

UK Technical and Vocational Skills System

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BRITAIN & NORTHERN IRELAND

*National Skills Academy for Rail Apprentices
Network Rail, UK*

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Bridging the skills gap



The UK has a long history of technical vocational education and training (TVET) which extends back to the 12th century. More recently, the UK TVET system has undergone a lengthy and substantive reforms process, so that the UK's current and future workforce has the training and support, to achieve the high-level skills required, to succeed in today's global economy.

Our aim is to share the UK's expertise and experience within the UK's bespoke skills methodology, rather than an off-the-shelf TVET system, so countries can create and build their own bespoke skills system; that's fit for their country's industry needs, human resource strategy, economic development and future growth and prosperity.

The UK delivers to:

- Enable systemic reform of skills and education systems, including funding mechanisms;
- Support economic development, growth and sustainability by building an appropriately skilled workforce through enhancing skills and education in key industrial areas;
- Share world-class best practice in teaching and education policy, design and delivery enabling young people to maximise their potential for growth via a range of high quality education routes;
- Create mutually beneficial opportunities and partnerships which dynamically build the capability and capacity required for systemic long-term change;
- Create public-private partnerships which support quality improvement, relevance and which bring about a sustainable financing of skills education;
- Maximise the innovative and effective use of ICT/Education Technology to support the transformation of skills services;
- Focus on sectoral skills development for employment and new types of skills, including industry 4.0 and other emerging sectors;
- Build 'centres of excellence' to boost innovation and competitiveness, and a diversified skills system for evolving labour market needs.

Strengths of the UK's TVET system

High quality and demand driven technical and vocational skills design and delivery underpins the UK's professional skills framework. It brings the best of class based and work based skills delivery together in a dual system like no other.



1 Demand driven

The UK's professional skills (TVET) system is demand driven: industry focused and learner centred. Using a dynamic voluntary model of employer engagement.

2 High impact

The UK's professional skills system is far more flexible than other countries' TVET systems. It allows both employers and training providers to develop a bespoke model of collaboration that delivers high impact and lasting skills to learners.

3 National qualification framework

The UK has one of the most diverse single national qualifications frameworks in the world from Levels 1-8 containing 26,450 national qualifications. The UK has 155 awarding organisations and over 6,500 private and employer training providers that caters for 3.4 million TVET students annually.

4 Seamless dual model

The UK's professional skills (TVET) system is an integrated model that allows students and workers to move seamlessly between the vocational and academic pillars. Students and workers can achieve vocational qualifications at levels 1 to 8, including Bachelor and Master's degrees in the workplace. (See figure 1)

5 Degree / Graduate Apprenticeships

The UK has developed a world leading model of Degree / Graduate Apprenticeships, which are developed in partnership with employers, higher education colleges and universities. Degree Apprenticeships allow students to develop advanced and high-level skills without ever having to go to university - all delivered in the workplace.

6 Employer levy system

A new employer levy system that ensures the long term financial sustainability of the apprenticeship model and allows the investment in skills to have greater impact.

7 Fit for industrial purpose

The UK constantly reviews its industrial needs at home and across the world to ensure the UK TVET system continues to be a world leader.

8 Toughest quality inspection regimes

The UK boasts one of the toughest quality inspection regimes in the world. A single quality assurance inspectorate with the legal power to remove low quality training providers.



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The UK is unique in having an integrated education framework from levels 1-8 which includes both academic and vocational education and training pathways.”

Figure 1. The UK National Education Framework



TVET system framework

From initial industry research, through occupational standards and curriculum development, teacher capacity building and training delivery, certification and integrated quality assurance, the UK solutions will be appropriate to the situation, contextualised to best fit and offer the most cost effective and flexible model. As the approach is a cyclical one and the model will be replicable and scalable across all industries.

Policy / Strategy Development

Support the establishment of aims and priorities of skills initiatives for industry sectors. Support the development of technical and vocational skills policies and strategies which set out aims, strands of work, outputs, evaluation, research results/needs and forms part of an integrated and contextualised skills plan.

Workforce Intelligence / Research

Develop and deliver workforce / labour market information, intelligence and insight used to identify skills priorities and inform the development of appropriate policies.

National Occupational Standards

Develop nation-specific occupational standards using expertise from specific industry sectors and identifying potential structures for National Occupational Standards, including international benchmarking.

