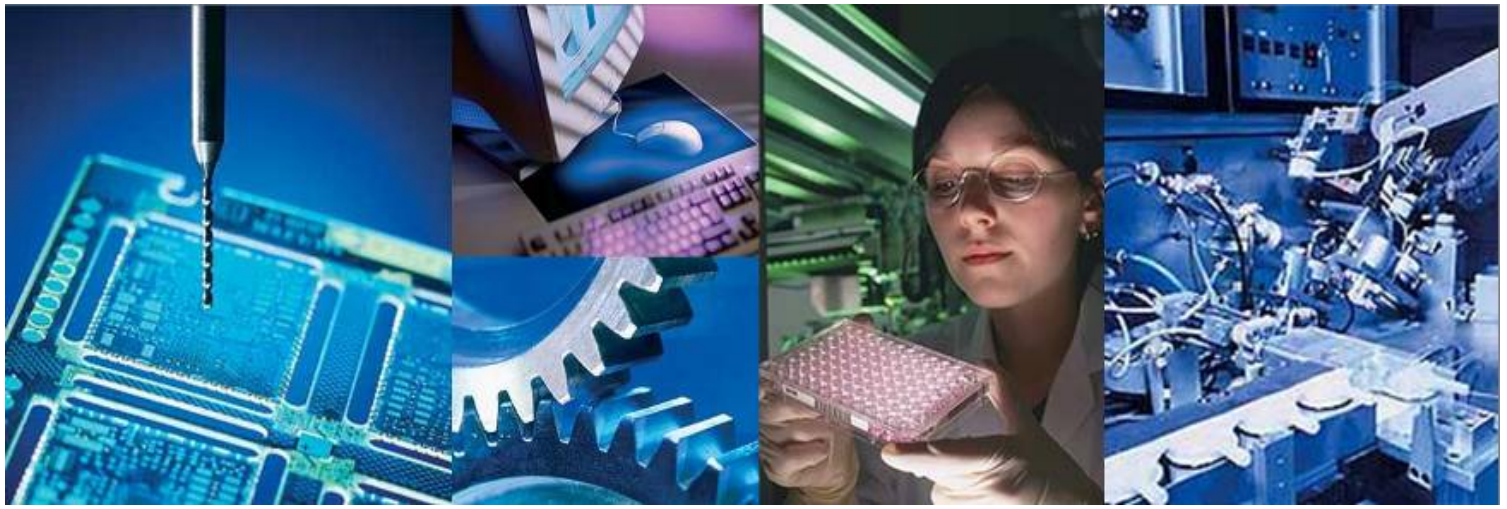
Fraunhofer-Gesellschaft

Partner for Innovations



Fraunhofer
IAO

Profile of Fraunhofer-Gesellschaft

www.fraunhofer.de

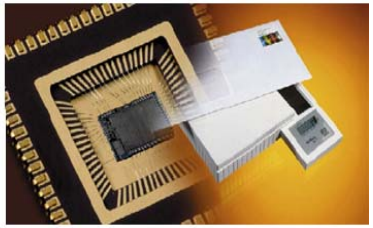
- **Annual research budget:** 1.32 billion Euros*
- Including approx. 1.16 billion Euros for **contract research***
- Roughly **two thirds** of this sum is **generated** through
  - **Projects commissioned by industry** and
  - Publicly funded **research projects**
- Roughly **one third** is provided by the **German state and federal governments** for **advanced research** (looking at issues that will be of concern to the economy and society in general in five or ten years time).

* Figures for 2007

Fraunhofer IAO

Profile of Fraunhofer-Gesellschaft

www.fraunhofer.de



- **Research & Development**
  - Applied research to the direct benefit of private and public enterprises and of interest to the society
  - Applied research
  - Research on behalf of the German Federal Ministry of Defence
- **Entrepreneurial mindset**
  - Institutes operate as profit centres
  - Spin-offs by Fraunhofer researchers are actively supported
- **Contract partners / Customers**
  - Industrial and service companies
  - Public sector

Fraunhofer IAO

Alliances

within Fraunhofer-Gesellschaft

- **Information and Communication Technology***
- Life Sciences
- Microelectronics
- Surface Technology and Photonics
- Production
- Materials and Components
- Defence and Security

* Membership of Fraunhofer IAO

Fraunhofer IAO

Frontline Themes

Tomorrow´s Opportunities

- **Personal health assistant –** the electronic guardian angel
- **Bio-functional surfaces –** High tech with a sensitive skin
- **Micro power engineering –** Mobile power supplies
- **Food chain Management –** Always fresh on the table
- **Decentralized integrated water –** Saving precious water
- **Energy-efficient modernization –** More than just a façade
- **Solid-state light sources –** Bright and efficient illumination
- **Energy storage in power grids –** Solar- and wind-generated electricity on demand
- **Green power train technologies –** New impetus for eco-friendly cars
- **Energy self-sufficient sensors and sensor networks –** Vigilant clusters
- **Visual analytics –** A clear overview in the data jungle
- **Hybrid material structures –** Combining the best of the best
- **Integrated localization technology –** On the move – quick and safe

