Fraunhofer
IAO

FRAUNHOFER-INSTITUT FÜR ARBEITSWIRTSCHAFT UND ORGANISATION IAO

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Fraunhofer IAO

Universität Stuttgart
Institut für Arbeitswissenschaft und Technologiemanagement IAT

Interactive creative landscape in the Office Innovation Center OIC.

FOCUSING ON PEOPLE

Activities at the Fraunhofer IAO are firmly focused on everything related to the working environments of people. We are searching for solutions to make the world a better place to work and live in, solutions for innovation and growth that ensure sustainable development for both society and the environment. In particular, we support companies in recognizing the potential of innovative organizational forms and future-oriented technologies, adapting them to meet the companies' specific needs and implementing them systematically. By pooling management and technological expertise, we can help to ensure that a company's commercial success, the interests of its workers and the effects of its activities on society are all given equal emphasis.

Thanks to its close cooperation with the Institute for Human Factors and Technology Management IAT at the University of Stuttgart, Fraunhofer IAO is able to combine university-level basic research, application-oriented science and business practice. Under joint management, a staff of 400 at Fraunhofer IAO and the IAT work together in an interdisciplinary team. Modern offices, laboratories and demonstration centers covering over 10,500 square meters of space are available to handle research projects.

We place our faith in long-term networks with key partners from the research community and the world of business. For instance, Fraunhofer IAO was instrumental in establishing the Fraunhofer Innovation Engineering Center IEC in Bolzano, South Tyrol, where we are working together in international, multidisciplinary teams with the Free University of Bozen-Bolzano and the Trade Association of South Tyrol on projects for small and medium-sized companies in the region. The flexible and effective pooling of different skills is also the watchword for our partnership with Zeppelin University (ZU) in Friedrichshafen. Our joint Center for Technology Management – eftek, supports companies in the Lake Constance region with a comprehensive range of services for recognizing and evaluating future technological trends as they emerge and for developing technological strategies for tomorrow's innovations.

As one of the Fraunhofer-Gesellschaft's 59 institutes, Fraunhofer IAO is firmly embedded in Europe's leading network for applied research. Our research projects are carried out as direct commissions from industrial enterprises, whether they are large corporations or belong to the small and medium-sized sector (SME). The institutes participate in public-sector research programs under the aegis of the German Federal Ministry of Education and Research (BMBF), the German Federal Ministry of Economics and Technology (BMWi), and the German Research Foundation (DFG), as well as in European Union programs and regional programs funded by the government of Baden-Württemberg.

IDEAS FOR SUCCESS

With its practical solutions, cutting-edge technologies and customized strategies, Fraunhofer IAO enhances the competitiveness of companies, public-sector institutions and government agencies in dynamic markets and a rapidly changing working world. Hand in hand with our customers, we develop solutions to the problems and challenges they are facing, whether in the realm of technology, organization or human resources. Essentially, we see ourselves as a think-tank striving to investigate tomorrow's solutions today, working together with you to create the innovations that will ensure your continued success in the future.

Our areas of business – the basis for innovation and growth
What makes Fraunhofer IAO stand out is its mix of skills, with engineers, business administrators, IT specialists, human and social scientists all working together in an interdisciplinary team. Thanks to our mix of women and men, young and more experienced staff, and teams combining different disciplines and cultures, we are in a position to offer a range of holistic, high-quality services.

In conjunction with our partners from science and industry, we develop and put future-oriented, innovative solutions into practice. Our customers benefit from many years of experience we have gained in a diverse array of projects in the following business areas:

- Corporate development and work design
- Service and human resources management
- Engineering systems
- Information and communication technology
- Technology and innovation management

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CORPORATE DEVELOPMENT AND WORK DESIGN

Office Innovation Center OIC: researching the working world of the future.

Future oriented corporate development

A company's success hinges upon the innovativeness of its staff, and successful innovation demands a special environment: flexible structures, seamless processes, working environments conducive to creativity, and a motivating corporate culture. We make companies and organizations fit for innovation, helping to ensure the success of their endeavors in the long term.

