strategy with strong involvement of the organisation. "It is not enough to have an eye on the current challenges only. Managers must always keep a tab on the future and prepare themselves and the organisation for it," he believes.

> "Having a comfortable environment and powerful values in place will lead to the formation of a robust company culture. The company culture will influence employee motivation and success will inspire and encourage them even more.

From a people perspective, employees are, in Friedrich's opinion, the most valuable stakeholder of a company and therefore the main contributors to the success of an organisation. For the same reason, empowerment of people must always remain the main focus of attention. "Having a comfortable environment and powerful values in place will lead to the formation of a robust company culture. The company culture will influence employee motivation and success will inspire and encourage them even more. Nevertheless, in the end, I always try to be original in everything I do."

Continental recently expanded its Research and Development Footprint in Bangalore. How will the manufacturing plant leverage on this? "In 2014, we invested approximately €1.8 billion in research and development in our three automotive divisions. With a total headcount of 1,000 engineers and an investment of 12.4 million Euros in a new facility, Continental's Technical Center India (TCI) aims to meet the increasing demand for engineering and software development skills to support global innovation projects as well as local customers."

With eight state of the art labs housed in TCI's new facility, it has scaled up in the past five years to move up the value chain providing software development and engineering, IT infrastructure development support, specific product development support consisting of hardware, software and mechanics, and innovation projects with support from the corporate R&D segment.

"Adding value with its understanding of the local market and customers, TCI is fast emerging as a 'Center of Competence' for two-wheeler markets and for customised products for the BRIC countries, many of which will be manufactured in our locations across India. Obviously, the plant will benefit from the production of these products," Friedrich believes.

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For an economy expected to get to GDP growth levels of 7.5 percent and more, technology will be an important enabler that CIOs and business leaders can leverage as a catalyst in the days to come.

By S Ramachandran

Digitisation is not new to Indian manufacturing. But the recent trends are interesting to observe and track for understanding where the enterprises are heading and what service providers are coming up with in their portfolio. 'Product innovation' is the top most business priority from IDC's study in 2014 showing the shift away from a bottom-line focus for cost reduction to a top-line and growth driven strategy.

The automotive sector continues to be the biggest spender, innovator and early adopter. Consumer goods on the 'process' side such as food & beverage, health & beauty, household and fashion goods will see maximum growth of nine percent in IT spending due to emerging competition and regulatory, traceability, supply chain visibility and demand management requirements.

*By **S Ramachandran**, Principal Research Manager, IDC Manufacturing Insights*

"Factory automation' will be a key investment area across the sector due to the flexibility it offers in today's dynamic market, wage inflation, lack of core manufacturing skill sets and increasing product complexity."

If both 'discrete' and 'process' consumer goods are put together to what is traditionally called FMCG (Fast Moving Consumer Goods), the spend would be almost equal to the automotive sector. Discrete products in Consumer goods include footwear & apparel, sporting goods, toys etc., The dominant industry in each region is the largest spender, High tech for example in Asia/Pacific for electronic goods and FMCG in western economies.

In terms of IT applications, enterprise management which includes ERP is the biggest spending area. Companies which have legacy systems that are home grown or no longer supported by the software vendor will go for a refresh including new technologies such as 'cloud based ERP' in their evaluation list with analytical capabilities inbuilt at various stages of complexity and visualisation.

Cloud based offerings are relatively quick to deploy with very little infrastructure required on-premise, and with a monthly bill based on the actual usage instead of an upfront capital investment for hardware and software. ERP continues to be the backbone of enterprises, but an interesting trend that can be seen is to make it the system of record for finance and accounting while product information flows from the Engineering department via PLM to the Manufacturing department or the MES system and the supply chains keeping ERP updated for costing and associated purposes.

Interestingly, 'Security' will see maximum growth in spend close to 15 percent due to the vulnerabilities seen in today's emerging technology landscape opening up the enterprise to several partners and gateways outside the enterprise. Roles such as CISO (Chief Information Security Officer) are gaining significance in today's organisational structure. No technology business case is complete without a comprehensive perspective on the security aspect. Spend on hardware will see a downward trend due to the penetration of XaaS solutions for infrastructure, platforms and applications as a service and due to the early investments in the architecture that have already happened with a large factor of safety/security.

Any report on digitisation is incomplete without the third Platform – cloud, mobility, social and Big Data/analytics. Technologies such as IoT, that are part of what IDC calls 'Innovation Accelerators' (others being robotics, 3D printing, natural interfaces, security technology) are no longer just buzz words. IoT is a technology that has seen fastest adoption trends compared to others in the third platform.

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IoT has started from common applications within the enterprise for asset management and tracking. After teams are comfortable with the technology, it has been rolled out and integrated with the products. Tracking of location and vehicle health parameters from motor cycles to agricultural and construction equipment is happening. Everyone in the ecosystem from end consumers to the OEM can see the status of a product either from proactive alerts or at the click of a button.

We have been reiterating that it is not individual implementations of the third platform technologies that will be effective but their 'mash-ups' with one another and with other traditional IT systems. One such interesting manifestation of such a mash-up is the adoption of omni-channel strategies by retail and CPG companies. Omni-channels are an amalgamated medium of multiple modes of communicating between an enterprise and end consumers from on-line access to hand held devices, in-store devices and brick & mortar shops.

A seamless shift from one channel to another is offered as customer experience where an order can be placed on a mobile phone, status checked online, product delivered at home and returned at any nearby shop if not satisfied. E-commerce and the pressures of brick & mortar shops will push companies to start adopting omni-channel retailing. Retail chain entities like Future Group are embarking on their omni-channel journey giving consumers the choice of multiple channels to interact with them and buy goods.

From an organisational perspective, CIOs are getting closer to the business and are no longer worried only about keeping the IT infrastructure and applications running. As the technology and its service providers become more reliable, cost effective and competent, CIOs are becoming more aligned with the business to effectively implement IT. For functional and line-of-business leaders, IT is no longer a support department they do not care about. Terms such as cloud and IoT are becoming familiar among business leaders. In fact, some key initiatives have originated from the business leadership and their departments with CIOs supporting them technically and for implementation. Gone are the days when all IT initiatives and business cases started from the CIO's office.

'Factory automation' will be a key investment area across the sector due to the flexibility it offers in today's dynamic market, wage inflation, lack of core manufacturing skill sets and increasing product complexity. It is a broad term and can vary from industry to industry. Automated warehouses are a reality in the automotive sector. Hero MotoCorp's Global Parts Center in Rajasthan is such as investment emphasising the importance and revenue share from aftermarket services and spare parts.

OEMs have realised that revenue does not stop with the sale of products but is a starting point throughout the entire life cycle if planned properly. Stringent quality requirements at the process and product levels with the need to scale up operations rapidly will force companies to evaluate different levels of automation from low-cost dedicated robots to generic programmable articulate robots. 'Hubs of manufacturing' which needs factories to talk to each other will push interoperability and communication standards. GST can be an opportunity to relook at supply chain networks and optimise them as a transformation initiative.

> "Stringent quality requirements at the process and product levels with the need to scale up operations rapidly will force companies to evaluate different levels of automation from low-cost dedicated robots to generic programmable articulate robots."

This period will be an opportunity for manufacturing enterprises and service providers to reclaim the opportunities and business benefits offered by earlier technology waves, implement emerging technologies including the third Platform and innovation accelerators, integrate them with existing systems, and leapfrog toward best-in-class systems.

It will be a phase where CIOs and business leaders need to keenly observe emerging trends in technology, evaluate how it impacts their organisation and plan their investments accordingly to stay competitive. For an economy expected to get to GDP growth levels of 7.5 percent and more, technology will be an important enabler that CIOs and business leaders can leverage as a catalyst in this journey in the days to come.

For functional and line-of-business leaders, IT is no longer just a support department they do not care about.

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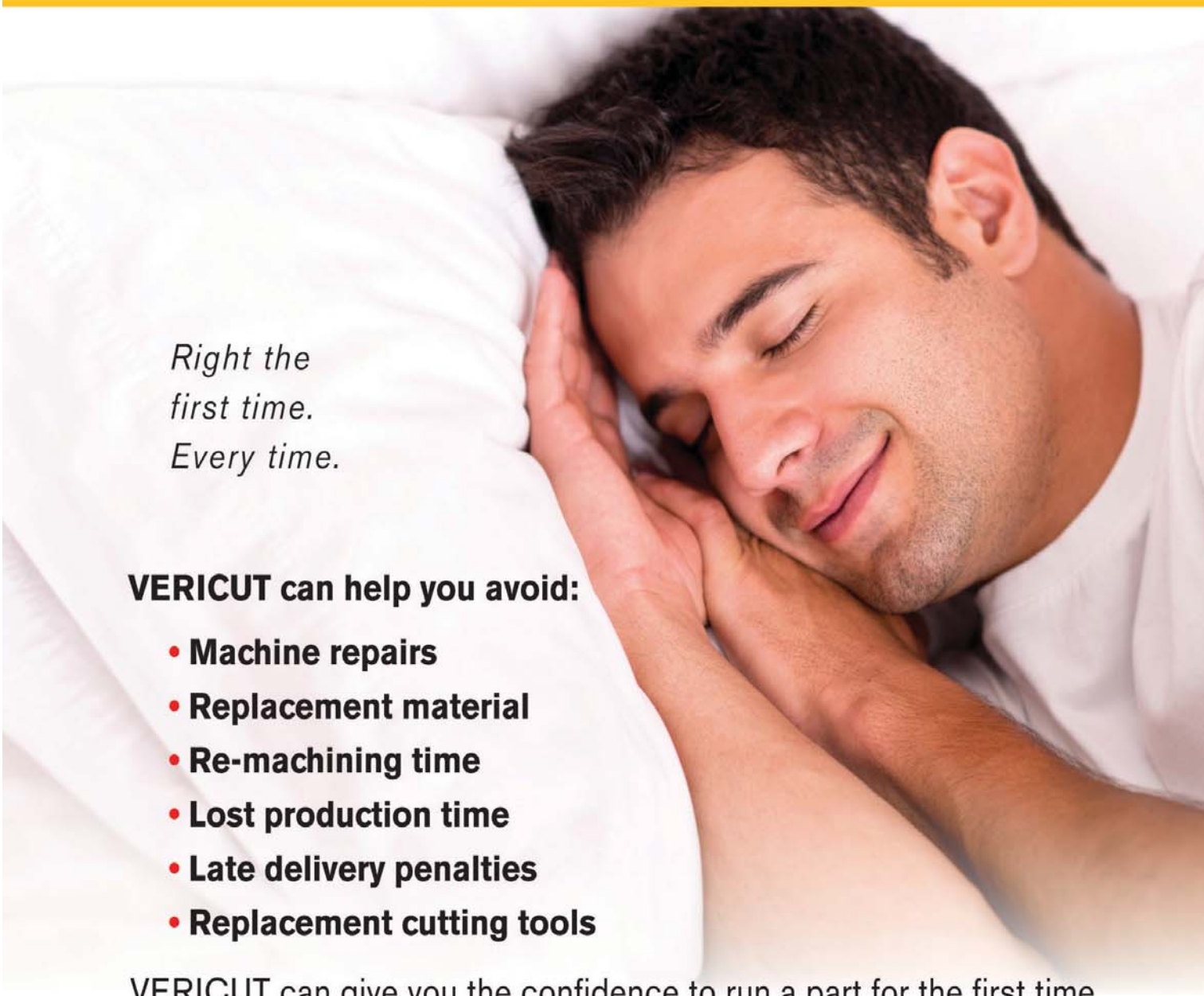

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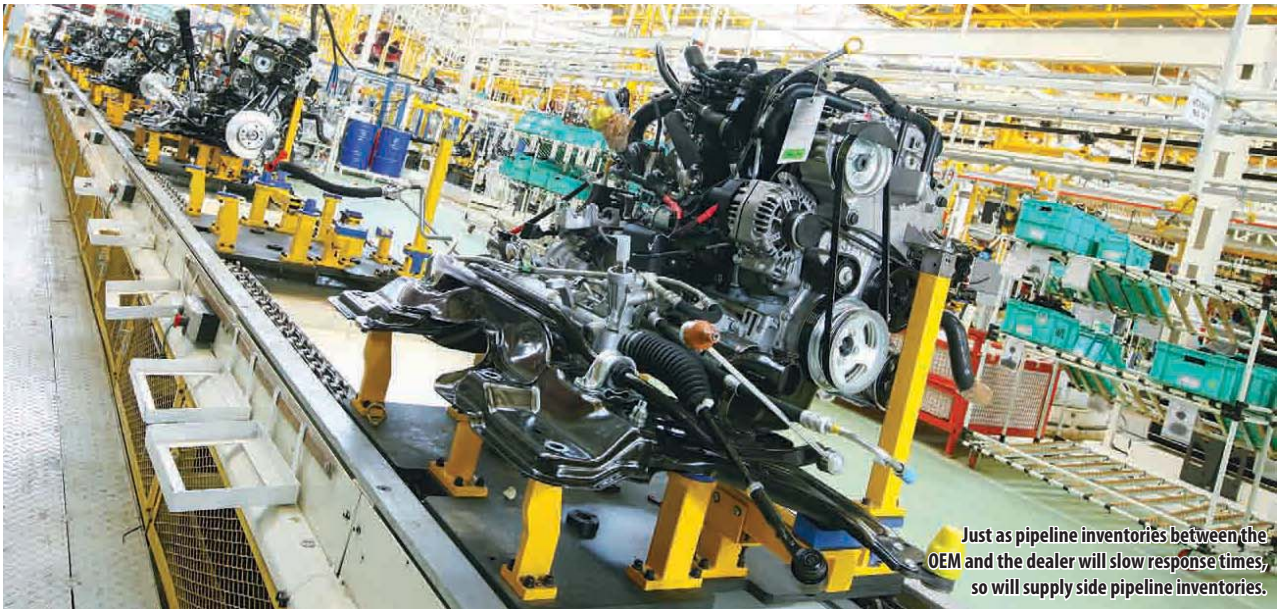

Just as pipeline inventories between the OEM and the dealer will slow response times, so will supply side pipeline inventories.

