ISSN 2455 – 2097

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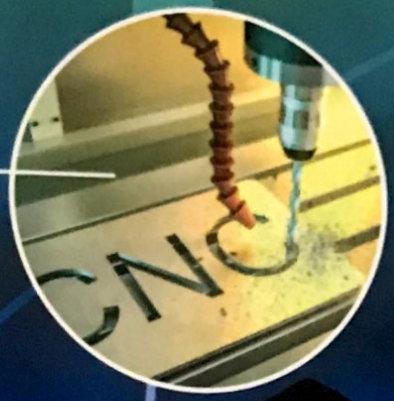
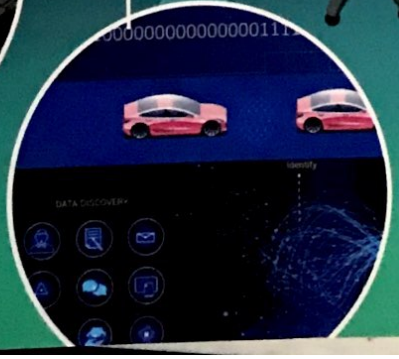
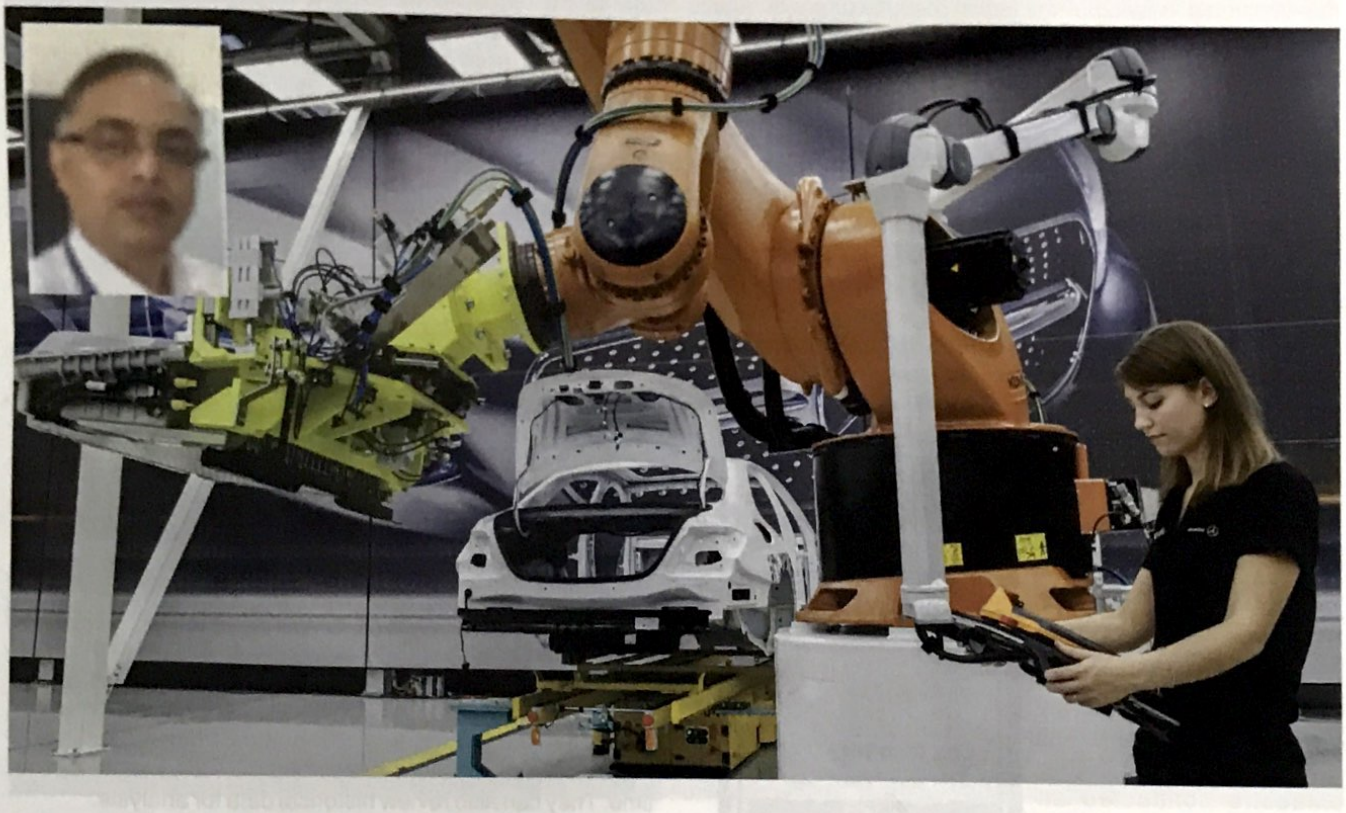




Industry 4.0, a Catalyst for Indian Manufacturers : A transformation story of an Indian Automotive Manufacturer

- Sunil Avhad



For last 50 years industrial productivity growth has stagnated in developed economies, in spite of massive developments in technology and automation. India's large workforce, which is expected to increase further by more than 300 million new workers has to find a strategy to avoid this stagnation trap. In our opinion, Industry4.0 holds the promise to provide the way out.

