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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

THE MACHINIST

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19th ANNIVERSARY

Cover courtesy: Suchitra Ella, Managing Director, Bharat Biotech International Ltd

**CELEBRATING 10 YEARS OF
MAKE IN INDIA**

AN ODE TO MANUFACTURING EXCELLENCE

As India celebrates a decade of Make in India, The Machinist Magazine pays tribute to manufacturing giants fostering innovation, transforming the nation into a global manufacturing hub, and contributing significantly to economic growth and self-reliance. The Anniversary edition spotlights industry stalwarts outlining their vision for Amrit Kaal 2047.



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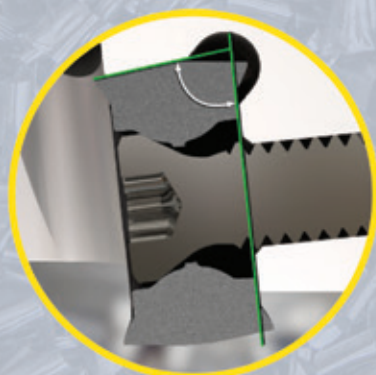
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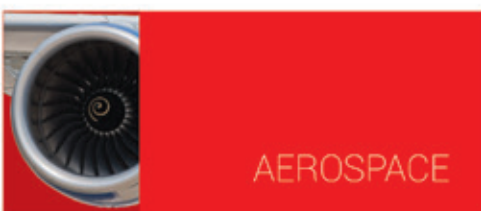
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A DECADE OF PROGRESS AND THE ELECTIONS AHEAD...

THE ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
MACHINIST
Volume 19 Issue 1 January 2024



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Dear readers, this year marks a pivotal moment as 50 nations, including key players like the United States, United Kingdom, Russia, South Africa, and India, embark on the critical process of electing new governments. That said, what a joyous moment for me too as The Machinist completes 19 years of its existence and India will celebrate 10 years of Make In India, an initiative which was launched by the Modi government in 2014 September. What's more? The Festival of Manufacturing is an idea curated by our team that will take place on 7th March 2024 in Delhi and is garnering huge support from the manufacturing fraternity.

Talking about our current edition – The 19th Anniversary Edition – will witness who's who from the manufacturing sector like Boeing, Bharat Biotech, Tata Motors, Alstom, Godrej and Boyce, Haldia Petrochemicals, ExxonMobil, Switch Mobility, RR Kabel, ideaForge, Luminous Finolex, Kent RO, Hindustan Zinc, to name a few, putting their thoughts together on 10 Years of Make in India.

That said, the democratic exercise of elections not only embodies the foundational principles of democracy but also exerts a profound influence on the corporate sector. The stability and predictability offered by consistent governmental policies are indispensable for fostering long-term economic growth.

A closer examination of the current government's initiatives reveals several structural reforms that have yielded substantial economic benefits, especially for the manufacturing sector. The government's efforts to invigorate manufacturing-focused sectors deserve recognition. This is because India's GDP growth for FY24 as per FAE at 7.3 per cent has come as a positive surprise. The stellar growth has been led by the manufacturing sector and construction sector.

Historically, India's manufacturing sector has lagged behind its Southeast Asian counterparts, such as China. To address this, policies like the Production Linked Incentives (PLI) schemes have been introduced across various sectors including electronics, mobile phones, pharmaceuticals, and food processing. These initiatives capitalise on India's strengths like abundant manpower, technological capability, and strong domestic demand.

Although the full impact of these schemes is yet to be realised, their long-term focus is poised to enhance global competitiveness and self-reliance in the manufacturing sector. In conclusion, while the current government has achieved significant milestones in economic reform and development, the journey towards sustained economic growth is ongoing. Therefore, the continuity of these policies is crucial, and hence the continuation of the current government too.

Maintaining the momentum in critical focus areas such as infrastructure development will be key determinants of India's economic trajectory in the coming years.

Happy Reading

R. Kamat
Editor

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Hasteri certified as first proficiency testing provider of tyres rolling resistance measurement

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(HASETRI), becomes the world's first accredited proficiency testing provider (PTP) for rolling resistance tests by the National Accreditation Board for Testing and Calibration Laboratories (NABL). The unique certification is awarded according to ISO 17043:2010 standards for the testing of three key categories: C1 (passenger car tyres), C2 (light truck tyres), and C3 (heavy truck tyres). The recognition is based on the evaluations of various parameters under the chemical and mechanical sub-disciplines at HASETRI.

The certification, valid from November 30th, 2023, to November 29th, 2025, positions HASETRI at the forefront of proficiency testing power,

reinforcing its commitment to excellence in the field of elastomer and tyre research. The achievement highlights HASETRI's dedication to employing simulation and prediction techniques to optimise product performance and design cycle time.

Raghupati Singhania, President HASETRI, said, "HASETRI's success in garnering accreditation as a Proficiency Test Provider is a testament to our continuous pursuit of quality and innovation. The recognition is a strong reflection of our laboratory and our team's commitment towards developing world-class standards in areas of overall personnel competency and allows for peer group comparisons of test results."

The accreditation services for Proficiency Testing Providers (PTP) are awarded in a range of disciplines,

including testing, calibration, medicine, and inspection. The process involves a formal recognition of technical proficiency for specific tests or measurements, with evaluations conducted by external parties in adherence to international standards. It is one of the evaluation tools for National Accreditation Bodies to judge the competence of the laboratory under accreditation.

HASETRI is an independent research and testing laboratory in India located in Mysuru, Karnataka, and is recognised as a Scientific Industrial Research Organisation (SIRO) under the Department of Science and Technology (DST), Government of India. It is an accredited laboratory as per the ISO/IEC 17025:2017 standard for chemical and mechanical testing of rubber and rubber products.

Snowman Logistics expands capacity in Northeast India



SNOWMAN LOGISTICS LIMITED, a leading cold chain and integrated temperature-controlled logistics service provider in India, has initiated operations at a newly leased multi-temperature-controlled warehouse in Guwahati, Assam. The total capacity of the warehouse is 5,152 pallets and this facility features eight chambers and four loading bays, equipped with the latest infrastructure. Specifically designed to accommodate products from ambient temperatures to minus 25 degrees celsius, the warehouse will primarily focus on providing storage, handling and transportation services for ice cream, poultry, ready-to-eat food, dairy products, confectionery, bakery products, seafood, fruits and vegetables.

Sunil Nair, CEO, Snowman Logistics, said, "With this expansion, our overall pallet capacity has soared to an impressive 1,41,000+ pallets, strategically distributed across 20 cities, thereby expanding our foothold in Northeast India. As an organisation, we take pride in setting industry operating benchmarks. With the inauguration of the Guwahati facility, Snowman Logistics reinforces its position as a leader in the logistics industry, poised to continue its journey of growth and innovation."

Kia India names Gwanggu Lee as MD and CEO

KIA INDIA, the country's premium carmaker, has appointed Gwanggu Lee as the new Managing Director and CEO, effective immediately. He will be the 3rd Managing Director and CEO of Kia India, succeeding Kook Hyun Shim and Tae Jin Park. Kia India's former MD & CEO - Tae Jin Park, is retiring after his remarkable 36-year journey with Kia Corporation and 4 years stint with Kia India.

Lee has held leadership positions in various capacities in both developed and developing economies, including roles in the US, Canada, Italy, Mexico, Kia Headquarters in Central and South America, and Kia Europe Headquarters in Germany. His recent role as President at Kia Mexico played a pivotal role in the company's substantial growth and establishment as a production and export hub.

Gwanggu Lee, MD, and CEO, Kia India, said, "I am very excited to assume this responsibility as Kia India has become one of the most loved and trusted brands in just 4 years. With two segment-breaking updates – the new Seltos and the new Sonet and a host of more innovative products on the way, Kia India is surely on the right path to sustainable business growth. My vision is to unlock the next phase of growth through inspiring Kia brand experiences thereby creating more value and long-lasting impact for our customers, partners, and employees alike."



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Continental and Aurora finalise design of scalable autonomous trucking system

CONTINENTAL AND AURORA INNOVATION

have finalised the design and architecture of the future fallback system and hardware of the Aurora Driver, an SAE (Society of Automotive Engineers) Level 4 autonomous driving system that Continental plans to start production of in 2027. The finalised hardware design comes less than a year after the companies entered a partnership aimed at high-volume manufacturing of autonomous trucking systems.

Aurora has teamed up with Continental to jointly develop reliable, serviceable, and cost-efficient autonomous hardware kits for mass production. The partnership gives Aurora a path to deploy autonomous trucks at scale after its initial driverless launch, planned at the end of 2024. The future Aurora Driver will be designed to deliver customer value for one million miles.

“Technologies for autonomous mobility present the biggest opportunity to transform driving behaviour since the creation of the automobile,” said Philipp von Hirschheydt, Executive Board Member, Automotive Group Sector, Continental. “Achieving this milestone puts us on a credible path to deploy easy-to-service autonomous trucking systems that customers demand.”

Aurora is also working with Continental to provide an industrialised



fallback system that is expected to go into production in 2027. To operate safely without a human driver, autonomous vehicles require built-in redundancies that provide backups in the rare case a component or sensor fails. One of these redundancies is the fallback system, a specialised secondary computer that can take over operation if a failure occurs in the primary system. This innovative dual engineering approach is intended to reduce the exposure of the main and fallback systems to single points of failure.

“From day one, we knew we’d need to build a strong ecosystem of partners to bring this technology to market safely and at a commercial scale,” said Chris Urmsom, Co-Founder and CEO, Aurora.

The Path to the Start of Production in 2027

The four-year partnership roadmap includes:

2023: Blueprint and Design: Aurora and Continental have aligned on the detailed system architecture, key requirements,

and detailed technical specifications of the Aurora Driver hardware.

2024-2025: Build and Test: Continental will build initial versions of the hardware for testing at its new facility in New Braunfels, Texas, USA, and across its global manufacturing footprint.

2026-2027: Finalisation, Start of Production, and Integration:

Continental will industrialise and validate the future Aurora Driver hardware and fallback system before the start of production at its facilities. The hardware will leverage Continental’s automotive product portfolio, including sensors, automated driving control units (ADCU), high-performance computers (HPC), telematics units, and more. The hardware and fallback system will be shipped to Aurora’s trucking manufacturing partners for integration into autonomous-ready vehicles. During this phase, the companies will also develop a service playbook and maintenance network for Aurora’s customers.

2027 and beyond: Deployment at Scale: Thousands of trucks integrated with the Aurora Driver are ready to autonomously haul freight across the U.S.

Von Hirschheydt added, “Being the industry’s only tier-one supplier with a commitment to industrialise autonomous hardware kits at scale allows us to be at the forefront of and capitalise on this ground-breaking technology.”

Grasim wins Silver under Excellence in BRSR-Large Cap

GRASIM INDUSTRIES LIMITED won ‘Silver’ in Sustainability Reporting under ‘Excellence in BRSR-Large Cap (Manufacturing Sector)’ at the 3rd ICAI Sustainability Reporting Awards 2022-23.

The ceremony was hosted at the National Stock Exchange (NSE) premises in Mumbai to recognise, reward, and encourage initiatives by businesses with a transformative contribution to the 2030 Agenda for Sustainable Development. Ashish Chauhan, MD & CEO, National Stock Exchange and CA Aniket Talati, President ICAI, presented the award to Grasim, represented by Pavan Jain,

CFO, Grasim, who was joined by Ankit Panchmatia, Head Investor Relations, and Sheetal Daga.

“Grasim has the distinction of winning the ICAI Sustainability Reporting Award for the third consecutive time,” stated Pavan Jain, Chief Financial Officer (CFO), Grasim Industries. He added, “The award recognises Grasim’s focused ESG journey over the past few years and reporting well ahead of regulatory requirements.”

The selection was made through a robust 3-tier process: Review by technical reviewers on defined parameters, review



of short-listed sustainability reports by shield panel and selection by external jury consisting of representatives from across the globe from regulatory bodies, industrialists, philanthropists, professionals, academicians, etc.



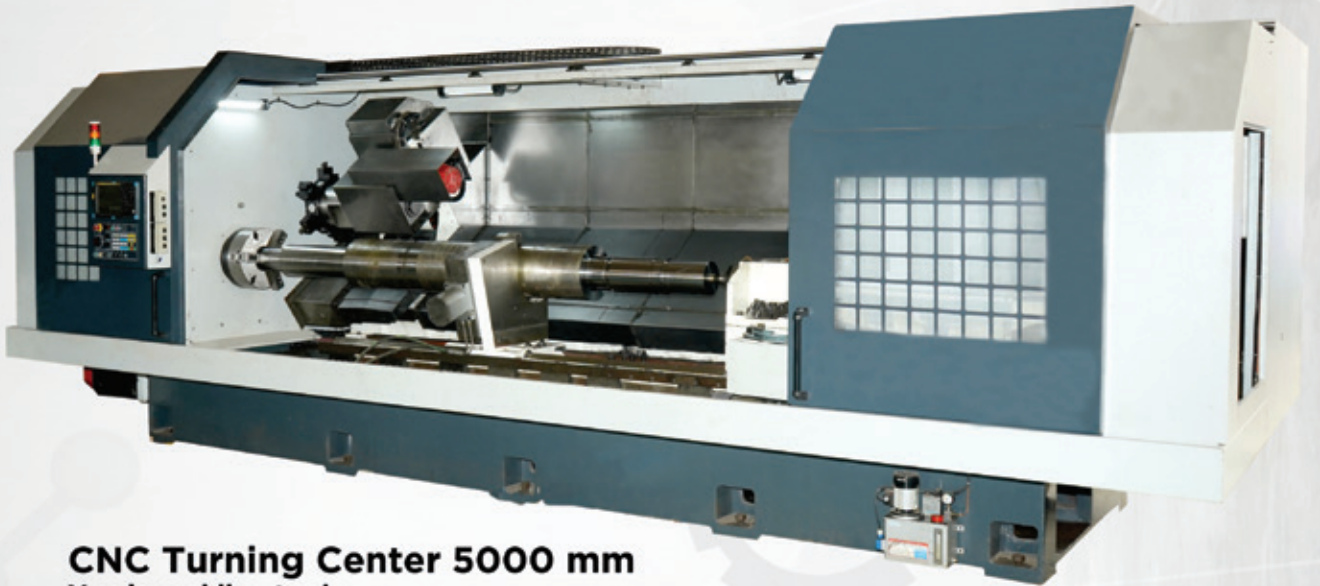
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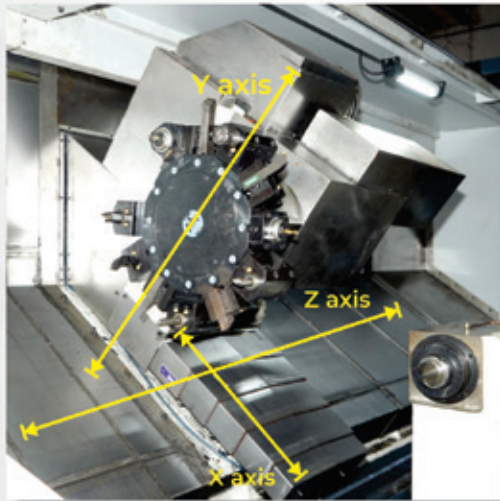


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ETO Motors selects 150 auto drivers under the Own Your ETO Scheme

ETO MOTORS, India's largest Electric Mobility as a Service (EMaaS) company, has onboarded 150 drivers in Mumbai under the Own Your ETO (OYE) Scheme. This is a first-of-its-kind scheme aimed at the 3-Wheeler auto drivers in Mumbai.

The driver partner recruitment drive was held on December 28, 2023. Shri Jitendra Babu Rao Patil, Joint Transport Commissioner, Government of Maharashtra, was the Chief Guest at the event. The event had over ten auto unions participating, and 150 auto drivers were selected under the OYE Scheme.

Under the Own Your ETO Scheme, a driver partner will become owner of the electric 3-wheeler in 3 years. Besides, ETO Motors will also provide accidental insurance to the driver.

ETO Motors has entered into a formal agreement with auto unions in Mumbai to support the deployment of e3Ws in the city. ETO Motors will charge a daily rental from the driver partners. This rental will include free unlimited charging at specially designated EV charging points being set up by ETO Motors. ETO Motors will also provide free vehicle maintenance by experts to ensure a hassle-free ride for driver partners and commuters.



All partners will use the ETO-provided app, which will enable them to get access to commuters who are hailing rides in the vicinity. The driver partners will have to complete a minimum of 95 trips per week without cancellation. The driver partners will have their earnings through the APP transferred to them every week under the OYE Scheme.

Existing auto drivers desiring to become owners on an E-Auto under the Own Your ETO scheme need to have a verified local address (Electricity or Gas bill), a valid 3-wheeler license, and an identity card (Aadhar Card or a PAN Card or a VOTER ID or a VALID

PASSPORT).

Surrender Nath, Executive Director, ETO Motors, said, "We believe in partnering with drivers, both men and women, and give them an opportunity to earn a decent living. We also believe that electric 3-wheelers are easy to drive and are the first significant step towards controlling vehicular emission and pollution. We are hoping that with the first tranche of 150 driver partners we will make a small dent in not only providing employment but also give our driver partners an opportunity to drive state-of-art e3Ws to ferry passengers. With the help of Auto Unions, we plan to add 500 e3Ws every quarter to ensure Mumbaikars will breathe easy."

Currently, ETO Motors partners with metro rails like Delhi Metro, Nagpur Metro, Hyderabad Metro, and Pune Metro for passenger first and last and last mile connectivity.

The e3Ws are manufactured in ETO Motors' state-of-art manufacturing facility in Jadcherla, Telangana, which also includes a modern research and development lab. The e3Ws are manufactured with a focus on safety (only e3W in India with a seatbelt) and technology, incorporating a fully integrated Vehicle Control Unit and IoT connected platform.

Apraava Energy secures 300 MW wind energy project in Karnataka

APRAAVA ENERGY, a leading integrated energy solutions provider, has secured a 300 MW wind energy project in Aski, Karnataka. The project is part of the 1,200 MW auction capacity of Inter-State Transmission System (ISTS)-connected wind power projects (Tranche-XIV) from the Solar Energy Corporation of India (SECI).

The construction of the project will be completed within the stipulated timelines as per Power Purchase Agreement (PPA), which is for a period of 25 years at a competitive tariff of Rs 3.24/kWh.

Rajiv Ranjan Mishra, Managing Director, Apraava Energy, said, "This is our third wind project in the state of Karnataka, which offers tremendous opportunities for RE growth. The government's efforts through SECI and other federal agencies have been instrumental in bringing much-needed transparency to the bids, resulting in the accelerated growth of renewable energy and bringing the nation closer to its ambitious energy transition goals."

As part of the agreement, Apraava Energy will be responsible for acquiring the land, developing the wind farm, and establishing the grid infrastructure up to the metering point at the ISTS grid substation. The company's current RE portfolio (Solar and Wind) stands at 1,176 MW, with projects spread across the states of Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Tamil Nadu, Telangana and Karnataka.

JK Tyre raises Rs 500 crore through QIP

JK TYRE & INDUSTRIES LIMITED, one of the leading tyre manufacturers in India, has successfully concluded its fund-raising plans of Rs 500 crore by way of Qualified Institutional Placement (QIP).

QIP was priced at Rs 345 per share (including a premium of Rs 343 per share with face value of Rs 2 per share)

QIP received an overwhelming response from marquee investors, including Indian mutual funds, insurance companies, and foreign institutional investors.

Raghupati Singhania, Chairman and Managing Director, JK Tyre, said, "The participation of several reputed investors in the issue endorses their faith and confidence in the company's growth story. QIP funds will be used for the purpose of growth capex and strengthening the balance sheet."

Emkay Global Financial Services Ltd. managed the issue as the sole Lead Manager.

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Celebrating 10 years of **MAKE IN INDIA**

Manufacturing companies are actively contributing to the Make in India campaign, fostering innovation, and boosting indigenous production. As the nation commemorates a decade of the initiative, The Machinist Magazine pays tribute to manufacturing giants who are playing a vital role in transforming India into a global manufacturing hub. Our Anniversary edition shines a spotlight on the who's who of the manufacturing industry, as they outline their vision for Amrit Kaal 2047.



India's manufacturing sector, through the years, has managed to set a tone for innovation and has today become the most sought-after destination for foreign investments. Adding to it, Hon'ble Prime Minister Narendra Modi launched 'Make in India' program which has given Indian manufacturing a well-deserved global recognition.

Launched in the year 2014, Make India is transforming the country into a leading global manufacturing and investment destination, achieving substantial achievements in 27 sectors, including strategic sectors of manufacturing and services. On the account of The Machinist's 19th Anniversary Edition and with Make in India campaign, soon completing a decade, we have curated a special edition as an ode to this visionary campaign and to the people who are playing an instrumental role in fulfilling the goals of this visionary ambition.

But, before we delve further into our Anniversary edition, here are the top-10 reasons why we as an industry should celebrate this ambitious campaign:

WHY MAKE IN INDIA CAMPAIGN SHOULD BE CELEBRATED?

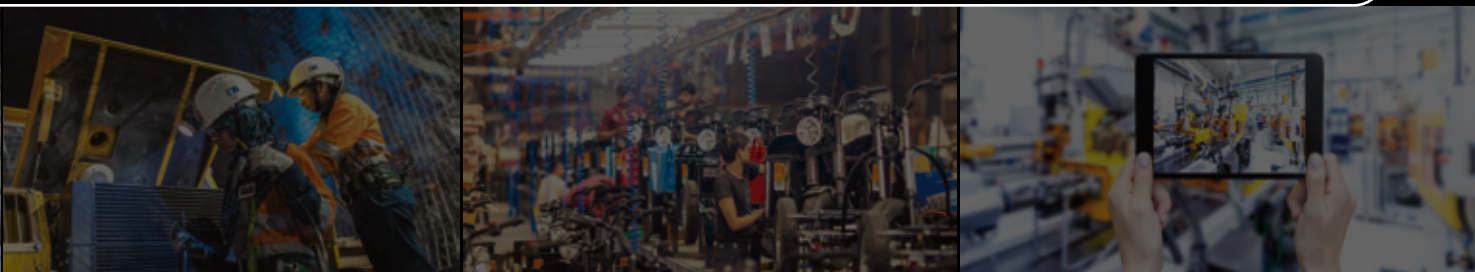
1. **Spurring Economic Growth:** Over the past decade, 'Make in India' has been a key contributor in propelling economic growth. India has emerged the 5th largest economy and has jumped six positions up in the world ranking, since 2012. It has also attracted significant investments and bolstered GDP. Since the launch of this campaign, there has been a 100x rise in GDP, which is currently pegged at USD 3.5 trillion. India's rate of growth is now at 7 per cent (FY22-23) which is only accelerating. Through the implementation of different programmes and policies, the Indian government hopes to have 25 per cent of the economy's output from manufacturing by 2025.
2. **Growth in FDI:** The annual FDI has doubled in the last 8 years. Since the launch of Make in India in 2014, the share of FDI has increased from USD 35Bn to USD 84 Bn.
3. **Rise in Self-reliance and Export Growth:** 'Make in India' played a pivotal role in promoting self-reliance, with a 500x rise in total exports, reaching a record USD 770 billion in 2022-23. India aims to export goods worth USD 1 trillion by 2030. Furthermore, the

campaign has also provided a global platform to Indian craftsmen to showcase their unique and quality state-of-the-art products, branded under the 'Made in India' tag.

4. **Job Creation:** The initiative has been offering employment opportunities across various sectors and skill levels, thus contributing to reducing unemployment.
5. **Skill Development and Entrepreneurship:** 'Make in India' has fostered skill development initiatives, empowering the workforce and nurturing entrepreneurship.
6. **Sustainable Manufacturing Practices:** Make in India has advocated for sustainable manufacturing practices, promoting eco-friendly production methods, and contributing to environmental conservation.
7. **Enhanced Manufacturing Infrastructure:** Make in India has spurred the development of world-class manufacturing infrastructure, facilitating efficiency and global competitiveness.
8. **Technological Advancements:** The initiative has encouraged technological innovation, fostering a culture of research and development, and has led to groundbreaking advancements in diverse industries. With the advent of Industry 4.0, not only has it increased efficiency, but has significantly improved industrial output and quality.
9. **Showcasing 'Brand India' on Global stage:** India's manufacturing prowess has gained global recognition, attracting foreign collaborations, partnerships, and investments, positioning the nation as a manufacturing hub.
10. **Tapping in new sectors:** Make in India has encouraged India to diversify beyond traditional sectors, embracing new-age industries such as biotechnology, renewable energy, and electronics.

WHAT'S IN STORE?

As the nation commemorates a decade of the 'Make In India' initiative, The Machinist Magazine pays tribute to manufacturing giants who are contributing significantly to economic growth and self-reliance and playing a vital role in transforming India into a global manufacturing hub. Our Anniversary edition shines a spotlight on the who's who of the manufacturing industry as they outline their vision for Amrit Kaal 2047.



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Typical conventional problem

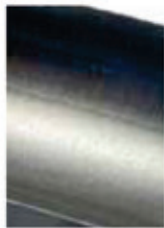
Chattering happened frequently while cutting R-shape or similar. The more the cutting force, the more the chattering which makes cutting mark on the work surface.



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Reduce cutting force

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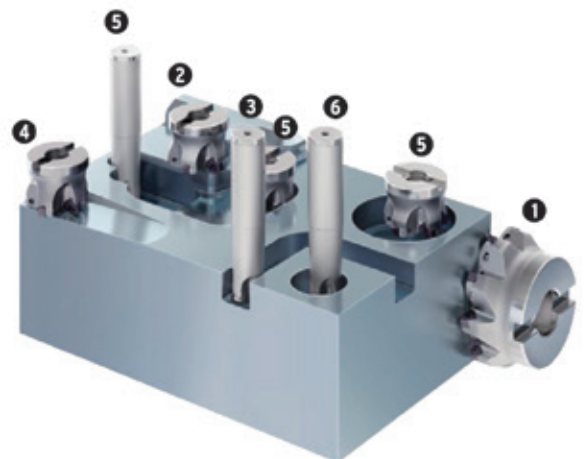


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YOUR GLOBAL CRAFTSMAN STUDIO

Reinforcing Indian Railway Manufacturing Ecosystems Is Crucial In Achieving *Amrit Kaal* And *Climate Change* Goals

The article guides us through the transformative impact of the visionary 'Make in India' campaign, covering aspects from job creation to propelling India's rapid recovery and economic emergence. It underscores the potential of India's railway manufacturing ecosystem in achieving sustainable mobility and climate change goals.



OLIVIER LOISON
MD, Alstom India

In 2014, the Honourable Prime Minister of India issued a clarion call, 'Come, Make in India!' From that day, the Make in India initiative ignited a spark of industrial ambition that transformed the way the world perceives the country. Beyond just the slogan, the Government of India took landmark steps that gave impetus to manufacturing, innovation, and startup sectors, among others. These initiatives played a significant role in helping the country recover rapidly from the impact of the pandemic and emerge as one of the fastest growing economies in the world.

