



FRAUNHOFER PROJECT CENTER FOR SMART MANUFACTURING

»Intercultural solutions for industrial partners in China«

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

Nobelstrasse 12
70569 Stuttgart, Germany

Contact partners:
Dipl.-Ing. Michael Lickefett
Phone +49 711 970-1993
michael.lickefett@ipa.fraunhofer.de

M.Sc. David Maximilian Dörr
Phone +49 711 970-1909
maximilian.doerr@ipa.fraunhofer.de

www.ipa.fraunhofer.de/en/fpcsm
www.linkedin.com/company/fpcsm

Brief Description

The Fraunhofer Project Center for Smart Manufacturing in Shanghai is a cooperation between Fraunhofer IPA and Shanghai Jiao Tong University (SJTU). Michael Lickefett, Head of department for Factory Planning and Production Management at Fraunhofer IPA, and Professor Hao Wang, Vice Dean of the Faculty of Mechanical Engineering at SJTU, are in charge of the project. SJTU is among the top universities in China and has maintained a close partnership with the University of Stuttgart in the fields of mechanical engineering and the power industry since 2013. The cooperation with Fraunhofer IPA is with SJTU's School of Mechanical Engineering. Smart manufacturing is considered as one of the best research areas in mechanical engineering at SJTU.

The Project Center is in Lingang on the southeast coast of Shanghai and is ideally situated for establishing networks with

industrial partners located there. In general, the region around Shanghai is a lively economic area with many German and Chinese companies needing to digitize their factories.

Areas of Expertise

The collaboration aims at implementing research projects on digital transformation and smart manufacturing in the Chinese market together with industrial partners. This will be achieved through joint research activities between scientists from Germany and China. A high standard of research will be attained through complementary strengths, that would be impossible without this cooperation. The focus of research projects is on the application and further development of intelligent manufacturing technologies and concepts in the field of factory construction and operation. This will allow topics such as knowledge



management, factory planning in the manufacturing environment and intercultural learning processes in international companies to be examined.

The Project Center supports companies which are active in the Chinese market and would like to implement innovative projects on the following future subjects:

- **Digital shadows** enable information to be called up in real time, making it possible to track orders live and detect production faults early on, for example.
- An **intelligent factory** and the associated digitization and connectivity can help to make production processes more autonomous.
- **Cyber-physical systems** use information technology to network both products and production in order to integrate them better.
- **Digital business models** help to monetize the technologies and data generated by Industrie 4.0.

Services

Develop your own Industrie 4.0 solutions with us using one of the following project formats:

- Through **strategic cooperations in the form of a lab**, companies can enter into long-term research partnerships with the Fraunhofer Project Center. Such a cooperation runs for about five years and focuses on a specific research field within

the scope of which several different research projects are carried out jointly.

- **Project-specific assignments** solve tasks or problems in the industry effectively and at short notice.
- **Test environments** are realistic production settings that support the transformation of the latest developments into applications, which can then be tested, for example, in interaction with man and machine.
- **Industrie 4.0 training programs** enable both a brief introduction to a new technical topic and an exchange of expert information about the latest innovations in science and research.

Another focus of the cooperation is on establishing a demonstrator environment. This serves as a research and application center for topics relating to Industrie 4.0. Companies can use it as a test environment for their own projects, or for joint research and development projects.

Your Advantages

If you opt to work with the Project Center, you benefit from the strong application-oriented approach of the Fraunhofer model and the associated interdisciplinary cooperation with you as an industrial company. In addition, the cooperation between Fraunhofer IPA, a German research institution, and SJTU, a renowned Chinese university, bundles the broad and partly complementary expertise of both partners.

This is made possible by intercultural teams which carry out projects together and, in this context, pool their respective expertise. The long-standing experience of both partners therefore offers combined interdisciplinary and intercultural know-how, which German companies located in China can use directly as a first contact point.

»What is known in Germany as Industrie 4.0 is an important part of Made in China 2025 there. In addition to classical topics, such as factory planning and process optimization, the main aim is to work on subjects such as artificial intelligence and their application in the fields of robotics, machine vision and language processing. As an applied research institute, we offer excellent conditions that can be ideally combined with the pioneering spirit of the Chinese«, said Michael Lickefett.