Getting to the **next level**

The automotive industry has a challenging supply chain. As OEMs turn their focus increasingly to markets and sales, the pressure on ensuring supply will increasingly move to the suppliers.

By Alagu Balaraman

The automotive industry is a very tough industry to operate in, especially in India. Yet in the difficult economic climate since 2009, the 4-wheeler passenger vehicle industry has grown from about 1.5 million units of sale to 2.5 million in 2013-14. At the same time, the 2-wheeler industry has doubled from 7.4 million units to 14.8 million units. Fuelling these growth rates has not been easy. It has been driven by a combination of accelerated new product launches, consumer credit and very aggressive cost control to maintain price points at attractive levels.

Growth at a cost

Realising that kind of industry growth in those economic circumstances has been at a serious cost to individual company margins. New product launches require steadily capital investments. Closing the sale requires cash discounts. Hire purchase deals require funding. Spares and service packages offered require funding. As a result margins eroded, profits declined.

However, this is an industry in which investors have a lot of long-term faith. This is evident in current stock prices as market conditions show an uptick. And the economy is definitely changing. Business confidence as measured by FICCI continues to be high – most business leaders expect to sell significantly more this year than last. Consumer confidence is also steadily growing, as shown by the surveys done by the RBI; people are expecting even better times going forward. Given these positive indicators, what should the automotive industry focus on? Can it go back to how life was earlier or would it need to change gears?

> “Apart from product launches, OEMs will need to figure out how to respond with greater agility to market changes.”
>
> **Alagu Balaraman**, Partner & Managing Director – Indian Operations, CGN & Associates India Pvt Ltd

OEMs will focus on branding & products

As consumers get ready to spend, OEMs will need to capture those incremental sales. The spate of new product launches is therefore unlikely to go down. If anything, competition for market share will drive the number of product launches even higher. As they move to the global model of regular product launches and upgrades, OEMs will focus a lot more on branding, customer value creation and service through their dealer networks. In a growing market it is critical to maintain, if not grow, market share.

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Apart from product launches, OEMs will need to figure out how to respond with greater agility to market changes. Promotions and competitive moves, new brand entries and new product launches – all these will cause disruptions in demand and these will not go away. In fact, they will get more common. The days when annual forecasts could be made and held on to are long gone. Today, sales forecasts are revised several times in a year. From the viewpoint of the auto component supplier, they are revised weekly or even more frequently.

Given this situation, the method of pumping volumes of products into dealer pipelines will become increasingly difficult, both for the OEM and the dealer. High pipeline inventories will lower overall economic returns making it less financially viable for the dealer. In turn, they will look for compensation elsewhere. Large pipelines will also slow down the ability of both OEM and dealer to respond to market changes – that too, in a market which is calling for greater agility. All this is going to require new supply chain planning methods and changes in the industry structure.

OEMs will focus a lot more on branding, customer value creation and service through their dealer networks.

Suppliers will inherit challenges in manufacturing

The automotive industry has a challenging supply chain. As OEMs turn their focus increasingly to markets and sales, the pressure on ensuring supply will increasingly move to the suppliers. This will cause multiple pressures to the supply base.

To start with, as a result of new model launches, the complexity of the product portfolio will increase. Given that there will be a guaranteed spares availability expected by customers, the auto component supplier will have a much larger product portfolio than the OEM to manufacture and stock. Average unit volumes are likely to reduce, even as overall volumes grow. To service this wider product portfolio and still make money, suppliers will need to have a different kind of thinking to the traditional linear thinking. For example, there will be greater variation in batch sizes and run times. Shops have to be geared for quicker turnarounds. Storage racks cannot be designed uniquely for each component. There won't be enough space for all the different types of storage racks. Spares demand will be triggered by replenishment algorithms. These can trigger demand at unpredictable times.

> "There will be greater variation in batch sizes and run times. Shops have to be geared for quicker turnarounds.

Tooling is the other critical element impacted by product proliferation. Investment in new tooling will become a continuous capital cost. Storing, using and maintaining a large tool inventory is another significant cost. Besides the cost, the pressure from the tooling front will come from lead time. There will be increasing pressure to reduce this lead time.

Finally, skills availability is a challenge today and will become an even larger challenge going forward. Skills availability and development are areas that are consistently underestimated and underinvested in. There is no evidence that anything is happening to change this. Skills, unlike machines, cannot be bought and installed overnight. Also, machines cannot quit and walk out to another company.

What can be done to manage complexity, tooling and skills? Essentially, the suppliers will need to take over some of the challenges that have been traditionally left to the OEMs to manage. There is an upside to taking on this new "problem". By doing so, suppliers will be in a better position to bargain and capture a larger value share in the overall value chain. OEMs, with their hands full and greater opportunity in a growing market should be glad to partner with suppliers on these terms.

Where OEMS and suppliers can work together

As product life cycles shorten and become unpredictable, OEMs and suppliers will both have to deal with the challenge of efficiency versus flexibility. This classic supply chain problem will require tighter sharing of risk and reward in managing the supply chain. OEMs will ask suppliers to take on market risks, or demand side risks. To meet these expectations, suppliers will need to focus on product design and tooling design to make them more modular, even if unit costs go up. Both will have to work together on demand signals and quality.

In conclusion

More favourable market conditions and new growth opportunities will lead to a new set of challenges. These are best addressed by going deeper into scientific methods of supply chain management, rather than simply resorting to price reductions. New methods of collaboration between OEMs and suppliers will open the next areas of cost take out that will be possible. In doing all this, the industry can continue to drive its amazing story of getting India on the move.

The author is Partner & Managing Director – Indian Operations, CGN & Associates India Pvt Ltd

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Uncontrolled heat while grinding can lead to repeated wheel dressings, wear and increased rejection

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Uncontrolled heat build up can lead to discoloured and damaged components

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Make in India – Here and Now!

While it is possible to increase low-end manufacturing in the country in an effort to create jobs for all kinds of talents, the window of opportunity for the same is narrow and hence requires decisive action today.

By Dr. Wilfried Aulbur, Managing Partner India & Chairman Middle-East, and Head Automotive Asia, Roland Berger Strategy Consultants

Clearly, just because China is forced to vacate parts of the manufacturing space, it does not imply that India is the only or best alternative. The 'Make in India' initiative needs to drive its agenda quickly in order to change key global rankings.

By Dr. Wilfried Aulbur

The vision of 'Make in India' is to facilitate investment (both domestic and foreign), foster innovation, enhance skill development, protect intellectual property and to build a best-in-class manufacturing infrastructure in India. Targets for this initiative have been clearly spelt out. Manufacturing sector growth should increase to 12-14 percent p.a. over the medium term, manufacturing's share in GDP should increase from 16 percent to 25 percent by 2022, and 100 million additional jobs should be created in the sector in the same time frame. These targets are ambitious. Adding 100 million jobs, for example, means tripling current employment in manufacturing.

Enablers have also been identified. Unnecessary processes, laws and regulations will be eliminated. Time-bound clearances will be given to projects through a single on-line portal. Appropriate skill sets will be inculcated through quality education. The government will be made more transparent, responsive and accountable and we will increase domestic value addition and technological depth.

All these points are laudable and timely. Is it then just a matter of consistent execution that will allow India to leverage her 'demographic dividend' and become another factory to the world similar to China? Can we capture the space that China seems to be vacating by moving from 'Make in China' to 'Innovate in China'? This paper argues that while it is possible to increase low-end manufacturing in the country in an effort to create jobs for all kinds of talents, the window of opportunity for the same is narrow and hence requires decisive action today.

Ascent of low-cost competitors

A major consideration of the 'Make in India' campaign is the observation, that manufacturing wages in China have risen and are now close to a factor two larger than corresponding wages in India. In principle, this opens up opportunities for India to enter manufacturing plays that are no longer viable in China. However, India is not alone. Manufacturing costs in Vietnam are 60 percent, in Indonesia 64 percent, and in the Philippines 67 percent lower than in China. In terms of labour availability, India leads the three other countries by a large margin, however, Indonesia and the Philippines trump India in terms of English speaking percentage of population. And while India is the largest market among the four nations that we are considering, the internal market in Indonesia is also large and that of Vietnam and the Philippines is relevant.

The window of opportunity is narrow and hence requires decisive action today

A number of global indicators are cause for concern. In the global competitiveness report 2014-15, India scores a rank of 71 out of 144 countries compared with 34 for Indonesia, 52 for the Philippines and 68 for Vietnam. In terms of the World Bank's Ease of Doing Business index, India is again last with a rank of 140 vs 117 for Indonesia, 86 for the Philippines and 72 for Vietnam. In terms of the 2014 International IP index, India ranks behind Indonesia and Vietnam (Philippines have not been ranked) while its logistics performance index is such that India ranks 54 behind Indonesia (53) and Vietnam (48) but ahead of the Philippines (57).

Clearly, just because China is forced to vacate parts of the manufacturing space, it does not imply that India is the only or best alternative. As a consequence, the 'Make in India' initiative needs to drive its agenda quickly in order to change key global rankings. The latter are important, as global companies to take them into consideration when evaluating their global manufacturing footprint and deciding on fresh investments.

> "While global innovation leaders in India exist today, the task is to transform industries and companies such that innovation leaders are the norm rather than the exception."

The re-industrialisation of the Triad

In the wake of the global financial crisis, Western nations rediscovered the charm of manufacturing as a driver of innovation, employment and services. The US, UK, France, and even Germany with a still healthy industrial base all embarked on various initiatives to ensure manufacturing employment within their own national frontiers. Rather than going through all the initiatives currently underway, we will focus on 'Industry 4.0', the German avatar of the re-industrialisation drive.

The basic premise of Industry 4.0 is that the introduction of intelligent machines, embedded cyber-physical sensors, collaborative technologies and networked processes will once again drive an efficiency revolution in industrial manufacturing.

European companies, in particular, are positive regarding the potential of Industry 4.0. Expected cost savings of 14 percent on average over the next five years would negate a large part of the factor cost advantage that countries like India enjoy today vs. developed nations (typically in the range of 15-30 percent). Efficiency gains are expected to be even higher at 18 percent within the next 5 years. Industry 4.0 is a board room level topic for all European manufacturing companies with investments in the approach amounting to 3.3 percent of revenues on average. In comparison, a typical R&D budget of Western OEMs amounts to about five percent of revenue.

Environmental sustainability

Globally, emission standards are becoming more stringent with the EU generally leading the charge. Looking at CO2 emissions, European targets for 2020 are, for example, about 65 percent more aggressive than those of the US. India is the world's third largest Green House Gas (GHG) emitter with 6.6 percent of total global emissions (behind China (25.4 percent) and the US (17.3 percent), 2010 numbers). India cannot abdicate her responsibility towards a cleaner and sustainable future both from a global and even more importantly from a local perspective. The current discussions around air

The task is to transform industries and companies such that innovation leaders are the norm rather than the exception

Five major trends impacting our opportunity to create 100 million jobs by 2022:

1. Competition from other low-cost countries eager to establish manufacturing footprints of their own
2. Competition from established countries trying to re-industrialise and bring value addition and jobs back home rather than outsource them to China or an alternative
3. Increasing pressure for environmentally friendly production not only in developed but also in emerging countries due to the latter's significant influence on global GHG emissions
4. Need to invest in research and development to avoid creating knowledge gaps with competing economies such as China that turn out to be too large to be closed in a reasonable time frame
5. Non-uniform capability of Indian companies to compete at global levels of efficiency and quality due to internal reasons as well as lack of a manufacturing ecosystem.

quality in major Indian metros clearly indicate that awareness of pollution and its impact on quality of life is increasing in India as well.

Indian companies, and especially Indian MNCs, hence need to pursue Green Manufacturing initiatives due to a number of factors such as resource scarcity, climate change, import dependence, government regulations, etc. Customer pull for green products is continuously increasing and – if not taken seriously – may be leveraged by competition to create product and brand differentiation. Opportunities for profitable and green manufacturing increase due to advances in science and may need to be leveraged to satisfy investors who demand carbon disclosure.

Examples of successful, green manufacturing initiatives in India abound. Take Godrej's 'Fast Card' as one example. It is a smokeless paper mosquito repellent that provides a mosquito free environment for 4-5 hours at the cost of just Rs1/-. To reach such an aggressive price point dictated by the needs of the customers (farmers in rural areas that would like to get one night of undisturbed sleep), Godrej had to re-invent the product and its production process. The mosquito repellent formula was changed to reduce water content and to allow for rapid drying hence reducing both water and electricity consumption during the production process massively. Clearly, green manufacturing is not only the right thing to do but also enables companies to provide profitable solutions even for 'Bottom of the Pyramid' customers.

From 'Make' to 'Innovate'

In the coming decades, India will need to transform herself from 'copy and paste' manufacturing to innovation driven manufacturing. While global innovation leaders in India exist today, the task is to transform industries and companies such that innovation leaders are the norm rather than the exception.