Industry 4.0 does not need the massive capital investment that was needed by the 3rd industrial revolution. Industry 4.0 offers ways to plug in your existing plant and machinery to the emerging digital world, by leveraging the latest advancements in Internet of Things (IoT), Edge computing, Machine Learning and Artificial Intelligence (AI/ML), Robotics, mobile and Cloud.

In spite of the rapid advances and maturing of technology, we are seeing their adoption by industry is lagging considerably. We find that Technology standardization has progressed well, but there is need to bring in Industrial Standards for product interfaces which will offer real plug-and-play, thereby driving mass adoption offering cost-effective, fast and easier adoptions. A typical example can be where measuring gauges have the ability to provide measurement data for integration, but as every vendor has their own formats and methods this makes adoption expensive and time-intensive. Government, Industrial bodies like MCCIA and others need to take the initiative to draft such interface standards – which will help drive the Industry 4.0 transformation.

Indian manufacturers can start their Industry 4.0 Transformation by targeting some low hanging fruits like capturing production counts that provide visibility into production operations, and make the data available on mobile to Production Managers. This will be a good first step to allow the Plant Line management to harness the power of Industry 4.0.

Transformation can then progress with a series of solution deployments in the areas of detection / prevention of quality problems, tracking production to improve order fulfilment and productivity, and monitoring machine health to increase uptime and reduce cost of maintenance. These continuous improvements can add up to major annual returns, but more important benefits are increased productivity that enable manufacturers to deliver more from the same plant assets.

Industry 4.0 solutions often offer returns of 3X as compared to traditional productivity improvement solutions. Our experience with early Industry 4.0 adopters show that capex of Rs. 1 crore can boost the bottomline by approx. Rs. 3 crore. This rate of return is compelling to move ahead, and will help you pull ahead of your competitors.

India is steadily positioning itself as a global manufacturing leader, but will Indian manufacturers be able to bridge the productivity gap with our key competitor – China, which has a 10X advantage.

Industry 4.0 can help India bridge this productivity gap. eMaestro Technologies Pvt. Ltd. has taken up this challenge to help Indian manufacturers on their journey of Industry4.0 transformation. eMaestro has developed a platform for Industry4.0 transformation. This iSCOUT4.0 platform and edge devices integrate with existing CNC / conventional machines, inspection gauges, and visual inspection. eMaestro has done some Industry4.0 assessments, pilots and have deployed these solutions. I am sharing a quick overview of such a pilot at OMKAR Engineering, an automotive component manufacturer for global automobile component OEM.

Industry 4.0 Transformation journey at OMKAR Engineering

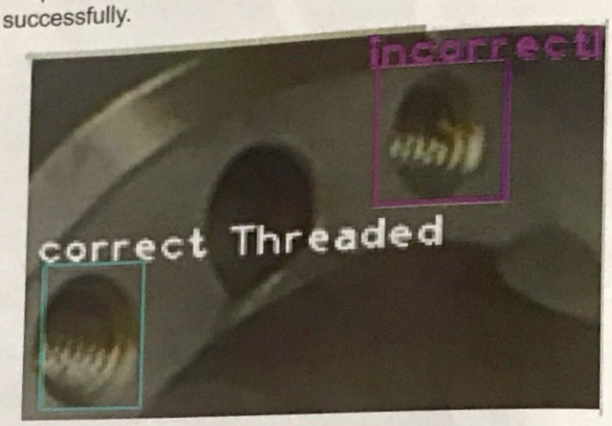
OMKAR Engineering manufactures automotive components for one of the global automotive component OEMs. They have 2 production plants with over 25 CNCs and SPMs. eMaestro conducted an Industry4.0 assessment for OMKAR manufacturing operations and identified the following main pain areas:

- No visibility into real-time production, quality and machine health data
- Lack of effective solutions for defect prevention / Poka-Yoke
- No remote access to plant data
- Excessive spend on preventive maintenance schedules

With this analysis, following 5 use cases were identified for the first phase of their Industry4.0 transformation journey. Initial one month pilots were completed and solutions have been deployed successfully.

Monitor Production Counts: OMKAR often have to switch between parts depending on schedules agreed with OEMs. ISCOUT CNC devices were deployed connecting key machines on the production lines, which provide real-time progress of production vis-à-vis production targets. Line managers can now view current and even historic data on their mobiles. This helps them track production rates and take corrective actions, identify production bottlenecks and assign downtime codes.

Prevent defects: Mistakes by operators in loading parts on machines used to result in defects which were missed during inspection. To detect such defects, increased manual inspection was being done. To resolve this problem, eMaestro deployed its iSCOUT Vision solution to detect wrong part, already processed part or wrongly placed part, and to trigger alarm condition with machine cycle suspension. This PokaYoke is now preventing defects successfully.



Monitor Quality: Absence of a real-time inspection data analysis system to monitor the process capability (Cpk) was resulting in defects and higher costs. The connected inline Statistical Process Control (SPC) solution from eMaestro now allows Omkar to automatically collect and analyze inspection data, view process status, trigger alerts, and initiate corrective actions based on predefined rules, in real-time. They can also review historical data for analysis.

Owners of the plant, are happy with the benefits seen with the first wave of deployments and have committed to invest further on Industry4.0 to further enhance their competitiveness and contribute positively in making India a world manufacturing leader.

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