

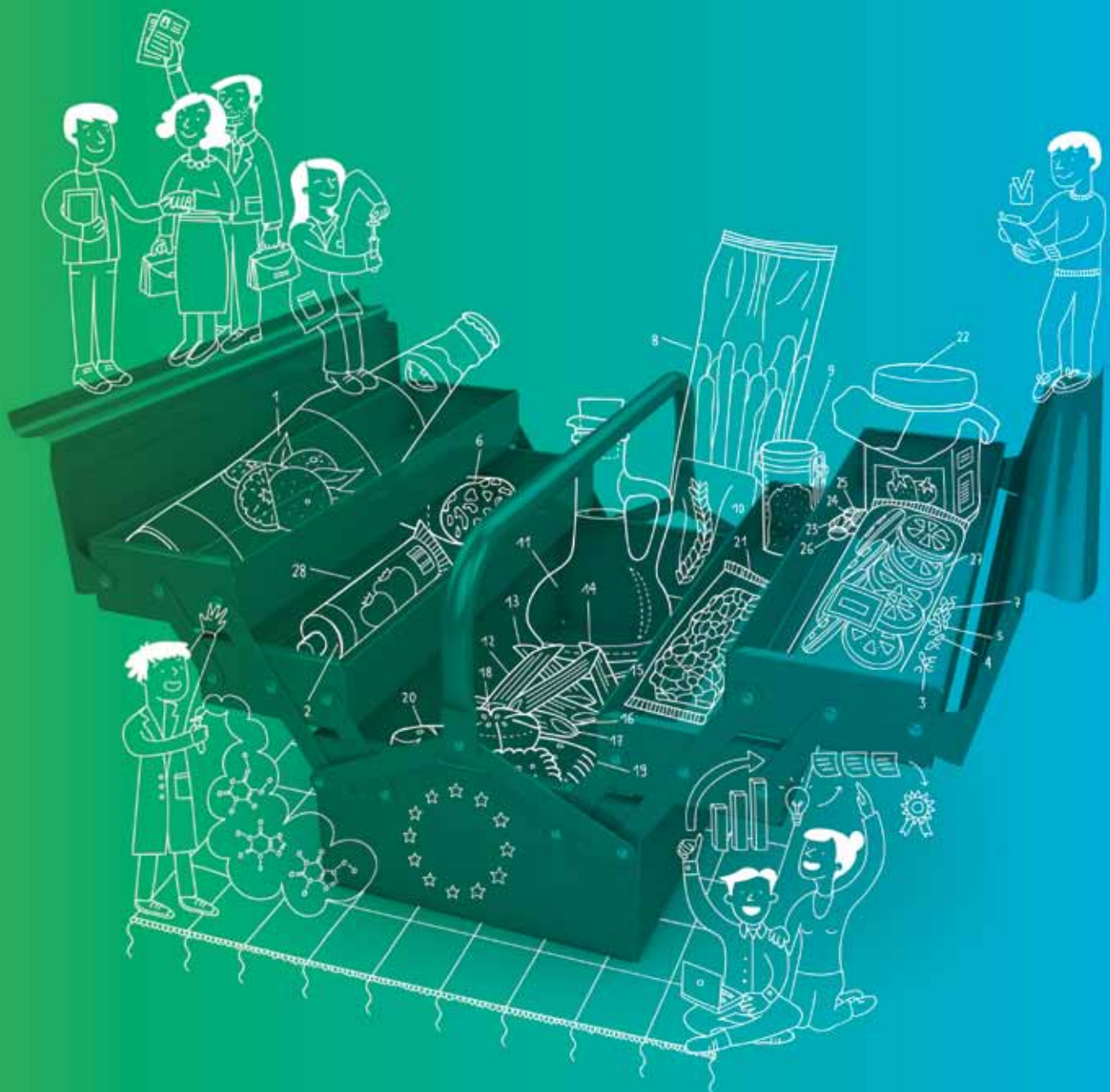


CASE STUDY REPORT:

THE TEKNIKCOLLEGE SYSTEM IN SWEDEN – SETTING QUALITY STANDARDS FOR TECHNICAL TRAINING MATCHING CURRENT AND FUTURE INDUSTRY NEEDS

