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**Requirements for the degree programmes of the future in the  
STEM field - analysis of surveys among pupils, students and  
employers in the public sector**

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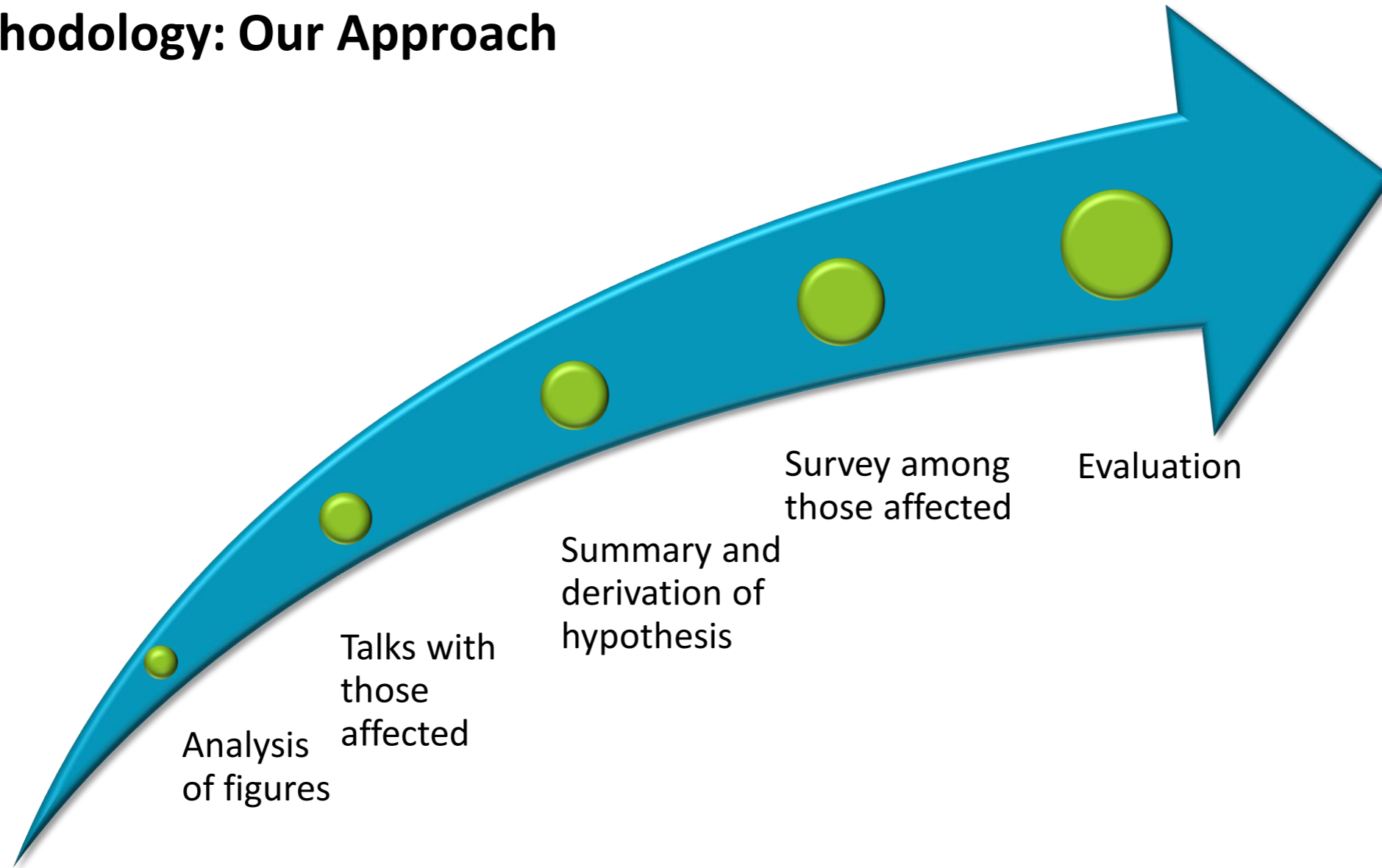
Tag der Lehre, 13.02.2024, St. Pölten

