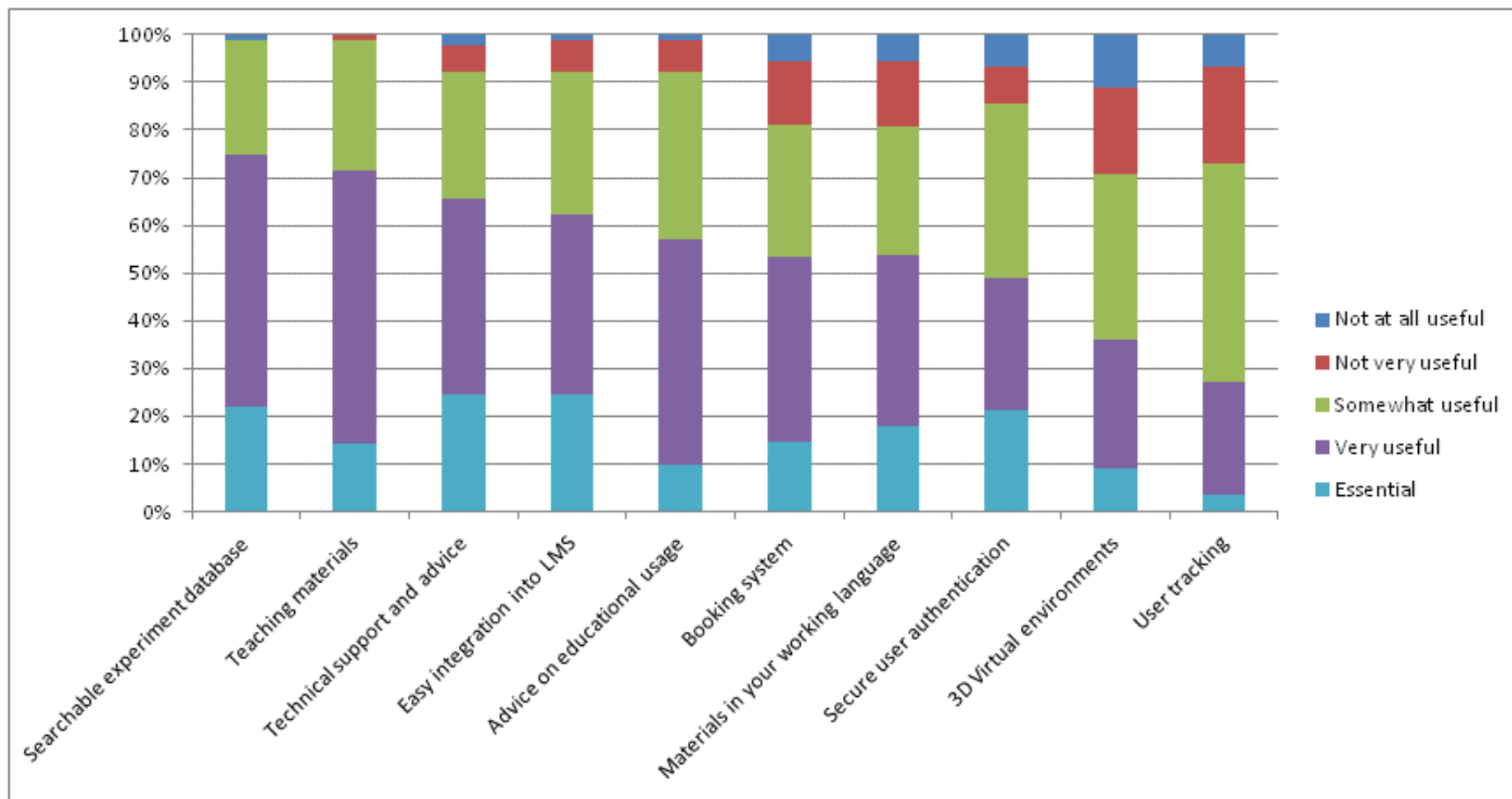




# The Sharing of Online Laboratories Beyond Technology

David Boehringer  
July 6th 2012

# Tools and Services of the LiLa Portal





# The Sharing of Online Laboratories – Beyond Technology

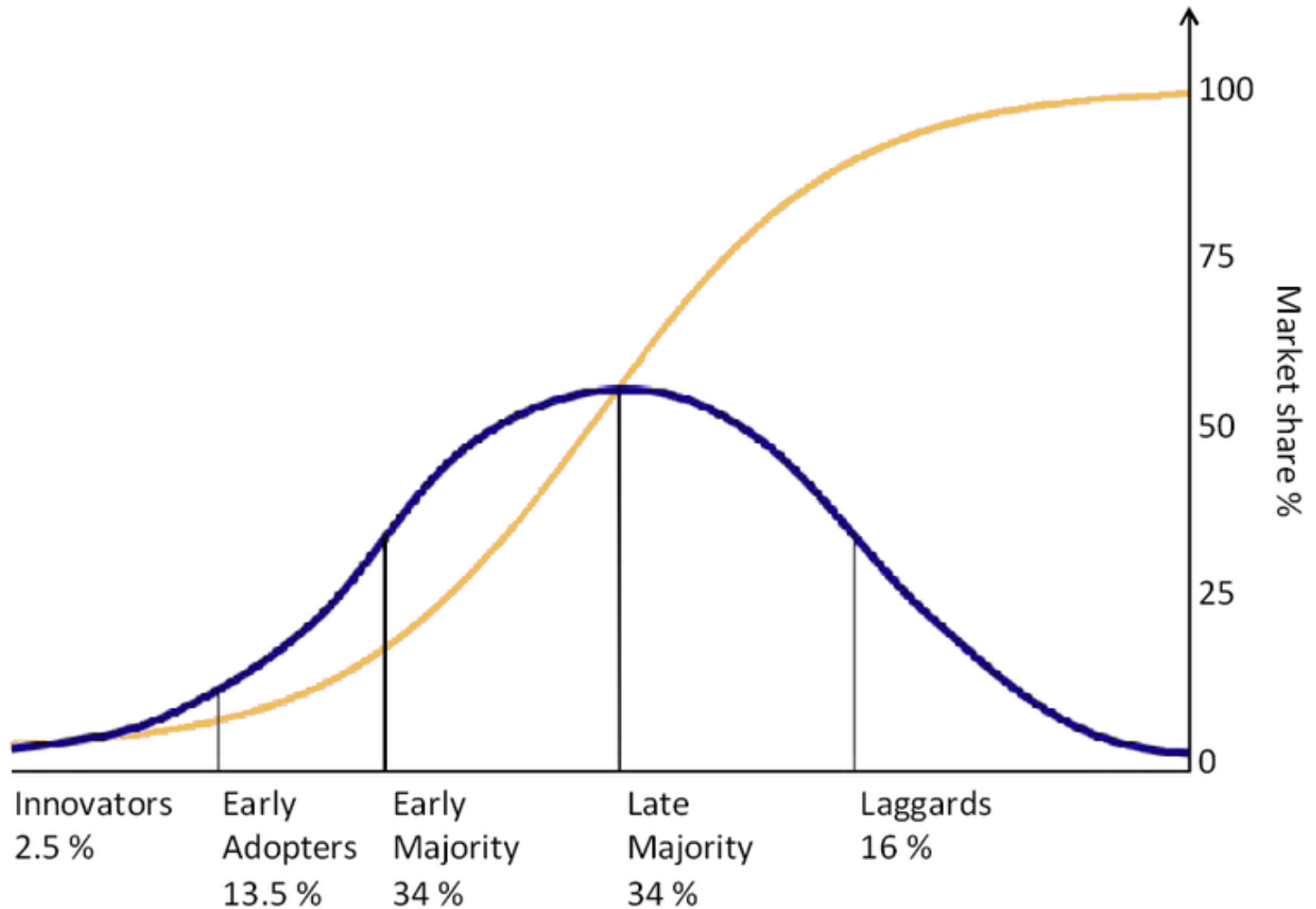
- 1. Introduction**
- 2. Current Situation**
- 3. SWOT analysis**
- 4. Measures and future strategies**



