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MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES
GOVERNMENT OF INDIA

Fuelling Innovation through Industry-Academia Collaboration

Introducing Innovative Solutions to Tackle MSME Challenges



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Programme for Modernisation and Innovation Promotion in Micro, Small, and Medium-sized Enterprises (MSMEs) in India

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New Delhi 2019



Mrs. Mandeep Kaur

**Joint Development
Commissioner, Ministry of
Micro, Small and Medium
Enterprises (MoMSME)**

Foreword

Micro, Small and Medium Enterprises (MSMEs) are key engines of growth for India's GDP, and a major source of employment generation for India's youth. MSMEs not only play a crucial role in providing significant employment opportunities at marginal capital costs, but also help accelerate the industrialisation of rural and underdeveloped areas, thereby ensuring a more equitable distribution of national income and wealth.

Evidence suggests that innovation and workforce upskilling are directly linked to growth and that an increase in efficiency generates further employment while impacting the sustainability of India's MSME sector. Therefore, converting technological breakthroughs into practical solutions is critical.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH - the German Agency for International Cooperation - commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) - supports Indo-German cooperation to strengthen the innovation capacity and sustainability of MSMEs in India. For more than 4 years, the Programme for Modernisation and Innovation Promotion in Micro, Small and Medium-sized Enterprises in India (MSME INNO) has been supporting the Indian Government.

The project works on different methods to promote innovation among MSMEs. The collaboration between industry and academia to solve MSMEs' live problems is one such initiative that was tested and implemented first in Aurangabad, Maharashtra. From 11 projects, 8 SMEs, and 2 colleges in 2016, the project has grown to include 261 projects with 140 MSMEs and 20 colleges in the cities of Aurangabad, Nagpur, Nashik and Pune in 2018. This publication highlights the impact of these projects in terms of productivity, quality and resource-efficiency improvement, and illustrates how small innovations helped MSMEs with day-to-day issues, and to position themselves better in a competitive market.

I very much appreciate the close collaboration and fruitful cooperation with the Marathwada Association of Small Industries (MASSIA), Nashik Industries and Manufacturers' Association (NIMA), MIDC Industrial Association (MIA), and the General Engineering and Allied Industry Cluster, the participating MSMEs and colleges and the Government of India. It will contribute to fostering similar examples of collaboration across the country. We look forward to jointly working towards the common objective of building a strong SME ecosystem while bringing the next generation of innovators into the spotlight.


9/11/2020

Mrs. Mandeep Kaur
Joint Development commissioner, Ministry of
Micro, Small and Medium Enterprises (MoMSME)



Aishwarya Mahiti, a student of SGS College of Engineering, was part of an academic team that improved the productivity in Shree Pressings, an MSME in Aurangabad.

Photo credit: YourStory



Chaman Lal Dhanda

**Project director,
Programme for
Modernisation and
Innovation Promotion in
MSMEs in India
(MSME INNO)**

Preface

The MSME sector is India's second-largest contributor to its GDP after agriculture. It is expected that India will soon grow to have the largest job-ready population in the world. Therefore, MSMEs, as the largest job creation sector, must grow at a rapid pace.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, as a valuable partner of the Indian Ministry of Micro, Small and Medium Enterprises (MoMSME) has played a significant role in strengthening the MSME ecosystem in India. The tool rooms set up through Indo-German collaboration are among the best examples of the eternal relationship between the Indian Government and GIZ.

Innovation is crucial to the MSME sector in India, and particularly significant when the MSMEs involved are an integral part of the value chain in the manufacturing and service sectors. To enhance the levels of innovation and competitiveness in the MSME sector, government support programmes play a major role.

MSME INNO, a programme implemented by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), in cooperation with the MoMSME, aims to improve the local innovation ecosystem through fostering cooperation between different stakeholders and through strengthening innovation capacity and sustainability of the Indian MSME sector.

The project introduces four approaches to promote innovation among MSMEs, one of which is the industry-academia collaboration initiative, where students and their mentors seek innovative solutions for MSMEs' day-to-day problems.

This publication showcases the types of projects and results produced by industry-academia collaboration in the Aurangabad cluster and beyond. Examples of live collaborations, which ultimately help spur the culture of mutual cooperation among MSMEs and academic institutions, are displayed – seeking to inspire deeper collaboration between the stakeholders that shape the MSME ecosystem.

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List of Abbreviations

In order to guarantee good readability, several abbreviations are used in this document.