Make in India also served as a job creation engine where investments from both homegrown companies and multinationals fuelled a wave of expansion across key sectors such as automobiles, electronics, pharmaceuticals and of course the

railways. One such example was the pioneering Public Private Partnership (PPP) between Alstom and Indian Railways, which saw the setting up of a world-class locomotive factory in Madhepura, Bihar, the largest Foreign Direct Investment (FDI) project in the Indian Railway sector. Madhepura, also referred as India's e-loco capital, has produced more than 350 electric locomotives that have transformed freight haulage in the country. Moreover, it epitomises the ideals of 'Make in India' by creating thousands of jobs directly and indirectly. The locomotives produced at Madhepura have also helped create a strong localised supply chain, with 90 per cent of the components sourced locally.

Make in India is not just about manufacturing locally, it has also provided a wide canvas for innovation. When both local and global companies are producing to compete at a global stage, India stands to gain from cutting-edge technologies and international best practices. This knowledge infusion has spurred research and development and helped India's transition to a knowledge-based economy. From electronic devices to full sized SUVs, products developed in India are being exported across the world. Investments made in the manufacturing sector have helped create a highly skilled workforce. Businesses, small and large, have focussed on vocational training and skill development programs. This has helped empower Indian youth,

THE PIONEERING PUBLIC PRIVATE PARTNERSHIP BETWEEN ALSTOM AND INDIAN RAILWAYS, SAW THE SETTING UP OF A WORLD-CLASS LOCOMOTIVE FACTORY IN MADHEPURA, BIHAR, THE LARGEST FOREIGN DIRECT INVESTMENT (FDI) PROJECT IN THE INDIAN RAILWAY SECTOR.

LOCOMOTIVES AND COACHES MADE IN INDIA ARE HELPING MODERNISE RAILWAYS ACROSS ASIA AND AFRICA.

equipping them with the necessary skills to thrive globally. For example, Alstom India employees are playing key roles in rail projects in far off countries like Mexico, Canada, and Australia.

The Make in India campaign took on a whole new avatar with the introduction of 'Atmanirbhar Bharat Abhiyaan'. Launched with the aim to make the country and its citizens independent and self-reliant, its five pillars - Economy, Infrastructure, System, Vibrant Demography and Demand- provide the direction, India needed to propel itself out of the slowdown induced by the pandemic. By reducing dependence on imports and fostering domestic production, India is asserting its economic and strategic independence, empowering the nation to navigate global challenges with greater confidence and resilience.

The 75th year of India's Independence marked the beginning of its 'Amrit Kaal' – the Era of Elixir, signifying India's journey towards becoming one of the largest economies in the world by 2047. Another key goal of this period is to improve the


quality of life for Indians citizens and close the development gap between rural and urban areas.

Throughout independent India's history, railways have played a pivotal part in bringing the rural and urban India together. Over the next few years, it is predicted that nearly half of India's population will be living in and around urban agglomerations. Transporting such vast number of people, and the goods for their needs will require modern mass-transit solutions. Once again, trains are best positioned to solve these problems in an efficient and sustainable manner.

The government of India recognises that fact and has prioritised the modernisation of its mainline railways and development of rail based urban mass transport networks. This drive will require large quantities of rolling stock, and the requisite support equipment needed to run the network. This presents a great opportunity

for India's railway manufacturing sector, which is one of the most comprehensive railway manufacturing ecosystems in the world. India produces a vast array of infrastructure and equipment for its own use and for export across the globe. Rolling stock manufactured in Bihar, Tamil Nadu or Gujarat now operate across the country. Trains built in Andhra Pradesh have been deployed by Metro systems as far away as Canada and Australia. Not just that, locomotives, and coaches made in India are helping modernise railways across Asia and Africa.

It is now time for this ecosystem to step up and play an even bigger role in helping India achieve not just its Amrit Kaal goals, but also address the climate change challenge. India has committed to reducing emissions intensity of its GDP by 45 per cent by 2030. This 'Nationally Determined Contribution' will be a key factor in achieving India's long-term goal of reaching net-zero emissions by 2070. Railways have the potential to help attain these goals by providing a sustainable means of transport compared to fossil fuel-based systems.

With such progressive policies being brought to fruition, India has perhaps the most vibrant railway-based transport ecosystem in the world right now. Be it the Vande Bharat Express or the Namo Bharat Regional Rapid Transit System, the Dedicated Freight Corridor, or safety-led innovations like the Kavach, India is transforming its railways. And I believe, we have only just begun and the country's transformation into a shining example of sustainable mobility will coincide with the Amrit Kaal. 



The Transformative Power Of Vaccines, Biotechnology, And Partnerships

From developing indigenous vaccines and biotherapeutics to forging strategic partnerships - the article shines the spotlight on Bharat Biotech International Ltd.'s contribution towards the 'Make in India' initiative and their role in the growth of the healthcare sector.



SUCHITRA ELLA

Managing Director, Bharat Biotech International Ltd

Make in India, launched in 2014 by Prime Minister Shri. Narendra Modi has proven to be a game-changer for the Indian economy. The campaign aimed to transform the country into a global manufacturing hub, attracting foreign investments, boosting job creation, and promoting innovation. With a focus on key sectors, including pharmaceuticals and biotechnology, 'Make in India' aimed to harness India's potential and propel its growth on the world stage.

The biotech and pharma industries have been at the forefront of this growth story, contributing significantly to India's GDP and export earnings. The success of Make in India in these sectors can be attributed to organisations like Bharat Biotech, which have driven innovation, research, and manufacturing capabilities across the country.

THE ROLE OF BHARAT BIOTECH IN THE MAKE IN INDIA INITIATIVE

Bharat Biotech, a leading Indian biotechnology company, has been instrumental in the success of Make in India. With a strong focus on research, development, and manufacturing, Bharat Biotech has been at the forefront of developing indigenous vaccines and biotherapeutics, contributing to the country's self-reliance in the healthcare sector, with focus on 'Innovate in India,' and 'Develop in India.'

The company's commitment to innovation and manufacturing

excellence has not only led to breakthroughs in vaccine development but has also positioned India as a global player in the biotech industry. Bharat Biotech's state-of-the-art facilities in Telangana, Karnataka, Gujarat, and Maharashtra, along with its new facilities in Odisha and world-class research centres in Hyderabad, are symbols of India's biotech capabilities.

Clinical research has been another monumental area where the company's prowess shines through. ROTAVAC®, a product developed with more than 20 years of pioneering research & development, and first efficacy trial in India with 6,000 subjects, was launched by Prime Minister Shri. Narendra Modi, in 2014. The results of this trial were published in journals such as The Lancet and Vaccine. This trial was followed by the largest-ever human trials for India's first indigenous COVID-19 vaccine, COVAXIN®, with a record-breaking 26,000 subjects across 25 sites in India.

VACCINE DEVELOPMENT AS A KEY CONTRIBUTOR TO MAKE IN INDIA FOR THE WORLD

Bharat Biotech's achievements in this field have been nothing short of remarkable, playing a pioneering role in the creation of Genome Valley, the largest cluster of biotech and therapeutic industries in Hyderabad.

Through its robust R&D efforts, Bharat Biotech has not only developed vaccines for diseases like COVID-19 but has also contributed to the eradication of diseases like polio, prevention of Rotaviral Diarrhoea, Typhoid, Hepatitis-B,

and Japanese Encephalitis, Rabies by partaking in the Universal Immunisation Programme (UIP) through its vaccine innovations ROTAVAC®, TYPBAR TCV®, JENVAC®, and CHIRORAB®.

The manufacturing capabilities of Bharat Biotech have enabled India to become self-reliant in vaccine production, reducing its dependence on imports and ensuring access to affordable vaccines for the Indian population. The BSL-3 production facility in Hyderabad, the only one-of-its-kind in the world, is another remarkable vision-to-reality story.

ADVANCEMENTS OF BHARAT BIOTECH IN BIOTECHNOLOGY AND ITS IMPACT ON MAKE IN INDIA

Advancements in biotechnology have revolutionised various sectors – including agriculture, healthcare, and manufacturing. Bharat Biotech has been at the forefront of these advancements, leveraging biotechnology to develop innovative solutions that address critical healthcare challenges.

By investing in research and development, Bharat Biotech has paved the way for the development and production of cutting-edge biotech products and therapies, contributing to India's journey towards self-reliance and global recognition. The most notable is the development of the JENVAC® vaccine, which helped India reduce its dependence on the import of the Japanese Encephalitis (JE) vaccines.

COLLABORATION AND PARTNERSHIPS IN THE BIOTECH INDUSTRY: A DRIVING FORCE FOR MAKE IN INDIA

Bharat Biotech has actively sought strategic alliances with global partners, fostering knowledge exchange,

THE MANUFACTURING CAPABILITIES OF BHARAT BIOTECH HAVE ENABLED INDIA TO BECOME SELF-RELIANT IN VACCINE PRODUCTION, REDUCING ITS DEPENDENCE ON IMPORTS AND ENSURING ACCESS TO AFFORDABLE VACCINES FOR THE INDIAN POPULATION.

technology transfer, and joint research initiatives. These collaborations have not only accelerated the pace of innovation but have also facilitated access to international markets for Indian biotech companies to realise Make in India for the world.

Among the notable collaborations are the ones with the Bill and Melinda Gates Foundation (BMGF), Gavi, PATH, and WHO. By leveraging the expertise and resources of global partners, Bharat Biotech has been able to enhance its research capabilities, expedite regulatory approvals, and expand its manufacturing capacities.

SUCCESS STORIES: BHARAT BIOTECH'S CONTRIBUTIONS TO MAKE IN INDIA

Bharat Biotech's indigenous vaccines, including COVAXIN®, have not only played a vital role in the country's fight against COVID-19 but have also been exported to several countries, demonstrating India's manufacturing prowess.

In addition to vaccines, Bharat Biotech has made significant contributions to the development of therapeutic products and biotech-based solutions for various infectious and neglected diseases. These achievements have not only improved healthcare outcomes but have also fostered job creation, skill development, and economic growth.


HOW MAKE IN INDIA AND BIOTECH WILL SHAPE INDIA'S GROWTH

Looking ahead, both, 'Make in India' and the biotech industry will continue to shape India's growth trajectory. The government's continued support for innovation, research, and manufacturing in the biotech sector, coupled with the industry's commitment to excellence, will pave the way for transformative advancements.

Bharat Biotech, with its strong R&D pipeline, is actively pursuing the development of future vaccines for malaria, cholera, tuberculosis, and others, after delivering 9 billion doses of indigenous vaccines in over 125 countries over the last two decades. The company's expansion plans, international collaborations, and path-breaking research initiatives will further strengthen India's position as a global leader in biotechnology and manufacturing.

REFLECTING ON 10 YEARS OF MAKE IN INDIA AND THE ROLE OF BHARAT BIOTECH

As we celebrate 10 years of the Make in India campaign, it is essential to recognise the immense contributions of vaccines, biotechnology, and collaborative efforts in shaping India's success story. Bharat Biotech's innovation, manufacturing excellence, and collaborations helped India become self-reliant and globally recognised.

As we look towards the future, it is evident that Make in India and the biotech industry will continue to drive India's growth, creating opportunities for economic development, job creation, and healthcare advancements. With a committed new investment of Rs 2,000 crores between 2019 and 2024 by Bharat Biotech, India's biotech sector is poised for even greater achievements, cementing its position as a global powerhouse in innovation and manufacturing. 

Boeing And India: A History And Future Of Partnership

Long-term collaborations showcase Boeing's commitment to India's growth and Aatmanirbharta in aerospace and defence.



SALIL GUPTÉ
President, Boeing India

The Indian economy has achieved a remarkable growth over the past three decades. Accounting for 90 per cent of South Asia's total economic output, it was among the world-leading growth economies in the years before the pandemic. Over the past year, even while recovering from the impact of COVID-19, India's gross domestic product grew by almost 7 per cent to make it the fifth largest economy in the world. According to the International Monetary Fund's 2023 World Economic Outlook, the country's economy is projected to grow at a 5.6 per cent compound annual growth rate (CAGR) through 2041.

India's booming aerospace industry, particularly civil aviation, has been a significant factor in this success. As the world's third-largest civil aviation market, India's fleet is set to nearly quadruple in size by 2041 compared to 2019. The country is also projected to receive over 90 per cent of South Asia's airplane deliveries, requiring about 2,400 new aircraft, while its cargo market is set to expand significantly, with the fleet growing from 15 to 80 airplanes by 2042, driving a \$135 billion demand for commercial services.

ENDURING FRIENDSHIP

As a company with over eight decades in India, Boeing has long supported the development of the country's aerospace and defence capabilities. The relationship began with delivery of a T-6 Texan and a C-47 Skytrain to the Indian Air Force in the 1940s. It has expanded to today's range of active Boeing platforms including passenger airplanes, C-17 airlifters, AH-64 attack helicopters, CH-47 multi-mission rotorcraft, P-8I maritime patrol aircraft, and VIP transports.

Boeing's contributions to India are not limited only to products and services. The company has continuously invested in and collaborated with Indian initiatives and organisations across manufacturing, skill development, engineering services, research and technology, infrastructure, safety, and sustainability. Boeing supports India's drive to build capability and capacity for indigenous players to become an integral part of the global defence and aerospace industry.

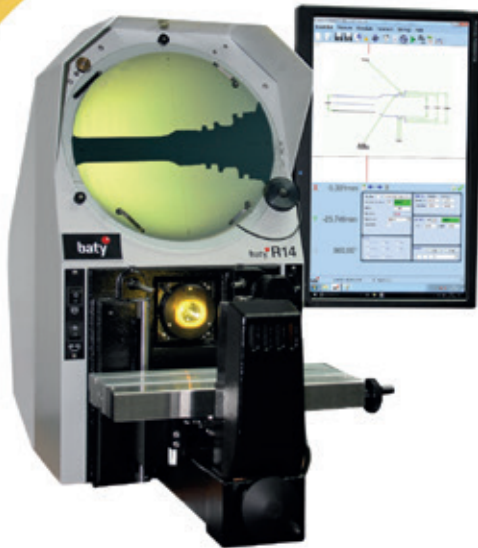
Our long-term commitment is to India and the Aatmanirbhar Bharat vision, to the Make in India goal of increasing in-country manufacturing, and the Skill India program to build the local talent pool.

DEDICATION TO LOCAL MANUFACTURING AND INFRASTRUCTURE

Boeing's support to India's sustainable growth begins with its local employees and infrastructure. Boeing India employs over 6,000 employees directly, and more than 13,000 are employed by its supplier partners in India.

We lead among foreign OEMs with over \$1 billion in annual manufacturing and services sourced from 300+ Indian supplier partners. Notably, 25 per cent of these partners are Micro, Small, and Medium Enterprises (MSMEs) integral to our global supply chain.

Boeing's joint venture with Tata Advanced Systems Ltd., Tata Boeing Aerospace Ltd. (TBAL) in Hyderabad, is a state-of-the-art facility that showcases Boeing's commitment to Make in India and Aatmanirbhar Bharat. TBAL manufactures aerostructures for the Boeing AH-64 Apache helicopter, including fuselages,



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secondary structures, and vertical spar boxes for customers worldwide, including the U.S. Army, and the six on order with the Indian Army. In 2022, Boeing added a new production line at TBAL to manufacture complex vertical fin structures for the 737-airplane family.

In 2021, Boeing launched the Boeing India Repair Development and Sustainment (BIRDS) program in its effort to help India develop into a regional MRO hub. BIRDS aims to enable engineering, maintenance, skilling, repair and sustainment services of defence and commercial aircraft in India, for India. Under this program, Boeing has signed strategic partnerships with leading indigenous players. The hub also includes training programs to increase the skilled labour pool.

Recently, we partnered with GMR Aero Technic to establish a Boeing Converted Freighter (BCF) line in Hyderabad, while also setting up a Global Support Centre in Gurugram to provide customised operational efficiency and safety improvement projects for airline customers, regulatory bodies, and other stakeholders. Additionally, Boeing has invested in a new India Distribution Centre to provide efficient and cost-effective service solutions to regional customers, ensuring higher fleet utilisation and mission readiness rates.

We are further building on the advanced engineering and R&D work performed at Boeing India Engineering & Technology Centre (BIETC) in Bengaluru and Chennai. Boeing is investing \$200 million in a new 43-acre state-of-the-art wholly owned engineering and technology campus in Bengaluru, which will be Boeing's largest facility of its kind outside the United States.

COMMERCIAL AND DEFENCE AEROSPACE SUPPORT

Boeing's deep partnerships with India

support, both commercial and defence sectors. The continued development of civil aviation in India has been marked by advances such as Akasa Air's order for 76 737 MAX airplanes and Air India's 290 Boeing airplanes order, with the first few already delivered to Air India Express — bolstering the company's ability to serve India's civil aviation needs.

Boeing's ongoing partnership with Air Works Private Ltd. promotes the indigenisation of sustainment services and continues to repeatedly demonstrate Air Works' maturity and scale on par with developed global MRO hubs.

Boeing investments in India extend beyond manufacturing. We recently committed a \$100 million investment in infrastructure and training programs to produce skilled pilots in India, aligning with the country's aviation growth over the next 20 years.

We have been working with our partners on various skill development programs that span the breadth of the aviation and aerospace industry. We have partnered with our customers and supply chain partners to offer training opportunities to pilots, aircraft maintenance engineers, technicians, and frontline factory workers throughout India. More than 4,000 workers have benefited from these initiatives.

The Accelerated Apprenticeship Program seeks to increase the employment prospects of aircraft maintenance engineers. In collaboration with AI Engineering Services Limited and the Ministry of Civil Aviation (MoCA), Boeing has established a state-of-the-art training centre in Mumbai that offers a customised curriculum designed by Boeing experts, as well as access to advanced training aids. In 2022, Boeing collaborated with Indira Gandhi Rashtriya Uran Akademi (IGRUA), a premier flight training

organisation under MoCA, for opportunities to enhance safety and quality in early career flight training. It is an important step in advancing aviation training in the country through collaboration with flight training and development organisations to enhance capabilities and safety.

Furthermore, Boeing partners with not-for-profits like Learning Links Foundation (LLF) to help create a skilled and employable workforce for the aerospace manufacturing sector. Recently, Boeing concluded the Boeing Safety Management System training course at the Indian Aviation Academy in New Delhi. This was the first in-person event delivered in India by the USC Viterbi School of Engineering in collaboration with the DGCA.

As India and other countries worldwide tackle the environmental crisis, Boeing is participating in initiatives and partnerships to help address the long-term sustainability of commercial aviation. These efforts include collaborating with SpiceJet and the Council of Scientific and Industrial Research – Indian Institute of Petroleum (CSIR-IIP) to test and certify domestically produced sustainable aviation fuel. As a member of the World Economic Forum's Clean Skies for Tomorrow (CST) initiative, Boeing contributed to the first report "Deploying Sustainable Aviation Fuels at Scale in India" in 2021 as a starting point for public-private taskforce to design an implementable policy framework for decarbonising aviation in India. As a key contributor to this report, Boeing helped determine that ~10 per cent of India's SAF needs by 2030 can be met through domestic production. We also completed a 10-year road map for Airports Authority of India to help modernise its Communication, Navigation and Surveillance/Air Traffic Management system. 

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Collaboration Between Automotive And IT Sectors Is Needed To Localise Indian Software Solutions

The article, acknowledging the progress that has been seen through Make in India, lays down the hurdles present in the Indian manufacturing sector, and charts a path to overcome these challenges while capitalising on the country's advantages in the current scenario.



PRASHANTH DORESWAMY
President and CEO, Continental India

India is a developing economy and is a promising hub for new-age industries and sectors. At the time of independence, the Indian economy was marked by a weak industrial base and underdeveloped infrastructure. The structure of ownership was highly concentrated, and the manufacturing industry was highly dependent on imports. The industry was also marred by a short supply of technical and managerial skills. The development of India into a modern industrialised country was a slow and continuing process, made possible due to great vision, resilience, evolution, and unyielding potential.

From the inception of India's manufacturing landscape to the current times, the nation has been a strong symbol of growth and has carved a niche as a strong contender in the global market.

MANUFACTURING INDUSTRY SCENARIO

During the post-independence period, manufacturing became the foundation of India's development. It was the basis for textiles, iron, steel, and automotive, leading to an era of self-sufficiency and economic growth. Over the years, manufacturing has witnessed a massive transformation with industrial diversification and technological improvements.

Currently, India is a fast-emerging manufacturing powerhouse, with sectors like automotive, healthcare, pharma, electronics, and aerospace surging ahead. The evolution of the ecosystem, thanks to the integration of innovation and modernisation, has ensured steady growth and global attention for the country. The Indian

manufacturing sector is all set to boost the world economy by more than 500 billion dollars a year by 2030.

When it comes to the Ease of Doing Business index, India's rank has been improving gradually. According to the World Bank's Ease of Doing Business Ranking 2020, India is ranked in the 63rd position, whereas in 2014, it was at 142. This has attracted many top global companies to set up their manufacturing and R&D centres in the country.

THE CHALLENGES

Notably, though, Indian manufacturing is not without its set of challenges. There are significant cost disparities when comparing India with other manufacturing hubs like Vietnam and China, particularly in electronics production. There is a 7.5 per cent to 9.8 per cent cost differential that India has with Vietnam and a shocking 17.3 per cent to 19.0 per cent when it comes to China. There is still a struggle to capitalise on this growth for automotive electronics, even though India has a flourishing non-automotive electronics manufacturing sector. India still has a considerable gap between software development and its utilisation in automotive electronics, and despite its expertise in software solutions, the country is still in its nascent stage when it comes to application. It is not surprising, therefore, why automotive electronics imports are still preferred in India even though they are being manufactured locally. This also results in a maze of multiple HSNs that makes an inclusive assessment of imports ambiguous and more

complex, thus adversely impacting a clearer strategic approach in the sector.

OVERCOMING THE CHALLENGES

Only a strategic approach can help overcome the challenges existing in India's manufacturing sector. One way is to focus on manufacturing just 20 products that have either high market potential or are easy to manufacture. This will help in leveraging market potential by restructuring the manufacturing processes. There must also be seamless collaboration between India's automotive and information technology sectors to facilitate the localisation of software solutions. Special clusters can be created to counter the increasing costs of manufacturing automotive electronics. This will provide much-needed support for competitiveness and make the sector more effective. Also, creating both technical and academic linkages can develop the skills that are necessary for automotive electronics. Furthermore, start-ups can be created in automotive electronics via mentorship programmes with new R&D centres. This can boost innovation, help in product and technology development, and advance the Indian automotive electronics industry to greater heights.

India also has some huge advantages when it comes to evolving as a global manufacturing hub.

THE INDIA ADVANTAGE

Skilled Workforce: India has a wide talent pool of STEM-educated individuals who are equipped with English language skills. India contributed 34 per cent of global STEM graduates in 2021, as per the UNESCO Institute for Statistics. The total number of STEM graduates in India was two million in 2019, and this number is expected to grow to 10 million by the year 2025. This perfect blend of technical expertise

SPECIAL CLUSTERS CAN BE CREATED TO COUNTER THE INCREASING COSTS OF MANUFACTURING AUTOMOTIVE ELECTRONICS. THIS WILL PROVIDE MUCH-NEEDED SUPPORT FOR COMPETITIVENESS AND MAKE THE SECTOR MORE EFFECTIVE.

and language competence has played a huge role in India's rise in the global manufacturing picture. India's skilled workforce has therefore been a facilitator in the implementation of advanced technologies and has also played a key role in enabling seamless alliances in the world market.

Geographical Advantage: India houses some of the most prestigious institutes and has a younger population equipped with proficiency in STEM and the English language. Moreover, the availability of resources makes it even more attractive as a destination for MNCs to invest.

India as the alternative: With the recent global changes, there has been an accentuation of India's significance as an alternative to a single-nation dependency, notably China. The pandemic exposed certain vulnerabilities, like supply chain management, which highlighted the risk of being dependent on one specific region. India is an upcoming manufacturing hub with the advantages of its geographical location, skilled workforce, growing economy, ease of doing business, and favourable policies. In many ways, India is today the preferred choice globally as a manufacturing hub.

INDUSTRY 4.0 ADOPTION

Industry 4.0 Practices: The manufacturing industry is undergoing a significant transformation regarding the way products are produced. Due to the process of digitisation, industry 4.0 has

reinvented industrial processes to boost efficiency and productivity, optimise costs, and provide value to customers, among others, by using advanced technologies. It has inspired the industry to be more competitive and innovative while contributing to the manufacturing value chain. It is a catalyst in India's manufacturing evolution, and smart technologies such as AI, IoT, and automation foster efficiency, precision, and agility. Continental has implemented AI/ML and robotics at different levels at their plants. Thus, India is moving towards a sustainable and tech-driven manufacturing setup.

INDIA AS A MANUFACTURING HUB

Foreign direct investment (FDI) in Indian manufacturing has soared in the last 10 years, with an average annual growth rate of more than 12 per cent. The manufacturing sector accounts for 15–16 per cent of India's total GDP. The sector employs around 12 per cent of India's total workforce, which drives the economic growth of the country. Despite all the global challenges, India has averaged 6.15 per cent GDP growth from 2006 to 2023 and reached 8.7 per cent in 2022.

IN SUMMARY

India has become an attractive manufacturing hub, with huge multinational companies setting up their offices and manufacturing centres in the country. The various initiatives and policies introduced in the country have further improved the ease of doing business, inviting many more such organisations to invest in the country. This has led India to become a self-reliant country, gradually decreasing its dependence on exports. Looking ahead, India will continue to play a critical role in influencing the global manufacturing landscape with its tale of spirit, adaptation, and unmatched potential. 

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Lubrication's Unseen Impact On *Make In India's* Success Story

Know how lubricants play a crucial role in enhancing Indian manufacturing's operational efficiency, while reducing energy consumption. Gain perspectives on the challenges faced by the lubrication market and the role of digitalisation in shaping the future of manufacturing.



VIPIN RANA

CEO, ExxonMobil Lubricants Pvt. Ltd.

Over the past few decades, India has witnessed a significant shift in its manufacturing dynamics. Traditionally known for its prowess in textiles, handicrafts, and agro-based industries, the nation has diversified its manufacturing portfolio. With a growing focus on technology, innovation, and skilled labour, India is emerging as a dynamic hub for manufacturing. The sector has evolved significantly, embracing technological advancements, and fostering innovation, increasing its contribution to the nation's economic growth.

Initiatives such as 'Make in India' have been instrumental in fostering a favourable business environment, encouraging investment, and promoting indigenous manufacturing. The streamlining of regulatory processes has contributed to the ease of doing business in the country. Furthermore, production-linked incentives (PLIs)

are providing a substantial boost to various manufacturing sectors. By incentivising domestic production, India is not only aiming to attract investments but also propelling the growth of critical industries. The PLI scheme, tailored to align with global manufacturing trends, is aimed at ensuring that India remains competitive on the international stage.

CURRENT STATUS

India's target of achieving the milestone of 1 trillion dollars by the year 2028 is promising, with key industries such as chemicals, pharmaceuticals, electronics, automotive, industrial machinery, and textiles playing a pivotal role. This promising outlook underscores the diverse and expansive opportunities for export-led growth within the Indian manufacturing landscape.