Dipl.-Inform. Anke Lohbeck / Dipl.-Päd. Karsten Strauch

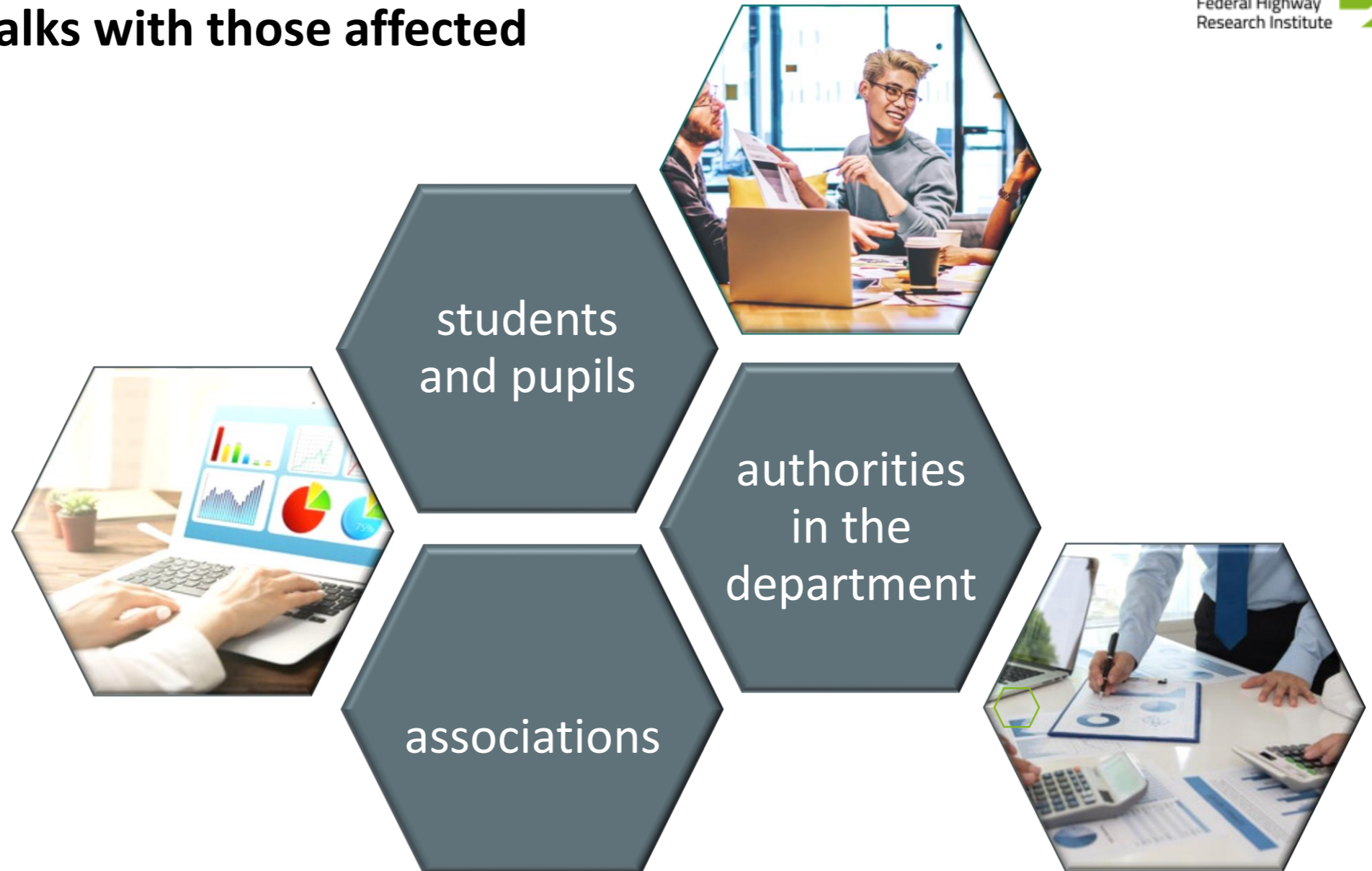
# Who we are and what we want



## Methodology: Our Approach



## Methodology: Talks with those affected



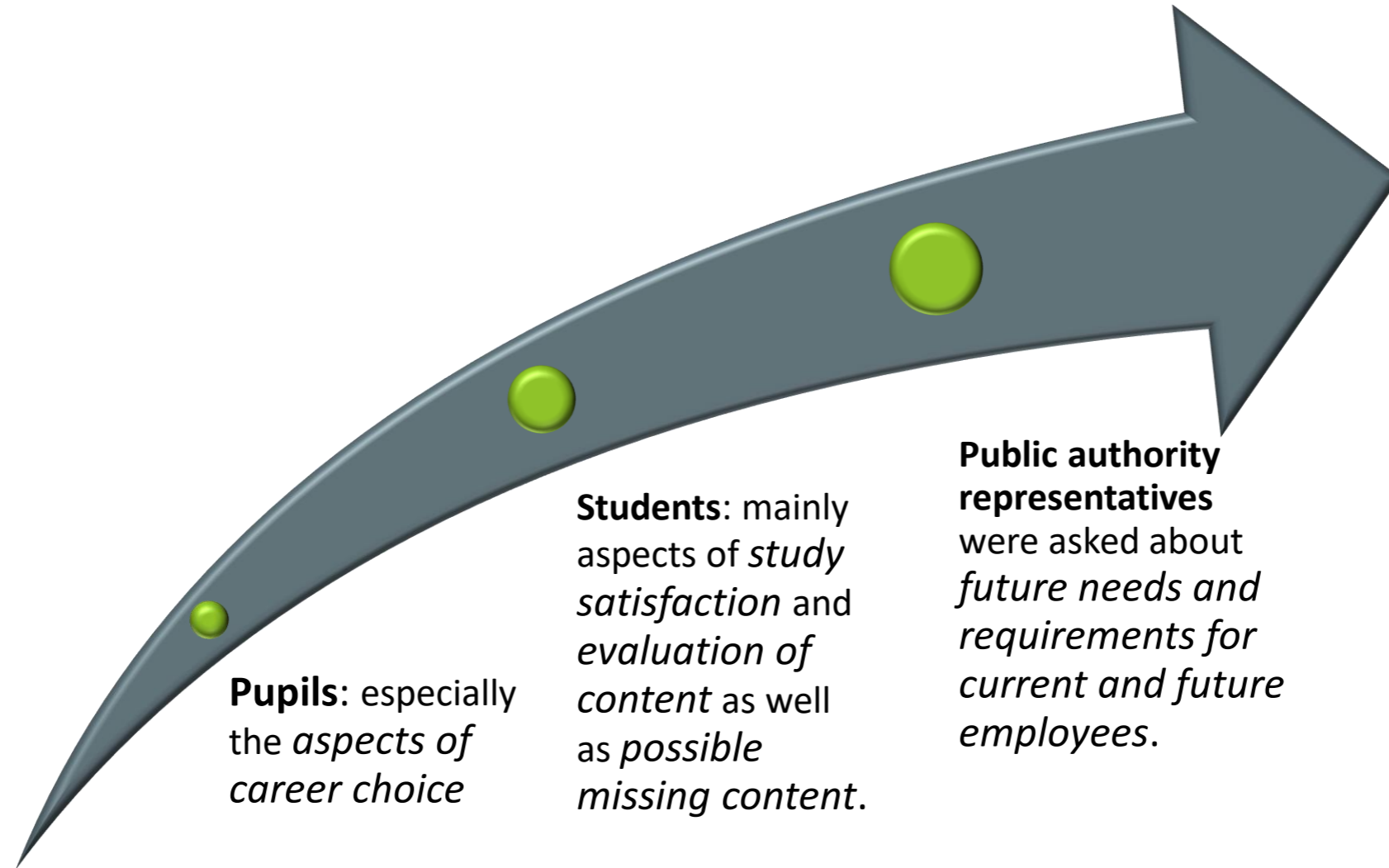
## Methodology: Summary and Derivation of Hypothesis

