



# Drivers of technical excellence in the skills economy



A report for the WorldSkills UK Centre of Excellence, in partnership with NCFE, by SKOPE and the Edge Foundation.

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# Contents

Acknowledgements	3
Abbreviations and acronyms	3
About the partners	4
Forewords	5
Executive summary	8
Skills economy + knowledge economy = economic productivity.....	10
Summary of key findings	12
World-class standards are key to a skills economy .....	12
Teaching excellence is innovative and responsive to emerging needs .....	13
Skills economies are rooted in networked skills systems.....	13
About this study	14
Methodology .....	16
Country selection .....	17
Section 1: The role of WorldSkills: a critical bridge to excellence	18
Benchmarking international standards .....	19
Linking organisations .....	19
Supporting innovation .....	21
Section 2: Employers at the heart of excellence	23
Curricula relevance and employer influence on the curriculum .....	23
Managing change.....	26
Networked skills systems.....	27
Section 3: The complex dynamics between policy, people and practice	28
Policy .....	29
Economic structures and the purpose of TVET	30
Austria: The importance of SMEs	30
Brazil: low participation	32
France: highly regulated and clearly defined pathways	33
Hungary: a reinvigorated system?	35
India: A young population in high numbers	37
Japan: high stakes and fear of failure	41
South Korea: shared responsibility?	43
People.....	46
Social and familial influence on student choice	47
Prestige	48
Practice.....	50
Teaching excellence	51
Assessment and learner journey	52
Continuing professional development (CPD)	53
Section 4: Recommendations and lessons for the UK	56
References	59

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We are grateful to colleagues at WorldSkills UK, Emma Roberts, Ben Blackledge and Dr Neil Bentley-Gockmann, who put us in contact with the participants, and who provided very useful feedback on earlier drafts.

# Abbreviations and acronyms

CFA	Centre de Formation pour Apprentis (apprenticeship training centre) (France)
CPD	Continuing professional development
E&T	Education and training
HR	Human resources
ITT	Initial teacher training
MEC	Ministry of Education (Brazil)
MHRD	Ministry of Human Resources Development (India)
MSDE	Ministry of Skills Development and Entrepreneurship (India)
NCEE	National Centre on Education and the Economy (Japan)
NSDC	National Skills Development Corporation (India)
OECD	The Organisation for Economic Co-operation and Development
PBL	Project-based learning
PTP	Private training providers
SKOPE	Skills, Knowledge and Organisational Performance
SME	small-to-medium sized enterprises
SSC	Sector Skills Council
ToT	Training of Trainer Centres
TVET	Technical and vocational education and training
UK	United Kingdom
WS	WorldSkills
WSUK	WorldSkills UK

# About the partners



## WorldSkills UK

WorldSkills UK is an independent charity and a partnership between employers, education and governments. Together, we are using international best practice to raise standards in apprenticeships and technical education so more young people and employers succeed.

We innovate to help employers by benchmarking with skills systems from around the world to inform policy and practice, ensuring high-quality skills and boosting the UK economy.

We develop educators by sharing international best practice, to deliver high-quality training and assessment.

We inspire young people, whatever their background, to choose high quality apprenticeships and technical education as prestigious career routes.



## The Edge Foundation

The world is changing fast and education needs to keep up. Edge is an independent, politically impartial education foundation. We want education to be relevant to the twenty-first century. We gather evidence through research and real world projects and partnerships and use this to lead the debate and influence policy and practice. Edge believes all young people need to be equipped with the skills that today's global, digital economy demands, through a broad and balanced curriculum, high-quality training, engaging real world learning and rich relationships between education and employers.



## SKOPE

The Centre for Skills, Knowledge, and Organisational Performance (SKOPE) focuses on policy and practice at the intersection of education, skills, and employment. It is a multi-disciplinary research centre concentrating on the inter relationships between the development, demand, supply, and deployment of skill across the education and employment landscape in the UK and more broadly. SKOPE comprises a global network of researchers whose expertise spans the fields of education, sociology, economics, STEM, industrial relations, and assessment, amongst others.



## NCFE

NCFE is a leading provider of educational services and as a not for profit organisation we have a strong heritage in learning and have been at the forefront of technical and vocational education for over 170 years.

We design and certify diverse, nationally recognised qualifications and awards, which have contributed to the success of millions of learners at all levels, bringing them closer to fulfilling their personal goals.

# Forewords

**Dr Neil Bently-Gockmann OBE**

'Drivers of technical excellence in the skills economy' was commissioned as part of the WorldSkills UK Centre of Excellence pilot in partnership with NCFE; a ground-breaking programme designed to embed international best practice in teaching, assessment and learning in technical education right across the UK, with the ambition to improve outcomes for some 40,000 learners over three years.



Working with SKOPE and the Edge Foundation gave us the opportunity to explore how seven other countries (Austria, Brazil, France, Hungary, India, Japan, and South Korea) drive technical excellence both in terms of policy and practice to see what we could learn for the Centre of Excellence, and the UK's skills systems more broadly.