As we move into an era dominated by industry 4.0, India has shown a commendable ability to integrate cutting-edge technologies such as artificial intelligence, robotics, and the Internet of Things into its manufacturing processes, we must invest in building a skilled and adaptable workforce. Collaboration between industry and educational institutions is essential to designing programmes that equip individuals with the knowledge and skills demanded by modern manufacturing. Training initiatives should focus not only on technical skills but also on fostering innovation, problem-solving, and adaptability to technological changes.

AS WE MOVE INTO AN ERA DOMINATED BY INDUSTRY 4.0, INDIA HAS SHOWN A COMMENDABLE ABILITY TO INTEGRATE CUTTING-EDGE TECHNOLOGIES SUCH AS ARTIFICIAL INTELLIGENCE, ROBOTICS, AND THE INTERNET OF THINGS INTO ITS MANUFACTURING PROCESSES

ROLE OF THE LUBRICATION SECTOR IN THE MANUFACTURING INDUSTRY

The lubrication market emerges as an unsung hero in ensuring the smooth operation and longevity of machinery—the backbone of any manufacturing setup. Lubricants play a pivotal role in reducing friction, preventing wear and tear, dissipating heat, and protecting vital components. The lubrication market is not just a small participant in India's industrial sector; rather, it is a vital ally that helps to guarantee the longevity and operating effectiveness of machines.

One of the primary contributions of the lubrication market to the manufacturing sector is the enhancement of operational efficiency. Proper lubrication reduces friction between moving parts, minimising energy consumption and maximising output. In a country where energy costs can be a significant factor in overall production expenses, the role of lubrication in driving energy efficiency cannot be overstated.

Despite the crucial role of lubrication in the manufacturing sector, some challenges need to be

THE LUBRICATION MARKET IS NOT JUST A SMALL PARTICIPANT IN INDIA'S INDUSTRIAL SECTOR; RATHER, IT IS A VITAL ALLY THAT HELPS TO GUARANTEE THE LONGEVITY AND OPERATING EFFECTIVENESS OF MACHINES.

addressed. The lack of awareness regarding the importance of proper lubrication practices, especially among small and medium enterprises (SMEs), is a significant hurdle. Initiatives aimed at educating manufacturers about the benefits of quality lubrication and its long-term impact on operational efficiency are crucial.

ExxonMobil has had the privilege of contributing to the lubrication needs of diverse manufacturing sectors in India. Our commitment to innovation fits in perfectly with the evolving requirements of this dynamic industry. As the manufacturing sector embraces advanced technologies, we continue to invest in research and development to provide lubricant solutions that meet the ever-changing demands of modern industrial processes.


DIGITALISATION IN THE MANUFACTURING SECTOR

In an era marked by rapid technological advancements, industries across the globe are undergoing transformative shifts. The traditional manufacturing industry, especially, is witnessing a sea of change since the coming of advanced digital technologies that drive greater performance. Once rooted in man-machine interactions, manufacturing businesses are today rapidly riding the wave of digitalisation to accommodate expectations of safety, reduce negative environmental fallout, and increase precision and efficiency in managing operations.

A PWC India survey shows that digital transformation is high on the agenda for the manufacturing sector, and 54 per cent of the companies have implemented artificial intelligence and analytics for business functions.

NAVIGATING THE FUTURE

The high growth rate in the latest quarter affirms India's position as the fastest-growing major economy. Achieving a growth rate of 7.6 per cent in the second quarter is a noteworthy milestone for the country. India has ascended to become the world's fifth-largest economy and is expected to become the third-largest economy by 2030. [1]

India's ambition to become the next big global manufacturing hub will have a significant bearing on its growth over the next few years. We, at Mobil™, are optimistic about the manufacturing sector and firmly believe in its potential to contribute to India's economic journey. We are collaborating closely with manufacturers to maximise their performance, aid their profitability and advance their productivity to excel in business beyond usual. 

[1] India set to become 3rd largest economy by 2030, says S&P Global - The Hindu BusinessLine



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The 10-Year Odyssey Of 'Make In India' Mirrors India's Resilience And Ambition

Despite challenges, Finolex Industries exemplifies indigenous production through expanded facilities and integration. The article delves into their proactive measures, reflecting on key Make in India achievements and proposing solutions for indigenous production, self-reliance, and breakthrough innovations.



AJIT VENKATARAMAN
MD & CEO, Finolex Industries

A decade ago, India embarked on a transformative journey, envisioning an economic landscape driven by indigenous production and innovation. The launch of Make in India heralded a bold narrative, one that sought to redefine the nation's manufacturing prowess and foster self-reliance across sectors. As we commemorate the tenth anniversary of this visionary initiative, it's an opportune time to reflect on its evolution, the strides made, and the collective contributions of companies that have woven themselves into the fabric of this national ambition. This milestone represents not only the passage of time, but also the resilience and ingenuity of an entire ecosystem in India that has embraced the ethos of making.

FOR MORE THAN 42 YEARS NOW, FINOLEX INDUSTRIES HAS BEEN CONTRIBUTING TOWARDS THE GROWTH OF OUR MOTHERLAND, AS WE MAKE IN INDIA FOR INDIA. WE STAND AT THE FOREFRONT, EXEMPLIFYING THIS ETHOS BY RECENTLY INAUGURATING A NEW STATE-OF-THE-ART MANUFACTURING FACILITY AIMED AT EXPANDING OUR MARKET PRESENCE IN THE PLUMBING SEGMENT.

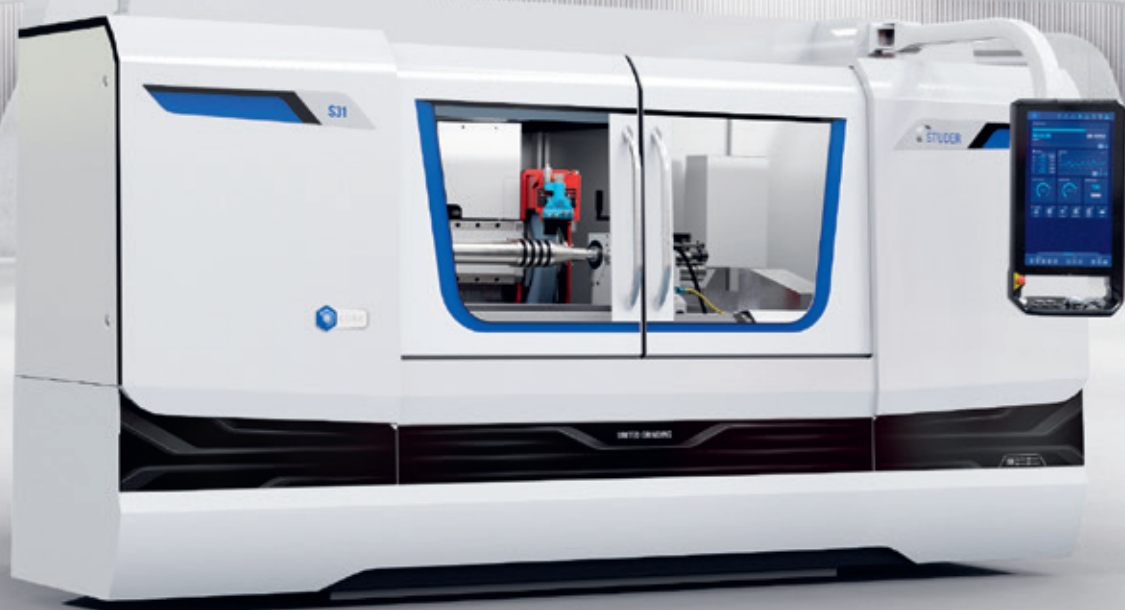
ACHIEVEMENTS AND PROGRESS OVER THE PAST 10 YEARS

One of the pivotal achievements of Make in India has been its success in attracting foreign direct investment (FDI) into the country. The program's emphasis on ease of doing business and simplifying regulations has made it more attractive for international companies to set up manufacturing units in India. As a result, FDI inflows have increased significantly, boosting job creation, and stimulating economic growth. Emphasis on enhancing vocational training programs and aligning them with industry requirements has resulted in a skilled workforce capable of meeting evolving market demands. Foreign Direct Investment (FDI) has doubled since the launch, reaching \$83 billion in 2022, indicating growing investor confidence in India's manufacturing potential.

Make in India has also played a pivotal role in promoting innovation and technology adoption across various sectors. One area where innovation has played a significant role is in the field of renewable energy. With a focus on clean and sustainable sources, 'Make in India' has spurred the development of innovative solar panels and wind turbines, making India one of the world's leaders in renewable energy production. Many manufacturing businesses like ours have incorporated these practices to increase efficiency and practice sustainable manufacturing. Looking ahead, it is imperative that government policies remain progressive and responsive to

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 **STUDER**

changing market dynamics. By fostering an ecosystem conducive to innovation through research & development incentives, intellectual property protection measures, and collaboration between industry players academia innovators alike can facilitate breakthrough innovations.

Nevertheless, the program's impact can be seen across diverse sectors, and several leading companies have taken advantage of the opportunities created by Make in India to establish or expand their operations within the country. These include multinational corporations as well as home-grown enterprises that have scaled new heights through this initiative.

In the journey of Make in India's transformative initiative, several companies have emerged as pioneers, shaping the future of manufacturing in India. These trailblazers have not only contributed to the growth of their respective industries but have also showcased India's potential on a global stage.

Several companies have embraced the ethos of 'Make in India', epitomising resilience and innovation. For more than 42 years now, Finolex Industries has been contributing

**OUR EMPHASIS ON
MANUFACTURING OUR OWN
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BACKWARD INTEGRATION,
REFLECTS A STAUNCH
DEDICATION TO SELF-RELIANCE
AND REDUCED DEPENDENCY
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towards the growth of our motherland, as we make in India for India. We stand at the forefront, exemplifying this ethos by recently inaugurating a new state-of-the-art manufacturing facility aimed at expanding

our market presence in the plumbing segment. With a network of various manufacturing facilities strategically spread across the nation, Finolex has fortified its commitment to localised production, contributing significantly

to the country's manufacturing landscape. Moreover, our emphasis on manufacturing our own PVC resin, promoting backward integration, reflects a staunch dedication to self-reliance and reduced dependency on imports. Such proactive measures not only strengthen our position but also exemplify the spirit of indigenous



production, a pivotal aspect within the broader spectrum of 'Make in India'.

The 10-year odyssey of 'Make in India' mirrors India's resilience and ambition. Despite challenges, companies like Finolex Industries, epitomising indigenous production through expanded facilities and backward integration, symbolise the initiative's essence. Celebrating milestones prompts not just reflection but a forward-looking approach. Streamlined regulations, academic-industry collaborations, and innovation form the linchpins for sustained growth. This milestone marks not just progress but a call to fortify self-sufficiency and global competitiveness. Embracing collaboration and innovation, 'Make in India' stands poised to shape a self-reliant future, where each stride in indigenous manufacturing resonates with a resolute commitment to India's prosperity. 🇮🇳

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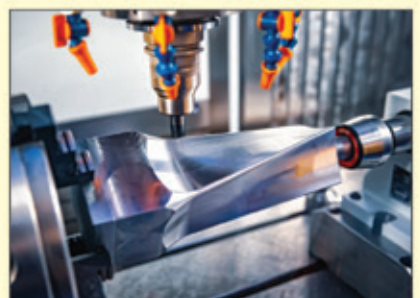
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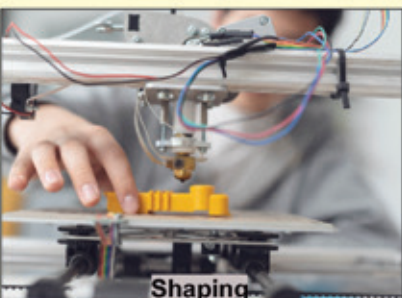
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Make In India: 10 Years Of Spurring Manufacturing

The 126-year-old conglomerate, Godrej & Boyce, was already a pioneer in ‘making in India’ long before the program took shape. With the Make in India campaign gaining significant momentum, the article takes stock of the company’s crucial contribution to the campaign through initiatives in skill development, local employment, and their marquee supplier program, ‘Beyond Sourcing.’



ANIL G VERMA

Executive Director and CEO, Godrej & Boyce.

In a service-led economy like India, the Central Government’s Make in India was a prescient move to catalyse the country’s manufacturing with a holistic approach. The rewiring of the world’s supply chains, after disruptions like the pandemic, ongoing wars, and geopolitical tensions, has been a boon for India to assert its manufacturing resilience on the competitive global stage. Make in India, supporting both domestic manufacturing and services, will arm it with the right credentials, especially as a prominent leader of the Global South.

As we mark the 10th anniversary of the transformative Make in India initiative, Ministries/Departments, the Central Government, and State Governments are working to promote innovation, overhaul the industrial infrastructure, invite investments, generate employment, and boost economic growth by galvanising indigenous manufacturing.

THERE HAS BEEN A SURGE IN INVESTMENT OPPORTUNITIES DRIVEN BY TARGETED SCHEMES LIKE THE PRODUCTION LINKED INCENTIVE SCHEME. WITH AN OUTLAY OF RS 1.97 LAKH CRORE (\$24 BILLION), 24 SUB-SECTORS ARE BEING LEVERAGED BASED ON THEIR STRENGTHS, COMPETITIVE ADVANTAGE, AND SCOPE FOR IMPORT REDUCTION, EXPORT BOOST, AND EMPLOYMENT GENERATION.

The flagship program has sparked an evolutionary shift towards greater ease of business with supporting frameworks such as the National Single Window System (soft-



launched), making it easier to secure requisite government approvals. The Project Development Cells fast-track investments, and the Public Procurement (Preference to Make in India) Order of 2017 grants preference in public procurement to local industries.

There has been a surge in investment opportunities driven by targeted schemes like the Production Linked Incentive Scheme. With an outlay of Rs 1.97 lakh crore (\$24 billion), 24 sub-sectors are being leveraged based on their strengths, competitive advantage, and scope for import reduction, export boost, and employment generation.

One of the focus areas of Make in India has been India's essential manufacturing sectors, such as automotive and aerospace, in addition to honing local talent, both of which align seamlessly with Godrej & Boyce's vision. The 126-year-old conglomerate was a pioneer in 'making in India' before it was formalised as a definitive program. The momentum generated by Make in India has further enabled innovation across our businesses, nurtured industrial acumen, and helped us contribute to the nation's cutting-edge technical growth.

Make in India's focus on skill development and local employment has reaped encouraging results. According to the latest Annual Periodic Labour Force Survey, employment in the manufacturing sector increased to 11.4 per cent in 2022-23 compared to 10.9 per cent in 2020-21. With a sizable blue-collar workforce, Godrej & Boyce, too, has been investing in upskilling for local skill development.

Underscoring the need to source locally, as championed by Make in India, we are developing a formidable network of domestic suppliers to help us reduce imports. Godrej & Boyce's marquee supplier program, called 'Beyond Sourcing,' has enabled us to strengthen our supply chain by

UNDERSCORING THE NEED TO SOURCE LOCALLY, AS CHAMPIONED BY MAKE IN INDIA, WE ARE DEVELOPING A FORMIDABLE NETWORK OF DOMESTIC SUPPLIERS TO HELP US REDUCE IMPORTS. GODREJ & BOYCE'S MARQUEE SUPPLIER PROGRAM, CALLED 'BEYOND SOURCING,' HAS ENABLED US TO STRENGTHEN OUR SUPPLY CHAIN BY ONBOARDING MSMEs, KEY TO INDIA'S MANUFACTURING AND EXPORTS NARRATIVE, CONSTITUTING 25 PER CENT OF OUR SUPPLIERS.

technological prowess. We see more manufacturers embrace technologies like automation, artificial intelligence, and IoT to enhance efficiency, lower costs, and increase competitiveness. Technological collaborations, both domestic and foreign, are bound to establish India as an effective partner in global value chains.


The world over, manufacturers are reassessing their impact on the environment, as investors and consumers alike mount pressure on companies to turn environmentally friendly. Sustainability goals, spanning green manufacturing, local sourcing, and a circular economy, are prioritised as much as financial targets. To reach India's goal of being carbon net-zero by 2070, Make in India's hefty PLI purse could incorporate additional incentives



onboarding MSMEs, key to India's manufacturing and exports narrative, constituting 25 per cent of our suppliers. We plan to take their share to 50 per cent of our suppliers by 2030. Local sourcing is in sync with our drive to make manufacturing more sustainable as well.

The collaborative spirit fostered by Make in India has attracted global players and amplified India's

for going green as we move forward.

With FDI equity inflow in the manufacturing sector rising by 57 per cent from 2014-22 over the previous eight years (2006-14), Make in India's decade-long progress has much to celebrate and a lot more to achieve. As tenacious and dedicated as India's manufacturing, the program will surely continue to evolve and take us closer to global excellence. 

Make In India: A Decade Of Transformative Growth

The article delves into how the Indian space and aviation industry is ushering India into a new era of self-reliance and global competitiveness by nurturing indigenous capabilities, fostering international collaborations, and achieving key technological advancements.



MANECK BEHRAMKAMDIN

Senior Vice President, and Business Head,
Godrej Aerospace

In 2014, India embarked on a visionary journey with the launch of the 'Make in India' program, a transformative endeavour aimed at propelling the nation into a global manufacturing powerhouse. A decade later, as we reflect on the impact of this initiative, it is evident that 'Make in India' has not only reshaped the economic landscape but has also played a pivotal role in bolstering sectors crucial for national security and technological advancement.

The Government of India unveiled the 'Make in India' initiative, envisioning a future where India's prowess in manufacturing would lead global economic dynamics. The overarching goal was to elevate the contribution of manufacturing to India's GDP, foster job creation, and position the country as a formidable player on the global economic stage. The success of Make in India lies in its multifaceted approach, addressing regulatory complexities, promoting innovation, and attracting both domestic and foreign investments.

By encouraging research and development across sectors, the program fostered a culture

of ingenuity and technological advancement. This emphasis on innovation positioned India as a hub for cutting-edge solutions, attracting global attention and collaborations. The impact of Make in India reverberated most profoundly in sectors critical to India's development and security – Manufacturing, Space, defence, and others. It has empowered industries to harness their potential, facilitating the transition from being mere consumers to active contributors on the global stage. The opening up of the defence sector to privatisation through various defence reforms has given Indian companies a real opportunity to be a part of India's growth journey.

AVIATION INDUSTRY TAKES OFF

The government's focus on promoting indigenous production and reducing dependency on imports has led to the establishment of several aerospace manufacturing units across the country. India has now become a global hub for aero-structures, components, and complex systems assemblies, with the emergence of over 350 private space companies. The Defence Research and Development Organisation (DRDO) has played a pivotal role in bolstering India's capabilities in the development of aircraft, exemplified prominently by the Tejas, India's indigenous light combat aircraft.

Over the past decade, many companies have also set their sights on establishing a significant presence in the country, marking a paradigm shift in the dynamics of the aerospace industry. This has not

INDIA HAS NOW BECOME
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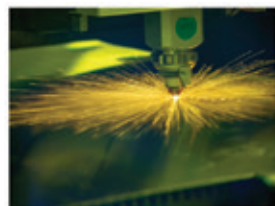
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only contributed to the growth of the sector but has also created a robust ecosystem for research, development, and innovation.

SPACE INDUSTRY SOARS TO NEW HEIGHTS

In the realm of space exploration, India's strides have been nothing short of extraordinary, driven by a strategic emphasis on public-private partnerships. The government's visionary approach has intricately woven collaborations between prestigious space organisations, notably the Indian Space Research Organisation (ISRO). A testament to India's resolve to indigenise its space program is the resounding success of the Chandrayaan-3 mission. This mission exemplifies a paradigm shift from reliance on foreign manufacturers to a self-sufficient space endeavour, echoing the nation's technological prowess. This seamless integration of expertise from various companies exemplifies the synergistic potential when public

AS INDIA STRATEGICALLY FOCUSES ON MANUFACTURING SATELLITES, LAUNCH SOLUTIONS, AND ORBIT MANAGEMENT SOLUTIONS INDIGENOUSLY, THE MANUFACTURING SEGMENT WITHIN THE SPACE SECTOR IS POISED TO POSITION INDIA AS A FRONTRUNNER IN THE BURGEONING GLOBAL SPACE ECONOMY.

and private entities join forces to explore the cosmos. As India strategically focuses on manufacturing satellites, launch solutions, and orbit management solutions indigenously, the manufacturing segment within the space sector is poised to position India as a frontrunner in the burgeoning global space economy.

The Indian Space Policy of 2023 stands out for providing a clear roadmap, eliminating barriers, and creating opportunities for private

enterprises. This strategic shift has catalysed the entry of numerous space-tech start-ups into diverse sectors, nurturing a vibrant ecosystem that complements the efforts of established space agencies like ISRO. Notably, the number of space start-ups in India has seen a remarkable surge, reaching 189 in 2023 from a solitary entity in 2014. Union Minister Dr. Jitendra Singh disclosed that these start-ups have attracted a substantial investment of USD 124.7 million, underscoring the dynamic potential of the country's space industry. With India's growing capabilities gaining global recognition, collaborations with countries and space agencies worldwide have become increasingly prevalent. Joint missions, research initiatives, and technology exchanges now form integral components of this collaborative approach, propelling India to the forefront of the international space community.

CONCLUSION:

'Make in India' has not only

strengthened India's diplomacy but has also fostered a spirit of cooperation and shared knowledge in the global community. From nurturing indigenous capabilities to fostering international collaborations, the initiative has propelled India into a new era of self-reliance and global competitiveness. Looking ahead, it is crucial to build upon the successes of the past decade, continuing to innovate and collaborate to ensure a brighter and more self-reliant future for the nation. 



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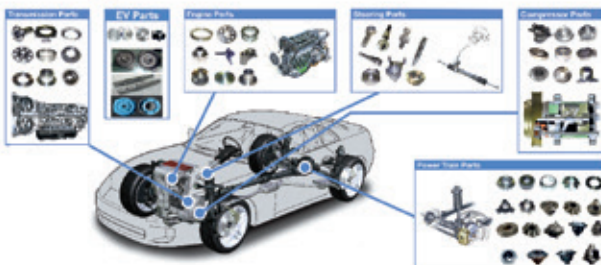
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Haldia Petrochemicals: An Icon Of Leadership And Commitment To India's Manufacturing Vision

The article underscores Haldia Petrochemicals Limited's (HPL) significant role and unwavering commitment to India's industrial renaissance through 'Make in India.' It also talks about HPL's acquisition of Lummus Technology and the forthcoming integrated phenol plant, indicating their substantial strides toward enhancing India's self-reliance.



NAVANIT NARAYAN

Whole Time Director & CEO, HPL

Haldia Petrochemicals Limited (HPL), a flagship venture of The Chatterjee Group (TCG) promoted by Dr. Purnendu Chatterjee, is a testimonial to the Industrial Renaissance in West Bengal. HPL considers it a privilege and a responsibility to chronicle several decades marked by transformative achievements, resilience, and unwavering dedication to India's industrial renaissance through the 'Make in India' initiative. Our journey at HPL symbolises India's evolving industrial prowess and commitment to excellence.

HPL is the first and only integrated petrochemical complex along the eastern coast of India,

manufacturing high-quality polymers like high-density polyethylene (HDPE), linear low-density polyethylene (LLDPE), and polypropylene (PP), as well as chemicals/fuels like benzene and butadiene from its naphtha cracker capacity of 700 KTA of ethylene. Over the years, the company has expanded its footprint and added several products to cater to multiple segments.

Since its commissioning in 2000, its focused business development approach to promote local downstream industry growth has led to the setting-up of more than 2,000+ manufacturing units in Eastern India, generating over one million direct and indirect jobs.

As the country progresses towards celebrating the centenary of our Independence and works towards realising the vision of *Amrit Kaal 2047* envisaged by Hon'ble PM, the Petrochemical industry is likely to play a critical role in nation-building. The sector plays a crucial role in producing high-performance products needed for diverse applications across various sectors.

Despite huge growth in the last 2-3 decades, India remains a net importer of most petrochemical products. India's Chemical Industry accounts for 3-4 per cent of the global industry base despite being home to almost 16-17 per cent of the global population. Considering the large population base, favourable demographics, rising urbanisation, changing customer preferences towards high-end speciality products and huge investment in infrastructure,

BESIDES BULK AND NICHE CHEMICALS, INDIA IS LIKELY TO SEE STRONG GROWTH IN SPECIALTY CHEMICALS. RISING DISPOSABLE INCOME AND THE CONSEQUENT DEMAND GROWTH FOR VALUE-ADDED PRODUCTS, ALONG WITH EMERGING EXPORT OPPORTUNITIES, ARE BOTH LIKELY TO LEAD TO AN 8-10 PER CENT CAGR GROWTH OF SPECIALTY CHEMICALS IN INDIA AND ARE LIKELY TO OUTPACE CHINA IN THE NEXT FEW DECADES.

ANOTHER CHALLENGE TO THE INDUSTRY IS THE NEED FOR CLEAN TECHNOLOGY DEVELOPMENT TO MEET THE COUNTRY'S ESG COMMITMENT TO A GLOBAL FORUM. BEING ENERGY-INTENSIVE, PETROCHEMICALS MUST DEVELOP NEWER ROUTES TO MINIMISE GLOBAL FOOTPRINT.

the demand for petrochemicals is forecasted to grow manifold in the next decades. It is estimated that the chemical and petrochemicals industry will become 1,000+ billion USD by 2047 from the current 200 billion USD. The growth will be attained through innovative and judicious utilisation of resources, keeping long-term sustainability in focus.

Besides bulk and niche chemicals, India is likely to see strong growth in Specialty Chemicals. Rising disposable income and the consequent demand growth for value-added products, along with emerging export opportunities, are both likely to lead to an 8-10 per cent CAGR growth of Specialty Chemicals in India and are likely to outpace China in the next few decades. Strong process engineering capabilities, an abundant skilled workforce, and low-cost manufacturing capabilities are likely to provide a strong impetus to the growth of the chemical industry in the country.

However, the growth is likely to face multiple challenges, the foremost of which is the unavailability of competitive feedstock. In recent times, divergent trends in the refining


sector (producer of feedstock) and petrochemicals have further compounded the problem. As we progress further, we foresee that feedstock from the refining sector may not be adequate to meet the demands of the petrochemical industry. The industry needs to look beyond conventional routes to fulfill feedstock demand growth.

Another challenge to the industry is the need for clean technology development to meet the country's ESG commitment to a global forum. Being energy-intensive, Petrochemicals must develop newer routes to minimise global footprint.

Against this backdrop, HPL's

acquisition of Lummus Technology is a proud moment for the country and will likely become a major enabler in realising the "Make in India" dream in petrochemicals. Lummus Technology, with a heritage spanning 110 years, is a leading master licensor of proprietary technologies in refining, petrochemicals, gas processing and coal gasification sectors and a supplier of proprietary catalysts, equipment, and related engineering services. Lummus Technology has around 130 licensed technologies and over 3,400 patents and trademarks. The Lummus acquisition provides enormous opportunities for Indian talent exposure to cutting-edge technology. It may benefit the Indian engineering industry in developing the manufacturing capability of large proprietary equipment.

