

SHARE **4.0**

Newsletter Vol. 3

CONTENT

- SHARE 4.0 comes to a close
- Project Highlights
- Sustainable further Digitalization Strategy and Action Plan
- Recommendations and outlook



PROJEKTBUDET/ROZPOČET PROJEKTU
€ 779.985,97

FRE-FINANZIERUNG/FINANCOVANIE Z EFRR
€ 703.987,55

PROJEKTDAUER/TRVANIE PROJEKTU
04/2021–11/2022

SHARE 4.0 WEBSITE

www.projectshare40.com

SHARE 4.0 COMES TO A CLOSE

With the achieved overall project goal to establish a strategically sustainable and result-oriented cooperation of key players for a Smart Industry Network in the border region Slovakia-Austria, the project SHARE 4.0 ended successfully and will be a foundation for future projects.

This was achieved through a practicable, coordinated working basis in a cross-border governance model for research and innovation. Two pilot projects have been tested directly in the project with a high degree of effectiveness, involving numerous decision-makers, multipliers and target groups from administration and politics, research and business.

The cooperation network has been anchored both organisationally and in terms of work (Memorandum of Understanding). Further, the outputs and project results has been efficiently and effectively further developed through the Strategy and Action Plan 2021-2027, which will be briefly described later in this document.

The sufficient number of activated competent partners in the Smart Industry Network SK-AT and the involved target groups not only ensure a targeted use of the outputs of the project - agreed and stipulated in the plan until 2027 - but also support the economic sustainability of the results.

SHARE 4.0 COMES TO A CLOSE

In this way, direct and long-term oriented pilot projects with high degree of effectiveness were activated and implemented.

This was done based on two selected fields of work:

- Industrial assistance systems,
- Resilient, sustainable production systems.

Overall, the challenge of improving the lack of cooperation (in particular: consistency, strategy, resources, utilization, excellence) will be met by means of a high-quality bundle of service support.

As target groups, SMEs, research facilities and universities, business support organizations (tech parks, business development, etc.) and regional/local authorities were involved in the project processing and its follow-up activities. The project processing and implementation was carried out with all project partners in the whole program area. The planned change will be achieved mainly through the following main outcomes:

1. Working base including governance model for Smart Industry Network SK-AT (Organizational Handbook);
2. Two pilot projects of excellence;
3. Strategy and action plan 2021-2027;
4. Memorandum of Understanding.

SHARE 4.0 COMES TO A CLOSE

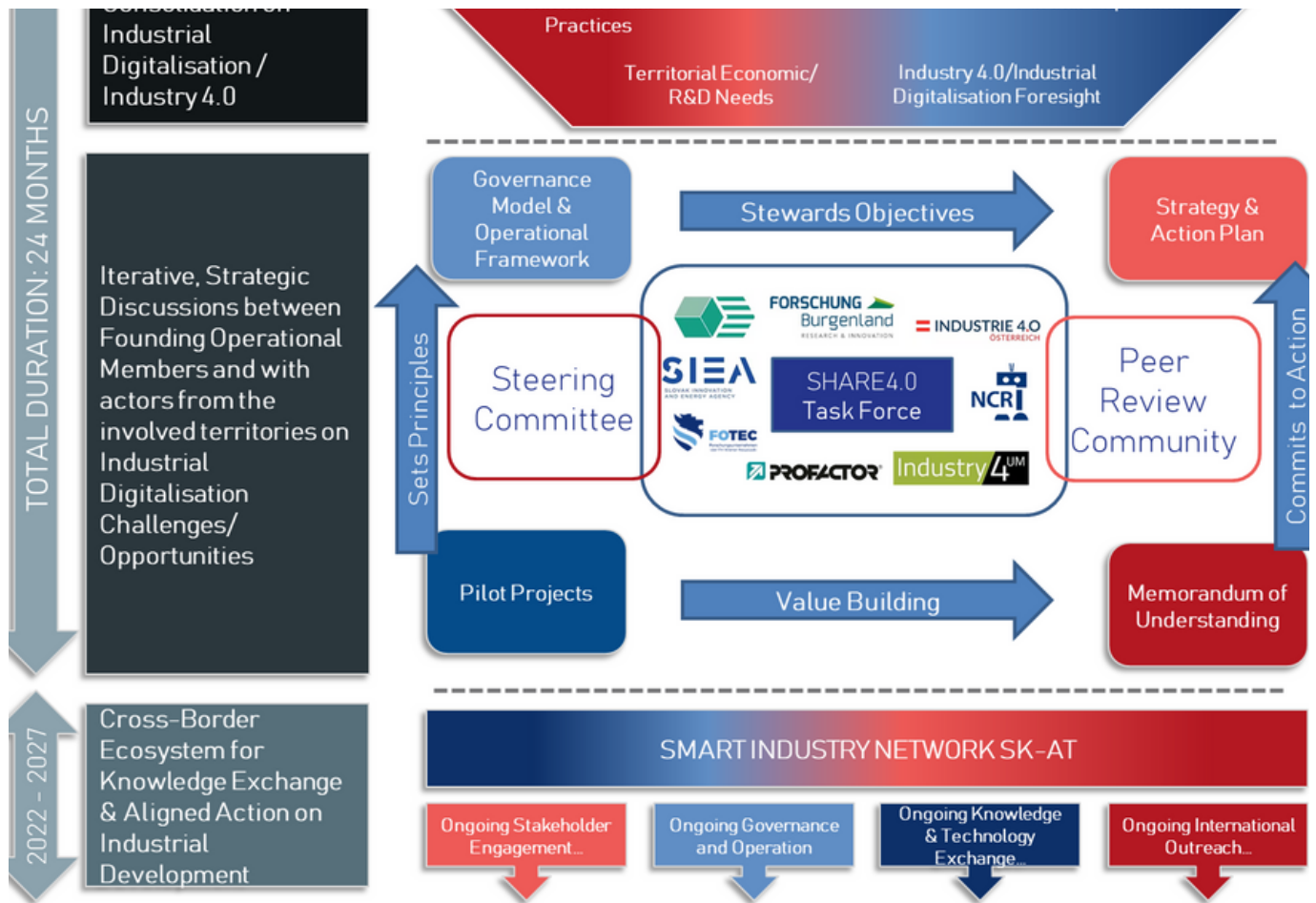
The project had his successfull Kick off Meeting on the 19th of July 2021 in Bratislava, Slovakia. During the meeting, 8 partners from Austria and Slovakia had a chance to get to know each other and to discuss on important questions about future cooperation.