They stand for the following:

BMO	Business Membership Organisation
MSMEs	Micro, Small and Medium Enterprises
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
BMZ	German Federal Ministry for Economic Cooperation and Development
MSME INNO	Programme for Modernisation and Innovation Promotion in MSMEs in India
MASSIA	Marathwada Association of Small Scale Industries and Agriculture
NIMA	Nashik Industries and Manufacturers' Association
MIDC	Maharashtra Industrial Development Cooperation
MIA	Maharashtra Industrial Development Cooperation Industrial Association
MoMSME	Indian Ministry of Micro, Small and Medium Enterprises

The Evolution of the MSME Sector in India

Albeit home to the world’s second-largest MSME ecosystem, India’s MSME sector has struggled with its development and competitiveness in the past. The Micro, Small and Medium Enterprises Development (MSMED) Act of 2006 sought to change this narrative by classifying the sector into the following two units:

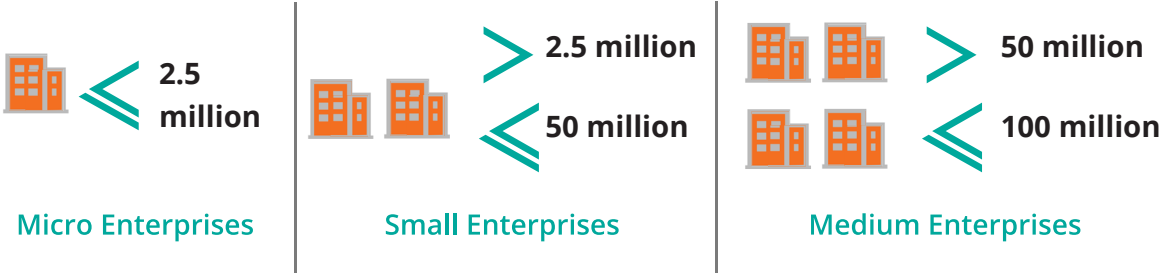
- Manufacturing sector: Engaged in the manufacture or production of goods pertaining to any industry mentioned in the First Schedule to the Industries

(Development and Regulation) Act, 1951, or using plant and machinery that adds value to a final product with a distinct name, character or use.

- Service sector: Engaged in providing services and defined in terms of investment in equipment.

As can be seen in Figure 1, the MSMED Act also defines MSMEs in terms of investment in plant, machinery and equipment.

Manufacturing sector:



Service sector:

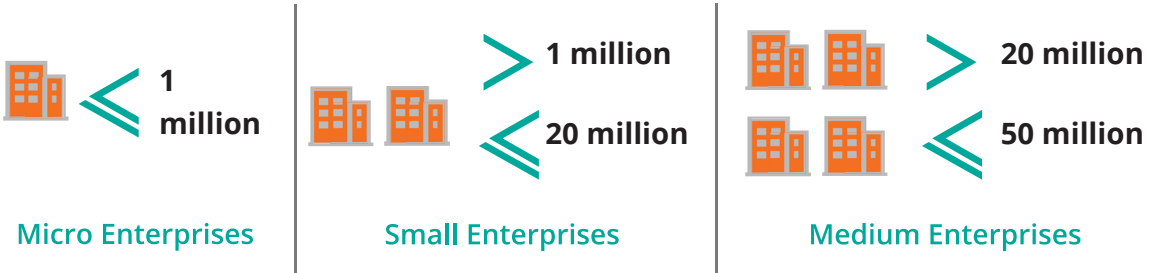


Figure 1: MSME classification in India according to the MSMED Act (2006)

Source: <https://msme.gov.in/know-about-msme>

The MSME sector can be divided into 63 million micro-sized, 331 thousand small-sized and five thousand medium-sized enterprises. The largest employer in the country after the agricultural sector, India's MSMEs contribute to 29 percent of the GDP. Accordingly, the sector plays a fundamental role in creating employment. So far, 110 million jobs were created through MSMEs. In order to incorporate the estimated 250 million adolescents that are expected to enter the job market in the next 15 years, and to sustain the country's economical growth, the MSME ecosystem has to be improved.

Complementing the Indian Government's efforts in creating a fertile breeding ground for innovations, MSME INNO's industry-academia collaboration initiative is set to spur India's leap towards one of the fastest-growing economies of the world.

This report aims to showcase how the collaboration between industry and academia has resulted in multi-pronged successes that are helping to advance the MSME ecosystem in the country.

MSME INNO – Innovate to Lead

The idea of industries approaching academia for innovations is relatively new in India. While strong collaborative models have emerged in most developed countries of the West and in Southeast Asia, companies in India still largely depend on internal Research and Development (R&D) for innovation and technological breakthroughs.

However, that narrative is changing as companies are becoming increasingly aware of the advantages such a collaboration can bring, namely, getting a head start on cutting-edge innovations and deriving economic benefits. Universities,

in turn, also stand to gain as the need for research funding increases.

In an environment like this, initiatives like the Programme for Modernisation and Innovation Promotion in MSMEs in India (MSME INNO) are helping to bridge the gap.

MSME INNO supports institutions that develop a range of innovation-enabling solutions for MSMEs. In Maharashtra, the programme is working closely with industry associations, MSMEs, academia, research and technology development service providers and the government to improve the local innovation ecosystems.

