Human Resource Management (HRM)

What?
…the functional area of an organization that is responsible for all aspects of hiring and supporting employees (e.g., providing and administering employee benefits).
… all the activities related to the recruitment, hiring, training, promotion, retention, separation, and support of employees.
… functions within a company that relate to people.

Why?
… is the effective use of human resources in order to enhance organisational performance.
… the process of evaluating human resource needs, finding people to fill those needs, and getting the best work from each employee by providing the right incentives and job environment, all with the goal of meeting the needs of the firm.
… applying human resources within complex systems such that people succeed, performance improves, and human error decreases.

(Source: web definitions for HRM)
Effects of HRM

- HRM-practices (especially job design and selection/appraisal/training) better predict company performance than R&D, QM, strategy and technology (West, 2001)

- Empowerment better predicts company performance than technology-based management practices (Patterson et al., 2004)

- HRM-practices as cause and effect of company performance (Guest et al., 2003)
Road map for HRM A and B

Personnel selection

Satisfaction

Motivation

Task / Work process

Performance

Performance appraisal / Pay

Leadership

Team

Organization as socio-technical system

Personnel development
HRM A: Work process design

Overview

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Organization of course

• HRM A provided 3 ETCS points (approx. 75-90 work hours).
• Besides the lecture, the prerequisite for credits points and exam participation is the completion of a semester project in groups of 4 students.
• Topic of semester project: Analysis and assessment of job and organizational design in a company including a written report and feedback to the company.
• The exam is written (1.5 hours; open book) and takes place the second week of the holidays. Overall grade: 30% project & 70% exam.
• Material for each lecture by the previous friday on www.oat.ethz.ch.
Semester project

• Assessment of job and organizational design in a company based on two instruments
  – socio-technical systems analysis (focus on work processes and handling of disturbances in the processes)
  – task analysis (focus on criteria for humane work)
• Analyses involve 2-3 interviews with managers and employees and .5 - 1 day observation of work tasks and processes
• To be carried out in groups of four either in a company of your choice or in a company provided
• Please send an e-mail to Jacqueline Hohermuth by Oct. 31 (jhohermuth@ethz.ch) with the names and e-mail addresses of the four people in your group, indicating also if you want us to provide a company and whether you want to conduct the analyses in English or German
Psychology

• Describing, explaining, predicting and changing of human experience and behavior

Development, Learning

Person → Experience/Behavior ← Situation

Dispositions

Person

Experience/Behavior

Dispositions

Perception
Cognition
Problem solving
Emotions
Motivation
Action regulation

Situation

Physical and social environment
Methods:
Psychology as natural and social science

• Methods in natural sciences
  – Experiment as core paradigm = controlled variation of conditions in order to test their effects

• Characteristics of social science research
  – Control of complexity
    • Limited manipulation
    • Studying "hypothetical constructs"
    • Limited possibilities for reduction of complexity
  – Studies with humans
    • Effects through researcher / researched individual and social embeddedness
    • Ethical principles

• Action research
  – Researchers and „researchees“ as subjects in a shared process of social change
Work and organizational psychology

Psychologically founded theories, methods and solutions for the effective and humane interaction between people, technologies and organization in order to reach individual and organizational goals

<table>
<thead>
<tr>
<th>Areas</th>
<th>Examples of topics</th>
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| Analysis, assessment, and design of individual jobs and work systems | Job analysis and assessment  
Stress  
Job motivation/ satisfaction  
Individual and collective work design |
| Personnel selection and development             | Individual assessment  
Career management  
Training |
| Individual and organization                     | Social processes and leadership  
Culture  
Organizational change |
| Design of technical systems                     | Ergonomics  
Human-computer interaction  
Supervisory control |
HRM from a work and organizational psychology perspective

- Scientific foundation for HRM tools
- HRM as a function penetrating the whole organization
- Focus on working conditions as influences on human competence and motivation
- Systematic linking of "fit human to task" and "fit task to human"
# HRM A: Work process design

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Organization as socio-technical system

Personnel development
Fundamentals of organizational design
(Kieser & Kubicek, 1983)

- Specialization:
  Distribution of labor, resulting in different kinds of work tasks

- Coordination:
  management of dependencies among subtasks, resources, and people

- Configuration:
  Structure of line of command

- Delegation of decision authority:
  Distribution of decision authority regarding actions and decision rules

- Formalization:
  Determination of rules and procedures, e.g. structures, flow of information, performance measurement/assessment
Socio-technical systems approach

• The beginning - Studies by the Tavistock Institute in English coal mines:
  One-sided adaptation of the work organization in accordance with the demands of a new technology lead to a suboptimal work system

• Three core assumptions:
  1) Every work system comprises a social and a technical sub-system.
  2) The social and technical sub-system have to be jointly optimized.
  3) The main criterion for the joint optimization is the control of disturbances at their source.
Organization as socio-technical system