Market factors driving this need are many. Customers are constantly becoming more sophisticated and individualized. This requires covering of more market niches and subsegments, shorter time-to-market for products and increased risks of R&D amortization. Technologies, such as Industry 4.0 that we discussed earlier in this paper, threaten to negate competitive advantages if not mastered.

Alternative 'new' R&D areas (China, Eastern Europe, etc.) may win the race for manufacturing and related service jobs based on better products and higher margin retention and hence higher competitiveness of their companies. Stronger global IPR laws may have a negative impact on 'Copy and Paste' manufacturing. In addition, corporate customers are

Concerns regarding domestic players:

- Poor reliability, workmanship and build quality
- Limited technology, design, application engineering
- Limited standardization, quality of sub parts
- Poor integration & customization of peripheries
- Commitment to quality and lead time
- Process capability
- Not plug & play, poor documentation.

These weaknesses are severe and not limited to the domestic machine tools industry. Similar observations can be made across industries as Roland Berger's experience with operational performance improvement programs in India has shown. All these weaknesses can and must be addressed in order to transform manufacturing in India

increasingly looking for system partners that can co-create products and share in the associated risks and pure 'Copy and Paste" players may be relegated to Tier II or Tier III status.

India should actively leverage global best practices. Blue prints for increased R&D performance exist. Take Fraunhofer from Germany as an example. Fraunhofer's mission for applied research is to benefit private and public enterprise and to drive competitive strength through innovation. Fraunhofer operates with a variety of business models and has been instrumental in improving products, commercialisation of new technologies, etc. globally.

In South Korea, Daedeok Innopolis is a successful, government supported business ecosystem that focuses on the virtuous cycle of Research & Development, Business Development, and Reinvestment. Daedeok employed about 140k people in 2010 across more than 100 companies and generated 57k patents. Research is focused on Integrated Circuits, Precision Instruments, Computers, Opto-electronics, Biotechnology, and Telecom. In Brazil, São José dos Campos is a very successful aerospace industrial cluster that was a crucial support to the global ascendancy of Embraer. Employment in over 50 suppliers in São José dos Campos stands at 23k employees. For São Paulo, the aerospace industry is a crucial contributor to exports at 8 percent of total exports.

India's 'Hero' culture

Creating a 'Make in India' brand will require consistency and excellence of manufacturing and engineering across the value chain. It will also require the same consistency across industries. 'Country of Origin' brands are not built by a few companies achieving world-class standards but by an ecosystem of companies that convinces local and global customers time and again of the quality, performance and value of their products and services.

India still has significant improvement potential in this area. Take the domestic machine tool industry as an example.

India should actively leverage global best practices.

"Country of Origin' brands are not built by a few companies achieving world-class standards but by an ecosystem of companies that convinces local and global customers time and again of the quality, performance and value of their products and services."

Without a doubt, a high-performing domestic machine tool industry will be crucial for transforming India into a manufacturing hub. The key customers of the machine tool industry (Automotive (47 percent), Non-Electric Machinery (21 percent), Electronics/Electrical Machinery (15 percent) and Aerospace & Defense (15 percent)) depend on high-quality, high-performing machines to drive their business to global levels.

As shown in Fig. 1, India's position in terms of both consumption and production of machine tools leaves room for improvement, especially if compared to China, a country with a similar population size. While domestic production of machine tools as percentage of total market has increased from 18 percent to 41 percent during the FY09-FY14 time period, it remains woefully low in international comparisons with corresponding negative impacts on the balance of payments.

A key reason for the continued dominance of imported machine tools is the strong preference of customers in India towards imports for high value add work. Results of a recent ACMA-IMTA-Roland Berger study are shown in Fig. 2 and clearly indicate that advantages for imports stem from alignment with environmental best practices, achievement of very high tolerances, lower total cost of ownership and technology leadership. Domestic players mainly outperform international competition regarding spares availability, service support and pricing. Flexibility to meet customer requirements is seen as another strength.

> India cannot abdicate her responsibility towards a cleaner and sustainable future both from a global and even more importantly from a local perspective.

'Make in India' – Some suggestions

'Make in India' as a program will not be a sprint but a marathon. Building a global brand renowned for quality, manufacturing and innovation prowess will take a few decades. However, paying attention to the following points will be important during this journey.

A key area to drive manufacturing in the country is the establishment of a dynamic infrastructure. Capacity and efficiency improvements in infrastructure have to be the focus area for government. As new approaches such as 'Industry 4.0' become more prevalent, it becomes key to enable not only roads, ports, railways and other projects but to also drive dynamic telecommunications and internet usage in the country.

At the same time, consistent, predictable policy reform that dramatically increases the ease of doing business in India is a must. Transparency of and faith in government policy action has to be strengthened across the board. Regular consultations between government and industry will help drive this process in the right direction. Implementation of GST and other policies that will drive efficiency in India will be crucial.

Government should also encourage the establishment of sustainable businesses both from a domestic view (reduction of negative impact of pollution on citizens) as well as a global view (increased competitiveness of Indian companies abroad). Driving alternative energy as a major source of electricity in the country is needed and government initiatives in this area are highly appreciated.

Innovation needs to be accelerated. Closer collaboration of all stakeholders - government, industry, academia and financing institutions - is necessary such that India can leverage the readily available talent pool to drive development. Activities in this direction are underway, but more needs to be done to avoid losing the race vs key competitors such as China.

Last but not least, we need to foster new talent. Innovative capability of private universities such as Amity University is higher than that of all IITs combined. As a consequence, we need to change backward looking educational policies and content to prepare India's youth for tomorrow's challenges more effectively.

None of these tasks is easy, all are necessary. Above all, the difference between 'Make in India' and 'Make Believe in India' will be driven by the consistent and determined execution of plans and ideas. "Make in India' cannot be primarily about marketing concepts but must be about making change happen on the ground.

THE MACHINIST — ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

Super SHOPFLOOR 2015

Some of the finest manufacturing plants are competing for the coveted title in five different categories. And one truly 'Super' Shopfloor will bag the overall winner's trophy. Are you game?

The rise of Indian manufacturing needs to be supported and encouraged through peer recognition as well as by a fair awards systems backed by reputed institutions. For the manufacturing industry, the shopfloor is the place where all the action happens. It is therefore important to recognise, honour and celebrate its achievements.

Interestingly, 'The Machinist Super shopfloor' concept started as an editorial feature for the December 2014 issue of the magazine. Encouraged by the feedback received, we decided to build it into an Awards platform. And with nominations coming from some of the finest manufacturing brands in the country, the competition is now heating up. So, get going and send us your nominations if you haven't done it already. The nomination form is available on the page after the jury quotes and you can also download it from www.themachinist.in

H

Chief Guest*

Kalraj Mishra,
Hon. Union Minister of MSME, Govt. of India

Keynote*

Baba Kalyani,
Chairman & Managing Director, Bharat Forge

Meet the Leaders*

Top CEOs from different industry sectors come together to discuss 'Make in India'

Event	Jury Meet	Awards Ceremony
Date	April 29, 2015	May 22, 2015
Venue	Le Meridien, Pune	The Westin, Pune

Their shopfloors are already in

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Jury Speak

To ensure that the selection of winners is fair, transparent and objective, an eminent team of jury members will evaluate the nominations. This is what some of them have to say...

"In order to fulfil the dream of "Make in India", it is important that Shopfloor best practices are recognized and rewarded through a transparent yet rigorous assessment process. However, it is more important that these best practices are widely circulated and made known across the manufacturing industries so that these could be adopted by them. This will set off a chain reaction of continuous improvement which will eventually make Indian manufacturing industry globally competitive."

SANTANOO MEDHI, MD & CEO, PREMIUM TRANSMISSION LTD.

"This award recognises forward thinking manufacturers who are excelling on the shop floor management practices, which is crucial for the success of "Make in India" initiative."

SHRIKANT S. BAIRAGI, MD – INDIA, TREMEC TORQUE TRANSFER SOLUTIONS.

"The Indian manufacturing industry has created an enviable track record of performance in India and globally. The recent 'Make in India' program has brought further global focus to the strengths of Indian manufacturers. It is equally important for us to recognise and honour the achievements of these excellent companies, who have contributed to the growing prominence the Indian Manufacturing Industry."

VIREN JOSHI, PRESIDENT & CEO, SIGMA ELECTRIC MANUFACTURING CORPORATION PVT. LTD.

"With "Make in India" driving Indian manufacturing companies, Shopfloor plays a vital role as a backbone of organisation. Peers on shopfloor put enormous efforts to deliver best possible productivity with excellent quality. They are the heroes working in the background for the success of company. It's really wonderful idea to honour them for their achievements."

YOGESH ZOPE, CIO, BHARAT FORGE.

For "Make in India" to become a competitive advantage Indian Shopfloor must transform. The transformation should be holistic impacting assets, people, processes and place. It should significantly reduce conversion costs, manufacturing lead time, inventories and quality. Most importantly not only large shopfloors but the smallest one with limited resources should be involved in this journey. Awards that recognise and celebrate the shopfloor transformations will play a key role in this journey.

RAVIND MITHE, PARTNER, KPMG ADVISORY SERVICES

Other Jury Members

DR DHANANJAY KUMAR, CEO & HEAD (ENGINEERING, GLOBAL PROJECT & BD), KLT AUTOMOTIVE & TUBULAR PRODUCTS LTD

PIYUSH MUNOT, INDIA GENERAL MANAGER, ZF INDIA PVT LTD

MADHU RANJAN, MANAGING DIRECTOR, ELRINGKLINGER AUTOMOTIVE COMPONENTS INDIA PVT. LTD.

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Calling all manufacturing plants in India to send entries

THE MACHINIST — ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

Super SHOPFLOOR 2015

magazine is proud to announce its **'Super Shopfloor'** amme.
It is open to all manufacturing plants in India under two segments
Large enterprises *(Rs1,500 crore turnover and above)*
SMEs *(Less than Rs1,500 crore turnover).*
Participation is simple and there is no entry fee.
Tell us in minimum 1,300 words why you think your shopfloor should be '**The Machinist Super Shopfloor 2015'**.
Your submission should explain the achievements of your shopfloor across the following five categories distinctly in last one year:
1. Safety, 2. Quality, 3. Productivity, 4. Sustainability, and 5. Innovation. There will be overall winners as well as winners in each category. Winners will be felicitated on May 22, 2015 in Pune.
You may also attach supporting documents.

Please provide a brief video related to your nomination. (One video per nomination if there are multiple entries).
Each video should be preferably in MP4 format and maximum time should be 4.00 minutes.
You also may send it via WeTransfer or SendSpace or on a CD / DVD / pen drive if the file size is heavy.

You must also provide the following details

Large Enterprises or SMEs: .....

Overall company turnover: .....

The overall company turnover is to be taken into consideration for determining the above (and not just the plant turnover)

Select Category: ☐ **Safety** ☐ **Quality** ☐ **Productivity** ☐ **Sustainability** ☐ **Innovation** ☐ **All**

Name of the company: .....

Location of the plant: .....

Name of the plant head: .....

Contact details: .....

Plant size: ..... Staff strength: .....

Key products manufactured: .....

Annual capacity: .....

Key clients: .....

Key market (domestic / exports): .....

Manufacturing principle followed: .....

Recent milestones: .....

Technological highlights: .....

Please also provide two **high-res images of shopfloor in JPEG format (300 dpi)**

Note: Entries should be sent on a simple word document or a PDF file only. Entries in other formats will not be accepted. Images should be sent in high-resolution JPEG format (300 dpi). Please send your entries to themachinist@wwm.co.in & niranjan.mudholkar@gmail.com. Please mention 'The Machinist Super Shopfloor 2015' in the subject line of the email. For any queries regarding participation, write to the above email ids or call on +91 9969 462 127.

Last date for sending your entry is April 27, 2015 (5.00 pm)

**The decision on the winners will be final and no query will be entertained after the winners are announced.*

Rishika Bhati *- Event Co-ordinator - B2B*
Worldwide Media Pvt Ltd (WWM), 2nd floor, The Times of India Building, Dr D N Road, Opposite CST Station, Mumbai 400001 Cell: +91 9969 462 127 / 022-2273 3452

Role of **technology**

As the focus of policy making shifts back to manufacturing, technology will play a vital role in raising this sector's contribution to GDP to 25 percent and creating 100 million new jobs.

By Ramesh Subramanian

Image Courtesy: Blue Star Infotech

The nation has embarked upon its journey to become a global manufacturing hub. The vision is clear, the tools are being put in place and conveyor belts are ready to roll out Indian made goods for global markets. But the Prime Minister's "Make in India" vision to make India a global manufacturing hub can be transformed into reality only with the help of one powerful ingredient: technology. As the focus of policy making has now shifted back to the manufacturing sector, technology/ITeS will play a vital role in raising this sector's contribution to GDP to 25 percent and creating 100 million new jobs.

According to a World Bank report, the resurgence of productivity growth in the US in recent years can be attributed to integration of new technologies with the production units. This adoption is credited with the ability US manufacturing to compete against even powerhouses like China. In India, adoption of IT is crucial to manufacturing operations too, more so since we are generally at a lower level of adoption.

*By **Ramesh Subramanian***

"The most effective manufacturers are now moving to disruptive new technologies in both areas, widening the gap between the 'also rans' and the winners."

The role of information technology has transformed from simple automation to driving efficiencies to driving revenue streams. Many manufacturing units have already incorporated several IT tools in their operations. A study reported by Harvard Business Review Analytic Services (2015) found that "digital masters" - companies that are adept at using current IT technologies - are 26 percent more profitable than their peers.