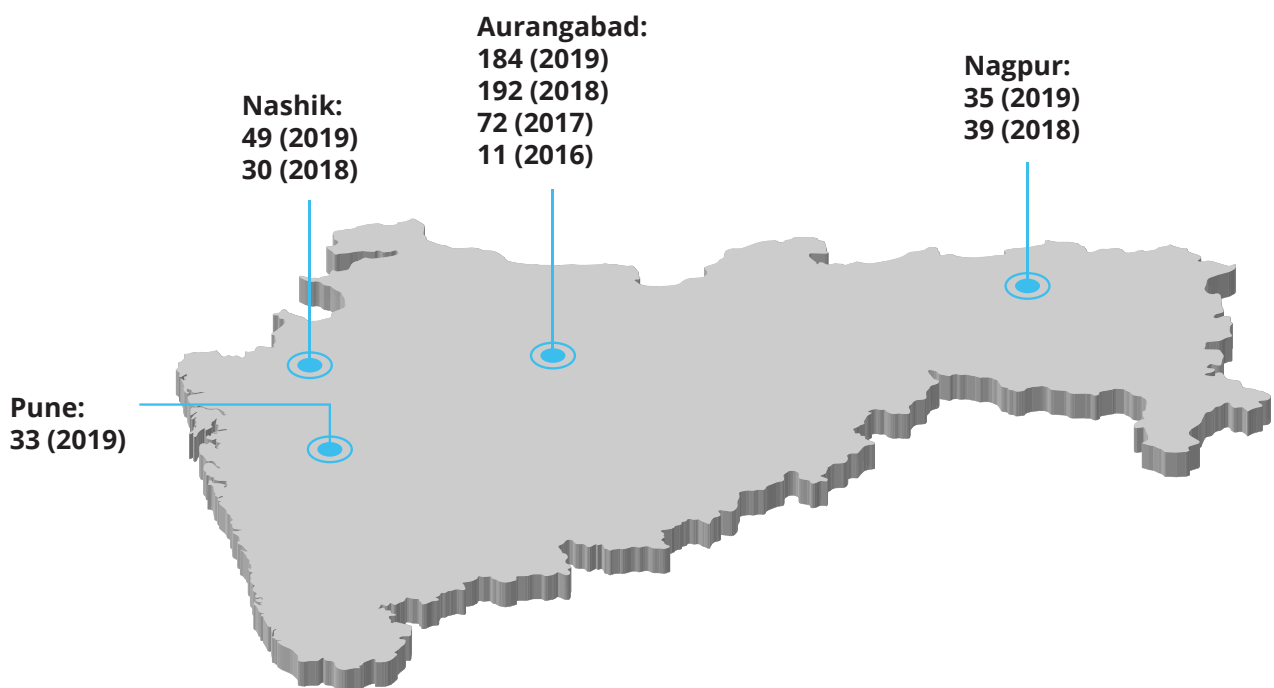


Figure 2: Industry-academia collaboration projects in Maharashtra

Source: MSME INNO

Industry-academia collaboration projects were first launched in the Aurangabad cluster and have since been upscaled throughout Maharashtra (see Figure 2), following the objectives:

- Establishing a strong industry-academia collaborative network through academic projects on live industry problems.
- Building a support mechanism to motivate industries and academia.
- Sharing success stories of industry-academia linkages and mobilising MSMEs and academic institutions to actively participate in this initiative.

- Helping academic institutions define projects based on industries' problems.
- Act as a nodal point between industry and academia.

On a national level, the programme advises the Ministry of Micro, Small and Medium Enterprises (MoMSME) on developing new support instruments that foster innovation and modernisation in the MSME sector. The outcomes and learnings will be incorporated into policy dialogue and provide new impetus for improving policies and instruments that support MSMEs.



Pradyumna Shah (centre), and Prithviraj Shah (right), of Abhijay Autoparts Pvt Ltd, Aurangabad, received academic support from Jawaharlal Nehru Engineering College to improve the unit's CNC machines.

Photo credit: YourStory

Bridging the Gap Between Industry and Academia - MSME INNOs 4-Step-Methodology

In 2017, MSME INNO announced the collaboration with the Marathwada Association of Small Scale Industries and Agriculture (MASSIA) for fostering industry-academia cooperation to develop innovative solutions for local MSME units.

MASSIA, an Aurangabad-based Business Membership Organisation (BMO), acts as a catalyst between MSMEs, the government, and academia. The BMO represents 1,500 entrepreneurs focused on driving innovation in the region. MASSIA has facilitated financial schemes for MSMEs, and liaised with government bodies for policy standardisation for incentives and subsidies, a credit-linked capital subsidy scheme, a tech upgrade scheme, and a solar rooftop scheme to decrease the region's MSME carbon footprint.