Design of productive work environments

The common goal of our consulting and implementation projects is to make companies more responsive, innovative and productive. In addition, we want to create an optimal environment for staff – so that they can perform well and enjoy stable employment conditions. We also design work systems for the respective organization, helping to plan and implement working environments that promote performance in line with principles that guide people's values.

Interconnect processes efficiently

In projects that focus on corporate and business-model development, we design a company's business processes, management and control systems, and business models from a holistic perspective. We help service and manufacturing companies as well as government agencies to optimize their structures and processes, enabling them to become productive on a sustainable basis.

Our main areas of focus

- Development and implementation of high-performance corporate and business models
- Business performance and collaboration productivity management
- Work design for the knowledge industry
- Design and roll-out of innovative working environments and workspace design
- Value-stream engineering for versatile production systems
- Design and selection of flexible assembly systems

SERVICE AND HUMAN RESOURCES MANAGEMENT

ServLab: development and design of future-oriented services.

Make the most of employees' potential

Your staff represent the key factor in the future success of your organization. Their experience, creativity and motivation are a constant source of added value and a driver of innovation. Future-oriented work concepts and the use of modern technologies can lead to new forms of cooperation and value creation within companies that can also have a positive impact on the interface to your customers. We advise enterprises on how to enhance the potential of their employees through innovative solutions for human resources management and how to enhance the effectiveness of processes that rely on cooperation.

Target-oriented competence development

Your goal is the highest level of intelligent interaction between your organization and your personnel. It can be achieved if both your corporate structures and processes on the one hand, and the know-how and commitment of your staff on the other, are optimally linked and developed in unison. That is why our research activities and practical projects focus on two elements: the creation of innovative and attractive working environments that are conducive to learning; and the development of organizational and human resources skills.

Services with a strong customer focus

Service quality has long since become a decisive competitive criterion for all companies – not just for traditional service providers. Even among production companies, the scope and design of the services they offer already constitute a unique selling point. But high-quality services do not just arise by chance, they have to be professionally developed and managed. We support companies in designing structures that make the provision of services more efficient and the services themselves better tailored to the target customers.

Our main areas of focus

- Service management
- Development of new services
- Innovative solutions for human resources management
- On-the-job learning and skills management

ENGINEERING SYSTEMS

Vehicle Interaction Lab: virtual engineering for the automotive industry.

Advance virtual engineering systematically

Nowadays, rapid product development is a must. Short development cycles are the key to maintaining a competitive edge in the market. Virtual product development allows you to achieve higher levels of maturity faster and, despite short development periods, to take into account and evaluate a large number of variants. That saves error correction costs as well as some of the time and money required to build physical prototypes. We optimize the processes for networked digital engineering in companies, merging product development and production planning. For this purpose, we develop and optimize systems that use virtual reality, making it possible to envisage a product and its entire production process right from the word go. In this way, virtual models and processes can be tested and evaluated in the automotive industry, in mechanical and production engineering, and in the construction industry.

Design ergonomics into technical systems

»Man is the measure of all things«, especially when it comes to developing technology for people. That is why we are working intensively on ergonomic product development and the methods it requires. We help our customers develop people-friendly products and test the ergonomic quality of proposed solutions by making use of analyses of real-life application situations and of virtual engineering methods. We employ virtual reality and driving simulation, rapid prototyping and usability testing, relying on our interdisciplinary expertise from both engineering and psychology.

