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Project titel:	**Investigation of the application potential of bonding technology for joining endless natural fibre reinforced plastics in the automotive sector (Short title: EndNatBond)**
Partner:	University Kassel, Fachgebiet Trennende und Fügende Fertigungsverfahren (tff)
Term:	01.01.2018 – 31.12.2019
Funding agencies:	Association of Industrial Research Associations „Otto von Guericke“ e.V. (AiF);

Mission Statement

Natural fiber reinforced plastics (NFRP) are currently used in automotive engineering primarily in the form of nonwovens or press compounds cross-linked with synthetic fibers. Due to the low reinforcing effect of the short fibres within the textile structures, their use in load-bearing applications is not possible. Fabrics and scrims made of natural fibre yarns, on the other hand, offer elastic moduli that are approx. 2.5 times higher and thus in principle enable NFRP use even in load-bearing assemblies. The prerequisite for this is a structural and permanent connection in order to transfer the occurring loads into the NFRP. As with conventional fibre-reinforced plastics (FRP), fibre-fair bonding is particularly suitable for this purpose

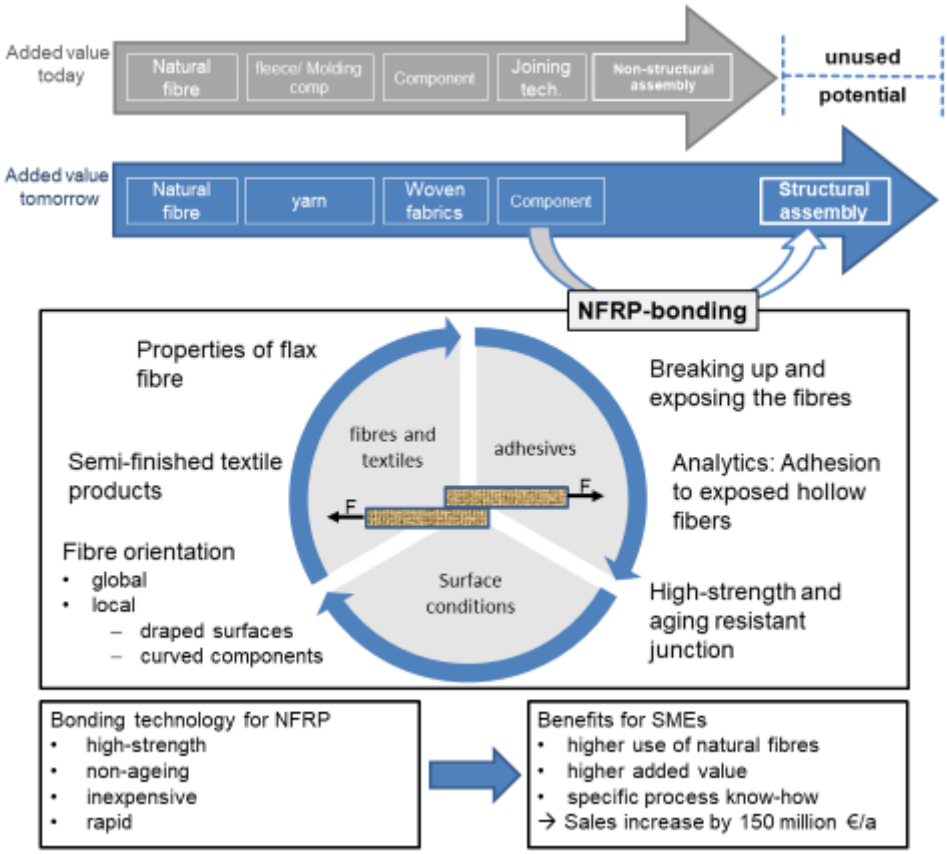
To date, however, there have been no investigations into the extent to which NFRP can be prepared for the use of bonding technology. Due to the architecture and chemistry of the bonding process, NFRP is expected to have adhesive properties that influence strength and ageing properties. In particular, uncovering and breaking up the hollow natural fibre before bonding offers starting points for the use of adhesion mechanisms which are not used in classical reinforcement fibres such as glass.

Solution approach

The aim of the project is therefore to develop concrete procedures for bonding NFRP and to make them available to SMEs in the form of an action log. For this purpose, the influence of adhesive, surface pretreatment and textile parameters such as fibre orientation and degree of draping (local shearing in

the joining zone) will be investigated. The knowledge gained in the project on NFRP bonding will enable an increased use of high-quality NFRP in automotive engineering. In the medium term, an increase in the turnover of SMEs along the NFRP process chain from currently 152.9 million €/a to at least 300 million €/a is expected.

Central diagram:



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