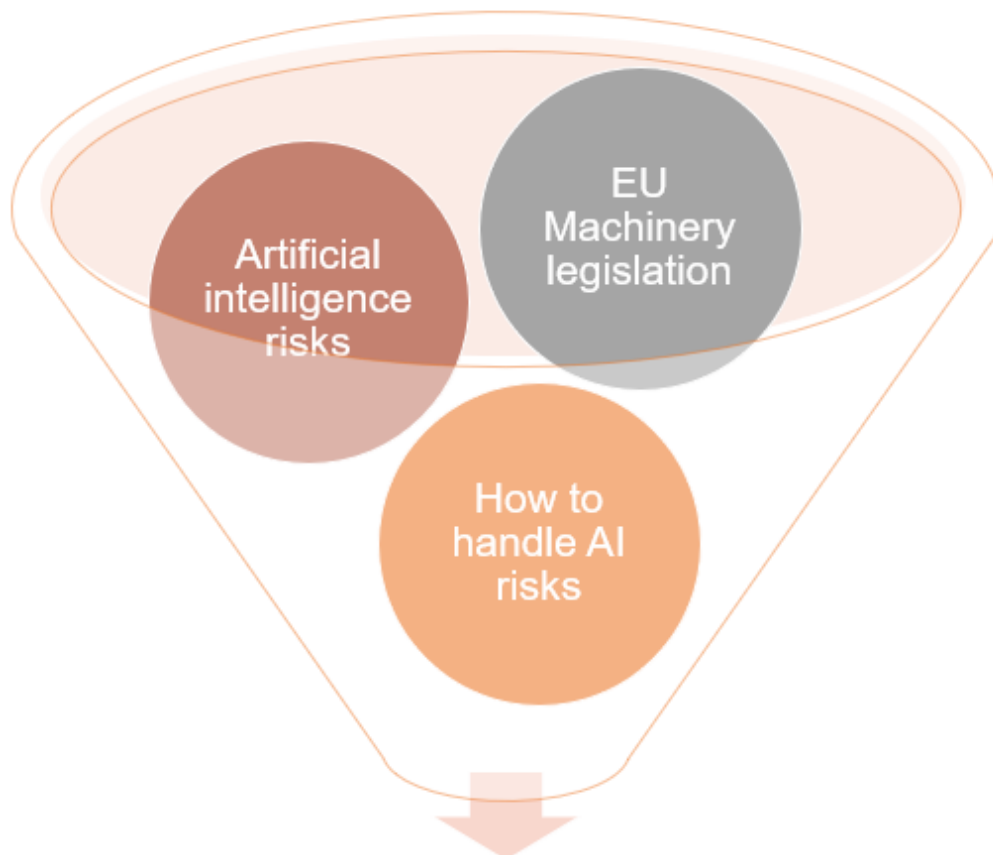


# Machinery regulation: A tool contributing to ensure Artificial Intelligence safe machines

Victoria PIEDRAFITA

European Commission, DG GROW



## Safe machines with artificial intelligence

### EU machinery directive

- Mandatory safety objectives (essential health and safety requirements)
  - Voluntary use harmonised standards published OJEU
  - CE marking conformity assessment procedures (Self-assessment manufacturer / Notified body)
- ➔ Market Surveillance for enforcement

### Artificial intelligence risks

The factors that influence the machinery safety are complexity, opacity, unpredictability, autonomy and data.

## Does EU machinery legislation cover AI safety risks?

Commission report safety & liability implications AI, IoT, robotics

- Technology-neutral
- No explicit requirements
- Legislation to be adapted

## How to handle AI risks?

A combination of artificial intelligence regulation and machinery regulation

## Artificial intelligence regulation

Requirements for AI systems ensuring safety

- No high-risk
  - EU General Product Safety legislation
  - SAFETY NET
- High-risk
  - AI regulation
    - Standalone safety components
    - Safety components embedded in machinery

## Machinery regulation

- Increase safety
- Address digitalization challenges
- Increase clarity and uniform application
- Reduce manufacturers' burden

## Machinery regulation & AI

- Risk assessment
  - Risks due to machinery's evolving and autonomous behaviour may appear *after* the machinery is placed on the market
  - If those risks cannot be foreseen, the machinery *cannot* be placed on the market
- Reliability and safety of control systems
- Human-machinery interaction
  - More powerful, autonomous, humanoid machinery
  - Closer cooperation with operators/users
  - Adapting EHSRs to:
    - prevent psychological stress
    - respond to people adequately
    - inform on the planned actions

High risk: AI standalone system & embedded in the machinery *only* if ensuring safety functions →

Conformity assessment: Mandatory third-party body

## Interplay Machinery & AI regulations

- Interplay requirements
  - AI regulation: Safety risks of AI systems

- Machinery regulation: Overall safety of the machinery product, Annex 3 requirements
- High risk AI systems
  - AI regulation: AI systems are safety components of a machinery product
  - Machinery regulation: Annex I, third party conformity assessment or harmonised standards are fully applied

## Next steps

- Adoption of Machinery regulation
- Standardisation request to European Standardisation Bodies
- Machinery Expert Group discussions

## Further information

Machinery website: <http://ec.europa.eu/growth/sectors/mechanical-engineering/machinery/>

## Contact

Maria-Victoria.piedrafita-carnicer@ec.europa.eu

grow-machinery@ec.europa.eu