The acquisition also provides the Indian Refining and Petrochemical Industry with the opportunity to work closely in technology development with Lummus to develop solutions to meet specific demands. Lummus TC2C (Thermal Crude to Chemical) technology will likely play a critical role in meeting the country's demand for petrochemicals without producing fuels. The technology, besides ensuring direct conversion of crude into petrochemicals, also provides a significant cost of production advantage and is likely to enhance India's export competitiveness on the global stage.

Besides providing strong technology leadership, HPL is working on multiple fronts to make the country self-sufficient in niche chemicals. HPL is setting up India's largest integrated phenol plant and working on various other chemical segments where India remains dependent on imports. The Indian chemical industry is truly looking forward to Amrit Kaal's growth and is all set to support India's mission of Aatmanirbhar Bharat. 



Zinc Of India, Built For India, Made In India – Hindustan Zinc Embodying The Spirit Of Make In India

The article focuses on Hindustan Zinc's crucial role in not only meeting India's demand for Zinc but also in reducing imports.



ARUN MISRA
CEO, Hindustan Zinc

Kautilya's classic treatise 'Arthshashtra' states, "*Mines and Minerals are the source of a treasury, from which flows the power to the state*". Even today, minerals and metals, such as zinc, play a crucial role in industrial and economic growth, impacting both human health and all living organisms. This is the story of the fourth most used metal worldwide, made in India, embodying the spirit of 'Make in India.'

Zinc, initially described as 'false silver,' was found in the prehistoric ruins of Transylvania. However, references to ancient mining in India date back zinc mining to roughly 2,500 years ago, with Zawar Mines as the source. Located roughly 40 kilometres from Udaipur, Rajasthan (also known as Zinc City), carbon dating at the sites reveals remnants of wooden stairways, roofs, scaffolding supports, and an extraction method using retorts. This mining activity showcased meticulous organisation and advanced technologies for its time.

Hindustan Zinc carried forward

THE 'MAKE IN INDIA' INITIATIVE NOT ONLY BOOSTED INDIGENOUS MANUFACTURING BUT ALSO ESTABLISHED VARIOUS INDUSTRIES, FURTHER SPURRING GROWTH. IT'S NOT JUST A CAMPAIGN; IT'S A MOVEMENT THAT REDEFINED INDIAN MANUFACTURING. METALS LIKE ZINC, SILVER, AND ALUMINIUM MADE IN INDIA BECAME KEY CONTRIBUTORS TO THIS TRANSFORMATIVE JOURNEY.

this legacy in 1966 when India's first smelter was established at Debari, near Udaipur. With the mines to the south and the smelter to the east, the city of Udaipur soon came to be known as 'Zinc City'. In 2002, with Hindustan Zinc's disinvestment, its production capacity soared from 2,00,000 tonnes



to significantly higher levels of crossing 1 million tonnes in the previous financial year.

Following disinvestment, zinc imports steadily increased as consumption surged with India's development. The landmark 'Make in India' campaign provided a new dawn for industrial growth. Hindustan Zinc transformed its operations, swiftly shifting to underground mining from a modest production capacity of around 8,00,000 tonnes. This turnaround not only met India's demand for zinc but also drastically reduced imports.

The 'Make in India' initiative not only boosted indigenous manufacturing but also established various industries, further spurring growth. It's not just a campaign; it's a movement that redefined Indian manufacturing. Metals like zinc, silver, and aluminium made in India became key contributors to this transformative journey. Think of a bustling Indian cityscape; the towering skyscrapers, the enduring machinery, the intricate infrastructure – all woven together by the invisible threads of zinc, not just imported, but 'Made in India, For India'.

India's ascent through the 'Make in India' decade has been a testament to perseverance, innovation, and unwavering self-reliance. This innovation has been crucial, expanding zinc's usage from galvanising and diecasting to paints, alloys, medicines, fertilisers, and even batteries for a sustainable future. To meet the growing needs and applications, Hindustan Zinc ensured that supply kept pace with demand.

The empirical data supports this tale of triumph. From 2018 to 2024,

TO MEET THE GROWING NEEDS AND APPLICATIONS, HINDUSTAN ZINC ENSURED THAT SUPPLY KEPT PACE WITH DEMAND. THE EMPIRICAL DATA SUPPORTS THIS TALE OF TRIUMPH. FROM 2018 TO 2024, ZINC IMPORTS DROPPED DRAMATICALLY COMPARED TO A DECADE AGO. IN FY24 ALONE, IMPORTS STOOD AT ROUGHLY 2,18,000 TONNES WHICH IN THE DECADE BACK STOOD AT 5,00,000 TONNES.

next-generation vehicles and innovative solar panels is just the beginning of unlocking its potential.


As India commemorates a decade of 'Make in India,' the story of zinc, lead and silver produced in India stands as a beacon of hope – an embodiment of collective vision and action. It symbolises not only infrastructure fortification but also manufacturing prowess, innovation catalyst, and the foundation for India's standing amidst global industrial giants. This essence encapsulates the symphony of progress, resonating through the resilience of metals like zinc, chanting the anthem: 'Made in



zinc imports dropped dramatically compared to a decade ago. In FY24 alone, imports stood at roughly 2,18,000 tonnes which in the decade back stood at 5,00,000 tonnes.

However, this is not just a numerical victory; it's a testament to progress and resilience. The road ahead beckons with exciting prospects. Zinc's inherent sustainability positions it as a cornerstone for India's green future. Its application in lightweight materials for

India, For India, By India.'

In conclusion, as India charts its trajectory towards becoming a global manufacturing powerhouse, the story of zinc reflects the nation's resilience, adaptability, and unwavering commitment to progress. The 'Make in India' saga, with its triumphs and challenges, continues to script a narrative poised for a future where Indian innovation and industrial prowess shine on the global stage. 

Five Ways In Which The Water Purifier Industry Can Align Itself With *Make In India*

The article discovers a vision for 2047, emphasising advanced technological innovations and collaborative ecosystems. Here, Gupta reflects on past achievements and charts a course for a future led by innovation, sustainability, and global leadership.



Dr. MAHESH GUPTA
Chairman and Managing Director,
CMD, Kent RO Systems Ltd.

Our nation has witnessed a transformational journey in manufacturing over the past decade as we celebrate the milestone of a decade of Make in India. Developed in 2014, this visionary initiative aims to position India as a global manufacturing hub, foster self-sufficiency, and nurture an innovation culture.

Over the past ten years, Make in India has been a catalyst for indigenous manufacturing, propelling our nation into the global spotlight. The emphasis on self-reliance and innovation has been embraced by manufacturers across diverse sectors, contributing to the nation's economic growth.

The cornerstone of success lies in a steadfast commitment to quality, relentless innovation, and a sense of responsibility towards the well-being of our citizens. Recognising the importance of manufacturing excellence, industries have invested significantly in cutting-edge technologies, producing products that not only meet global standards but

also address local needs.

To position Indian products competitively on the global stage, Make in India has fostered a culture of innovation, with research and development becoming an integral part of manufacturing processes. We have tested the resilience and adaptability of our industries, resulting in products that meet not just domestic needs but those that can capture international markets as well.

Make in India has played a crucial role in employment generation, contributing to the nation's socio-economic fabric. By providing job opportunities to a diverse workforce, industries have not only fuelled economic growth but have also played a role in shaping skilled professionals. The manufacturing sector has emerged as a significant contributor to India's employment landscape.

VISION FOR 2047: A FUTURE ALIGNED WITH MAKE IN INDIA'S ASPIRATIONS

As we commemorate the 10th anniversary of the Make in India initiative, it's essential to cast our gaze forward and envision the future trajectory, aspirations, and milestones for 2047.

Advanced Technological Innovations:

This involves harnessing breakthrough technologies such as artificial intelligence, machine learning, and nanotechnology to develop next-generation water purifiers. This commitment to innovation aligns with Make in India's vision of fostering technological advancements, research, and development across diverse sectors.

TO POSITION INDIAN PRODUCTS COMPETITIVELY ON THE GLOBAL STAGE, MAKE IN INDIA HAS FOSTERED A CULTURE OF INNOVATION, WITH RESEARCH AND DEVELOPMENT BECOMING AN INTEGRAL PART OF MANUFACTURING PROCESSES.

USING DATA, ARTIFICIAL INTELLIGENCE, AND AUTOMATION TO INCREASE EFFICIENCY AND PRODUCTIVITY IS THE NEXT FRONTIER FOR MAKE IN INDIA, LEVERAGING INDUSTRY 4.0 TECHNOLOGIES.

Sustainable Practices and Environmental Stewardship:

Emphasising eco-friendly manufacturing processes, recyclable materials, and energy-efficient operations. This alignment with global sustainability goals resonates with Make in India's focus on sustainable growth, responsible manufacturing, and environmental conservation.

Global Leadership and Market Expansion:

Strengthening its global presence by forging strategic partnerships, expanding market reach, and adhering to international quality standards. This aspiration mirrors Make in India's objective of positioning India as a preferred destination for foreign investment, innovation, and collaboration on the global stage.

Empowering Communities and Societal Impact:

Collaborating with governments, non-profit organisations, and community stakeholders to implement water purification initiatives, awareness campaigns, and capacity-building programs. This commitment to societal impact aligns with Make in India's emphasis on inclusive growth, community development, and public welfare.

Collaborative Ecosystem and Knowledge Sharing:

Fostering an ecosystem that promotes collaboration, innovation, and collective problem-solving by partnering with academic institutions, research organisations, and industry stakeholders. This collaborative ethos resonates with Make in India's vision of fostering partnerships, knowledge exchange, and synergies across sectors.

The vision for 2047 encapsulates the water purifier industry's commitment to aligning with Make in India's broader goals, aspirations, and principles. By embracing innovation, sustainability, global competitiveness, and societal impact, the industry aims to contribute significantly to India's growth story, resilience, and leadership on the global stage.

While celebrating these achievements, it is essential to acknowledge the challenges overcome during this journey. Streamlining regulatory processes, enhancing

infrastructure, and ensuring ease of business have been pivotal aspects that required collective efforts. The collaboration between industry and government has been instrumental in navigating these challenges and setting the stage for sustained growth.

As we look to the future, the next decade holds immense potential for the manufacturing sector in India. The focus must evolve towards sustainable practices, digitalisation, and embracing cutting-edge technologies. The resilience displayed during the challenges of the past decade positions us favourably to lead this transformation.

Our efforts to reshape our manufacturing landscape have been exemplified by the 10th anniversary of Make in India. Through innovation, quality, and a commitment to our people, industries have played a critical role in our nation's growth story. As we enter the next decade, there is a high level of confidence that the manufacturing sector will continue to flourish, contributing significantly to India's international ambitions.

As we look forward, industry leaders must work closely with the government to develop policies that encourage innovation, sustainable practices, and global competitiveness. Using data, artificial intelligence, and automation to increase efficiency and productivity is the next frontier for Make in India, leveraging Industry 4.0 technologies.

As part of the Make in India 10th anniversary, we are not just celebrating its accomplishments over the past decade but also calling for action in the future. It is an opportunity for industry leaders, policymakers, and stakeholders to come together and chart a course that propels Indian manufacturing to greater heights, making it a force to be reckoned with on the global scene. Making significant strides in manufacturing will continue to be driven by collaboration, innovation, and a relentless pursuit of excellence. 



Incentivised Opting For Indian Energy Products Will Further Engourage Local Manufacturing

As India gears up for Amrit Kaal in 2047, the article uncovers the role of the energy sector in driving economic growth. It highlights the need for incentivising local production and shows the potential for India to lead in new-age sectors.



PREETI BAJAJ

CEO and MD, Luminous Power Technologies

Time is the biggest test for policymaking, as only years later can a nation evaluate and truly appreciate the impact of good policies. In the year when India celebrates a decade of Make in India, the foundation is set for Amrit Kaal, and a strong belief in self-reliance is instilled in everyone. The next decade will be the breakout year for the country as it sets to gather momentum en route to celebrating the centenary of its independence in 2047.

Historically, Indian products have been a global attraction for centuries in ancient and mediaeval times, and India has been a centre of global trade. Post-independence, we have grappled to restore the same glory. However, the transformative initiative, Make in India, has significantly bolstered the nation's economic landscape, shining the spotlight on localised manufacturing and invoking pride in Indian products. Spearheaded by the Prime Minister, the movement has encouraged domestic and foreign investment, fostering innovation and job creation. By promoting ease of doing business, streamlining

regulations, and investing in skill development, Make in India has attracted numerous industries, boosting manufacturing capabilities. The initiative stands as a testament to India's commitment to self-reliance, economic growth, and its role as a global manufacturing powerhouse, showcasing a resolute march towards prosperity.

The incantation of the mantra, 'Make in India' in thought and in action, has helped us pave the pathway for restoring our position as a preferred trading partner for the world. It is through this incantation that our nation today is poised on the brink of another golden era. The path ahead is usually significantly dependent significantly on the road travelled in the near past. Not long ago, India leapfrogged to the position of being the world's fifth-largest economy. In the past decade, well-crafted policies and quick decision-making have propelled the country's economic engine. Today, India stands at a 3.75 trillion-dollar GDP, a rapid rise from 2.04 trillion dollars in 2014. The trajectory of India's economic growth is also supported by the growing per capita income, which is driving a better standard of living for the people of India. The government's focus on capital expenditure, increasing the investment from Rs 3.9 lakh crore in 2014 to Rs 10 lakh crore in 2023, has not only contributed to nation-building but, more importantly, has created a supporting infrastructure for localisation in the country, helping strengthen the value chain for Indian manufacturing to flourish.

Currently, manufacturing accounts for 14 to 15 per cent of

MANUFACTURING, WHICH IS TRADITIONALLY CONSIDERED MASCULINE, SEES A WEAKER PARTICIPATION OF WOMEN. IT IS NOTEWORTHY THAT THE ENERGY SECTOR WITNESSES A HIGHER PRIORITISATION OF WOMEN IN THEIR DEI STRATEGIES.

LUMINOUS HAS BEEN
FOCUSING ON LOCALISATION,
HAVING INVESTED IN INDIA'S
FIRST GREEN SOLAR PANEL
FACTORY IN UTTARAKHAND.

India's GDP. This is despite the pandemic shock, which brought the country and its domestic production to a standstill for a considerable period. In addition to undertaking key strategic measures to attract FDIs and the interest of international businesses to manufacture in India, the Indian Government has taken progressive steps to promote Indian manufacturing around the world. Furthermore, donning the mantle of being a global leader for sustainability, India has invested in strengthening the renewable energy market in the country. As of November 2023, India has about 44 per cent of power generation coming from non-fossil fuels, with solar accounting for 17 per cent of the energy mix.

Make in India has laid the foundation for localised manufacturing. On the road to India in 2047, we as a nation must capitalise on the following opportunities to accelerate the growth momentum: **Leverage the population dividend:** It is well known that ours is a young nation. However, we are also ageing rapidly. It is the right time to leverage the population dividend for the next couple of decades. Being labour-intensive, India can best utilise the huge population in the country by generating employment through localised manufacturing. There are two critical parts to this. The first is creating a qualified, educated, and skilled workforce to manage modern-day manufacturing environments. The second is making the workforce more inclusive. As per the Global Gender Gap Report 2023, India has one of the lowest female labour force participation rates, with women accounting for 27 per cent of India's STEM workforce. Generally, professions such as IT and the service sector see a higher rate of female employment. Manufacturing, which is traditionally considered masculine, sees a weaker participation of women. It is noteworthy that the energy

sector witnesses a higher prioritisation of women in their DEI strategies.

Ensure the manufacturing of energy products as a key driver: India's economic growth will be powered by the energy sector, and our energy needs will grow manifold in the coming decades. The energy sector does not only include power generation; it also creates and fulfils the demand for a host of energy products. The growth of the energy sector will have a multiplier effect on the manufacturing industry. It is important to incentivise consumers to opt for Indian-manufactured energy products, which will cut down on our import bill and encourage organisations that manufacture in India. Luminous has been focusing on localisation, having invested in India's first green solar panel factory in Uttarakhand. A progressing ecosystem will encourage other players to localise, creating a competitive market and thereby benefiting the end consumer and the nation. It is noteworthy that renewable energy is a new, evolving space. Encouraging the localisation of renewable energy products, such as solar products, will help India gain early momentum in this space, which will also add to India's sustainability efforts.


Building a strong R&D ecosystem is going to be a major focus area in the near future. We need robust public-private partnerships to encourage R&D in the country. There is a need to provide strong financial incentives and support to scientists and research staff, as well as resources and infrastructure to R&D centres all over the country. A flourishing R&D environment will help India become a force to reckon with, especially in new-age sectors

encompassing STEM, medicine, engineering, manufacturing, and legal domains.

Boost localisation in new-age sectors: The new-age sectors include fields such as renewable energy, AI, aerospace and defence technology, hi-tech semiconductors, and so on. With science and technology evolving around the domain, India must take the lead by promoting complete localisation of the manufacturing of products across these domains to become a manufacturing centre for the world. Accelerating Make in India in these areas will help us have unprecedented leverage over global trade and economics.

Accelerate digital transformation in manufacturing: Adopting automation and Industry 4.0 at a massive scale will also play a critical role in boosting sustainable, cost-effective, and efficient manufacturing services capable of catering to global demand.

Capitalise on changing trust dynamics in global trade: This is the perfect time as the world is looking for a reliable and trustable manufacturing partner, owing to the trust deficit in existing partners. We really should be looking at capitalising on this opportunity, as this will pay rich dividends in the coming future and will essentially put Make in India on the world map.

By strengthening these fundamentals, we will ensure that the world comes to India for its manufacturing needs. Make in India has a tremendous opportunity to be the single biggest factor in catapulting the Indian economy to the next level, generating millions of meaningful and well-paying jobs, and attracting huge revenue and investment to fuel our national growth. In the past decade, the foundation has been set. Now is the time to begin powering our way on the growth pathway for Amrit Kaal 2047. 

The Indian Nutraceutical Industry Can Elevate If Given The Same Status As Pharmaceuticals

This article draws a roadmap to strengthen the Indian nutraceutical industry on the global stage. This includes steps like reducing GST on its products to 10 per cent like in the case of pharmaceuticals. Factors like inculcating awareness in the Indian education system can improve health and reduce health costs.



SANJAYA MARIWALA

Executive Chairman and Managing Director, OmniActive Health Technologies and President, Association of Herbal and Nutraceutical Manufacturers of India (AHNMI)

The world is shifting gears, veering towards a health-conscious revolution. People are waking up to the importance of wellness and nutrition. They're not just sipping green tea; they're chasing vitality like it's the golden fleece.

Mirroring this shift, the nutraceuticals market has experienced significant growth, escalating from 372.27 billion dollars in 2022 to 409.12 billion dollars in 2023, according to Research and Markets. Projections indicate a continued growth trajectory with a 9.9 per cent CAGR from 2022 to 2027, with the United States and China dominating this market. Conversely, India, with its rich herbal traditions valued at 5.4 billion dollars, has yet to establish dominance in the sector.

In response, India's industry stakeholders and regulators, including the government, are undertaking transformative efforts. A task force was established in 2021 to foster a conducive environment for the nutraceutical industry, marking a significant step towards progress. However, progress remains gradual,

and changes are perpetual.

India has the potential to significantly expand its exports of nutraceuticals as its first goal. Subsequently, with the growth of its economy and disposable income, India is poised to become a high-growth domestic market for nutritional products. India requires a well-defined and determined strategy for entry to capitalise on these two growth opportunities.

GOVERNMENT ENDEAVOURS AND VITAL POLICY MEASURES TO PROPEL NUTRACEUTICAL INDUSTRY GROWTH

Formulating a Product Linked Incentive (PLI) scheme will be central to sustaining growth in the nutraceutical industry. This scheme offers an integrated approach, specifically tailored to the sector's needs, with significant potential to boost agriculture and the entire value chain.

Equally critical for industry expansion is the implementation of a competitive tax policy. The industry can achieve a more favourable position by elevating nutraceuticals to the same status as pharmaceuticals and reducing the Goods and Services Tax (GST) on these products from the current 18 per cent to below 10 per cent.

Further, promoting research and development (R&D) through public-private partnerships (PPPs) and establishing dedicated R&D parks will act as catalysts for industry growth. The integration of nutraceuticals into the National Medicinal Plants Board scheme and the amendment of the Biodiversity Act are also strategic

THE NUTRACEUTICALS MARKET HAS EXPERIENCED SIGNIFICANT GROWTH, ESCALATING FROM 372.27 BILLION DOLLARS IN 2022 TO 409.12 BILLION DOLLARS IN 2023

moves poised to incentivise backward vertical integration in companies.

INSTITUTING MANDATORY STANDARDS AND ENSURING QUALITY IN THE NUTRACEUTICAL MARKET

Collaboration between the Food Safety and Standards Authority of India (FSSAI) and industry experts is imperative to establish mandatory standards. This not only regulates the market but also promotes growth by ensuring the production of high-quality and trustworthy products.

INTEGRATION OF NUTRACEUTICALS INTO INDIA'S EDUCATIONAL SYSTEM

The integration of nutraceuticals into India's educational system is gaining momentum, driven by heightened awareness. Achieving this involves integrating nutraceuticals into the curriculum, fostering collaboration between the education sector and the industry, and garnering government support. By incorporating

BY INCORPORATING NUTRACEUTICAL EDUCATION INTO THE CURRICULUM, SUPPORTING RESEARCH, AND IMPLEMENTING REGULATORY MEASURES, THE EDUCATIONAL SYSTEM CAN CULTIVATE A CULTURE OF HEALTH AND WELLNESS.

nutraceutical education into the curriculum, supporting research, and implementing regulatory measures, the educational system can cultivate a culture of health and wellness. The benefits extend beyond awareness to improved health, reduced healthcare expenditures, and enhanced academic performance.

HSN CODES AND A DEDICATED DESK UNDER THE APPROPRIATE MINISTRY


Streamlining product categories, standardising HSN codes for nutraceutical products, and aligning them to facilitate international

trade are imperative. The current classification of all products under the generic category of "others" poses challenges for tracking and monitoring. A more specific categorisation, akin to that for honey, sugar, and wheat flour, is essential.

THE "CHINA PLUS ONE" STRATEGY

Several industries, including nutraceuticals, depend on China for raw materials. Considering the current trade and geopolitical tensions, India's potential to become a global export and manufacturing hub hinges on several key factors, such as a specialised focus on niche markets, infrastructure development, and trade policy reforms. India's advantages, including cost-effective labour, abundant resources, and a growing middle class, can position it as a strong 'China plus one' alternative.

Looking ahead, the Indian nutraceutical industry is on the cusp of a significant breakthrough. With the rising trend of preventive

healthcare, this sector is not just poised for domestic growth but also stands as a beacon for global market expansion. The key to realising this potential lies in the swift and effective implementation of streamlined processes underpinned by a well-defined strategic roadmap. By transitioning efficiently from planning to action, India will be able to consolidate its position in the global nutraceutical arena. 



Decoding The Success Of Electronics Manufacturing In Make In India

Electronics is one of the key highlights of this unfolding Indian manufacturing success story, witnessing a surge in investment and growth. This article attributes this growth to factors including foreign direct investment, favourable policies, and increasing domestic demand. It also charts a roadmap for the segment in the upcoming decade.



SHREEGOPAL KABRA
Managing Director, RR Kabel Limited

In September this year, we will celebrate the 10th anniversary of Make in India, the flagship scheme launched by the Honourable Prime Minister Shri Narendra Modi in 2014, to promote and incentivise dedicated investments in the country's indigenous manufacturing sector. Over the course of the past decade, Indian manufacturing has grown from strength to strength, bolstered by robust infrastructure, unwavering policy support, and heightened investor confidence. The outlook for the sector is indeed promising, with a report by Colliers' predicting that India's manufacturing market will grow to USD 1 trillion by 2025–26.

Electronics is one of the key highlights of this unfolding Indian manufacturing success story, witnessing a surge in investment and growth. An estimate by the Indian Cellular and Electronics Association (ICEA) suggests that the electronics manufacturing sector will grow to USD 115 billion, with the contribution of mobile phone manufacturing alone expected to be USD 50 billion. An increased emphasis on achieving self-reliance in semiconductor chip production further exemplifies this visionary and dynamic epoch of Indian manufacturing.

DECODING THE SUCCESS OF ELECTRONICS MANUFACTURING IN THE MAKE IN INDIA ERA

Foreign Direct Investment (FDI) has played a significant role in the phenomenal growth of Indian

manufacturing over the past decade. FDI inflows over the past nine financial years (2014–23) have increased by 100 per cent over those of the previous nine financial years (2005–14), a strong testament to global confidence in the country's manufacturing sector and the Indian government's success in creating a favourable climate for foreign investment. This is further borne out by major international FMEG brands establishing production facilities in India. At a time of global headwinds, India's geopolitical and economic stability, as well as its strategic location—offering ease of access to the Asian, European, and African markets via air and sea links—further add to the country's attractiveness as an investment destination.

The role of policy measures in creating a conducive environment for electronics manufacturing can scarcely be understated. The establishment of dedicated industrial parks and Special Economic Zones (SEZ) with a primary focus on electronics manufacturing, a product of government-industry collaboration, has been a most welcome step. A significant initiative in this regard has been the setting up of Electronics Manufacturing Clusters (EMCs) across various states to serve as manufacturing hubs for the electronics sector.

Production Linked Incentives (PLIs) have proved to be another highly effective measure to promote indigenous manufacturing of electrical components. The PLI scheme has been successful in attracting substantial investments for large-scale electronics

THE ESTABLISHMENT OF DEDICATED INDUSTRIAL PARKS AND SPECIAL ECONOMIC ZONES (SEZ) WITH A PRIMARY FOCUS ON ELECTRONICS MANUFACTURING, A PRODUCT OF GOVERNMENT-INDUSTRY COLLABORATION, HAS BEEN A MOST WELCOME STEP.

manufacturing, encompassing mobile phone manufacturing and the production of specified electronic components, including Assembly, Testing, Marketing and Packaging (ATMP) units. Furthermore, PLI has considerably elevated its domestic capabilities in terms of chip design and assembly.

India's thriving IT sector is also a significant asset from the perspective of the electronics sector. An abundance of highly skilled and capable talent, including engineers, technicians, and software developers, ensures that the IT sector is well-equipped to develop and support the innovative technologies and processes required for the continued evolution of electronics manufacturing. Beyond IT, access to a skilled labour force at lower costs has played a crucial role in attracting global manufacturers to the country.

Last but not least, robust domestic demand has been a critical factor driving the upward trajectory of Indian electronics manufacturing. The country's vast population, escalating urbanisation, and augmented purchasing power underpin this massive and rapidly growing domestic market for a wide array of electronics products, – incentivising even global FMEG brands to manufacture in India in order to tap into this burgeoning demand.

