AUSTRIAN ADVANCED
LIGHTWEIGHT TECHNOLOGY

A2LT – Strategy Paper

Roadmap for sustainable, affordable and smart lightweight Technology in Austria

innovation is our business.

AC AUTOMOBIL CLUSTER
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Content

1. Introduction

Develop leightweight construction – secure Austrian technology leadership:

Lightweight construction is not an end in itself. It contributes to an economic and ecological optimization of products, processes and systems (functional integration) by saving weight, material and energy. Lightweight construction is a key technology as well as cross-cutting issue. Regarding to this topic, sustainability, feasibility and intelligence are the three main boundary conditions that have to be considered in terms of overall optimization.

Lightweight construction has significant effect on life cycle of products by reducing the CO2 emissions which leads to evaluate environmental issues, support the national and international climate concerns as well as achieve the sustainability goals.

Austria would refer to excellence research and industry competence center in the field of lightweight construction skills. To guarantee the future viability, the initial steps should be systematically planned. By the way, an increase in the demand of lightweight solutions in the areas of mobility, aerospace, energy and construction industries, will lead to surge a demand and drive lightweight materials market growth and result in enormous added-value to the industry. A2LT focuses on solutions within the mobility industry.

The available version of „Positionspapier“ defines the viewpoints of leading representatives of the Austrian lightweight construction community from both industry and research who bundle their activities in the lightweight construction platform A2LT - Austrian Advanced Lightweight Technology. These viewpoints represent the common target with which Austria's leaders will support the lightweight construction in order to establish the long-term market and to secure the preservation of high-quality industrial activities.

For this purpose, a high level of innovation and future-oriented impulses for a competitive and sustainable industry - especially the public sector and the responsible ministries are required. The importance of technological transformation and knowledge exchange are the main key areas for action and that is why the strong connection to the international research and technology must be accelerated.

In the following, six main core viewpoints of the A2LT position paper are briefly explained. The aim is to discuss, share and expand these viewpoints with relevant national and international stakeholders and thereby support the aforementioned strengthening of competitiveness**.**

2. A2LT Positions

	**Promote technological leadership in lightweight construction/material: added competitive edge to achieve the climate-related targets** **Impact/goal: Resilience for Austria & Europe as a production location**
	**Accelerate technology transfer from research to industrial applications** **Impact/goal: Implementation of decisive innovations**
	**Optimize the funding opportunities for research and Industry** **Impact/goal: Funding instruments for cross-sectoral technology and industry in lightweight construction**
	**develop R&D focus on sustainable, affordable and intelligent lightweight construction** **Impact/goal: Securing technological leadership**
	**Strengthening international networking as well as outreach public relations in lightweight construction** **Impact/goal: Alliance of lightweight regions**
	**Design of recycling by considering functionality and efficiency** **Impact/Goal: Exploit the economical and ecological advantages of recyclable lightweight construction technology**
	**Create Value in lightweight Technology & Innovation** **Impact/Goal: Aimed to be one of the strongest european export technologies & create value and competitiveness in industry as a key technology**

2.1. Promote technological leadership in lightweight construction/material: added competitive edge to achieve the climate-related targets

Impact/goal: Resilience for Europe as a production location

In order to ensure the future viability as well as the resilience of the European production sites, it is absolutely necessary to apply the context of a life cycle assessment in the technology-neutral way for development of innovative lightweight construction solutions. It is also noteworthy to mention that lightweight construction also can make decisive contributions in two of the four dimensions of resilience defined by the EU Commission such as green and the geopolitical dimension. These are especially true of the efforts being made in the technology fields in the USA and China compared to Europe. To reach the desired goal in lightweight construction, the claim to European technology leadership must be strengthened - ideally where a leading role already exists. For this purpose, we stand for a commitment to long-term R&D efforts in order to maximize the effect of lightweight construction with regard to dealing with future challenges.

2.2. Accelerate technology transfer from research to industrial applications

Impact/goal: Implementation of decisive innovations

Manoeuvrable speedboats next to large tankers:

In addition to the variable funding instruments, efficient, unbureaucratic instruments are to be developed at national and international level in order to accelerate the technology application for industrial purposes. For this aim, it is necessary to simplify funding conditions, accelerate processes and also classify topics of higher TRL levels as worthy of funding. Under this condition, research results can be used for successful products and thus added value in a shorter time-to-market.

2.3. Optimize the funding opportunities for research and Industry

Impact/goal: Funding instruments for cross-sectoral technology and industry in lightweight construction

As part of the national FTI strategy, lightweight construction should be explicitly defined as a thematic focus. As a consequence, important questions regarding to the topic could be defined in a systematic way and there would be a better chance of support for research and industry partners in finding solutions. By dissolving out the topic from mobility, production or energy research programs, the importance of lightweight construction for Austria as a technology location can also be increased. Apart from an improved product performance, the requirements placed on lightweight construction solutions are increasing rapidly.

In addition to improved product performance, the requirements for relevant production technologies and flexible manufacturing concepts placed on lightweight construction solutions, especially in the Austrian strength field of multi-material, are increasing rapidly due to the sustainability, economy and intelligence

in lightweight construction. This paradigm shift must be reflected in the FTI strategy as well as the funding instruments derived from it.

2.4. Develop R&D focus on sustainable, affordable and intelligent lightweight construction

Impact/goal: Securing technological leadership

With the right goal-oriented action, lightweight construction can make a significant contribution to achieving national and international climate targets. This is accompanied by an enormous innovation and market potential that domestic companies can serve along the entire value chain. Although mobility is the driver of lightweight construction technology, the number of relevant industries is increasing enormously in the global challenges. In order to create an impact, lighthouse projects that address sustainable, affordable and intelligent lightweight construction must be specifically developed and implemented. In this way, the build-up of know-how is specifically promoted and the development / expansion of technology leadership is enabled.

To acieve this goal, it is necessary to have a pronounced way of cooperation, which is the basis for cross-material and cross-sector processing of projects. Neutral platforms support the moderation, initiation and handling of such collaborations.

2.5. Strengthening international networking as well as outreach public relations in lightweight construction

Impact/goal: Alliance of lightweight regions

Last but not least, the European Green Deal aims to secure Europe's global position through ecologically oriented technological progress. Networking, visibility and exchange across national borders are essential for local research and industry to take part in these developments and to be able to contribute the existing excellence. For this aim, Networking and public relations are the basis for technology marketing for the latest research and project results. This accelerates the process of bringing lightweight construction into industrial application and anchoring it. By exchanging best practice examples through technology and knowledge transfer as well as the change of perspective between administration/policy and start-up/SME/science, the effect would be strengthened.

2.6. Design of recycling by considering functionality and efficiency

Impact/Goal: Exploit the economic and ecological advantages of recyclable lightweight construction technology

The significant increase in global consumption of natural resources and the associated amount of waste are among the greatest challenges of the 21st century. To overcome the aforementioned challenges, the implementation of the EU's climate and environmental goals requires a new industrial policy based on the circular economy, in which lightweight construction technologies are of enormous importance due to the high level of material and process complexity. Especially in plastics industry, electronics, mobility, construction industry, and many more, in which the circular potential is high, the circular principle can be adopted and as well as supported by research and innovation. It’s noteworthy to mention that, although the importance of circular potential, in many of these industries and areas, the potential has not yet been fully exploited.

Austria should be perceived as a liveable and sustainable industrial region. For this reason, the responsible use and reuse of resources should be considered as basic requirements. Austria's leading lightweight construction, industry representatives, and research institutions are an essential part of the solution. They face the challenges and can therefore also position themselves in the global top field in the future.