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# Transforming Toolmaking: Advanced Technologies, AI-Driven Mechatronic Tools, and Additive Manufacturing for Global Value Chains

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# TECOS

# Cluster presentation – Mechatronic tools



- TECOS Cluster Manager, Toolmaking Development Center
- Bottom-up development under the leadership of TECOS since 1994

PROBLEMS	ADVANTAGES
<p>Higher competition from countries with low labor costs Insufficient capacity to adopt comprehensive solutions Machine park limitations in the production of large tools Weak digitalization and automation Poor integration, individuality Lack of suitable staff Investment problems Failure to meet deadlines</p>	<p>Technical expertise, quality and long tradition Great flexibility and quick response Geographical location Good machinery and the ability to produce very precise machining. Specialization in individual technologies and recognition among many global OEMs Strengthening and expanding new areas and diversifying products.</p>

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## Vision and goals:

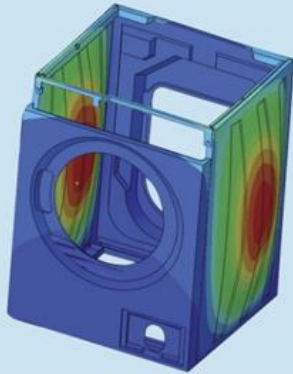
- Within the scope of With mechatronic tools, we primarily want to increase the connectivity of Slovenian tool factories and prepare them for the challenges of the new industrial revolution - Industry 4.0.
- Without advanced and smart industrial tools, which are becoming complex mechatronic systems with functions for monitoring process parameters, regulating operations, and communicating with machines and other external devices, smart machines and smart automated factories cannot be efficient enough, because without a smart tool, even a smart machine is of limited use.

## Added value of membership:

- prototyping environment )
  - Network services (S3 Platform, Vanguard initiative , over 200 international partners and networks)
  - Information on available resources, calls for proposals, support in forming consortia, project management and project preparation
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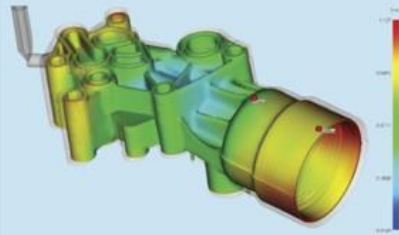
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## ENGINEERING SERVICES



Your key to optimised products and stable production processes

## APPLIED RESEARCH



A strong partner in small or large scale R&D projects

## SPECIALIZED TRAINING



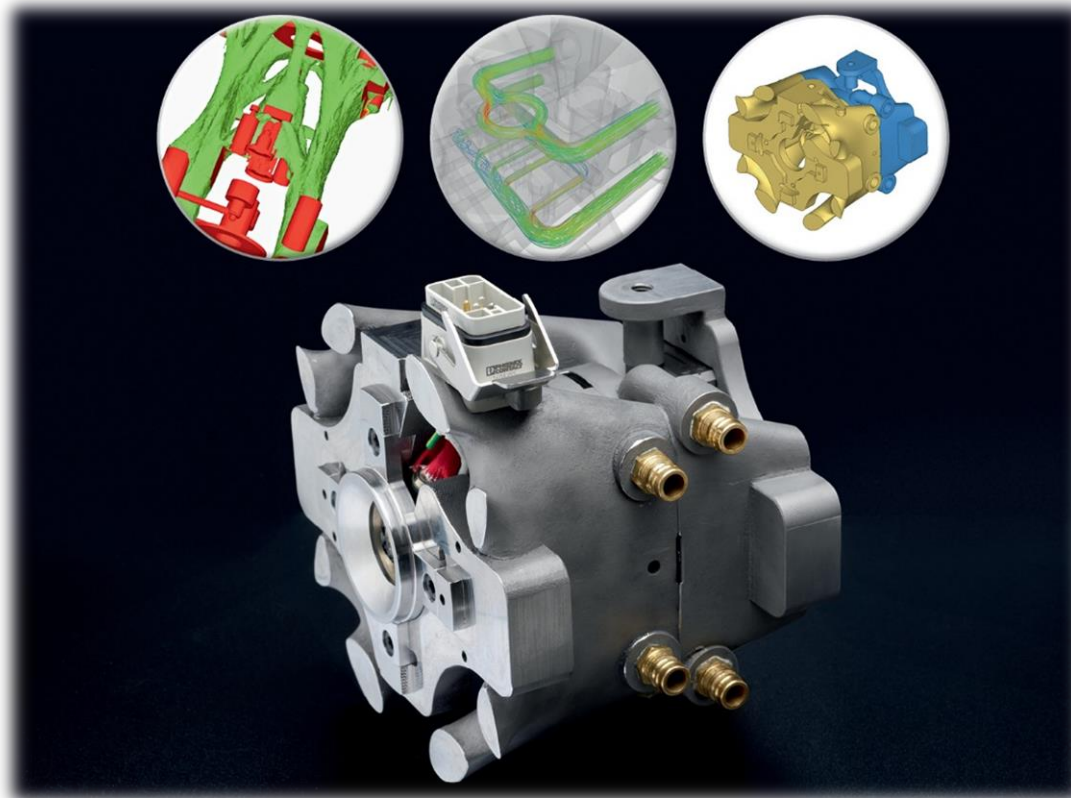
We place knowledge in our customers' environment