The findings are clear:

**World-class technical skills and skills systems are seen across all countries as vital for the economy.** In Austria apprenticeships are a key part of the thriving SME sector and in India the TVET system has short courses designed specifically to respond to short-term labour market needs and longer pathways to serve the higher technical needs of their engineering and IT sectors.

**Successful skills economies rely on excellence being embedded at all levels.** In Austria and Hungary project-based learning is an important element of how they drive excellence through teaching practice, whereas in Brazil employers are seen as the main customers of the TVET system and are involved in making sure cross-occupational competencies are considered alongside occupational specific standards.

**High standards and employer involvement can help tackle low prestige for TVET.** In Hungary employer involvement in the curriculum was seen as having a positive impact on how TVET was perceived and in Japan the requirement for teachers in Kosen colleges of technology to have PhDs was vital in creating a sense of prestige for this technical education route.

Alongside these findings the report also concludes that WorldSkills, the international organisation, plays a critical role in helping national skills systems promote excellence. Firstly, by providing a unique mechanism for benchmarking standards

internationally helping in-country skills systems ensure the standards they are teaching to are comparable with other countries. Secondly, by making sure its standards can quickly respond to industry needs and technological change. Thirdly by providing a valuable 'third' space which gives teachers and students the freedom to experiment and innovate, when not in a formal education setting or a workplace.

This all matters because it provides insights that can help make the UK's skills systems more internationally competitive. As we attempt to rebuild and level-up our economy and respond to the challenges of technology and climate change, the UK needs young women and men equipped with the employability and technical skills to boost the competitiveness of sectors such as advanced manufacturing, tech and life sciences that are globally-traded and require the highest standards from their workforce. In other words, we need a world-class skills economy, and this report helpfully shows us some of the ways to achieve that ambition.

We look forward to working with our colleagues at NCFE to explore how the report's recommendations can help shape and improve the Centre of Excellence and to working with our wider network of partners to make sure we are doing everything we can within the UK's skills systems to promote and embed excellence and to be that valuable 'third' space, supporting more young people, teachers and employers innovate and succeed.

### David Gallagher

Skills change lives. They build self-esteem and release potential, create opportunities in local and globally connected communities, and are the foundation of economic and social progress, which is why we are thrilled to be partnering with WorldSkills UK and this revolutionary and timely project. NCFE's purpose to 'promote and advance learning' aligns with World Skills UK's mission, that every young person succeeds in work and life.



As rapid and ongoing changes in the economy and labour market emerge, it's clear that we must do all we can to support individuals from all walks of life and provide them with access to high-quality education and training; equipping them with the knowledge, skills, confidence and mindset to make the most of the opportunities that come their way.

At NCFE we believe that the quality of teaching is the single most important aspect of the learning experience

A thriving economy is underpinned by the development and implementation of the skills that meet the dynamic needs of the current and future workforce.

Central to great learning experiences are great educators, and for the UK to be competitive on a global scale, we know that we need more truly world-class educators in our technical education and skills system, which is why we have invested in the development of these educators with WorldSkills UK.

At NCFE we believe that the quality of teaching is the single most important aspect of the learning experience. We simply cannot create transformational learning experiences without artful and inspiring practitioners, so we've got to invest in the latent potential that's there within our frontline workforce in education to help our educators be the best they can be.

By providing much-needed investment in technical educators through the Centre of Excellence, we will mainstream international best practice into programme delivery. We are raising the bar for technical teaching and helping to create a cohort of highly skilled, employment-ready young people who can positively contribute to the workforce as we strive to rebuild the UK economy. The impact of this project will resonate for years to come and has the potential to inspire and create the next generation of world-class educators and learners, whilst creating prestige for apprenticeships and technical teaching.

It's also vital that we learn from best practice across the globe to drive excellence in technical and vocational training; exploring what we can learn from different countries, models, industries and skills systems. This report clearly shows the drivers of excellence at an international level, making interesting and insightful links and comparisons. Importantly, the report demonstrates the clear need for true and effective collaboration. Movements need collaborators, and change can only be driven by employers, educators and policy-makers coming together to look at meaningful and innovative solutions with learners' needs at their core. There is no doubt that we are standing on the cusp of seismic change and we all have a part to play in ensuring the future quality and prestige of vocational and technical education. And that's an exciting place to start.



## Executive summary

Skills drive the economy. The skills taught and developed through the technical and vocational education and training (TVET) route are imperative for economic productivity and growth (OECD, 2017a), and their importance for economic recovery post-pandemic, as well as Britain's future post-Brexit, is clear (Bentley-Gockmann, 2021).