Measures to date do not lead to a significant improvement of the shortage of skilled workers in the field of engineering

- Expansion of degree programmes has not brought an increase in students
- Expanded range of studies does not lead to sufficient competences of graduates
- Low satisfaction of students / employers with regard to success-oriented criteria (connectivity)
- Up-to-date knowledge that needs to be constantly adapted is no longer expert knowledge for a few but relevant for *all* graduates
- There is no coordination between all stakeholders involved

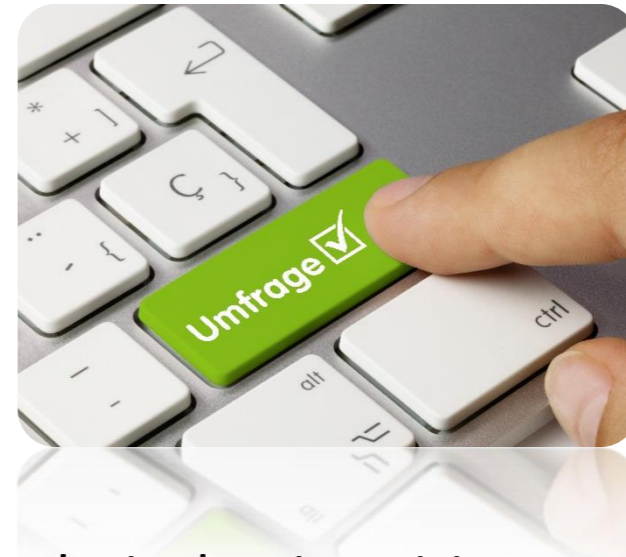


## Methodology: Survey among those affected



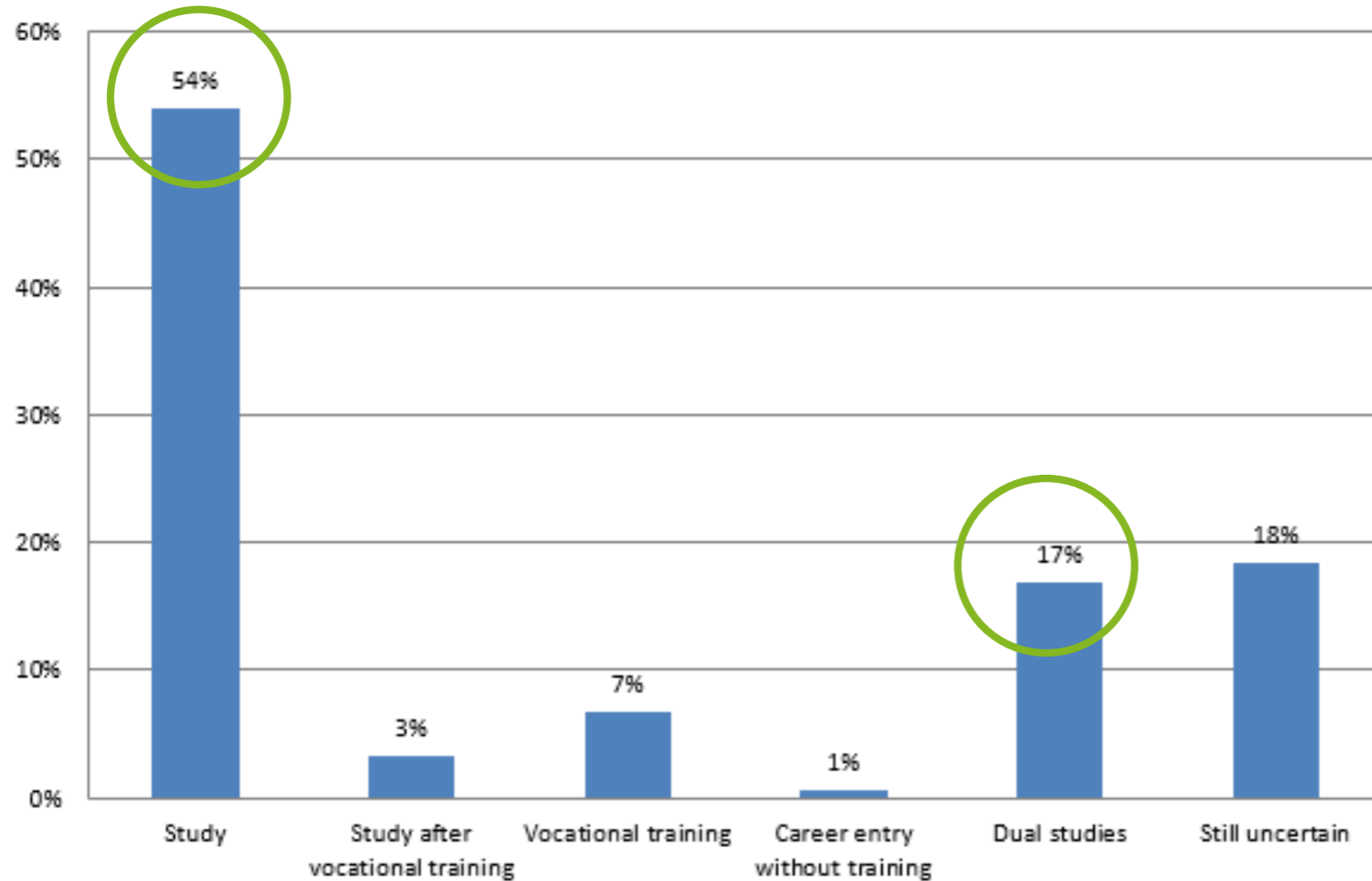
