



It's time for Industry 4.0

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(Mains GS 3 : Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.)

Context:

- The term 'Industry 4.0' was coined by the German government in 2011.
- Additive manufacturing, Internet of Things, Cyber Physical Systems, Augmented Reality/Virtual Reality and data analytics are some of the technologies associated with Industry 4.0.

Data-driven decision-making:

- With the help of technologies, the manufacturing industry will be able to make data-driven decisions.
- The reduced costs of electronics like sensors, transmitters, and cloud have allowed us to capture the data produced during operational activities.
- With the availability of advanced algorithms, this captured data can be analysed for decision-making in real time.
- Thus, Industry 4.0 integrated 'data' with manufacturing and Information Technology.
- To take advantage of data-driven decision-making, the governments of other countries also coined their own industrial initiatives like Industry 4.0.
- For example, the U.S. calls it Smart Manufacturing, China calls it Made in China 2025, and India refers it to as Make in India or Digital India.

The potential of MSMEs:

- Micro, Small and Medium Enterprises (MSMEs) are expected to become the backbone of India as the economy grows larger.

- MSMEs form more than 95% of the industries in India, produce more than 45% of the total manufacturing output and employ more than 40% of the workforce.
- According to the Economic Survey 2020-21, over 6 crore MSMEs employ more than 11 crore people and contribute roughly 30% to the GDP and half of the country's export.
- MSMEs are also ancillaries to larger enterprises, leading to a seamless supply chain integration.
- As a result, making MSMEs more efficient will be advantageous for the whole economy.

Challenges MSMEs face:

MSMEs face challenges when it comes to adopting new technologies such as Industry 4.0.

Awareness:

- MSMEs lack awareness regarding Industry 4.0 and its benefits.
- They consider such technologies disruptive and having the potential to demolish their existing system.
- However, Industry 4.0 believes in improving the existing system.
- Scientific literature provides evidence of sensors and WiFi networks being integrated with old machines like lathes and mills to improve their performance.

Financial investments:

- MSMEs will need to make major financial investments to adopt Industry 4.0.
- Investing in the right set of technologies will need experts and consultants as well.

Positive organisational culture:

- For any new technology to be adopted, an organisation requires a positive organisational culture and the support of people.
- MSMEs need to believe in the advantages that Industry 4.0 technologies can offer.

Required framework:

- The frameworks and steps that can assist MSMEs in adopting Industry 4.0 technologies have been missing.
- In this regard, MSMEs need to understand the data they are producing from all their operational activities.
- Based on such data, their readiness can be evaluated.

MSMEs own vision:

MSMEs should develop their own vision of Industry 4.0 technologies that they want to adopt and identify the relevant tools and practices they need for such a tailored vision.

Transcending impediments:

- Though adoption of Industry 4.0 technologies by MSMEs requires transcending a labyrinth of impediments, it will make them more competitive as they will be able to offer world-class quality products to customers.
- Additionally, delivery timings and the flexibility to meet different needs will improve.
- As India joined the group of top 50 countries in the global innovation index for the first time in 2020, it is imperative for its MSMEs to embrace Industry 4.0 technologies without any hesitation.

Conclusion:

- Proper sensitisation of the Government of India, higher education institutions, practitioners, entrepreneurs, industrial associations, trade unions, venture capitalists, consultants and research agencies would help MSMEs to speed up embracing Industry 4.0.
- This becomes imperative given the manufacturing challenges abruptly posed by the COVID-19 pandemic when most of the healthcare infrastructure in India is MSME-dependent.