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KEY FACTS

- *Teknikcollege is a competence network setting quality standards for technical education in Sweden*
- *Its aim is to contribute to a positive image of technical training and the industry*
- *For certification as a Teknikcollege a region has to fulfil 10 quality criteria*
- *Laying the ground for regional cooperation (tripartite bodies): Companies, municipalities, social partners and educational providers at local level are responsible for course design and for developing a technology-oriented education infrastructure*
- *A successful initiative of the Swedish social partners, managed and supervised by the Council of Swedish Industries (social partners)*

BACKGROUND

In Sweden, Teknikcolleges form a network of competence centres in which companies cooperate with municipalities and education providers to offer technology-oriented courses at different levels. The Teknikcollege idea and concept started with a joint initiative of the Swedish social partners in the engineering industry in 2003, and was subsequently extended to all industrial sectors in Sweden as a result of the positive experience and outcomes.

The main Teknikcollege function is to set and ensure quality standards for technology-oriented courses, with the overall objective of improving quality and efficiency in vocational and educational training (VET) and thus enhancing students' skills and competences. Teknikcollege stakeholders wanted to contribute to a better and more positive perception of education and learning in the industrial sector.

Another important aspect involves the institutionalisation of **new forms of regional-level cooperation** between municipalities, schools (education providers), social partners and companies.

They now regularly cooperate in regional steering groups to provide high quality technology-oriented courses in their region. Regional players, especially companies, play a key role in shaping the structure of the courses and designing their content. The Teknikcollege network gives players at local, company and sector level the opportunity to demand or suggest training content matching their respective requirements.

Educational providers such as secondary schools, VET colleges or technical universities need to meet certain requirements to gain certification and approval as Teknikcolleges. They must for instance present an agreement stipulating the cooperation of education providers from a minimum of three municipalities. Moreover, they have to work together with companies in the region in order to share costs and to mutually benefit from each other's experience. The regions within the Teknikcollege system are all part of a national network. To be officially labelled "certified by Teknikcollege", regions need to have their courses audited on the basis of the following ten criteria:

TEKNIKKOLLEGE QUALITY REQUIREMENTS – 10 CRITERIA

1. **REGIONAL PERSPECTIVE**
A Teknikcollege must be a common resource for municipalities and companies at local and regional level.
2. **BROAD EDUCATIONAL STRUCTURE**
A Teknikcollege must offer specialised technology-oriented training reflecting industry needs at both upper secondary school and post-secondary levels. For upper secondary school students, a technical programme should be available, combined with one or more additional technology-oriented vocational programmes.
3. **CLEAR PROFILE**
The training activities need to have a clear profile and are linked to the profiles and needs of the companies.
4. **COLLABORATION WITH INDUSTRY**
Collaboration between training providers and working life must be well established, reflected by a regional and several local steering groups, with companies in the majority.
5. **SYSTEM OF QUALITY ASSURANCE**
The regional steering group is responsible for meeting all criteria and for ensuring work processes, the quality of education and its development within a Teknikcollege.

TEKNIKCOLLEGE QUALITY REQUIREMENTS – 10 CRITERIA

6. **CREATIVE AND STIMULATING LEARNING ENVIRONMENT**
A learning environment reflecting real-life working conditions, stimulating creativity and commitment and attracting both male and female students needs to be in place.
7. **MACHINERY AND EQUIPMENT**
Machinery and equipment need to be of high quality, giving students the opportunity to learn new technologies.
8. **CONSISTENT STUDY DAYS**
Teknikcollege-certified courses are characterised by consistent study days, for example two fixed days per week, to allow work scheduling.

9. **TEAMWORK AND SUBJECT INTEGRATION**
Teachers assume joint responsibility for their students' educational and personal development. Considerable importance is attached to personal development and a student's ability to work in a team. Courses should consist of a combination of practical and theoretical subjects.
10. **ON-THE-JOB TRAINING**
Companies should offer workplace training with supervision. Students should have the opportunity to participate in project work, practical work experience and summer jobs.

Source: TEKNIKCOLLEGE: Technical training for today's and tomorrow's industries.
www.teknikcollege.se/wp-content/uploads/2014/10/TcEN.pdf.