Evidence shows that world-class skills systems, underpinned by robust standards, drive economic growth through improved productivity and inward investment. The TVET route is starting to receive increasing government attention in the UK; the government's recent Skills for Jobs White Paper for England underlines policymakers' recognition of ensuring skills development is front and centre in education and training policy and economic strategy. However, around the world, the most successful skills systems are underpinned by a well-supported, respected, and trained technical teaching workforce with structures in place to ensure the delivery of world-class technical education and training.



Excellence in TVET has existed in skills systems around the world for many decades; economic prosperity has depended on it. However, research has shown that such excellence often is embedded in pockets: at different levels within stratified skills systems (apprentices, for example, in India, Austria, and the United Kingdom); or in specific industries. There is clearly a need to share models of best practice across contexts and systems at an international level. This report, therefore, presents findings from a comparative research project examining the mechanisms and drivers of technical excellence in seven skills systems around the world.

The report highlights the close relationship between world-class teaching and training standards in skills systems and enhanced productivity and economic growth. This illustrates the ways in which the most successful skills systems should be thought of as healthy and connected eco-systems with excellence and standards embedded at all levels, from policy structures (macro), through institutional relationships between employers and training centres (meso), to CPD support and funding and individual teaching practice (micro). The study found that, across the seven case study countries, WorldSkills can play a critical role in driving excellence within national skills systems. **Firstly, it supports the development of international benchmarks, that ensure standards in skills systems are at a world-class level. Secondly, skills competitions and the associated training provided a 'third space' for trainers and trainees to experiment with innovative pedagogic approaches and practices and so respond to the latest technologies, industry developments, and emergent skills demands in an agile manner.**

The study, therefore, explicitly highlights how a successful skills system comprises a range of close relationships and dynamics between system-level policies, productivity and economic growth, industry needs, employer perspectives, technological developments, local organisations and training providers, and individual teaching practice, with WorldSkills acting as a bridging mechanism across different levels of the system and across different spaces. This illustrates the ways in which the most successful skills systems combine multi-level and multi-spatial dynamics with policy and practice cutting across local, national and international dimensions and multiple organisations.

This highlights the need for reconfiguring policy language around productivity to emphasise a skills economy. This provides a critical reorientation that moves away from the dominance of knowledge economy thinking and takes into account the relationship between productivity and the shifting dynamics between skills supply and demand, the changing nature of work, spatial dynamics, and local economic variance.

## Skills economy + knowledge economy = economic productivity

A focus on the skills economy in the UK is important for a number of reasons. First, skills are developed across the tertiary education sector and workplaces. Unlike a focus solely on the knowledge economy, incorporating the skills economy allows for this broadened understanding of where skills are developed. Second, it showcases the development of skills excellence highlighting the extraordinary work already occurring in providing high level skills and the quality that the UK's skills system can deliver. Third, it places skills at the heart of the economy where they make impact in terms of international trade, development, and investment, especially in growth sectors providing job opportunities. Fourth, it places employers at the forefront of training and development to work with the UK's high calibre further education and higher education institutions.

Supply-side policy, has for a long time, focussed on higher education (HE); higher education institutions (HEIs) have been seen as the main vehicle to skilled employment (Davies and Ercolani, 2021). Government policies have been strongly influenced by the idea that HE improves students' knowledge and skills levels, which then improve productivity and economic performance (Keep, 2020). While HEI's, predominantly universities, are clearly playing an important role in terms of the knowledge economy, generating intellectual property, the skills economy focuses on understanding and recognising the skills underpinning

The skills economy focuses on understanding and recognising the skills underpinning the knowledge developed



A skills economy is underpinned by the development of high-quality skills and creates jobs that are valued by all members of society



the knowledge developed. A good illustration is the vaccine development for the current Covid-19 pandemic. Great minds have been involved in the vaccine's development in conjunction with many finely-honed, high-quality skills from technicians helping to produce and deliver it globally. In a symbiotic way knowledge and skills have coalesced to provide an answer to a global health and economic crisis.

A skills economy is underpinned by the development of high-quality skills and creates jobs that are valued by all members of society. Interestingly, and despite Brexit, the UK is aligning skills policy more with Europe, as outlined in the Skills for Jobs White Paper for England (Department for Education, 2021). And many countries globally, similar to the UK, have recognised that making the TVET route attractive needs to be a policy priority (Ministry of Human Resource Development, 2020 India, for example). Indeed, underpinning this imperative for esteem for the TVET route is the understanding that quality of provision and teaching standards are inextricably linked to prestige, for example the Kosen colleges in Japan; these institutions strive to move from competence to excellence in a similar vein to the WorldSkills training managers working in UK Further Education (FE) (James Relly, 2019). A clear message is that employers, education and training providers, and policy makers must work together in any endeavour to improve the quality and prestige in TVET, making it an attractive pathway. To do this requires a long-term strategic approach; an approach that incorporates and places importance on the skills economy as much as the knowledge economy.