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1. Introduction
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# The Diffusion of Innovations According to Rogers





# The LiLa Questionnaire

**Date of enquiry:** October and November 2010

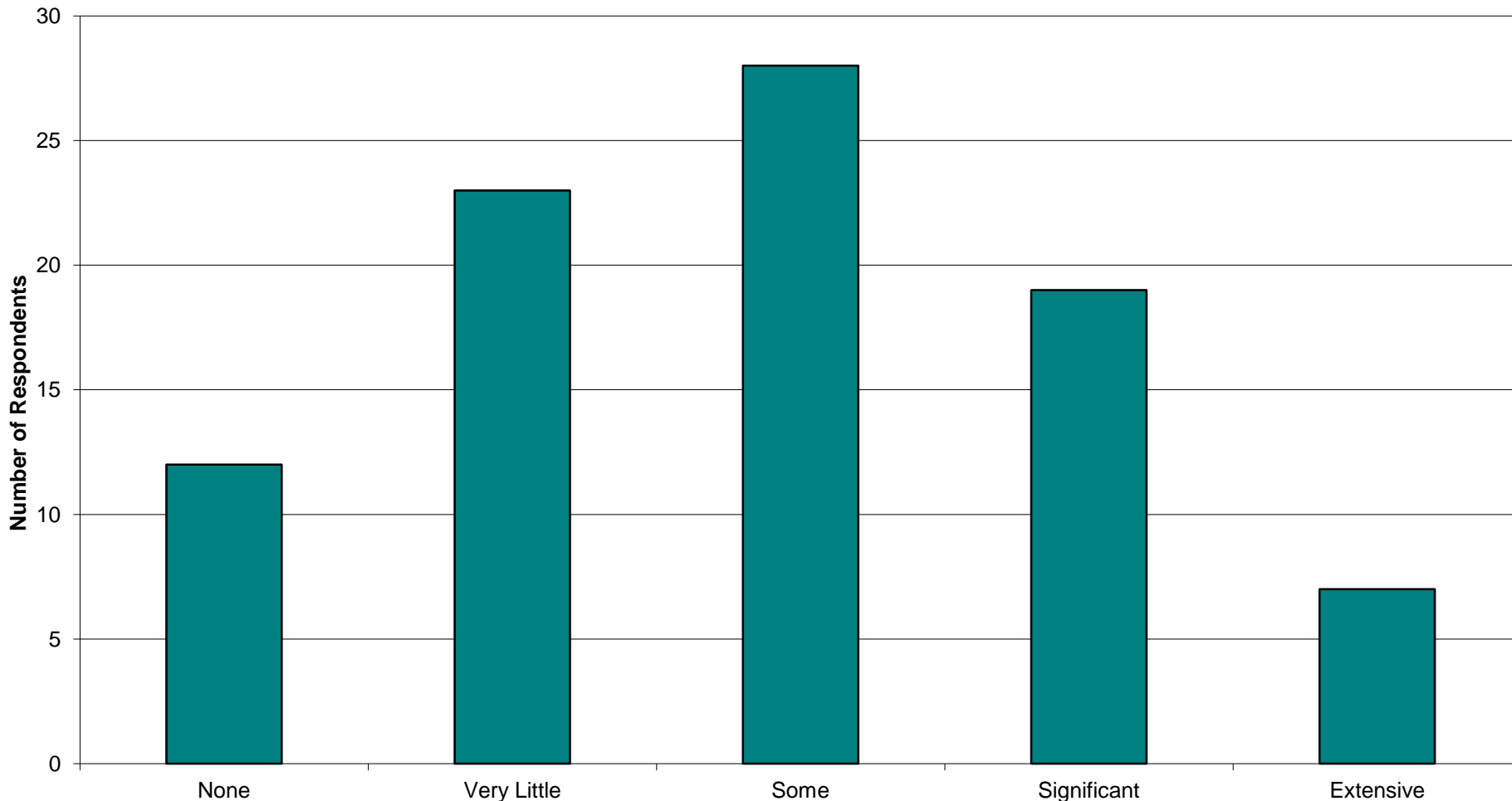
**Participants:** 92

**Geographical range:** 50% from Greece and Germany, the others from different European countries

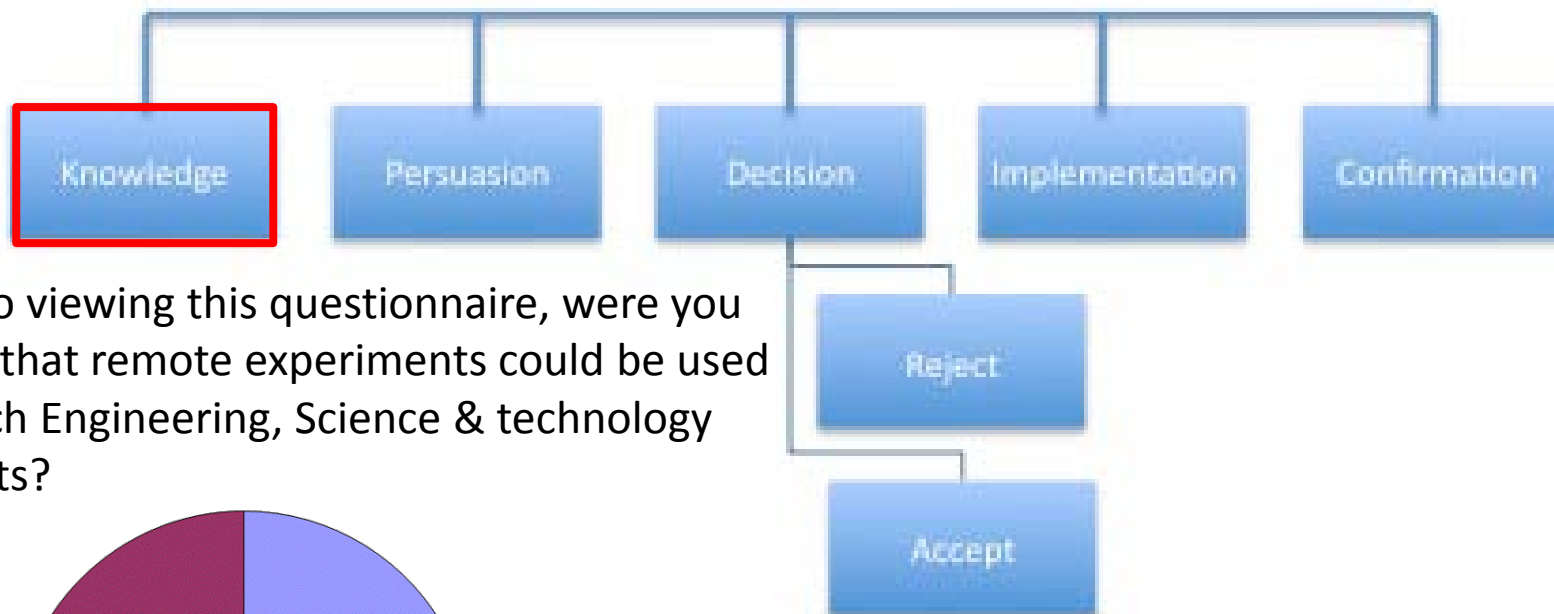
