Formulation of Policy for 3D Printing

Why in News

The **Ministry of Electronics and Information Technology** (MeitY) will soon come up with a **policy aimed at promoting** 3D printing on an industrial scale in view of its emerging market.

Key Points

- **3D Printing:**

  - **3D printing or additive manufacturing** uses computer-aided designing to make prototypes or working models of objects by laying down successive layers of materials such as plastic, resin, thermoplastic, metal, fibre or ceramic.
  - With the help of software, the **model to be printed is first developed by the computer,** which then gives instructions to the 3D printer.
  - 3D printing and a viable industry around it is mostly in the shape of **additive manufacturing,** wherein **companies make specific products for projects where there are very specific demands** such as lightweight equipment, etc.

    - One of the key applications for such products is in the medical and allied sector.
  - The **USA remains the global leader in 3D printing,** with **more than 35% market share.**

    - In **Asia,** about **50% of its market is cornered by China,** followed by **Japan** at 30%, and **South Korea** at 10%.
- **Features of the Policy:**

  - **Encourage market leaders to establish global bases for 3D manufacturing in India,** while **also discouraging imports** of printed material for domestic requirements.
  - **Objectives:**

    - Help develop a **conducive ecosystem** for design, development and deployment of 3D printing and additive manufacturing.
    - Help domestic companies to overcome technical and economic barriers so that they can build supportive and ancillary facilities for world leaders in the technology, such as the USA and China.
  - **Key Areas of Focus and Application:**

    - Auto and ancillary auto and motor spare part business, such as engines, interior and exterior parts of luxury vehicles, or landing gear, complex brackets, and turbine blades.
    - There can be some application of it in consumer electronics, printed circuit boards, clothing, toys and jewellery as well.
  - **Challenges:**

    - **Lack of Standards:** Since 3D printing is **a very niche and new domain,** there are **no global qualifications and certification norms.**

- **Hesitation in Adoption:** Another challenge is **to convince the industry and ministries to push for its adoption** in their respective sectors as any new technology, which is not understood easily, faces a tough time.
- **Risk of Job Losses:** In the initial meetings on the subject, there was a **lot of resistance on whether this technology would eat into the jobs of highly-skilled workers** in the medical equipment or aerospace technology sectors.
- **High Costing:** Although actual printing is cheap, **parts to build a 3D printer are very expensive** as the **equipment and manufacturing costs are very high.** In addition, there is a **concern about warranty** hence, resource companies are **hesitant to put 3D-printed parts into their machines if they are not covered for damage** in case the parts fail.
- **Sector Specific Challenges:** Globally and even in India, the **largest consumer of 3D printing is the automotive industry** and right now it is going through a lot of changes like the introduction of **BS-VI** and **electric vehicles. New vehicle design development has slowed** and so has the demand for 3D printing.

  - **Potential Market:**

    - According to MeitY's estimates, the **global market for additive manufacturing** is expected to reach **USD 34.8 billion by 2024,** which is growing at a compound annual growth rate of 23.2%.
    - 3D printing **may not lead to an increase in net employment,** but this technology is something which can be pushed ahead.

Way Forward

- Lack of investment and fewer research and development centres for 3D printing are some of the additional factors that are holding back a large scale adoption. However, a better understanding of 3D printing technology and its applications among users will definitely help increase its adoption in India.
- Indian market has a high potential ground as the adoption of 3D printing solutions is continuously rising for the past few years with increased general market awareness and there is still a lot of growth here compared to markets that are more mature such as Japan, Germany or the USA.

Source: IE

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