Berlin Center for
Digital Transformation

THE TRANSFER CENTER INTERNET OF THINGS (IOT) LAB

Fraunhofer

DEMONSTRATION, DEVELOPMENT AND TEST CENTER FOR IOT TECHNOLOGIES

We support our customers from recognizing and understanding IoT technologies to strategy development, all the way to implementation, testing and integration of IoT solutions.

The Internet of Things (IoT) enables digitization, transformation and cross-integration of entire value chains. Today, countless sensors and measuring devices are capturing everyday life, both in private life and in industry. Data is collected, analyzed, devices and machines are controlled autonomously. IoT boosts a plethora of new services, applications, and business models. New players such as entrepreneurs and start-ups as well as major industrial enterprises take part in this transformation concurrently.
Amidst Europe's fastest growing start-up scene, Germany's biggest university cluster and many multi-national high-tech subsidiaries, Fraunhofer-Gesellschaft's Center for Digital Transformation operates a total of four different transfer centers right in the middle of "Silicon Berlin":

- Hardware for CPS Lab
- IoT Lab
- 5G Testbed
- Industry 4.0 Lab

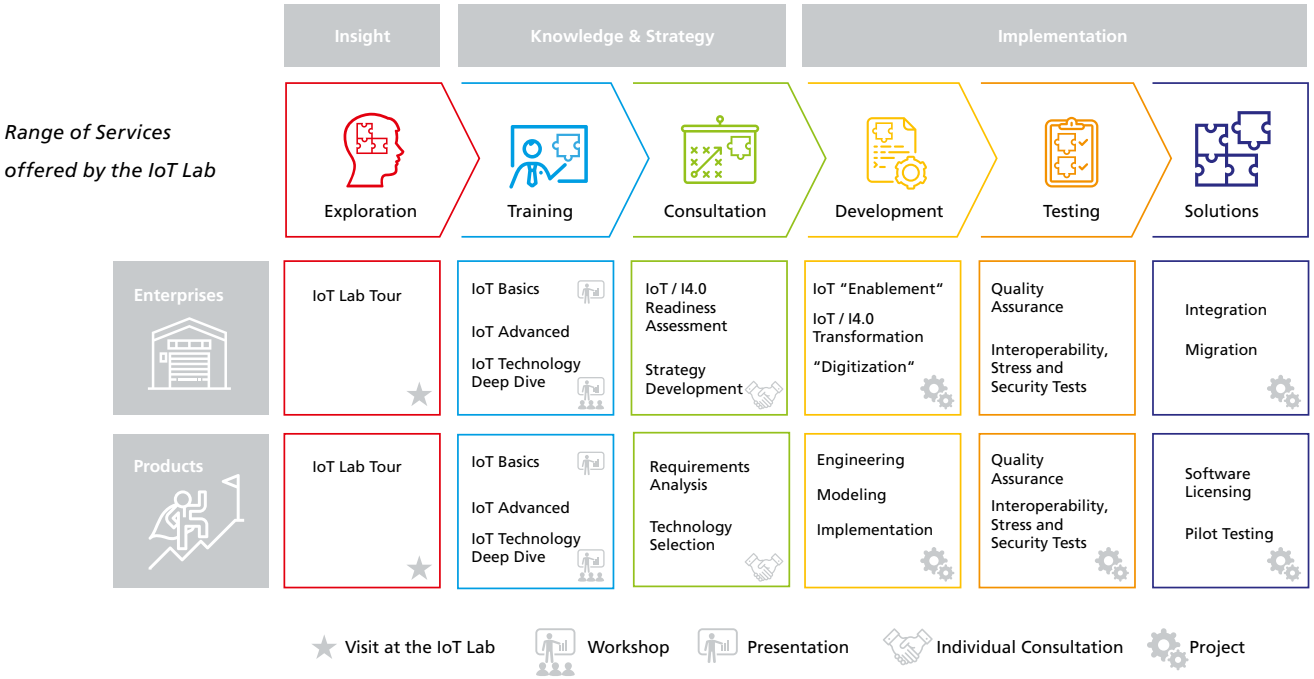
Tightly coupled, interworking and cross-fertilizing each other the four transfer centers provide technologies and services for digital transformation, product development, testing and piloting.

