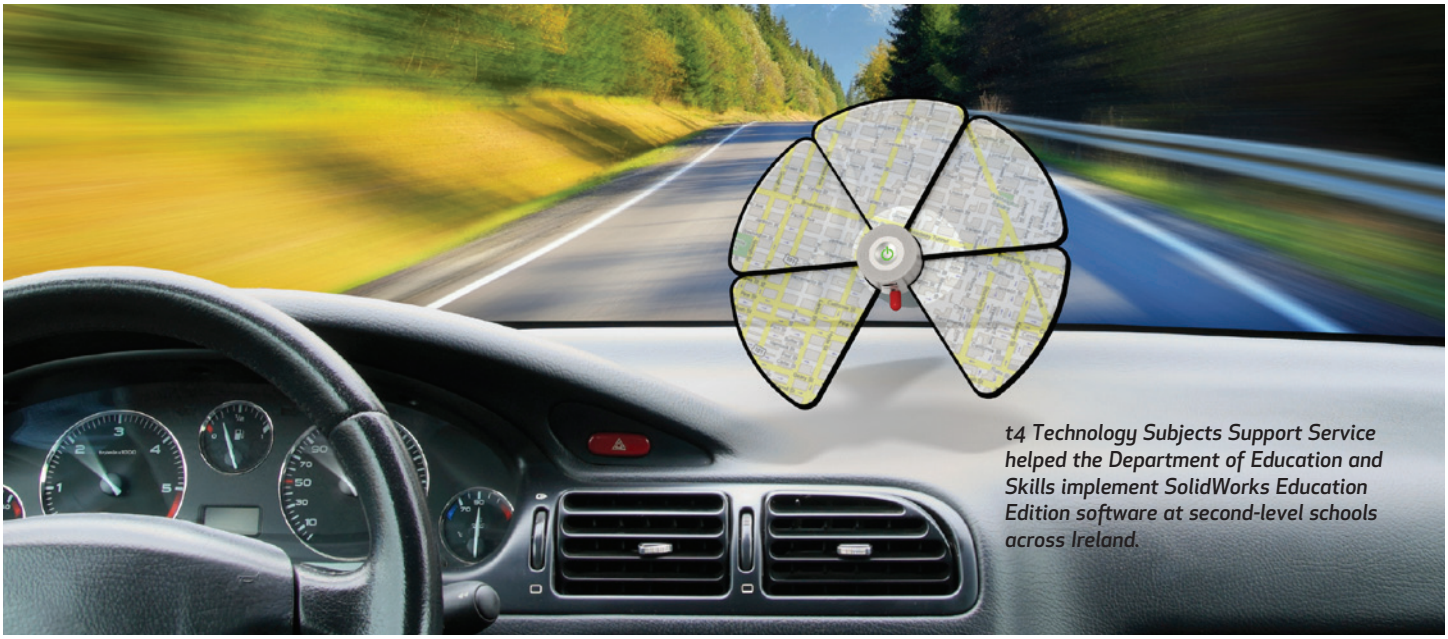
t4 TECHNOLOGY SUBJECTS SUPPORT SERVICE

Improving technology education across Ireland with SolidWorks Education Edition



t4 Technology Subjects Support Service helped the Department of Education and Skills implement SolidWorks Education Edition software at second-level schools across Ireland.

Technical skills are critically important for career development in the 21st century. That's why the Irish Department of Education and Skills took a major step toward preparing students to succeed by undertaking a nationwide effort to implement 3D parametric CAD technology as an educational tool.

Until 2007, students ages 12–18 at 550 second-level schools across Ireland received instruction in technology-based subjects, but the tools used to teach these courses varied widely, ranging from traditional drawing tables to 2D design packages to 3D graphics applications. To modernize the country's technology education, the Irish government formalized its technology curriculum around four subjects—engineering, construction studies, technology, and design & communication graphics—and made 3D CAD technology compulsory as a teaching and learning tool for design & communication graphics.

