



# Filling Skills Gaps in Blue Industry by Radical Competence Boost in Engineering VET

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# RADICAL Filling Skills Gaps in Blue Industry by Radical Competence Boost in Engineering VET

Comparison of European educational models as input to RADICAL's  
*ENGINE* model development

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# Objectives

- ❖ Analyse European academic-industrial cooperation models in (Sales) Engineering degrees
- ❖ Create a basis for the development of the new ENGINE model at TUAS
- ❖ Only organisational and administrative aspects are subject of this study: the ENGINE model's pedagogic program is not subject of discussion here
- ❖ The content of the new degree remains identical with the existing Bachelor of Engineering in Industrial Management and Engineering



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# Input data

- ❖ Industry – Higher education models from
  - Germany
  - France
  - Finland
- ❖ Survey results from 14 Finnish companies
  - Five micro and small sized companies employing up to 50 persons
  - Three medium sized companies employing between 51 and 200 employees
  - Six large sized companies employing over 200 employees
  
  - Seven worked with manufacturing
  - Five worked with designing and consulting
  - Two with engineering and services



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# Academic-industrial cooperation in France – the ESTA example

**ésta**  
school of business & technology

Five thematic  
**placements**  
(Min. 20  
month)

Regular &  
punctual  
**lectures** by  
industrial  
specialists

Practical  
**studies** for  
companies as  
part of the  
study  
programme

Networking  
**events**,  
Business  
breakfasts,  
Company visits  
& Conferences

ESTA – Industry  
**Partnership  
Programme**

Academic socle:  
Science & Technology – Sales & Marketing –  
Business & Management – Personal Skills & International