THE ROAD TOWARDS 2047 AND AMRIT KAAL


We are a little over two decades away from celebrating the centenary of Indian independence in 2047. During this period, described as Amrit Kaal, the government, industry, and ordinary citizens shall collectively endeavour to realise our shared vision of a prosperous, developed India. The electronics manufacturing sector certainly has a momentous role to play in the pursuit of this national objective. The path ahead is not without its challenges. However, challenges bring forth opportunities that, if leveraged effectively, will pave the way for India to be cemented as a global manufacturing hub.

Addressing skill gaps will be one of the key priorities for the sector in the years ahead. India's 'demographic dividend' can only be realised if the talent pool's skill sets are aligned with

industry requirements. The rapidly evolving technological landscape, including the growing prevalence of artificial intelligence, machine learning, the Internet of Things (IoT), 3D printing, and other advanced technologies, will only make addressing skills-related challenges more pertinent. Collaborations between the public and private sectors, as well as academia, will go a long way towards ensuring that the workforce is adequately equipped with the requisite skills.

Reliance on global supply chains for imports of raw materials and critical components remains another challenge to be addressed. Increased self-reliance will not only serve to insulate the country from disruptions, such as those experienced during the pandemic, but will also further enhance India's appeal as a manufacturing destination for global brands as they seek to diversify their own supply chains.

Additional streamlining of the regulatory framework and improved access to finance and incentives, particularly for small and medium enterprises (SMEs), will act as further impetus to growth in the electronics manufacturing sector. Moreover, increased investment in R&D will elevate India's competitiveness in high-value product segments.

Manufacturing, which currently contributes to 17 per cent of the nation's GDP, has a pivotal role to play in India's march towards becoming the world's third-largest economy. Sustained policy support, a large skilled workforce, robust domestic demand, and geopolitical stability bode well for the country's ambitions to become a global manufacturing hub. Building on the successes and learning from the challenges of the past decade, the Indian manufacturing sector, including electronics manufacturers, is well-placed to deliver transformational growth in the decade ahead and beyond. 



Leveraging Indian Engineering Expertise, SWITCH Mobility Has Built Electric Buses Indigenously

The article explores the building of indigenous electric buses with superior performance while navigating challenges in manufacturing. It goes on to uncover SWITCH Mobility's efforts in propelling 'Make in India 2.0' towards a future of global leadership.



MAHESH BABU

Chief Executive Officer, SWITCH Mobility Automotive Ltd.

In the realm of innovation and progress, the 'Make in India' initiative emerges as more than a mere historical milestone—it stands as the cornerstone of a revolutionary future. We find ourselves in the era of Amrit Kaal, a pivotal moment where our collective efforts are dedicated to shaping an India that boasts the epitome of global infrastructure. As we stand at the nexus of opportunity and responsibility, envisioning the India of 2047 is not a distant dream but a reality we are sculpting today. At the helm of this transformative journey is SWITCH Mobility, where we transcend the conventional role of automotive manufacturers as active torchbearers, propelling India towards a future defined by globalisation, sustainability, and leadership in manufacturing.

Beyond a Billion: The Indian narrative has evolved beyond sheer scale. Today, we are witnessing a tectonic shift where 'Made in India' resonates with quality and innovation. The automotive industry is a stellar example. It has become a global leader, surpassing industrial giants like Germany and Japan, and boasting record-breaking export growth. India's auto sector is racing towards the trillion-dollar mark this decade. This phenomenal growth isn't a result of volume; it's propelled by an unwavering commitment to quality. Government initiatives such as FAME (Faster Adoption and Manufacturing of Electric Vehicles in India), the Production-Linked Incentive (PLI) scheme, and PM-eBus Sewa are drawing investments, fostering a vibrant ecosystem of innovation and

agile startups.

From ICE to e-Buses, Indian streets echoed with the rumble of diesel buses, their emissions casting a thick haze of smoke over the nation. Recognising the dire need for change, we built electric buses indigenously, shaping the trajectory of urban mobility. We meticulously designed from the ground up, leveraging Indian engineering expertise to deliver superior performance and efficiency. Our e-buses aren't an electric iteration of their diesel predecessors.

In FY 2019, there were only 54 electric buses registered across the nation. The electric bus market in India is surging, fuelled by a meteoric rise of 1,919 units sold in FY 2023. A major shift is underway in India's transportation landscape, propelled by a commitment to electric mobility.

The Indian government initially set the target of deploying 50,000 electric buses through its National Electric Bus Programme (NEBP), launched in 2022. However, as of May 2023, only 1.25 per cent of the 3,59,432 registered buses had transitioned to electric. At SWITCH Mobility, we see it as an opportunity for accelerating India's e-bus adoption. Our journey so far is a glimpse into a future where clean air and silent streets are not aspirations but realities. We are not just electrifying India's mobility landscape; we are also writing the blueprint for a healthier, more sustainable tomorrow.

While the future of Indian manufacturing gleams with promise, it's important to acknowledge the potential challenges that we need to overcome:

IN FY 2019, THERE WERE ONLY 54 ELECTRIC BUSES REGISTERED ACROSS THE NATION. THE ELECTRIC BUS MARKET IN INDIA IS SURGING, FUELLED BY A METEORIC RISE OF 1,919 UNITS SOLD IN FY 2023.

- While India aspires to achieve significant electric vehicle (EV) penetration by 2030, with ambitious targets like 70 per cent of commercial cars, 40 per cent of buses, and 80 per cent of two and three-wheelers going electric, a NITI Aayog report in collaboration with RMI India suggests current growth rates might fall short. India needs to invest significantly in roads, ports, and logistics infrastructure to support its manufacturing ambitions.
- Investment in the talent pipeline by empowering freshmen through comprehensive training and mentorship programmes is essential to meet the current demand for skilled labour in advanced manufacturing, like electric vehicle production. This ensures that future leaders are nurtured, building a resilient workforce.
- OEMs should explore innovative financing models through collaborations with financial institutions, depending on their needs and capabilities. This might result in the creation of specialised loan products with favourable terms, including lower interest rates and extended repayment periods.

Sustainable Mobility An

Opportunity at Scale: Beyond conventional metrics, the true value creation within manufacturing remains latent. 'Make in India 2.0' focuses on propelling the sector towards escape velocity. Green mobility emerges as a nascent yet promising area.

SWITCH Mobility Leading

the Charge: Our electric buses, exemplified by our pioneering model, the SWITCH EiV 22, India's first double-decker electric bus, epitomise our commitment to this vision, proving that indigenous solutions can

not only compete with but surpass their global counterparts. Comparison of our double-decker buses to single-decker buses reveals an astounding advantage—they can carry 85 per cent more passengers. This innovation not only addresses the pressing need for sustainable and efficient public transportation but also aligns with our mission to redefine the norms of clean mobility. It demonstrates how a bold vision and meticulous execution can rewrite the rules of clean mobility, offering a significant breakthrough.

Navigating manufacturing landscapes: The global marketplace is constantly evolving. We must be agile, adapting production processes and product offerings to meet changing market demands. Our modular vehicle platforms allow us to quickly customise buses for diverse customer needs, showcasing our adaptability.

Technological advancements are key to sustainable growth. With a robust presence in the UK, we strategically collaborate with our teams, facilitating the seamless exchange of cutting-edge technology and valuable knowledge. This synergy accelerates our progress in manufacturing vehicles, ensuring swift and impactful advancements as we continue our pursuit of excellence.

Amrit Kaal and Beyond: Embracing the spirit of Amrit Kaal and envisioning a future where we not only make and design in India but also brand in India, thereby setting a global benchmark. Drawing inspiration from the likes of indigenous players, we tap

into global skills while staying rooted in our rich design heritage. Our brand, endorsed by the Prime Minister and propelled by technological feats like Chandrayaan and the International Solar Alliance (ISA), initiatives championed by India, has already begun its ascent on the global stage. The automotive industry, with its established context, is poised to take advantage of this upward trajectory.

Harnessing the potential of India's demographic strength—our youthful population and abundant workforce—we navigate the transition towards new energy, embracing electric mobility and innovative power sources. India is poised to ascend to the top position in the global arena.

As India aspires to attain the pinnacle of global automotive manufacturing, its second-largest highway network stands as a critical enabler, seamlessly connecting production centres, ensuring efficient supply chains, and positioning the nation as a strategic player in the international automotive landscape.

Prime Minister Modi's vision of 'Make in India, For the World' holds immense promise. India's stellar image as a frugal innovator and a reliable partner positions us perfectly to become a global hub for technologically advanced products. As the golden era of 'Amrit Kaal' dawns, 'Make in India' offers an unprecedented opportunity to not only fulfil this vision but also propel India's Net Zero goal ahead of schedule.

Amrit Kaal is not just a goal; it is a commitment to transform India into the world's foremost automotive manufacturing hub, driven by the dynamism of our youth and the collective power of our workforce. Together, let us make 'Made in India' a symbol of excellence not just for the next 25 years but for centuries to come. 

Make In India: Powering The Country Towards Amrit Kaal

The article explores Make In India's impact on the Indian specialty chemical segment and how it is proving conducive for industry players to adapt and adopt to transform their businesses in line with the country's growth. It also emphasises leveraging the potential of the Industry 4.0 technologies and placing customer-centricity at the core of operations through collaboration, differentiation, and resilience.



R MUKUNDAN
MD & CEO, Tata Chemicals Limited

India has come a long way in the past decade. The economy has progressed to a position, where the world has recognised our potential and resilience. Last year, our economy emerged strong as the fifth largest, with growth forecast of 7 per cent - just 10 years ago, we were on the 11th place. If one looks back, there will be just a handful of instances that are as remarkable as India's growth story.

To say India's era has just begun is only befitting. We are set to be the second-largest economy by 2075, as forecasted in a report by Goldman Sachs. To get there, India needs to further revamp its manufacturing capacities and infrastructure, while continuing to boost the services sector. As we stand on the threshold of taking the next leap that will guide us towards Amrit Kaal 2047, India needs to put all its might into recognising manufacturing as the key differentiator, and a change maker for the economy.

This is the 10th anniversary of Make in India, a vision that has transformed our country's industrial landscape. Spearheaded by Prime Minister Shri Narendra Modi, this call-to-action has emerged as one of the strongest movements the world has seen in the recent past. What started as a seed to make India a global manufacturing hub, is now growing branches and leaves as we see businesses growing, industries revamping and economy transforming.

The manufacturing industry makes up to nearly 17 per cent of India's GDP

and has become a defining factor for the country's economic growth, driven by strong performance of major sectors such as automotive, engineering, chemicals, pharmaceuticals, and consumer durables.

In the chemicals sector, the specialty chemicals segment has particularly witnessed a notable transformation under the Make in India initiative with the country emerging as a preferred manufacturing hub for domestic and export markets. The segment accounts for approximately 20 per cent of the total chemicals market, with key industries such as agrochemicals, pharmaceuticals, textiles, paper, paints, and soaps hinging on it.

The Indian specialty chemical segment is poised for a healthy growth, projected to touch \$300 bn by FY25. The environment is conducive for chemical industry players to adapt and adopt to transform their businesses in line with the country's growth. Customer centricity needs to be at the core of operations through collaboration, differentiation, and resilience as it becomes a key driver for our economy.

The Make in India initiative has been ably supported by programmes such as Digital India, Startup India and World Solar Alliance. These programmes will be critical success factors in making our country a leading name in global as well as green supply chains. Driven by a wave of innovation fuelled by technological advancements, the manufacturing sector is moving towards an

automated, standard, and process-driven era, which will better efficiency and productivity.

India is already an attractive destination for business from a captive market perspective and an enterprising young talent makes it a market that world wants to tap. With added emphasis on skill development, technological advancement and upgrading to world standards, India must further enhance its manufacturing capabilities.

Our country's journey of ascent gains significance, especially given the unpredictable geopolitical scenario. Despite risk predictions in the back of uncertainties such as the Russia-Ukraine war, strategic competition between the US and China, climate threats and energy security, India emerged as one of the world's leading economies, thanks to cost competitiveness and a broad manufacturing base. Strategies such as China Plus One, coupled with the government's acumen, are expected to further propel our growth in the coming decades.

The Indian economy stands poised at a juncture ripe with promise. Policies and programmes tailored to bolster the manufacturing sector are yielding commendable results. The Production-Linked Incentive (PLI) scheme, reforms

THE SPECIALTY CHEMICALS SEGMENT ACCOUNTS FOR APPROXIMATELY 20 PER CENT OF THE TOTAL CHEMICALS MARKET, WITH KEY INDUSTRIES SUCH AS AGROCHEMICALS, PHARMACEUTICALS, TEXTILES, PAPER, PAINTS, AND SOAPS HINGING ON IT.


in tax regimes and liberalisation of the Foreign Direct Investment (FDI) policies in manufacturing have encouraged the business ecosystem in India. There has been a boost in local production, thanks to fostering of the spirit of self-reliance, thus reducing dependence on imports.

Atmanirbharta has always been India's backbone, and this was recently demonstrated by the decision to refrain from joining the world's largest trading bloc, Regional Comprehensive Economic Partnership (RCEP) in 2020, in a bid to protect the domestic market and curb trade deficits. The historic Comprehensive Economic Partnership Agreement (CEPA) of 2022 with the United Arab Emirates (UAE) will open access to Arab and African markets, boosting two-way trade to \$100 billion in approximately five years.

Diplomatic partnerships such as the QUAD and I2U2, and trade agreements with Australia, Canada, European Union (EU) and African nations promise a bright future for Indian businesses. The G20 and Shanghai Cooperation Organisation (SCO) presidencies have made India one of the strongest voices in the Global South. These are major strides that will stand India in good stead as it progresses towards Amrit Kaal 2047.

Our mission to 'Make in India and sell to the world' would mean a lot of preparation at several levels. The government will have to ensure more policies conducive to the nation's progress. At the same time, there has to be greater emphasis on skilling our people in a way that we have equipped workforce for every sector, particularly the manufacturing industry so that it is empowered in every way possible to flourish.

Going forward, India needs to leverage the potential of Industry 4.0 technologies offer. Also, the time is absolutely right for the manufacturing sector to boom and chart a path towards the nation's economic ascendancy. As we witness unprecedented digital transformation and agile technologies, it will be key to put our minds together and work out the best and most sustainable practices as eco-consciousness would hold the key to our future.

The present day shows us a great deal of hope of an economic renaissance, where growth will be inclusive and there will be a conducive environment to create and innovate. Consequently, there will be greater opportunities for employment and prosperity, thus creating a robust and holistic ecosystem for the nation. This can be achieved only if each of us fulfil our parts. The government, industry, and society, at large, will have to synergise efforts and work towards the unified vision of Amrit Kaal. 



Make In India And Make In India For The World

The article delves into how the 'Make in India' initiative has motivated the construction equipment industry to focus on localisation and indigenous technologies and pans on Tata Hitachi's efforts in bringing advanced high-end technology into India while integrating cutting-edge international technology.



SANDEEP SINGH

Managing Director, Tata Hitachi

The "Make in India" initiative stands as a pivotal government endeavour aimed at bolstering the nation's domestic production capabilities across various industries and skill sets. Its primary objective is to facilitate the creation of high-quality products intended for both the domestic market and exportation. This initiative plays a crucial role in fostering the expansion and advancement of the manufacturing sector, a critical factor in stimulating employment opportunities and maintaining a balanced trade profile.

Today, India stands poised with immense potential to emerge as the global manufacturing hub. With a rich reservoir of skilled manpower, cutting-edge technology, and multifaceted capabilities, the nation holds the key to significantly augmenting its stake in the global market. It's imperative for the entire industry to transcend conventional boundaries and broaden

their perspectives. Positioning India as the premier destination to serve as the world's workroom demands a collective shift in mindset. By leveraging our expertise, engineering skills, technological prowess, and skilled workforce, India can chart a transformative course in the global manufacturing landscape, presenting an unparalleled opportunity for exponential growth and leadership on the world stage.

Construction Equipment (CE) manufacturing in India has come a long way from being largely imported (in the early to late nineties) to a large part being manufactured locally to cater to the evolving customer requirements and tough local operating conditions. The government's 'Make in India' program and mission have certainly motivated the CE industry to focus on localisation and indigenise technologies in the last several years.

From Backhoe Loaders to Mobile Cranes and Excavators, 'Make in India' now caters to most of the CE market comprising Compacting Equipment, Drills, Crushers, Concrete Equipment, Batching Plants, Pavers, Graders, Mining Dumpers, and Crawler Cranes, among others. 'Make in India' has further been supported by the sustained growth of Indian Infrastructure investment over the last decade leading to increasing volumes.

It is worth mentioning here that we, at Tata Hitachi, have been at the forefront of this journey of Aatmanirbharta for over six decades of our incorporation. As we were the first to bring hydraulic excavator technology into India through our collaboration with our principal, Hitachi Construction Machinery,

TATA HITACHI WAS FIRST TO BRING HYDRAULIC EXCAVATOR TECHNOLOGY INTO INDIA THROUGH OUR COLLABORATION WITH OUR PRINCIPAL, HITACHI CONSTRUCTION MACHINERY, JAPAN, AND IN PARTNERSHIP WITH THEM HAVE CONSTANTLY SOUGHT TO BRING IN ADVANCED HIGH-END TECHNOLOGY INTO INDIA.

Japan, and in partnership with them have constantly sought to bring in advanced high-end technology into India, and at the same time fostering high levels of indigenisation of the same.

Tata Hitachi has manufacturing facilities in Kharagpur and Dharwad. Both the Plants have the latest technology in CNC machining centres, Robotic centres, and a wide range of fixtures and manipulators for manufacturing world-class products. The facilities available are supported by highly skilled manpower to produce components and machines of the highest quality catering to Indian and International customers.

Speaking of the international market, several OEMs, including Tata Hitachi, manufacture and export a wide variety of Construction Equipment to the Global markets ranging from the Middle East, Africa, Southeast Asia as well as far as Europe, Latin America, and North America.

The industry association, Indian Construction Equipment Manufacturers Association (ICEMA),

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is also closely working with the government to encourage increased investment in manufacturing. The idea is to further enhance global competitiveness by increasing localisation of critical components to the benefit of the country's economy from exports, as well as to enhance employment opportunities.

In this direction of Aatmanirbharta, Tata Hitachi has been a trusted partner in India's growth story, ever since the increased emphasis on infrastructure and mining sectors. Our guiding principle and motto, "Chalo Desh Banaye,"

epitomise Tata Hitachi's unwavering commitment to nation-building. Central to this ethos is our dedication to furnishing customers with unparalleled equipment and support solutions that are both dependable and pioneering.

Tata Hitachi is steadfast in its mission to enhance localisation efforts while integrating cutting-edge international technology. A recent testament to this commitment is the unveiling of our domestically engineered state-of-the-art E Electric Excavator at EXCON 2023—an accomplishment marking India's inaugural fully indigenous electric excavator design. In line with our ethos and the spirit of Aatmanirbharta, we persist in introducing next-generation machinery tailored to evolving needs and advancements. Our objective remains steadfast: to provide the most cost-effective, high-performance, and dependable products and solutions, aligned with the ethos of self-reliance, while continuously striving to meet the emerging requirements of our customers. 



Make In India: A Decade Of Manufacturing Excellence

The article talks about how the 'Make in India' initiative reshaped the automotive landscape and fueled economic growth.



VISHAL BADSHAH

Vice President – Operations, Tata Motors
Commercial Vehicles

As we proudly celebrate a decade of the 'Make in India' initiative, it's heartening to reflect on the extraordinary evolution in the automotive manufacturing sector, driven by the visionary leadership of Hon'ble Prime Minister Shri Narendra Modi. In this transformative journey, we find ourselves at the crossroads of the Industry 4.0 revolution, a paradigm shift that integrates digital technologies with traditional manufacturing processes.

Since its inception, 'Make in India' has been a catalyst for innovation, propelling India towards becoming a global manufacturing hub. The automotive sector, a vital contributor to India's GDP, has witnessed revolutionary growth, solidifying its position as a key player in the global automobile market. Presently, it constitutes a significant 7 per cent of our GDP, showcasing the industry's pivotal role in our nation's economic landscape.

The surge in the automotive sector has not only expanded Original Equipment Manufacturer (OEM)

SINCE ITS INCEPTION, 'MAKE IN INDIA' HAS BEEN A CATALYST FOR INNOVATION, PROPELLING INDIA TOWARDS BECOMING A GLOBAL MANUFACTURING HUB. THE AUTOMOTIVE SECTOR, A VITAL CONTRIBUTOR TO INDIA'S GDP, HAS WITNESSED REVOLUTIONARY GROWTH, SOLIDIFYING ITS POSITION AS A KEY PLAYER IN THE GLOBAL AUTOMOBILE MARKET.

suppliers but has also attracted a remarkable 57 per cent rise in Foreign Direct Investment (FDI) equity inflow within the manufacturing sector from 2014 to 2022. These investments have paved the way for technological advancements, setting the stage for a potentially remarkable \$1 trillion manufacturing sector by 2025–2026, firmly establishing India as a leader in



**THE IMPACT OF 'MAKE IN INDIA'
ON COMMERCIAL VEHICLE
MANUFACTURING HAS BEEN
PROFOUND, INTEGRATING
SMART MANUFACTURING
PRACTICES, AUTOMATION,
AND DATA EXCHANGE
IN MANUFACTURING
TECHNOLOGIES.**

the Industry 4.0 era.

Under the visionary leadership of Prime Minister Modi, last year marked the introduction of "Amrit Kaal," envisioning India's transformation into a developed nation by 2047. This ambitious goal, coupled with the commitment to achieving net-zero emissions, lays the foundation for a forward-thinking India. During this critical phase of our development, the automotive manufacturing sector is witnessing a consistent upsurge, aligning strategically with national initiatives for eco-friendly transportation and infrastructure development.

Our dedication to sustainability is paramount. Recognising the transport sector's substantial contribution to carbon emissions, we are steadfast in our commitment to address the pressing emission challenges. Our research and development initiatives focus on pioneering new technologies across the transportation spectrum – from enhancing batteries for electric vehicles (EVs) to building charging station networks, advancing hydrogen and fuel cell vehicles, incorporating lighter materials in vehicle construction, deploying smarter energy systems, and promoting the use of more renewable energy in operations.

The impact of 'Make in India' on commercial vehicle manufacturing has been profound, integrating smart manufacturing practices, automation, and data exchange in manufacturing technologies. Not only has it significantly enhanced our domestic manufacturing capacity, but it has also positioned us as significant players in the commercial vehicle sector. Initiatives like the implementation of Bharat Stage VI norms have spurred the development of cleaner vehicle technologies, meeting eco-friendly demands in the market. Schemes such as FAME have incentivised our

the growth of various sectors such as e-commerce, FMCG, FMCD, construction, mining, steel and cement, logistics, infrastructure, and mining, now integrating smart manufacturing practices into our operations. Our state-of-the-art commercial vehicle manufacturing facilities across the country have not only created substantial employment



production of electric commercial vehicles, paving the way for future growth and aligning with the digital transformation trends of the fourth Industrial Revolution.

At Tata Motors, we strongly believe that the 'Make in India' initiative has played a crucial role in motivating the industry to participate in the country's economic growth, embracing the principles of the Fourth Industrial Revolution. The Government's efforts to simplify business processes and provide a supportive environment for manufacturing have improved our efficiency, productivity, and competitiveness, positioning us at the forefront of Industry 4.0 adoption.

For over seven decades, Tata Motors has been at the forefront of building the nation, contributing to

opportunities but also paved the way for a robust and diverse product portfolio developed with superior technology, ensuring performance and safety throughout the vehicle lifecycle.

As we celebrate a decade of 'Make in India' and 'Make in India for the World,' we recognise these initiatives as signals of India's readiness to embrace the future of manufacturing – an era marked by connectivity, automation, artificial intelligence, and data analytics. They have been instrumental in driving economic growth, fostering innovation, and promoting sustainability. The journey continues, charting a course toward a greener, more innovative, and globally competitive future for Indian manufacturing in the context of Industry 4.0. 

Samtel Avionics Forsees A More Sustainable, Equitable, And Prosperous Future With Make In India

The article reflects on the Make in India's impact, enlisting the significant milestones achieved in the manufacturing sector as we stride towards Atmanirbhar Bharat. Learn how the initiative aligns with Sustainable Development Goals (SDGs), while promoting economic growth, inclusive industrialisation, and innovation for a brighter tomorrow.



PUNEET KAURA

Managing Director and CEO,
Samtel Avionics Ltd

A brainchild of Prime Minister Narendra Modi, Make in India, in its decade-long journey, has given extraordinary impetus to our collective resolve and pursuits to be self-reliant, ultimately becoming a *Viksit Bharat (developed India)* by 2047. Aimed at promoting manufacturing and encouraging foreign investment in various sectors, the initiative has played a critical role in creating a conducive environment for businesses, both domestic and international, to set up manufacturing units in India. It has given a big boost to job creation, skill development, and technological advancement within the country.

Make in India, which seeks to position *Bharatvarsh* as a global manufacturing hub and drive economic growth by fostering innovation and industrialisation, has significantly impacted manufacturing sectors comprising aerospace and defence, automotive and auto components, pharmaceuticals and medical devices, bio-technology, capital goods, textiles and apparel, chemicals

and petrochemicals, electronics system design and manufacturing (ESDM), leather and footwear, food processing, gems and jewellery, shipping, railways, construction, and new and renewable energy.

The service sectors that have immensely benefited from the Make in India initiative include information technology and information technology-enabled services (IT and ITeS), tourism and hospitality services, medical value travel, transport and logistics services, accounting and finance services, audio-visual services, legal services, communication services, construction and related engineering services, environmental services, financial services, and education services. Keeping in view India's vision of becoming Atmanirbhar and enhancing our manufacturing capabilities and exports, an outlay of Rs 1.97 lakh crore, or over US 26 billion dollars, was announced in the Union Budget 2021–22 for Production-Linked Incentive (PLI) schemes for 14 key sectors of manufacturing, starting from FY 2021–22.

According to official data, 746 applications have been approved until November 2023. The PLI units have been established in more than 150 districts in 24 states. Over Rs 95,000 crore of investment has been reported till September 2023, which has led to production and sales of Rs 7.80 lakh crore and employment generation—direct and indirect—of over 6.4 lakh. Exports have been boosted by Rs 3.20 lakh crore. Incentives worth around Rs 2,900 crore have been disbursed in FY 2022–23. There has been a

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ECOSYSTEM.**

value addition of 20 per cent in mobile manufacturing within a period of three years. Of the US 101 billion dollars in total electronics production in FY 2022–23, smartphones constitute 44 billion dollars, including 11.1 billion dollars as exports.

Similarly, import substitution of 60 per cent has been achieved in the telecom sector, and India has become almost self-reliant on Antennae, GPON (Gigabit Passive Optical Network), and CPE (Customer Premises Equipment). There has been a significant reduction in imports of raw materials in the pharma sector. Unique intermediate materials and bulk drugs are being manufactured in India, including Penicillin-G, and the transfer of technology has happened in the manufacturing of medical devices such as computer tomography (CT) scans, magnetic resonance imaging (MRI), and so on. The drone sector has seen a seven-fold jump in turnover, which consists of all MSME startups. Under the PLI Scheme for food processing, the sourcing of raw materials from India has seen a significant increase, which has positively impacted the income of Indian farmers and MSMEs.