MSME INNO supports MASSIA in organising events that connect all stakeholders of the ecosystem. Additionally, the programme enables the fostering of innovations through the industry-academia collaboration initiative that was piloted with MASSIA in Aurangabad and later extended to include Nagpur (in cooperation with the MIDC Industries Association (MIA), Nashik (in cooperation with the Nashik Industries and Manufacturers' Association (NIMA), and Pune (in cooperation with the Pune Engineering Cluster)).

This model adheres to the following 4-step-methodology:

1. Identifying the problem: Live short-term (3-6 month) project ideas are identified with the help of BMOs, based on the most pressing problems encountered by MSMEs. The projects are defined in such a way that they can also help students apply their knowledge and gain practical industry experience.

2. Assigning mentors and coordinators: Coordinators and mentors are assigned for each of the problems. Student teams are selected who first develop ideas on solving the specific issue identified.

3. Project execution: Student teams visit the MSMEs to understand the chosen problem and propose a conceptual solution. Projects are monitored by faculty mentors, while GIZ manages the coordination between MSMEs, academia and the BMOs. After evaluating the conceptual solutions, MSMEs have the option to invest in developing the concept.

4. Implementing the solution: The prototypes or process innovations developed by the academic team are implemented in the factory. Each project is evaluated on the parameters of innovation, implementation, problem-solving techniques and commitment demonstrated.

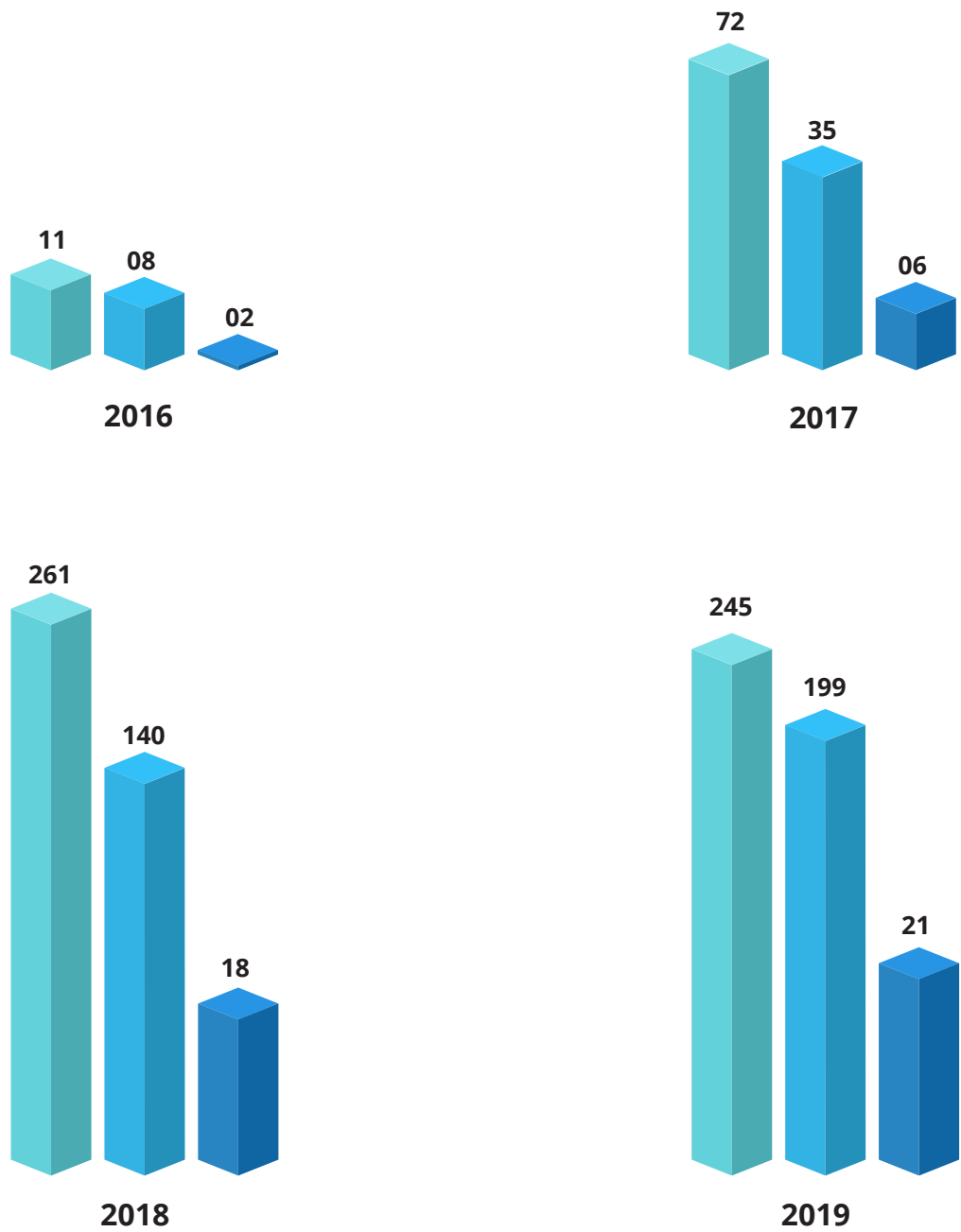


My company works on heat treatment of alloy components. Initially, when components are manufactured, they are usually soft. We increase their wear and tear resistance using heat baskets. During operations, the baskets easily break. To increase the basket life, we put forth a problem statement to the students. Out of the three solutions developed by the students, we selected one. With this solution, the basket life has improved by three times. Due to the improved heat baskets, we are saving 0.35 million per annum.