Curriculum and Qualifications Development

Using extensive experience in writing and developing world-class technical and vocational curriculum and qualifications directly linked to workplace standards. Enhancing staff

capacity and capability in writing high quality curriculum and qualifications.

Accreditation / Quality Assurance

Develop quality assurance systems and procedures. Supporting the accreditation of training providers against nationally and/or internationally agreed standards to build and maintain quality provision, and add value to the training for employers and learners. Accreditation can be licensed to internationally recognised bodies or offered through national systems.

Training Provision

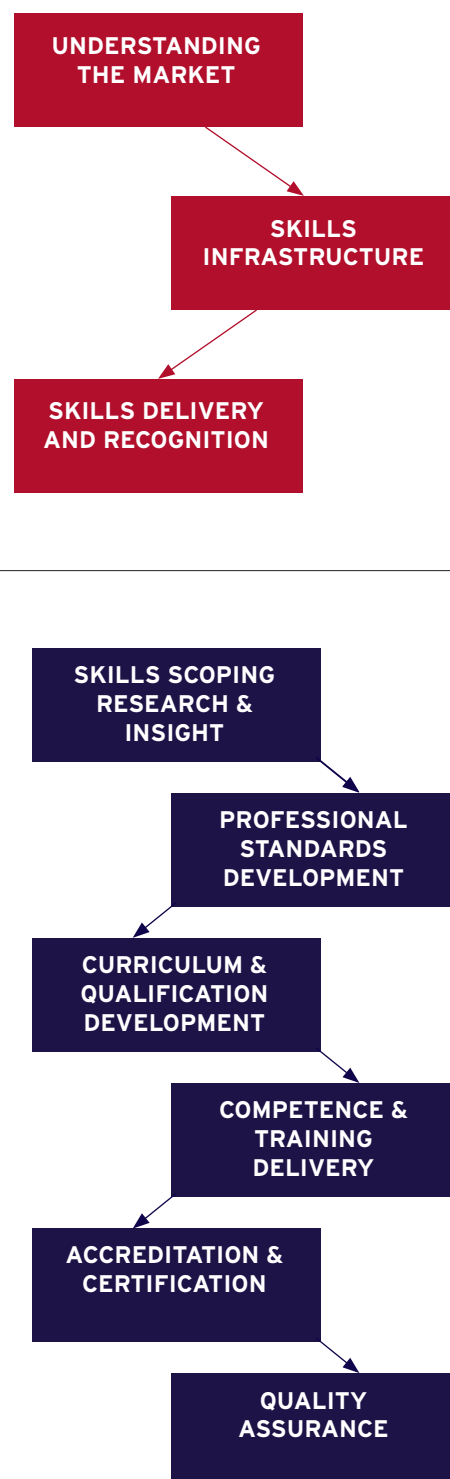
Support the establishment of networks of training providers to deliver quality training in line with employer need and the skills strategy. The provider network could be shaped to become part of a skills system enabling the employer to access training provision simply and effectively.

Training of Trainers

On-site or UK-based courses, developing and delivering masterclasses for existing and new technical and vocational trainers. Programmes to build capacity within the competence assessment system.