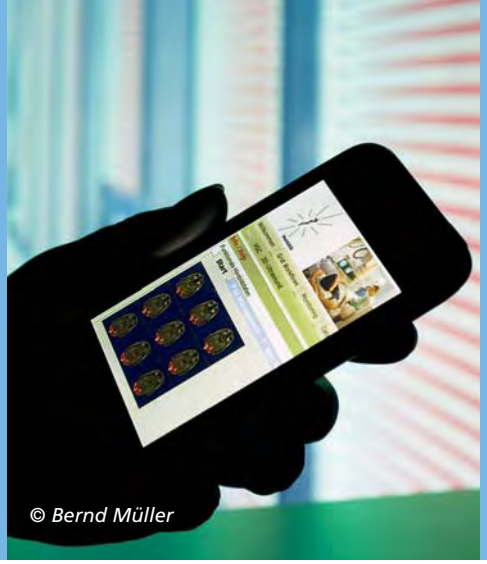
Rethink the concept of mobility

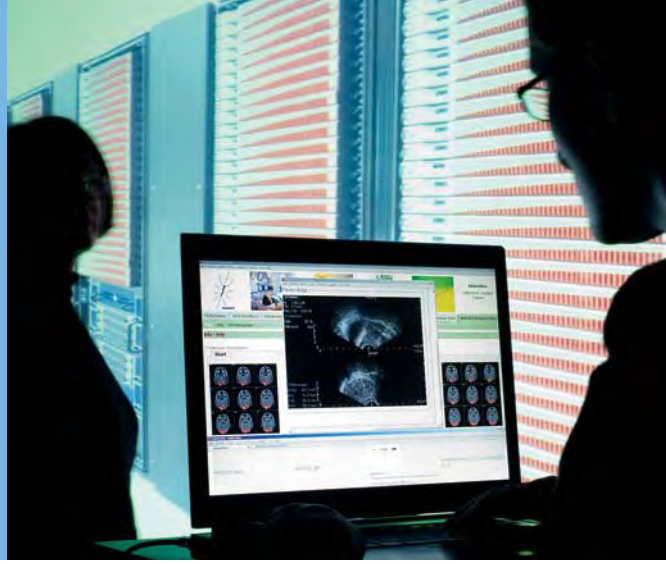
Technological progress towards electromobility is having far-reaching effects on the economy and society. Both through project work and participation in networks, we are assisting companies and municipalities as they prepare for the paradigm shift to electromobility. We accompany enterprises along the path towards new value-creation structures and business models. Together with our partners from science and industry, we develop urban mobility concepts for the electrically mobile city of the future.

Our main areas of focus

- Process optimization in digital engineering
- Development of technologies and applications for virtual reality
- Human factors engineering for human-machine interfaces, products and work systems
- Urban mobility concepts for private enterprises and municipalities

INFORMATION AND COMMUNICATION TECHNOLOGY





Grid Laboratory: computing power from the wall socket.

Exploit the full potential of IT

The right use of information technology can raise a company's productivity and flexibility and enhance the quality of its products and services. Innovative IT opens up new avenues for business processes and for expanding your service range. We support companies in successfully utilizing information and communication technology not only for their internal business processes – but also across company borders. Our tried-and-tested methods and procedures, coupled with a comprehensive knowledge of the latest trends and potential applications for IT, ensure highly customized, economical solutions.

Apply process innovation successfully

Process innovation is a decisive factor in ensuring a company's long-term success in the face of global competition, not only enabling faster and more efficient processes, but also tapping into new markets and forming the basis for future-proof business models. We cooperate with companies to create process innovations and achieve their best possible implementation using the right IT systems. Our expertise draws on the latest research results and practical experience from an array of corporate projects.

Design intuitive interactive systems

Whether on the intranet, at a ticket automat or the controls of a machine, intuitive, easy operation is decisive for the success of all interactive products. When developing ergonomic operating concepts, we always focus firmly on the user. Besides usability, product esthetics and emotional aspects can also be key factors depending on the target group and its requirements. New technologies permit natural interaction that takes the various sensory modalities such as voice, eye movements and gestures into account.

Our main areas of focus

- Design of interdepartmental and cross-organizational information processes
- Design and selection of company software
- Design and optimization of IT architectures
- Development, evaluation and optimization of interactive and intelligent IT systems
- Definition and application of standards and interfaces
- Usability / new interaction techniques

TECHNOLOGY AND INNOVATION MANAGEMENT

Picasso 3-D workstation: faster to technical innovations.

Strengthen innovation capabilities

Innovation is our number one economic driver. New products, services and processes enable companies to strengthen their competitive edge in the global marketplace. But innovations don't grow on trees: they are the product of creativity, professional methods and, last but by no means least, hard work. How can we strengthen innovativeness in the long term and speed up the innovation process? We help companies to systematically pinpoint their potential for improvement and enhance their scope for action. Together with them, we formulate strategies and solutions for improving innovativeness in the long term.