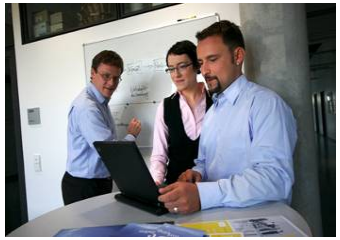
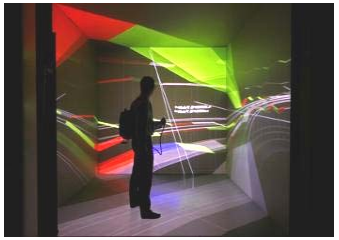
Fraunhofer IAO

Fraunhofer IAO

Fraunhofer Institut für Arbeitswirtschaft und Organisation
Fraunhofer Institute for Industrial Engineering

Ideas for Success



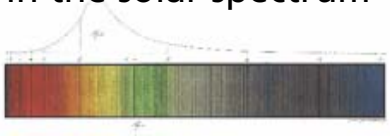
Fraunhofer IAO

Universität Stuttgart
Institut für Arbeitswissenschaft und Technologiemanagement IAT

Joseph von Fraunhofer
(1787 - 1826)

Fraunhofer-Gesellschaft
(since 1949)

Discovery of the **»Fraunhofer Lines«** in the solar spectrum



New methods for **lens processing**

Managing partner of the Royal Glass Factory

e.g. the President´s **German Future Award** in 2004 for electrical biochip technology

e.g. two new **patent applications** every working day

e.g. ~ **€ 350 million revenues from industry** (approx. 4000 contracts) per year