After publishing these new technology education syllabi, the Department of Education and Skills offered funding to schools to meet this requirement through the acquisition of 3D parametric design software, computer hardware, and related equipment. The Irish government then initiated a procurement process for choosing the most suitable 3D parametric CAD system.

"An important factor in selecting the 3D parametric CAD system to support this program was ease of use/ease of learning," explains Kieran Flannery, a teacher at Castletroy College in Limerick and a regional development officer for t4 Technology Subjects Support Service, under the Teacher Education Section of the Department of Education and Skills. "Because this initiative dramatically changed the way that teachers approach these subjects, and the manner in which students learn, the software had to be easy to use and support."

After evaluating proposals from leading CAD companies, the Department of Education and Skills chose SolidWorks® Education Edition because its intuitive interface enables students to quickly grasp design and engineering principles, which allows them to spend more time on class work and less time learning to use the software. The 25,000 SolidWorks licenses purchased by the Irish Department of Education and Skills, combined with the complimentary, at-home SolidWorks Student Design Kit, provide 142,000 students in Irish public schools with access to 3D CAD.

Challenge:

Expand technology education in second-level schools (ages 12–18) to better prepare students for careers in engineering, construction, technology, design communications, and graphics.

Solution:

Implement SolidWorks Education Edition software and formally incorporate it as a teaching tool in the second-level school curriculum.

Results:

- Provided 3D CAD access to 142,000 students
- Trained 1,410 teachers in 3D CAD
- Enhanced teaching and learning significantly
- Better prepared students for technical careers

SOLIDWORKS

"SolidWorks was an excellent choice and has been overwhelmingly accepted and applauded by everyone that has used it," Flannery says. "It's enhancing teaching and learning, and dramatically advancing technology education in Ireland."

Teaching the teachers

Implementing SolidWorks software in 550 schools across Ireland became t4's mission. Pre-imaging of SolidWorks software on all computer workstations and laptops acquired for the program minimized up-front IT administration, and a phased program in which trained educators provided teachers with three annual professional development days, which included SolidWorks training, allowed t4 to train 1,410 teachers in four years.

"Initially, there was some apprehension about this because we had never used SolidWorks," recalls Peter Timmins, head of the Design & Communication Graphics Department at Sutton Park School, just outside Dublin. "However, within a couple weeks, teachers agreed that we made the right move. I showed my students how to use the software once or twice, and they ran with it right away. Young people are more technologically savvy, so they can pick up the software faster and use it to actively learn the concepts we teach."

Learning through understanding

Using SolidWorks software, students learn and understand geometry—an important part of the design & communication graphics curriculum—more quickly and can more readily apply the knowledge they gain to projects.

"We're pleased with the effectiveness of using SolidWorks to teach geometry," Flannery points out. "With 3D solid models, a higher percentage of students can comprehend geometric concepts. The Leaving Certificate Examination used to focus entirely on geometry. Now, 60 percent of the exam is geometry and 40 percent is a design project that utilizes SolidWorks to investigate, interrogate, model, and render a design; then propose and justify how the student can improve upon it. In short, students apply the knowledge they've gained to a real-world scenario—they learn through understanding."

A new world of possibilities

By implementing SolidWorks software into the design & communication graphics curriculum, second-level schools in Ireland have created a new world of learning possibilities for students. Some use the software for architectural modeling, others for furniture design, and still others for engineering.

"I am a firm believer in the importance of discovery, skills development, and independent learning in education," Timmins notes. "SolidWorks has radically improved our effectiveness in getting students interested and enthusiastic about learning. I have some students who model skyscrapers from all over the world and others who are fearless in creating their own ideas. SolidWorks has been truly revolutionary for teaching this subject."

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Peter Timmins
Head of Design & Communication
Graphics Department
Sutton Park School

SolidWorks Education Edition software has opened up a new world of design possibilities for Irish second-level students, resulting in design projects that look like they came out of a university program.

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