DLR Innovation Lab EmpowerAX –

Strengthened accessibility of Additive Extrusion for industry

Institute of Composite Structures and Adaptive Systems

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The institute in detail – six scientific departments, certified laboratories

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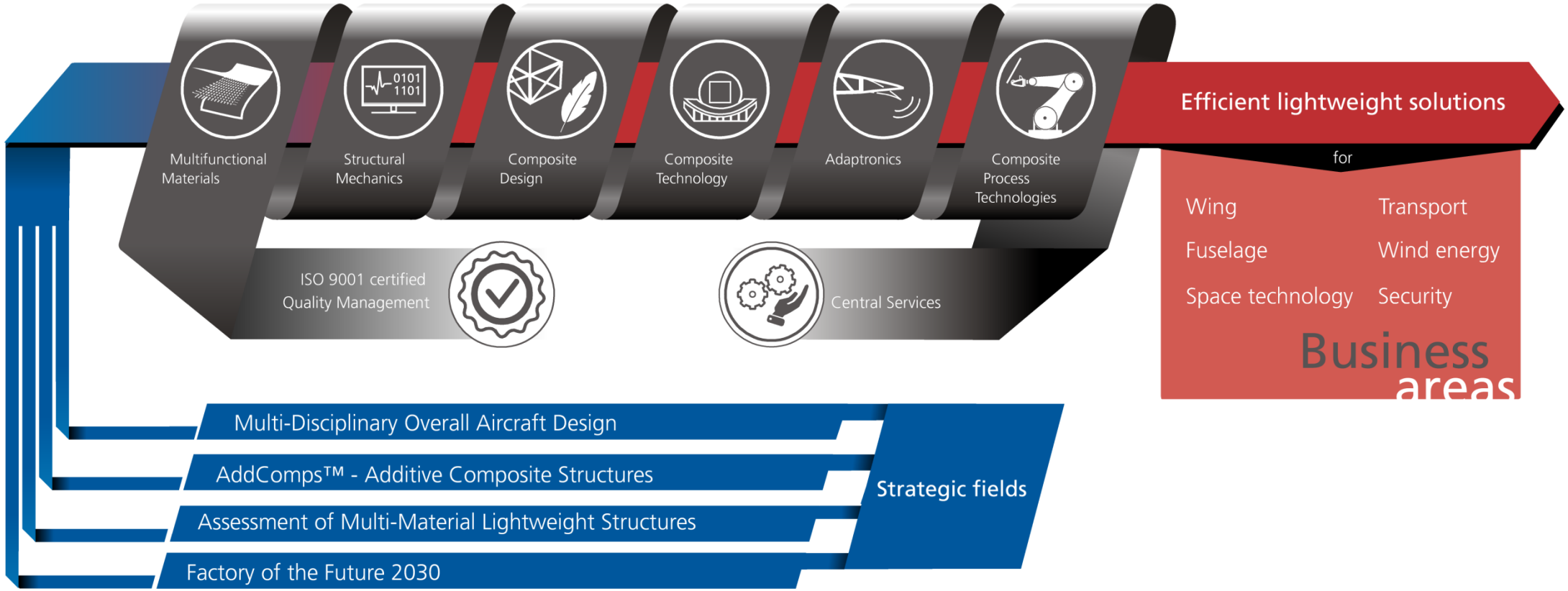
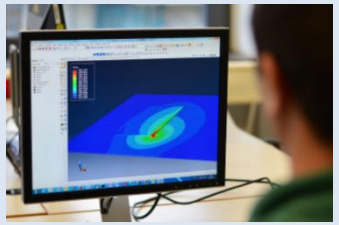


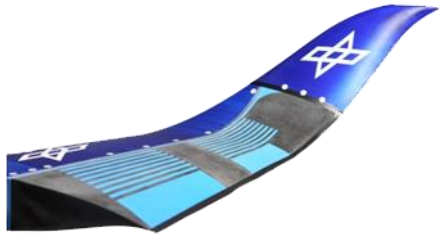
Strategic field – AddComps™ – Additive Composite Structures

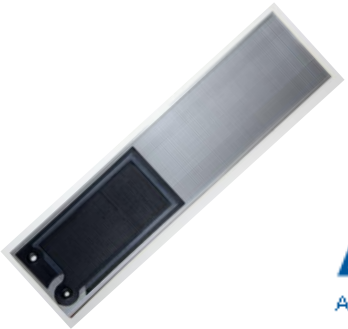
Modification of thermoplasts for improved performance

<< How can additive technologies contribute an added value for light weight structures >>



Simulation of additive Extrusion





ADDITIVE EXTRUSION

Impregnation and printing of endless fiber reinforced filaments

- Combination of manufacturing techniques
- Printed pressure actuated cells
- Sensors printed into structures
- Innovation Lab

