

# What is Advanced Manufacturing?



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## What is Advanced Manufacturing?

Advanced manufacturing encompasses all aspects of the value chain from concept to end-of-life considerations and relies on information communication technology (ICT) to integrate the manufacturing and business activities into a seamless efficient operation.



# What is Advanced Manufacturing?

- Advanced manufacturing is the use of innovative technologies and methodologies for improved competitiveness in the manufacturing sectors.
- The aim of advanced manufacturing is to:
  - Enhance output
  - Increase:
    - added value
    - quality
    - responsiveness to market
    - flexibility
  - Reduce:
    - time to market
    - material content
    - material inventory
    - under utilised capital plant.





## What is Advanced Manufacturing?

The technologies involved in advanced manufacturing can be divided into three main groupings: efficient production, intelligent production and effective organisation.

# Efficient Production

- involves design, simulation, physical and computer modelling, advanced production technologies, and control techniques.
- The emphasis is on simultaneous rather than sequential engineering. Relevant production technologies include rapid prototyping, near net shape manufacture, and precision casting, machining and joining techniques.







## Intelligent Production

involves the use of ICT in manufacturing and related logistics systems. As well as production orientated intelligent machines, cells and production lines, the philosophy involves implementing systems for the extended life and optimal use of production facilities through efficient monitoring, maintenance and repair strategies.

# Effective Organisation

- involves the efficient co-ordination and exploitation of manufacturing resources. This encompasses both physical resources and knowledge.
- Relevant topics include virtual tendering and enterprises, shared facilities and resources, novel organisations, incubation units, knowledge management and trading, and electronic commerce.
- Emphasis in this area is on the use of technology to enhance the involvement and capability of SMEs as well as large organisations.

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