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Slovakia-Austria
European Regional Development Fund

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SHARE 4.0

Newsletter Vol. 2

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SHARE 4.0 WEBSITE

www.projectshare40.com

DIGITALIZATION PROJECTS "SHARE 4.0" AND "IMPROVE" OF FORSCHUNG BURGENLAND AT ENOVA 2022

On 1.6.2022, as part of the annual ENOVA in Pinkafeld, the more emerging topic of digitization was discussed and presented by several experts.

This time at ENOVA, Research Burgenland was represented with the topic "Digitalization - Best Practices and Innovations for Industrial Production" as part of the SK-AT project "SHARE 4.0" and the AT-HU project "IMPROVE".

In addition to robotics innovations for industrial production, the impact of digitalization on the green transition was presented and discussed. Research Burgenland presented the highly regarded topic of eye tracking.

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Eye tracking is used to analyze the visual attention of test subjects when reviewing websites/apps. This makes it possible to find out which areas are viewed more/less intensively. For this purpose, eye-tracking glasses are put on the participants of a study, which can analyze the gaze patterns of the participants. The method can be used in many ways, as it can be used to evaluate not only marketing materials, but also many other topics in which eye movements play a role.

The IMPROVE project is dedicated to the growing challenges of digitization for companies in all sectors. These challenges can only be met through a structured, systematic approach.

The Interreg AT-HU project "IMPROVE!" is dedicated to this topic and seeks to support small and medium-sized enterprises in the Austria/Hungary border region in their digitization projects.

The goal is to network organizations on both sides of the border that are committed to the digital transformation. This should enable an exchange of knowledge and cross-border interaction between the various organizations.

Slovak-Austrian presenters team on the topic of digitization in the border area SK-AT, Copyright University of Applied Sciences Burgenland

With the project "SHARE 4.0", Research Burgenland pursues as an overarching goal, a strategically sustainable and result-oriented cooperation of key players for a Smart Industry Network, which is to be established in the Slovak and Austrian area (SK-AT) for all participating regions.

This will be tested directly in the project through exemplary pilot projects with a high degree of effectiveness, involving numerous decision-makers, multipliers and target groups from the regional border area (SK - AT), administration and politics, research and business.

The cooperation network will be anchored both organizationally and in terms of work with the regional decision-makers, which should also ensure sustainability.

MID-TERM DEVELOPMENT OF OUR SHARE 4.0 TOPICS

During the last meeting in Bratislava, the SHARE 4.0 consortium discussed about the mid-term strategy of Industry 4.0 in Slovakia and Austria. There is a broad consensus that the continuation activities of SHARE 4.0 should be anchored in various light-tower projects, among these the European Digital Innovation Hub (E-DIH) initiative, activities via the EIT-Manufacturing with the CLC East management based in Vienna and activities in Bratislava as well as the GAIA-X initiative.

In both countries a national GAIA-X Hub is already established and there was a first meeting in Vienna in July that will be the start of closer cooperations between the two Hubs.

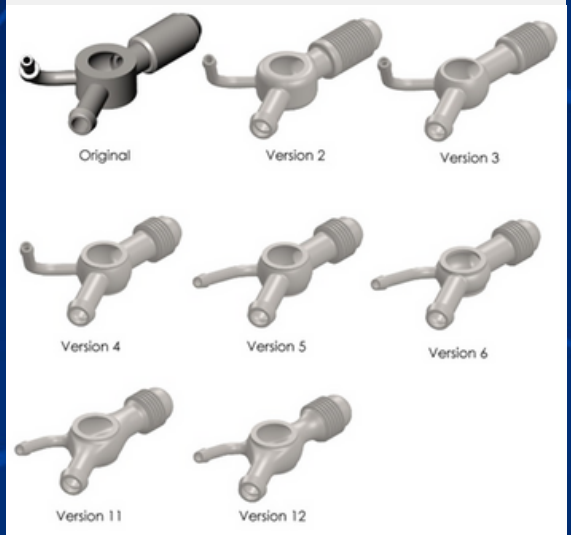
Fotocredit: Renate Medwed

Labeling of the photo from left to right:

