

# Education of engineers by apprenticeship: review of the French experience

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31000 engineers graduate each year in France. Almost 15% of them graduate from apprenticeship programmes. This method of training, enabled by the act of 1987, allowed the Cti\*\* to certify engineering apprenticeship training programmes as early as 1989, almost 25 years ago. The mixed composition of the accreditation board, made up of both academic and professional experts, has allowed the Cti, over time, to build recommendations for quality with an aim to implementing a competency-based approach, shared by all parties involved, schools and companies. The significant role that companies play both in the educational project and in validating the degree should be noted. It makes incorporating key transversal skills into the competency framework even more essential.

At the heart of apprenticeship training programmes lies a competency framework based on knowledge, know-how and interpersonal skills which are validated through real professional situations, an alternating educational programme allowing trainees to acquire skills through theoretical instruction in school and practical instruction in company, progressive evaluation of learning outcomes providing ECTS credits (of which at least 30% are validated in company), and an alignment between the learning outcomes, their evaluation and educational activities facilitating their acquisition (John Biggs). A recent study carried out by IESF (Ingénieurs et Scientifiques de France) shows, in a comparative context, the differences between apprenticeship training programmes and traditional ones. It highlights in particular the work/study formula for the development of transversal skills.