## Methodology: The Database

- 691 school leavers
- 28 schools
- 244 students
- 60% at technical universities, 37% at universities, 3% at technical universities or universities of applied sciences
- 63% Bachelor students and 37% Master students
- 48% civil engineering, 36% traffic engineering, 5% environmental engineering, 3% industrial engineering, 1% geodesy/geoinformatics. 8% others
- 97 participants in 25 authorities
- 2/3 of them have personnel responsibility.



More than 1000  
participants in all  
three nationwide  
surveys

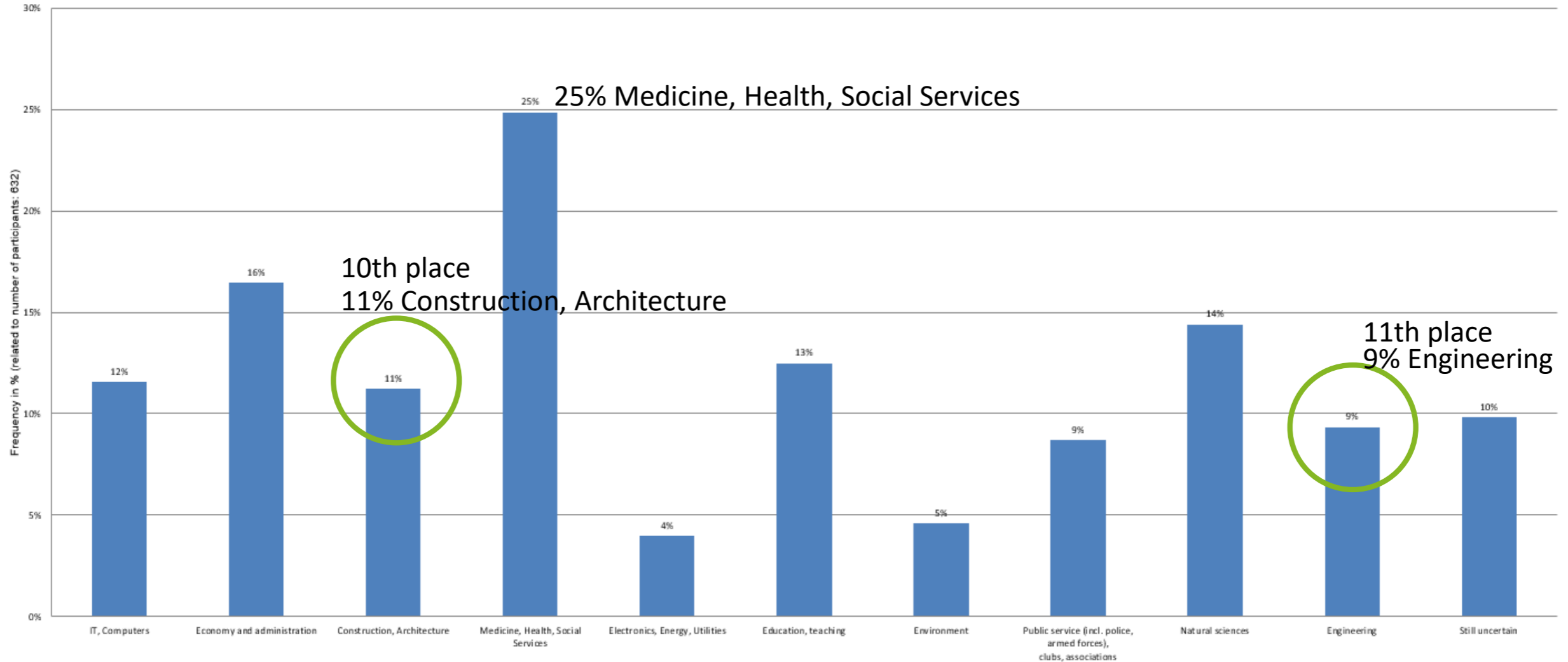
## Results: Pupils: What are your educational aspirations after school?