Anant Sathe, Mettreat, Aurangabad



*Mettreat could improve the life of heat treatment baskets with the help of an innovative coating technique implemented by students.
Photo credit: YourStory*



Parameters

- Total projects
- Number of partner SMEs
- Number of partner colleges

Figure 3: Industry-academia collaborations from 2016 to 2018 in Aurangabad, Nashik and Nagpur

Source: Programme for Modernisation and Innovation Promotion in MSMEs in India, 2019

Today's Challenges, Tomorrow's Innovations

The approach of students tackling industry challenges through innovative solutions has proven to be an equally beneficial model for all stakeholders involved. Select success stories fuelled by MSME INNO are highlighted in this chapter.



*The LED testing panel developed by students for Manu Electricals, an MSME in Aurangabad.
Photo credit: MSME INNO*

Auto dust collector improves workers' health

MSME:

Shree Tube Mfg. Co. Pvt. Ltd.

College:

MGM's Jawaharlal Nehru Engineering College, Aurangabad



Problem:

- Shree Tube Mfg. Co. Pvt. Ltd. identified hazardous dust created by grinding machines to be a health risk for the workers involved.



Solution:

- To reduce dust pollution in the factory, a team of students developed an automated dust collector.
- The machine decreases the health risks for workers, while minimising dents on the tubes that were caused by metallic dust. Additionally, the new dust collector is smaller, portable, and requires less energy than comparable machines within the factory.



Outlook:

- Another MSME, Shubhneel Industries, heard of the successful installation of the dust collector in the Shree Tube factory and decided to follow their example. Mr. Pal, the managing director, plans on introducing auto dust collectors in his factory wherever dust is a by-product of industrial production.
- One of the students who worked on the project plans to develop the innovative idea into a startup and already received first orders.



The project was to make the tube mill free of hazardous metallic dust. Through GIZ, we saw that the solutions being suggested were actually implemented. I would request all MSMEs whose challenges are not being solved to ask students to give ideas. Give them a problem statement and they are going to give you fantastic results.

Aaditi Rathi, Shree Tube Manufacturing Pvt Ltd, Aurangabad

Solar tracking and cleaning system for desalination of sea water

MSME:

Jadhav Powertech

College:

K. K. Wagh Institute of Engineering, Education and Research, Nashik



Problem:

- Jadhav Powertech supplies their factory with purified sea water. Dust was impacting their solar still desalination system, subsequently causing low light intensity on the solar panels.



Solution:

- The students maximised the efficiency of the solar array systems by developing a sun tracking and dust cleaning system which cleans the modules automatically, reducing water shortage problems in the MSME.



Outlook:

- The prototype will be developed commercially.

Overall Equipment Effectiveness (OEE) measurement using Internet of Things (IoT) technology

MSME:

Vijay Co Polymers

College:

International Centre of Excellence in Engineering and Management (ICEEM), Aurangabad



Problem:

- Vijay Co Polymers lacked a mechanism to monitor the overall efficiency of their manufacturing machines, leading to less efficiency.



Solution:

- The students developed an IoT-based solution that automatically calculates the Overall Equipment Effectiveness (OEE).
- With the new low-cost technology (Rs 10,000), the efficiency of manufacturing machines has improved by 50 percent.



Outlook:

- Vijay Co Polymers has sponsored 40 more IoT projects.
- Students are considering founding their own startup.

Tool vending machine to improve storage of tools

MSME:

Grind Master Pvt Ltd

College:

MGM's Jawaharlal Nehru Engineering College, Aurangabad



Problem:

- Grind Master Pvt Ltd found that the disorganised storage of tools was a major obstacle in their factory.



Solution:

- The student team improved the tool storage in the MSME by developing a prototype for a touchscreen-based automatic tool dispensing machine.
- This solution reduces the operator tool search time for four sets of tools, thereby increasing productivity.



Outlook:

- Based on its operational success, the MSME will develop a large-scale machine that can sort 100 sets of tools.



We only started these collaborations after GIZ initiated this programme. This year, we have taken two more projects and this year's projects are more delicate and much more automation is involved. If this continues, the students will benefit because they will understand the industry and its needs.