The adoption of core manufacturing technologies is easily understood and can be seen to directly lead to cost, speed and quality improvements. It is the Business Applications area where most manufacturing organisations are hesitant to undertake investments. The most effective manufacturers are now moving to disruptive new technologies in both areas, widening the gap between the 'also rans' and the winners.

Disruptive technology, if well adopted, can enable manufacturers to enhance operational efficiency as well as become more responsive. For instance, the adoption of BI/ Analytics helps a variety of manufacturing and non-manufacturing operations spot trends early and pinpoint areas for improvement. Use of mobile devices and leveraging mobile platforms is also seen as a very prevalent trend among manufacturers. Other technologies waiting in the wings would include additive manufacturing, immersive or augmented reality platforms, wearables, etc. which should all be assessed for their applicability to individual business challenges.

The automotive industry in India has been one of the quickest industries to have adopted technology. The biggest disruption was the introduction of assembly line technology, followed by ever widening use of IT. IT today has been integrated into manufacturing and support activities. Most industry participants now consider it standard for mobile and social applications that help in sales and customer relations, as well as franchisee operations management. However, the impending impact of new technologies such as the "connected automobile" - which considers the automobile as a strategic platform for connectivity and social interaction - or "driverless" cars will threaten more disruption than ever.

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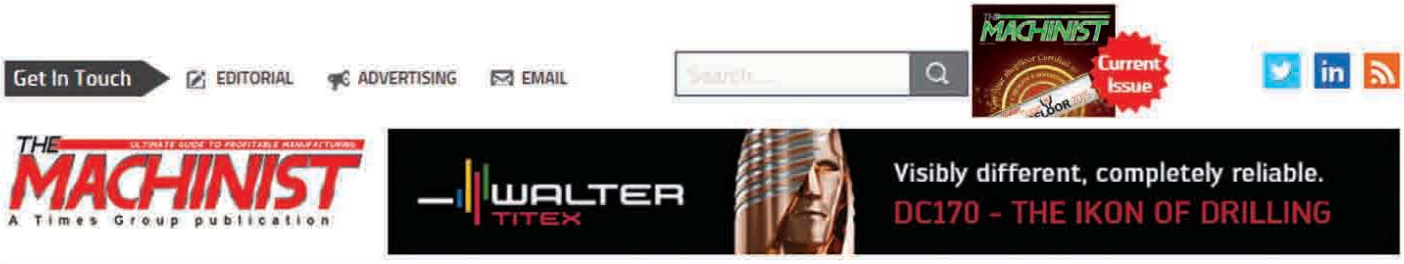

FICCI Manufacturing Survey shows low investment

However, the IIP results for the month of February are encouraging.

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Cost and Output benefits of incorporating IT

Technology offers manufacturing a plethora of advantages ranging from reducing costs to increasing productivity output per employee.

- *Making the value chain really competitive:* The entire value chain is automated on an ERP system that reduces costs and improves efficiency and productivity. This adds agility and flexibility to the whole process of value chain. This has already begun happening in India, especially in the larger companies.
- *Cutting Production Costs:* With the use of automation, the dependence on human beings to perform some of the necessary production processes has reduced. As a result, employee expenses have also reduced. Technology has helped to streamline the production process by eliminating costly waste. Implementing a 'lean' manufacturing process like Six Sigma, ensures meeting customer demand quickly and efficiently.
- *Standardisation and agility:* Technology enables manufacturers to process data on real time basis thus ensuring quick results and actions. Technology also aids in standardisation in selling and in the areas of merchandising.

Challenges of integrating IT in manufacturing

- *Cost to upgrade technology:* technology is dynamic and the cost of upgrading technology is also high. Applications that are essential to power day-to-day operations functions such as customer relationship management, data storage, inventory and other technologies supporting shop floor activities need to upgraded in order to sustain efficiency.
- *Data loss:* According to an independent research, 70 percent organisations experience some form of data loss and hence have to set aside budgets to spend on data storage, backup and protection.
- *Integration with existing technologies:* it is a challenge for IT companies to align new systems with those already in place. The systems developer has to ensure that in this process, previous data is secure and processes correctly respond to new technology in place. This is a time consuming and expensive task.
- *Managing information:* Manufacturers and their businesses generate a lot of data such as website analytics, production workflows, sales numbers, financial reports and prospect research and all of it important and constantly changing. IT tools must effectively record such information that helps manufacturers to monitor deviations and execute corrective measures.
- *Privacy and Cyber security:* The exponential growth in structured and unstructured data is sometimes a roadblock for educating both employees and workforce about how productivity can be improved and security breaches can be reduced.

Disruptive technology can enable companies to enhance operational efficiency

How is IT currently employed in the manufacturing sector?

Currently the use of IT in manufacturing is categorised in two broad categories.

Technology

Core & Infrastructural, eg:	Business Applications, eg:
* Hardware & Networks	* Customer relationship management
* Monitoring tools	* Enterprise Resource Planning
* Industrial Automation	* Multimedia/Virtual technologies
* Design and PDM Techniques	* Knowledge Management

Current Trends and developments

Some of the trends in technology that can be game-changers for the manufacturing sector are given below.

- Product life cycle management (PLM) strategies to focus on value realisation in order to become increasingly global and multidisciplinary.
- Manufacturers employing 3D value chains.
- Investments to modernise existing Supply chain technology by focusing on operational resiliency.
- Significant investment to enhance Plant floor IT systems.
- Many manufacturers are trying to reduce their carbon footprint as well as energy use and overall environmental impact. Technology will help such manufacturers to develop sustainable manufacturing initiatives that produce high-quality, cost-effective products and conserve available resources.
- Changing platforms- such as the "connected car" for the automobile industry.

The manufacturing industry in India is at the cusp of becoming a force to reckon with and it is technology that will take them ahead. It is clear that businesses can benefit immensely by adopting new enterprise solutions.

In order to be competitive against low cost (and highly scalable) manufacturers overseas, or the highly efficient but relatively costlier manufacturers, Indian Manufacturers must look to technology for their advantage.

The author is Global Delivery Head, Blue Star Infotech

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High productivity and sustainability

The industry is in constant search of solutions to make vehicles perform better, more cost-effectively, and more sustainably. Plastics can are in a position to provide many of those solutions.

By Ojas Mehta

Ojas Mehta

The automotive industry is in constant search of new solutions to make vehicles perform better, more cost-effectively, and more sustainably. Plastics are in a position to provide many of those solutions.

Producers and processors of high performance plastics are providing car makers the opportunity to use bio-based materials with reduced carbon footprints; they are developing new solutions to replace metal parts with lighter and more functionally-integrated plastics versions, they are helping increase engine efficiencies by reducing friction between moving parts, and they are assisting on overall system cost reductions. Carmakers benefit, and so do car owners.

Sustainability and bio-based solutions

In recent years, considerable progress has been made in the development of bioplastics, plastics made from renewable resources. Most of the attention has been given to biodegradable plastics for applications in packaging, but non-degradable bioplastics for durable applications have also made immense progress, and the automobile industry is increasingly taking advantage of them—not only because they are more sustainable than fossil-based plastics but also because, in many cases, they are simply the best materials for the job.

For the engine beauty cover of the turbo-powered petrol-engine version its latest and most fuel-efficient A-Class hatchback (it consumes more than a quarter less fuel than the previous version), Mercedes-Benz, for example, uses a reinforced compound of a high performance polyamide largely made from renewable resources. Around 70 percent of the raw materials used to make the polymer, a polyamide 410 made by DSM and branded as EcoPaXX, are derived from the castor plant.

The engine cover has to meet very demanding performance specifications, which are complicated by its large size. With dimensions of 575 by 550 mm, and operating in an environment that can reach temperatures more than 200°C, resistance to warpage and high dimensional stability are important. EcoPaXX Q-HGM24 can survive continuous-use temperatures of 200°C, with short term peeks of 235°C. In addition, the engine cover is very light; in fact, it weighs just 1.32 kg.

Production of an engine cover in bio-based

polyamide results in only around 40 percent of the quantity of carbon dioxide emissions that would be necessary in order to produce the same component from a conventional polyamide.

Lightweighting

Weight reduction has been a major trend in the automotive market for many years now. But we have barely scratched the surface when it comes to solutions like replacement of metal parts by plastics versions. By replacing metals with next-generation engineering plastics it will be possible to reduce weight of important components by up to 50 percent.

One example is a lightweight multifunctional crankshaft cover in EcoPaXX for the latest generation of diesel engines developed by the Volkswagen Group. It incorporates integral seals in PTFE and liquid silicone rubber (LSR), as well as various metal inserts. It is being used on Volkswagen's new MDB modular diesel engine platform, implemented across its Audi, Seat, Škoda and VW brands.

Compared with covers made in aluminium, system costs for the EcoPaXX cover are considerably lower, thanks in part to the use of an integrated, fully automated production cell for the component at crankshaft cover producer KACO in Germany. Weight has been reduced considerably too, since the EcoPaXX grade is 45 percent less dense than aluminium.

The crankshaft cover is a masterpiece of engineering design. Fibre orientation, the number and position of gating points, and the design and integration of the various inserts have all been optimized to minimise warpage and ensure tight seals between the cover and the engine block and oil sump.

Light but very robust

Vehicles will be even lighter when they incorporate oil sumps injection moulded in next-generation polyamide 6. The Peugeot 508 was the first vehicle to benefit from a new solution, Akulon Ultraflow, and more models have since followed. Once again, the product not only weighs less than a metal version, but also costs less to make.

Oil sumps are ideal opportunities for engineering plastics among automotive applications, because they offer potential for significant weight reduction compared with traditional metal versions. But oil sumps also offer a considerable challenge for developers: their exposed position under the engine means that they have to withstand considerable mechanical stress caused by, for example, stones flying up from the road, and impacts from curb stones if the vehicle is driven off the road onto the pavement.

The French Tier One supplier Steep Plastique has succeeded in developing a sump that is 60 percent lighter than the metal version it replaces. Plus, the sump passes some very demanding application tests at Steep and Peugeot.

Polyesters take the heat

As a result of continuous engine downsizing, particularly in the compact car segment, temperatures under the hood are going up, putting extra demands on plastics components used in this area. On top of this, identical electronic components are used in vehicles sold and used worldwide, which means they need to operate under a wide range of temperature and humidity conditions. Therefore, there is an increasing need for materials that retain key properties such as strength, stiffness and impact strength under demanding hot-humid conditions.

Arnite A HR is the first high performance PET (polyethylene terephthalate) engineering plastic that is highly resistant to hydrolysis. This breakthrough development opens up opportunities for use in automobile under the hood offering significant weight and cost benefits over metal.

Injection moulded parts from conventional PET lose as much as half of their tensile strength after 1000 hours at 85°C and 85 percent relative humidity. Parts made from Arnite A HR keep around 90 percent of their initial strength under the same conditions. The new product, apart from being highly hydrolysis resistant, also exhibits high stiffness, strength and dimensional stability.

Friction reduction

Reducing friction in the engine and transmission is fast becoming a key trend in the automotive market. By using low friction engineering plastics for key components, it is possible to reduce friction by up to 20 percent - which in turn equates to a one percent saving in carbon emissions (as well as cost savings in maintenance and replacement).

Conclusion

The automotive industry is in constant search of new solutions to make vehicles perform better, more cost-effectively, and more sustainably. Plastics are in a position to provide many of those solutions.

The author is Segment Manager Automotive, DSM Engineering Plastics

Setting **High Standards**

Dirk Eilers, Member of the Board of Management, TÜV SÜD AG, was in India recently, The Machinist caught up with him to understand how the concept of 'zero defect' will drive the success of the 'Make in India' initiative

By Niranjan Mudholkar

> Factors such as having the right workforce, backend infrastructure, technical know-how and global compliance are aspects that will require a very clinical approach."
>
> **Dirk Eilers,** Member of the Board of Management, TÜV SÜD AG

Q. The 'Make in India' initiative launched by the Indian PM Modi holds a lot of promise in enhancing the country's manufacturing capabilities. What role will testing and certification play in this context?

Data states, Indian manufacturing sector has grown at the same pace as the overall economy in the last 20 years. Despite of the growth witnessed, India's manufacturing sector's relative share in the Indian economy has remained unchanged to 15 percent only. When compared to some other developing countries like China, Malaysia where the contribution of manufacturing sector is over 20 percent, one can envisage the opportunities.

I see 'Make in India' as an initiative to boast the manufacturing sector with a focus to make India a global manufacturing hub. To achieve this, I think India will require a paradigm shift in the approach towards manufacturing. Factors such as having the right workforce, backend infrastructure, technical know-how and global compliance are aspects that will require a very clinical approach. The Make in India initiative is a step in the right direction towards achieving this goal of manufacturing in India for the world.

The concept of 'zero defect' manufacturing that has been highlighted by Prime Minister Modi is a key parameter that will drive the success of this project. International brands across sectors follow a common line of approach towards quality. Standard quality levels are achieved through very high level of precision in testing and certification.

In most developed nations, import norms for products are highly stringent. Most exporters in US and countries in Europe follow prescribed norms as defined by respective markets. The minutest of non-compliance in these prescribed norms can lead to rejects amounting to financial losses and more importantly the loss of trust for specific exporters and exporting countries. To help manufacturers comply with global testing and certification norms, it is ideal that they partner with globally renowned experts who specialise in helping them improve acceptability across importing nations. The quest of perfection however, is a long-term process and can be achieved through sharp strategies and flawless execution. It is heartening to see that this process has started in India and the success of the 'Make in India' initiative will depend upon the pace with which India Inc. adopts global standards.