VARIOUS APPLICATIONS

The IoT Lab leverages 25 years of expertise of the Fraunhofer Institute FOKUS in digital networking including machine-to-machine communication, near-field and far-field communication technologies, 5G and deterministic networks, IoT platforms, data analytics, fog, edge and cloud computing, data security and safety. Domains such as health care, transport, public sphere, energy and manufacturing industry benefit from the IoT Lab offering. With the aid of our tools and test environments from network, platform and data analysis to application level, we develop tailor-made solutions for different application domains.

The IoT Lab sees itself as an IoT business partner offering:

- The **IoT Demo Center** invites users, vendors and interested parties to explore IoT systems and applications.
- The **IoT Development Lab** designs, develops and integrates tailor-made solutions to meet customer- specific requirements
- The **IoT Test Center** runs interoperability, conformity, stress, safety and security tests, quality assurance mechanisms and pre-certifications.



The Industrial Internet of Things (IIoT) could add 14.2 trillion US dollar to the global economy by 2030.

Source: Accenture

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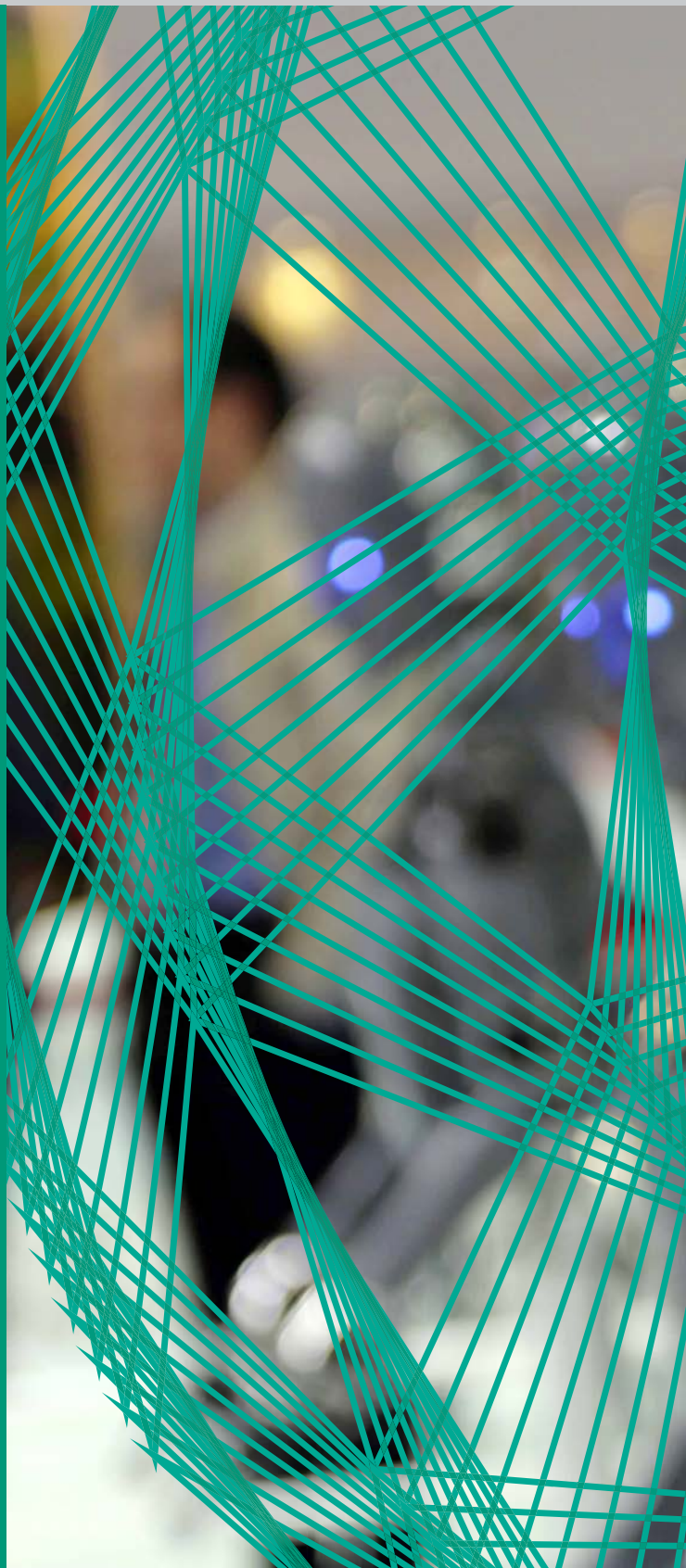