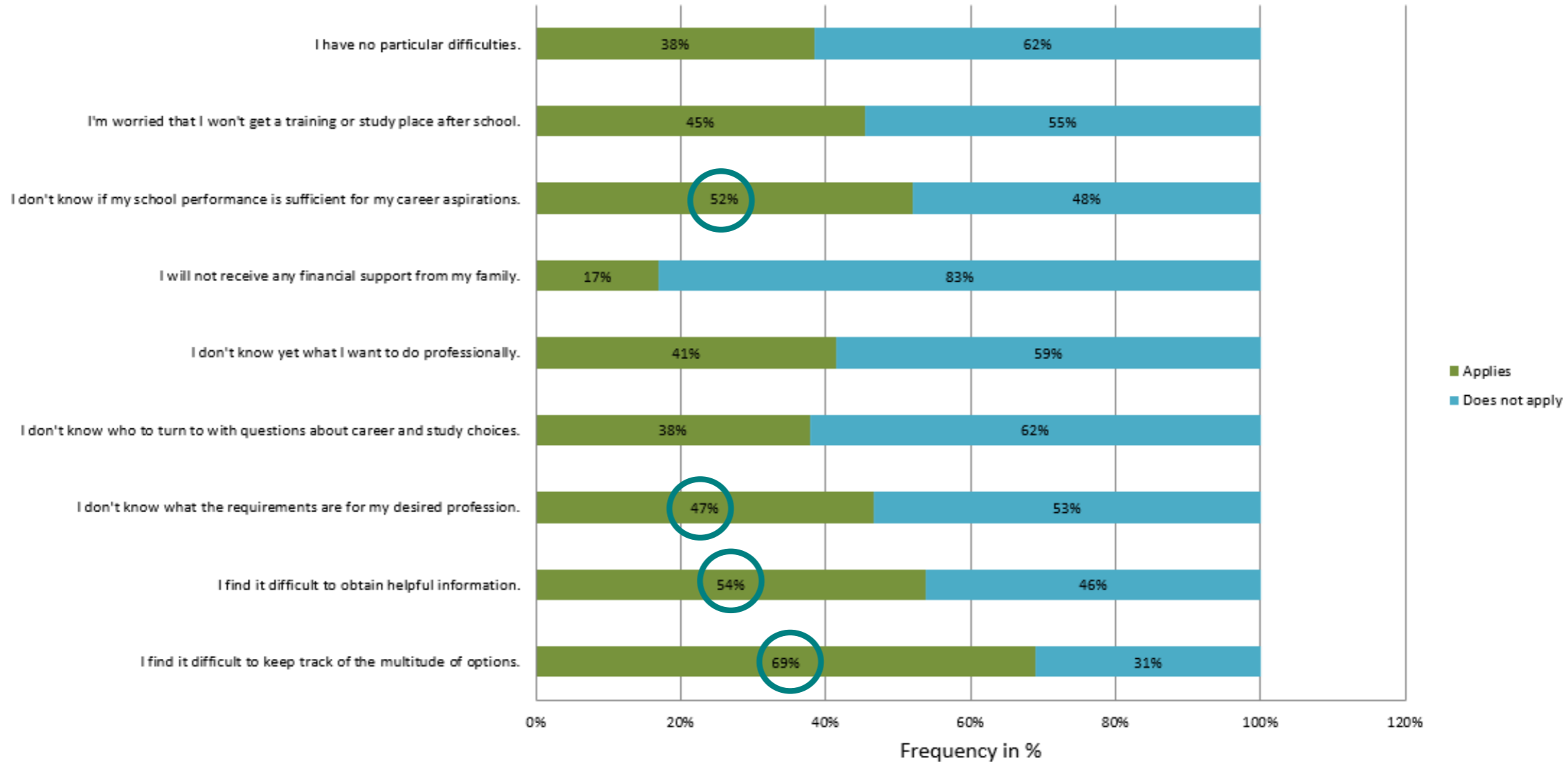


# Results: Pupils: In which field would you most like to work?

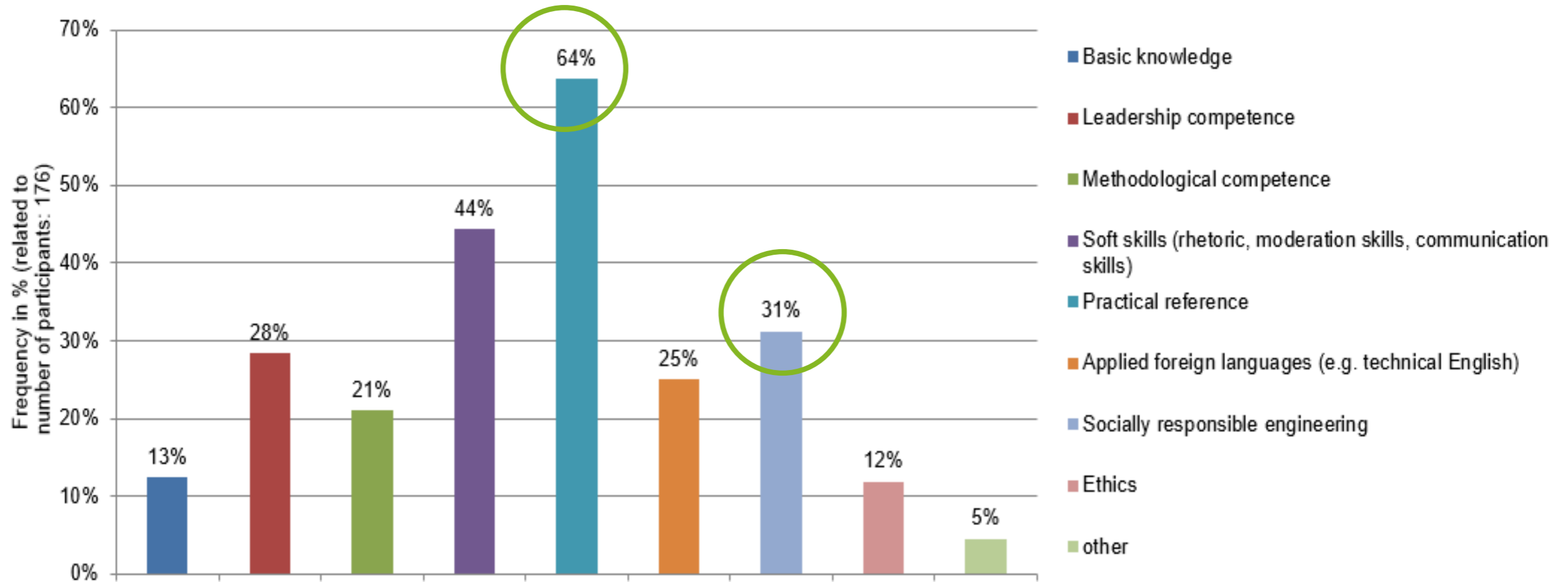
In which field would you most like to work?