**Aim:** Assess user interest in the usage of online laboratories and demand for an infrastructure for sharing laboratories



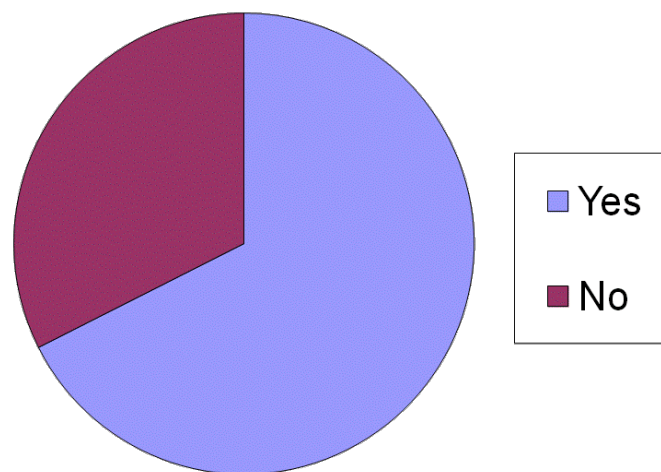
# How much knowledge or experience would you consider yourself to have regarding the use of virtual experiments/simulations to teach Engineering, Science and technology subjects?



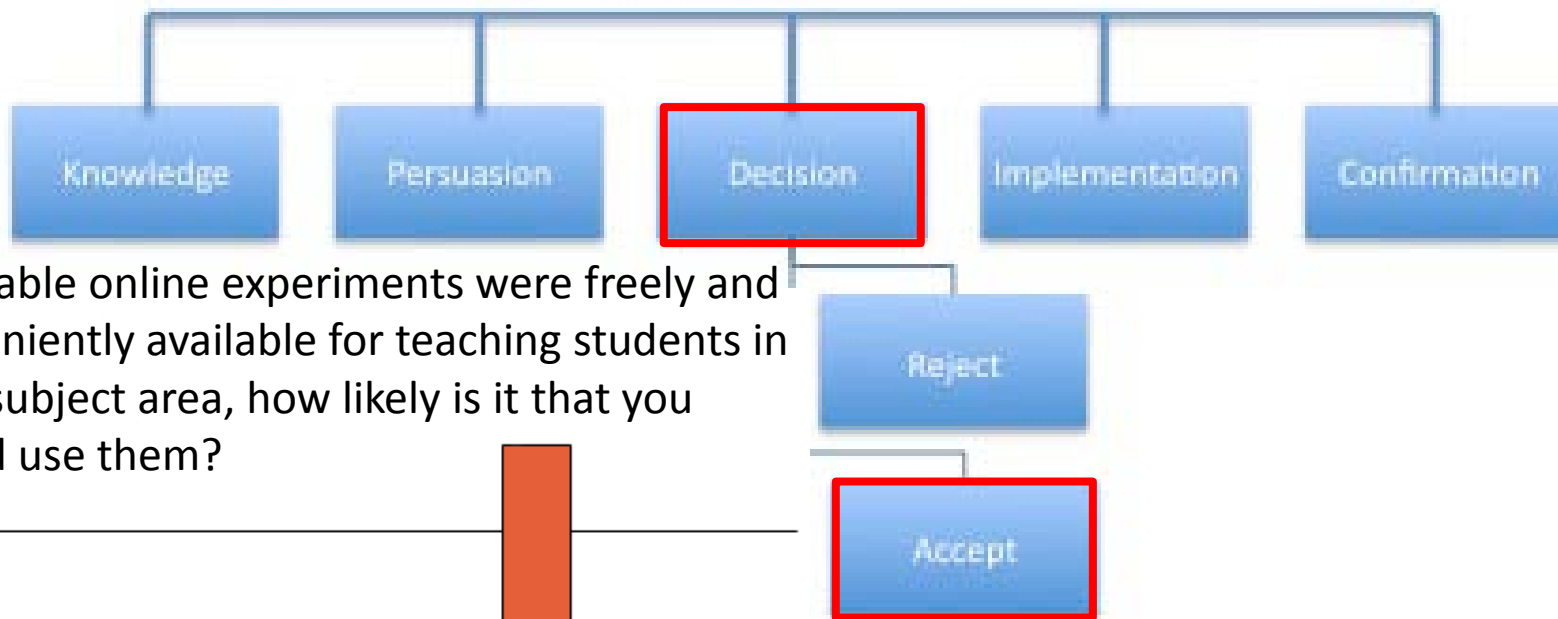
# Five Stages in the Decision Innovation Process