Q. Tell us, what kind of testing facilities does your organisation have in India to address the requirements of the discrete manufacturing sectors in this region?

The Make in India initiative is a step in the right direction towards achieving this goal of manufacturing in India for the world.

Our testing labs in India cater to a wide range of businesses that are fully export oriented as well as for local consumption. Currently we have 15 labs across India, Bangladesh and Sri Lanka that provide internationally competent testing, inspection and certification solutions across a wide range of sectors.

In India, we have 14 labs. Our key focus is to be closer to the manufacturers to facilitate speedy testing and certification services. For example, our electrical and electronics testing lab in the IT city of Bengaluru, is focused at helping importers as well as exporters improve the acceptability of their products in focus markets. Most of these labs are supported by sample centers at various locations in India. India is also home to our global competence centre that innovates on specific testing and certification solution for the power sector.

Our academy division also provides specific training solutions that help companies empower their workforce with the technical knowledge to implement flawless manufacturing processes. For e.g.: VDA QMC (German Association of the Automotive Industry - Quality-Management-Center) recently appointed TÜV SÜD South Asia-Academy Division as its partner to deliver approved VDA 6.3 training and qualification modules in India. Developed by the German Automotive industry, VDA 6.3 defines a process based audit standard for evaluating, analysing and enhancing controls in a manufacturing organisation's processes.

He finds out what projects the customer is working on, and he pre-empts them by investing in the machines and the technology to make the parts before they actually need then.

After two consecutive bad years, the automotive sector in India is coming back to its original form with good numbers. At the same time, it also stands on the verge of transition with **new regulatory, emission and safety norms on the horizon. What steps do the OEMs need to take in this scenario to sustain the good run while staying abreast with the new norms**?

The Indian auto industry is currently equipped to manufacture wide range of components except sensors, processors and controllers. While manufacturing has received a much needed policy impetus under the new regime, it needs to be complemented with quality and production management systems to ensure world class competence. Most MSMEs in the sector have immense scope to implement quality, hazard and waste management systems in addition to using process and materials of international standard.

The recent Global NCAP tests have brought to fore the scope for improvement in the Indian automotive sectors, especially when it comes to ensuring consumer safety. The new regulations in emissions and safety directly imply that the entire OEM ecosystem in India will automatically move towards sophistication in operations.

OEMs will be required to comply with national, international and supplier requirements. Some of the other aspects that will require special attention will be design and engineering review throughout the product lifecycle, vehicle component testing as per prescribed norms, management system auditing and certification, supplier audits, and quality and safety training.

In a nutshell, the emphasis is on end-to-end product safety, quality and operational efficiency. These aspects will help OEMs sustain the new regulatory tide and will ensure growth and profitability for a longer horizon. We believe that anticipating new product and process requirements at an early stage helps businesses save time and money and are aptly equipped to support OEMs with all of the aspects critical for growth.

Indian SMEs are a major contributor to the country's manufacturing growth. Where do they stand with regards to compliance issues? What is more required if

The recent Global NCAP tests have brought to fore the scope for improvement in the Indian automotive sectors

they are to really evolve to the next level?

The 'Make in India' initiative has put the onus on Indian SMEs to adapt to the changing landscape of manufacturing and yield profitability through compliance. Traditionally, not just in India but across the world, SMEs have taken a minimalistic approach towards compliance issues in order to adhere to economic parameters. However, it is critical to understand that success among SMEs is often marred by the quest for short term gains.

In developed markets, SMEs have over a period of time, realised the importance of compliance and Indian SMEs too have followed suit. The profitability associated with SMEs will be directly proportional to the pace at which they will adapt to the renewed approach towards compliance.

A large number of SMEs have joined the bandwagon of overhauling their approach towards faster turn-around time, efficiency in operation, complying with environmental norms and the having sight on long term profits.

Once they overcome the compliance barrier, they stand the chance to showcase their expertise initially at a local level, and gradually transition to the global levels. SMEs have the potential to help India be the global manufacturing hub that country envisions it to be.

> "While manufacturing has received a much needed policy impetus under the new regime, it needs to be complemented with quality and production management systems to ensure world class competence."

Q A major issue faced by Indian manufacturing companies is the scarcity of job-ready graduates. While efforts are on to bridge the industry-academia gap, what more needs to be done in this context?

The boost in the manufacturing sector is set to open doors to an array of opportunities for youngsters. However there is an urgent need for qualified youngsters to constantly upgrade their knowledge and skills that can contribute towards the growth of Indian manufacturing.

Timely and customised training driven by a clearly defined objective is the key to ensure that the talent across levels is prepared to take on larger responsibilities while effectively delivering on existing expectations. There is an urgent need for India Inc. to collectively contribute towards skilling of qualified workforce.

Our South Asia's academy division globally focuses on skilling the skilled. The academy division was started with a vision of meeting the requirement for training people who drive the information and knowledge-driven economy. The academy follows a Training Need Analysis (TNA) to Training Effectiveness Evaluation (TEE) approach by means of which they identify goals at the start of every course and then assess them at the end of the course. They make sure that all preset goals are achieved in the end, many a times the academy carries out a realignment exercise if the goals are not achieved completely. It operates out of seven cities in India and has 200 internal as well as external employees spread across India.

Over the past three years the academy has gained considerable ground. Customised course development being a highlight of their service offering, the academy services are a stepping stone towards filling the skilled workforce need gap in India.

Q It is critical for manufacturers to get the balance right between operational efficiency and sustainable development both from the business perspective as well as from the environmental aspect. How can organisations like yours help in this context?

Since the 1990s fiscal consolidation, globalisation and modernisation have led to unprecedented economic growth. Large manufacturing hubs have cropped up across the country after decades of industry being centered around a few major metros. India's primary natural resources — land and water — are under pressure not only from population growth, but, perhaps more importantly, from over-exploitation and utilisation of resources for development.

We apply our global expertise and best practice sustainability measures as well as our local market knowledge to offer services to our clients that are applicable and relevant. We have invested extensively in the Indian market by not only setting up environmental lab but also training to ensure experts are available locally to cater to the specific needs of the market. We have a wide portfolio of consultancy, to assist customers to undertake or review their planned and achieved sustainability efforts.

Geared up!

It is not just the product, but process optimisation and other expertise that are needed to achieve optimum results, says **L. Krishnan**, MD, TaeguTec India.

By Niranjan Mudholkar

Tell us about your new launches.

TaeguTec and IMC are at the forefront of development of several new products and solutions. Our most recent success is the RHINO RUSH which are smaller-sized inserts (compared to ISO inserts), but available in same thickness and superior durability. The smaller size combined with its unique rigid clamping has been instrumental for many a revolution on the shopfloor and has led to immense savings for our customers.

Recently, TaeguTec launched a new compact four corners double sided insert – the 4NKT 06 insert for end mills, face mills and modular cutters. The 90⁰ entering angle insert, despite the double sided design, is suitable for high ramp down angle applications. Its high positive geometry generates low cutting force while the cross edge insert geometry prevents unexpected insert failure. The new additions increased insert thickness and high strength combined with the cutter's wide bottom for improved clamping enables excellent high stability and productive machining.

TaeguTec's CHASE2BALL is a double-sided insert that easily handles roughing of complicated profiles and thus is optimally suited for press & die items in the mould & die industry and profile milling in heavy industry. As a double sided insert – 6 corners; 3 per side – economy is one of its key advantages. Another advantage is the low cutting resistance due to its half-effective tool design.

Other benefits include exceptionally stable machining in deep depth of cut applications due to the CHASE2BALL's 8mm insert thickness. The built-in reinforced insert design lends improved insert and tool security even in heavy rough machining situations.

The TWIN RUSH joins together a centering insert with a pair of precise square inserts on either side in order to combine two different drill types onto one drill body and protects them with TaeguTec's TT9080 PVD multi-layered coated grade.

Then there's Typhoon, a revolutionary new high-speed spindle developed for applications using high RPM for small diameter tools that can be used on limited RPM machines. The new spindle is designed for high-speed machining in milling, hole making and grinding applications. It does not replace the existing machine's spindle; it improves the existing machine's performance, surface finish and tool life capabilities.

Is the overall market getting better now?

While we see a significant change in terms of sentiment, demand is yet to pick up across the sector, and will hopefully do so over the next 6 to 12 months. We are geared up and looking forward to better times ahead.

Are you focusing on any key industry sectors?

We have competencies, products and solution available across the entire range of industries starting from automobile, die & mould, power generation to aerospace, railways, shipbuilding etc. As these sectors emerge and grow, we're geared to meet their needs.

> "The focus of the manufacturing industry remains on productivity and cost. These themes are universal."

What are some of the key trends impacting the usage of cutting tools?

The focus of the manufacturing industry remains on productivity and cost. These themes are universal. They'll drive the industry and product development for several decades to come.

Manufacturers want more from their machine tools in less time. How are you helping them?

Our product development initiatives are focused on increasing productivity and reducing cost of component. It is not just the product, but process optimisation and other expertise that are needed to achieve optimum results. Our well-trained team with latest products is fully geared to offer best in class solutions to the customers.

Competence **Counts!**

We concentrate with a holistic approach on the entire range of our client's applications and on what they can achieve using our specialised process optimisation solutions, says **S. Ravishankar,** MD, Walter Tools India Pvt. Ltd.

By Niranjan Mudholkar

Have you launched any new products/ initiative recently? Tell us about the same.

At the recently held IMTEX in January this year, Walter India presented its latest developments in drilling, milling, turning and threading with the motto 'What counts is competence'. An innovation that set new standards in the industry – and gave drilling a new look.

Our new range of DC170 solid carbide drills represent a new icon of drilling on the market in terms of both performance and design. This new range of DC170 drills is the jewel of Walter's Development department and will be instrumental to set up a benchmark in drilling.

The M4000 range is making high performance universal. Whether it is a shoulder milling cutter, a high-feed milling cutter or a chamfer milling cutter – the system indexable inserts can be used in all tools within the M4000 range. Walter uses these tools to show that high-performance tool systems are already being manufactured with 100 per cent CO2 compensation.

Our great capacity for innovation is a product of our engineers' expertise. Engineering Kompetenz encompasses not only metal cutting itself and an understanding of the process, but also an awareness of quality, customer requirements and sustainability.

Do you see the overall market conditions getting better now? How geared up are you to leverage on this positive atmosphere?

The machining and the cutting tool sector is witnessing a lot of developments to keep pace with the changing market dynamics especially in terms of technology and new tool materials.

Second half of 2014 had shown many signs of revival of manufacturing industry. New government has put very high stress on 'Make in India' strategy. Government is administering incentives for machine tool industry (already Rs900 crore fund is allocated). Walter Tools which is a premium tooling solution company is all set to make manufacturing industry more competitive and thereby increasing their business.

As the Indian economy shows signs of revival, we are confident of growth across manufacturing sectors in the ensuing fiscal to spur growth. Policy reforms and a slew of actionable measures being taken augur well for the economy to revive. The progressive initiatives coupled with efficient governance and successful implementation of strong policies will ensure the momentum sustains.

Walter India has ambitious growth plans through market share gain and distribution base expansion during coming years. We rely on a solid growth strategy, which enables us to provide our customers a competitive advantage through innovative technologies, premium product quality and expert engineering services.

"The industry has a continuously evolving appetite for improvement which calls for challenging applications, surfaces and materials to be machined."

S. Ravishankar,
MD, Walter Tools India Pvt. Ltd.

We have a very good Engineering team in India and possibly Walter has got the highest turnover by providing the Complete Solutions to its customers in comparison to its competitors. We have introduced new innovative products in the market at a faster pace. We have also introduced 'Walter Multiply' – a service brand to provide not only the tools but also the service to reduce the cost of machining. Process Optimisation is a part of Walter Multiply service which aims to reduce the machining cost on the existing products and processes of the customer. We strongly believe that our customers will rely more and more on Walter products and services in coming years.

Have you identified any key industry sectors to focus on?

While the automotive segment contributes to a major share of Walter's business,

Walter has established its dominance in other resilient segments like railways, aerospace, power equipment and so on post 2008-09 recession. Walter has experienced a very good growth in Energy, Railways and Aerospace sector in last 3–4 years due to their focus on developing new tools, providing Optimised solutions. The industry has a continuously evolving appetite for improvement which calls for challenging applications, surfaces and materials to be machined. On top of that greater precision are needed to be achieved at an ever increasing productivity rate with rock solid process security.

We have a strong product line and customised solutions for very specific machining needs of these emerging sectors. Walter India has a clear market strategy for these industries, with a team of dedicated sector specialists in applications explicit to these industries. Our engineers bring world class technologies with our Global Competence Center, to Indian manufacturers.

Materials used in Thermal Blade, different Ti and exotic materials for Aerospace are difficult to machine. It demands extreme quality of the tools. We do not differentiate between Indian market and global market in terms of providing the state-of-the-art tools and technology. The internal demand for energy and railways are high in India. Aerospace industry is mostly export based and it is showing a really impressive growth in the past few years.

Q What are some of the key trends that you think will impact the usage of cutting tools by the manufacturing industry?

The unprecedented pace of technological change gives opportunities to businesses for creating growth through rapid conversion with newer technologies. Identifying customer's needs – often before they realise it themselves and creating the right solution, drives business growth. For Leaders of innovative technology (like Walter) it is most important to leverage the voice of the market and respond to their dynamic requirements. For example, Walter launches new product innovations every six months. Every tool, every machining strategy, every solution is polished until it performs to perfection. Walter pioneers in offering customers a complete machining solution backed with technologically innovative and advanced products.