## INDUSTRIAL ASSOCIATION



Link to Slovenian toolmaking at home and abroad

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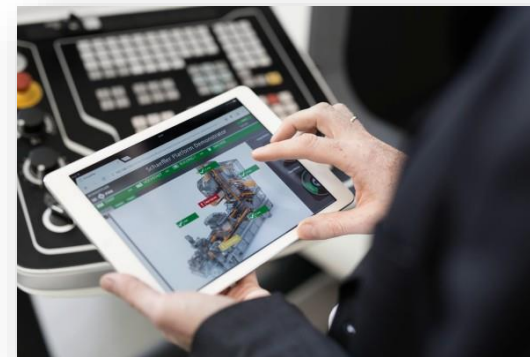
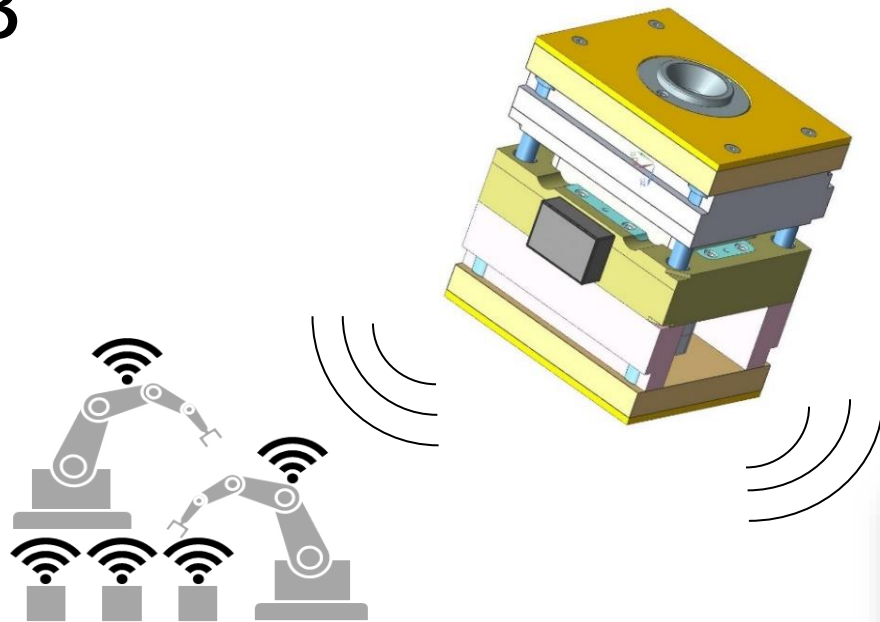
Tools are becoming smart & integrated part of cyber- physical solutions!

## Key Topics

- 1) **Development of smart mechatronic tools** (sensors, IOT, AI, maintenance).
- 2) **Simulation „in vitro“** (design optimization).
- 3) **Advanced optimization algorithms.**
- 4) **Application development** (cloud computing plug-ins and communication).
- 5) **Integration** (production line, traceability of process parameters, tool operation & transformation, resource and product status, machine vision control, connection to the smart production platform)
- 6) **Advanced production process and prototype technologies** (additive technologies, prototype tools and tool components, development of new materials)

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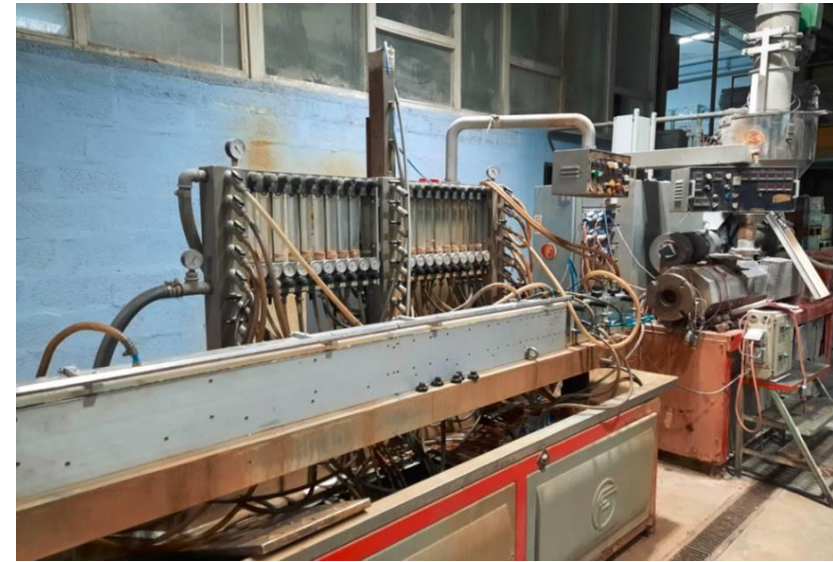
- Concrete achievements of phase 3
- Joint development of an intelligent tool control system





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- Concrete achievements of phase 3
- LEVEL-UP – Protocols and strategies for extending the life of capital investments and large industrial equipment
- Upgrading of the old extrusion line to the IND 4.0 standard at ISOKON



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- **Concrete achievements of phase 3**
    - **BETTER FACTORY** – Digitalization and Transformation of European Industry and Services: Digital Innovation Hubs and Platforms
    - **560.000 EUR** available for project partnership of multidisciplinary collaboration in product development
  - **High Impact Action (HIA)** - implementing Industry 4.0 solutions for SMEs
    - Awarded 5 vouchers worth a total of EUR 250,000 to upgrade their production cells to make them more efficient, reconfigurable , connectable and modular.
    - **SMARTY** – Smart SMEs ready for Industry 4.0
    - **CIRCI** – Introducing the Circular Economy into Industrial Processes
    - **CoSiMa** – Connecting simulations, machines and tools for optimizing the production process of polymer products
    - ...
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## 30 years on the market

- More than 200 events, meetings, B2B conferences, round tables, seminars, visits of international delegations, group appearances at fairs



# Thank you for your attention!



## ADDED VALUE OF CONNECTION!

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