Criteria for complementary system design

HUMAN TASK
Motivation through task orientation
- Task completeness
- Planning and decision making requirement
- Task variety
- Communication requirements
- Organizational transparency
- Control over working conditions
- Opportunities for learning and development
- Temporal flexibility

Competence for coping with variances at their source

HUMAN-MACHINE SYSTEM
Controllability by human operator
- Process transparency
- Dynamic coupling
- Fit of decision authority and responsibility
- Flexible function allocation

WORK SYSTEM
Self-regulation in small control loops
- Task completeness
- Relative independence
- Fit of regulation needs and opportunities
- Polyvalence of operators
- Autonomy of production groups
- Boundary regulation by superiors

HRM A – G. Grote ETHZ, WS 06/07
Process upset in a polyethylen plant
(taken from an observation study during a safety management audit)

In a plant of a large petrochemical company, polyethylen is produced from ethylen dissolved in isobutane and a number of other chemicals including hexane. The reaction takes place under high temperature and pressure in loop reactors. An operator in the control room of the plant monitors two such reactors by means of a number of screens and process recorders on a control panel. Looking at one of the process recorders, another shift operator explains to the observer that when two of the curves on the line recorder do not run in parallel anymore, extra caution is needed, and when the curves cross the process has to be stopped immediately. Those two curves concern the pressure in the reactor and the energy consumption in a group of pumps. The crossing of the curves indicates lumping of the polyethylen in the reactor, which increases the pressure in the reactor and the energy consumption by the pumps because more energy is needed to pump the finished product out of the reactor. Next to the process recorder, a piece of paper is taped to the control panel, stating critical values for these two parameters, distinguishing between values when the shift supervisor has to be informed and when the process has to be stopped. Stopping the process implies the immediate emptying and rinsing with water of the reactor and an interruption of production for several hours.

An hour later during the observation, the curves do indeed begin to move towards each other. The panel operator notices the change immediately and changes the set values for hexane after having checked a number of other process parameters and also having verified the set values for hexane in the standard operating procedures. This action causes the process control system to reduce the influx of hexane which reduces the pressure in the reactor due to a smaller volume of reacting substances. At the same time, the operator has informed the shift supervisor who leaves a meeting to join him at the control panel where he remains during the course of the process upset. The first actions taken by the operator have not been able to reverse the trend in the two parameters. Only after further reduction of hexane influx and faster emptying of the reactor the values turn back to normal.

In the fifteen minutes that this course of events takes, the curves displayed on the process recorder have briefly crossed. Trusting his own competence in handling the process upset and supported by the shift supervisor, the operator decided against stopping the process completely. Instead of causing a significant interruption of production, the operator succeeds in normalizing the process in the course of half an hour, with also the results from quality control being positive again a little while later. His shift colleague comments: „I definitely would have stopped the process completely“, but undertones of admiration for the other’s competence can be sensed.

Your task:
Did the operator act correctly? Why?
### Managing uncertainty in organizations
(Grote, 2004)

<table>
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<th>Minimizing uncertainties</th>
<th>Coping with uncertainties</th>
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<tbody>
<tr>
<td>• complex, central planning systems</td>
<td>• planning as resource for situated action</td>
</tr>
<tr>
<td>• reducing operative degrees of freedom through procedures and automation</td>
<td>• maximizing operative degrees of freedom through complete tasks and lateral cooperation</td>
</tr>
<tr>
<td>• disturbances as to be avoided symptoms of inefficient system design</td>
<td>• disturbances as opportunity for use and development of competencies and for system change</td>
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</table>

![Dependence / feedforward control](#) ![Autonomy / feedback control](#)

**Balance through loose coupling**

- Motivation through task orientation
- Higher order autonomy
- Flexible changes between organizational modes
- Culture as basis for coordination/integration

*Uncertainties may stem from the system environment and/or from the transformation processes within the system.*
## Mechanistic vs. organismic organisation

(Burns & Stalker, 1960)

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<th>Organismic</th>
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<tbody>
<tr>
<td>specialization / differentiation</td>
<td>functional integration</td>
</tr>
<tr>
<td>abstract and minutely defined</td>
<td>subtasks and roles with clear</td>
</tr>
<tr>
<td>subtasks detached from the overall</td>
<td>connection to the overall task</td>
</tr>
<tr>
<td>goal</td>
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<tr>
<td>vertical and unidirectional</td>
<td>lateral and reciprocal coordination</td>
</tr>
<tr>
<td>coordination</td>
<td></td>
</tr>
<tr>
<td>hierarchical structure for leadership</td>
<td>network for leadership and knowledge</td>
</tr>
<tr>
<td>and knowledge transfer</td>
<td>transfer</td>
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- **Routine**
  - effective for known processes in static environments

- **Innovation**
  - effective for new processes in dynamic environments

### Contingencies:
- Minimizing of uncertainty possible with few uncertainties
- Coping with uncertainty necessary with many uncertainties