Selecting a cutting tool supplier with such competence in product innovation, backed with local engineering support and availability of the entire spectrum of cutting tool products in a single portfolio helps customers to have an edge in the industry against the competition.

Q Productivity and speed are the driving forces for today's manufacturing companies. Manufacturers want more from their machine tools in less time. How are you helping them on this account?

Today's end users are demanding the latest in technology at the most economical cost. The industry has a continuously evolving appetite for improvement which calls for challenging applications, surfaces & materials to be machined. On top of that greater precision are needed to be achieved at an ever increasing productivity rate with rock solid process security.

We concentrate with a holistic approach on the entire range of our client's applications and on what they can achieve using our specialised process optimisation solutions.

The perpetually growing competition in the manufacturing sector, both from local and global players, has led to an increased end-user expectation towards cost and technological competitiveness. Today, manufacturing companies need to act as cutting tool experts offering Optimised machining solutions for increasing productivity and quality.

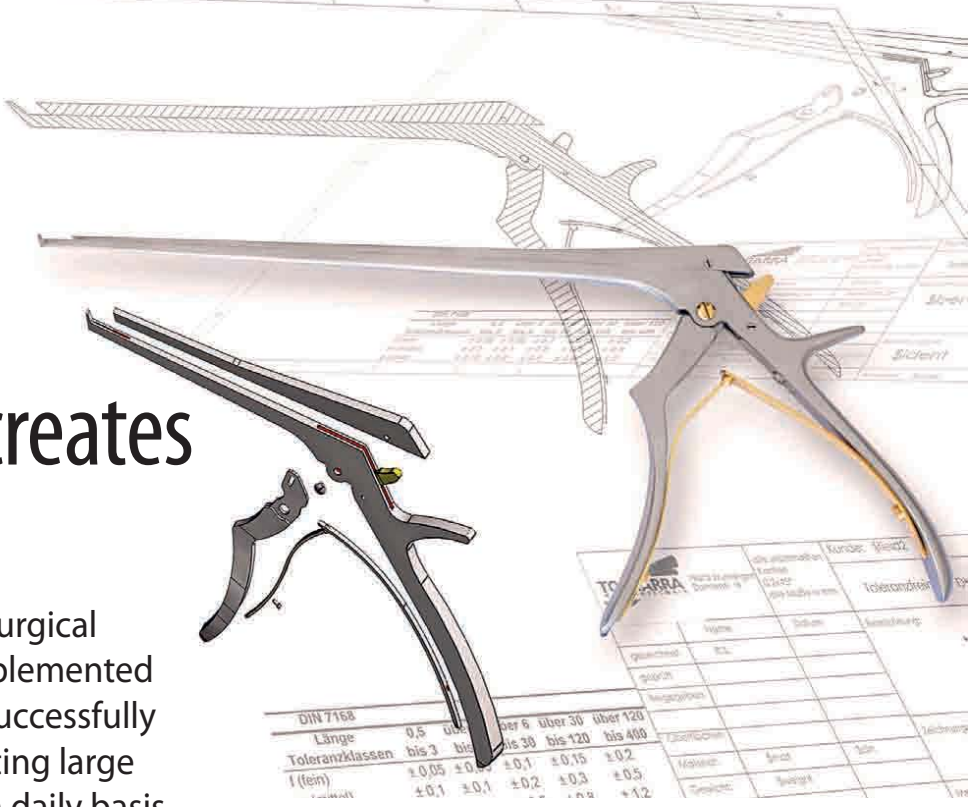
> "The perpetually growing competition in the manufacturing sector, both from local and global players, has led to an increased end-user expectation towards cost and technological competitiveness."

In this context, Walter is setting benchmarks with highly innovative products and services. Walter Xpress for example is an incredibly fast ordering and delivery service for high-quality special tools from Walter, Walter Titex and Walter Prototyp. With this automated software, quotations for all enquiries are calculated and provided with 3D Models of special tools within 24 hours. Further, quick manufacturing and delivery are clear advantages of the special tool service Walter Xpress.

Our engineers have a strong knowhow in developing special tool solutions – even the most complex ones - for our customers' needs. In order to make sure that we have the most qualified, competent and motivated people in the Walter global organisation, we invest a lot in the continuous development of our Engineers. Regular technical training and knowledge up-gradation is an integral part of our competence development strategy backed by our organisation development plans as well as reward and recognition policies.

Automation creates **flexibility**

A leading manufacturer of surgical instruments in Germany implemented an automation solution to successfully tackle the challenge of creating large variety in small batches on a daily basis.



The Kerrison punches used in intervertebral disc surgery. *Figure: Tontarra*

By Dr. Frank-Michael Kieß

In Wurmlingen near Tuttlingen, the epicentre of the German medical technology industry, Tontarra Medizintechnik GmbH develops and produces instruments which are mainly used in minimally invasive surgery applications – for example in surgery on intervertebral discs or bones. The family business, which has grown steadily over the years, works with a great production depth.

Besides milling and some turning work, the surface treatment and assembly are done in-house. A plant with over 30 machines for the machining of the mainly hardenable, stainless steels is available for this. Most of the work is done on milling centers with three to seven axes, which include four models from the machine tool manufacturer CHIRON, which is based in the neighbouring Tuttlingen.

Tontarra develops its products in close collaboration with surgeons. "The doctors want to optimise their processes and are looking for possibilities that can simplify their work," says CEO Thomas Tontarra. "In addition, new implants continually come onto the market for which there are no corresponding instruments to use them optimally." So the job in Wurmlingen is to keep finding and implementing new ideas. "Our development goal is three to five new instruments per year," says Tontarra.

Cleaning is an important design aspect

A crucial point is that instruments be designed in such a way that they are easy to clean. "It keeps getting harder to meet these demands," declares Tontarra. To meet them, developers have come up with a number of patented solutions. A highlight is CleanWave technology, in which the separating planes of the sliding shaft instruments have been given a wavy shape. This makes it easier to detect and eliminate contaminating particles. In addition, the waves also reduce friction of the working parts against each other. The surgeon can thus work with greater precision and control. Another example is the Kerrison punches used in intervertebral disc surgery. "The instruments consist of a handle, a main body and a slide part," explains Tontarra.

"They come in many different lengths and widths." The slides of competing products have to be removed for cleaning – with the result the instruments then also have to be correctly re-assembled. "In our swing system that is not necessary. These instruments can be opened up and cleaned as one piece."

Thanks to variable programming and suitable devices, different parts can be automatically milled without set-up operation.

High percentage of exports

Small batch sizes are Tontarra's bread and butter. "Batch sizes of 10 or 20 are already big for us." Much greater is the number of variants: From a single raw material, about 2,000 different final products are produced, which leave the plant cut, hardened, polished, coated and assembled. The customers are primarily original equipment manufacturers all over the world. "We supply almost entirely abroad," reports Tontarra. "Our export share is over 80 percent."

To meet the growing demand and to cut delivery times, Tontarra invested

in one of the first automated systems to be used to make surgical instruments. It has already been about ten years since the company in Wurmlingen started to use a pallet automation based on System 3R. The disadvantage of such a solution is that you need a device for each individual pallet and that someone always has to equip the pallets with raw parts. It also takes time to move back and forth between the changing station and the machines.

For this reason, Tontarra has gone a step further for the production of Kerrison punches and has acquired a CHIRON FZ12 machining center with FLEXCELL UNO robot cell. The compact unit consisting of handling system and tool storage unit allows loading and unloading during machining. "The advantage here is that we can use one device to process different raw parts, one each for the main part and one for the slide part, without set-up operation," explains Erhard Sellwig, technical consulting and sales at CHIRON. Variable programming means that you then only have to select the individual part.

Different blanks can be inserted in the automation cell.

Fruitful cooperation: Erhard Sellwig (left), Technical Consulting/Sales at CHIRON, and company head Thomas Tontarra (right).

Automatic cutting of small and variable batches

"In this way we can automatically cut in small quantities in a variety of sizes," adds Tontarra. "In general, the running times for a main part and a slide part are 45 to 50 minutes. We can then, for example, mill ten 3-mm and ten 4-mm pieces overnight." Tool life and tool breakage monitoring as well as inline measurement make sure that no rejects are found then next morning. "We actually have the process under control now so that no longer happens. Even the typical run-in piece has become a thing of the past for us."

So the machines tend to work in shifts, although the employees themselves do not have to work in shifts. A clear advantage in the struggle for specialist staff: "Many just do not want work in shifts," says Tontarra. "In this way we have even been able to win over some employees from the automotive industry." In addition, the company has become more active in training apprentices. "We place great emphasis on training and cooperation with schools," says Tontarra.

He currently employs 11 apprentices; in the fall it will be 16 – quite a few for a company with about 130 employees. A training workshop was created during the course of the latest new construction. In an area of almost 300 square meters, everything is there from conventional lathes to a brand new 5-axis machining center.

Order-based production

The increased productivity through automation does not come at the expense of flexibility, but rather provides great planning advantages. Tontarra gives an example: "Suppose I get an order for 600 pieces each of three models, totaling 1,800 parts. I need a week for 100 pieces. Previously, I would have first milled the 600 pieces of the first type, then 600 of the second type, and so on. The contract, however, calls for the delivery of 100 pieces of each variety per month. That would have been impossible to do within the delivery deadline." With automation, he can work according to the contract and produce everything he needs at the moment without set-up operation.

Another advantage is the machine's compactness – which is quite important to Tontarra since floor space is tight. "We are actually growing too quickly. In 2006 we moved to our present location and built a production and administration building with a total of 3,500 sq ft of space. And just last year we started a new building with another 2,500 sq m, which we have now also moved into." With FLEXCELL UNO, the automation is integrated on less than one square meter; no safety fence is needed. "And you can easily move everything together with the machine," notes Sellwig.

Geographical proximity as a plus point

The robot programming is not demanding for Tontarra: "The solution comes complete from CHIRON. We always insert the same blanks, so we have hardly had to intervene in the automation. And if I even want to produce another part, I call CHIRON. Here, the proximity is a big advantage." The system concept also scales well. "The second machine we received was integrated within two days," Tontarra is pleased to report. "It was sort of a clone." Sellwig confirms: "The machine was delivered, the device was attached, we taught it what to do, and it was ready for production. Of course you must also have a tool shop close by to deliver the clamping devices on time, Tontarra notes.

His conclusion is positive: "We are very satisfied with the cooperation with CHIRON. There is always someone there quickly if needed. It is just right for us." "So it is quite conceivable that they acquire more machines from Tuttlingen. "But now we must first make money," the CEO says with a wink.

Source: Chiron

Grinding not turning

For the first time, plunge-cut grinding at high speed was optimised for grinding parts classically machined on automatic lathes or sliding head machines

The use of a profile grinding wheel allows plunge-cut grinding of the entire workpiece contour, so minimizing the grinding time.

They could scarcely believe their eyes. These lathe machining mechanics had been turning parts for decades. In most cases, using the very latest machines available on the market. They required just 25 seconds to turn a valve piston. Now they were astonished to witness how the Junker grinding specialist pressed the start button of the bright yellow Grindstar and just 7 seconds later the finished valve piston was transported out of the machine on a conveyor belt.

That was two years ago, when Junker commissioned its first Grindstar. The metalworking industry was initially understandably sceptical, as it assumed the performance claims to be exaggerated. Once the truth of the claims began to be confirmed, the industry realised that Junker had pulled off another quantum leap in the world of metalworking.

> Grinding achieves accuracy to an ISO tolerance of 6. A dynamic balancing system ensures absolute concentricity of the grinding wheels, which leaves behind a smooth surface.

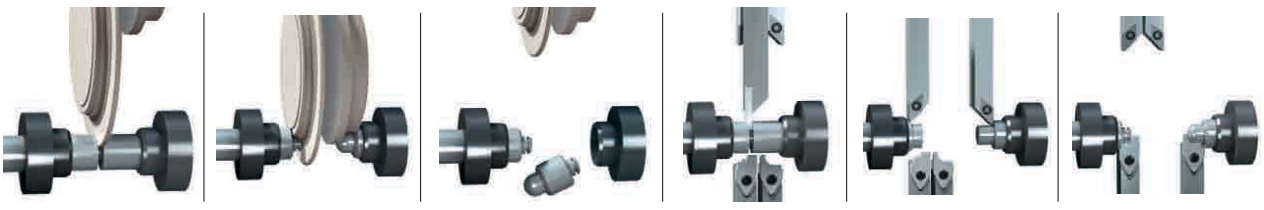
Utilising synergy effects

For the first time, plunge-cut grinding at high speed was optimised for grinding parts classically machined on automatic lathes or sliding head machines: For instance shanks, pistons and nozzle pins. To do this, the grinding machine uses the synergy effects of two machining methods: With up to two wheel heads, the Grindstar not only grinds the contour, it also cuts off the workpiece from the bar stock.

Fast, precise grinding

It all happens in just seconds (Fig. 1): Separating, profiling, ejection. With a feed rate of 200 mm/sec, the bar stock first enters the dual carriage machine directly from the loader. Using collet chucks, the workpiece spindle and secondary spindle hydraulically clamp the bar, which can be up to 6 m in length, and set it rotating. Then the first profile grinding wheel starts to move towards the bar. It cuts off the workpiece from the bar material in less than a second. Then two things happen simultaneously: First, the contour wheel at the end of the bar grinds the right end of the profile of the next workpiece. While secondly, the secondary spindle slightly moves to the side to allow the other grinding wheel with a different contour to finish the profile on the left side of the previously cut off workpiece.