Ashish Pal, Shubhneel Industries, Aurangabad

LED panel testing in under 15 seconds

MSME:
Manu Electricals

College:
Maharashtra Institute of Technology, Aurangabad



Problem:

- The MSME used to test LEDs in a very time-consuming manner, either one-by-one or in batches of ten.



Solution:

- Students developed a single point system that reduced the testing time of LED panels to as little as 15 seconds. Now, the unit can check 15,360 LED panels per shift – leading to an 8.33 times increase in production.
- Through this low-cost (Rs 13,000) innovative solution, Manu Electricals saves Rs 8,73,600 annually.



Outlook:

- With the potential to save a total of Rs 2 crore for the 25 companies working in this field in Aurangabad alone, this LED testing mechanism shows great potential for upscaling.



Initially, we used to test each LED lamp individually or in batches of 10. The students developed a solution that allowed us to test 50, 100 or 200 lamps at a time, using a mechanical structure. Because of the reduced time taken, we can now do the work of two shifts in one single shift.

Dr V S Deolankar, Manu Electricals, Aurangabad

An automated coolant distribution and monitoring system

MSME:

Abhijay Autoparts Pvt Ltd

College:

Deogiri Institute of Engineering and Management Studies, Aurangabad



Problem:

- Due to lack of standard practices and automation, Indian MSMEs like Abhijay Autoparts Pvt. Ltd. still fill coolants individually and manually. Low productivity, bad quality and improper resource utilisation are the negative side effects of this practice. Abhijay Autoparts Pvt. Ltd. sought to tackle this outdated approach with the help of academic expertise.



Solution:

- The students developed a low-cost automatic system for coolant monitoring and feeding within a centralised system.
- A central 20-litre storage tank was installed in order to control coolant distribution through level sensors. It alerts the master circuitry control if the tank hits low levels.
- Coolant wastage has been reduced by 10 percent after implementing the auto coolant circulation system.
- By reducing machine idle time, operational costs went down as well.



Outlook:

- The project was awarded first place in a state-level competition in Maharashtra.

As MSMEs, we don't have the specialisation, expertise and the kind of funds that are available to larger enterprises. A programme like MSME INNO helps us tap the hidden potential of academia to help us drive innovation cost effectively.

Pradyumna Shah, Director, Abhijay Autoparts Pvt. Ltd., Aurangabad.

Design and development of a flexible solar film for electricity generation

MSME:
Ekam Consultants

College:
Vishwakarma Institutes, Pune

Problem:

- Most solar panels are installed in residential or industrial complexes. These are very bulky, and once installed, cannot be moved from one place to another. This restricts the use of solar energy at an individual level because of which dependence on conventional power sources cannot be reduced.

Solution:

- The students developed lightweight, portable solar films that primarily harness solar energy.
- Instead of the conventional solar cells which have a bulky frame attached, the students developed thin light solar cells.

Outlook:

- As an energy-efficient solution, this innovation is set to help reduce dependency on conventional power sources for MSMEs in remote, areas and will also benefit the general population.

Die design for slot piercing of automobile components and accessories

MSME:

Shree Pressings

College:

Shri Guru Gobind Singhji
Institute of Engineering
Technology, Aurangabad



Problem:

- Shree Pressings, a metal plates, dust caps and metal roofing sheet manufacturer, faced low punching production due to constraints in the MSME's die design.



Solution:

- Students developed a new die design that completes double slot piercing with a single stroke, thus decreasing the process time by 50 percent. Now, manual intervention is no longer necessary.
- The alignment of the slot axes leads to fewer rejections and increased productivity.



Outlook:

- With the new die design the quality of the components has improved, enhancing the potential market value of the products.



We've been a part of the programme for two years now, and we're always astounded by the creativity of the students and the innovation they can drive for us.

Rajesh Mandani, Founder, Shree Pressings

Learnings and Takeaways

The industry-academia collaboration projects in Maharashtra showcase how industry's problems can be solved through innovative and inexpensive solutions developed by students. The model also serves as a blueprint for how industries and academic institutions in other parts of the country can work together to build low-cost solutions.

Summarising key challenges and drivers for both MSMEs and academic institutions, the following can be observed:

DRIVERS

- MSMEs are enthusiastic about working with staff and students on their day-to-day problems.
- Industries have improved access to current trends.
- Increased collaboration between MSMEs and academic institutions leads to an increased demand for services provided by BMOs.
- Feedback from mentors, GIZ, and academic institutions increases the sustainability of the projects.

CHALLENGES

- Limited financial resources in R&D decrease MSMEs' willingness to invest in R&D with academic institutions.
- Academic institutions do not have funds earmarked for independent industrial research-based projects.
- Academia is faced with MSMEs' uncertainty about students' technical skills and capabilities.

More MSMEs are coming forward to engage with academic teams on solving the technical problems they face in their factories. Simultaneously, most MSMEs who participated in the projects are interested in connecting with academic institution for further collaborations. Having witnessed the success of the programme, MASSIA has indicated its interest in replicating this initiative every year – beyond the duration of MSME INNO – thus ensuring the sustainability of measures taken by the programme.

