Work and Engineering Psychology Group at Technische Universität Darmstadt

(FAI Forschungsgruppe Arbeits- und Ingenieurpsychologie, J. Vogt)

Our philosophy

Human behavior, cognition, and emotion in all its diversity is our concern. We investigate, model, predict, and improve the interaction of humans in technological and organizational environments. We optimize the mutual learning and interacting of humans with technology and organization.

Products, production, and service processes are successful, when leaders, managers and staff are safe, efficient, and healthy in fulfilling their respective tasks. Work should make sense and fun, respect natural resources and environments. This requires:

- Ergonomic work design
- Recruiting the right new people and facilitating them into the new job roles
- Training the established work force
- Leadership and team development
- Innovation in technology, products, services, and work processes
- Resilience engineering

Our values

Integrity is our highest value. We act according to ethical principles of science and research. Our projects contribute to health, safety, natural resource and environment protection.

Our strengths

We develop intervention, prevention, innovation, and evaluation in interdisciplinary cooperation. Previous scientists were expected to know everything about a very tiny specialist area. The global problems of today will only be overcome by integrating the knowledge of many specialist areas. Therefore, we need specialists and generalists in interdisciplinary research and development teams.

Our society needs to become interdisciplinary. University graduates must be trained in multiple methods and interdisciplinary project work from the first year on. www.kiva.tu-darmstadt.de

Our society needs integration of psychological care. The dramatic increase of psychological problems at work requires psycho-hygiene. Stress, strain, burnout, critical incident at work etc. demand integrated care. Instead of ignoring psychological problems and pushing them to private life, employers must offer psychological services at work. The demographic change and lack of qualified experts will lead to workforce migration towards the best employers. FAI combines clinical psychology with work and organizational psychology to meet this challenge. http://de.wikipedia.org/wiki/Integrierte_Versorgung

Our society needs user- and environmental-friendly products. We investigate and design intuitive interaction of humans with machines. Doing so, sustainable resource and energy management is an important issue.

For example: Vogt, J. & Nunes, K.R.A. (2014). Recycling behaviour in healthcare: waste handling at work. Ergonomics, 57(4), 525-535, doi: 10.1080/00140139.2014.887786

Companies and other organizations need strategic human resource management. The old way of trying and reducing staff will not work in the times of demographic change. Planning, controlling, developing, and sustaining personnel becomes of strategic importance and instruments like Balanced Scorecard are a helpful to manage soft factors like health and safety.
http://www.baua.de/de/Publikationen/Fachbeitraege/F2105-3.html
http://www.tandfonline.com/doi/full/10.1080/00140130903248801#.UxhLEa-YZPM

Companies and other organizations need sustainable production and service processes. Customers increasingly consider environmental issues in their decisions. Raw material, energy, water, and disposal fees for waste are becoming more expensive. Sustainable production and service provision becomes a strategic competition advantage.

Employees want Work-Life-Balance. The „War for Talents“ will favor employers with solutions for stress, strain, and work privacy conflicts.

Strategy

Strategy is the *direction* and *scope* of an organization over *long term*, which ideally matches its *resources* to its changing *environment*, and in particular its *markets*,

costumers or *clients* so as to meet *stakeholder* expectations (Johnson & Scholes 1997).

Direction: development towards sustainability

Scope:

Individual level

Ergonomic work design, for example, collision warning for general aviation

Applying work, organization, and business psychology in clinical settings, for example, burnout, mindfulness, prosthetics, repetitive strain injury (mouse arms, tablet shoulders, smart phone thumbs…), stress and strain in general http://www.prothetik.tu-darmstadt.de/forschungsprojekte_prothetik/index_53.en.jsp

Designing products and services safe, healthy, user and environment friendly, for example, ecological and intuitive product design, usability, joy of use, urban health games, eye and emotion tracking

Organizational level

Managing critical incidents at work, for example, in aviation and hospitals http://www.sciencedirect.com/science/journal/aip/00014575