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ADDITIVE EXTRUSION
A DLR Innovation Lab

DLR Innovation Lab EmpowerAX – What it is

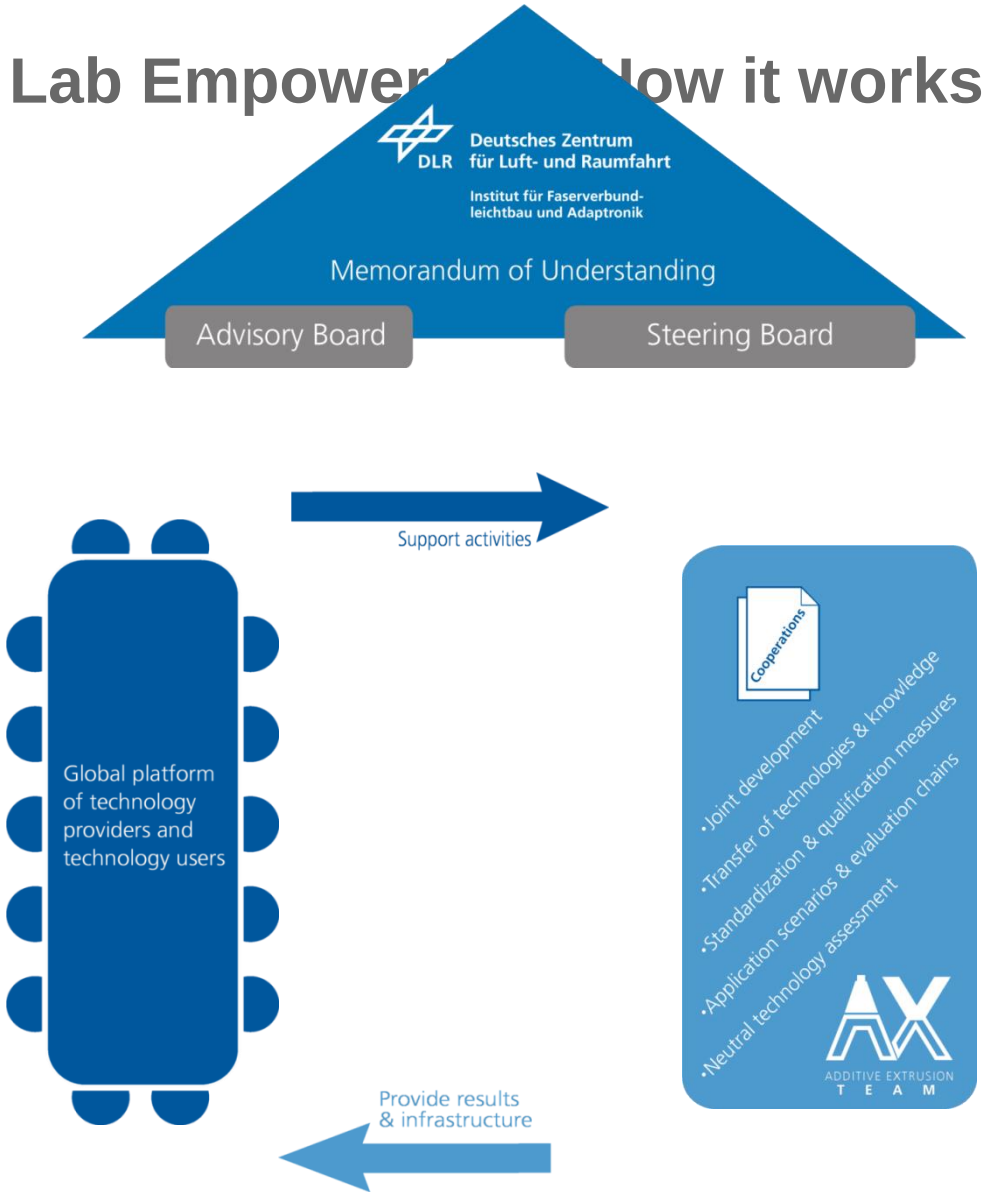
- DLR-Innovation Lab Empower Additive Extrusion (**EmpowerAX**)
- Operated by **Institute of Composite Structures and Adaptive Systems** in cooperation with DLR department for **Technology Marketing**
- Demand-oriented, industry-diversified **platform** for **international technology users and providers** for **Additive Extrusion**