On the kick off meeting, the partners agreed on strategic questions regarding the project management activities and main challenges were addressed by the project - How to best support the digital transformation of SMEs in both regions, cross-border co-operation of R&D institutions., exchange of experience between the Plattform 4.0 Österreich and relevant bodies in Slovakia, establishing functioning partnerships in the domain of digitalization of industry.



SHARE 4.0 Presentation at the Kick off Partner Meeting in Bratislava

PROJECT HIGHLIGHTS



In general, the outputs and project results were used and further developed in this cooperation network, operationally and strategically (e.g. working groups for SK-AT knowledge transfer, sharing and coordination of research infrastructure).

Regarding the most successful outcomes of the project, the organizational handbook, pilot projects, awareness raising events, strategy and the action plan have to be mentioned.

All documents and results should be a basis for future deeper and more extensive project cooperation within the border region Slovakia - Austria in terms of digitalization development and promotion.

Following are examples of SHARE 4.0 done events and developments.

PUBLIC EVENT DIGITALIZATION PROJECT "SHARE 4.0" 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.



Copyright Fachhochschule
Burgenland

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 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.

PUBLIC EVENT DIGITALIZATION PROJECT "SHARE 4.0" AT ENOVA 2022



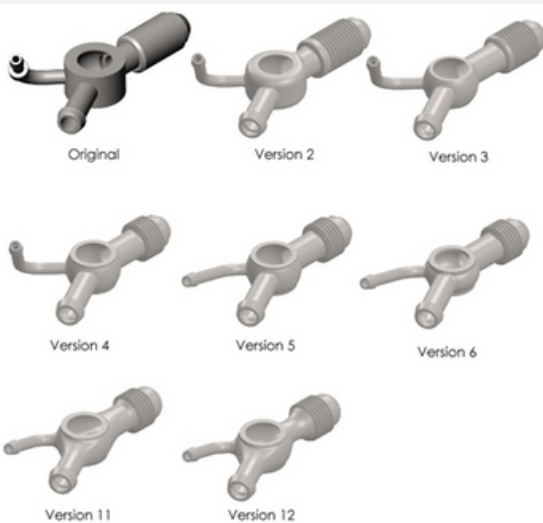
Slovak-Austrian presenters team on the topic of digitization in the border area SK-AT,
Copyright University of Applied Sciences Burgenland

Approaches are dedicated to this topic and sought to support small and medium-sized enterprises in the Austria/Slovakian border region in their digitization projects.

The goal for the future and also after projects end 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.