Together with the municipalities, the social partners agreed on the ten criteria. They are reviewed every third year for possible improvement.

The Teknikcollege "label" and network constitute a non-political initiative to promote high quality standards in Swedish techni-

cal education. The Teknikcollege system is managed and supervised by the **Council of Swedish Industry**, composed of the social partners in the industrial sector. The system is not restricted to the food and drink manufacturing sector in Sweden, though it is one of the significant sectors addressed.

INITIATION AND IMPLEMENTATION PROCESS

The Teknikcollege initiative was started by companies and social partners in the Swedish engineering industry in 2003. A joint social partner initiative, it has gradually been extended to cover all industrial sectors in Sweden. Social partners in the entire industry (Council of Swedish Industry) support and are responsible for the Teknikcollege concept.

REASONS AND MOTIVES

For the Swedish social partners, it was of mutual interest and importance to ensure a high level of technical skills in order to maintain the future competitiveness of

Swedish industrial companies. Alongside the demand for skilled employees with upper-secondary and post-secondary qualifications, a further aspect was the image of technology-based education, which was not very popular in Sweden and not first choice for many young people.

CHALLENGES ADDRESSED

According to Adela Martinovic, Teknikcollege CEO, the following problems and challenges needed to be addressed in order to make technical education more attractive to young people and subsequently companies in the sector. She reported that some

students made an active choice to take up specific technology-oriented courses in upper secondary education, but soon realised that the programmes did not provide the right competences or skills to find a job. Companies were not sufficiently involved in the design and implementation of programmes and curricula and hence had little incentive to hire graduates. Moreover, municipalities preferred less expensive programmes.

REGIONAL COOPERATION OF VARIOUS STAKEHOLDERS

With the Teknikcollege system, various stakeholders undertook to cooperate to make technology-oriented courses more attractive and to improve their quality, also with respect to industry needs. The overall objective is to equip future employees with skills and competences required in a global market.

Adela Martinovic summarised a number of issues raised by companies which they wanted to have taken into account in the

design of training courses:

- Courses should provide students with more both general and job-related skills,
- Students needed to become better in reading, writing and mathematics,
- Teaching methods needed to be modified to better motivate students,
- Cooperation between teachers and companies needed to be improved, especially with respect to company skill demands,
- Modern equipment and facilities were needed at schools,
- Attracting the "right" students for industry-related programmes in upper secondary and higher education.
- Among the various positive effects of the Teknikcollege system, students benefit from attractive vocational education and training leading directly to a job, or providing a good basis for further studies, e.g. various engineering courses. For companies, the added value of the system is to have skilled workers matching their particular needs.

PROBLEMS ENCOUNTERED, LESSONS LEARNED AND SUCCESS FACTORS

The entire Teknikcollege system is assessed positively by the Swedish social partners. According to the Teknikcollege CEO, the success factors and major impacts should reflect the three target groups: companies, students and regions.

1. POSITIVE EFFECTS ON COMPANIES

Within the framework of Teknikcollege, companies in a region now actively influence and contribute to the planning and detailed design of training courses. This direct involvement may take various forms and depends on company size and available resources. A company may for example participate by hosting study visits, giving lectures or providing exercises reflecting everyday working life. Further cooperation options include participating in the local or regional steering group or providing summer jobs and internships for students. Individual com-

panies may also benefit through recruiting future talents. There are many opportunities available to meet students and to assess their skills.

2. POSITIVE EFFECTS ON EMPLOYEES AND STUDENTS

Students benefit from high-quality courses giving them a broad technical education and laying the basis for an exciting career. They may also attend extended courses. Teaching is based on practical and theoretical subjects. Teachers work together in teams and focus on every student's personal development and ability to work in a group. The fact that companies are closely related to the training course and directly involved in its quality assurance is beneficial to students.

3. POSITIVE EFFECTS ON THE REGION

Municipalities do not have to shoulder the cost of sometimes unusual and expensive education programmes alone, but can share it with other stakeholders.