Finally, the collet chucks open. A spring knocks the workpiece into the part catcher, which deposits the workpiece onto a conveyor belt. The feed bar with clamping sleeve then pushes



Lightening speed process: The high-speed grinding process has long since finished the job, while the lathe is still working away.

The Junker Grindstar is a dual-carriage grinding machine which combines plunge grinding with separation grinding.

the material bar into the grinding area and the high-speed cycle starts again from the beginning. If the bar loader detects that a bar has been almost exhausted, the feed bar with the 100 to 150 mm long waste piece is withdrawn from the machine and ejected from the bar channel.

A totally different approach than lathe machining

During lathe machining operations, the workpiece is subjected to extreme loads, and consequently the cutting forces restrict the speed of machining and extension length. For the machining process, the lathe requires three tools (cut-off insert, indexable insert and profile insert), which have to be moved into position each time (Fig. 1). By contrast, the cutting forces are far lower overall in a grinding machine, as they expose the workpiece to radial load. This is why the Grindstar operates using only two tools, the two profile grinding wheels, which have to be moved into position only once.

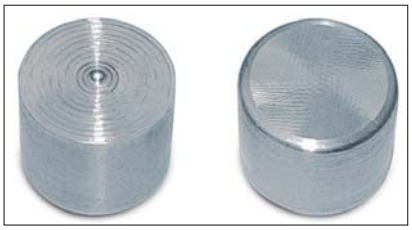
Turning leaves behind typical cut-off burrs on the workpiece center and also produces long continuous chips which impede the automation process and leave impressions behind on the workpiece. By contrast, ground workpieces do not require any finishing work (Fig. 4). In addition, scrubber nozzles ensure that no chips are left on the Grindstar's grinding wheels.

Dimensional and process stability

Grinding achieves accuracy to an ISO tolerance of 6. A dynamic balancing system ensures absolute concentricity of the grinding wheels, which leaves behind a smooth surface. The galvanically bonded diamond or CBN grinding wheels are specially produced to order. Consequently this is initial investment. Custom produced profile grinding wheels for complex applications can result in costs of several thousand Dollars. Compared to turning inserts, these constitute a considerable initial purchase cost. However, the Grindstar makes up for this and more when it comes to running costs. One of the development engineers puts it very concisely: The machine lives from the piece numbers it produces. Taking this into account, the achievable savings are enormous. The fully automatic grinding machine is simply far faster than a lathe and is hardly ever at a standstill. The thousands of abrasive grains in the grinding wheel are responsible for the sustained dimensional accuracy and process stability. In many cases, this high-speed grinding wheel will last for six months, even where the machine is operating around the clock, seven days a week. Once the grinding wheel is worn, it is recoated and its main body reused.

In addition, the wheels can be fitted with several profile shapes to allow workpiece families to be ground. This eliminates the need for unnecessary wheel changes. Generally speaking, the typical part spectrum of the Grindstar ranges in diameter between 2 and 20 mm. Also possible are parts with a diameter of up to 42 mm. Limitations are set by certain elements such as radii, which cannot be smaller than 0.2 mm. In the automotive sector particularly, the trend is moving increasingly towards ever smaller parts with a complex contour and stringent precision requirements. No wonder that an increasing number of Grindstar machines are at work reliably grinding parts day in and day out that used to be produced on a lathe.

In addition, the wheels can be fitted with several profile shapes to allow workpiece families to be ground. This eliminates the need for unnecessary wheel changes.



Left: **The lathe leaves a residual cut-off burr in the center of the workpiece.**
Right: **The Grindstar delivers a workpiece free of cut-off burrs or chip impressions.**

Treatment of the grinding sludge

Grinding sludge formerly required costly disposal as special waste. Junker has addressed this problem and over recent years has developed a new process for the treatment of grinding sludge. This draws sufficient oil from the grinding sludge that it contains below the minimum value for customary metal scrap. As a result of the separation process, the oil does not sustain any loss of quality, and is therefore returned for used as a coolant. This creates a sustainable cycle.

Summary

Junker has considered every conceivable aspect in the development of the Grindstar package: Short cycle times, a high degree of automation and optimum waste treatment.

Source: Erwin Junker Maschinenfabrik GmbH

Measuring **success**

As manufacturers' measurement needs become more complex, precision and speed in quality checks become more sought after, says **Hakiran Sandhu**, Country Manager, FARO, India

By Niranjan Mudholkar

Please share a brief background on FARO India in terms of its presence and product offerings.

FARO is a global technology company that develops and markets computer-aided coordinate measurement devices and software. Our global headquarters is located in Lake Mary, Florida, with a European head office in Stuttgart, Germany, and an Asia Pacific head office in Singapore.

In order to streamline processes and maintain the highest and most consistent quality standards, the processes of research, production, procurement, testing, and certification are co-located on the same premises for individual product lines. At present, our products are manufactured in the United States and Germany.

Locally, our offices are in New Delhi (Head Office) and Chennai. Our presence here has enabled us to provide sound support to our customers in the region. In terms of product offerings, we have several product lines that are broadly categorised into two main groups according to function: 3D Measurement and 3D Documentation. Our best-selling product line is the FaroArm®, which has enjoyed tremendous success with our customers. Its latest addition is the FARO® Edge ScanArm HD, a high performance contact/non-contact device that supports rapid point cloud collection with extreme resolution and accuracy.

How do your products add value to the Indian manufacturing sector?

India is a growing market with much potential for us. It is becoming increasingly developed due to its growing literacy levels and thriving talent pool. Our employees have also noticed, on multiple occasions, that Indian manufacturers have high regard for products that can abide by and meet international standards.

Naturally, these companies are willing to invest in quality equipment that can stand up to close scrutiny. In this regard, we are glad that our ISO-certified devices allow customers to achieve various certifications in their respective industries, including ISO and API accreditations, to name a few.

As the manufacturing industry grows in maturity, manufacturers develop higher standards and demands for precision and speed in quality checks. With manufacturer's products and measurement needs becoming more complex, and their quality control and inspection tasks becoming more intricate, sophisticated measuring equipment like ours becomes crucial for manufacturers. For this reason, we regard India as a key market and we believe that our products will continue to find favour here.

> "As the manufacturing industry grows in maturity, manufacturers develop higher standards and demands for precision and speed in quality checks."
>
> **Hakiran Sandhu,**
> Country Manager, FARO, India

Name the key industry sectors you are catering to.

Due to the versatility of its measurement devices and software, we serve a wide range of industries including automotive, aerospace, die and mould, mechanical engineering, heavy machinery, architecture, heritage, forensic and mining. Growing awareness of the benefits of portable 3D measurement and documentation have led manufacturers in these industries to gradually adopt more innovative devices, which have resulted in positive contributions being made to their businesses.

Please tell us about some of your recent launches for the manufacturing sector.

As a global company, FARO is highly attuned to the industry's trends and demands. To remain at the forefront of our industry, we continually invest in developing new 3D measurement technology to cater to our customers' needs. Our

customers entrust us to develop quality products that meet their measurement needs, and we launch new products into the market only when they are deemed ready.

Designed with our customers in mind, the user-friendly handheld portable 3D laser scanner is equipped with a Microsoft Surface™ tablet and allows the user to view point cloud data as it gets captured. With no warm up time required, the self-compensating optical system also features memory-scan technology, enabling users to pause scanning and resume data collection easily without the use of artificial targets.

What will the highlight of your participation at Blech India 2015?

At Blech India 2015, we will showcase our cutting-edge technologies, including the FARO® Edge ScanArm HD (Laser Line Probe HD), the FARO® Gage, and the FARO® Laser Tracker Vantage at our booth, B60.

The FARO® Edge ScanArm HD is the latest addition to our best-selling FaroArm® product line. The high performance contact/non-contact device supports rapid point cloud collection with extreme resolution and accuracy. A noteworthy addition to FARO's existing product line, the ScanArm HD is an affordable measurement device that features an extra wide scan stripe that increases scanning coverage, plus a new blue laser that offers noise reduction. The ScanArm HD is an ideal tool for product development, inspection, and quality control.

Additionally, daily product demonstrations of the FARO® Edge ScanArm HD, FARO® Gage, and the FARO® Laser Tracker Vantage will take place at our booth. The demonstrations will be held all-day to help visitors in their understanding of our metrology devices.

Any other recent initiatives taken by the Company?

We have also recently unveiled the third edition of the annual FARO 3D User Conference for the Asia Pacific region. Catering to 3D documentation communities from various industries, the 2015 conferences will take place in China, India, and Japan between June and September.

What are some of the key industry / technology trends?

Over the years, there has been an increase in demand for accuracy, reliability, and ease of use across the sectors and industries that we serve. As manufacturers' measurement needs become more complex, precision and speed in quality checks become more sought after. These demands will continue to grow well into 2015 and beyond, as measurement standards improve and evolve in time to come. Especially in India, we believe there is much potential to uncover, as manufacturers strive to achieve international standards and certification.

We also believe that this year, 3D printing – also known as addictive manufacturing, will continue to grow in popularity. We are well-prepared with a suite of advanced solutions to target this specific market need. Our FARO® Laser Scanner Focus3D and FARO® Edge ScanArm HD offer end-users with powerful functionality and simplicity in small packages, and FARO's Laser Scanner line of products (FARO® Laser Scanner Focus3D X Series) are capable of capturing high-resolution point clouds that can be processed into data models for re-production of objects.

How geared up is FARO to address the aforementioned trends?

Our strong relationships with our customers have enabled us to understand their needs more clearly. We regularly collect feedback from our target audience, and invest accordingly in R&D to apply the latest advances in technology to improve our product offerings. Manufacturers can look forward to more groundbreaking, disruptive technology from FARO in the future. It is imperative that we continue to do likewise to ensure that we meet market needs today and anticipate new ones tomorrow.

We are committed to our business in Asia Pacific and will constantly look towards expansion, though future growth and development will always be in tandem with business needs. We remain dedicated to our customer base and will spare no efforts in ensuring adequate assistance for customers.

How has the ongoing financial year been?

Although economists are forecasting modest to moderate growth for the global economy this year, FARO remains expectant and hopeful of good growth with the recent launch of the FARO® Scanner Freestyle3D and both acquisitions. For our business here in Asia Pacific, we continue to expect a 20-25 percent year-over-year (YoY) growth.

Separately, we observe that strong performing industries in India continue to be the metal fabrication, die-and-mould, automotive, heavy machineries, and construction industries. And we remain committed to providing our expertise and solutions to manufacturers across these fields.

Good drills also come in small packages!

TaeguTec has extended the application range of the successful DrillRush line by introducing 6.0-6.9 millimeter diameter range drill heads for 1.5xD, 3xD and 5xD drilling depth holders.

This innovative exchangeable drill's performance exceeds small carbide drills available in the market today for small diameter machining.

The new DrillRush small diameter tool's rigid clamping system for stable drilling offers excellent performance and high productivity in small diameters and is also available for ISO M8 standard pre-thread hole machining.

TaeguTec's new small DrillRush line's interchangeable head eliminates the need remove the entire drill from the spindle in order to replace the head; a process that shortens the work load into a single operation which in turn shortens cycle times and substantially increases productivity.

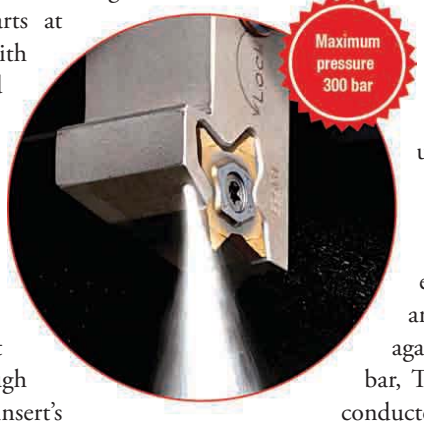
Like all DrillRush products, the body's polished flutes offers smooth chip evacuation without damaging the surface finish.

T-Bursting Through Difficult-to-cut Materials

In order to meet the machining needs of difficult-to-cut materials such as titanium, Inconel and other heat resistant alloys, TaeguTec has introduced the T-Burst high-pressure coolant tool for groove-turning and parting.

In parting and grooving applications, the ability to supply high-pressure coolant generates good chip breaking, reduced cycle times and increased tool life on most materials but on difficult-to-cut materials, the rules change because it becomes harder to ensure effective chip breaking specifically with standard external coolant in low feed rate operations.

The new addition to the T-Burst line fixes those challenges and helps machinists excel in creating superior highly productive parts at a lower cost when working with exotic materials under low feed rate conditions.



With the coolant outlet located on the upper jaw, directly over the insert, TaeguTec's T-Burst high-pressure coolant, which is supplied through the tool holder's internal coolant channel, shoots out with enough force and speed to the insert's cutting edge thus allowing for lubrication of the material and cutting tool, as well as effective cooling, excellent chip breaking and increased tool life while preventing built-up-edges.

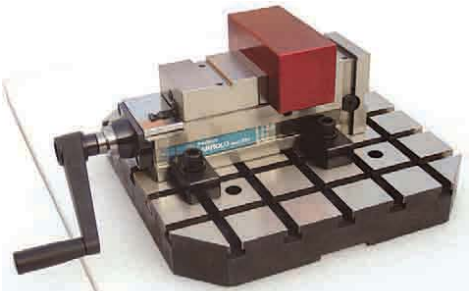
The T-Burst high-pressure line is available in two tool holder types: TTER/L-TB, TTER/L-SH-TB holders and TQHR/L QuadRush tool holders.