Develop technology strategies

Recognizing technological developments as they emerge and exploiting the potential of new technologies for the purposes of innovation are key strategic factors in a company's success. The dynamic nature of technological progress is just one reason why companies are finding it harder to identify the technological trends of relevance to them, to assess their potential, and to arrive at the right decisions. On behalf of our customers we evaluate emerging technologies, keep track of how they change, identify possible applications, and draw up technology road-maps and strategies.

Enhance R&D performance

Shorter product lifecycles, rising complexity of products and processes, globalization trends, networking and the sheer variety of technology available – all these factors are making new demands on research and development (R&D), and making both speed and flexibility more important than ever. We have the experience, methods and tools to help companies to success-fully optimize their R&D activities. This includes addressing both organizational and strategic issues in order to make R&D structures more efficient, and supporting development processes with innovative IT applications and forward-looking analyses of corporate development.

Our main areas of focus

- Development and implementation of innovation and technology strategies
- Increasing the innovativeness of companies
- Effective and efficient organization of R&D via fast, lean processes
- Early detection and evaluation of potential application areas for new technologies
- Establishment and support of technology and innovation networks
- Intellectual Property: IP for Innovation
- IT support for R&D, technology and innovation management

EQUIPMENT: PUTTING IDEAS TO THE TEST

1

1 | Lab Innovation Center LIC: new working methods, processes and technologies for lab work.

2 | LightFusionLab: dynamic lighting concepts for healthy and efficient working environments.

RESEARCH FOR PRACTICAL APPLICATION

Fraunhofer IAO's research is both task- and result-oriented. Our goal is to implement innovations for the business world and society, which is why we strike a dynamic balance between application-oriented basic research and innovative development. With this in mind, we consider a powerful infrastructure to be a key prerequisite for excellent research. In our innovative research and demonstration centers, we see to it that new ideas and findings from scientific projects are implemented as prototypes. Our cutting-edge offices and laboratories enable you to experience future trends today.

- Cloud-/Grid-Laboratory
- Demonstration center for environmental information systems for production and logistics in the business world (BUISLab®)
- Electronic Business Innovation Center
- Electronic Commerce Center Stuttgart
- Ergonomics Laboratory
- Interaction Laboratory
- Lab Innovation Center LIC
- LightFusionLab
- m-Lab – Center for Mobile Corporate Software
- Model Factory for Production and Logistics
- Multimedia Enabled Enterprise Lab (MEE Lab)
- New Media Communication Lab
- Office Innovation Center OIC
- PDM Information Center
- ServLab – Innovation Showroom for Service Research
- Showcase »Bank & Future«
- Showcase »FutureHotel«
- Showcase »Care 2020«
- Usability Lab
- Vehicle Interaction Lab (VI Lab), immersive driving simulator
- Virtual Reality Lab (VR Lab) featuring the HyPI-6 (six-sided CAVE)
- Center for Document and Workflow Management
- Center for Visual Corporate Management (VISUM)

EQUIPMENT: PUTTING IDEAS TO THE TEST

1

1 | Showcase »FutureHotel«: visionary solutions for the hotels of tomorrow.

2 | Showcase »Bank & Future«: innovations for financial service providers.

3 | Showcase »Care 2020«: Future care concepts for the elderly.

4 | Model Factory: innovative assembly systems for SMEs.

2

3

4

EQUIPMENT: PUTTING IDEAS TO THE TEST

1

1 | Six-sided cave HyPI 6: 3-D visualization for complex planning processes.

2 | VISUM: »business cockpit« for visual corporate management.

3 | Interaction Laboratory: groundbreaking solutions for interactive systems.

4 | Usability Laboratory: research for user-friendly products and services.

2

3

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4

SUCCESS THROUGH NETWORKING

SHAPING THE FUTURE TOGETHER

Intensive networking with scientific institutes of excellence is a key factor in our long-term ability to deliver top performance. In particular, our close cooperation with other Fraunhofer Institutes supplements the expertise that Fraunhofer IAO is able to offer. With their diverse skill sets, the institutes of the Fraunhofer-Gesellschaft work together in alliances and topic-related groups. In so doing, they aim to develop areas of innovation as a team and drive forward research.

