

Section two

International Benchmarking

What is the TVET Model in place that helps raise standards amongst students?

Hungary	Finland
<p>Teachers in Hungary's vocational schools undergo continuous professional development to keep up with industry trends and pedagogical advancements. This ensures that educators are well-equipped to deliver high quality training.</p> <ul style="list-style-type: none">- Hungary has a well-defined National Qualifications Framework (NQF) that standardizes vocational qualifications and ensures consistency across the education system. The NQF outlines clear learning outcomes and competency levels, which helps maintain high standards.- Many vocational educators are required to have industry experience, which they bring into the classroom. This practical experience enriches the learning environment and provides students with insights into real-world applications of their skills.- Vocational schools offer comprehensive career counselling services to help students make informed decisions about their career paths. Counsellors assist with job placements, further education opportunities, and career planning.- Hungary employs a dual education system that closely integrates vocational education with industry needs. Students split their time between classroom-based learning and practical, hands-on training in real-world workplaces. This model ensures that students gain practical skills that are directly relevant to the job market. The dual system heavily emphasizes apprenticeships, allowing students to work with experienced professionals and gain valuable on-the-job training. This approach bridges the gap between theoretical knowledge and practical application, creating a skilled workforce.	<p>Finland's TVET system is highly flexible, allowing students to customize their learning paths. The system is modular, meaning students can select specific modules that align with their career goals, making the education highly personalized and relevant.</p> <ul style="list-style-type: none">- A significant portion of the training is conducted in real workplaces. This work-based learning approach ensures students acquire practical skills and experience in real-world settings, which enhances their employability and readiness for the job market.- Finnish TVET educators are required to have both academic qualifications and industry experience. Continuous professional development ensures that they remain updated on the latest industry trends and teaching methodologies.- Finland's TVET system emphasizes not only technical skills but also the development of soft skills such as communication, teamwork, and problem-solving. This holistic approach ensures that students are well-rounded and adaptable professionals.

How do these countries work with Industry to develop their TVET systems?

Hungary	Finland
<p>Hungarian vocational schools and training centres collaborate closely with industry partners. These partnerships ensure that the curriculum is aligned with the latest industry standards and technological advancements. Companies often provide equipment, tools, and resources to schools, enhancing the quality of training.</p> <ul style="list-style-type: none"> - Many vocational institutions have advisory committees comprising industry experts who provide guidance on curriculum development and training methods. This ensures that the education provided is relevant and up-to-date. - The TVET system incorporates continuous assessment methods, including practical exams, projects, and performance evaluations. These assessments are designed to measure students' competencies and readiness for the job market. 	<p>Similar with Hungary, there is a strong collaboration between vocational schools and industry partners. Companies actively participate in curriculum development and provide apprenticeships, ensuring that the training is aligned with industry needs and standards.</p>

In terms of training and developing WorldSkills Competitors – what do these countries do differently?

Hungary
<p>The Hungarian government has invested in modernizing vocational training centres, equipping them with the latest technology and tools. This ensures that students train in environments that mimic actual workplaces.</p> <p>Students have access to advanced technologies and equipment, which is crucial for developing relevant skills. This access prepares students for the technological demands of modern industries.</p> <p>Educational programs are closely aligned with Hungarian industry requirements and WorldSkills standards. This integration helps ensure that the skills taught are of a high international standard, preparing competitors effectively for global competitions. The standards also provide a benchmark for continuous assessment and improvement.</p> <p>Political support is crucial for the continuous improvement of the TVET system. In Hungary, political support manifests through funding, policy-making, and facilitating collaboration between educational institutions and industries. The Hungarian government actively encourages companies to participate in sponsorships and propose technical aspects for inclusion in formal education. The UK could benefit from similar political support to ensure sustained investment in education and skills development.</p>

Insights we can share where countries have showcased excellence within their skill:

Hungary

In the Hungarian Nationals for WorldSkills (WSHU), the test projects are known for their high complexity, closely replicating the challenges of international competitions like EuroSkills. For instance, the 2023 EuroSkills test project was mirrored in complexity during the WSHU Nationals, providing competitors with a realistic experience of the international competition environment. This approach prepares students to tackle advanced problems and innovate under pressure.

The integration of real-world scenarios in test projects helps Hungarian competitors apply their skills practically. This includes working on projects that require the development of fully functional websites with dynamic content, secure back-end systems, and optimized performance, reflecting real industry demands.

The educational programs in Hungary are designed to cover technological aspects at a deep level, ensuring students are well-versed in both the theoretical and practical components of web development. This comprehensive coverage helps competitors stay ahead in understanding and applying the latest technological trends.

What do international Standards of Excellence look like in Web Technologies?

- **Coding Standards:** Competitors are expected to adhere to the latest web standards, including HTML5, CSS3, JavaScript, PHP. This ensures compatibility and maintainability of the code.
- **Clean Code:** Writing clean, well-structured, and commented code that follows industry standards and best practices. This includes adhering to principles such as DRY (Don't Repeat Yourself) and SOLID principles.
- **Efficient Code:** Writing efficient code that minimizes resource consumption and optimizes server performance. This includes using asynchronous programming in JavaScript and optimizing SQL queries in PHP.
- **Caching:** Implementing caching strategies (e.g., Redis, Memcached) to reduce load times and improve application performance.
- **Automated Testing:** Writing and executing unit tests, integration tests, and end-to-end tests to ensure code reliability and robustness. Tools like Jest (JavaScript) and PHPUnit (PHP) are commonly used.
- **Continuous Integration/Continuous Deployment (CI/CD):** Using CI/CD pipelines to automate the testing and deployment process, ensuring that code changes are continuously integrated and deployed without manual intervention.
- **Version Control:** Utilizing version control systems like Git for tracking changes, collaborative development, and maintaining code integrity.
- **Responsive Design:** Developing websites that are fully responsive and provide a seamless user experience across various devices and screen sizes is crucial.
- **Accessibility:** Competitors must ensure their websites comply with the Web Content Accessibility Guidelines (WCAG), making them usable for people with disabilities.

- **Visual Design:** High-quality visual design that is both aesthetically pleasing and functional. This includes a strong sense of layout, colour theory, typography, and user interface design.
- **Interactivity:** Implementing interactive elements using JavaScript and modern frameworks to enhance user engagement.
- **Comprehensive Documentation:** Providing thorough documentation of the codebase, APIs, and deployment processes to facilitate maintenance and onboarding of new developers.

Both countries have robust collaborations with industries, ensuring that the curriculum is aligned with current market needs. In Finland, industry representatives are involved in designing curriculum and providing apprenticeship opportunities. The UK can strengthen its industry partnerships to ensure that vocational training remains relevant and that students gain practical, hands-on experience that aligns with industry standards.

In Finland, vocational teachers **are required to have both academic qualifications and substantial industry experience**. Continuous professional development is also emphasized to keep educators updated with the latest trends and teaching methods. The UK could implement similar requirements and provide ongoing training programs to ensure that vocational educators are highly skilled and knowledgeable about current industry practices.

The Finnish TVET system's modular approach allows students to tailor their learning paths according to their career aspirations. This flexibility helps in creating a more personalized and relevant educational experience. Adopting a modular curriculum in the UK could allow students to focus on specific skills and competencies that align with their career goals, enhancing their employability.

Current key trends, practices and techniques in Web Technologies

The Technical Description for Web Development (Technologies) is a comprehensive and up-to-date document with many tools, resources and practice principles.