Mobile phone and internet penetration have been massive in the country in the last 10 years. Today,

we have 120 crore mobile phone users and 80 crore internet users. We boast of having 30 crore Unified Payment Interface (UPI) users with 1,000 crore transactions per month. Over 40 per cent of all digital transactions are on UPI. Our Digital Public Infrastructure (DPI) is one of the best in the world. Enabling initiatives like Digital India and Startup India are helping youth become job creators. India is home to over 100 unicorns with a total valuation of upwards of US 340 billion dollars and is the world's third-largest startup ecosystem.

It is a remarkable achievement that more than 1,14,000 startups have been recognised by the government, which have reported the creation of more than 12 lakh jobs, with an average of 11 jobs created by each recognised startup. The DPIIT-recognised startups are spread across all 36 states and UTs of the country. Blessed with the world's nearly 20 per cent of young

population, India is all set to scale greater heights of glory and economic resilience by 2047. The kind of business environment the government, along with the support of other stakeholders, has been able to build in the country over the last few years is exemplary and promising.

I also foresee a remarkable role for an initiative like Make in India in advancing the Sustainable Development Goals (SDGs) by fostering economic growth, promoting inclusive and sustainable industrialisation, and encouraging innovation. From promoting inclusive and sustainable industrialisation to attracting domestic and foreign investments in key sectors like manufacturing, automotive, electronics, and renewable energy, Make in India will continue to contribute significantly to job creation. The development and adoption of sustainable and clean energy technologies are crucial for mitigating climate change and ensuring access to affordable, reliable, sustainable, and modern energy for all.

Aligned with many SDGs, Make in India strives to enhance scientific research, upgrade industrial capabilities, and foster innovation. Its emphasis on skill development and education will ensure inclusive and equitable quality education, promoting lifelong learning opportunities for all. Moreover, the promotion of responsible production and consumption patterns, as encouraged by Make in India, is in harmony with SDG 12, which advocates for sustainable consumption and production patterns. In conclusion, the Make in India initiative has emerged as a multifaceted strategy that not only drives economic development but also addresses various SDGs, thereby contributing to a more sustainable, equitable, and prosperous future for India. 



Covestro India's Efforts To Help Manufacturing Take The Driver's Seat In India's Growth

Discover how Covestro India is driving Indian manufacturing, providing critical raw materials to empower the nation's ascent to become the world's third-largest economy by 2030. Learn about the company's innovative solutions and expanded capacities, while they empower individuals and foster a workplace that thrives on continuous upskilling.



ANAND SRINIVASAN

Managing Director, Covestro (India) Pvt. Ltd.

India is on an accelerated growth path, one that is both sustainable and progressive. The nation is all set to become the world's third-largest economy by 2030, more than doubling in size to USD 7.3 trillion by 2030. It is believed that this growth will be significantly powered by India becoming a preferred global manufacturing hub. According to the World Economic Forum (WEF), by reshaping global supply chains, India has the potential to add close to USD 500 billion in annual economic impact to the global economy by 2030.

MANUFACTURING: DRIVING INDIA'S GROWTH

The nation, too, has set its sights on ambitious growth, with the last decade witnessing a boost in both government and corporate sector action in making the shift to a manufacturing-led economy rather than just being a service-led one. From the path-breaking Make in India initiative that created a conducive environment and provided the right kind of incentives to bring in investments and encourage domestic production. The results have

been encouraging, despite setbacks and challenges that emerged during the pandemic. In the second quarter of 2023, the manufacturing sector was instrumental in propelling growth to 7.2. The sector itself grew at a nine-quarter high of 13.9 per cent in the same period.

Projections for the future are also highly optimistic, with estimates indicating that India's manufacturing market could grow to as much as USD 1 trillion by 2025–26. Its contribution to Gross Domestic Product (GDP), currently at 17 per cent, is expected to go up to 21 per cent by that time. In fact, the Government of India (GoI) is expecting the sector's contribution to reach 25 per cent of the economy's output by 2025. Clearly, India's manufacturing sector is all set to fuel the country's growth with even more vigour.

COVESTRO INDIA: GEARING UP TO PARTNER INDIAN MANUFACTURING

As partners who are involved in providing critical raw materials to the manufacturing sector in the country, Covestro India has seen this transformation up and close. As a leading producer of advanced and high-performance polymers in India and around the world, our solutions enhance products in a wide variety of markets. Our range includes innovative polycarbonates, coatings, adhesives, and specialty raw materials, as well as thermoplastic polyurethane elastomers. We have centres across four locations in the country—Navi Mumbai, Ankleshwar, Cuddalore, and Greater Noida—that have been

WHAT IS REMARKABLE ABOUT INDIA'S AMBITION IS THAT EVEN THOUGH THE COUNTRY IS TARGETING GROWTH THAT IS UNPARALLELED, IT HAS ALSO KEPT THE SUSTAINABILITY AGENDA IN FOCUS.

**AT THE GLOBAL LEVEL, THE
COMPANY HAS SET TARGETS
OF ACHIEVING CARBON
NEUTRALITY FOR SCOPE 1 AND
2 EMISSIONS BY 2035**

instrumental in providing the Indian manufacturing industry with the components it needs.

Just as the manufacturing sector has been gearing up to take the driver's seat in India's growth trajectory, we have also focused our energies on equipping the sector to take that leap. For instance, in January 2022, we expanded our polycarbonate compounding production capacity at the Greater Noida plant, more than doubling the capacity to meet the Indian automotive sector's growing needs. Similarly, some of our relevant chemicals have received a licence from the Bureau of Indian Standards (BIS), which reflects a validation of our commitment to manufacturing and supplying quality raw materials.

**EMBEDDING SUSTAINABILITY
AND CIRCULARITY IN
GROWTH**

What is remarkable about India's ambition is that even though the country is targeting growth that is unparalleled, it has also kept the sustainability agenda in focus. From the bold renewable energy targets announced by the prime minister at COP28 to the more recent robust ESG reporting guidelines for listed

companies, the nation is aiming for sustainable progress for people and the planet.


At Covestro (India), we are equally determined to embrace people and the planet even as we pursue profitability. We are geared towards minimising our environmental impact and embrace a sustainable approach to growth through circular solutions, alternative raw materials, innovative recycling, and the use of renewable energy. At the global level, the company has set targets of achieving carbon neutrality for Scope 1 and 2 emissions by 2035 while contributing towards the United Nations Sustainable Development Goals (UN SDGS). At the Indian level, apart from adhering to global standards and best practices, we have also undertaken social and environmental commitment initiatives.

In the last ten years, Covestro India has dedicated its efforts to a social transformation project under Inclusive Business, with the Food Security vertical being its inaugural pillar.

Through this initiative, the team has been instrumental in the installation of advanced solutions such as greenhouses for drying and cultivation, solar conduction dryers, solar cold stores, and portable cold boxes. In December 2023, we launched the Covestro Food Security Platform to reduce post-harvest losses in the horticulture and fisheries sectors. It serves as a comprehensive resource hub, providing farmers with access to tools and knowledge to enhance postharvest processes, ultimately prolonging the shelf life of their produce.

**EMPOWERING PEOPLE TO
POWER PROGRESS**

The constant factor in all of India's growth projections remains its demographic. Home to one of the youngest populations in the world, India's people are considered its biggest asset. At Covestro India, too, our people are the reason for our success. We place significant emphasis on providing an environment that enables individuals to bring their best selves to work and commit to making the world a brighter place. We are dedicated to nurturing the growth of our team members, firmly believing that continuous upskilling is essential to staying abreast of industry trends and developments. To uphold our commitment to this goal, we implement job rotation—a valuable practice ensuring that our colleagues remain well-equipped, diverse, and current in their skills and knowledge. For the past five consecutive years, we have proudly held the 'Great Place to Work' certification. Additionally, in 2023, we were honoured with the title of 'Best Employer of Maharashtra' at the Maharashtra Best Employer Brand Awards by the World HRD Congress.

We take pride in contributing to India's aspirations and stand ready to collaborate with the nation as it pursues its ambitious goals. 



A Decade Of Make In India – Calling For A True Celebration!

With India's electronics manufacturing industry witnessing phenomenal growth, Ekkaa Electronics attributes conducive Make in India policies and incentives for this surge. Additionally, the company advocates for addressing the skill gap, incentivising R&D, building a robust manufacturing ecosystem and a unified charge towards making India not just a manufacturing hub, but a global leader in electronics innovation.



SAGAR GUPTA

Director, Ekkaa Electronics

The 'Make in India' initiative, launched in 2014, has been a driving force in India's economic transformation, aimed at boosting domestic manufacturing and attracting foreign investment. This initiative has seen particular success in the electronics manufacturing sector.

India's electronics manufacturing industry has witnessed phenomenal growth in recent years. From a mere \$12 billion in 2015-16, the industry surged to a staggering \$67.3 billion in 2020-21. This remarkable rise is largely attributed to the supportive policies and incentives of the 'Make in India' program.

The journey has been nothing short of remarkable, fostering domestic manufacturing across diverse sectors and attracting foreign investment giants. 'Make in India' has demonstrably changed the landscape.

Let's look at the numbers:

- **Manufacturing growth:** Indian

manufacturing grew by an impressive 7.5 per cent in FY23, surpassing pre-pandemic levels.

- **Mobile phone boom:** Mobile phone production, once dominated by imports, now sees India as the world's second-largest smartphone maker.
- **Startup surge:** Start-ups are flourishing, with unicorns galloping into existence, each fuelling the engine of innovation.

The 'Make in India' initiative has played a pivotal role in transforming India's electronics manufacturing landscape. By addressing existing challenges and capitalising on emerging opportunities, India has the potential not only to meet its domestic electronics demand but also become a major exporter of electronic goods in the years to come.

Adding on to the above-mentioned data, here are some other interesting facts and data points that show the difference that the Make in India Initiative has created:

- The Make in India initiative has attracted over \$800 billion in foreign direct investment since its launch.
- The government has identified 25 key sectors under the Make in India initiative, including automobiles, pharmaceuticals, electronics, and textiles.
- The initiative has led to the creation of millions of jobs in India's manufacturing sector.
- A 2023 report by the World Bank found that the Make in India initiative has had a positive impact

BY ADDRESSING EXISTING CHALLENGES AND CAPITALISING ON EMERGING OPPORTUNITIES, INDIA HAS THE POTENTIAL NOT ONLY TO MEET ITS DOMESTIC ELECTRONICS DEMAND BUT ALSO BECOME A MAJOR EXPORTER OF ELECTRONIC GOODS

on India's economic growth and development.

As we celebrate a decade of Make in India in electronics manufacturing, the excitement lays not just in the past glories, but in the future possibilities.

The rise of electronics manufacturing under 'Make in India' has not only boosted economic growth but also created millions of jobs, particularly for India's young workforce. The focus on electronics manufacturing aligns with India's vision of becoming a digital economy leader. A robust domestic electronics industry is essential for building a strong digital infrastructure and fostering innovation. The success of 'Make in India' in the electronics sector can serve as a model for other industries, showcasing India's potential as a manufacturing hub.

Make in India in electronics manufacturing has come a long way, powered by the collective efforts of the government, industry, and academia. The next 10 years demand an even stronger synergy, a unified charge towards making India not just a manufacturing hub, but a global leader in electronics innovation. As we celebrate this journey, let's remember that the real victory lies not in numbers, but in the spirit of

HERE'S HOW WE CAN RECHARGE THE CIRCUIT FOR THE NEXT TEN YEARS:


- **Skill & Education Fuse:** Bridging the skill gap through targeted training programs and industry-academia partnerships is crucial.
- **R&D Amplification:** Incentivising R&D, fostering collaboration, and nurturing a culture of innovation are key to breaking into the high-tech domain.
- **Manufacturing Ecosystem:** Building a robust ecosystem of component suppliers, design houses, and testing facilities will create a self-sustaining industry.
- **Sustainability in Focus:** Integrating sustainability into manufacturing practices, embracing green technologies, and minimising e-waste will ensure a responsible future.

innovation, the spark of ingenuity, and the unwavering belief that India can, and will, power its own electronic dreams. Let the silicon beat of progress reverberate across the world, proclaiming India's place as a force to be reckoned with in the global electronics arena. The next ten years, fuelled by this collective resolve, promise to be even more electrifying.

EKKAA Pvt. Ltd. was also established with the intent of seamlessly syncing with the mantra of Aatmanirbhar under the flagship program of 'Make in India'. By doing so, we aim to enhance our technological proficiency and

manufacturing capabilities to produce top-notch LED TVs and accessories as OEM/ODM for top brands in India's consumer electronics sector. So, it can be worth noting that Ekkaa today has successfully brought manufacturing, design, and innovation to the centrestage. Under 'Making in India' we want to leapfrog ourselves from making 'Made In India' products to 'Made For The World'.

To conclude, I would like to say as we celebrate a decade of "Make in India," let's not be lulled into complacency. This is a call to action – for policymakers to create an enabling ecosystem, for industry to invest in cutting-edge technologies, for academia to bridge the skill gap, and for every citizen to embrace the spirit of creation. Let's build on the successes, learn from the setbacks, and together write the next chapter of India's manufacturing journey – a chapter filled with the clang of progress, the hum of innovation, and the triumphant spirit of a nation that makes its own destiny.

Let the next decade be the decade where "Made in India" becomes more than just a label – it becomes a symbol of pride, a testament to human ingenuity, and a beacon of hope for a brighter future. 



Firefly Pumps Is Embracing Localisation For Global Competitiveness

The ability to innovate and incorporate local elements into global business strategies enhances a company's capability to serve customers effectively. Firefly Pumps sees localisation as not merely a trend but an imperative that enables businesses to adapt to diverse markets.



ROHIT MALI

Director, Firefly Firepumps

In the heart of India's manufacturing prowess, Firefly Pumps stands tall as the nation's largest manufacturer, distributor, and exporter of a wide range of firefighting pumps. As we celebrate a decade of the 'Make in India' initiative, Firefly Pumps takes pride in its rich heritage that spans over six decades, embodying a commitment to excellence and innovation in the field of fire safety.

A LEGACY OF DEDICATION SINCE 1963

Firefighting is a mission-critical endeavour, demanding equipment that meets and exceeds international standards. Since our inception in 1963, Firefly Pumps has been steadfast in its dedication to producing pumps of the highest quality. Our journey over the last 60 years has been marked by a relentless pursuit of excellence, ensuring that the firefighting community is equipped with cutting-edge solutions.

MAKE IN INDIA: A GLOBAL MANUFACTURING HUB

India's manufacturing sector

ON THE PATH OF THE INDUSTRY 4.0 TRANSITION, WE ARE THE FIRST COMPANY IN KOLHAPUR TO SUCCESSFULLY IMPLEMENT PLM FOR DESIGN SUPPORT ALONG WITH EFFICIENT TOOLS SUCH AS SAP HANA, SOLID WORKS, SALESFORCE, AND CATIA.

has undergone a remarkable transformation over the years, setting the stage for innovation and attracting foreign investments. The 'Make in India' and 'Make in India for the World' initiatives, spearheaded by Prime Minister Narendra Modi, have catapulted Indian manufacturing onto the global stage. Firefly Pumps is proud to be a part of this transformative journey, contributing to India's recognition as a global manufacturing hub.

INDIA AS A GLOBAL MANUFACTURING HUB: GOVERNMENT INCENTIVES AND COLLABORATION

The introduction of the PLI (Production Linked Incentive) scheme by the Government of India exemplifies the proactive measures taken to boost manufacturing capabilities within specific sectors. This initiative has not only facilitated the scaling up of manufacturing units but has also generated significant employment within the country, aligning with the goals of 'Make in India.'

In addition to the PLI scheme, other government initiatives, such as the 'Make in India' launched in 2014, have played a crucial role in attracting both foreign and domestic investments. These initiatives not only foster investment but also stimulate innovation, positioning India as a global manufacturing hub. Firefly Fire Pumps vision of Bharatnirbhar Vishva further empowers companies across the industry to showcase their capabilities, strengthening India's position in the international manufacturing domain.

LOCALISATION BENEFITS FOR INDUSTRIES

Localisation at the national level yields numerous advantages, not only improving the economy but also enhancing the quality of life for citizens. With the largest proportion of young, employable individuals globally, India has a unique opportunity to bolster its industrial workforce, contributing to economic growth. The establishment of industrial activities within communities fosters growth, facilitates the transfer of technology and knowledge, and positions the nation at the forefront of global innovations.

McKinsey's report on 'India's Turning Point' highlights the significance of localisation in driving reforms and enhancing the competitiveness of Indian companies. To compete globally, India's manufacturing value chains must elevate their productivity to international standards. While challenges exist, localisation provides a strategic advantage, fostering a conducive environment for growth and innovation.

MANUFACTURING PROWESS: Localisation Boost for the Fire Safety Industry

In the context of the fire safety industry, localisation emerges as a key factor in sustaining competitiveness. The ability to innovate and incorporate local elements into global business strategies enhances a firm's capability to serve customers effectively. Localisation is not merely a trend; it is a strategic imperative that enables businesses to adapt to diverse markets, boosting sales, enhancing consumer experiences, and fostering customer loyalty.

STATE-OF-THE-ART INFRASTRUCTURE

Spanning a sprawling 100,000 sq. ft.

IN THE CONTEXT OF THE FIRE SAFETY INDUSTRY, LOCALISATION EMERGES AS A KEY FACTOR IN SUSTAINING COMPETITIVENESS. THE ABILITY TO INNOVATE AND INCORPORATE LOCAL ELEMENTS INTO GLOBAL BUSINESS STRATEGIES ENHANCES A FIRM'S CAPABILITY TO SERVE CUSTOMERS EFFECTIVELY.

area, our well-equipped infrastructure is a testament to our commitment to reliability, repeatability, and consistency. We harness the power of the latest technologies, employing CAD/CAM for meticulous design and CMM for precision manufacturing. Our modern testing facilities guarantee that each product performs flawlessly up to its duty point, ensuring the utmost reliability in the face of emergencies.

Fire pumps are becoming increasingly connected because of the adoption of Industry 4.0 technologies. On the path of the industry 4.0 transition, we are the first company in Kolhapur to successfully implement PLM for design support along with efficient tools such as SAP HANA, Solid Works, Salesforce, and Catia.

In our pursuit of perfection, we leave no room for compromise. Quality is not just a benchmark; it is our ethos. At each step of our production process, stringent checks ensure that every Firefly pump meets the highest standards. From design to manufacturing and testing, our commitment to quality is unwavering. Our products undergo rigorous testing in state-of-the-art facilities to guarantee 100 per cent performance when it matters most.

Recognising the critical nature

of firefighting equipment, Firefly Pumps ensures uninterrupted after-sales service. Our after-sales support is backed by an optimal inventory of spare parts, guaranteeing swift solutions and minimal downtime for our customers. We believe in standing by our products throughout their lifecycle, providing the necessary support to keep our customers safe and secure.

VALUES THAT DRIVE US

Firefly Pumps is not just a manufacturing powerhouse; it is an organisation guided by strong values. Our commitment to being a user-centric organisation ensures that the needs of our customers are at the forefront of everything we do. We value freedom of expression and encourage creativity and innovation within our team. Profitable growth and continuous improvement are not just goals but are embedded in our DNA, driving us to excel in every aspect of our business.

In conclusion, regardless of the industry, aligning business strategies with localisation principles is fundamental for sustained market presence and competitiveness. The integration of local touches into global business policies allows firms to innovate and better serve their customers. The advantages of localisation extend beyond businesses, positively impacting individuals, communities, and the overall economy. As businesses continue to embrace localisation, it becomes a driving force for growth, making India more competitive on the global stage. Firefly Pumps, with its commitment to excellence, innovation, and 'Make in India,' stands as a testament to the transformative power of localisation. Here's to a decade of achievements and many more years of making India proud! 

Indian Drones Are Tailored For Challenging Terrains And Security Borders

The article provides insight into the evolution of the Indian drone sector, fuelled by the Make in India initiative, and discovers its global impact. From economic growth and job creation to addressing unique challenges in defence, Indian drones are designed for challenging terrains, and are setting the stage for a promising future.



RAHUL SINGH

Co-Founder and VP Engineering, ideaForge

As we stand on the cusp of a new era, it's with immense pride and reflection that we celebrate a decade of Make in India for the drone industry. In these ten years, the drone landscape in India has transformed significantly, establishing the country as a key player in the global market. Recent reports by IMARC and Digital Sky project an impressive CAGR of 10.23 per cent for the Indian drone market from 2023 to 2028. The number of registered drones in India has surpassed 15758 units, showcasing a remarkable increase of over 2000 per cent between 2021 and 2023. Let us reflect on the evolution of the Indian drone industry, assess the influence of the Make in India initiative on the drone industry, and anticipate the emerging trends that will shape its future.

MAKE IN INDIA FOR THE DRONE INDUSTRY

The Make in India initiative, acting as a catalyst for transformative change within the drone industry, has spurred the involvement of domestic manufacturers in the ecosystem. This has led to the establishment of manufacturing facilities for crucial components and subsystems such as carbon fibre structures (sheets, tubes), propellers, motors, battery packs, and more. This indigenisation effort received additional impetus from the Government of India's PLI scheme, encouraging and incentivising domestic value addition. The PLI scheme proved beneficial to all manufacturing players who focused on innovation and increasing domestic

value addition, irrespective of their size. Furthermore, the initiative undertaken by the Government of India has not only created an environment conducive to innovation, research, and development but has also fostered collaborations, skill development, and technological advancements. Numerous players in the Indian drone sector have significantly contributed to shaping the industry narrative, pushing the boundaries of what drones can achieve. As a natural extension of the Make in India initiative, the next frontier that the Government of India is targeting and that many industry players are striving towards is Make in India for the world. This will not only boost manufacturing for domestic demand but will also help India take centre stage in the global supply chain, backed by innovation and quality.

IMPACT ON ECONOMIC GROWTH AND JOB CREATION

The emphasis on local manufacturing has led to the establishment of production facilities, research and development centres, and a skilled workforce. This has not only generated employment opportunities but has also propelled economic prosperity within the sector and ancillary industries. The drone industry's contribution to job creation extends beyond manufacturing. With the expansion of drone applications in various sectors such as defence, agriculture, infrastructure, and public safety, there has been a surge in demand for skilled professionals, further catalysing the growth of a robust ecosystem. Overall, the Make

in India initiative, particularly in the drone sector, has been a significant contributor to economic growth and job creation.

TECHNOLOGICAL ADVANCEMENTS AND INNOVATION

The drone sector is in a developing stage, and the Indian industry is in a great position to drive innovation to establish itself as the global best. Continuous focus and investment in innovation play a pivotal role in propelling technological advancements within the drone industry to tackle diverse challenges. This will not only influence domestic developments but also position the industry to set global benchmarks and emerge as pioneers, offering the world an opportunity to adopt best practices in the field.

ADDRESSING UNIQUE CHALLENGES OF THE INDIAN MARKET

Playing a crucial role in addressing the unique challenges faced by the Indian drone market, the Make in India initiative focuses distinctly on strengthening the defence sector. Drones manufactured in India are meticulously designed to navigate the diverse geographical and climatic conditions of the country, making them particularly adept for defence

THE NUMBER OF REGISTERED DRONES IN INDIA HAS SURPASSED 15758 UNITS, SHOWCASING A REMARKABLE INCREASE OF OVER 2000 PER CENT BETWEEN 2021 AND 2023.

applications. Tailored for demanding terrains like the Himalayas and challenging border landscapes, these Indian drones meet strict requirements for defence and security operations.

In the defence sector, these drones serve as force multipliers, enhancing surveillance capabilities, providing real-time situational awareness, and offering strategic intelligence. Their adaptability to varied terrains and adverse weather conditions makes them indispensable assets for defence forces, enabling efficient border monitoring and safeguarding national security interests. The commitment to addressing defence-specific challenges, coupled with the incorporation of precision agriculture applications, underscores the resilience and technological prowess of the Indian drone industry.


GLOBAL RECOGNITION AND MARKET PRESENCE

Indian drone manufacturers' global recognition and market presence underscore the success of initiatives

like Make in India. Emphasising quality and innovation, drones made in India are embraced internationally. Indian companies exporting drones to various nations enhance the country's reputation as a reliable source for cutting-edge technology. This global market presence not only boosts India's economic standing but also encourages collaborations, positioning the nation as a key player in the global drone ecosystem through knowledge and expertise exchange.

OUTLOOK FOR THE NEXT DECADE

As we celebrate a decade of Make in India for the drone industry, it's evident that the initiative has been a transformative force, shaping the trajectory of technological development in the country. The resilience, innovation, and commitment demonstrated by the industry, coupled with the unwavering support of the government, have positioned India as a leader in the global drone market. The next decade holds even more promise, as continued investments in research and development, skill enhancement, and collaborative partnerships will further propel the Indian drone industry to new heights. As we navigate the future, the spirit of Make in India will continue to drive innovation, overcome challenges, and solidify India's position as a technological powerhouse in the drone ecosystem.

In conclusion, let us take pride in the remarkable achievements of the past decade while eagerly anticipating a future where Indian drones ascend to new heights, actively contributing to a technologically vibrant and self-reliant nation. The journey of Make in India for the drone industry signifies not merely a celebration of past accomplishments but a steadfast commitment to fostering an even brighter and more innovative future. 



Innovation, Collaboration, And Sustainability: Three Key Pillars For A Self-Reliant India

The article uncovers a vision for a Make-in-India driven 2030 which will give rise to a self-reliant, innovative, and globally competitive India, poised to lead in the 21st century and beyond. It focuses on digital transformation, as India aims to elevate its manufacturing sector.



H S BHATIA

Managing Director, Kelwon Electronic Pvt Ltd, Manufacturing and Marketing Partner, DAEWOO India

As we mark a decade since the initiation of the 'Make in India' campaign, it stands as a beacon of India's transformative journey in the global manufacturing arena. This ambitious initiative, launched in 2014, is aimed not just at elevating India's manufacturing capabilities but also at positioning the nation as a preferred destination for investment, innovation, and collaboration.

From its early days, the 'Make in India' initiative opened avenues for numerous sectors. For instance, Apple's decision to commence iPhone manufacturing in India serves as a testament to the country's attractiveness for global giants. Over the years, not only has Apple established a significant manufacturing presence in India, but it has also begun exporting iPhones, marking a monumental achievement in India's manufacturing sector.

This initiative heralded an era emphasising self-reliance, innovation, and global competitiveness. Sectors like electronics, automotive,

pharmaceuticals, and renewable energy received special attention. These strategic focuses catalysed ground-breaking collaborations and investments. As per recent figures, foreign direct investment (FDI) inflows have surged considerably, reflecting the success of policy reforms, ease of doing business initiatives, and infrastructural advancements.