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

- 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



PILOT ACTION - RESILIENT, SUSTAINABLE PRODUCTION SYSTEMS

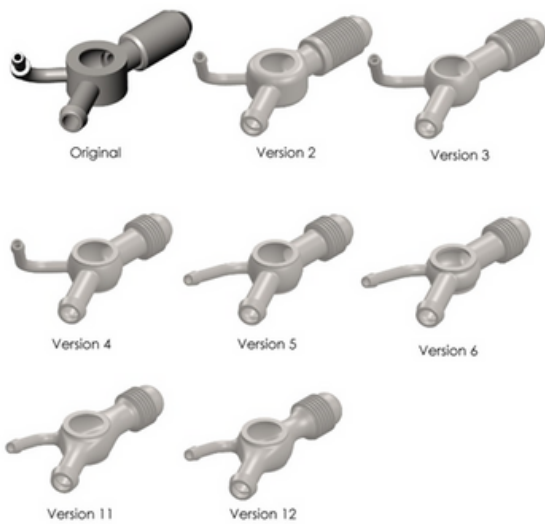
The test component is a fuel rail from a rocket engine. Currently, it is an assembly of five individual parts that are welded manually due to the small number of pieces. For certification as a critical aerospace component, each weld must be inspected manually to ensure proper function.

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.

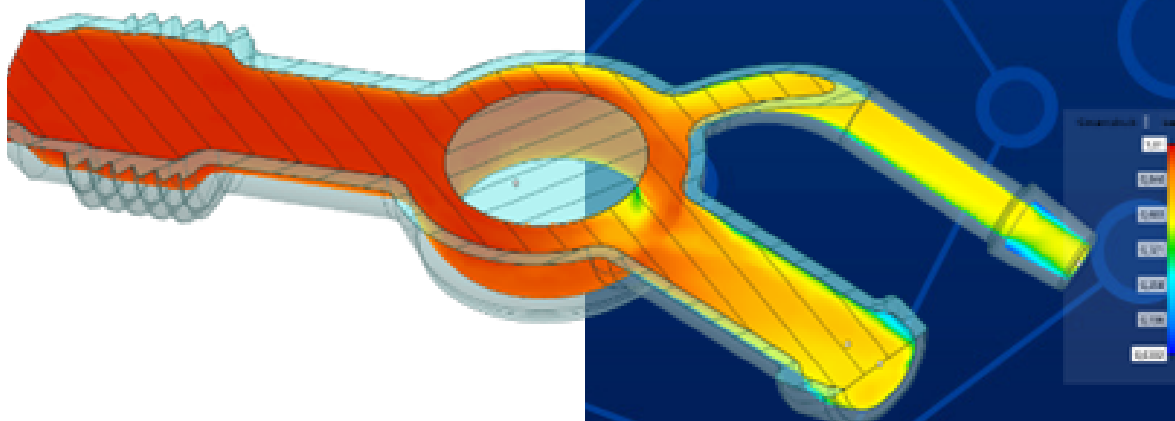


- V1: Constructive implementation
- V2: mass and weight
- V3: thread length
- V4: sealing and tightness
- V5: side arm optimization
- V6: rework of functional surfaces
- V7/V8: simulations and optimizations
- V9-V12: finding and optimizing the ideal design

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.



SUSTAINABLE FURTHER DIGITALIZATION STRATEGY AND ACTION PLAN

STRATEGY PLAN 2021 - 2027 SUMMARY

For upgrading and consistent use of national and European knowledge for the SK-AT cooperation area, strategic partners and regions (more than 30 regions in 9 countries) and their innovative eco-systems were identified within the project SHARE 4.0.

For a strategic further development, bridges have been built along 8 Interreg cooperation areas. On the one hand, this will create a critical mass of qualified strategic partners and regions, and on the other hand, a stable, permanently usable development and innovation corridor will be successively shaped and used together.

To this end, the traditional and new funding instruments of the EU period 2021-2027 are to be applied in innovative forms. These are in particular transnational cooperations of ESIF projects including Recovery Fund/NGE Next Generation EU, twinnings of Interreg projects (cross-border, transnational) and networks of strategic lead projects from Horizon Europe and complementary research programmes.

In this way, both timely results (quick wins) and strategic flagships are developed and implemented and anchored in a cooperation network.

Basically, the entire range of actors in the innovative eco-systems are necessary to meet the challenges of the digital transformation (industrial assistance systems) or sustainable development (resilient production). The broad involvement of the actors ensures the necessary push and support of committed organizations as well as continuous promotion and funding.

ACTION PLAN 2021 - 2027 SUMMARY

The establishment, management and change control of the Action Plans is a key functional process which is essential for the transparent operation of Smart Industry Network SK-AT. These developed working documents are of critical importance for fulfilling the strategic orientation, and are used to steward the actors in the network towards common goals.