## Summary of key findings

### World-class standards are key to a skills economy

- world-class skills systems are underpinned by internationally benchmarked standards
- world-class skills standards underpin productivity and economic growth at local and national levels
- WorldSkills plays a critical role in establishing global standards: few national skills systems have mechanisms to benchmark standards in a way that takes into account other skills systems around the world. WorldSkills competitions provide a critical mechanism for raising standards by establishing international benchmarks in a way that is often more agile and tailored to employer needs and technological changes than can be achieved through updates to national policy.

## Teaching excellence is innovative and responsive to emerging needs

- teaching excellence is underpinned by agile pedagogic adaptations that take into account employer needs, technological changes and shifts in industry practice
- access to and investment in high quality CPD is critical to teaching excellence ensuring trainers incorporate changes in skills, technology, and industry practice into their teaching and pedagogic approaches and work to the latest standards
- WorldSkills provides a 'third space' that enables trainers to experiment with pedagogy and technology in a way that drives innovation.

## Skills economies are rooted in networked skills systems

- the most successful skills systems comprise networks of macro, meso, and micro level actors and organisations across local, national, and international contexts
- skills systems can respond most efficiently to shifting economic needs, technological change, and industry developments when employers and training providers are structurally linked
- WorldSkills can provide a key mechanism for connecting employers and training providers, and responding to economic, technological, practice related change. It can act as a bridging organisation, supporting training providers in innovative practice and embedding training in workplaces, while helping key actors in skills systems to work across local, national and international contexts.





## About this study

With the UK government's intention to reinvigorate the further education sector (see Department for Education, 2019 commonly known as the Augar Report, and Skills for Jobs White Paper, DfE 2021 for England), learning from global insights is imperative, particularly of the ways other countries are developing and delivering technical excellence and the drivers used to achieve this. Skills competitions have been one way of doing this. WorldSkills Competitions (WSC) promote and enable skill development at the highest standard and have been shown to impact positively on the UK education and training system, and the economy more broadly (James Relly and Keep, 2018; Chankseliani, James Relly and Laczik, 2016).

In the UK, during the last five to ten years, attention has been focused on the broader impact of WSC and Team UK to understand better how vocational excellence can, and is, developed. Further education, higher education and private training provider participation in skills competitions has grown across all four UK nations, with increasing numbers of students and apprentices joining Squad UK and/or Team UK and more of these institutions involved in local, regional and national competitions; at the same time the number of colleges hosting these skills competitions at various levels

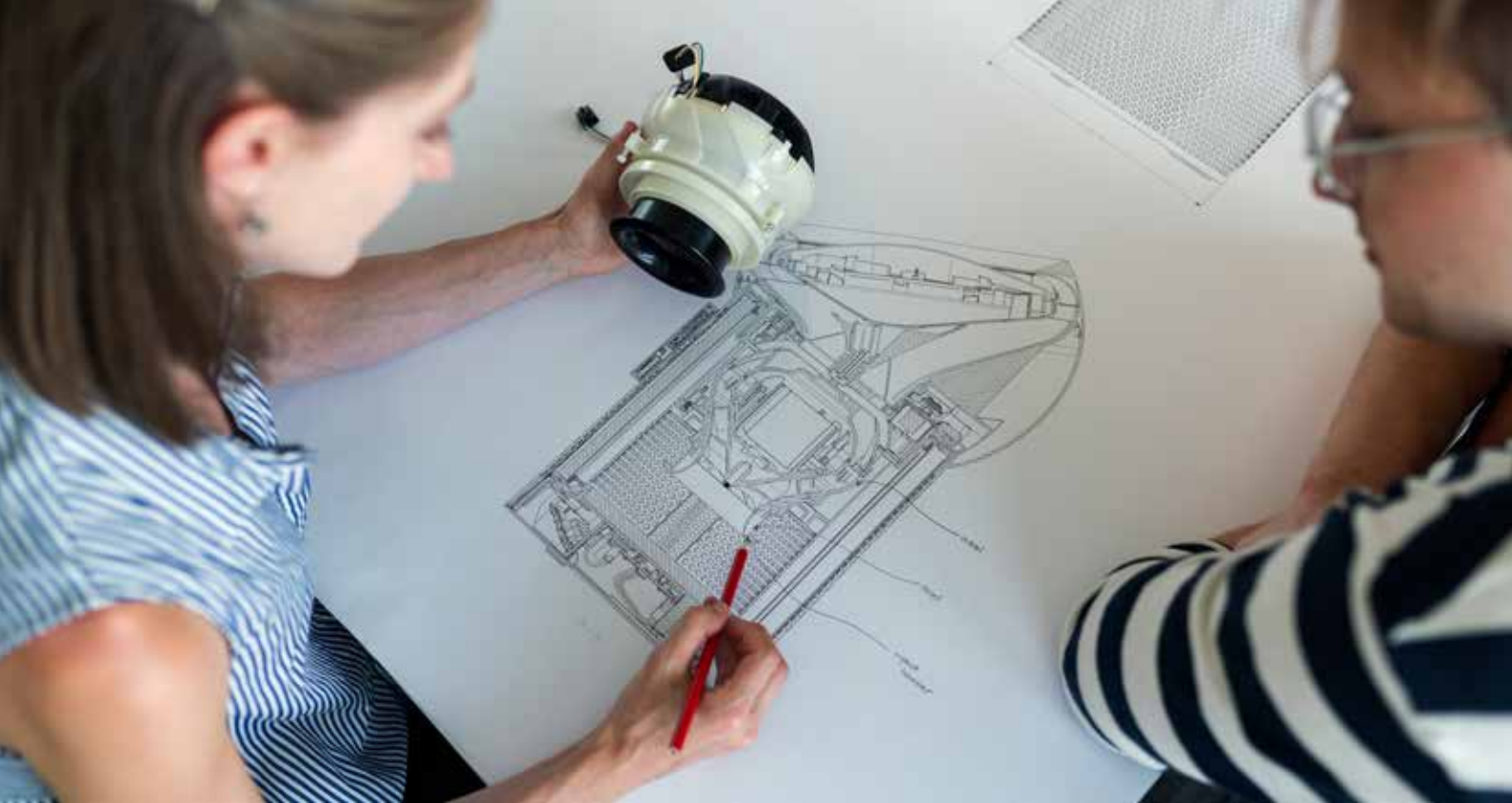
Looking to other countries to understand better their education and training system brings many advantages for policy learning and contextualised learning

