Project title: DigiTextil - Digital, cross-company networking and use of Big Data for error tracing along the textile process chain using the example of nonwovens production from staple fibers

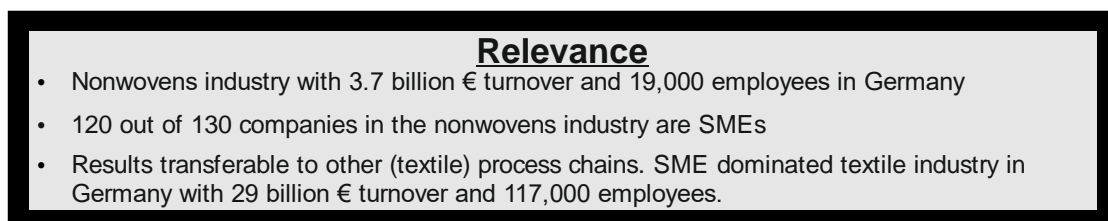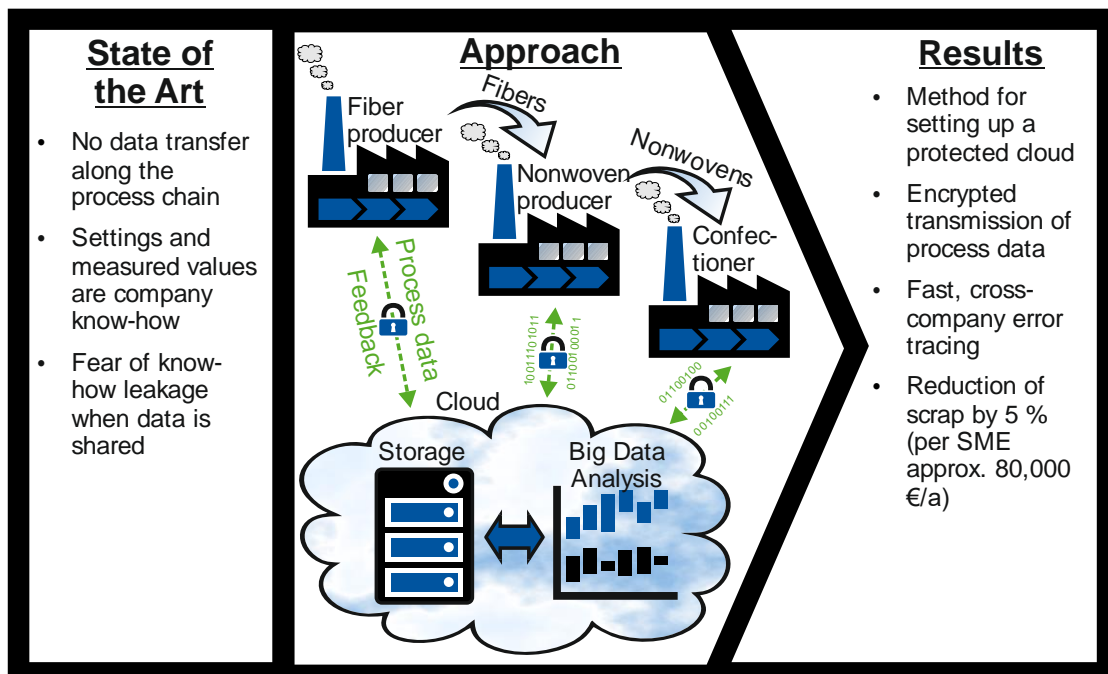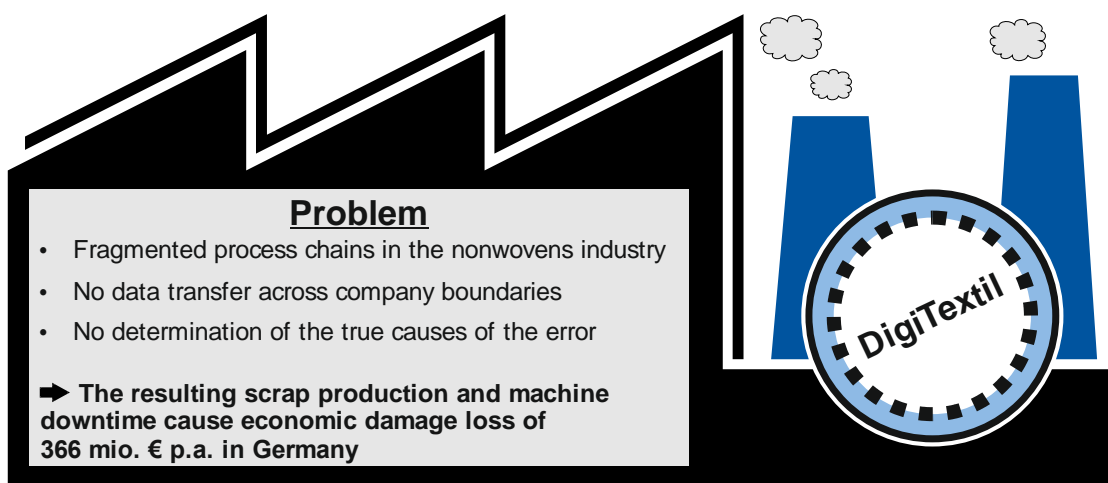**Partner:** Institute for Industrial Management (FIR)

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Problem

- Fragmented process chains in the nonwovens industry
- No data transfer across company boundaries
- No determination of the true causes of the error

➡ **The resulting scrap production and machine downtime cause economic damage loss of 366 mio. € p.a. in Germany**

State of the Art

- No data transfer along the process chain
- Settings and measured values are company know-how
- Fear of know-how leakage when data is shared

Approach

Fibers — Fiber producer
Nonwovens — Nonwoven producer — Confectioner
Process data Feedback
Cloud
Storage — Big Data Analysis

Results

- Method for setting up a protected cloud
- Encrypted transmission of process data
- Fast, cross-company error tracing
- Reduction of scrap by 5 % (per SME approx. 80,000 €/a)

Relevance

- Nonwovens industry with 3.7 billion € turnover and 19,000 employees in Germany
- 120 out of 130 companies in the nonwovens industry are SMEs
- Results transferable to other (textile) process chains. SME dominated textile industry in Germany with 29 billion € turnover and 117,000 employees.

Mission Statement

The production of textiles takes place in highly fragmented process chains. Companies produce intermediate products that are further processed by other companies. A complete, digital flow of information on the products and process parameters used does not take place.

Due to faulty pre-products, the German nonwovens industry, which is dominated by SMEs, suffers froman economic damage in the amount of approx. € 366 million per year due to downtimes and scrap production. On average, this corresponds to an economic loss per SME of € 1.6 million per year. According to studies, systematic storage and analysis of BigData in production reduces downtime and rejects by up to 20% [WKC15].

Textile companies see the implementation of industry 4.0 primarily as a challenge to standardisation, the availability of technology and the protection of know-how [Geb15]. Especially due to the lack of know-how protection, BigData solutions are not yet implemented across companies.

The aim of the DigiTextil research project is to develop a method for cross-company error traceability and cause analysis that guarantees the protection of company secrets and internal know-how. The goal will be achieved through data exchange between the companies involved in the process chain with a neutral operator of a legally protected cloud service.

The development enables a protected, complete, digital flow of information and cross-company error tracing to reduce downtime and scrap production. With a 5% increase in efficiency, this leads to an average increase in production of €80,000 per year and SME. For the German nonwovens industry, this means an increase in production of € 18.3 million per year.

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