The T-Burst tool holders apply through coolant up to 340 bar and achieves improved tool life compared to normal coolant pressure external type tool holders.

In quality tests designed to compare the effectiveness of the new T-Burst line's groove-turning and parting operations on difficult-to-cut materials against tools that supply normal external coolant of 10 bar, TaeguTec increased tool life on grooving operations conducted on Inconel 718 by as much 75 percent in one test, by 400 percent while machining titanium alloy on another test, 50 percent on stainless steel and an incredible increase of 800 percent tool life on aluminum alloy.

Contact: TaeguTec India P Ltd. Tel: +91-(0)80-27839111 Fax: +91-(0)80-27839123 E-mail: sales@taegutec-india.com

Fresmak ARNOLD MAT Vice



High Pressure ARNOLD MAT vices maintain their length irrespective of the size of the part, being specially ideal for use in machining centers. Due to the fact that all the surfaces are grinded the user can count with a parallelism and perpendicularity of 0.02 mm. It is possible to place the vice in different working positions, that is, supported on the base, on the side or on the head vertically, which makes the vice suitable for working in horizontal and vertical machining centres. There are 6 types of ARNOLD MAT vices 3 manual and 2 automatable ones. ARNOLD MAT Mechanic, ARNOLD MAT Hydraulic and ARNOLD MAT Prox vices can be operated manually. Moreover, the mechanic and the hydraulic versions are also available with a pressure regulator that controls the clamping force at different intervals. Thus enables to clamp rigid components at high pressure and slender components at accurate and lighter pressures.

The automatable types are ARNOLD MAT Pneumo-Hydraulic which needs compressed air pressure at a minimum of 6 bar, ARNOLD MAT Oleo-Dynamic which needs a supply of hydraulic pressure of 500 bar and ARNOLD MAT Automat which does not need an external hydraulic unit because it can be connected directly to the hydraulic clamping in the machining centers. All these vices are ideally aimed for long lasting machining processes.

For more customised solutions please contact: Fresmak ARNOLD Precision Engineering Pvt. Ltd; Tel No +91 (80) 6765 4250, Email info.india@fresmak.com Website: www.fresmak.com

ECO-Cut - The Original Multifunctional Tool

A variety of tools are usually required for drilling, turning and boring components during production. Changing the tools can lead to size variations in the work piece, increase downtime and require additional tool inventory. In response to these issues, CERATIZIT developed the multifunction tool EcoCut: it can turn both internal and external profiles, and can also be used for drilling solid material. The standard diameters of the EcoCut-Classic range from 8 to 32 millimetres, while EcoCut-Mini is available in sizes from 4 to 8 millimetres. EcoCut-Mini is made entirely of carbide, which makes it extremely stable and prevents vibrations. To coincide with the 20th anniversary of EcoCut, CERATIZIT has updated the entire EcoCut program. The tools have a new design and have been improved down to every last detail. The three new carbide grades are suitable for stainless steel, cast iron and heat-resistant alloys. The EcoCut Mini range consists of two new carbide grades: uncoated and sharp-edged for aluminium and nonferrous metals, and a universal coated grade for other materials. All this means the original multifunction tool can now perform even more effectively, and can be applied in a variety of ways thanks to its different dimensions.

ECO Cut- The Original

For more information: www.ceratizit.com/

DX-60 – For small precise components

DX-60 is developed keeping in view industrial requirement of small precise components in huge quantities, especially for non ferrous materials. The slant bed machine with monoblock structure is designed to keep the rigidity at higher dynamics and reduces vibrations even at higher parameter providing it better rigidity while machining and ability to absorb torsion. For multiplying the productivity options like bar feeder and Gantry auto loading are available. Linear tooling system enables to avoid time consumed for indexing of turret as the tool change time is quite fast.

DX-200/4 - Produce world class products quickly, accurately

In today's competitive market, one needs to produce world class products quickly, accurately & with minimum of non-productive time. With DX-200 Series, one can find a range of high technology CNC Turning Machines with fastest throughput. DX-200 4 with Step-up concept enables consistent machining performance because of widely spaced guide ways, even with bigger diameter. With this unique feature the machine delivers optimum performance to match demand of various work piece size applications.

Contact - Jyoti CNC; Phone: +91-2827 - 287081/082; Fax: +91-2827 - 306161 / 287 811; Emails: info@jyoti.co.in / sales@jyoti.co.in; Website: www.jyoti.co.in

Flexible lightweight maximizes the field of application of milling/turning machines

SCHUNK, the competence leader for clamping technology and gripping systems has developed the highly flexible manual chuck ROTA-S flex particularly for users, who want to ma-chine a possibly wide workpiece range on milling/ turning machines. It is a combination of the proven lathe chuck of the serie ROTA-S plus with extended guideways, and transforms them into large, light chucks, which are particularly versatile in use. Compared to conven-tional lathe chucks used for large clamping diameters, the weight with ROTA-S flex drops down to 60%. At an identical table load much heavier workpieces can be machined, and due to the low height enough space remains for the workpiece and the tools. On the other hand, for machining smaller workpieces the extended guideways can be easily disassem-bled, so that the workpiece accessibility has been considerably improved compared to a clamping application with conventional large chucks. A special lubrication system ensures for permanently high clamping forces of both variants. Dirt seals prevent chips and dust from entering the workpiece. The ROTA-S flex can be easily assembled on a machine table, and by using the optimized jaw quick-change system, retrofitting can be done within se-conds. The chuck clamps small parts as reliably as large ones, and thereby ensures maxi-mum operator's safety. The clever clamping solution is available in the sizes 700, 1000, and 1200 for ROTA-S plus, and the manual chuck ROTA-S plus 2.0 is available in sizes 315, 400, and 500. Depending on the size, the chuck (without top jaws) weighs 170 kg, 360 kg, or 490 kg. The ROTA-S flex can be combined with numerous chuck jaws from the 1,200 types of the world's largest standard chuck jaw program from SCHUNK.

SCHUNK ROTA-S flex allows clamping of different workpiece sizes. The versatile manual chuck can be modified in no time.

Contact: Satish Sadasivan; Schunk Intec India Private Limited;
Ph.: 080-40538999; Fax: 080-40538998;
Email: info@in.schunk.com; Web: www.in.schunk.com

UPDATE

BFW 2.0 as a tribute to 'Make in India'

Padma Shree and Khel Ratna awardee Gagan Narang unveiled the new corporate identity of Bharat Fritz Werner Limited (BFW). The trusted engineering company is transitioning to grab the bigger share of growing opportunities and gearing up to becoming one of the top 20 global players by 2020. With Govt. of India's 'Make in India' clarion call, the company is upbeat about retaining its leadership in India and simultaneously increasing its global footprint. The new organisation has a group of best engineers who would specifically focus on Import substitution and increase the share of Make In India machines tools.

Gagan Narang, (Padma Shree and Khel Ratna awardee) with BFW CEO Ravi Raghavan and AK Kothari, Chairman, BFW.

According to Ravi Raghavan, CEO, BFW "Our Company is on the threshold of massive re-engineering in both the strategic and operational levels. Some of the completed initiatives have been very productive and encouraging. Dependable products, innovation and nimbleness would endorse the new BFW brand values." He further added that, "We are privileged that Mr Gagan Narang is among us. If we were to draw parallels between machine tools and sports, probably shooting is the best sport to illustrate this. Both are based on precision, accuracy and consistency. Who else can illustrate this better than our Indian shooter of global repute." Speaking on the occasion, AK Kothari, Chairman of Kothari Group, expressed his pride for Narang. Talking about BFW, he said that he was encouraged to see BFW reposition itself with fresh energy and new thoughts. With years of customer trust and its cores strength of People and Technology, BFW would unleash next generation products and solutions to the manufacturing industry.

Inductive hardening at the CIMT 2015

An ever increasing production volume in passenger cars constantly poses new challenges for the manufacturer. Only optimised production processes can ensure that required production quantities and desired productivity levels are brought into line. When it comes to the large volume of central components that have to be produced, it is worth to have another look at the latest offerings of the machine tool trade. Take eldec, for instance – a company in the EMAG Group, who will be demonstrating the efficiency of today's induction hardening systems at the China International Machine Tool show (CIMT) that takes place from the April 20-25 at the New China International Exhibition Centre (NCIEC) in Beijing. The MIND-M that eldec will present is a modular but compact hardening system that can be configured to suit a large number of different manufacturing scenarios.

With its MIND-M eldec presents an extremely compact induction hardening machine, where the designers have succeeded in combining energy source, cooling unit and processing cell into one complete system, mounted – with great space-saving effect – on a single, compact machine base. The machine is available in 2 versions, for workpiece lengths of 250 mm or 1000 mm and can – thanks to its modular design and individually made inductors – be customized to suit a large variety of manufacturing requirements.

The MIND-M is used for the inductive hardening of shaft components with a maximum length of 1,000 mm (MIND-M 1000) and chucked components with a maximum diameter of 350 mm.

MIND-M consists of three separate modules:

- The energy container that includes the generator, the machine control and the recooling system
- The cooling system for the energy and quenchant circuits
- The process cell, including all the mechanics

Of decisive influence in the configuration of the various modules are the workpiece and the production environment. The generator capacity is max 37 kW HF and 100 kW MF. The cooling capacity for energy and quenchant is max 50 kW. The MIND-M can be loaded using any one of the established options, from manual to the use of grippers and on to robots. The workpieces are machined either with a single or a twin-spindle unit, which are complemented by an opposing single or twin-tailstock respectively. The latter combination allows for two workpieces to be hardened simultaneously.

With the focus on shafts: Owing to its max travel in Z of up to 1,050 mm and max component diameter of 350 mm, the MIND-M is ideal for the machining of shafts. But the experts from eldec have met yet another challenge by developing a special system for the machining of shafts with hardened bearing seats. Having to harden a number of bearing seats on a shaft means that both heating and cooling of the component must follow each other rapidly, so as not to reduce line productivity levels. At eldec, this requirement is met by having the inductor and the cooling spray aligned in such a way that cooling and heating are carried out in parallel. Or to be exact, the cooling spray follows the movement of the inductor and cools down the bearing seat below the one that is being hardened. It is here that the high degree of precision of the MIND-M comes into its own, as it allows for a highly precise approach and hardening of the bearing seats. Furthermore, every parameter for every hardening process is, of course, logged, ensuring continuous quality control.

Compact induction hardening system: With its MIND-M eldec has developed a hardening system that suits an almost unlimited range of applications. Furthermore, the small footprint ensures that the machine can easily be used in a great variety of environments. It also makes transporting the MIND-M within the factory comparatively easy.

For more info: www.emag.com

igus presents a new energy supply system

To be able to always achieve faster accelerations and speeds in aisle travels, igus has developed an energy chain supply system completely made of plastic. This is characterised by low weight and moreover, easy installation. Visitors to the igus stand at the Hanover Fair in Hall 17 experienced this innovation and more 'motion plastics'.

igus has advanced its guidelok slimline system once again and now presents the new GLSL-P, which is entirely made of plastic. The guide system for hanging energy chain applications does not require an enclosed channel trough or other elaborate, expensive enclosures and holds the energy chain system as in aisle travels on the railway. Instead, lightweight plastic segments are mounted only every two metres, which saves up to 80 percent trough costs and also weight compared to the previous metal option. Therefore, even faster speeds and accelerations can be achieved. Another advantage of the plastic novelty is that vibrations are absorbed better. "The lightweight guide rails made of fibreglass can easily be plugged into the plastic segments of GLSP-P, hence, implementing the installation completely without tools, leading to a reduction in costs yet again," explains Christian Strauch, industry manager for materials handling at igus.

igus presents its new GLSL-P, a lightweight and affordable guide system, which consists entirely of plastic and is designed for hanging energy chain applications. *(Source: igus GmbH)*

Secure hold for energy chain system: Two automatically actuated compensators in the segments of the guidelok slimline P fix the e-chain and ensure a quiet, smooth run. If the chain moves in the radius through the segment, the compensator is activated and fixes the energy chain. The innovative locking levers are complemented by open guide rails made of reinforced plastic between the segments, which allows for more dynamics.

For more details contact: Harish Bhooshan, Product Manager, E-ChainSystems® & ReadyChains®, igus (India) Private Limited; Phone: +91-80-45127809 (Direct); Email: Harish@igus.in; Website: www.igus.in

Optional Nozzle Changer now available on Impuls 6020 Laser Cutting System

Impuls laser cutting machine

Nozzle changer

LVD Company nv now offers its optional nozzle changer on its Impuls 6020 CO2 laser cutting systems. Featuring storage for 10 nozzles, the option brings greater autonomy, reduces piercing times and increases overall throughput on large table capacity laser systems.

LVD's Nozzle Changer: Following the successful integration of the nozzle changer on its Sirius Plus CO2 laser systems, LVD is extending the option to its large table capacity Impuls 6020 Lasers to address heavy plate fabrication requirements.

As materials and thickness change throughout the production day, the machine will select the right nozzle for each and every job. Requiring no operator intervention, the nozzle changer reduces downtime, by quickly performing nozzle changes including cleaning the nozzle and checking the nozzle alignment.

For more information, Contact: Kurt Van Collie, Product Manager Lasers, Tel: +32 56 43 05 11 - kvcl@lvd.be or visit website www.lvdgroup.com.

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