has also increased (James Relly, 2020). The ambitious plan clearly articulated in the Skills for Jobs White Paper (DfE, 2021) for England as well as policies being developed to improve standards in Wales, Scotland and Northern Ireland recognise the pivotal role TVET plays in skills development and boosting economic growth. With an increasing focus on specialisation and higher-level technical skills development (DfE, 2019) it is important to understand better how to develop technical excellence at all levels in UK skills systems and what drivers can be developed to do this.

This report draws on distinctive insights into global skills systems. Innovations and developments in other countries have long held fascination for policymakers and educators in the UK. Indeed, an entire field of international and comparative education exists. While taking regard of the cultural and political contexts, looking to other countries to understand better their education and training system brings many advantages for policy learning and contextualised learning. This research endeavours to show how other countries enable technical and vocational education and training to be at the forefront of curriculum and workforce development. We address the following question:

**“How do other countries, with interesting or pioneering technical education systems, develop the skills of their technical education workforce to ensure high quality teaching standards?”**





## Methodology

The study  
focussed on  
TVET systems in  
**7**  
countries

we collected  
data from  
**56**  
semi-structured  
online interviews

This report is the culmination of a five-month research project led by SKOPE and The Edge Foundation in partnership with WorldSkills UK and funded by WorldSkills UK's Centre of Excellence, in partnership with NCFE. The findings are intended to feed directly into the development of the Centre of Excellence pilot programme. The study focussed on the policy and governance structure of TVET systems in seven countries: Austria; Brazil; France; Hungary; India; Japan; and South Korea, to gain an understanding of the drivers used to develop and deliver technical excellence. It consisted of three phases:

- phase 1: a desk-based literature review of policy, academic, and grey literature
- phase 2: semi-structured interviews with key stakeholders
- phase 3: cross-country analysis.

A snowball methodology was adopted for the interviews. WorldSkills UK introduced the research team to key WS members in each of the countries. In turn, these WS members introduced us to key stakeholders within the wider TVET sector, who subsequently introduced other participants. In total, we collected data from 56 semi-structured online interviews with WS delegates, teachers, policy-makers, students, training supervisors in companies, TVET experts, CPD managers, and representatives from Chambers of Commerce. The interviews were conducted between January 2021 and April 2021. The interviews consisted of a series of questions about the purpose of TVET, curriculum development



activities, teacher/tutor/lecturer recruitment and selection, CPD, assessment frameworks and assessment journeys, students' pathways and experiences, the challenges the sector faces, positive policy developments, trajectories of change, and the role of WorldSkills in the countries' systems. Each interview was audio-recorded and transcribed, and lasted between 45 minutes and 1.5 hours. To ensure anonymity, each participant has been provided with a pseudonym in the form of a letter and number. For example, a teacher will be T1 or T2; policymaker will be P1 or P2 etc.

### Country selection

Austria, Brazil, France, Hungary, India, Japan, and South Korea are all members of WorldSkills and enter a team in the biennial WorldSkills Competitions (WSC). Stemming from these countries' involvement in these global skills competitions, policy changes and innovative practice at national and local level have driven technical excellence and provided technical excellence and providing fertile ground for lessons for the UK.