WHAT HAS BEEN ACHIEVED SO FAR: STATISTICAL OVERVIEW

Teknikcollege is the largest cooperative platform within Swedish industry with regard to work-related advanced technical education. So far, it can boast the following achievements:

- 26 certified regions in Sweden,
- 144 approved schools / education centres in the regions,
- approximately 180 municipalities involved,
- at least 2,000 companies involved in the project,
- 1,700 specifically educated supervisors within the industries,
- 16,000 students registered in Teknikcollege courses in 2015.

4. ROLE AND TASKS OF THE NATIONAL COORDINATION OFFICE

The national Teknikcollege coordination office is responsible for:

- Providing assistance and advice to member organizations and regions on certification issues,
- Supporting marketing: Teknikcollege uses various social media channels to inform the public at large of the courses offered and subsequent employment prospects,
- Setting guidelines for meeting the ten criteria and for continuously checking the quality of the courses offered.
- Coordinating networks within the Teknikcollege system.
- Coordinating communication platforms such as websites and administrative tools.

According to Adela Martinovic, a very interesting and unusual (for Sweden) factor is that the Teknikcollege system has in a sense "educated the private sector (the companies) to better communicate their skill demands. They now tell us what they need. This was a challenging process, requiring us to train companies at local, regional and national level to do so." She also emphasized that companies had very important role to play in planning the technology-oriented educational infrastructure within a region. This usually required long-term planning within a 5-10-year timeframe.

ENSURING QUALITY CONTROL OF CERTIFIED REGIONS

The quality auditing of regions and organisations certified by Teknikcollege is a huge task. The Council of Swedish Industry is in charge of approving or rejecting applications for certification. Two years after a region has been certified, the regional steering group holds a self-review (self-examination) to evaluate the current situation, checking whether the action plan has worked and whether activities are in line with long-term objectives.

Once every three to five years the certified regions are inspected and re-assessed. Together with the regional steering group, the Council of Swedish Industry then visits a region to discuss its assessment under the Teknikcollege quality criteria. Regions then officially request re-certification. To receive this, they need to prove progress in all activities consistent with the quality criteria.

Among others, following aspects are addressed:

- Steering group activities since certification

- Any problems encountered
- Has cooperation worked well?
- Does training match the strategic direction?
- Decisions taken at regional level
- Any changes to the training offered
- Work on achieving visions and goals

Adela Martinovic stated that so far this system has proven to be positive. Only very few regions have had their certificates withdrawn.

ASPECTS FOR TRANSFERABILITY

With its ten-quality-criteria approach mutually developed and approved by the Swedish social partners, the Teknikcollege system is a good practice example for implementing high quality technical education. Following aspects qualify as transferable:

- **Quality standards:** Teknikcollege-certified regions need to meet all ten criteria. Regions need to re-apply for certification every three to five years.
- **Empowering regional stakeholders and laying the grounds for tripartite partnerships:** Municipalities, education providers and companies need to cooperate in an institutionalised form in the planning and implementation of

technology-oriented education. Their cooperation requires a written agreement.

- **Active involvement of companies in the industry:** Companies are required to specify skill needs related to training content. Within the partnership, they play a responsible role in support of the Teknikcollege concept.
- **Impact on the development of a technology-oriented educational infrastructure within a specific region:** Cooperation within the Teknikcollege system is significant. In planning the educational infrastructure in a region, companies benefit with regard to their future recruitment needs.

CONCLUSION

The network of Teknikcollege competence centres is a good practice example of an initiative launched by the Swedish social partners. In their desire to improve quality standards in technology-oriented education at upper secondary and post-secondary level, the social partners in the Council of Swedish Industry supervise the Teknikcollege system.

This approach has contributed to raising the quality of technical education, making the industrial sector more interesting to young people. Certification as a Teknikcollege region is only possible when all ten

quality criteria are fulfilled. A quality assurance system guarantees the maintenance of high standards.

Particularly interesting are the system's regional scope and the creation of regional steering groups encompassing municipalities, schools, social partners and companies. The latter have an important role to play, proactively expressing their skill needs. Due to this aspect, training courses certified by Teknikcollege match the current and future needs of companies, while at the same time equipping students with the right skills to find employment.



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Interview partner:

Adela Martinovic, Teknikcollege CEO, Sweden, telephone interview on October 29th, 2015.