Assessment and Certification

Offering an all-encompassing Awarding Organisation certification/recognition



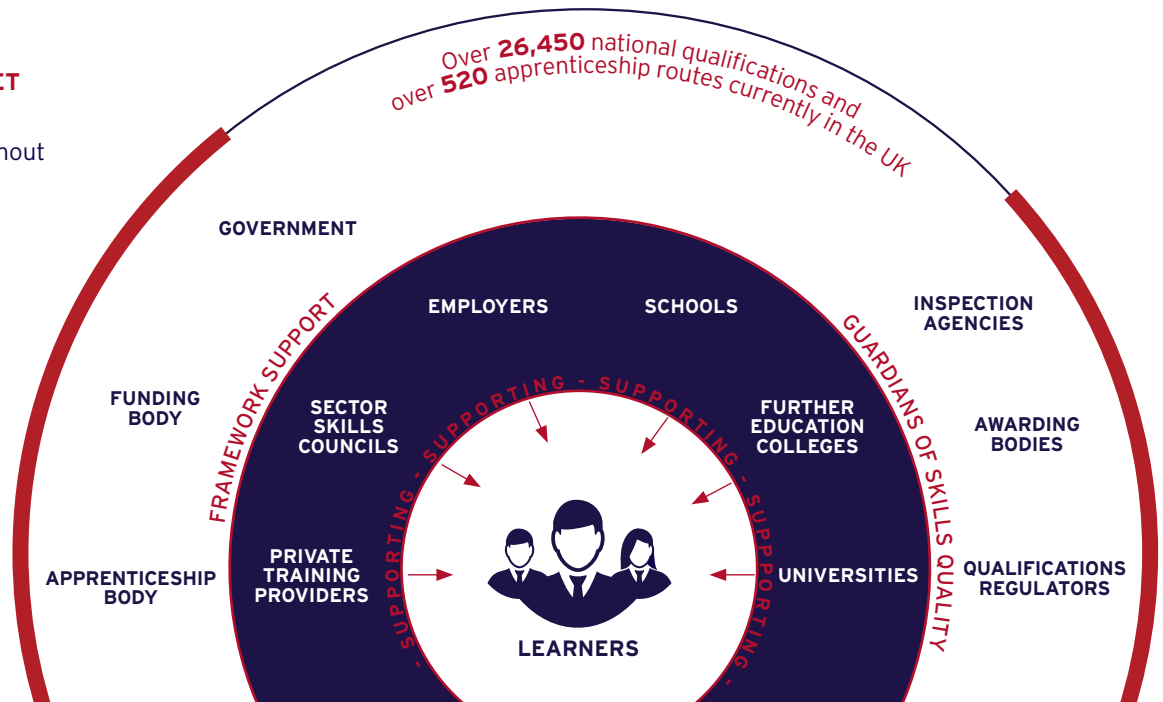
capability. A single point of access as either an Awarding Body or through strategic relationships with a range of high profile and internationally recognised Awarding Organisations.

Apprenticeships

Enabling promotion of career options, including developing and implementing apprenticeship programmes and providing links between employers and students, tackling youth unemployment as a priority. From levels 2 through to 8.

THE UK TVET SYSTEM

Rigorous without being rigid



Demand driven and employer focused TVET system

A stable and flexible skills environment

The learner is always the primary focus and at the centre of the UK TVET system. This ensures individual's needs are met; that their preferred learning styles are taken into account and each and every learner has the best chance of success. Employers play a central role in the design of the system, ensuring its relevance, flexibility and quality.

The UK has a wide range of skills training providers: schools, further education colleges, universities, private training providers and in-house training departments to maximise learners' and their employers' choice. Skills training providers often partner and collaborate to deliver new innovative teaching methods. Employers willingly engage and work closely with training providers to make sure that the skills being taught are the ones which will drive up their businesses competitive edge and move the UK economy forward.

There are 18 Sector Skills Councils in the UK that work to identify and bridge skills gaps, improve training standards and drive employer investment in skills. Sector Skills Councils produce and publish regular Labour Market Intelligence Reports, develop National Occupational Standards, develop Apprenticeship Frameworks and

Standards, provide Apprenticeship Quality Assurance and Certification, collaborate with Awarding Organisations to help develop Qualifications and enable Assessment and Certification of Qualifications. They also collaborate with Training Providers to ensure alignment of Qualifications; Training of Trainers; delivering Quality Assurance and Accreditation of Training Provision.

The UK currently has 155 Awarding Organisations approved to issue UK National Qualifications Certificates with UK Government authority. It is possible for a qualification to be awarded by more than one Awarding Organisation, which provides the learner/employer with a bigger and more competitive choice. The Awarding Organisations are responsible for developing qualifications, developing methodology assessment with industry, commercially selling their qualifications and ensuring training providers are delivering to a common high quality standard.

The UK Government regulates the TVET system to ensure the system is rigorous without being rigid. The robust regulatory system provides the stability, by maintaining trusted quality assurance in all functions of the skills environment - to ensure only the best provision

flourishes. The Office of Qualifications and Examinations Regulation (Ofqual) is responsible for vocational qualifications regulation and the Office for Standards in Education, Children's Services and Skills (Ofsted) amongst other roles, is responsible for the inspection and regulation of those education institutions and skills training providers who are in receipt of any Government financial support. Ofsted completes more than 3,000 inspection audits in the UK annually.