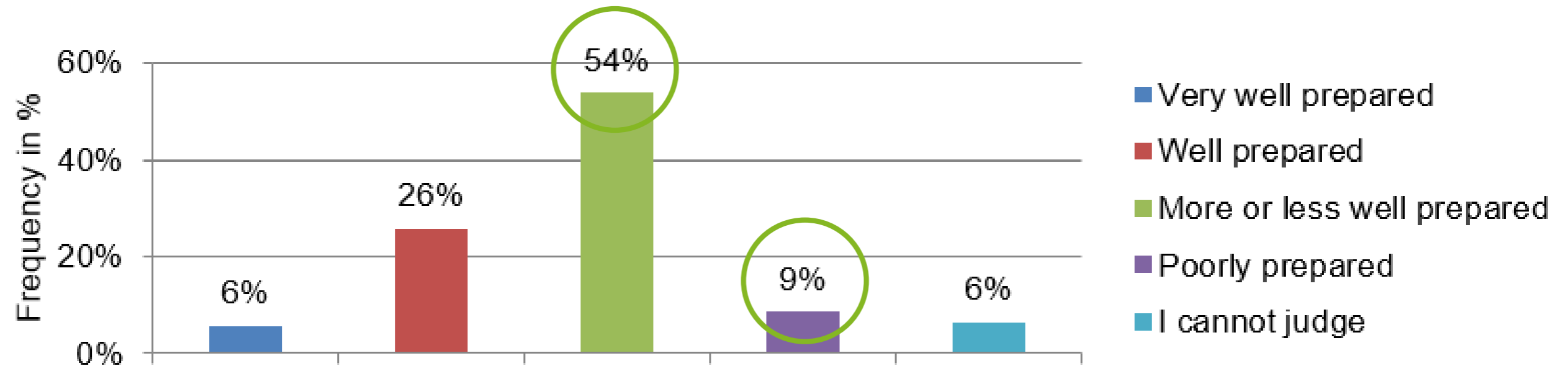
# Results: Pupils: What difficulties did you experience in the study and Career choice?



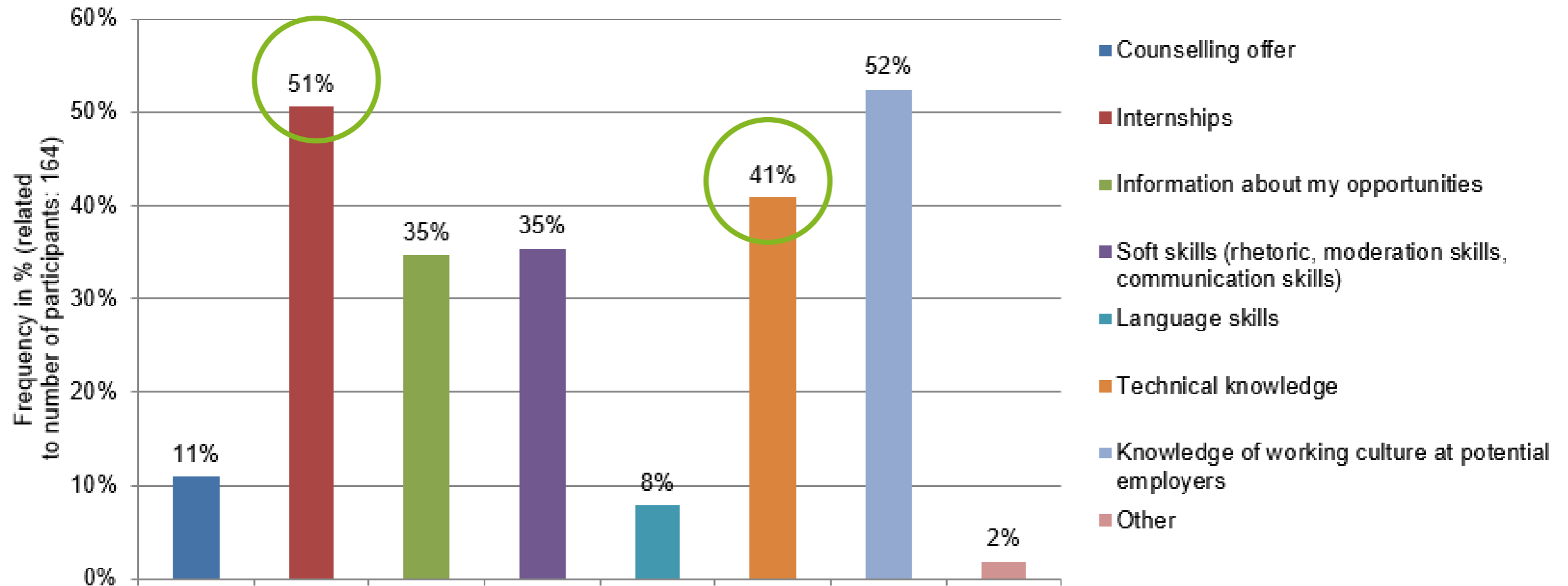
## Results: Students: In which areas should your study programme be expanded?



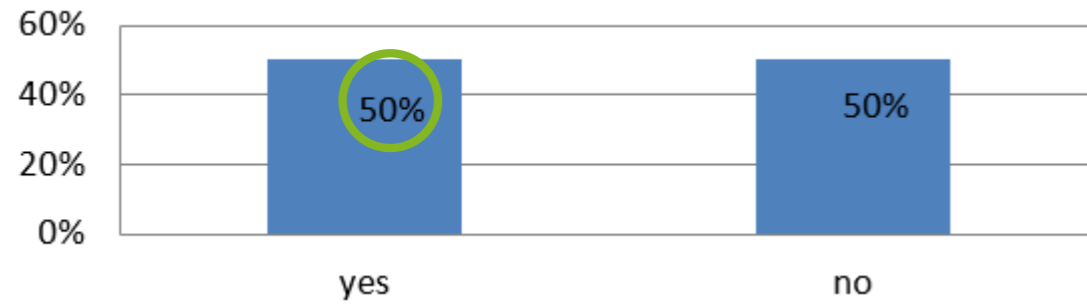
## Results: Students: How well prepared do you feel for your career goal?