Fraunhofer IAO

Profile of Fraunhofer-Gesellschaft

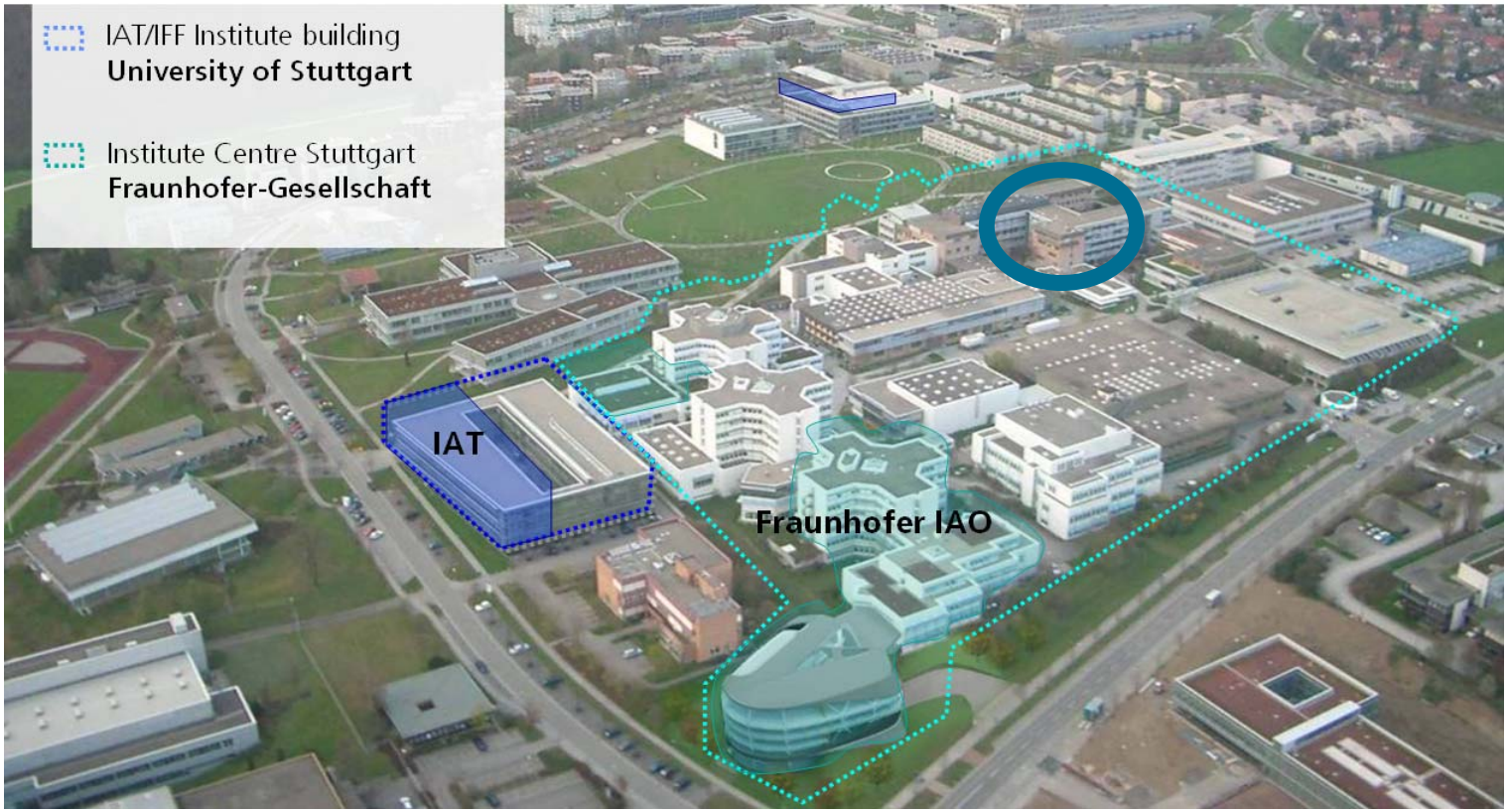
www.fraunhofer.de

- **Founded:** 1949
- 13 000 **employees**
- More than **80 research institutes**, of which 56 operate as independent profit centres
- **Fraunhofer International**
  Europe: Brussels (Belgium), Moscow (Russia), Budapest (Hungary), Jönköping (Sweden), et al.
  USA: Boston (Massachusetts), Pittsburgh (Pennsylvania), Plymouth (Michigan), Providence (Rhode Island), College Park (Maryland), Peoria (Illinois)
  Asia: Ampang (Malaysia), Beijing (China), Jakarta (Indonesia), Koramangala Bangalore (Indien), Seoul (Korea), Singapore, Tokio (Japan)
  Middle East: Dubai (United Arab Emirates), Cairo (Egypt)

Fraunhofer IAO

Aerial of the Institute Campus in Stuttgart –

Fraunhofer IAO and IAT University of Stuttgart



Fraunhofer IAO

Profile of IAO and IAT

www.iao.fraunhofer.de – www.iat.uni-stuttgart.de

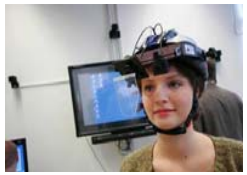
Founded:	IAO – 1981 IAT – 1991
Director:	Prof. Dr.-Ing. Dr.-Ing. E.h. Dieter Spath
Budget:	24 million Euro, of which 38% from industrial contracts
Staff:	210 employees, 185 student assistants

Figures from 2007, including IAT University of Stuttgart

Fraunhofer IAO

The Pillars of Success

Our Areas of Expertise

Technology Management		■ Strategy Development ■ Future Scenarios ■ Technology Radar	■ Rapid Product Development ■ Evaluation of New Technologies ■ Research and Development Roadmaps
Organisational Development		■ Digital Production ■ IT Management ■ Service Engineering ■ Knowledge Management	■ Research and Development Management ■ Business Process Management ■ Innovation Management ■ Production Management
Human Factors		■ Product Design ■ Usability Engineering ■ Health Care	■ Office of the Future ■ Performance Management ■ Age-based Living Environment
Human Resources Management		■ Change Management ■ Learning Environments ■ HR Development	■ Demographic Trends ■ Innovative Ways of Working ■ Working Time and Remuneration Models
Information Technology		■ Virtual Reality ■ Virtual Engineering ■ IT-Strategies	■ Software Engineering and Management ■ Document and Workflow Management ■ Mobile Software Applications

Fraunhofer IAO

The Pillars of Success

Technology Management

- Strategy Development
- Future Scenarios
- Technology Radar
- Technology Monitoring
- Research Roadmaps
- Development Roadmaps
- Evaluation of New Technologies
- Rapid Product Development
- Sustainable Corporate Governance

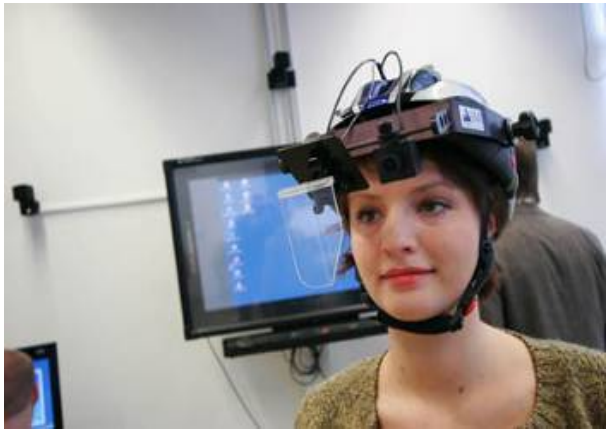
The Pillars of Success

Organisational Development

- Research and Development Management
- Innovation Management
- Working in Networks
- Production Management
- Digital Production
- Business Process Management
- Logistics and Layout Planning
- Industrial Engineering
- Knowledge Management
- Customer Management
- Service Development and Management
- Service Engineering
- Corporate Development for Financial Service Providers