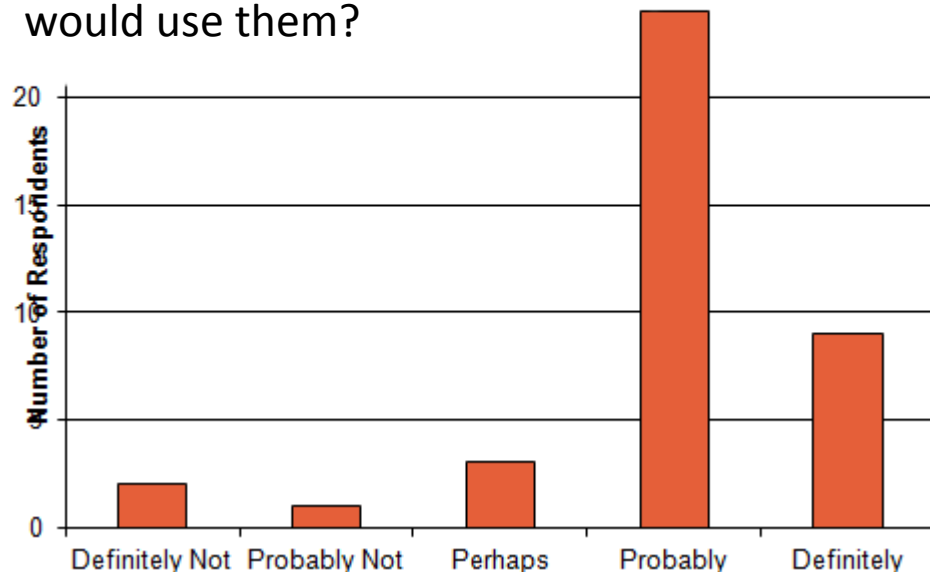
Prior to viewing this questionnaire, were you aware that remote experiments could be used to teach Engineering, Science & technology subjects?



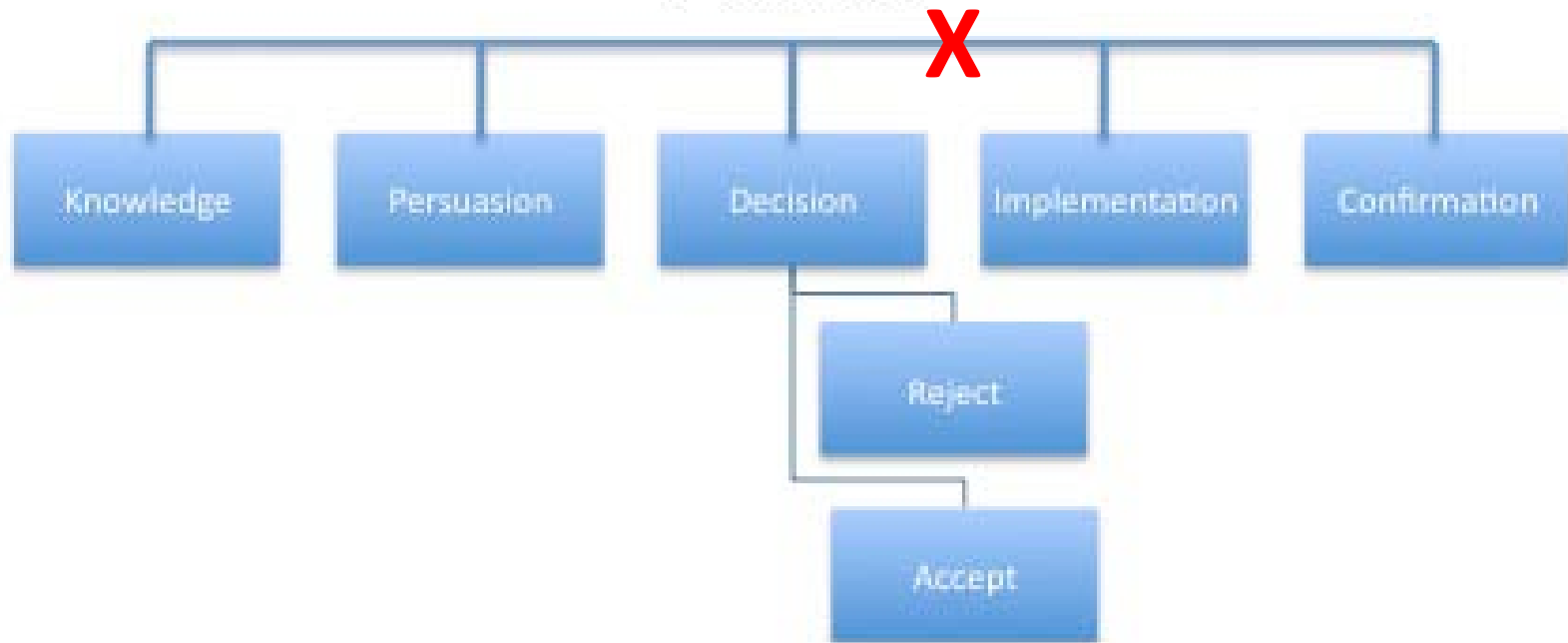
# Five Stages in the Decision Innovation Process



If suitable online experiments were freely and conveniently available for teaching students in your subject area, how likely is it that you would use them?



# Five Stages in the Decision Innovation Process





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## SWOT Analysis

**internal**

**S trengths**

**W eaknesses**

**external**

**O pportunities**

**T hreats**



## Weaknesses of Online Laboratories

**Time effort**

**Reliable availability**

**Technological reliability**

**Support**

**Restricted interactivity**

**Weak integration in providing universities**



# Strengths of Online Laboratories

**Accessibility**

**“Second best to being there”**

**Good learning success**

**Easy usage**

**Excellent preparation of hand-on labs sessions**

**Positive feedback from students**

**Image of innovative technology**

**Collaboration with companies**

**Devoted community**

## Threats for Online Laboratories

Structural obstacles: maxim „publish or perish“

Prejudices:

“Online labs keep students away from ‘real’ labs”

“Better learning success must be proven”



## Opportunities for Online Laboratories

Bologna Process with discussion  
of learning objectives

Attract young people to science  
and engineering



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## Measures Against Weaknesses and Threats

Time effort

- Support exchange of “teaching materials”