Students get exposure to entrepreneurship while still studying, thereby boosting their employability when entering the job market. As a result of their experiences on the factory floors of local MSMEs, increasing numbers of students are also considering founding startups. They can then seek support in incubation centres – some of which are also supported by the MSME INNO project. The most innovative ideas open the potential for patenting (2-3 project patents are in the pipeline). Finally, the collaboration helps academic institutions gain a better understanding of current trends and requirements.



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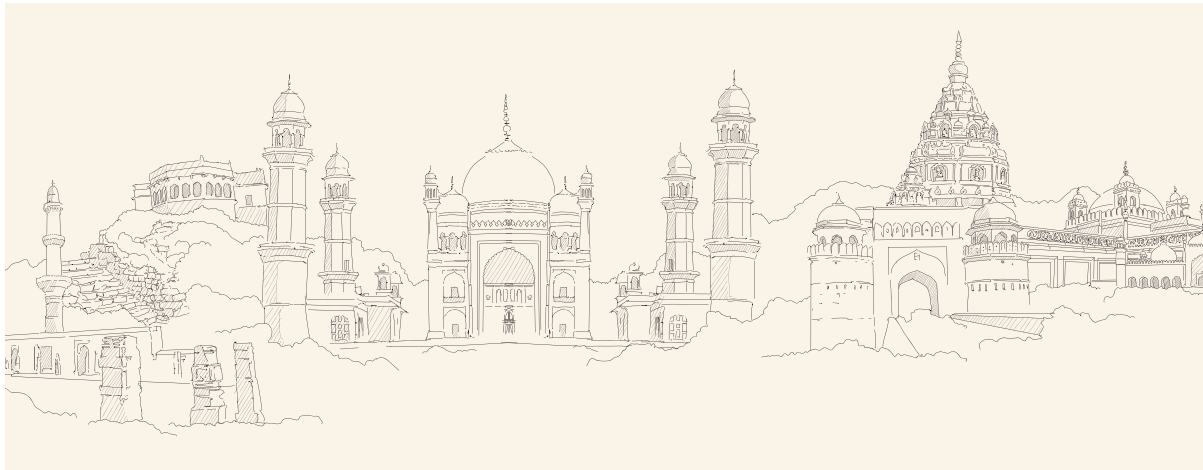


About GIZ

For over 60 years, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working with various government and other agencies in India to promote and nurture sustainable economic, ecological, and social development.

Initiatives like the 'Programme for Modernisation and Innovation Promotion in MSMEs in India (MSME INNO)', jointly implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Ministry of Micro Small and Medium Enterprises, Government of India, are helping further bridge this gap. MSME INNO has been working with industries associations, technical institutes and MSMEs to create a local innovation ecosystem in Maharashtra.

Our Partners



Aurangabad

Industry Association: **Marathwada Association of Small Scale Industries & Agriculture (MASSIA)**

MASSIA is the largest association of Micro, Small and Medium Enterprises in the Marathwada region with 1,500+ MSME members from Chikalthana, Waluj, Chitegaon, Shendra and Aurangabad. It acts as a catalyst to promote Marathwada as a preferred destination by working with various stakeholders and the government. One of its primary goals is to promote Industrial Technology, Research & Development and create an environment to attract investment on a national and international level.

Colleges: **Indo-German Tool Room (IGTR)**

A project of the Government of India, the Government of the Federal Republic of Germany and the Government of

Maharashtra, IGTR is a centre that nurtures excellence and provides total tooling and training solutions. IGTR is concentrating on an integrated development of the related segments of the industry by way of providing International Quality Tools, Trained Personnel, Consultancy In Tooling and Related Areas, and is constantly crossing new frontiers in the quest for excellence and beyond.

CSMSS, Chh. Shahu College of Engineering

CSMSS is a technical education institute in the city of Aurangabad. It was established in 2009 with five diploma programmes and a sanctioned intake of 390 students. The institute is affiliated with Maharashtra State Board of Technical Education (MSBTE) and managed by the CSMSS. The college takes its name from a ruler of the Maratha Empire, Chhatrapati Shahu Maharaj. It has been accredited by the Directorate of Technical Education (DTE).

Jawaharlal Nehru Engineering College (MGM-JNEC)

Jawaharlal Nehru Engineering College has carved a niche for itself in the field of technical education. The college has made its presence felt in the world of technical education.

International Center of Excellence in Engineering and Management (ICEEM)

ICEEM was established in 2011, and aims to provide quality education in engineering and management, build finer skills and attitude in demand in the job market; enable placements through campus interviews and organise entrepreneurship development activities.