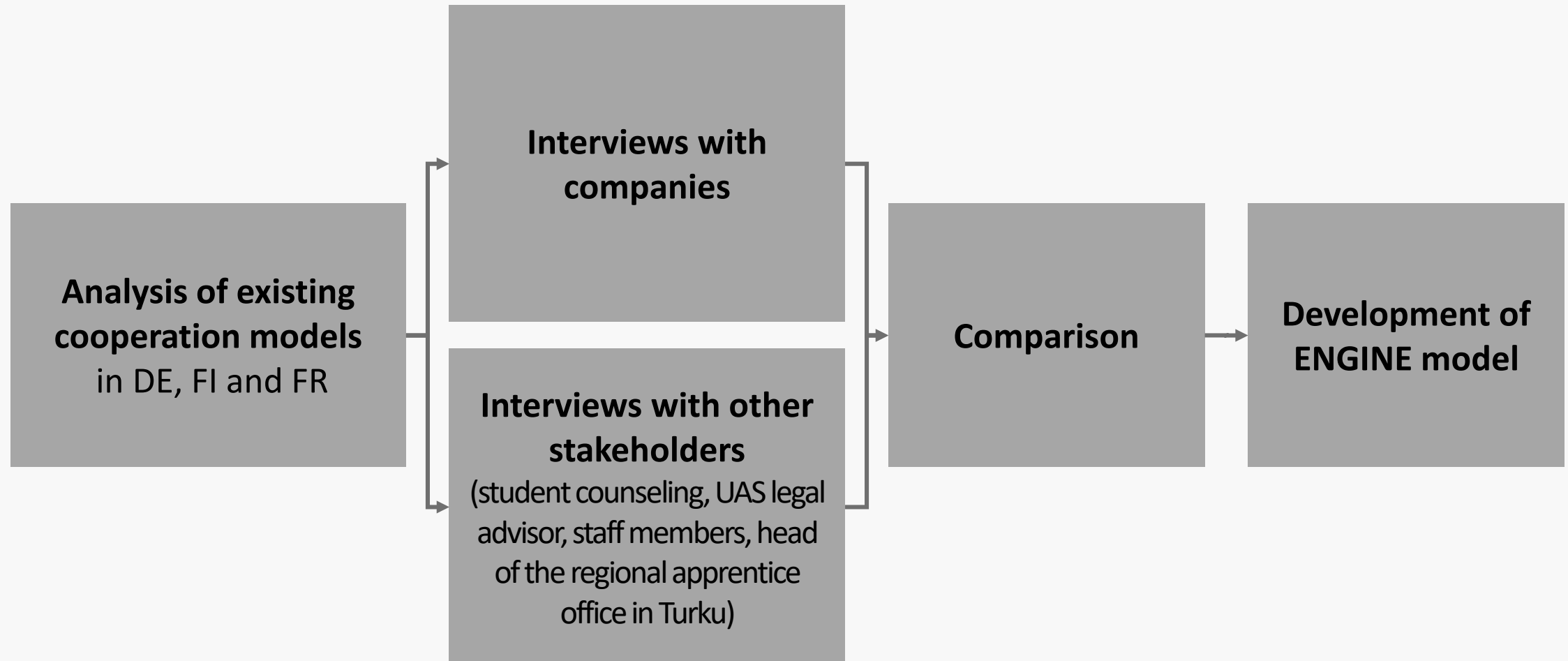


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# The process



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# Question 1: Choice of Companies and Students

- ❖ Three parties: company – student – HEI
- ❖ Existing application process does not consider companies' expectations or needs
- ❖ Companies' selection of 'their' student can take place
  - Before entering the HEI, at the beginning or even after some months at the HEI
- ❖ When companies choose their candidate, HEI must ensure that quality and access standards are respected
- ❖ In all cases:
  - HEI must check that a student respects all access requirements to get the right to study
  - Final choice for a student must be in the responsibility of the company