Reliable availability

- Use booking systems

Technological reliability

- Get rid of plug-ins

Scientific reputation

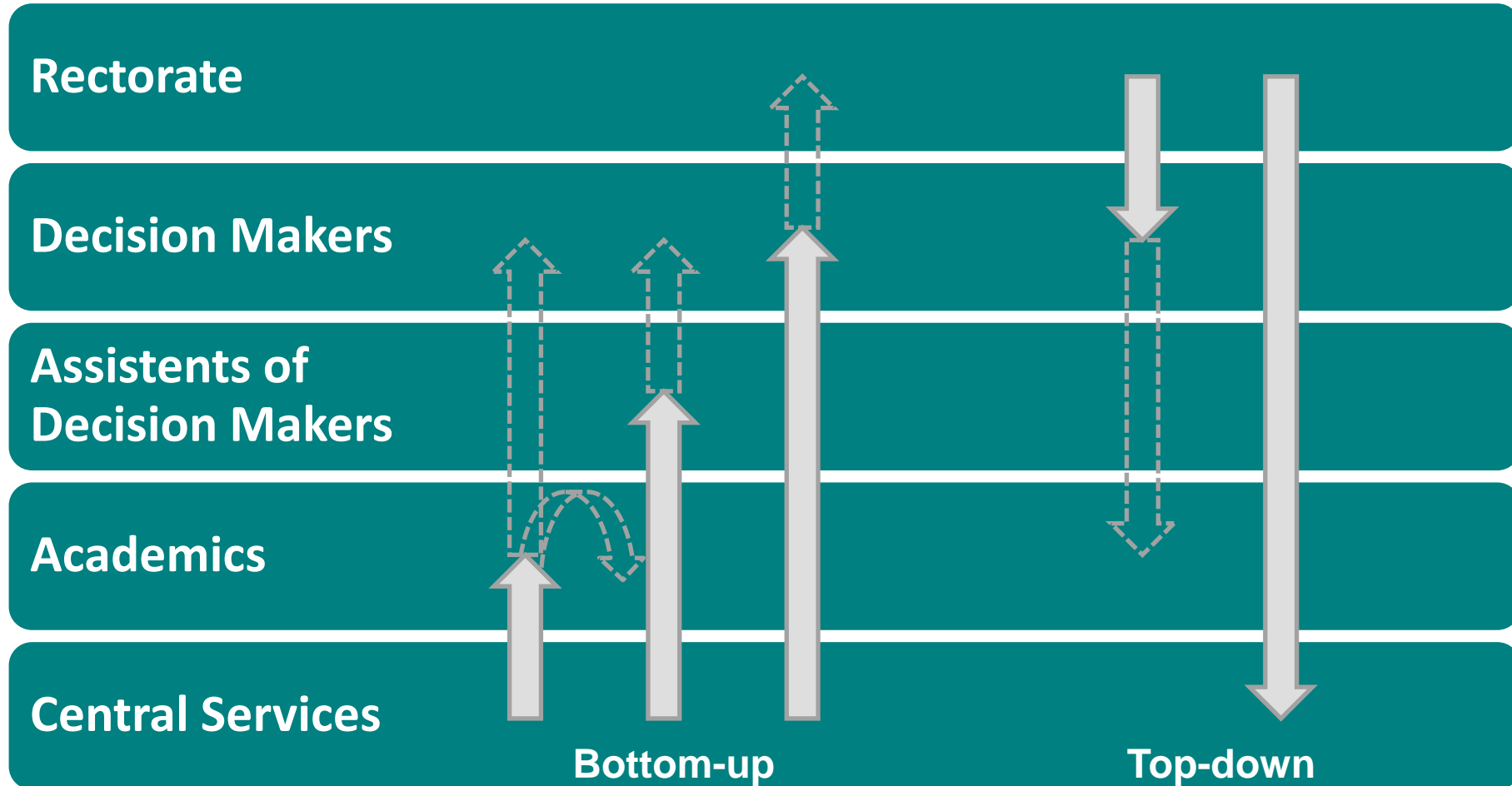
- Make online experiments quotable in publication lists

Prejudices

- Tilt at windmills



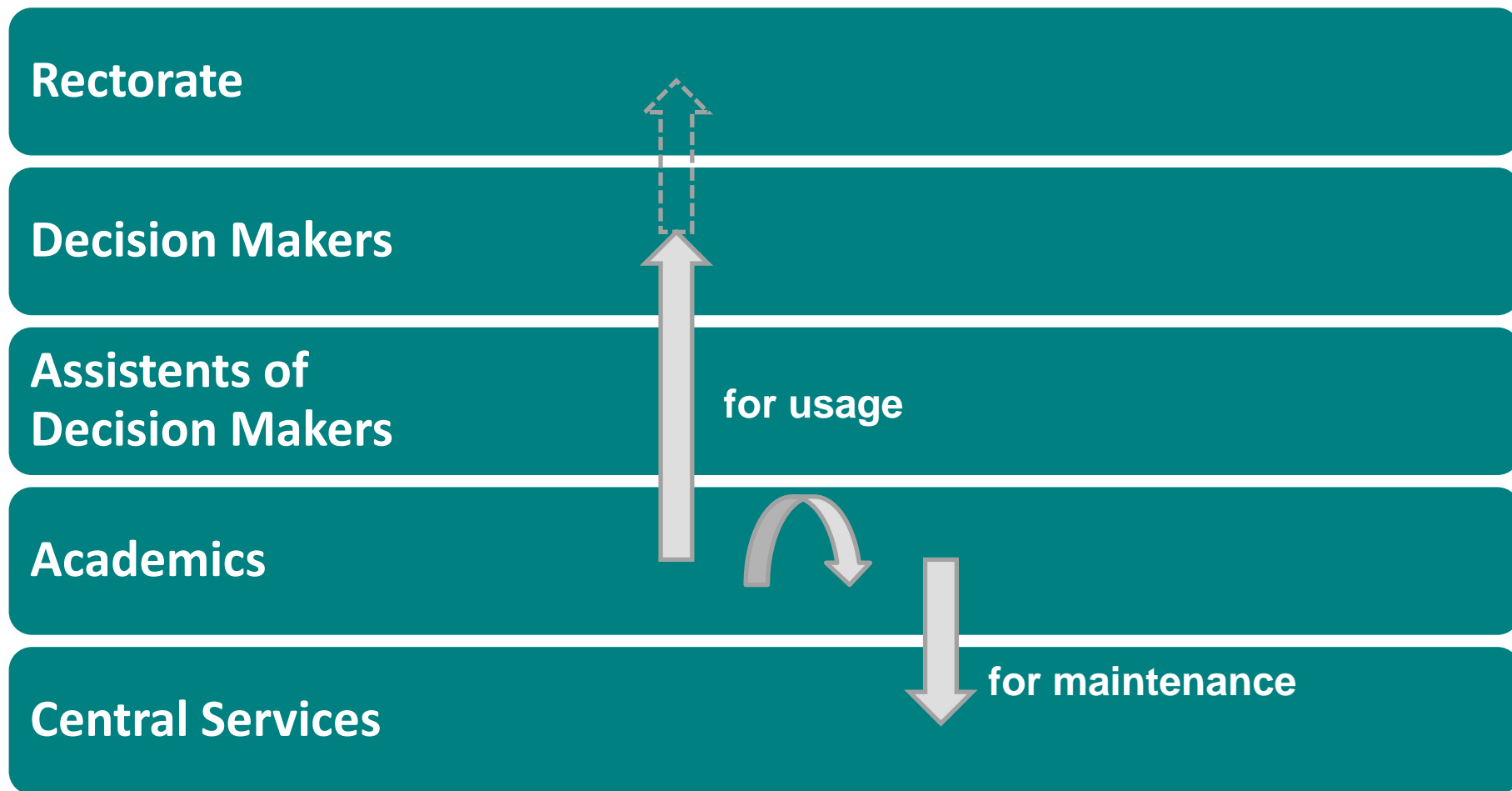
# Diffusion of eLearning in Universities: LMS



