

# **Policy recommendations for increasing resource efficiency in manufacturing**

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## Outline

- **What is resource efficiency ?**
- **The missing link**
- **Addressing the needs of manufacturing companies**
- **Focusing European policies and support measures**
- **Research, development and innovation**

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## What is resource efficiency (1) ?

- **4 dimensions to 'resources'**
  - Raw materials
  - Energy
  - Supplies
  - Wastes
- **Strongly interlinked across the life-cycle of any product or service**
- **Requiring integrated optimization**

## What is resource efficiency (2)?

### ● 3 interlinked levels of optimization

- Eco-efficient product design (low resource consumption during product, efficient manufacturing and recycling)
- Resource efficient manufacturing and recycling processes at single factory level;
- Integrated optimization across complex manufacturing value chains (waste recovery and recycling/re-use)

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## The missing link

- **Beyond energy consumption and/or critical raw material substitution**
- **Becoming smarter at using all of our natural and residual resources**
- **Today, the several dimensions of resource efficiency are addressed separately**
- **Increasing synergies using integrated optimization approaches**

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# Addressing the needs of manufacturing companies

- Lack of awareness about opportunities of resource efficiency
- Not enough data on benchmarking production processes, alternative technologies, lifecycle data and impacts
- Knowledge gaps (technologies and solutions across value chains)
- Insufficient incentives towards integrating innovative technologies into existing processes

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# Focusing European policies and support measures (1)

- Avoid conflicting policy signals (increased coordination between EU policies)
- Make regulations more flexible to allow for implementing innovative products/ processes
- Improve harmonization and implementation at MS level of EU-based environmental standards and regulations

## Focusing European policies and support measures (2)

- **Build on Best Available Techniques (BAT) developed by industry players in support of the IPPC Directive (de facto standards for technologies and industrial processes)**
- **Avoid fragmentation of RDI efforts on resource efficiency**
- **Disseminate knowledge to share up-to-date information on life-cycle impacts**

## Focusing European policies and support measures (3)

- **Implement SME-friendly support instruments for resource efficient products/processes**
  - Flexible fast-track resource efficiency program for SMEs (voucher schemes for technology and business expertise)
  - Labor qualification on resource efficiency
  - New investment support scheme for resource efficient equipment
  - Co-ordination of European and national initiatives, with good practice exchanges

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# Research, development and innovation

- **Easy-to-handle life-cycle analysis techniques adapted to sector specific needs**
- **Life-cycle performance and resource efficiency approaches in simulation/design tools and manufacturing information systems**
- **Integrated optimization tools for energy, material efficiency and recycling**
- **RD&I projects to improve resource efficiency across entire value chains**

# Many thanks for your attention

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