Fraunhofer IAO is an active member of the following alliances and groups:

- Fraunhofer ICT Group
- Innovation Cluster for Digital Production
- Fraunhofer Ambient Assisted Living Alliance
- Fraunhofer Building Innovation Alliance
- Fraunhofer eGovernment Alliance
- Fraunhofer Grid Computing Alliance
- Fraunhofer Sustainability Network
- Fraunhofer Nanotechnology Alliance
- Fraunhofer Traffic and Transportation Alliance
- Fraunhofer System Research for Electromobility

In addition, Fraunhofer IAO is actively involved in a wide variety of other networks. Our intensive dialog with other research institutions and partner companies in networks not only fosters scientific research, but also the application-oriented implementation of new tools and processes in business practice. These are just some of the networks in which Fraunhofer IAO participates:

- Berliner Kreis – Wirtschaftliches Forum für Produktentwicklung e. V.
- Deutsche Akademie der Technikwissenschaften (acatech)
- European Association for REsearch on SERvices (RESER)
- Gesellschaft für Arbeitswissenschaft e. V. (GfA)
- Gesellschaft für Informatik e. V. (GI)
- Hochschulgruppe Arbeits- und Betriebsorganisation HAB e. V.
- International Academy for Production Engineering (CIRP)
- International Foundation of Production Research (IFPR)
- Institute for Innovation and Information Productivity (IIIP)
- Service Research & Innovation Institute (SRII)
- Wissenschaftliche Gesellschaft für Produktionstechnik (WGP)

REFERENCES

For almost 30 years, we have enjoyed successful partnerships with our customers – businesses of all sizes and from all branches of industry. The following excerpt from our institute's list of references provides an overview of our project partners:

Adolf Würth GmbH & Co. KG
Allianz Versicherungs AG
Allianz AG
Allgemeiner Deutscher Automobil Club (ADAC) e. V.
Andreas Stihl AG & Co KG
AOK-Baden-Württemberg
B.A.D Gesundheitsvorsorge und Sicherheitstechnik GmbH
BASF SE
Bene AG
Bilfinger Berger AG Bereich Hochbau Entwicklung
BMW Group
BRITA GmbH
Carl Zeiss Industrielle Messtechnik GmbH
Cisco Systems GmbH
Daimler AG
Deutsche Lufthansa AG
Deutsche Post Com GmbH
Deutsche Telekom AG
Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR)
DIN Deutsches Institut für Normung e. V.
Drees & Sommer AG
Ed. Züblin AG
E.ON Kernkraft GmbH
Festo AG & Co. KG
F. Hoffmann-La Roche AG
Fujitsu Siemens Computers GmbH
Greenpeace e. V.
Hansgrohe AG
Haworth GmbH
Henkel AG & Co KGaA
HRS – HOTEL RESERVATION SERVICE
IBM Deutschland GmbH
IHK Lahn-Dill
Intel GmbH
Klafs Saunabau GmbH & Co.
KPMG AG Wirtschaftsprüfungsgesellschaft
Landesbank Baden-Württemberg
Landeshauptstadt Stuttgart, Referat Städtebau und Umwelt
Lindner Hotels AG
manroland AG
Microsoft Deutschland GmbH
Océ-Deutschland Business Services GmbH
O_2 (Germany) GmbH & Co. OHG
Orderman GmbH
Philips Deutschland GmbH
Polysius AG
PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft
Robert Bosch GmbH
Santander Consumer Bank AG
SAP Deutschland AG & Co. KG
Schaeffler Technologies GmbH & Co. KG
SCHÜCO International KG
Siemens Enterprise Communications GmbH & Co. KG
Steelcase Werndl AG
Steigenberger Hotels AG
Stuttgarter Straßenbahnen AG
Telekom Austria TA AG
ThyssenKrupp Real Estate GmbH
T-Systems Enterprise Services GmbH
T-Systems International GmbH
Umweltministerium Baden-Württemberg
Villeroy & Boch AG
VDI/VDE Innovation + Technik GmbH
Volkswagen Bank GmbH
Waldner Laboreinrichtungen GmbH & Co. KG
Wincor Nixdorf International GmbH
WITTENSTEIN AG

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Translation
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Photos
Zuckerfabrik Fotodesign, Fraunhofer IAO

Concept and layout
RTS Rieger Team Werbeagentur GmbH

Production
Jung Produktion Stuttgart GmbH

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