Boehringer, The Sharing of Online Labs – Beyond Technology

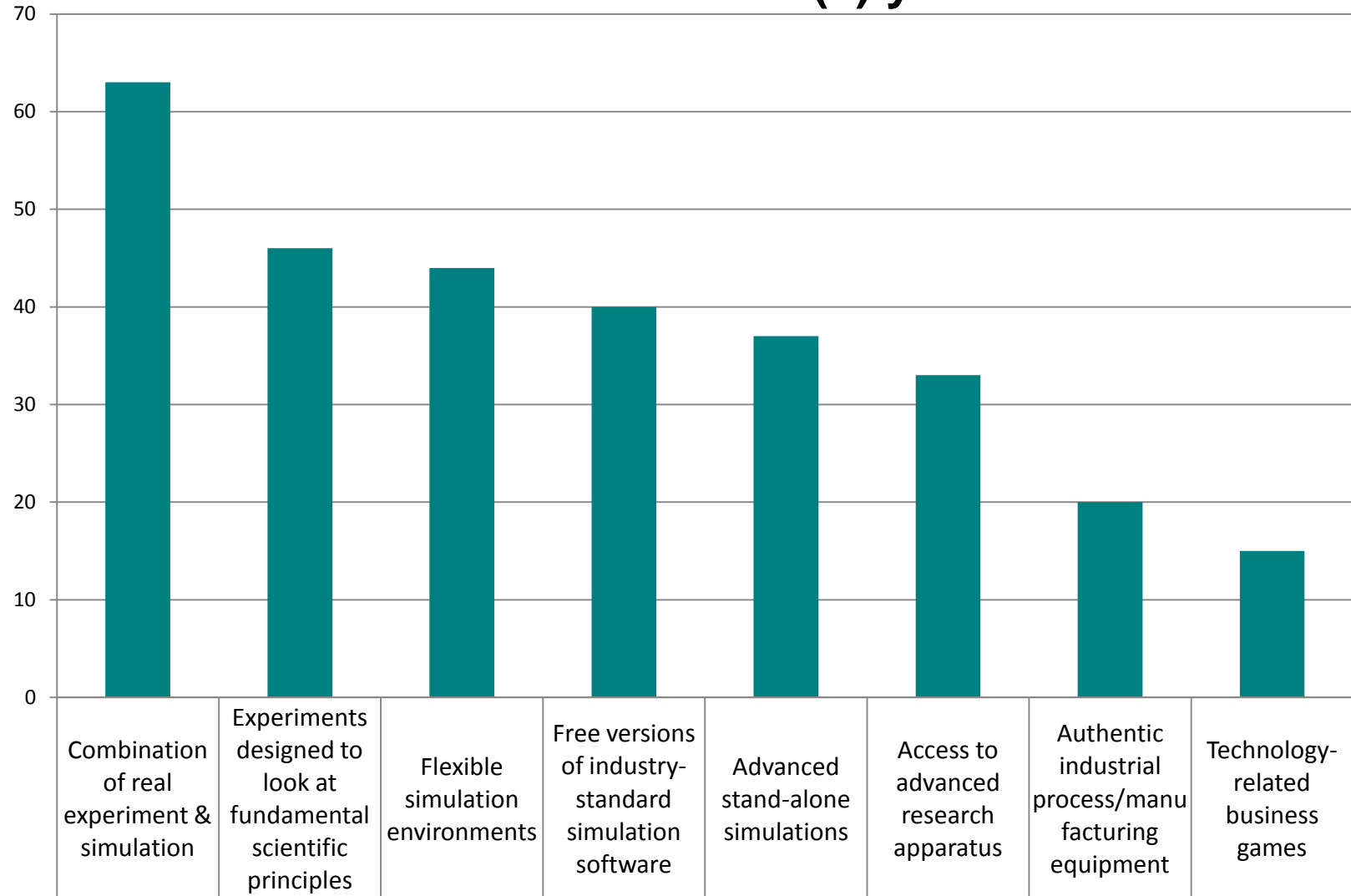


## Possible Diffusion of eLearning in Universities: Online Laboratories





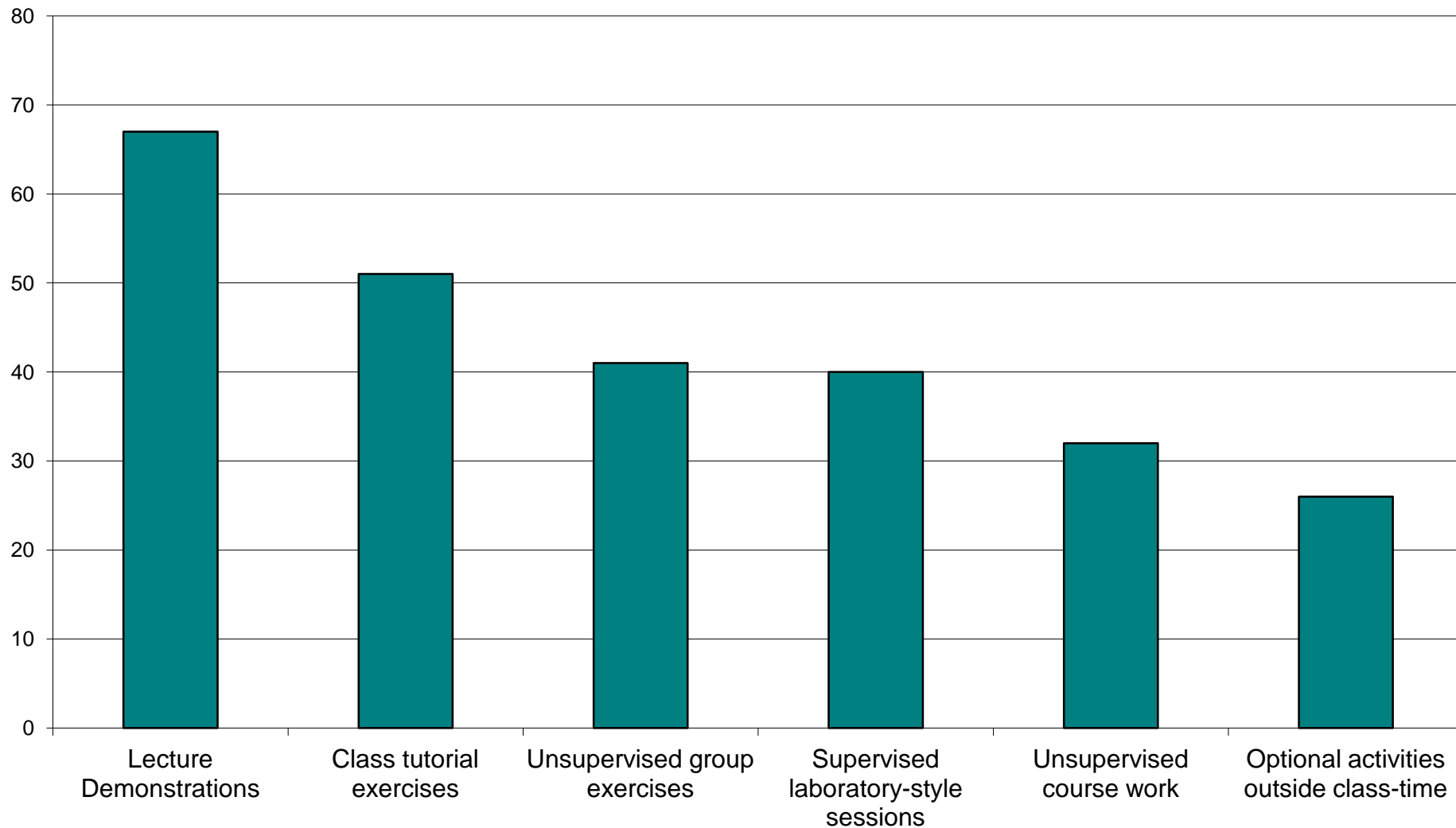
# What categories of online experiment or activity would be useful additions to the course(s) you are involved in?