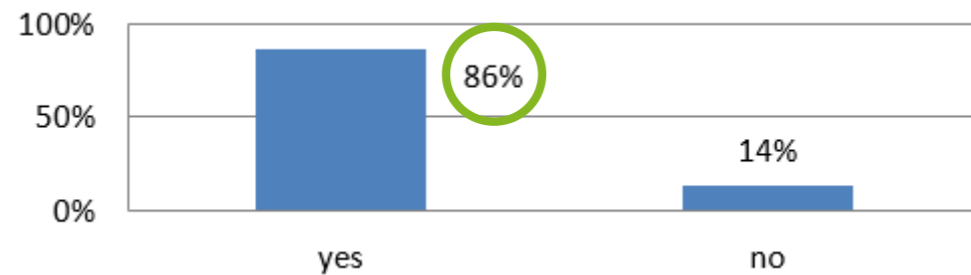
## Results: Students: What are you missing to start your career?



## Results: Authorities: Do you have additional demand for bachelor engineers?

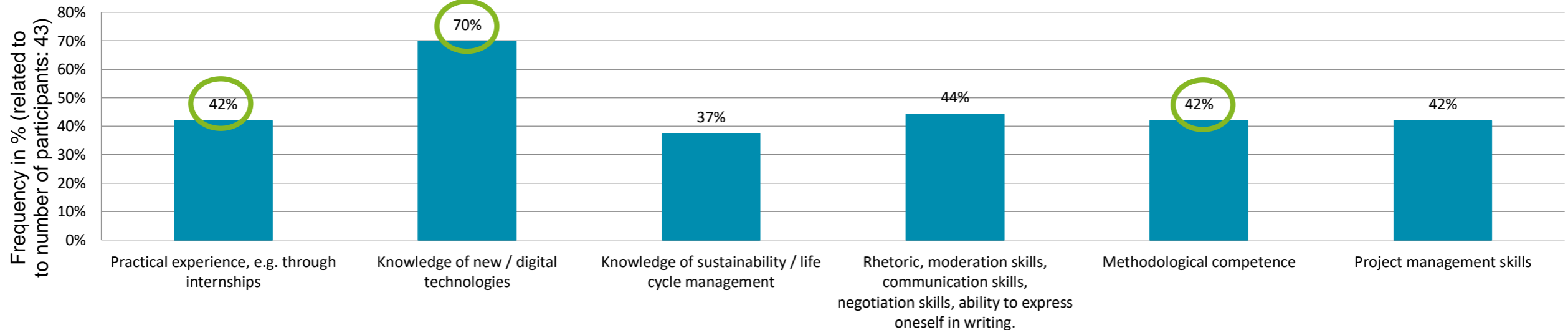


## Results: Authorities: Do you have additional demand for master engineers?

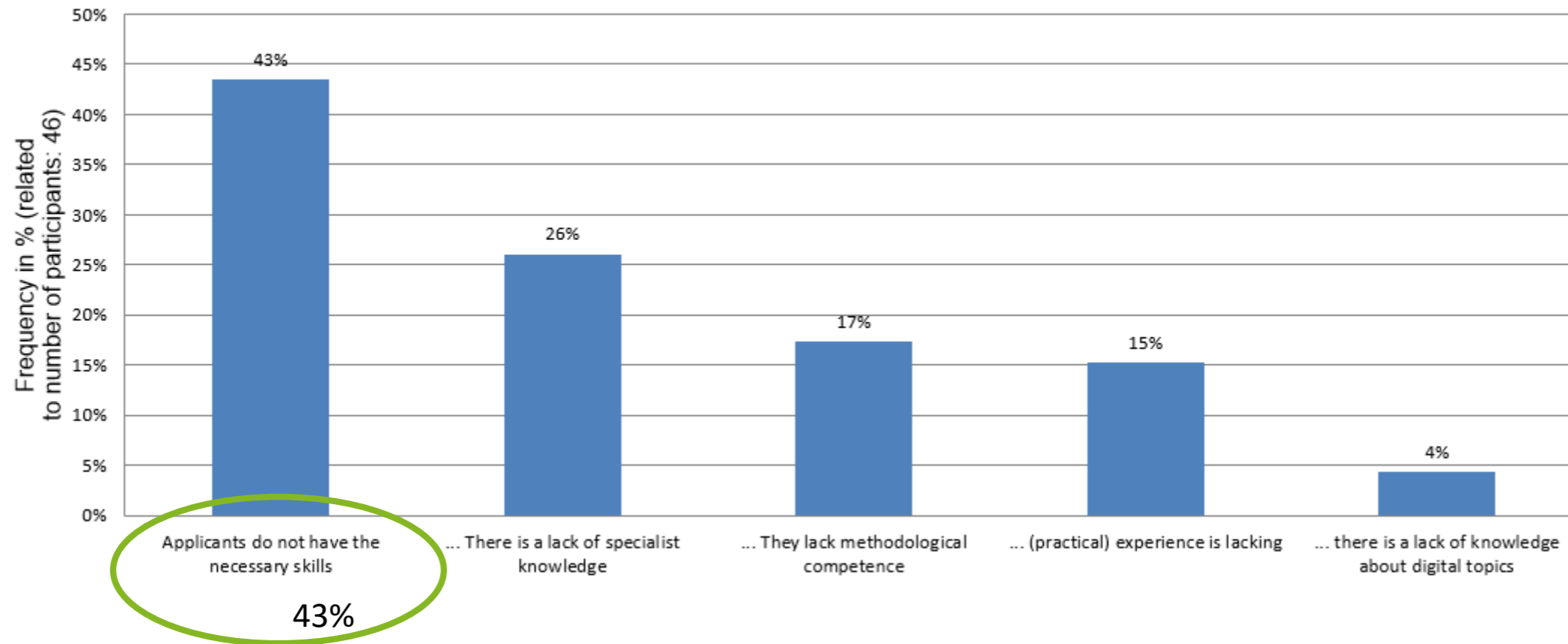


## Results: Authorities: Competences needed in the future

**Which competences will be needed in your organisational unit in the coming years and should engineers bring with them? (Multiple selection possible, max. 5 answers)**