Deogiri Institute of Engineering and Management Studies (DIEMS)

DIEMS was established in 2009-10 to prepare students for best academic and industrial practices by implementing innovative teaching and learning methodologies, and promoting all-round development by giving exposure to a series of activities. It also aims to prepare the students to face global challenges by equipping them with the requisite technical expertise and developing entrepreneurship skills among them and promoting an interest in research.

Maharashtra Institute of Technology, Aurangabad (MIT-T)

MIT-T is a private engineering college and is one of the technical institutes of Gramodyogik Shikshan Mandal (GSM) and the MIT group of Institutes. It provides undergraduate, postgraduate and doctorate programmes for Indian and international students. It was named among Outlook India's "Top 100 Engineering Colleges" in 2018.

Matsyodari Shikshan Sanstha (MSS)

MSS was started to help economically weak students gain an affordable education in engineering. Its focus is on enabling the students to develop practical skills through laboratory experimentation and technical, managerial, research and innovative projects.

Shreeyash College of Engineering and Technology Aurangabad (SYCET):

SYCET is a centre of excellence for training and imparting knowledge and producing quality of engineers in their specialized professional programme.

Sanjivini College, Korpargaon

Sanjivani College of Engineering is a private engineering college located in Korpargaon, Ahmednagar. It is affiliated to the University of Pune and approved by the DTE, Maharashtra State and All India Council of Technical Education (AICTE), New Delhi. It offers both undergraduate and postgraduate engineering programmes.



Nashik

Industry association:
**Nashik Industries and
Manufacturers Association
(NIMA)**

NIMA is the representative body of industries located in Nashik District. Founded in 1971, NIMA has grown as a large body of all industries consisting of large, medium & small scale category units and associate members. It is an apex body representing the whole of North Maharashtra. Its primary objective is to promote healthy growth and development of industries.

Colleges:
**K. K. Wagh Institute of
Engineering Education and
Research (KK Wagh)**

KK Wagh is a private college recognised by AICTE and established in 1984. The college offers Bachelor's degree programmes in Electrical, Electronics

and Telecommunication, Mechanical, Production, Computer, Civil, and Chemical Engineering, and Information Technology.

**MET Bhujbal Knowledge
City (MET)**

Mumbai Educational Trust (MET) was registered in 1989. It has developed a multi-disciplinary educational complex at Bandra Reclamation, Mumbai, which offers All India Council for Technical Education (AICTE) approved educational programmes in the areas of pharmacy, information technology and management.

Sandip Foundation (SF)

SF was established to impart higher education in the fields of Engineering, Science, Arts, Management Studies, Polytechnic and Pharmacy. It aims to build a strong Center of Excellence in Learning and Research in Engineering and Frontier Technology.



Nagpur

Industry association:
**MIDC Industries
Association (MIA)**

MIA is a premier organisation working for the development of industry in Nagpur's Hingna MIDC area and aims to promote and develop fellowship among the industries in the MIDC area and cooperate with industrial, business, educational and research institutes and other organisations in the collection and exchange of information pertaining to industries.

Colleges:
**Visvesvaraya National
Institute of Technology
(VNIT)**

VNIT is a public engineering and research institution established in June 1960 named in honour of engineer, planner and statesman, Sir Mokshagundam Visvesvaraya. It awards Bachelors, Masters and Doctoral degrees in Engineering, Technology and Architecture.

**The Karmavir Dadasaheb
Kannamwar College of
Engineering (KDK)**

KDK is affiliated to Rashtra Sant Tukdoji Maharaj (RTM) Nagpur University and is approved by All India Council of Technical Education (AICTE) New Delhi, DTE, and the Government of Maharashtra. The college offers undergraduate programmes in six branches of Engineering and postgraduate programmes in Mechanical Engineering and Civil Engineering.

**Shri Ramdeobaba College
of Engineering and
Management (RCEOM)**

RCEOM is a private institution that aims to impart quality education in the field of Engineering and Management and to foster mutually beneficial relationships with industries to create an intellectually stimulating environment for learning, research and for promoting professional and ethical values.



Pune

Industry association: **General Engineering and Allied Industry Cluster**

General Engineering and Allied Industry Cluster was recognised by the MoMSME under the Micro and Small Enterprises - Cluster Development Programme (MSE-CDP) programmes. Its members include Micro and Small Enterprises (MSE) in the Bhosari, Pimpri Chinchwad region, and it aims at developing these MSEs.

College: **Nutan College of Engineering and Research (NCER)**

NCER is part of the highly respected Nutan Maharashtra Vidya Prasarak Mandal (NMVPM) education society that operates three engineering colleges – Pimpri Chinchwad College of Engineering (PCCOE), Pimpri Chinchwad College of Engineering and Research (PCCOER) and Nutan Maharashtra Institute of Engineering & Technology (NMIET).

Vishwakarma Institute of Technology (VIT), Pune

Established in the year 1983, financed and run by the Bansilal Ramnath Agrawal Charitable Trust, Pune and affiliated to the University of Pune.

