“The fourth industrial revolution is accelerating more and more. The foundations for a completely connected ‘smart factory’ are set. Digitalization, robotics, artificial intelligence […]. Today, these developments are changing industrial production fundamentally. […] Physical and digital processes are becoming increasingly intertwined. This also includes networking with customers: Their needs and demands are and remain the guiding principle of all of the company's work.” (Mercedes-Benz Group: <https://group.mercedes-benz.com/innovation/case/connectivity/industry-4-0.html>, 20.05.2023). The Mercedes-Benz Group, one of the world’s leading car manufacturers, stating that the current industrialization is having an increasing effect. As three main pillars they name the digitalization, advancing robot technology and artificial intelligence. All these pillars get more and more integrated into production processes, as they have positive effect on production costs.

One goal of Industry 4.0 is to connect workers and machines. Digitalization is providing a platform to collect production data from machines as well as humans. They can be analyzed and translated into languages machines and humans understand. Advancing robot technologies are helping to support and take over production steps. Especially those that human can not handle, as example working in a hot environment. The third pillar, Artificial intelligence, is advancing analyzing the processing of production data.

The goal of this project is to work on a factory simulation that is capable of all the previous requirements for a future factory. The factory is completely operated by robots, to establish one pillar. For the first part of this project a Manufacturing Execution System (MES) should be established. It is used to collect the sensor data, safe it to a cloud and then send it to inform the workers and machines that are part of the production. This means that it takes the pillar of Digitalization. The second step of the project shall establish the third pillar, the artificial intelligence. It should be used to analyze the production data.

Apart from optimizing the production itself, the Mercedes-Benz Group outlines that the need for providing information to the customers also becomes more important. The MES has matching options for this purpose and shall be used to provide production information.