Strategic collaborations with institutions like the IITs and CSIR bolstered innovation and technological strides. Central to this evolution was India's investor friendly FDI policy. In 2013–14, India attracted 36 billion dollars in FDI, surging to 85 billion dollars by 2021–22. FY 2022–23 witnessed a robust FDI inflow of 71 billion dollars, with September 2023 figures for FY 2023–24 already touching 33 billion dollars. These inflows spotlight India's global appeal for investments, driving innovation and collaboration. As the initiative progresses, India aims to elevate its manufacturing sector's GDP contribution from 16 per cent to 25 per cent by 2022, targeting an additional 100 million jobs, exemplifying its transformative vision and growth trajectory.

Skill development wasn't a mere policy directive; it was a national imperative. Government-backed programmes meticulously craft skill sets, particularly focusing on empowering rural migrants and the urban poor. The strategy was multifaceted: foster inclusive growth, ensure sustainability, and harness India's demographic dividend. Emphasis on workforce augmentation, technical prowess, and collaboration

SKILL DEVELOPMENT WASN'T A MERE POLICY DIRECTIVE; IT WAS A NATIONAL IMPERATIVE. GOVERNMENT-BACKED PROGRAMMES METICULOUSLY CRAFT SKILL SETS, PARTICULARLY FOCUSING ON EMPOWERING RURAL MIGRANTS AND THE URBAN POOR.

with top-tier scientific institutions became paramount.

VISION FOR 2030: SHAPING THE FUTURE OF MANUFACTURING

Technological Advancements:

The vision emphasises harnessing emerging technologies such as artificial intelligence, the Internet of Things (IoT), and augmented reality to develop smart, efficient, and sustainable products tailored to meet the evolving needs of consumers, thereby driving global competitiveness and market differentiation.

Sustainable Practices: Recognising the imperative of environmental stewardship, the vision champions eco-friendly manufacturing processes, renewable energy solutions, and responsible consumption practices, ensuring a harmonious balance between economic growth and environmental conservation.

Global Expansion: Leveraging the strengths of the 'Make in India' initiative, the vision focuses on forging strategic partnerships, expanding market reach, establishing a robust global presence, fostering collaboration, knowledge exchange, and market diversification across borders.

Skill Development: Human capital emerges as a cornerstone of the vision,

THE GOAL IS TO ENSURE THAT PRODUCTS NOT ONLY MEET BUT EXCEED CONSUMER EXPECTATIONS IN TERMS OF QUALITY, PERFORMANCE, AND VALUE PROPOSITION, THEREBY FOSTERING BRAND LOYALTY AND MARKET DIFFERENTIATION.

with a strategic emphasis on talent acquisition, training, and capacity-building initiatives. The objective is to nurture a skilled workforce equipped with the expertise, knowledge, and skills required to drive innovation, operational excellence, and customer satisfaction.


Collaborative Ecosystem: The power of collaboration takes centre stage in the vision, with an emphasis on building an inclusive ecosystem encompassing industry leaders, research institutions, academia, and startups. This collaborative framework aims to foster innovation, drive technological advancements, and address complex challenges collectively, leveraging collective expertise and resources.

Customer-Centric Approach: At the heart of the vision lies a steadfast commitment to customer satisfaction, market responsiveness, and product excellence. The goal is to ensure that

products not only meet but exceed consumer expectations in terms of quality, performance, and value proposition, thereby fostering brand loyalty and market differentiation.

Looking ahead, as we navigate the complexities of the post-pandemic world, the 'Make in India' initiative must evolve, adapt, and innovate. Embracing digital transformation, harnessing the potential of emerging technologies, and promoting sustainable practices will be essential to remaining competitive, resilient, and future-ready. By strengthening partnerships, fostering collaborations, and prioritising innovation-driven growth, India can realise its vision of becoming a global manufacturing powerhouse.

Moreover, the emphasis on a robust ecosystem for research and innovation has enabled companies to collaborate with academia, research institutions, and industry experts. This ecosystem approach harnesses collective expertise, insights, and capabilities, driving technological advancements and addressing complex challenges. Additionally, the initiative's focus on sustainability and responsible manufacturing practices underscores the importance of balancing economic growth with environmental conservation.

In conclusion, as we commemorate a decade of the 'Make in India' initiative, it's crucial to reflect on its multifaceted impact, transformative potential, and future possibilities. The initiative's success lies in fostering collaborations, partnerships, and synergies, driving inclusive growth, prosperity, and success for all stakeholders involved. As we embark on the next phase of this remarkable journey, let us continue to embrace innovation, collaboration, and sustainable practices, realising the vision of a self-reliant, innovative, and globally competitive India, poised to lead in the 21st century and beyond. 



Lohia's Aspirational Vision For 2047

The article traces India's transformative journey over the past decade, from economic growth and innovation to the challenges that lie ahead. It pens down a future vision, focusing on smart manufacturing, skill development, and global collaboration, as India aspires to redefine the automotive industry for a self-reliant and globally competitive future.



AYUSH LOHIA
CEO, Lohia

When the 'Make in India' initiative was launched in 2014, the primary objective was clear: to transform India into a global manufacturing hub by encouraging both multinational and domestic companies to manufacture their products within the country. The vision extended beyond mere production; it aimed to facilitate investment, foster innovation, enhance skill development, protect intellectual property, and build world-class infrastructure.

One of the most significant achievements of the initiative has been its success in attracting foreign direct investment (FDI). According to research spanning from 1991 to 2018, FDI has had a threefold increase in its growth rate during the second decade, particularly in the service sector. The banking and insurance sectors topped the list of major FDI proposals, followed by the telecommunications sector. Although FDI's direct correlation with employment generation in India is nuanced, the service sector has notably benefited from job creation. Moreover, recent statistics indicate that FDI has played a pivotal role in enhancing

job opportunities in various sectors, thereby contributing to economic growth.

Moreover, recent GDP figures underline India's economic trajectory. As per data from the Ministry of Statistics and Programme Implementation released on November 30, 2023, the real GDP, or GDP at constant (2011–12) prices in Q2 2023–24, is estimated to be Rs 41.74 lakh crore, reflecting a growth rate of 7.6 per cent compared to 6.2 per cent in Q2 2022–23. This growth signifies the resilience and momentum of the Indian economy, further propelled by initiatives like 'Make in India.'

Furthermore, the 'Make in India' initiative has been instrumental in promoting entrepreneurship and innovation. By creating an enabling ecosystem for startups and SMEs, the initiative has empowered young entrepreneurs to turn their ideas into viable businesses. The emphasis on sectors such as electronics, automobiles, pharmaceuticals, and renewable energy has paved the way for technological advancements, research, and development, thereby fostering a culture of innovation and excellence.

In addition to promoting manufacturing and innovation, the 'Make in India' initiative has prioritised skill development and job creation. Recognising the demographic dividend that India possesses, the government has launched several skill development programmes aimed at equipping the youth with the necessary skills to thrive in the modern industrial landscape. By partnering with industry leaders and academic institutions,

THE REAL GDP, OR GDP AT CONSTANT (2011–12) PRICES IN Q2 2023–24, IS ESTIMATED TO BE RS 41.74 LAKH CRORE, REFLECTING A GROWTH RATE OF 7.6 PER CENT COMPARED TO 6.2 PER CENT IN Q2 2022–23.

these initiatives have ensured that the workforce is well-equipped to meet the evolving demands of the industry.

However, as we celebrate the achievements of the past decade, it's crucial to acknowledge the challenges that lie ahead. While the 'Make in India' initiative has laid a solid foundation for growth and development, there is a need to address issues such as infrastructural bottlenecks, regulatory hurdles, and bureaucratic red tape. Streamlining processes, ensuring transparency, and fostering a conducive business environment will be essential to sustain the momentum and realise the full potential of the initiative.

VISION FOR 2047: REDEFINING THE AUTOMOBILE INDUSTRY

Electrification and Sustainable

Mobility: The vision underscores a paradigm shift towards sustainable mobility solutions, with a strategic emphasis on accelerating the adoption of electric vehicles (EVs), renewable energy integration, and eco-friendly transportation alternatives. The focus extends beyond product development to encompass infrastructure enhancement, policy formulation, and consumer adoption, thereby contributing to environmental

THE INITIATIVE HAS NOT ONLY TRANSFORMED INDIA'S INDUSTRIAL LANDSCAPE BUT HAS ALSO INSTILLED A SENSE OF PRIDE, RESILIENCE, AND OPTIMISM AMONG ITS CITIZENS.

sustainability and reducing carbon footprints.

Smart Manufacturing and Industry

4.0: Recognising the transformative potential of Industry 4.0 technologies, the vision emphasises the integration of smart manufacturing practices, automation, and digitalisation across the automotive value chain. This entails optimising production processes, enhancing operational efficiency, and fostering innovation-driven growth to position the industry at the forefront of global manufacturing excellence.

Innovation and Research & Development (R&D)

Development (R&D): The vision places innovation and R&D at the heart of the industry's evolution, fostering a culture of creativity, collaboration, and continuous improvement. This entails investing in cutting-edge technologies and forging partnerships with academic


institutions, research organisations, and industry stakeholders to drive product innovation, technological advancements, and market competitiveness.

Skill Development and Talent Acquisition:

Human capital emerges as a cornerstone of the vision, with a strategic emphasis on skill development, training, and capacity-building initiatives. The focus is on nurturing a skilled workforce equipped with the expertise, knowledge, and skills required to meet the evolving demands of the modern automotive industry, thereby driving innovation, operational excellence, and customer satisfaction.

Global Collaboration and Market Expansion:

The vision emphasises forging strategic partnerships, expanding market reach, and establishing a robust global presence. This entails leveraging international best practices, technology transfers, and collaborative initiatives to address global challenges, seizing new opportunities, and driving sustainable growth across international markets.

In conclusion, as we commemorate a decade of the 'Make in India' initiative, it's a momentous occasion to reflect on the progress made, lessons learned, and the path forward. The initiative has not only transformed India's industrial landscape but has also instilled a sense of pride, resilience, and optimism among its citizens. By fostering innovation, promoting entrepreneurship, and prioritising inclusive growth, the initiative has laid the foundation for a brighter, more prosperous future. As we look ahead, let us continue to build on the successes of the past decade, embrace new challenges, and work towards realising the vision of a self-reliant, innovative, and globally competitive India. 



“We Operate A Skills School In Haridwar To Benefit The Local Community”

A glimpse of how Panasonic, with seven operational plants in India, is investing in Indian technology and human resources, aligning with the ‘create people before creating products’ philosophy. Further, the article explores the company’s role in sustainability, aligning with government’s climate change initiative and circular economy projects.



YOSHIYUKI KATO

Managing Director, PEWIN, Panasonic Life Solutions India

India is ranked 5th in the world GDP rankings as of 2024. While the Indian economy is driven by important industries, which include manufacturing, services, information technology, and agriculture, it is expanding and diversifying as we speak. The country continues to make use of its sizable domestic market, consisting of a young, tech-savvy work population and a growing middle class. However, India’s industrial sector must diversify and grow quickly if it is to succeed.

The manufacturing sector plays an important role in GDP growth. The manufacturing sector presently accounts for around 17 per cent of Indian GDP, with the goal of increasing it to 21 per cent in the next six to seven years. While the manufacturing sector is important for GDP development and job prospects, it is also subject to changes in terms of growing skill sets, government regulations, trends, and general advancements. Manufacturing has played a crucial role in using and blending India’s abilities, skills, labour, natural resources, and technology in order to meet its potential.

INDIA WILL BE THE FASTEST-GROWING MAJOR ECONOMY IN THE NEXT THREE YEARS, WITH GDP GROWTH HITTING 7 PER CENT BY 2026, UP FROM 6.4% IN THE CURRENT FISCAL YEAR.

Manufacturing has developed many secondary and tertiary work possibilities. In addition, government-developed initiatives such as Make in India and other skilled-based programmes are inducing skill development in areas like mechatronics, software engineering, and modern manufacturing processes. According to a recent analysis by SP Global Ratings, India will be the fastest-growing major economy in the next three years, with GDP growth hitting 7 per cent by 2026, up from 6.4% in the current fiscal year.

The Indian economy has also reduced its reliance on imports and experienced a surge in foreign investment, with global corporations such as Apple, Samsung, and Foxconn establishing and expanding their manufacturing facilities in the country.

Simultaneously, the Indian government has introduced various initiatives to support the manufacturing sector and boost economic growth. Some notable initiatives include the Atmanirbhar Bharat Abhiyan, Production Linked Incentive (PLI) schemes, and the National Infrastructure Pipeline, which aims to promote domestic manufacturing and attract foreign investments.

We at Panasonic also conduct business activities in line with the Make in India initiative. Panasonic currently has seven plants operating in India and will continue to invest in the manufacturing segment to prepare for the expansion of production volumes in the future. With

approximately 15,000 SKUs, many of which are manufactured in India.

We believe that investing in human resources is just as vital as investing in plant structures and machinery. The saying 'Create people before creating products' forms the foundation of our philosophy, emphasising the need for excellent human resources in the production of high-quality goods. As a result, we teach our staff members to impart the manufacturing, design, and quality expertise that Panasonic has amassed over the course of its 105-year existence. Apart from our workforce, we also operate a skills school in Haridwar as a corporate social responsibility initiative to benefit the local community. Every year, over 500 students who are interested in the manufacturing sector receive free training, technical assistance, and job support.


The government has launched several projects in the areas of

PANASONIC CURRENTLY HAS SEVEN PLANTS OPERATING IN INDIA AND WILL CONTINUE TO INVEST IN THE MANUFACTURING SEGMENT TO PREPARE FOR THE EXPANSION OF PRODUCTION VOLUMES IN THE FUTURE.

environment, energy, and safety. Such as the climate change initiative, which aims to reach net zero by 2070, the use of renewable energy, and the circular economy initiative, which includes the introduction of plastic recycling, e-waste recycling, battery recycling, and other initiatives. As a result, job opportunities are created, and recycling sector industries are developed and promoted, leading to an effective use of resources.

Along with the many government efforts aimed at promoting sustainability, we are also strengthening

our environmental initiatives. For example, we are vigorously promoting energy-saving activities throughout the company, installing solar panels at all our plants, and working to reduce plastic waste as regulations in India become increasingly stringent to protect the global environment.

The manufacturing industry in India has enormous potential due to efficient supply chains and technology improvements. With its advantageous location, large skilled population, and emphasis on innovation, India is perfectly poised to capitalise on rising global opportunities. It is essential to introduce digital technology to further improve operational efficiency and accuracy. Overall, India holds immense potential, and its success will depend on navigating the challenges, achieving a balance between self-reliance and global integration, and prioritising inclusive and sustainable development. 

TOSHIBA TRANSMISSION AND DISTRIBUTION (INDIA) AWARDED STAR PERFORMER BY EEPC INDIA

Toshiba Transmission & Distribution (India) Private Limited, a leader in India's transmission and distribution equipment market, has been honoured with the Star Performer Award for the year 2019-20 by the Engineering Export Promotion Council of India.

TTDI has won the National Award for Export Excellence in the category of electric motors, generators, transformers, and parts for large enterprises. Hiroshi Furuta, Chairman and Managing Director, TTDI, received the award at an award function held in New Delhi on November 21.

The Star Performer Award, bestowed by EEPC India, recognises TTDI for its exceptional performance in exporting its Products to many reputed electrical power distribution utilities and various other customers located in developed and developing countries across the globe.

Hiroshi Furuta, Chairman and Managing Direc-



tor, TTDI, remarked, "Toshiba Corporation, Japan has established TTDI as its global manufacturing hub for T&D business. This recognition reaffirms our dedication to 'Make-in-India & Export-from-India' initiative."

Energy-Saving Dehumidification Systems Will Boost Eco-Friendly Indian Manufacturing

Looking at the growing demand for Indian products internationally, is indicative of the fact that the 'Make in India' initiative has been progressing at a remarkable rate. In line with this, the Indian EV and pharmaceutical industries face the challenge of meeting rising demands, calling for the need for energy-efficient solutions like dehumidifiers.



DEEPAK PAHWA

Chairman, Pahwa Group and Managing Director, Bry-Air

Reflecting on a decade of the 'Make in India' initiative, the Indian manufacturing sector has made remarkable strides. Launched with the purpose of fostering indigenous manufacturing prowess in various sectors, including automotive, pharmaceuticals, and food processing, has resulted in significant advancements over the past ten years.

In its quest to become self-reliant, the country has been forging some breakthrough mergers and acquisitions in the manufacturing sector. Considering the automobile sector, global players have shown immense interest in establishing their manufacturing facilities in India. On similar lines, even electronic manufacturing has been experiencing a surge in investments, with major players proposing to set up their local assembly units in the country. All these factors are indicative of India's rising prominence in the global supply chain.

Looking at the growing demand for Indian products internationally, is indicative of the fact that the 'Make in India' initiative has been

progressing at a remarkable rate. Where it was introduced with the intention of making the country self-sufficient, the initiative surpassed expectations, with foreign countries seeking Indian products for their high quality. Carrying forward the momentum, the industrial landscape is anticipated to be very encouraging, and the leading players are optimistic about India emerging as a manufacturing powerhouse in the years to come. In addition to this, with Indian products being sought across the globe, there is a unified hope that the country will become an export hub in the future. Gauging the rising demand, the manufacturing market is expected to reach 1 trillion US dollars by 2025–26, according to the IBEF report.

Understanding that some phenomenal milestones have been achieved over the years, there remains a lot to be done to reach the pinnacle of success. This places a lot of responsibility on the industries to curate products that are of supreme quality and meet the highest industry standards. To strengthen foothold in the international market, it is imperative to cater to customer satisfaction and reduce their fault claims as much as possible. In addition to this, with industries across the realm undergoing rapid transformation, there is an incessant need to always customise the products with respect to ongoing trends in the market.

Deciphering this need, industry players have understood the importance of customising products

TO STRENGTHEN FOOHOLD IN THE INTERNATIONAL MARKET, IT IS IMPERATIVE TO CATER TO CUSTOMER SATISFACTION AND REDUCE THEIR FAULT CLAIMS AS MUCH AS POSSIBLE.

THERE IS A LOT OF RESPONSIBILITY ON THE PHARMA INDUSTRY TO INCREASE THE MANUFACTURING OF PRODUCTS.

to maintain relevancy in the dynamic market. Along similar lines, where sustainability and eco-friendly approaches have been leading the conversation for some time now, even the manufacturing sector has been tailoring its equipment to curate energy-efficient products. Taking the example of the EV industry, Li-ion battery manufacturing plays a crucial role in contributing to the performance of the vehicle. As EV penetration has been shaping with much enthusiasm across the globe, battery manufacturers are acing their game by incorporating technologies with energy-efficient solutions. In this pursuit, industry players are perennially seeking energy-saving dehumidification systems to boost manufacturing in the most eco-friendly way. Reducing energy consumption immensely contributes to the efficiency of the company and, at the same time, minimises the pressure on the environment as well.

As a driving example on similar lines, where India is being recognised across the globe as the 'pharmacy of the world,' there is a lot of responsibility on the pharma industry to increase the manufacturing of products to

meet the rising domestic as well as the international demands of consumers while not compromising on quality. As quality air solutions empower the manufacturing of the highest quality pharmaceutical products, upgrading to energy-efficient dehumidifiers can serve the dual purpose of maintaining the quality of the product while curbing the humongous consumption of energy in the process.

To further strengthen the positioning of the industry, the manufacturing sector has been embracing Industry 4.0 with alacrity.

It has been playing a crucial role in empowering the entire industry by enabling smart manufacturing of products. Where it is already shaping the industry, the advanced technology is expected to further lead the forefront in contributing to the resilience of the



sector, auguring well for establishing the supremacy of Indian products across the globe.

The futuristic technologies in the form of AI, machine learning, IoT, robotics, etc. have the ability to revolutionise the sector beyond automation tasks. The industry is working towards harnessing the benefits of technology to take manufacturing to the next level with remote handling, where troubleshooting, operation, and monitoring of the processes can be done even from a distant place. Moreover, by allowing for predictive maintenance, industry 4.0 can fortify the endeavours of the industry by identifying and controlling the damage in advance.

While the country has produced some outstanding work during the ten-year tenure of 'Make in India,' there remains a lot of potential to be discovered. The industry has the ability to transform the entire productivity and efficiency of the country by integrating innovative approaches into its processes. 



Here's How Kandui Is Championing The Cause Of National Self-Reliance

The article explores Kandui's efforts to reshape the nation's industrial landscape. It gives a holistic view into how, from a turnover of Rs 70 crore in 2013 to Rs 300 crore in 2023, Kandui's growth mirrors the success of 'Make in India.'



ASHWIN AGARWAL

Managing Director, Kandui Industries Pvt. Ltd.

In the pantheon of Indian manufacturing excellence, Kandui Industries Pvt. Ltd., established in 2006, stands as an epitome of innovation and skill. As a leading luminary in the manufacturing and exportation of additives, colours, filler masterbatches, and compounds, Kandui has indelibly etched its mark on the global stage. With an imposing annual manufacturing capacity of 60,000 MT, sprawling state-of-the-art facilities that span 3,00,000 sq. ft. (plus a forthcoming expansion of 2,00,000 sq. ft.), and a human capital of 450+, Kandui is the embodiment of industrial magnificence. The crown jewel of its operation, the 'Manthan' R&D centre, is a testament to its unwavering commitment to pioneering research and development. As a revered four-time recipient of the Economic Times award for the best brand in plastics with exports to over 42 countries, Kandui not only exemplifies excellence but is a sterling exemplar of the 'Make in India' initiative.

A DECADE ODE TO 'MAKE IN INDIA'

Launched a decade ago, the 'Make in India' initiative was not merely an economic strategy; it was a clarion call to revolutionise India's stature in the global economy. This visionary campaign aspired to metamorphose India into a global manufacturing hub, harnessing its vast workforce to spur employment and technological ascendancy.

In a nation teeming with the world's largest reservoir of unskilled manpower, manufacturing emerges as a sanctum for job creation and

economic fortification. Kandui has been pivotal in leveraging this demographic advantage, creating widespread employment opportunities while contributing to the nation's resolute march towards an economic renaissance.

KANDUI INDUSTRIES: A SYMBIOTIC SYMPHONY WITH 'MAKE IN INDIA'

Kandui Industries has been an ardent and active participant in the 'Make in India' odyssey. By strategically pivoting to replace imported materials with indigenous alternatives, Kandui not only fortifies the Indian manufacturing ecosystem but also champions the cause of national self-reliance. This strategy has reaped dividends both for Kandui and for India.

For Kandui, 'Make in India' has served as a crucible for growth and ingenuity. This localisation of resources has empowered Kandui to offer competitive pricing and agile service, thereby directly benefiting its esteemed clientele. Customers, in turn, are beneficiaries of high-calibre, locally produced alternatives to imported materials.

A REFLECTIVE SOJOURN OVER A DECADE OF TRIUMPH AND INNOVATION

Reflecting on the past ten years, Kandui's narrative is nothing short of remarkable. Escalating from a turnover of approximately 70 crores in 2013 to an impressive nearly 300 crores in 2023, the company's growth trajectory is a mirror reflection of the success of the 'Make in India' initiative. This remarkable growth is

THIS LOCALISATION OF RESOURCES HAS EMPOWERED KANDUI TO OFFER COMPETITIVE PRICING AND AGILE SERVICE, THEREBY DIRECTLY BENEFITING ITS ESTEEMED CLIENTELE.

attributed to a strategic emphasis on human resources over mere financial investment. By nurturing a skilled workforce and investing in world-class machinery, Kandui has ensured that its products not only meet but exceed global standards.

The inauguration of the Manthan R&D Facility marks a significant milestone, underscoring Kandui's allegiance to innovation and quality. This facility not only augments Kandui's product development prowess but also stands as a symbol of its commitment to 'Make in India'.

Over the last decade, Kandui has revolutionised its manufacturing processes, scaled its operations, and is diversifying its product portfolio. This evolution has been a cornerstone of its enhanced business performance, enabling the company to cater to a broader market and respond more adeptly to customer needs.

ENVISIONING THE FUTURE

As Kandui gazes into the future, its


vision is both bold and attainable, a crescendo from a 300 crore to a 1000 crore company by 2030. Anchored in a strategy to venture into new realms like value-added additives and compounding, this goal is rooted in a continued dedication to manufacturing excellence.

To sum up, Kandui Industries' journey over the past decade is a resounding testament to how the 'Make in India' initiative can be harnessed for extraordinary growth and innovation. Embracing the spirit and ethos of this campaign, Kandui has not just witnessed significant business success but has actively contributed to the broader narrative of India's

development. The company's journey symbolises an inspirational model for other manufacturers, showcasing the profound impact of aligning business goals with national visions for mutual advancement and prosperity.

The company's progress is interlaced with the narrative of a nation ascending, highlighting the power of visionary leadership, strategic planning, and steadfast commitment to excellence.

The story of Kandui is a powerful testament to the synergy that occurs when a business aligns its objectives with national ambitions.

As we look to the future, Kandui's narrative of resilience, innovation, and national pride continues to inspire and steer Indian manufacturing towards new horizons of success and greatness. This story is not just about a company's journey; it is a chronicle of a nation's unwavering resolve to redefine its place in the world, with Kandui Industries at the forefront, championing the cause and leading the way. 

GREENCELL MOBILITY DEPLOYS 150 EBUSES IN AYODHYA TO FERRY OVER 2 MILLION DEVOTEES

GreenCell Mobility, an electric mobility solutions provider, has been selected by the Director of Urban Transport as a partner to deploy 150 intra-city electric buses to Ayodhya for the momentous Ram Mandir consecration ceremony.

This fleet will play a crucial role in providing intra-city transportation service to an estimated 2 million devotees within Ayodhya from mid-January to the end of February, including the day of the ceremony and the surrounding days, marking a significant period for pilgrims and believers.

GreenCell Mobility will be providing its buses for hundreds of thousands of passengers in need of



public transportation during this event, where over 2.5 crore devotees are expected to visit the city till March'24, making Ayodhya an eco-friendly tourist hub.

These buses were flagged off in Ayodhya by Uttar Pradesh Chief Minister Shree Yogi Adityanath on January 14, 2024.

Devendra Chawla, CEO and MD of GreenCell Mobility, stated, "We are humbled and excited to be part of Ayodhya becoming an eco-friendly tourist hub as we deploy our buses in the city. Our

mission has always been to promote sustainable transportation solutions, and the government's decision to utilise electric buses for this grand occasion aligns perfectly with our vision."

Himson Ceramic: Empowering India's Space And Defence Ventures

Discover the journey of Himson Ceramic from a modest textile machinery component producer to a key player in India's space and defence sectors. Including its collaborations with ISRO, see how it continues contribute to the nation's progress in space exploration and defence technologies.



NIMESH BACHKANIWALA
Director, Himson Industrial Ceramic Pvt. Ltd.

Himson Industrial Ceramic Pvt. Ltd. was founded in 1984 in an extremely small factory with a very small production capacity. The initial objective was to cater to the in-house requirements of technical ceramic thread guides, which were used in textile machinery manufactured by their parent company, 'The HIMSON GROUP'.

Himson Ceramic was established in collaboration with Unilateral Technical Ceramics, a British ceramics expert. The collaboration was signed in 1984, and after successful trials suiting the Indian industrial palate, production started in 1985, out of a small 50m² shade in an existing industrial compound. The primary materials were aluminium oxide and titanium oxide.