The data shows that the policies surrounding TVET systems diverge, often radically, between the different countries, rooted in their own unique contexts and histories. Yet, it is possible to see similar patterns of where TVET fits into the wider education system and economic contexts, and the ways in which key stakeholders conceptualise the sector, their role within it, the challenges they face, and the best ways to embed excellence within TVET teaching practice. Much TVET, and its delivery, is hidden (OECD, 2014). In part, this invisibility can be traced back to the number and types of students involved, and the ways that TVET systems have developed (James Relly, 2021). The picture illustrates the complexity in TVET across the seven countries all the while highlighting the art of the possible and the ingenuity readily available to ensure positive outcomes for as many young people as possible. Moreover, each country provides important lessons in terms of policy enactment (Ball, Maguire & Braun, 2011) and the roles that WorldSkills plays as an international organisation focussed on developing high-quality skills at three levels:

- **the macro level:** the policy-related and social structures that shape the way in which the purpose of TVET is conceptualised within policy contexts and by key stakeholders **within** the education system itself;
- **the meso level:** particularly the structural relationships between education providers and employers, and the ways in which employers engage in and contribute to TVET;
- **the micro level:** the 'art of teaching' and the ways in which TVET teaching professionals navigate complex policy, professional-oriented and social spaces to ensure high-quality teaching and learning sits at the heart of their practice.

# 1

## The role of WorldSkills: a critical bridge to excellence

Across the case study countries, WorldSkills played a critical role in the TVET systems, shaping teaching standards, and driving teaching excellence in its conceptualisation and enactment.

In the most successful skills systems, WorldSkills worked across different specialities, bridging local, national and international contexts in ways that shaped standards, linked organisations and aligned skills supply with employer demands, and facilitated innovative teaching practice. All of this could be seen as underpinning the growing dominance of conceptualising skills systems in terms of skills economies, enhanced productivity, and economic growth.

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*“With WorldSkills we can experiment with specific teaching methods ... this training happens outside formal courses and we have time with students who are passionate ... we make them experiment with practical work.” (WS1)*

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As such, WorldSkills played a vital role in bringing world-class standards into national skills systems

WorldSkills, in many of the case study countries, worked closely with different unions, trade organisations and networks of individual employers

## Benchmarking international standards

Participants across all the case study countries emphasised the importance of standards in skills systems. However, it was clear that in the most successful systems, WorldSkills and skills competitions provided a mechanism for international benchmarking of standards. The majority of skills systems do not have international comparative approaches built into standard-setting. As such, WorldSkills played a vital role in bringing world-class standards into national skills systems. Stakeholders across all case countries emphasised that internationally competitive standards were critical in ensuring teaching staff were helping young people develop skills that were appropriate in increasingly globalised economic settings. This ensured enhanced productivity across local, national and international markets and national economic growth in relation to other countries. At the same time, embedding international standards in national skills systems was seen as critical in providing young people with skills that would allow for national and international mobility.

Stakeholders also emphasised that the flexibility and international orientation of WorldSkills meant that standards could respond to employers' emerging skills demands, technological changes, and shifting industrial practice in a more agile way than could be achieved through centralised governmental standard-setting. This meant that, where WorldSkills was properly embedded in skills systems, the standards they helped set were responsive, competitive, rooted in the needs of the skills economy, and embedded in the local, national, and international skills ecosystems.

## Linking organisations

While international benchmarking can be viewed as taking place at the macro level of skills systems, WorldSkills activities in each country could also be seen as sitting across the meso level activities of TVET systems. At this level, WorldSkills, in many of the case study countries, worked closely with different unions, trade organisations and networks of individual employers. This often took place through individuals, with WorldSkills representatives working closely within their industry specialisms. Stakeholders reported that this facilitated employers' understandings of education and training and helped them to think creatively about ways in which skills development could be effectively embedded in the workplace, in internships, placements, and apprenticeships.

At the same time, participants emphasised that close working relationships between WorldSkills and employers helped those involved in delivering training understand the changing needs

Competitions were part of a force that drove excellence in both trainees and in the approaches taken to train them

of the sectors they worked in, ensuring that they kept abreast of regulatory changes, technological developments, and changing industry practices. This could then be reflected in the ways in which they structured competitions and associated training. Importantly, as many representatives often had roles that sat across WorldSkills and other parts of TVET, many of these participants explained how they were ideally placed to feed their up-to-date knowledge of industry developments directly into the skills system, providing informal (and sometimes formal) CPD to colleagues.

