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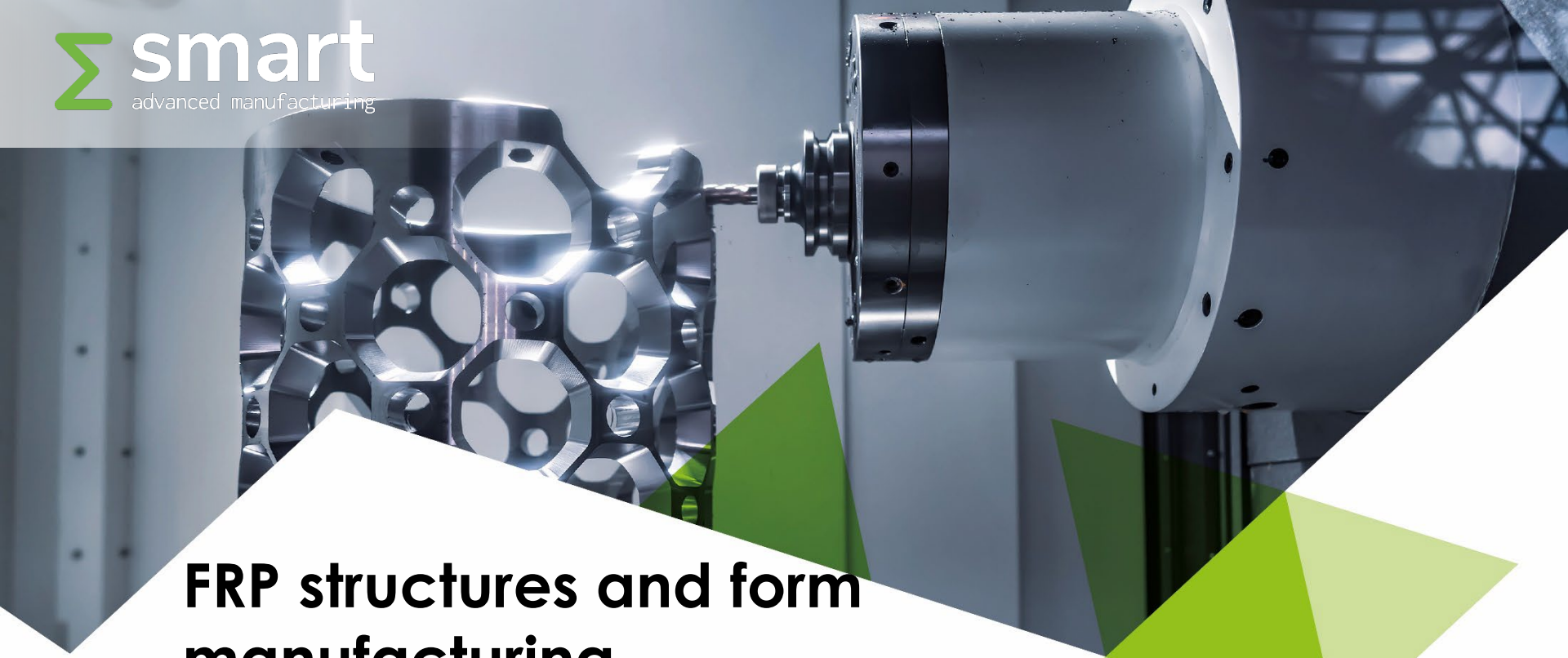

FRP structures and form manufacturing

Toward more circular and efficient production


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ORGANISATION PROFILE

Insert brief description of the leading organisation: Name, Personnel, Size, Products/Services/Technical areas and R&D project expertise.

The Research Institute of Sweden (RISE)

- Ca. 3000 employees
- Expertise: research and development, project coordination, LCA, additive manufacturing center, modeling, digital systems

PROPOSAL INTRODUCTION (I)

Vision:
Increase the circularity of fabrication of FRP structural parts for the process industry by incorporating additive manufacturing

Motivation:
-most FRP structures are made by hand leading to a risky work environment and variable quality
-producing forms by additive manufacturing of smaller FRP pieces would increase efficiency and customizability that is currently not readily available
-Functions could be more readily built into these pieces including sensors, etc.

