Industry 4.0

Intelligently interconnecting people, machinery and processes – this is how Industry 4.0 is described. **INTERCONNECTION**, however, is only one of many aspects.

The **INTERNET OF THINGS** not only enables an exchange of, but also the communication between information.

The trend is moving towards a customization of products which is ensured by **VARIATIONS** and further **FLEXIBILITY**.

In the future, tasks will be carried out by **HUMAN-ROBOT-COLLABORATION**.

Additive Manufacturing is making it possible to not only customize parts, but also produce them in geometric forms not possible before.

AUGMENTED REALITY brings together the real and the virtual world, for example to simulate new products in familiar environments.

BIG DATA focuses on managing and interpreting data that are produced in each of the aspects mentioned above.

left to right: Philipp Johannes, Philipp Zeitler, Maximilian Kohler, Tina Rippstein, Prof. Dr.-Ing. Christoph Bunsen (source: FHWS/Klein)

The foundation for the **c-factory** was set during a student project. An **open architecture** of machinery and the open **structure of the data, database and CAD** invite you to test and do experiments.

Come and visit us to discuss the interconnectedness of machinery, interfaces and systems!

Contact:
University of Applied Sciences
Würzburg-Schweinfurt
Faculty of Mechanical Engineering
Ignaz-Schön-Strasse 11
97421 Schweinfurt

Team c-factory: **cfactory.fm@fhws.de**

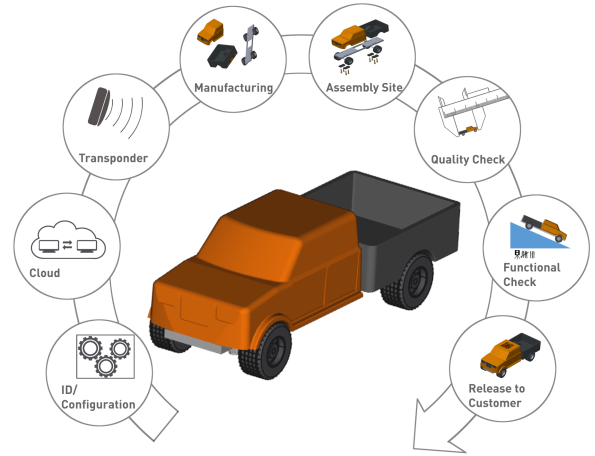
For further information
please visit: **cfactory.fhws.de**

FH·W-S

University of Applied Sciences
Würzburg-Schweinfurt

c-factory

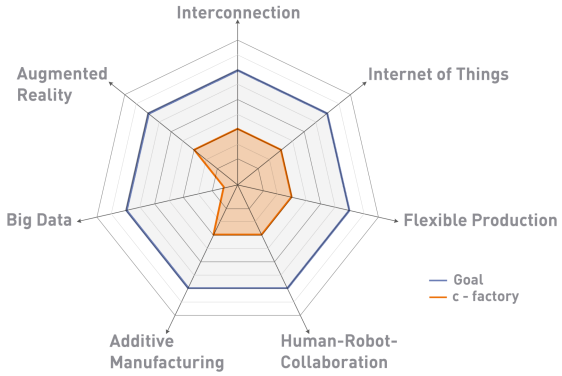
The Concept Factory



Industry 4.0 at FHWS

The University of Applied Sciences Würzburg-Schweinfurt (FHWS) is forming a competence cluster to confront current challenges of making manufacturing and planning processes more flexible and to overcome these challenges with the help of digital technologies.

The **c-factory** is a concept factory where a use case is developed that takes up the challenges of **Industry 4.0** in a hands-on scenario.



With several manufacturing techniques, it produces a **model pickup truck** which can be customized almost endlessly.

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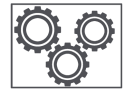
The Use Case's Process

Transponder

First, the user has to register via a **transponder** similar, for example, to a student ID card.

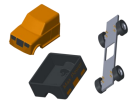


ID/ Configuration

After registration, the pickup truck's **configuration** can be customized.

Cloud

All information is saved into the **cloud** and retrieved via the transponder by each manufacturing step.



Manufacturing

The pickup truck's cabin is injection-moulded and a QR-Code is written onto the cabin's roof. At the milling station, the **manufacturing** of the chassis is triggered and the truck bed is 3D-printed separately.

Assembly Site

After that, the pickup truck can be assembled on the **assembly site**. An assembly instruction is displayed on a screen and a device facilitates the assembly process.

Quality Check

When all components including wheels, screws and axle mountings have been assembled, a **quality check** is carried out to test for dimensional deviations and completeness. Another machine carries out a **functional check** on an inclined plane.

Functional Check

Release to Customer

During every step of manufacturing and testing, data is saved into the **cloud**. This customized process information may be retrieved via a **QR-code** – already during the manufacturing process or later at the customer's location.