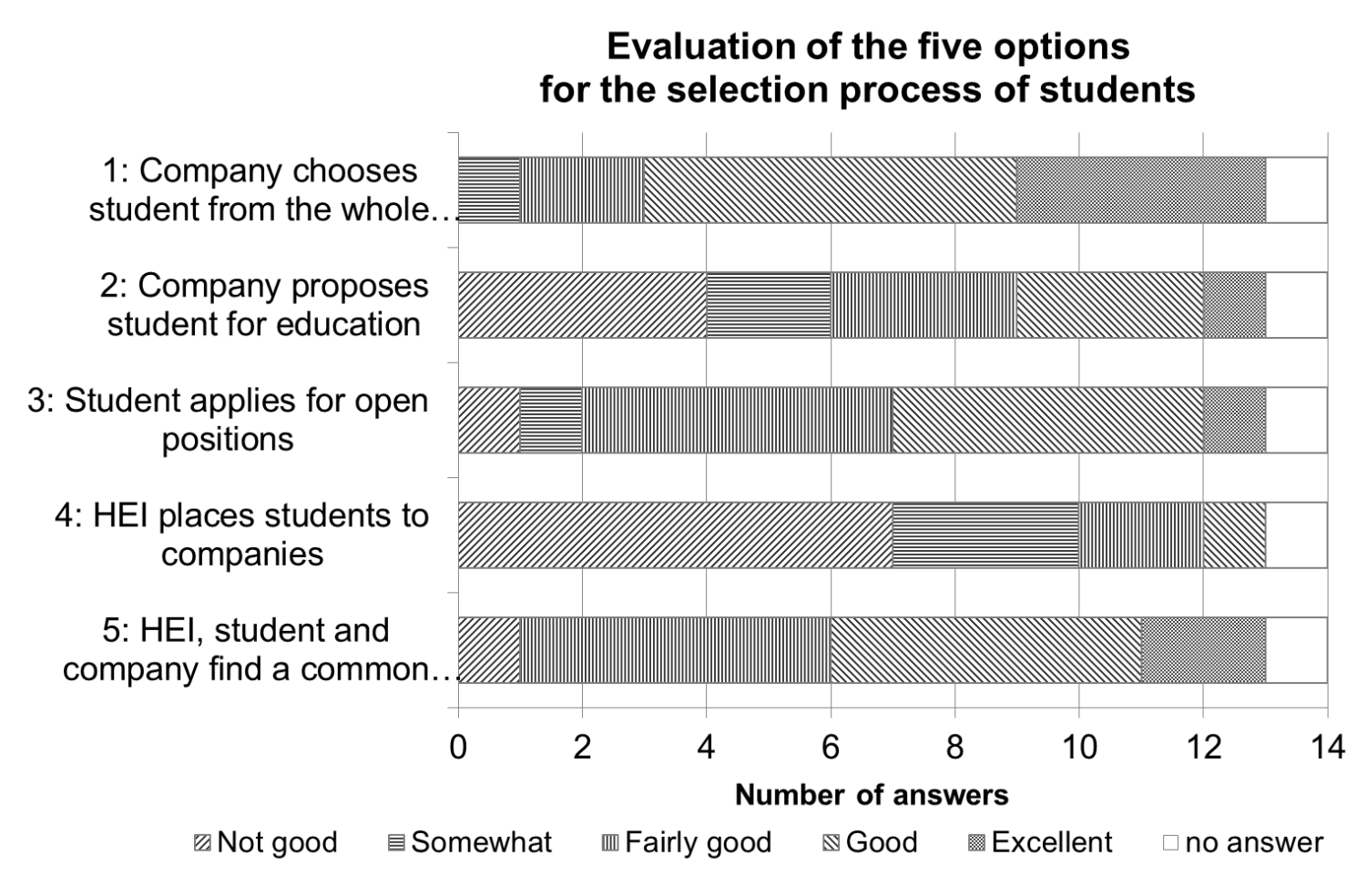


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# Evaluation of student's selection processes by companies



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## Question 2: Scheduling of studies

- ❖ Existing models
  - Alternating every three month
  - Alternating weekly, three days per week at the HEI and two at the company
  - Company training during teaching free periods
  - Several internships integrated into the academic program
- ❖ Possibility of mixing RADIACAL and traditional students must be considered, otherwise additional costs are engaged
- ❖ The choice of the scheduling model are key to success of the model
- ❖ Seven alternatives have been presented to the companies



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# Companies' answers to scheduling models

Option	Number of 'Good' or 'Excellent' answers
1. First year at HEI, following years time-sharing between company and HEI	9
2. Every week 3 days at HEI and 3 days in the company (= 6 days week)	3
3. Every week 3 days at HEI and 2 days in the company (= 5 days week)	6
4. Every other week student is at the HEI and in the company	5
5. Every other month student is at the HEI and in the company	4
6. Student studies 3 months in the University and 3 months in the company	4
7. August to December at HEI and January to June in the company	3

❖ One additional model has been suggested by a company during interviews

- 1<sup>st</sup> year: 100% at HEI – 2<sup>nd</sup> year: 75 % – 3<sup>rd</sup> year: 50 % – 4<sup>th</sup> year: 25 %

## Question 3: Agreements

- ❖ An employment contract is the absolute minimum of legal binding.
- ❖ A cooperation agreement HEI – company is needed to ensure education.
- ❖ Mixing up employment contract and cooperation agreement is estimated to be too complex
- ❖ Companies must be involved in the student’s selection.
- ❖ Rules and a fallback solutions are needed for students and companies

Option	Number of ‘Good’ / ‘Excellent’ answers
1. Contract between student and company	4
2. Contract between HEI and company	6
3. Contract between student, HEI and company	8
4. Contract between company and HEI; student has a working contract with the HEI	8



## Additional aspects/results to be considered

- ❖ Companies must be able to assign a qualified instructor
- ❖ Some instructors will need training to guide students
- ❖ Regular meetings shall be installed (requirement of companies)
  - Bi-monthly (5 answers) or twice a year (4 answers)
- ❖ Possibility of companies
  - To provide required tools for students
  - To offer work life related assignments that support learning outcomes
  - To offer thesis works
- ❖ Interest/possibility to an extended exchange period abroad



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# Conclusion

**Experiences from existing cooperation models**

+

**Feedback from companies**

=

**Large and valuable basis for the ENGINE model development**



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