The Key Factors Behind Effective Use of University Laboratories

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Objective of the research

• to identify the user-centered key factors of effective laboratory use in universities

• long term mission: to study user-centered laboratory and campus development holistic way
  -> to support collaborative workplace management practises via research
Research questions

• 1: What are the key factors for effective use of university laboratories (-> user-dominant perspective) ?

• 2: What is behind key factors (in details) ?

• 3: What was felt critical for effective use of laboratories in users mind / and what was not ?
Method

• qualitative research/user-centered approach

• empirical data was collected from three Finnish campus renovation projects 2011-2013 (natural science labs)

• 9 individual interviews, 16 group interviews, 14 thematic workshops, three web based surveys, observation, benchmark

• inductive content analysis was used to build pre-conceptual model of the phenomenon
Results 1 (pre-concept)

• key factors for effective use of university laboratories based on this study (not in priority order):

1. The ways of using the labs (-> ways of working)
2. Security
3. Spaces
4. Equipment
5. Tools
6. ICT-systems
7. Logistics
8. Sample management
9. Laboratory support services
10. Administrative services
11. Space services (FM/CREM)
12. Other services (campus/business/wpm…)

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Results 1 (in clusters)

- key factors for effective use of university laboratories based on this study (nature of the factors):

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<th>core work</th>
<th>tools</th>
<th>services</th>
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Results 1

• Some factors can be seen as part of the core work or services depending on university policies and practices

• Benchmark: In private sector buying services (like the whole laboratory as a service) is more common than in universities
Results 2 (some details)

• One of the teaching laboratories was used 50 hours a year. No coordination to curriculum. No collaboration with other units -> very expensive spaces (same time more research laboratory spaces was needed but were not possible to get).

• The number of staff and people working in the campuses varied 25-35 % depending on who was answering. When measuring the utilization rate and the costs of the spaces the impact of inaccurate numbers makes campus development work difficult.
Results 3 (what´s in mind)

• **Time management** and practical every day matters are in the top of laboratory users mind

• More time consuming but critical issues for work performance are felt important

• Big scale/very much time consuming and complex non-scientific matters are seldom in mind (not found from the data) -> challenge to FM/CREM projects
Practical Implications

• Better (mutual) understanding of laboratory users demands supports efficient collaboration between stakeholders when developing campuses

• Research offers "new" demand for project management: -> time management from the user perspective

• For FM/CREM industry the pre-concept of the lab-user demands offers possibilities to develop better focused and balanced services for laboratory workplaces
Conclusions/Discussion

• The key factors of efficient use of laboratories as a holistic system are not very well known

• Laboratory as an instrument impacts directly to the quality of teaching, learning and science

• More research and pilot projects are needed: the concept of effective use of laboratories does not deliver value for users (directly)
  -> the details "in the end of the path" are crucial for the users and science/business