CONTACT

Dr.-Ing. Florian Schreiner
Director Transfer Center IoT Lab
Phone +49 30 3463-7174
Fax +49 30 3463-99 7174
florian.schreiner@fokus.fraunhofer.de
iot-lab@fokus.fraunhofer.de

Fraunhofer FOKUS
Kaiserin-Augusta-Allee 31
10589 Berlin
Germany

www.digitale-vernetzung.org
www.internet-of-things-lab.org

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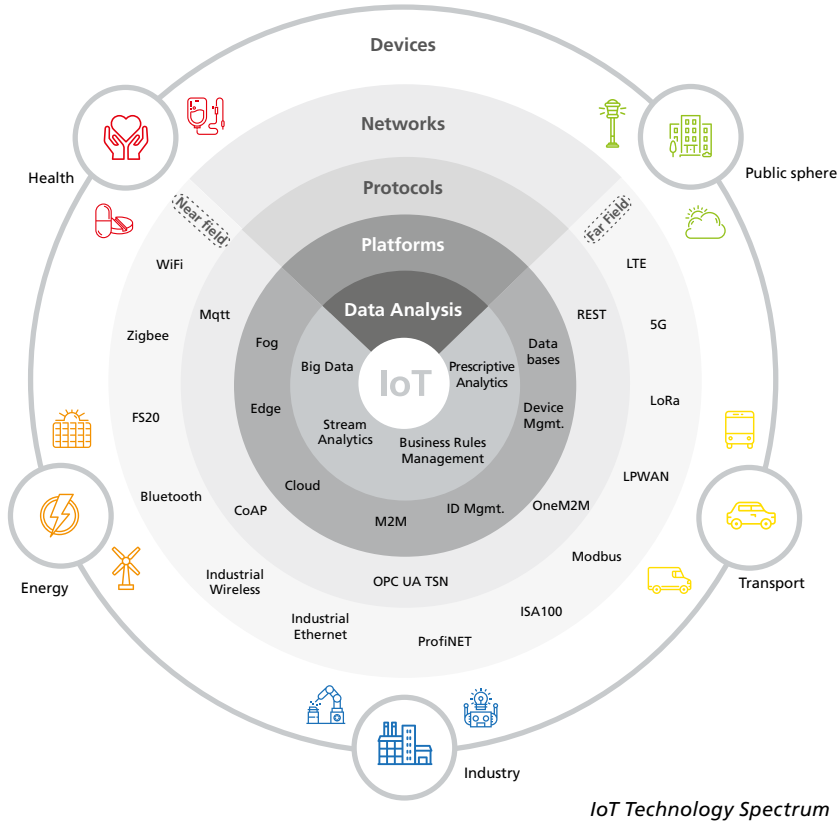
THE INDUSTRIAL INTERNET OF THINGS: THE BIGGEST DRIVER OF PRODUCTIVITY IN THE NEXT DECADE.