Over the next two years, as demand for our products increased, there was a need to look for bigger premises to cater to these needs. Thus, the whole factory was shifted to an area of about 5000 m² on the outskirts of Surat and was a complete manufacturing facility, right from raw materials to finished products, from spray drying to diamond polishing.

In 1994, scientists from the Indian Space Research Organisation (ISRO), through its manufacturing facility based in Trivandrum (Vikram Sarabhai Space Centre), approached our company to help them indigenise certain components used in their space rockets. Engineers from Himson, along with the team from Vikram Sarabhai Space Centre, developed the components from scratch—drawings, tooling, and manufacturing SOP—in record time and submitted the samples for approval. The samples

were approved in the first trial itself, and there was no looking back after that. All the rockets that flew from Indian soil henceforth carried materials manufactured by Himson Ceramics. Gradually, with increased industrialisation in the country, Himson diversified its portfolio to cater to other industries such as wire and cables, fuse gears, transmission, etc.

Another breakthrough for our company came in 2012 when the Defence Research Development Organisation (DRDO), located in Hyderabad, developed Long Range Surface to Air Missiles (LRSAM) along with the Israelis. In the process, I, in the capacity of the director, helped design a product to eliminate their ignition system difficulties. The design was translated into samples at the earliest by the production team and sent to Israel's testing facilities.

Following these events, the Israeli team, along with the DRDO scientists and the Missile Systems Quality Assurance Agency (MSQAA) team, visited the manufacturing facility in Surat and gave the necessary green signal to start bulk production. A suitable SOP was established, which is still followed at our facility, and the components have been a great success in the progress of our country's defence and space exploration sectors. We are proud to serve our country in whatever way we can, and we hope to continue to do so in the future.

Looking back over the years, Himson Ceramics has fulfilled the Prime Minister's programme of Make in India by substituting critical components in space and defence applications and making them successfully in India. 

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Make In India: 10 Years From Launch & Beyond

The article highlights how flexible financing solutions empower manufacturers, SMEs, and MSMEs to embrace digitalisation and new technologies, making a substantial contribution in building a resilient and self-sufficient manufacturing ecosystem.



SUNIL KAPOOR

Managing Director and Chief Executive Officer,
Siemens Financial Services Pvt Ltd.

In 2013, India was among the so-called 'fragile 5' group of countries and its growth rate had fallen to its lowest level in a decade. Fragile because of its over reliance on risky foreign investment to fund growth aspirations.

In 2014, India was the 10th largest economy, fourth most favoured destination for foreign direct investment, but was witnessing the lowest growth rate in a decade. It was then that the 'Make in India' initiative was launched with an overarching goal of fostering innovation, promoting indigenous manufacturing, and elevating India's position in the global market. This was soon followed by launch of Digital India in 2015. Both visionary programs laid the foundation of what would have far-reaching impact on businesses and the daily lives of Indian citizens – we just didn't know it then.

Today in 2023-2024, India is the fastest growing large economy in the world, the most preferred destination for foreign direct investment, and is ranked fifth in terms of GDP (close to \$4 trillion). As per the latest government estimates, our GDP growth rate will be over 7 per cent in 2024. A similar trend has also been witnessed in the financial sector in India – credit availability and growth via Banks, Non-Banking Finance Companies (NBFCs) and FinTechs are also indicators of a robust, resilient economy, based on the foundation of strong domestic demand.

Looking back at the past ten years, the government's visionary Make in India program with its country-wide implementation and global visibility, emerges as the one of the biggest contributor to India's current position in the global economy, aided by digital infrastructure. The

overhaul of processes and policies, an increased focus on collaboration, partnerships, and investments, gave the much-needed boost in promoting manufacturing, infrastructure, and services provided by India.

As India continues to maintain its position as a leading destination for manufacturing, the megatrends (demographic change, urbanisation, glocalisation, environmental change and digitalisation) impacting the world have also been working in India's favour. Two of these trends stand out – the ever-increasing adoption of automation and digitalisation, and the huge demographic dividend of a younger population who are skilled, technologically savvy, and aspirational. Both trends provide India with a competitive advantage that positions Indian industry in good stead, far into the future – compounding the positive impact of the first 10 years of Make in India. This is especially true for the 60 million micro, small and medium enterprises relying on innovative solutions to manage their operating expenditure.

FINANCING AND THE SUCCESS OF SUSTAINED MANUFACTURING LEADERSHIP

What's the ground reality of the Make in India initiative? The past few years have highlighted the fact that major disruptions (health crisis, geopolitical and macro-economic), high volatility (commodity availability and fluctuating prices), and uncertainty (supply chain, etc.) demand an accelerated pace of transformation and technology adoption. And technology adoption requires financial investments, which demand financing (credit) to be easily available, be

WITH AN INTEGRATED SOLUTION OF TECHNOLOGY AND FINANCE, MANUFACTURING ORGANISATIONS OF ALL SIZES AND SECTORS CAN ENSURE A SMOOTH AND EFFICIENT IMPLEMENTATION OF NEW TECHNOLOGY THAT ALLOWS UPGRADING OPERATIONS SEAMLESSLY.

flexible enough to cater to various market players and segments.

The Make in India program has had a positive impact in this regard as well. It has led to an increase in capital investments, setting up of new manufacturing facilities, and expanding production capacity. In addition to inspiring the increased adoption of automation and digitalisation, companies of varying sizes and across industry verticals have recognised the business value of energy efficiency, quality, flexibility, and productivity.

Digitalisation is a critical component of any business strategy now. A recent PwC survey reported that “similar to global organisations, in Indian companies too, there’s a strong focus on digital for revenue enhancement, customer experience improvement and commercial innovation”. A DBS-Financial Times survey reported that the “most important goals of digital transformation are boosting efficiency and enriching customer experience – 40 per cent each”.

Additive manufacturing is already a production technology accepted by a wide range of sectors for supporting the drive toward autonomous solutions and automation. It has been proven to help save up to 70 per cent of raw materials in the manufacturing of components by using powerful AI-based tools and by providing diversified and resilient supply chains, which have become essential.

Financing can help adopt digitalisation and new technologies, even without a dedicated digitalisation budget. By leveraging the future benefits of streamlined error-free production lines to empower

manufacturers with the means to upgrade facilities today. With an integrated solution of technology and finance, manufacturing organisations of all sizes and sectors can ensure a smooth and efficient implementation of new technology that allows upgrading operations seamlessly.

For instance, a commercial building that incurs high energy costs can significantly increase its efficiency by converting the existing cooling and heating system to a smart and intelligent system based on data-driven intelligence. The company can save high upfront capital expenditure by using a ‘Pay-as-you-Save’ financing model – where the lease payments for the solution are structured in a way that monthly rental payments would be equal to or lower than the savings generated by the energy efficient

solution – effectively paying for itself from the savings!

A similar solution implemented by a pharmaceutical company helped save over 4,400 tons of CO2 and reduce 4.1 million KWH electricity and 333 tons fuel annually. A beverage manufacturer needed to urgently commission a new plant to prepare for an upcoming surge in demand. With a flexible lease solution, it saved 10 per cent of the project cost and reserved its collateral for future investments.

These flexible financing solutions, unlike those provided by banks, come as a relief to Corporates, SMEs, and MSMEs, who don’t always have a dedicated budget for adoption of digitalisation and technology upgrades, while aiming to provide faster turnaround times and compete with global manufacturers.

The Make in India initiative has been a groundbreaking endeavour to transform India’s manufacturing sector and foster economic growth. The integrated focus on manufacturing, digitalisation, process improvement, and financing has played a significant role in expediting this transformation, empowering manufacturers, enhancing competitiveness, and attracting global attention. I am confident that building on the momentum of the past 10 years, the Make in India program will continue to make significant

contributions towards taking India to the next level. To ensure we realise the full potential of Make in India, we as a country will have to ensure sustained commitment to the topic, strategic planning, continuous innovation, and credit availability, to build a robust, self-reliant manufacturing ecosystem. 



WHICH CUTTING TOOL WILL PROVIDE THE BEST SOLUTION?

When deciding on the appropriate cutting tool for a particular application, it is difficult to determine whether a standard tool or a special tool is preferable. Here is an insight into ISCAR's solutions which empower customers to create their own tailor-made tools and overcome manufacturing challenges efficiently.

When deciding on the appropriate cutting tool for a particular application, it is difficult to determine whether a standard tool or a special tool is preferable. The ideal tool selection is contingent on various factors, such as the nature of the business situation, the manufacturing programme, the production type, and sometimes personal preferences. Standard cutting tools, produced by a specific tool manufacturer, offer high versatility and are appropriate for machining a diverse range of parts that come in different shapes.

Furthermore, the tool exhibits excellent performance capabilities when cutting various engineering materials. To ensure seamless production processes, it is crucial to have the cutting tools delivered in a timely manner. This is why standard tools are the foundation of tool stock management on metalworking production floors.

A special cutting tool is designed for specific operations on a particular part, made of a specific material, and used on a machine that requires a specific



Fig. 2 - The complex-shaped head of NEOSWISS for Swiss-type machines is a modular quick-change head system created by 3D printed technology.

work holding fixture. This custom-engineered tooling solution aims to provide the best possible performance and outcome. However, there is a downside to this solution as it limits the tool's versatility, making it less adaptable to different applications. As a result, special tools are primarily used for high-volume mass production, especially in the automotive industry.

A special tool is not readily available and requires significant engineering effort, including concept design, coordination with the customer, detailed design, and production. The delivery time for special tools is significantly longer than that of standard tools. Metalworking shops often face a dilemma when choosing between standard or special tools, which can impact project timelines. The question remains: which tool will provide the best solution? Should shops rely on readily available standard tools or opt for a highly efficient special tool with a longer delivery time? Naturally, economic factors such as cost per unit and tool costs should be taken into consideration.



Fig. 1 - A wide variety of exchangeable heads, shanks, adapters, extensions, and reducers feature MULTI-MASTER as a versatile modular system.

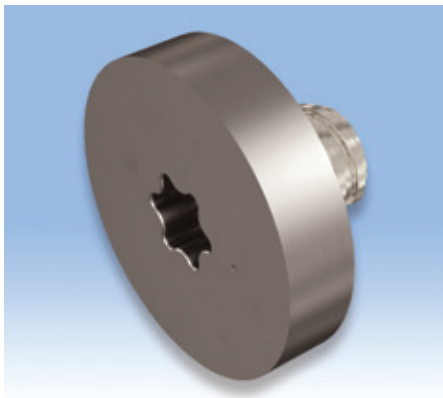


Fig. 3 - A disc-form blank head with MULTI-MASTER adaptation substantially expands the customer's ability to produce tailor-made milling shapes.

All things being equal, in an ideal situation where production programmes, processes, and inventory are planned, the answer is clear. Therefore, the maximum short lead time is an important factor when choosing a special tool.

Special tools vary in their design complexity. Some are simple modifications of standard tools, such as changes to the corner radius or tool length. These modifications fall under the category of 'semistandard' products, which can be manufactured relatively quickly. The design complexity of a special tool is determined by a pre-design study that assesses the customer's manufacturing limitations, accompanied by cost calculations and production time. The results of the study determine the limits and cost-effectiveness that correlate to the special tool's delivery time. However, there are additional ways to reduce the delivery time of special tools, such as using solid tools with interchangeable heads, bodies of indexable cutters, or replaceable inserts. The tool manufacturer's delivery times and production abilities play a significant role in the final decision on how to proceed.

One alternative to engineered special tools is modular tooling, such as ISCAR's MULTI-MASTER, which features rotating tools with exchangeable solid carbide heads. This tooling system includes a wide range of tool bodies (referred to as 'shanks' in the family nomenclature), adapters, extensions, and reducers that enable the configuration of the required tool for diverse machining operations.

Additive manufacturing (AM) presents new opportunities for special tool solutions. This technology allows for the quick production of tools with complex profile designs. Although finish cutting and grinding operations are still necessary, the fast manufacturing of pre-shaped products that are very close to a final shape is fascinating. Additionally, 3D printing can be used to fabricate carbide inserts without the need for a die

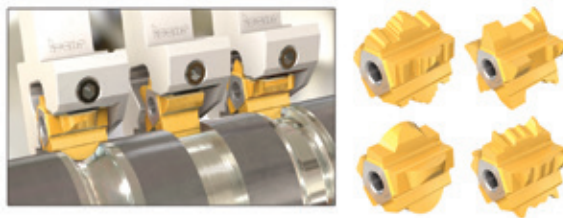



Fig. 4 - PENTACUT-27 starlike blank inserts enable fast customized solutions for complex profile grooving.

set, which significantly reduces production time and costs. This process is an excellent way to create insert prototypes during the development stages and produce low-batch special inserts. The AM of carbide inserts and heads is gaining momentum and is highly capable of ensuring fast delivery of customised tools and their components.

Metalworking shops can quickly manufacture and customise a special tool if an appropriate off-the-shelf product is not available. However, they may not have the means to complete the full cycle of toolmaking. In such cases, tool manufacturers can provide semi-standard tools as standard items, which can be adapted by the customer to their final shape. These semi-finished products can include blank bodies, blank inserts, and blank heads. Some cutting tool manufacturers, such as ISCAR, offer this option and include blanks in their standard product range.

The Multi-Master family offers extra-long shanks with an inner MULTI-MASTER thread on the front face and a centre hole on the back face, which can be cut and shaped by the customer. Recently, ISCAR introduced uncoated carbide blank heads with two sections: a disc-form front area with a hexalobular (TORX) recess on the face, and a rear area with an outer MULTI-MASTER thread. These heads are intended for producing special items to be mounted on MULTI-MASTER shanks at the customer's machine shops for different machining operations such as milling slots, grooves, threads, splines, gears, and more.

ISCAR has also added a group of unique PENTACUT-27 blank inserts with five edges for tailor-made profiles to their product portfolio. These starlike carbide blanks can be ground by the end-user to form different shapes for shallow profiling and grooving depths when machining pulleys, bearings, and fittings. Customers who produce special tools from blanks are limited compared to ordering specially tailored tools from cutting tool manufacturers. However, when time is of the essence, customers can find the most appropriate solution within given constraints by creating their own specially tailored tools. By providing customers with the ability to create their own tools, new horizons are created to overcome the everyday obstacles of manufacturing. 

D/code 2023

A Times Group Initiative

M U M B A I

An initiative by Home & Design TRENDS magazine, D/code is India's first curated luxury living show presented by the Times Group. Redefining the way we experience the luxe life, D/code brings together the best of design under one roof to create a platform that celebrates and recognises creative thought. In its sixth edition, D/code showcased over 50 luxury design brands, specially curated events and power talk sessions. Here, we give you a glimpse of D/code 2023 held at Dome, SVP Stadium, Mumbai.

ASSOCIATE PARTNERS



SOUND PARTNER



PARTNERS



Engagements



1



2

A mystery BFF challenge

Artist and sculptor Arzan Khambatta spearheaded this challenge that was designed to put communication skills between friends from the design fraternity to test.

1. Arzan Khambatta 2. Managing Editor Avril Noel D'souza, Rasneet Anand, Mahek Lalan, Sejal Parikh, Chaitali Parikh-Mehta, Anupa Reddy, Sonia Gehlot Ankhad, Arzan Khambatta, Karishma Bajaj, Asim Merchant, Noorein Kapoor and Karan Desai 8. A snippet from 'A mystery BFF challenge'



8



3

Jenga: Crash landing on you

The riveting finale to D/code 2023, 'Jenga: Crash landing on you', witnessed couples in life and in design fight it out in the age-old, 'Girls vs Boys' pairing.

3 & 4 - Glimpses from 'Jenga: Crash landing on you' 9. Vishakha Dholakia, Piyush Mehra, Rajiv Parekh, Satyajee Patwardhan, Muninder Singh Chowdhry, Iram Sultan, Pashmin Shah, Priyanka P. Mehra, Editor-In-Chief Ronitaa Italia and Ekta Parekh



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Speed dating with the stars of design

In 'Speed dating with the stars of design', students and junior designers got an opportunity for a three-minute, one-on-one conversation with senior architects and designers that they look up to.

5, 6 & 7 - Snippets from 'Speed dating with the stars of design'



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Installations

STAMBH by Ashiesh Shah

Renowned architect and artist Ashiesh Shah showcased his collection of STAMBH at the central lounge, at D/code this year. "STAMBH," meaning 'pillar' in Hindi, melds traditional craftsmanship with contemporary expression across twenty-four craft regions in India. Inspired by the axis mundi, symbolising the earth's centre connecting sky and land, the STAMBH manifests this concept in three-dimensional form, embracing minimalism.



1. Sustainable Future by the students of Rachana Sansad, Mumbai
 2. Natural Harmony by the students of Pearl Academy, Mumbai
 3. The Deep Jyoti Stambh by architect Ronak Hingarh



Power Brunch



We celebrated 25 years of Grandeur with a power brunch at D/code 2023.

1. Deepak Gugarii, Amir Sharma, Hameeda Sharma, Annkur Khosla, Pooja Bihani, Maithili Raut, Ekta Parekh, Rohin Ramchandani of Grandeur, Editor-In-Chief Ronitaa Italia and Rajiv Parekh
 2. Iram Sultan, Vaishali Kamdar and Shantanu Garg
 3. A glimpse of the power brunch
 4. Mandana Karimi, Mahnaz G Tafti, Reza Kabul, Rohin Ramchandani of Grandeur and Seema Ramchandani

Power Talks



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- 1. Debate: Urban cityscape development... progressive or regressive?
- 2. Topic: Smart Windows – Shaping the future of design
- 3. Topic: Perspective – Is mentorship losing its shine?
- 4 & 9 - Topic: Innovation of Windows – The confluence of privacy and transparency
- 5. Debate: High-rise vs low-rise buildings
- 6. Shobhan Kothari presenting on: Experiential Architecture – Emotional response to spaces
- 7. Topic: Modernising aesthetics vs westernising aesthetics
- 8. Topic: How AI is going to affect the future of design



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TRENDS EXCELLENCE AWARDS FOR ARCHITECTURE DESIGN

Presented by Home & Design TRENDS magazine, Trends Excellence Awards for Architecture & Design has become India's most sought-after design award. These awards aim to accolade the utmost level of creativity, innovation and originality in the fields of Indian architecture, interiors and design.

The categories cover the whole spectrum – architecture, interior design, product design and visual design. Our judges define the TRENDS Awards each year – and each year we bring forth a stellar group of extraordinary individuals who have shaped or are shaping the Indian architecture and design milieu.

The awards witness a slew of quality projects from India's top architecture and design firms each year. For the ninth edition, we received over 3500 entries from across India, representing the benchmark that has set the standard for design discourse in India.

(This Page) 1. Axouristos Theodoros of Alumil Systems India Pvt Ltd, Editor-In-Chief Ronitaa Italia and Hazique Shaikh 2. Anand Sharma and Pooja Bihani 3. Birju Shah and Pooja Shah 4. Rukshar Shaikh 5. Asim Merchant 6. Farah Agarwal, Sanchit Arora, Gayathri Padmam and Smrithi Madhu 7. Ranjeet Mukherjee, Shreenu Mukherjee, Varun and Keta Shah 8. Jinal Patel 9. Hameeda Sharma, Aamir Sharma and Pashmin Shah 10. Nirja Shah 11. Aditi Pai and Nivya Joseph

(Facing Page) 1. Rohit Sharma of Art De Rug, Karishma Bajaj, Asim Merchant, Tanvi Deolekar and Shubham Mestry 2. Rajiv Khushalani, Shubham Mestry, Tanvi Deolekar and Shilpa Jain Balvally 3. Muaz Rahman 4. Sneha Tiwari 5. Bhavya Vora 6. Shubham Rangile and Vaishnavi Gundewar 7. Hiren Ganatra 8. Mia Paul 9. Tanya Chutani 10. Kunal Maniar 11. Shreyas Patil 12. Tanya Khanna, Supraja Rao, Farheen Nanji and Mammen Paul 13. Aakif Habib, Prashant Chauhan, Kinnera Varma and Chaitanya Padal 14. Raj Khosla, Devika Khosla and Murali Murugan 15. Vipul Sachdeva and Ricky Sudey 16. Bobby K and Alak Parmar 17. Miloni Sampat and Sowmya Kumar 18. Ekta Parekh, Rajiv Parekh, Maithili Raut and Ghazal Khan 19. Kaushal Tatiya 20. Venkatesan of Fantini India, Prashant Chauhan, Saniya Sumit Aggarwal and Anu Chauhan 21. Shubham Mestry and Tanvi Deolekar 22. Ahmed Munawar



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50 YEARS OF WOHLHAUPTER'S MULTIBORE

Wohlhaupter India Pvt. Ltd. provides expert engineering, technical support, and onsite application services within India for Wohlhaupter GmbH and Allied Machine and Engineering Corp., leading manufacturers of holmaking and finishing tooling systems for the manufacturing industry. The company celebrates 50 years of Wohlhaupter's MultiBore—the world's first modular boring system. Making headlines in the industry in 1973, Wohlhaupter's MultiBore was the first of its kind that allowed boring tools to be changed directly at the spindle. While still a bestseller 50 years later, MultiBore now has a much wider range of machining operations that it is used for.

Until the early 1970s, universal facing and boring heads were used for rough and fine boring. These boring heads had an integrated shank specifically designed for the machine spindle of the corresponding machine manufacturer. However, every machine manufacturer had their own facing and boring heads, even if some of these came from the same manufacturer, in many cases Wohlhaupter. There were no standardised spindle connection points, so users had to have their own tools for each machine type.

Ultimately, this created demand for universally applicable modular tools. Instead of a one-piece boring head, it made sense to design tools modularly to fit on



all machine tools with different basic holders while also having the capability to be individually assembled into complete tools adapted to the workpiece. Wohlhaupter implemented this idea with MultiBore and presented the new product for the first time at the Hanover Trade Fair in 1973. Renowned machine manufacturers quickly decided to supply their machining centres with these new tools, marking the beginning of Wohlhaupter's success story.

Today, MultiBore is still the central product area in Wohlhaupter's portfolio—now in many different versions to meet the increased demands

of the market. As a connection between the machine tool and the MultiBore modular components, the basic holders are supplied for all machine tools. With a complete diameter range of 0.4 mm to 3,255 mm, MultiBore boring tools fit directly into the master shanks, or intermediate modules can be added to create full assemblies adaptable to the workpiece and fixturing. Wohlhaupter currently offers the world's largest range of precision boring tools, ideal for high-volume jobs that require repeated precision over the length of the entire operation.

“When MultiBore was launched in 1973, it was the world's first modular boring tool and a real sensation for the industry. Since then, it has proven itself in millions of applications and is still a key product in our portfolio today, which we have continuously developed and adapted to the respective requirements. With MultiBore, we now offer the world's largest range of precision boring tools,” explained Frank-M. Wohlhaupter, Managing Partner, Wohlhaupter.

SELSA INTEGRATES FIVE STUDER CYLINDRICAL GRINDING MACHINES



For more than three decades, SELSA, a Turkish company, has been a reliable supplier of high-quality components to international clients in the automotive industry. In a significant expansion move, SELSA has recently integrated five STUDER cylindrical grinding machines into its operations.

The journey of SELSA traces back to 1992 when

Selami Dizdar, a mechanical engineer trained in Germany, founded the company from scratch. Today, under the leadership of Cem Dizdar, SELSA has grown to a workforce of around 280 skilled professionals operating in a modern 7,000 square-meter facility, emphasising precision parts for the automotive sector.

Cem Dizdar, Managing Director, SELSA, reflects on the company's humble beginnings, rooted in his family's escape from former Yugoslavia to Turkey during the war. Little did they anticipate that this journey would lead to the establishment of one

of Turkey's flagship companies in the machining sector.

The recent addition of five CNC universal cylindrical grinding machines from STUDER marks a strategic investment for SELSA. Cem Dizdar explains, “There is no more prestigious brand than STUDER when it comes to grinding machines, and we did not want to compromise on quality and precision with this investment.”

The selection of four favorite machines and one favorite CNC aligns with SELSA's commitment to maintaining the highest standards in the

automotive industry. The machines help in producing approximately 7,00,000 drive shafts for control pumps each year.

With approximately 4.7 per cent of its total budget dedicated to research and development, SELSA is recognised as a research-and-development facility for mechanical engineering by the Turkish state.

The decision to collaborate with STUDER

was driven by the need for sophisticated grinding technology, high-quality components, and a reliable partner. Atilla Aydin, Area Sales Manager, STUDER, Turkey, worked closely with SELSA to understand the geometric

requirements of the components and desired production volume.

The long-term collaboration extends beyond the machine acquisition, with continuous dialogue leading to process optimisation and the creation of a specially controlled climate room.

igus UNVEILS BIONIC HAND FOR REBEL COBOT

igus, a leading provider of motion plastics and automation components, has launched an addition to its ReBeL product range: a humanoid hand designed specifically for the ReBeL cobot. This innovative finger gripper is crafted from lubrication-free, high-performance plastics, enhancing its cost-effectiveness and seamless integration.



The ReBeL cobot, has already gained popularity for its affordability and suitability for tasks such as assembly, quality inspections, and service sector applications. To expand the capabilities of the ReBeL cobot, igus has developed a humanoid hand that mimics human

hand movements, opening up possibilities for a wide range of simple humanoid tasks. Priced at an affordable 1,840 pounds, the ReBeL finger gripper is a cost-effective and easily integratable solution compatible with all

ReBeL models.

Alexander Mühlens, Head, Low-Cost Automation Business Unit, igus GmbH, states, “The ReBeL can take on a wide range of simple humanoid tasks and applications with the new low-cost hand. We are thinking of such fields as research and development at universities as well as tasks in the catering or entertainment industries.”

The finger gripper seamlessly integrates with all ReBeL models via plug and play functionality. Further, it is suitable for various applications; the finger gripper is controlled via DIO at the tool centre point and is adaptable to different tasks.

SEBI GRANTS IPO APPROVAL TO RK SWAMY

RK Swamy Limited, the largest Indian majority-owned integrated marketing services provider, offering a single-window solution for creative, media, data analytics, and market research services, has received the Securities and Exchange Board of India (SEBI) approval for its proposed initial public offering (IPO).

The company’s initial public offering comprises a fresh issue aggregating up to Rs 2,150 million and

an offer for sale of up to 8,700,000 equity shares by selling shareholders. The offer for sale comprises up to 1,788,093 equity shares by Srinivasan K Swamy, up to 1,788,093 equity shares by Narasimhan Krishnaswamy, up to 4,445,714 equity shares by Evanston Pioneer Fund L.P., and up to 678,100 equity shares by Prem Marketing Ventures LLP.

The funds raised through the IPO are proposed to be used for the funding of working capital,

the funding of capital expenditures to be incurred for setting up a digital video content production studio, the funding of investment in the IT infrastructure development of RK Swamy Limited and its material subsidiaries, Hansa Research and Hansa Customer Equity, the funding of the setup of new customer experience centres and computer-aided telephonic interview centres, as well as for general corporate purposes.

SBI Capital Markets Limited, IIFL Securities Limited, and Motilal Oswal Investment Advisors Limited are the book-running lead managers to the issue.



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