DLR Innovation Lab EmpowerAX – Goals

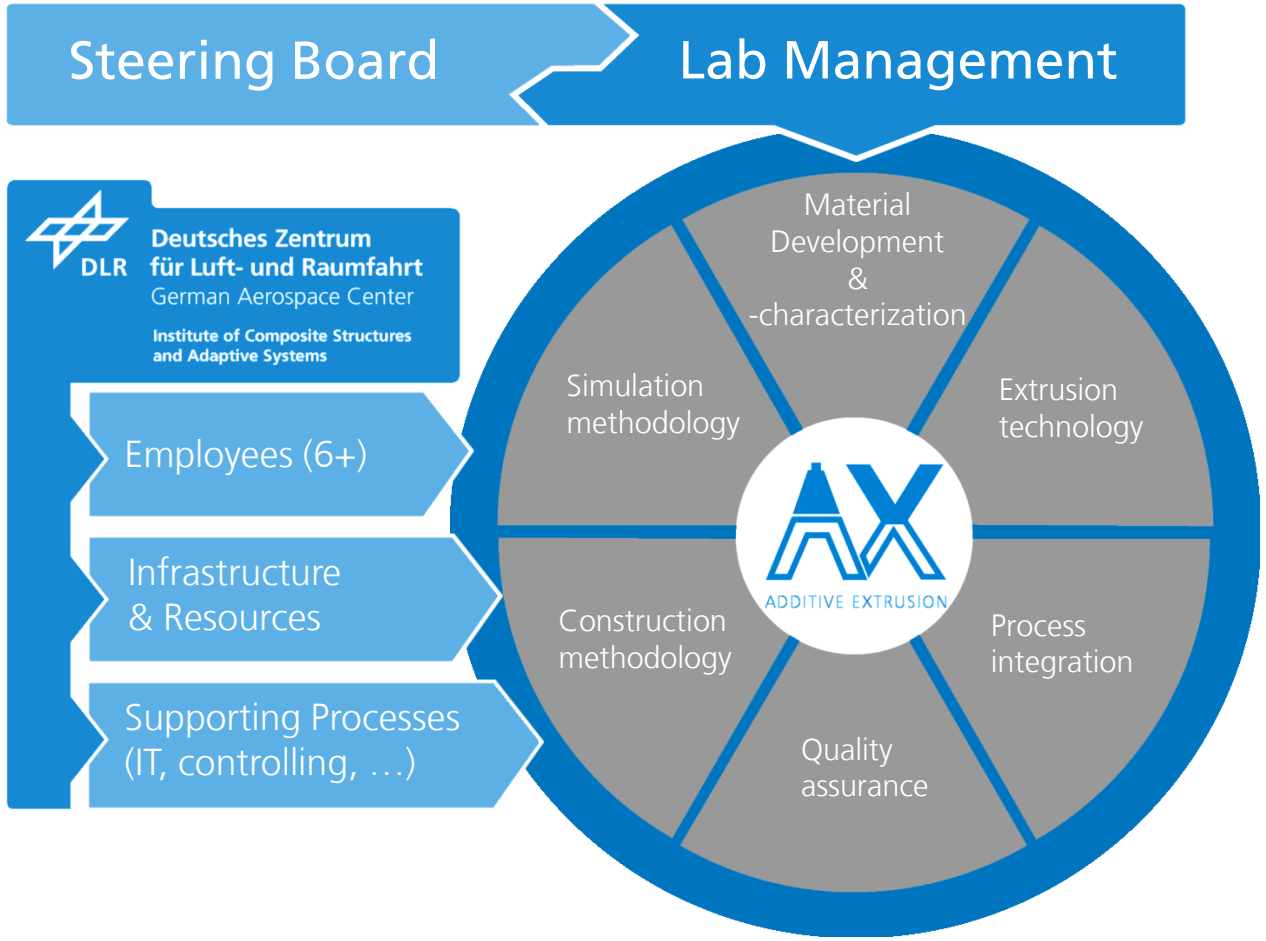
ADDITIVE EXTRUSION

- Acting as a **neutral technology** platform
- Strengthening the **accessibility of Additive Extrusion technologies** for industry
- Development of a **technology assessment program** for Additive Extrusion technologies
- Development of **industry and application-oriented standardization and qualification methods** for Additive Extrusion technologies
- Identification of **use cases**
- Lowering **investment hurdles**
- Strengthening of **technology transfer**

DLR Innovation Lab Empower… …low it works



DLR Innovation Lab EmpowerAX – Resources & Competence

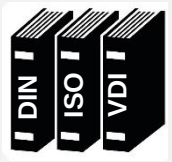


DLR Innovation Lab EmpowerAX– Current Work Activities

Technology Assessment & Evaluation Chains

- Technology specification sheet
- Performance Indicators

Standardization & Qualification

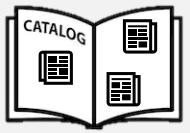


- Identification of relevant standards
- Preparation of standards & norms

ADDITIVE EXTRUSION

Quality Assurance

- Identification of defects & deviations
- Catalog of defects and deviations



Simulation Methods

- Approaches for AE-process simulation
- Software solutions & material models

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DLR Innovation Lab EmpowerAX - Next Steps