## Results: Authorities: Why do you think not all needs for engineering positions are currently (and will be) filled?





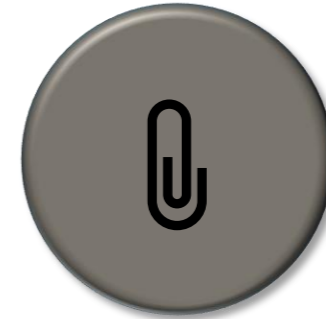
# Results from the surveys



Pupils are mainly **looking for orientation** and an overview. They find the **multitude of options** hard to grasp, often have **difficulties in obtaining helpful information** and are not sure whether their **school performance is sufficient**.

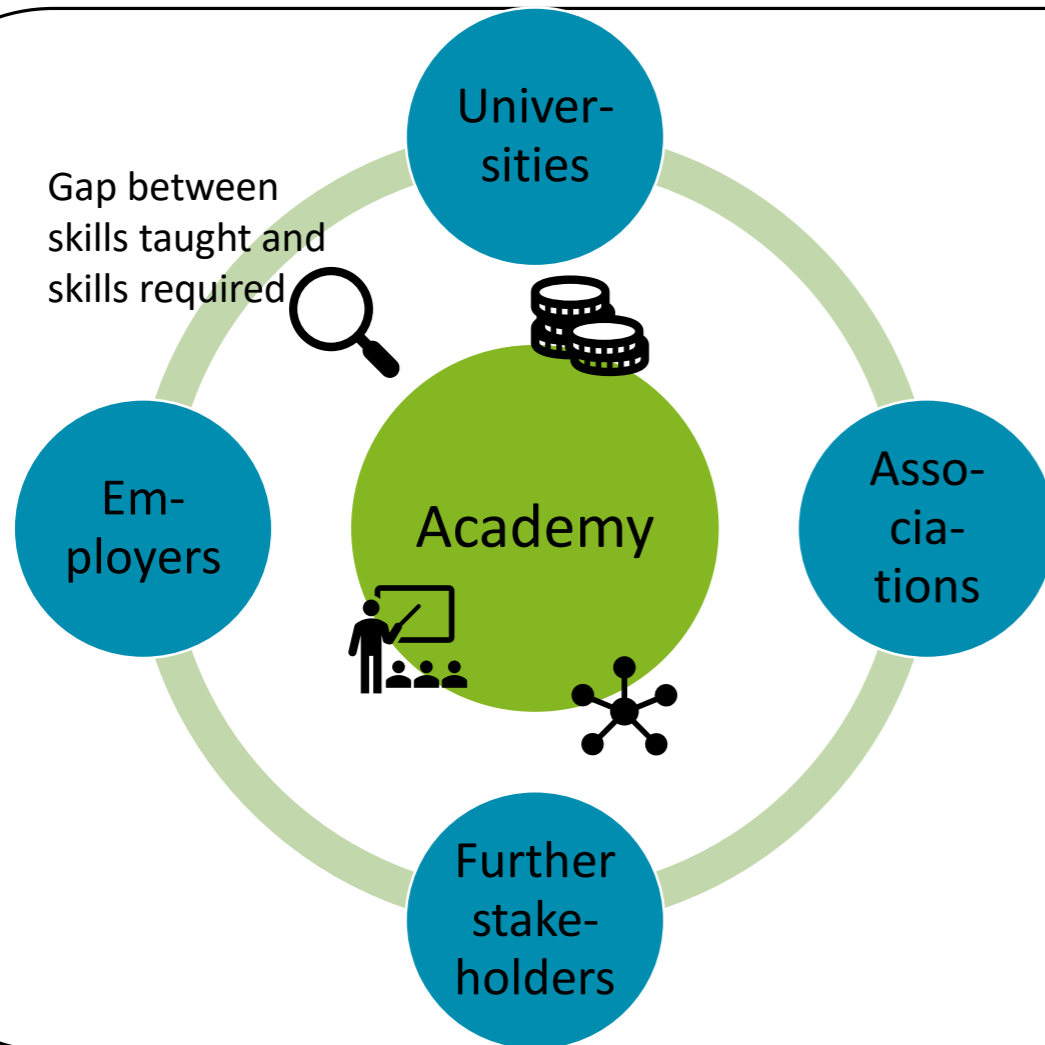


Students are looking for **practical relevance** and **problem-solving skills** in their education. Soft skills (rhetoric, moderation skills, communication skills) are also in demand.



Authorities need **specialists with knowledge of new / digital technologies** and the **combination** of these **with classical engineering sciences**; soft skills and practical experience are also in demand.

# The Academy`s role



The Academy of Sustainable Highway and Traffic Engineering plans

- to be the **coordinator** of a systemically acting structural network of all stakeholders
- to **analyse** the gap between the skills taught and the skills required
- to **offer (and organise)** specific teaching and learning **content** in the third educational pathway / in consultation with employers on a part-time basis

The Academy

- Coordinates a funding and research programme in cooperation with universities



# Thank you!

**I look forward to the joint discussion.**



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