The concept of establishing and managing Key Performance Indicators (KPIs) is also relevant, in this regard, as KPIs will provide the metrics which can be used to show growth & development associated to cross-border collaboration. It is recommended that the Action Plan are linked to realistic goals or Key Performance Indicators (KPIs) set by the participating partners, and represent tangible actions which can help further a coordinated and collaborative approach to knowledge exchange and innovative activity development.

KPIs should be reflective of measurable areas of assessment, and can be both macro & micro in their orientation, associated to innovation, network and industrial development. They should be set for a manageable period of time, ideally from 2022 to 2025, at their starting point.

Some recommended KPIs which could be considered during the establishment process is the:

- Attractiveness of research system (Improvement %),
- Attractiveness of territorial area for business (Improvement %),
- Firm Investment in R&I (Improvement %),
- Research Infrastructure Investment (general) (Improvement %),
- Total Number of Innovators (Improvement %),

ACTION PLAN 2021 - 2027 SUMMARY

- Total Number of Contractual Linkages Evidenced (Improvement %),
- Total Number of Mobilities Executed (Study Visits, R&I ecosystem tours, etc) (Improvement %),
- Total Number of Exchanged Peoples between institutions in the territorial eco-system (Improvement %),
- Total use of cross-border R&I infrastructure, by organisations outside of the specific territory (Improvement %).

There are numerous other KPIs which could be brought into the network's stewardship; however, it is always a matter of network resources to effectively monitor this performance.

It is valuable to look to other networks to see and be inspired about how the commitments have been formalized for long-term planning and action.

Other interesting characteristics of action planning is clarifying:

- 1.Strategic objective of the topic area;
- 2.Linked Sustainable Development Goal, to give a global connection to the work;
- 3.The Related EU and other Policy Frameworks which are connected to the action (and a statement of how connection to these policies will be established);
- 4.The stakeholder involvement plan for the designed subject area;
- 5.Key policy achievements.

RECOMMENDATIONS AND OUTLOOK

Industry 4.0 or digitalization of industry is a trend considered worldwide as a major tool for the development of industry now and in the coming years. In the last two years, the survey revealed a decrease in the involvement of industry and government in this area, which can have serious negative consequences on the performance of the industry and the economy of Slovakia. We respond to the survey findings with the recommendations that are important to stop negative development

Each company should develop its own know-how. It should have in place a way of collecting and exchanging information and in-house education with a focus on digitalisation

It is appropriate to develop internal know-how through a team of authorised personnel. The task of the team is to collect and disseminate information within the company, to look for possibilities and opportunities of digitalisation and to work closely with the management of the company in the creation and application of a digitalization strategy.

Top managers should be aware that Industry 4.0 is all about developing the business and economy of their companies and on this basis, they should orient their personal growth. They are responsible for the current and future competitiveness of the company and in this sense, they must also prepare a strategy for its development

In this regard small and medium-sized enterprises need an urgent help with the development of an implementation strategy.

RECOMMENDATIONS AND OUTLOOK

The frequency of changes in the market will grow, it will be necessary not only to react to them, but to develop businesses with a vision, and this is unattainable without comprehending digital management. Digitalisation is the main tool for developing or at least maintaining the competitiveness of companies at the moment – this is something that managers must not only be aware of, but must also start to push.

The government should fundamentally support the digitalization of industry. In almost all EU countries, there are Industry 4.0 platforms, functioning also with the support of the government. Extensive national programmes focused on Industry 4.0 are being implemented.

Creation of support programmes for the development of small and medium-sized enterprises. It is important for businesses to be aware of the challenges and pitfalls of the current rapid acceleration of digitalization, and to include digitalization in their programmes not as an objective, but as a way of their further growth

The education and training of professionals is a broader problem that we have been drawing attention to for a long time. Despite the urgency of the problem, we still do not see sufficient systematic measures from the side of the competent institutions or businesses. Education should pay more attention to digitalization at all levels of the education system within the framework of curricula and educational programmes



Interreg

Slovakia-Austria

European Regional Development Fund



EUROPEAN UNION



EUROPEAN UNION

SHARE **4.0**

The Project Partners of SHARE 4.0:

Verein Industrie 4.0 Österreich – die Plattform für intelligente Produktion (Leadpartner)

FOTEC Forschungs- und Technologietransfer GmbH

PROFACTOR GmbH

Forschung Burgenland

Národné centrum robotiky

Ústav materiálov a mechaniky strojov Slovenskej akadémie vied

Združenie inteligentného priemyslu – Industry 4UM

SHARE 4.0 WEBSITE

www.projectshare40.com



FOTEC
Research Subsidiary of
— FH Wiener Neustadt —



FORSCHUNG 
Burgenland
RESEARCH & INNOVATION

SIEA
SLOVAK INNOVATION
AND ENERGY AGENCY