Participants within several case study countries argued that, in addition to WorldSkills representatives working closely with trades and industry, the competitions themselves were critical to this bridging process. Competitions were part of a force that drove excellence in both trainees and in the approaches taken to train them. Participants highlighted that the process of training competitors for competitions involved repositioning the teachers and trainers as a team, a process which empowers the trainees to take control of their own skills formation, leading to self-efficacy and 'aspirations for excellence', which they took into their workplaces:

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*“You can always tell the difference between someone who has done a competition and a person who hasn’t. That person [who hasn’t] will listen to his boss and do the task, but when that finishes he won’t search further. He always needs a boss behind him telling him what to do... a competitor will apply himself to the task, but will search for that something extra to make the difference in relation to his colleagues.... We are always looking for that little extra bit.” (T1)*

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WorldSkills  
could be seen  
as providing a  
critical bridge  
between  
organisations

As such, in many of the case study countries, WorldSkills could be seen as providing a critical bridge between organisations, providing structures and relationships that ensured skills systems remained highly responsive to developments in technology and industry practice. As such, by providing a key bridging mechanism between organisations within the skills system, primarily employers and training providers, in the most successful cases, WorldSkills could be seen as ensuring a close and responsive relationship between skills supply and demand, serving a vital function in the skills economy.

Training for  
WorldSkills  
Competitions,  
therefore, was  
seen as providing  
a crucial  
educational  
space to rethink  
processes in an  
environment  
where it was 'OK  
to get it wrong'

### Supporting innovation

From a teaching perspective, participants directly involved in WorldSkills also emphasised that competitions had a vital role to play in driving teaching innovation. They argued that the process of supporting and preparing trainees for competitions gave them the time and space to experiment with different pedagogical approaches and think more innovatively about their teaching practice. This time was seen as distinct from the training that takes place on the job where the emphasis was always on speed and ensuring the employer 'makes money'. While experimentation is critical for innovation and excellence, the participants noted that this could not always be achieved in a workplace where a job or task simply needs completing. Training for WorldSkills Competitions, therefore, was seen as providing a crucial educational space to rethink processes in an environment where it was 'OK to get it wrong'. This was highlighted both in terms of experimenting with skills-related processes, but also in terms of experimenting with technologies that support learning, an issue that was seen as particularly important in a COVID-19 context.

WorldSkills could be seen as operating in a kind of 'third space', sitting between formal education/training and the workplace. This operated as a safe space where trainers and trainees could experiment with skills, processes, and pedagogy, while also providing a bridging mechanism to bring work-based innovations and developments into the training process in a way that could respond to emerging technological changes and shifting industry practices.

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*“Working across levels in this way, positioned WorldSkills in these countries as a key driver of skills standards and excellence.”*

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Trainees could experiment with skills, processes, and pedagogy, while also providing a bridging mechanism to bring work-based innovations and developments into the training process

This was most apparent in the more stable economies and established TVET systems (France and Austria, for example). Meanwhile, this element was developing in several of the case studies, where WorldSkills was in the process of establishing itself. In these contexts, WorldSkills representatives were navigating highly febrile policy contexts. Instability at a macro-level in terms of both economic activity and TVET policy could clearly be seen as creating a context that inhibited the creation of a third space to promote innovation, standard-setting, or teaching excellence in a coherent way.

Underpinning all of this was employers. This valuing of employers, skills development in the workplace, and positioning of the skills economy is common among our European counterparts whereby they locate TVET, and the skills development within it, in the context of the economy and economic development. Placing employers at the heart is imperative to successful talent development.



## 2 Employers at the heart of excellence

Employers are heterogeneous the world over; it is unsurprising that engaging employers has been a long-held policy conundrum in the UK (James Relly and Laczik, 2021). Yet, in other countries which have much closer links between economic development and skills development, engaging employers is a natural part of the process and employers see engagement as part of their responsibility. This highlights how skills systems with strong network links between different organisations and stakeholders are better able to respond to technological development and industry changes such that emerging employer requirements and needs can be incorporated into curriculum development in an agile and flexible manner.

### Curricula relevance and employer influence on the curriculum

Industry and technology develop rapidly. Across the world, TVET systems are facing increasing challenges due to industry 4.0 and digitalisation. The seven countries took different approaches to finding solutions through various policy mechanisms, to incorporate employers in curriculum

development. It is an important, albeit complex, process of keeping the curriculum up to date with the pace of change witnessed within different industries. Indeed, lessons from France are applicable to all countries' curricula development:

- all training needed to deal with both technological change, as different technologies and skills get introduced into different industries
- legal change, where workers needed to understand emerging regulatory frameworks and systems of governance within different industries.

The importance of ensuring that the skills and knowledge



Training qualified professionals according to the requirements of business could be accomplished through a close relationship between education and the job market

young people developed through TVET need to be closely aligned with the needs of their trade acknowledging the key issue of the fast-changing nature of the different businesses. A clear bidirectional relationship between TVET and business, as in Brazil, is needed for this endeavour.<sup>1</sup> Brazilian TVET is at the service of business and therefore adapts to their needs, continually learning from them so as to impact and promote innovation. In addition to this relationship, the Ministry of Education (MEC) was key in defining the areas that need to be covered in the TVET curriculum, working in partnership with experts in the field and representatives from business. This means training qualified professionals according to the requirements of business could be accomplished through a close relationship between education and the job market, fulfilling the main aim of providing TVET courses aligned with

<sup>1</sup> It is important to note that Brazil has a levy, similar to the UK, whereby part of the taxes businesses pay go directly to TVET.



the needs of business. In addition, special attention was paid to the development of occupation-specific as well as cross-occupational key competencies such as teamwork, digital and entrepreneurial skills.