May 2020 — May 2021 — May 2023

Initialization Phase

- Detailing of fields of activity
- Establishing of EmpowerAX structure
- Incorporating of AE-experienced partners

Establishment Phase

- Expansion of global platform and represented industry areas
- Extension of technology competence and standardization & qualification
- Strengthening of cooperation with platform partners

Permanent Operation

- Additional funding ends
- Global platform to assure technology availability & accessibility

We encourage you to actively join EmpowerAX and benefit from industrial use of Additive Extrusion.

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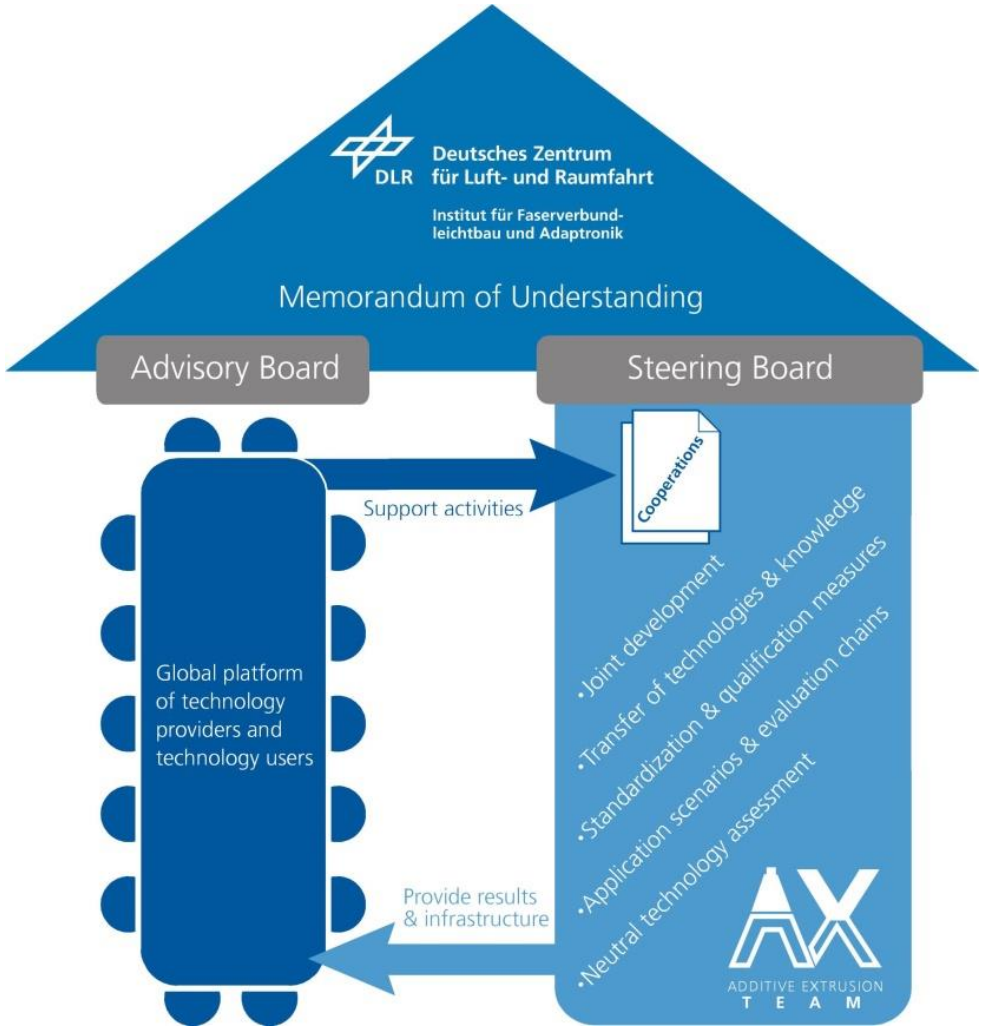
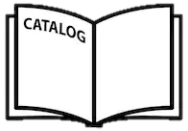
DLR Innovation Lab EmpowerAX – Summary



- Global platform with knowledge base
- Easy Access
- Motivation
- Technology leaders (users & providers)
- Technology neutral (operated by DLR)
- Access to resources for partners
- MoU as a general framework

Sources



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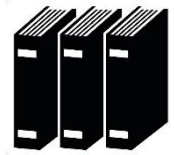

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