Content:
1. Fabrication of material and design best suited for this application- layers of random fiber and ordered fiber
2. Continuous Fiber printing techniques to provide structural durability that is similar or close to hand-produced (TRL4 (demonstration))
3. Using vinylester resins using LED curing, suitable for the process industry and resistant to corrosion
    - Integrating thermoplastic liners on the interior
    - Testing for durability and strength compared to conventionally built materials
4. LCA and LCC aspect consideration
5. Digitalisation or automation aspects

PROPOSAL INTRODUCTION (II)

Expected outcome:

-Complex parts manufactured in the traditional way, but with improved reproducibility and increased structural possiblities by using AM forms

- AM produced FRP structural parts with a mixture of continuous and random fibers
- An understanding of the LCA aspects regarding fabrication of parts in this way
- Better health protection for shop workers
- Far less waste material, in fact close to zero
- Greater freedom of design, a new custom-tailored approach

Impacts:

-more parts can be made more efficiently with improved reliability
-improved safety and automation
-Determine if durability compared to traditionally manufactured parts for the process industry is possible using this method

Schedule: start and end dates for the project. Duration.
3 years

PARTNERS

Current Consortium: list of partners already involved in the project

RISE (Sweden)

Ineos Composites (UK)

Plasticon (Germany)

Partner search: type of partner searched and countries of origin (if necessary).

-Continuous fiber additive manufacturer, A partner that can help perform the printing with continuous fiber and LED curing

-End users

CONTACT INFO

Contact info: of the person coordinating the project proposal

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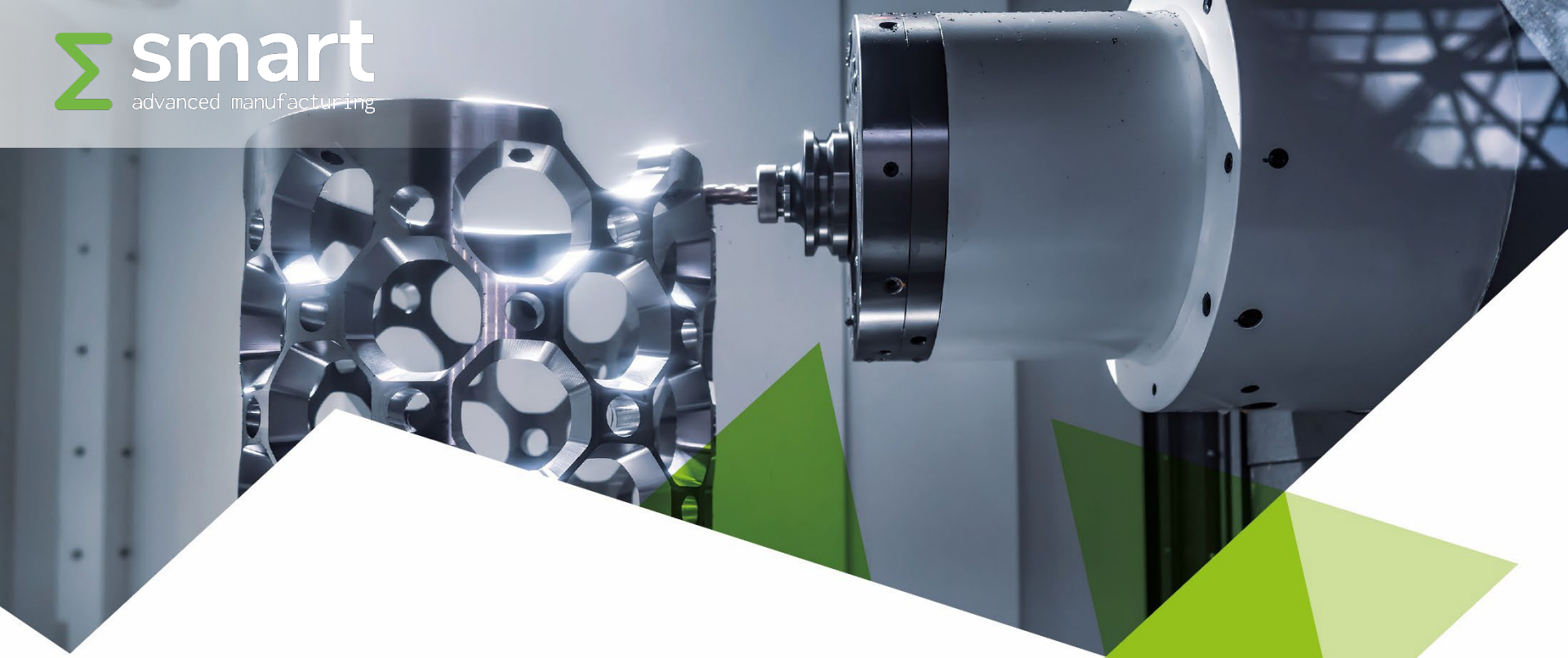

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