OUR OFFERINGS

The industry faces major challenges: Customers demand for new, individual, high quality, yet cost effective products at ever shorter intervals. At the same time products have to be implemented with dwindling resources and in a highly robust, secure and sustainable manner. Within the IoT Lab start-ups, SMEs as well as large companies – IoT solution manufacturers, vendors as well as users – are able to reduce their time to market and launch smoother implementations through exploration, training, consultation, design, development and testing. To this end we offer readiness assessment, product requirements analysis, strategy development, quality assurance, interoperability, stress, security and safety testing as well as integration and pilot testing.



IoT Technology Spectrum within the IoT Lab

Technologies

The IoT Lab maintains a broad spectrum of near- and far-field communication technologies connecting a broad range of devices and cyber-physical systems (CPS) used in the Industry 4.0, transport, smart city, public sphere, smart energy and ehealth domain. Fog-, Edge- and Cloud-based Machine-to-Machine (M2M) communication platforms, device and identity management systems and various data analytics solutions from stream reasoning to rules engines and prescriptive analytics are offered for data aggregation, actuator control and insight creation. Amongst several others, our standards-based M2M platform "OpenMTC", our Industry 4.0 toolkit "OpenIoTFog", the "OpenBaton"-based Fog, Edge Cloud Orchestrator, "Provalets", a system for semantic stream analytics and complex event processing as well as the 5G toolkits "OpenSDNCore", "Open5GCore", "Open Baton" and "Open5GMTC" can readily be used to rapidly implement cutting-edge IoT solutions.

"IoT devices, networks, protocols, platforms and the analysis of data are the cornerstones of the Internet of Things. The IoT Lab covers the entire technology stack, ready to implement tailor made solutions."

Dr.-Ing. Alexander Willner,
Director Industrial IoT Center, Fraunhofer FOKUS

DR.-ING. FLORIAN SCHREINER,
DIRECTOR TRANSFER CENTER IOT LAB,
FRAUNHOFER FOKUS

Offerings:
- IoT Toolkits: Design, implementation and integration
- IoT Testbeds: Interoperability-, stress-, safety-, security testing and quality assurance
- IoT training, consultation and knowledge transfer

Focal Points:
- Demonstration, implementation and testing of IoT technologies and applications
- Versatile infrastructure enabling rapid implementation of IoT projects with industry partners and academia

Key Application Domains and Customers:
- Industrial IoT: Operators and manufacturers of IoT solutions for manufacturing, transport, logistics and energy domain
- Public IoT: IoT users and solution providers for Smart Cities, eHealth, ministries and IT service providers
- Consumer IoT: Users and manufacturers of IoT solutions for the consumer market, media service providers
- Testing IoT: Equipment manufacturers, solution and service providers

"The internet of things is not a dream of the future. It is here and can be used by everyone. The possibilities are gigantic."

Dr.-Ing. Florian Schreiner,
Director Transfer Center IoT Lab, Fraunhofer FOKUS

YOUR PARTNER AT ALL PRODUCT LIFECYCLE STAGES

We leverage the expertise of Fraunhofer FOKUS across various application domains to enable rapid knowledge transfer, development, experimentation and testing within a standards-based environment covering the entire technology stack. Various cyber-physical-systems and devices, M2M and IoT communication, network technologies, platforms and data analysis solutions are available for rapid product development.

We support our customers along the entire product lifecycle. We help to develop strategies, specify technology requirements, identify best-fitting technologies and design solution architectures. With our standards-based IoT toolkits, platforms and development environments our customers are able to rapidly design, develop and implement IoT solutions and products. Within our IoT Test Center, conformity, interoperability, stress, security and safety tests are carried out for product hardening and quality assurance. Additionally, we support our customers to strengthen or develop new skills with our IoT training programs.

Our ultimate goal is to help our customers to accelerate their IoT project development, implementation and product roll-out. To sum up: Customers benefit from our infrastructure, our test center, software platforms, services and expertise. Moreover, the IoT Lab is the ideal place to network with our partners and to rapidly start collaborations.

Contact us directly for a IoT Lab tour or join us at one of our upcoming events to learn more about our services at iot-lab@fokus.fraunhofer.de!