Boehringer, The Sharing of Online Labs – Beyond Technology

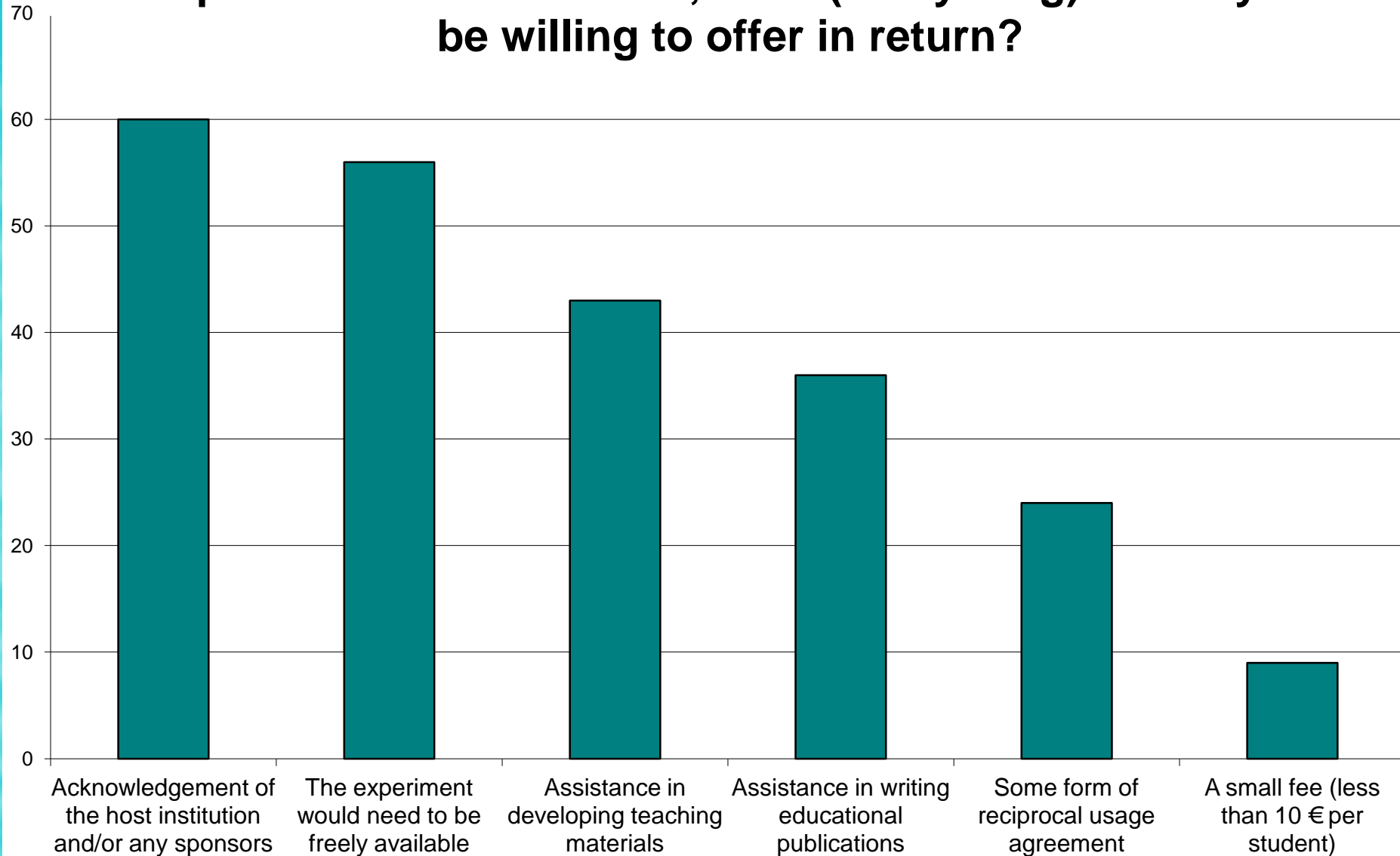


# In what way(s) would you envisage using online experiments at your institution?



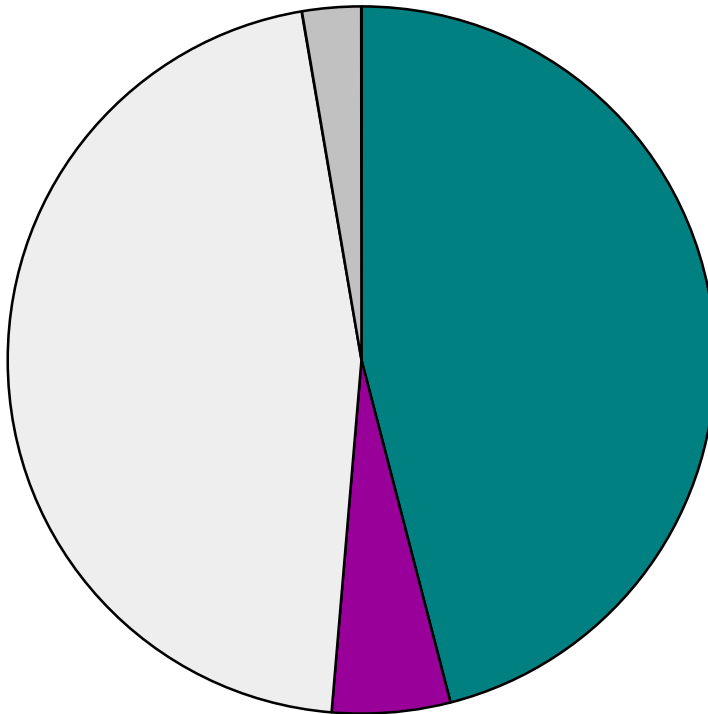


# Assuming that the value delivered by the online experiment was sufficient, what (if anything) would you be willing to offer in return?