Developing leadership, for example, restructuring and health

Planning, developing, controlling, and sustaining human resources, for example, balanced scorecard health

Societal level

Optimizing physical living environments, resource and energy consumption, for example, recycling behavior and noise protection

Developing interdisciplinary project work, for example, www.kiva.tu-darmstadt.de

Integrating psychological care, for example, managing absenteeism, presenteeism, psychological care at work and in social life

Resources:

FAI currently consists of 12 scientists and 18 student research assistants. Three half-time faculty positions provide support processes for the whole group:

Curriculum development

Industrial project acquisition

Laboratory services, especially psychophysiological monitoring, saliva analysis, eye and emotion tracking

Financial controlling of all projects

Our stakeholders

Students, who want high-quality teaching in applied contexts and project like,

Mechanical engineers, who need human factors considerations,

Computer and information engineers, having human computer interaction and security/robotic/prosthetics/human body sensor issues,

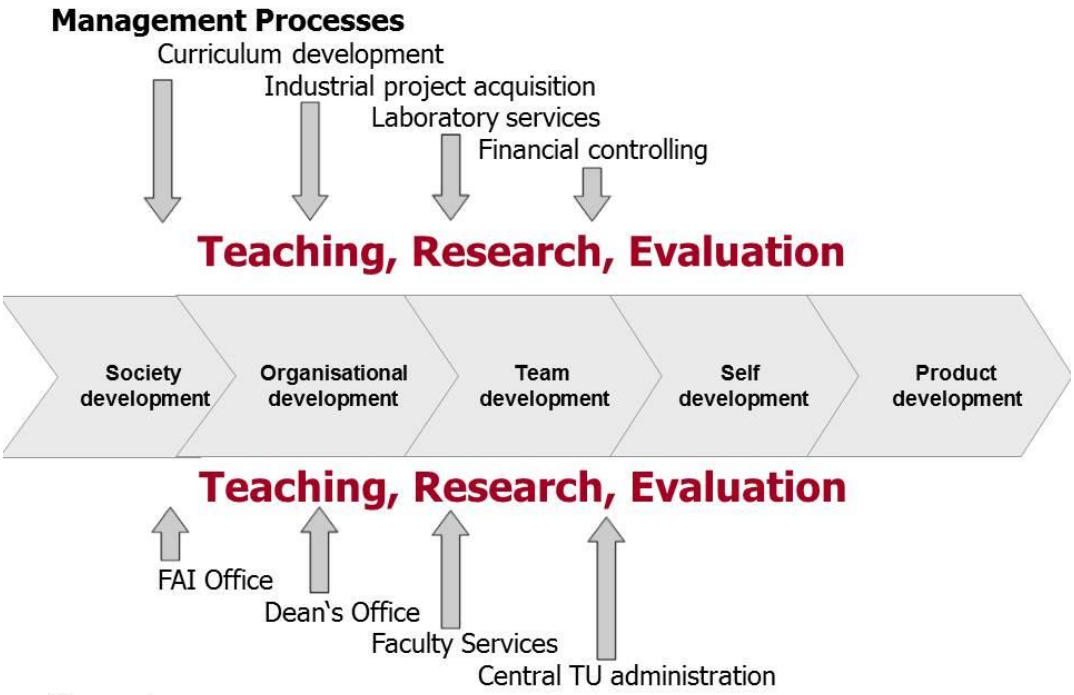
Building engineers and architects, who developed urban and rural areas,

Environmental engineers in areas like regenerative energy, recycling, water management, environmental awareness and pro-environmental behavior,

Economists and managers working in organizational development and human resource management.

Strategy, Process, Structure

This is the sequence of organizational development. First we need a strategy, then we design the processes and structures to best support this strategy.


Management Processes
Curriculum development
Industrial project acquisition
Laboratory services
Financial controlling
Teaching, Research, Evaluation
Society development
Organisational development
Team development
Self development
Product development
Teaching, Research, Evaluation
FAI Office
Dean's Office
Faculty Services
Central TU administration
Support processes