The Pillars of Success

Human Factors



- Work and Workplace Design
- Office of the Future
- Product Design
- Ergonomics
- Simulation Methods
- Age-based Living Environments
- Health Care
- Usability Engineering
- Performance Management

The Pillars of Sucess

Human Resources Management

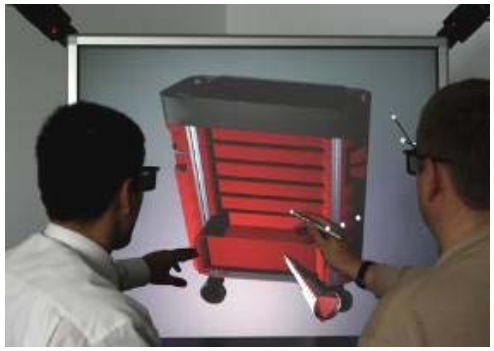
- Change Management
- Demographic Trends
- Human Resources Development
- Learning Environments
- Training and HR Development
- Innovative Ways of Working
- Organisational Development
- Working Time Models
- Remuneration Models

The Pillars of Success

Information Technology

- IT Strategies
- Software Engineering and Management
- Document and Workflow Management
- Human-Machine Interfaces
- Electronic Business
- Service Portals
- Virtual Reality
- Virtual Engineering
- 3D Simulation
- Mobile Software Applications
- IT for Networked Enterprises

Labatories, demonstration and consulting centres


Virtual Reality Lab with HyPI 6 (6-wall Cave), »PIcasso« and Powerwall

Vehicle Interaction Lab


ServLab

Labatories, demonstration and consulting centres

Interaction Lab

Electronic Business Innovation Center

Usability Lab with Visualisation Room and Eye Tracking System

m-Lab: Mobile Software Applications

Fraunhofer IAO

Labatories, demonstration and consulting centres

Lab Innovation Center (LIC)

Office Innovation Center (OIC)

Visual Enterprise Management (VISUM)

»Bank and Zukunft« Showcase

Fraunhofer IAO

Labatories, demonstration and consulting centres

Engineering Solution Center (ESC)

Model Factory

Ergonomy

Media Enabled Enterprise Lab

New Media Communication Lab

Fraunhofer IAO

Collaborative Research Projects

- Cooperation by
  - Software developers
  - Application partners
  - Research instituts
- Common idea and discussion
- Individual activities and exploitation
- Funded by national or international institutions
  - Max. 50% for companies, max. 100% for research instituts
  - Topics defined by institutions
  - Selection process including experts

Current Call

- Bekanntmachung des Bundesministeriums für Bildung und Forschung von Richtlinien zur Förderung der IT-Sicherheit
- Im Rahmen des "Arbeitsprogramms IT-Sicherheitsforschung":
  Für 5 Jahren Fördermittel in Höhe von 30 Mio. Euro
- Antragsberechtigt sind in Deutschland ansässige IT-Unternehmen
  bzw. Unternehmen aus dem Bereich IT-Sicherheit
  sowie Hochschulen und außeruniversitäre Forschungseinrichtungen
- Die maximal mögliche Förderdauer beträgt zwei Jahre, nur in begründeten Ausnahmefällen bis zu drei
- Einreichfrist bis 15.12.2009
- Informationen: http://www.bmbf.bund.de/foerderungen/13907.php

Forensic Focus

- Neue Herausforderungen zum Schutz von IT-Systemen und der Identifikation von Schwachstellen

- Um speziellen und zukünftig vielleicht möglichen Angriffen entgegen wirken zu können, müssen zur Absicherung von IKT-Systemen auch neuartige Techniken, Methodiken und Ansätze entwickelt werden.

1. Neue Analyseansätze bei Seitenkanalangriffen (…)
2. Entwicklung analytischer und forensischer Werkzeuge

- **Weiterentwicklung forensischer Werkzeuge**
  (einschließlich revisionssicherer Verfahren)
  zur besseren Nutzbarkeit für einen größeren Kreis von Anwendern.
- **Verbesserung der Leistungsfähigkeit forensischer Werkzeuge**,
  insbesondere für die Analyse im laufenden Betrieb,
  bei großen Datenmengen, zur Binärcodeanalyse
  sowie bei der Analyse von Schadcode und kryptierter Daten.
- **Weiterentwicklung von Analysetechniken und -methoden**
  auf formaler und praktischer Ebene,
  insbesondere von formalen Methoden
  zum Nachweis von Systemeigenschaften
  und zur theoretischen und praktischen Evaluation von Systemen.