The Ministry for Education sets educational policy and targets and provides the link to the National Productivity Plan and Industrial Strategy via the Department for Business, Energy and Industrial Strategy. The Education & Skills Funding Agency is an executive agency of the Department of Education. The Agency manages the UK Government's Skills and Education budget, sets and manages funding rules, awards contracts with training providers and manages the UK Employer Levy, currently worth £3 billion. The Institute for Apprenticeships regulates the quality of UK apprenticeships and has been targeted to achieve three million apprenticeship starts by 2020 - 10% of the UK workforce and 50% increase on the last Parliament.

Degree apprenticeships

The UK has developed a world leading model of Degree / Graduate Apprenticeships designed to propel students into the world of work and to fill high-level skills gaps in the UK economy, by tailoring learning to specific business needs.

A degree apprenticeship combines full-time paid work and part-time university study to offer candidates the opportunity to gain a full Bachelors or Master's degree while completing practical, on-the-job training. Degree apprenticeships are created by partnerships between employers and universities or colleges and are studied over the course of one to six years. Course structure will vary across universities and employers, as each programme is tailored to suit individual employer needs and delivered in the style of the university's flexible teaching model - whether that's distance learning, blended learning or block mode learning (where the apprentice takes a period of full-time study away from their full-time work).

Degree apprentices hold full-time employment status rather than student status, so they 'Earn While They Learn'. University study is a mandatory part of degree-level apprenticeships and an apprentice's tuition fees and training costs are

settled between their education institution and employer.

Degree apprenticeships are only available in vocational subjects at a high level: aerospace engineering; aerospace software development; automotive engineering; business management; construction; defence; digital industries; electronic systems engineering; financial services; life and industrial sciences; nuclear; nursing; power engineering; public relations and surveying

There were over 1,670 degree level apprenticeship starts in 2016 to 2017, including foundation degrees, HNDs and full honours degrees. These include job roles ranging from legal services to banking and engineering.

Some of the most high-profile employers currently involved in the scheme include: Airbus; BAE Systems; Rolls Royce; BMW Group UK, Toyota Manufacturing UK; Vauxhall Motors; BAM Construct UK Ltd; E-ON Energy Solutions Ltd, Willmott Dixon Holdings Ltd; General Dynamics; Raytheon; Serco; BT; Fujitsu; Network Rail; ARM; Embecosm; FlexEnable; Barclays; HSBC; Santander; Astra Zeneca; GSK; Pfizer Inc.; EDF Energy; Magnox Ltd, Sellafield; Amey; Siemens; SSE; Claremont; Golin; KOR Communications Ltd.; Axis; ED Harris and Faithorn Farrell Timms.

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Higher and degree apprenticeships provide the high-level technical skills that employers need and offer young people the opportunity to earn while they learn on courses that offer a high-quality alternative career path.”

*The Rt Hon Anne Milton MP
Minister of State for Apprenticeships & Skills*

BENEFITS OF A DEGREE APPRENTICESHIP



1 STUDY TOWARDS A FULL BACHELOR'S DEGREE WITHOUT THE BURDEN OF STUDENT DEBT



2 EARN WHILE YOU LEARN



3 FULLY FUNDED BY YOUR EMPLOYER AND THE GOVERNMENT



4 ALTERNATIVE ROUTE TO TRADITIONAL UNIVERSITY



Chartered professional bodies

A British creation with a global reputation and reach to drive international standards of professionalism

Chartered Professional Bodies are a great British creation, with the global reputation and reach to drive international standards of professionalism. Chartered status for individuals is prestigious, coveted and trusted. Only Chartered bodies have UK Privy Council's permission to confer Chartered status. Chartered Bodies are a key component of the UK's global

leadership in setting international technical, people and ethical standards that drive best practice.

They provide opportunities for high-value partnerships with universities, government and employers across the globe. They also play a critical role in capacity building, helping economies to grow, driving educational standards

and innovation, and supporting common governance standards to support trade.

Some of the leading professional bodies in the UK are focused on the following professions: management; accountancy; marketing; insurance; chartered surveying and personnel and development.

Role of Chartered Professional Bodies

- Set and promote modern high quality professional standards
- Assess competencies of individuals to deliver against these standards
- Share knowledge of new developments and good practice
- Create international or national standards or frameworks
- Create careers pathways and deliver Continuing Professional Development (CPD)
- Provide careers support: opportunities for students, graduates and employees
- Publish professional journals and magazines
- Lead professional networks to meet and discuss their profession
- Establish Codes of Conduct to guide professional behaviour
- Promote knowledge-transfer
- Champion ethically-responsible business
- Enhance the value of existing educational programmes
- Develop organisational professional capabilities and expertise
- Advise governments

For an individual to achieve chartered status they need to achieve the following:

- Degree level qualification or validated experience
- Demonstrate competence against the professional standards
- Adhere to a code of conduct
- Evidence of impact in the workplace
- Commitment to continuing professional development

Case study

Vietnam

Proskills UK Group Develops a Fully Functioning Vocational Skills System for Viglacera Corporation in Vietnam – Adopted by Government Nationally

British Sector Skills Council: Proskills UK Group was appointed by leading Vietnamese building materials manufacturer Viglacera to develop a vocational skills system for their business. Proskills in partnership with Viglacera developed employer focused National Occupational Skills Standards (NOSS), a new curriculum and developed the capability and capacity of teaching and assessment staff that's relevant to the needs of local employers whilst also meeting regional and international standards.

"The challenge was to introduce new vocational skills quality standards and systems into a Vietnamese company whose staff had studied in an education system that's very different to the UK's education system. We also wanted to develop a self-sustaining skills system that would map into Vietnam's current skills system as well as the ASEAN region's skills system. And all this for the first time ever, totally from an employer's perspective" said Ian Aspley, Chair of Proskills Group.

Proskills in partnership with Viglacera delivered a fully functioning skills system:

- 5 full sets of National Occupational Skills Standards covering 60 job functions;
- 5 matching sets of curriculum content developed for use throughout the industry;
- 120 staff in 5 industries received extensive NOSS and VET training over 10 months;
- 17 'common' NOSS units covering health, safety, environmental, soft skills and leadership adopted by 40 further Viglacera divisions (outside the scope of the project);
- 26 staff trained to be vocational skills assessors;

UK expertise enabled the development of appropriate skills standards, education curriculum and capacity building

- 26 staff trained to be vocational skills verifiers;
- 15 sites from 5 industries took part;
- 160 vocational assessments completed;
- 500 industry based technical and educational experts consulted during the development process.

The skills framework that was developed resulted in the Viglacera Vocational College becoming an Approved Centre with Occupational

Awards Limited; and the new qualifications mapped to UK standards.

The Vietnamese government has adopted the skills framework model for other industries as part of a national scale up. The model will also help solve the ASEAN Economic Community's need for skills recognition across borders to enable open labour migration.

A new activity agreement between Proskills and Viglacera has also been signed to develop and deliver a raft of higher management and business training. These programmes will involve a comprehensive training programme delivered in Vietnam and the UK, using blended approaches as well as visits to relevant UK businesses to share best practise.

For further information visit: <http://www.ukskills.org/>



Capacity building teaching staff at Viglacera

Case study

Malaysia

Asian Rail Academy Partners with British National Training Academy for Rail to Set Up a State-of-the-Art Rail Training Hub in Malaysia

Railway is a sunrise industry in Southeast Asia; however most countries in the region still lack the required talent. In support of the country's economic development plans and long-term goal to become a high income nation by 2020, the Malaysian Government has invested more than RM100 billion in the industry since the 1990s. A further RM160 billion is forecast to be invested in the rail industry by 2030.

The rail industry currently employs more than 9,000 workers, but the industry has a gap in human capital development of 20,000 workers. With the rail industry in Asia forecast to grow 42% from 2015-2025, the Malaysian rail industry will continue to need new talent.

"Inspired by the growth in the Malaysian rail industry, we established the Asian Rail Academy to help deliver the human capital development the industry requires." said Maran Chandraraja, Chief Operating Officer, Asian Rail Academy.

In 2016, the founders of the Asian Rail Academy (ARA) met the UK's National Training Academy for Rail (NTAR) on the DIT's Education is GREAT stand at the World Skills ASEAN Conference & Exhibition in Kuala Lumpur. NTAR has been a key supporting partner in developing the right high performing workforce. It continues to assist with many aspects of the learning process including the development of high quality training standards. Subsequently, the Asian Rail Academy was set up and partnered with NTAR to provide globally recognised industry-relevant certification programmes in traction and rolling stock. The Academy's goal is to become the regional training hub for rail in ASEAN.

Being Asia's first authorised NTAR training partner, ARA is the first rail training facility in Malaysia to use NTAR's virtual reality learning



NTAR Apprentices

tools; incorporating technology and innovation into the Academy's programmes to create a fun and immersive learning environment. The Oculus Rift Virtual Reality headset enables trainees to visualise and interact with rail components in virtual 3D to enhance their learning experience. Trainees can learn the detailed workings of a train, diagnose faults, maintain equipment and perfect their skills in a similar way to the real working environment, but in a safe and effective virtual environment without risk. The virtual reality training has the additional advantage of being much cheaper compared to using physical equipment.

Organisations and operators in the rail industry prefer employees with multidisciplinary skills as current railway technology is becoming increasingly integrated with mechanical, electrical and software components. ARA's training programmes which began in September 2017, provide this required practical training, catering for both

the existing Malaysian rail workforce to help them acquire new industry-related skills as well as fresh graduates to improve their employability.

"Our gamification method of learning caters for this and ensures the first touch point of the rail industry doesn't feel like school for young and fresh talent. The millennials who are basically digital natives will definitely prefer to learn courses run with cutting-edge technology. As for existing workforce in the rail industry, this allows them to be more proficient with digitalized trains and systems and prepares them for technological advancements in the rail industry."

Currently jobs in the rail industry aren't proving to be as attractive to the Malaysian younger generation in comparison to the automotive, aerospace and maritime sectors. It is hoped the Asian Rail Academy with the support of NTAR redresses this to develop the local talent the rail industry needs to continue its ambitious growth trajectory.

Case study Mexico

The UK's Modular & Flexible TVET Methodology Supports Countries to Achieve Their Professional Skills Needs

The UK has been invited by the Mexican Government to support Chihuahua, build upon and re-purpose their current apprenticeship system with the objective of producing highly skilled apprentices that meet the state's industry needs.

Chihuahua is Mexico's biggest state with a strong industrial focus. The state has the second highest number of foreign-owned factories in Mexico and delivers the fifth highest manufacturing GDP of all Mexican states. It has been working hard to try and implement a 'German Dual Model' but results have not been satisfactory:

- 54% of employers have difficulty finding suitable competent talent to fill job vacancies;
- 43% of employers complain of a shortfall in the level of required mathematics;
- 51% of students are not achieving the required competencies that employers need;
- Over 60% of students are studying non-industry specific baccalaureates.

The 'German Dual Model' has failed for three key reasons. The system was not aligned to the Mexican education system, implementation was not thought through with key stakeholders not properly trained and resourced, and the system lacking a clear and unified approach that took account of the needs and capacities of the state's industry (in all its shapes and sizes), the state's education system (institutions and staff) and young people themselves.

Issues included:

- Negative image of TVET and low uptake;
- Lack of careers information, advice, guidance and signposting;
- Ineffective apprenticeship design including up-to-date curriculum that meets the needs of employers and students and aligns with Mexico's education system;
- Lack of a student - apprenticeship - employer 'matching service' to ensure the right fit;

- Lack of industry-relevant training of teachers at technical colleges and training and support for employers offering apprenticeships;
- Lack of unified apprentice pay and conditions;
- Lack of proper assessment and certification of apprenticeships, articulated into a national qualification system recognised by national and international employers to support career mobility.

"If there's one overall lesson to be drawn from the experience so far in Chihuahua, it's that overseas models need to be better adapted and fully integrated into local culture if they are to succeed" said Jonathan Ledger, TVET Specialist, Department for International Trade.

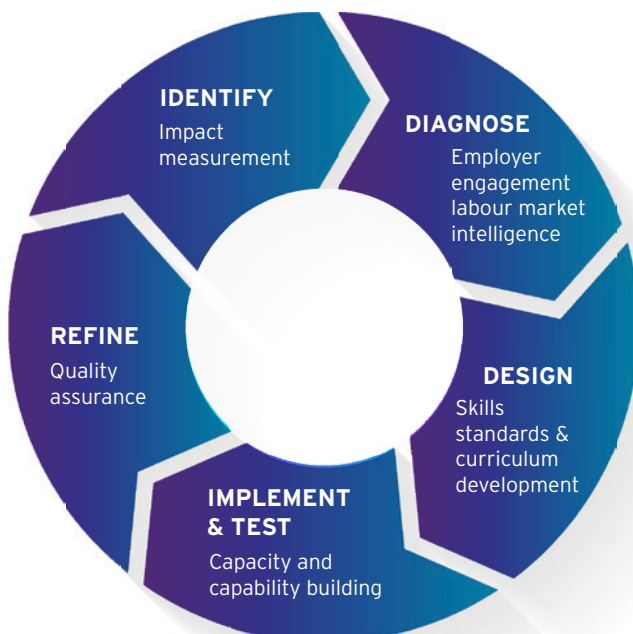
"To ensure its success, the development of any TVET system needs to engage directly with and be led by employers and industry groups to utilise their expertise and provide technical assistance to education establishments, especially when developing job standards and associated curricular" he continued.

The first step in developing a TVET system is to truly understand the employer demands and industry needs for the workforce. The UK is therefore recommending an apprenticeship pilot in a given geographical location within a limited number of industries. The pilot would cover the following process:

1. Workforce Skills Survey;
2. Develop Professional Standards;
3. Develop Curriculum & Qualification;
4. Competence & Training Delivery;
5. Accreditation & Certification;
6. Quality Assurance.

This would allow the shaping, testing and refining of a TVET model in controlled conditions, which when perfected can be scaled up and rolled out into other sectors and locations.

CAPACITY AND CAPABILITY BUILDING





UK services

To Develop Your Country's Bespoke Professional Skills (TVET) System

The UK offers a flexible combination of scalable services to meet a country's TVET needs. UK skills expertise covers all elements of the TVET framework:

- Research skills needs to prioritise and evidence employer demand for skills;
- Develop competence standards which integrate best practice and drive up skills levels;
- Develop qualifications to benchmark performance and confirm competence;
- Establish skills training provision that is credible, high-quality, relevant and fit-for-purpose;
- Recognise achievement to enable transferability across industries and social mobility.

A key feature of the UK service is that the UK works in partnership with the client, providing "knowledge and skills transfer" so the client is able to develop the best skills system for their country's specific needs. UK experts work in collaboration with all a country's key TVET stakeholders including government / state organisations, private sector representatives, education and employment bodies, employers

and employees. The principal role of the UK would be to facilitate the development of a skills infrastructure that builds on the best international practice and meets a country's unique needs.

UK expertise can guide you around the TVET pitfalls and maximise the leverage points in an effective way: whether its seeking advice on commercialising vocational training, working with schools or brokering partnerships at all points in the training value-chain.

UK skills expertise is world renowned for providing a diverse range of practical support and tools helping you create a sustainable skills system for tomorrow.

The UK skills offer

- Sector focused** — World-class skills solutions tailored to industry/business
- Strategic** — Policy aligned strategic approach that delivers systemic change
- Demand-driven** — Delivering the right skills in a coherent way that creates impact
- Flexible & responsive** — Responsive methodology which flexes in a changing global market
- Contextualised** — Creating sustainable & workable TVET models to meet client's needs

An easy single access point



The Department for International Trade has formed the UK Skills Partnership so clients have an easy single access point to UK skills expertise, which includes:

- Association of Colleges (AOC), CollegesWales International, Colleges Northern Ireland, Colleges Scotland and Collab Group - colleges
- UKSkills Federation - Sector Skills Councils / National Skills Academies
- Universities UK International (UUKi) - Universities
- Association of Employment and Learning Providers - Independent private providers
- Federation of Awarding Bodies & Joint Council for Qualifications - Awarding Organisations
- WorldSkills UK - Skills competitions and Standards
- British Council
- City & Guilds and Pearson
- British Education Suppliers Association (BESA)

To discuss your requirements, please contact the Education sector team, Department for International Trade at: DIT-education@trade.gov.uk

Alternatively, please contact our local Department for International Trade team at the British Embassy or British High Commission.



“

The truth is, no one really knows what exactly the future of work and what the future of the Labour Market may be. We will need to be able to flex and adapt and adjust.”

*The Rt. Hon. Damian Hinds MP
Secretary of State for Education*



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DIT

The UK's Department for International Trade (DIT) has overall responsibility for promoting UK trade across the world and attracting foreign investment to our economy. We are a specialised government body with responsibility for negotiating international trade policy, supporting business, as well as delivering an outward-looking trade diplomacy strategy.

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