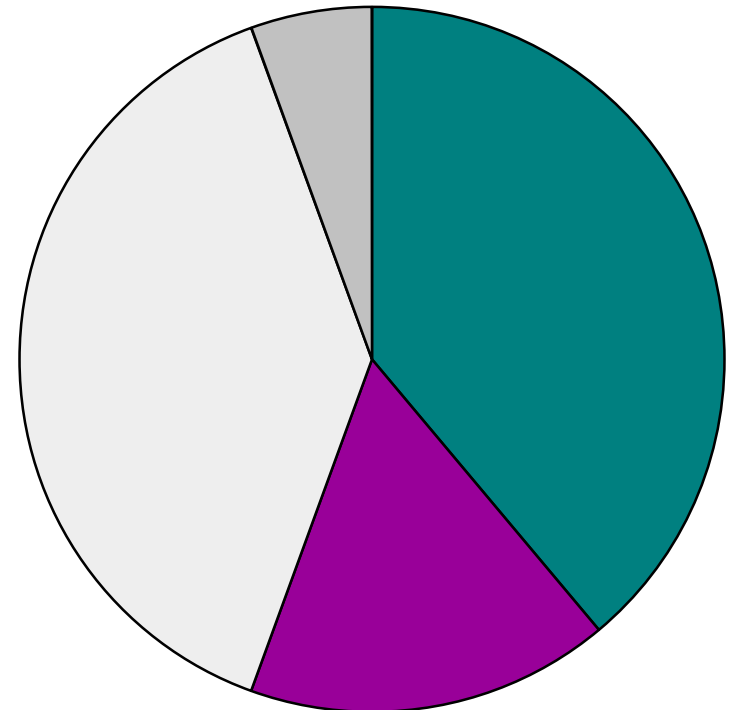


# Would you prefer online experiments to be provided directly by the host institution, or via a service broker?

Early Adopters



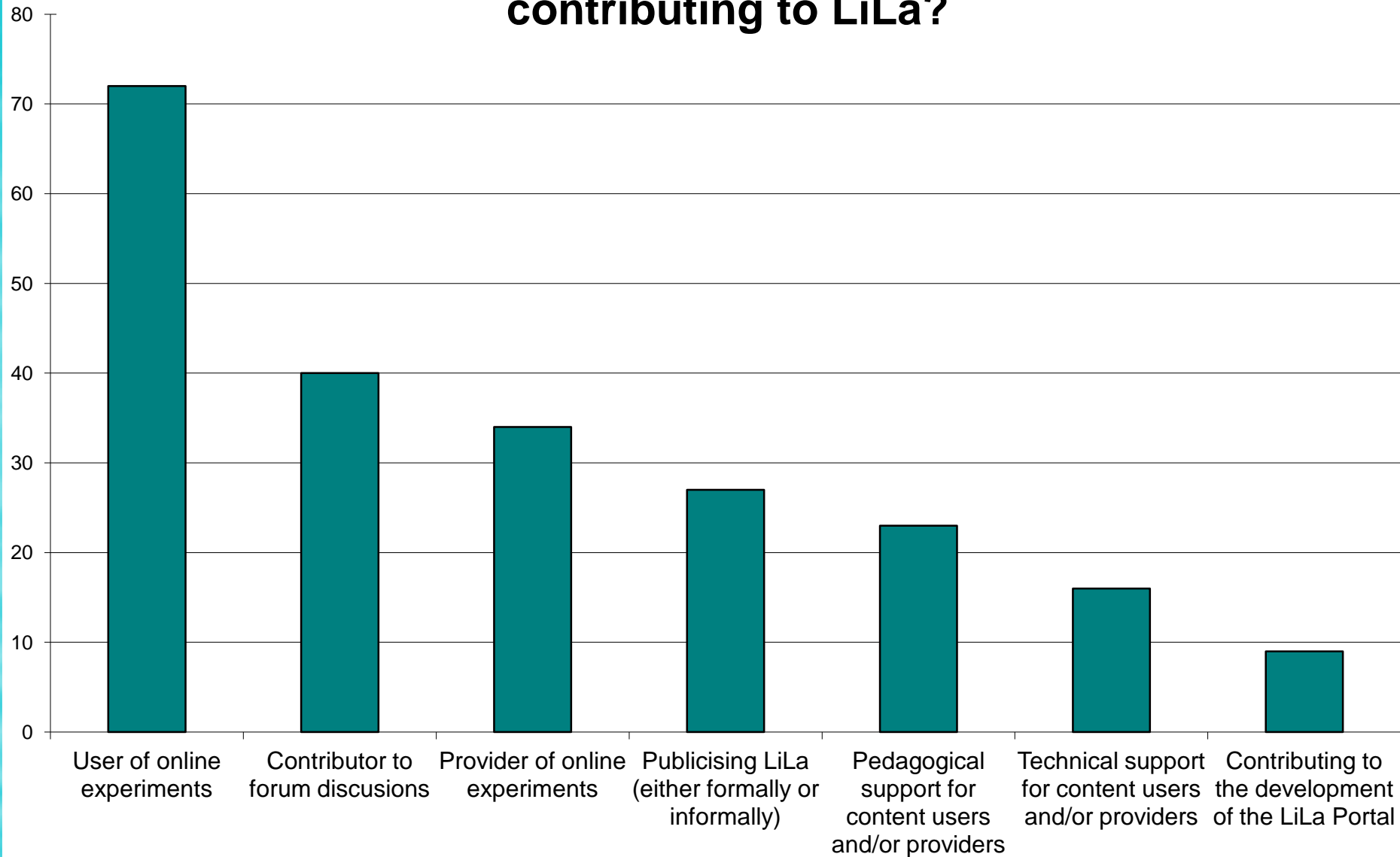
Content Provider



- Directly
- Via service broker
- No strong preference
- Depends on what the service broker offered



# In which capacities would you envisage yourself contributing to LiLa?





## Preparations for the Future

1. Prepare information material
  - a. Matrix of ABET criteria and lab types
  - b. collection of evaluation reports
  - c. good practice examples
2. Offer exemplary experiments
3. Aim for common infrastructure and interfaces
4. Conduct projects with view for the whole
5. Start information campaigns in universities!