Andrej Bolfek, Attorney at Law (Croatia), Flavio Fuart (SL, Gospodarska zbornica Slovenije, Gaia-X Hub Slovenia), Mario Drobics (AT, AIT, Gaia-X Austria), Brigitte Lutz (AT, Stadt Wien, Gaia-X Hub Austria), Helmut Leopold (AT, AIT, Gaia-X Hub Austria), Martina Malakova (SK, Industry Innovation Cluster, Gaia-X Hub Slovakia), , Tobias Höllwarth (AT, EuroCloud, Gaia-X Hub Austria),, Henriette Bauer (DE/RS, Think Innovative Niš), Roland Sommer (AT, Plattform Industrie 4. 0, Gaia-X Hub Austria), Gábor Érdi-Krausz (HU, Sztaki, Gaia-X Hub Hungary)

PILOT ACTION 2 - RESILIENT, SUSTAINABLE PRODUCTION SYSTEMS

- V1: Constructive implementation
- V2: mass and weight
- V3: thread length
- V4: sealing and tightness
- V5: side arm optimization
- V6: rework of functional surfaces
- V7/V8: simulations and optimizations
- V9-V12: finding and optimizing the ideal design



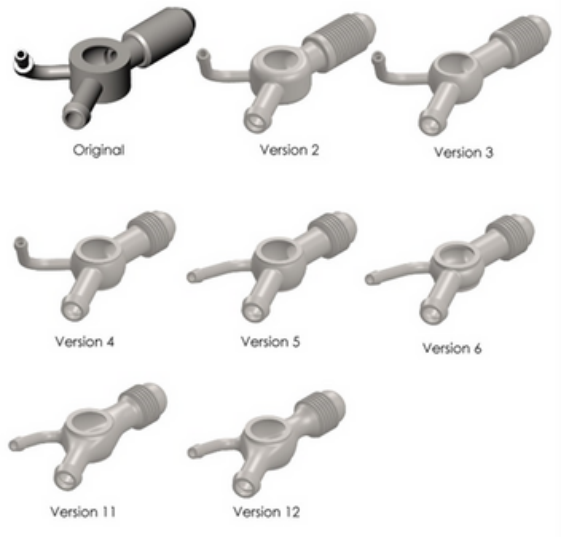
The test component is a fuel rail from a rocket engine. Currently, it is an assembly of five individual parts that are welded manually due to the small number of pieces. For certification as a critical aerospace component, each weld must be inspected manually to ensure proper function.

In order to create a criteria catalog for laser beam melting, the benefits of additive manufacturing for the component were first investigated.

It turns out that both, a significantly lighter construction method and a monolithic design, can be applied. At the beginning, the component was digitized, since no complete assembly model was available.

The next step is to analyze which conditions and substances the component is exposed to. The original component is made of a chrome-nickel alloy, as this is corrosion-resistant and can be easily joined using the TIG welding process. Several analyses have shown that the titanium alloy Ti6Al4V, which is widely used in additive manufacturing, has sufficient resistance.

In addition, it has the advantage that the physical density is significantly lower than that of the starting material, which means that significant mass savings can be achieved by using this alloy.



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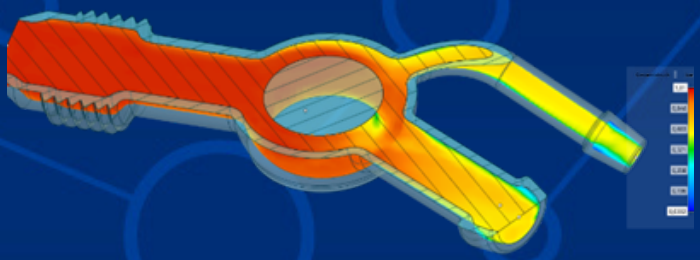
Starting from version 6, the component was optimized in several iteration steps with the aid of the simulation results. Version 8 and the final version are given as examples, since the intermediate versions differ only marginally.
At the same inlet pressure of 1 bar, the outlet pressure at port A is reduced significantly less to 0.69 bar. Likewise, the propellant escapes at port B at a much higher pressure, namely 0.64 bar. This is almost double the pressure of the original part.

In Version 8, there is still a zone in the large bore where the pressure is noticeably lower. This area will be given increased attention in the next optimization steps. In addition, the pressure difference between the inlet and the two outlets is to be further reduced.



The Project Partners of SHARE 4.0: