

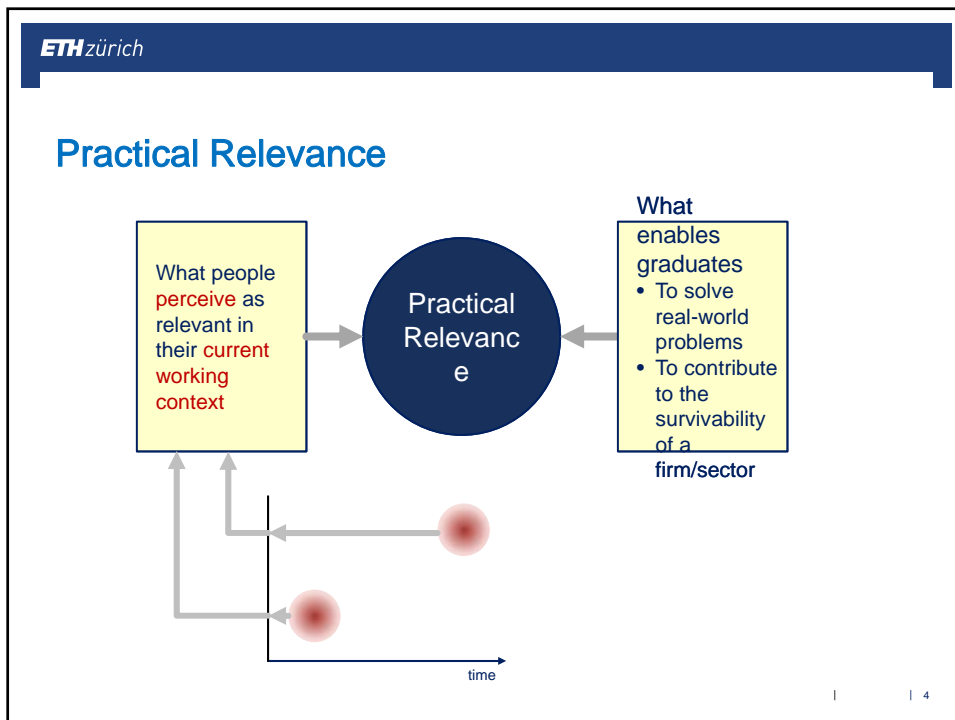
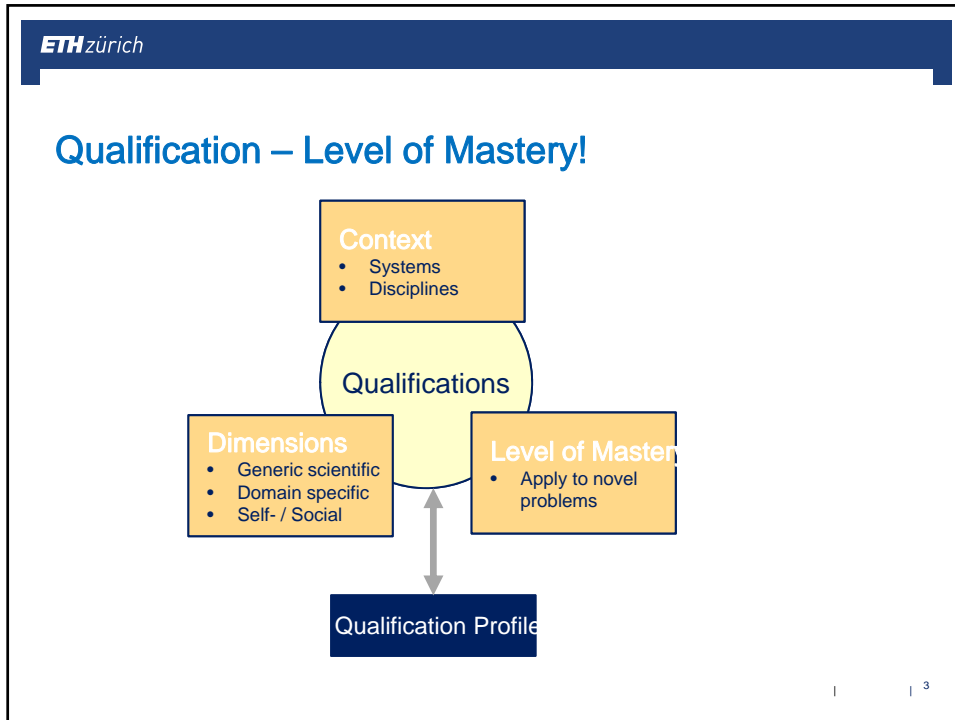


Qualification Profiles – Key to Design Outcome-Oriented Educational Programs

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Outline

- Create a joint understanding of concepts
- Share a systems view on the T&L system
- Present a systemic Q-Profile development process
- Share examples of Q-Profiles



Quality – an ISO 9000 Perspective

degree to which a set of T&L system-inherent characteristics fulfills competence requirements and expectations

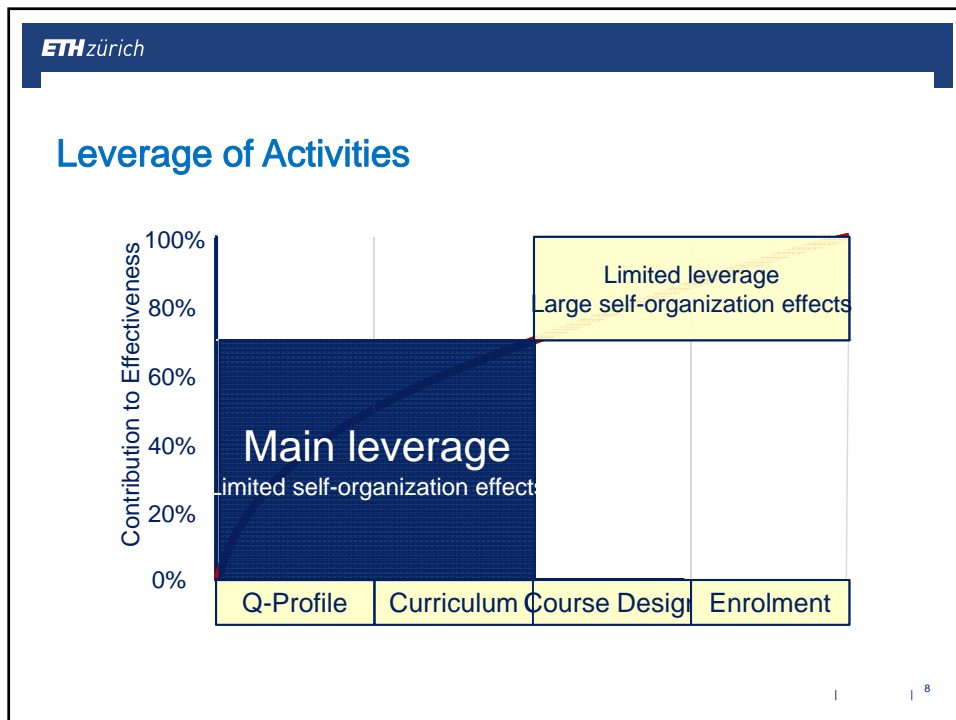
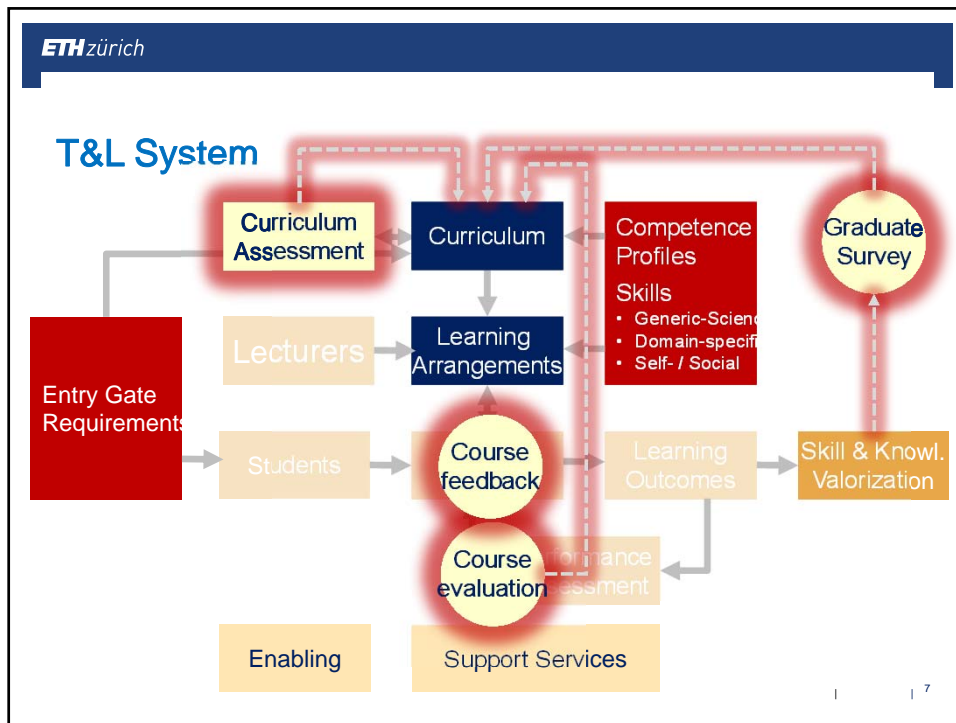
- How do we define competence requirements and expectations?
- What are the T&L system-inherent characteristics?

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The levels of mastery (Bloom, modified)

6	Integrate, innovate, create	apply concepts between knowledge systems and create new concepts, methods, procedures, processes, or products	Meta-cognitive knowledge
5	Transfer, adapt [MSc Proficiency]	explore, discover, and assess solutions for novel, complex, ill-structured problems by applying general concepts and methods	Implementation and transfer knowledge
4	Analyze, Evaluate	Analyze, justify or criticize courses of action, scientific findings, or states of systems	Orientative knowledge (value systems, preferences, standards)
3	Apply	choose from a variety of methods and concepts to solve specific, well-structured problems	Procedural knowledge
2	Understand	Use methods in guided practice	Conceptual knowledge
1	Remember	State a rule or concept from memory	Factual knowledge

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Why Learning Outcomes?

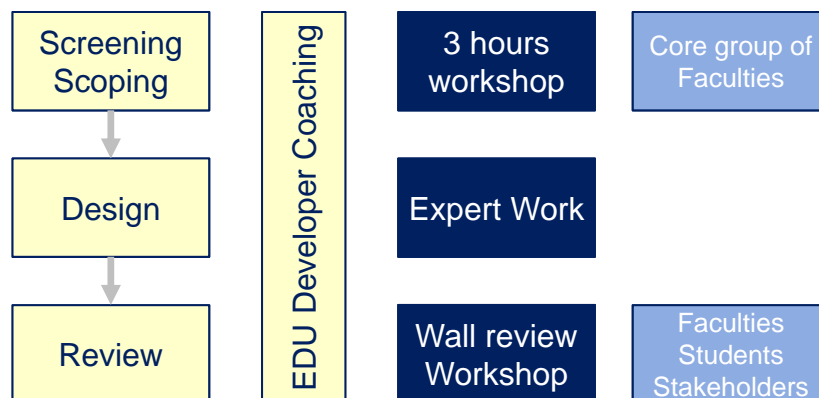
Challenges

1. Comparable competences
 - Independent of institution, program
 - Differentiation of degree programs
 - Communication to prospective students, employers
2. Exponential growth of knowledge
 - Doubles every 15 years, in emerging fields every 5-7 years
 - It is no longer possible to teach the whole body of knowledge of a discipline

Consequences

1. Program description with a set of qualifications
 - «what knowledge, skills and attitudes does a learner demonstrate?»
2. Design learning activities for outcomes
 - «make more out of less»
3. Design examination system for outcomes
 - «Instructional alignment»
4. Life-long learning is part of the education
 - «continual learning and improvement»

Qualification Profile Development Process



Screening - Domain-specific competences

Questions

Notes

1. What systems does the program deal with?

2. What structures and processes do graduates have to understand?

What processes has a graduate to understand, model, manipulate, control or design on a proficiency level?

3. What part of the domain-specific history of thought does a graduate have to reflect to understand the present guiding paradigm?

4. What practices and codes of conduct of the relevant professional and scientific communities does a graduate have to understand?

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Q-Profile – Forest and Landscape Management

Generic scientific skills

1. Conceptualize, design and run **observational studies**, statistically analyze the gathered data, present and discuss the results to both experts and educated lay people.
2. Develop a system of requirements, measures of performance, and constraints based on user and stakeholder needs and expectations.
3. Conceptualize, represent and analyze a complex problem for a set of objectives to identify optimal or near-optimal solutions with the use of quantitative methods.

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Q-Profile – Forest and Landscape Management (2)

Domain-specific skills

1. **Acquire, integrate, manage, and analyze spatial data** sets to solve problems at large spatial scales
2. Quantitatively **characterize and model terrestrial systems** and subsystems (plot to landscapes scale) in terms of function, behavior, development, and flow of energy, matter, and the genes.
3. **Assess and spatially explicit optimize management schemes** to control the development of ecosystems for required sets of ecosystem goods and services and for robustness (resilience)
4. **Assess land-use systems and land-use operations** in terms of eco-efficiency, corporate responsibility and institutional compliance.
5. **Plan, implement, and coach collective decision processes** related to natural resource management issues, addressing decision problems that are only dimly perceived or vaguely understood by participants and stakeholders.
6. **Assess the effectiveness of and the efficiency of land-use policy instruments** and formulate policy briefs for policy improvement or change.

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Biotechnology – Self- and social skills

Graduates will:

- Continually screen, assess and critically evaluate novel research results in the area of biotechnology to update their scientific knowledge,
- Communicate concepts, ideas and problems of biotechnology to both specialist and lay public audiences.
- Plan projects in an international setting and demonstrate leadership in implementing and controlling them to meet performance, time, quality, and cost requirements,
- Critically reflect possible ethical, social, environmental, economic and public acceptance implications of their scientific and industrial work

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Lokhoff, et al. 2010 [\[www link\]](#)

Tuning
Tuning Educational Structures in Europe
A Guide to Formulating Degree Programme Profiles

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Bologna Dream

dream

- National Qualification Framework
- Easily readable and comparable degrees
- Two main cycles (Bachelor, Master)
- Learning Outcomes
- European Higher Education Dimension
- ECTS credit system
- EC TS
- European Quality Assurance (ENQA) bureaucracy
- QA agencies
- Mobility
 - Degree (vertical)
 - Credit (horizontal)

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