Many of the countries developed new job profiles, and existing jobs were given new job descriptions, on a continuous basis ensuring what is being taught is in response to the current needs of jobs and the labour market. The Austrian work-based TVET system is structured by training regulations, similar to Germany. Similarly, the French 2018 'Law for the freedom to choose one's professional future' enabled professional sectors to be empowered to have a greater role in the development and design of vocational programmes and diplomas, working with the state. Consequently, in order to understand the changing nature of the trades and ensuring the curriculum and pedagogic approaches reflected current business needs and practices, it was critical that teaching staff remain 'close to the trades':

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*“We adapt to the needs of the businesses. It is important that the teachers and the management team always remain close to the businesses that will employ our apprentices.” (T3)*

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Industry and employer involvement and engagement was seen as fundamental in the new reforms in Hungary and India

Industry and employer involvement and engagement was seen as fundamental in the new reforms in Hungary and India. Since 2018, 19 Hungarian Sector Skills Councils (SSC) were set up to represent employers of all sizes, sectors, and regions. They were involved in a number of activities supporting TVET, such as teachers' CPD and curriculum development, to incorporate the knowledge and competencies needed for young people in their sector. During the SSC development, employers were specifically asked about the outcomes they wanted to see in the outcomes-based curriculum, hence what skills and knowledge they wanted to see from learners. Importantly in these countries, employer engagement at this level has resulted in the improvement of the prestige of TVET.

Previously weak cooperation between education and industry meant South Korea had a unique TVET structure that separated vocational education and vocational training, within the auspices of different ministries: vocational education is under the Ministry of Education; and vocation training is under the Ministry of Employment and Labour. Yet, heavy emphasis

A collaborative  
process  
aids fruitful  
partnerships  
in terms of  
curricula  
development

was placed on the need for industry-centered education. As the push for TVET to move to an industry-centred curriculum intensified, companies' involvement was incredibly vital. Consequently, policymakers and educators looked to co-operate in a more strategic way so that companies were less active but still involved, acknowledging that TVET development required a 'noblesse oblige (T2)' attitude from companies.

This process is not dissimilar to examples of best practice in UK further education colleges (James Relly & Laczik, 2021). In these colleges, employer link managers work with employers to ensure curriculum delivery meets industry standards and employer needs through a collaborative process built on trust and understanding. In turn, this aids fruitful partnerships in terms of curricula development. While there is good practice, expanding these using approaches from the seven countries, especially around government and policy involvement, would help with employer engagement in the UK.

### Managing change

Curricula development and employer engagement involves managing change. Two main factors were prevalent in any change management. Firstly, legal, regulatory and technological changes within professions shaped the nature of the knowledge and skills required by trainees. Participants highlighted the critical importance of ensuring TVET systems and teachers within them remain close enough to the industry/ employer partners to reflect the constantly evolving nature of work in the training that is provided. WorldSkills was highlighted as playing a critical role in this, operating as a bridge between teaching and evolving skills needs in the world of work. Secondly, technological change was highlighted as providing a range of new affordances for teaching practice and pedagogic approaches to skills development. This included specific technologies related to industry-specific tasks as well as technologies that supported remote, practical-oriented learning, particularly important during COVID-19. Ensuring the teaching workforce is empowered to engage with technological change and use technology effectively and innovatively in their teaching practice was highlighted as a critical factor in high quality TVET. Effective, targeted, and well-funded CPD is critical. Additionally, WorldSkills was seen as a key part of this in well-established TVET systems, providing a 'third space' for trainers to experiment and innovate outside the restrictive environments of the classroom or the workplace.

The third space allows for teachers and trainers, those at the coalface, to make adjustments, amendments, and movement from competence to excellence in terms of understanding, teaching and standards. In large part, this is about managing change. Two of the countries, Hungary and India, are



The third space is clearly needed and is a concept that needs further development in all countries, including the UK, to enhance and drive technical excellence

In the most successful systems, WorldSkills could be seen as an integral part of this network, bridging organisations, strengthening network connections

achieving this through system-wide reforms. Other countries, like Brazil and Japan, are relying on their involvement with WorldSkills through delegates and training managers/experts to raise standards incorporating the international specifications. The approach in these countries seems to be one of a trickle effect whereby best practice drips from the experts into the wider system. Regardless of approach, the third space is clearly needed and is a concept that needs further development in all countries, including the UK, to enhance and drive technical excellence.

### Networked skills systems

As such, although each of the seven case countries differed in their approaches, findings highlighted the importance of embedding employers in the skills systems in a meaningful way. Formalised structures linked with both policy and practice provided pathways for meaningful partnerships between employers and training providers as well as key mechanisms for managing change in an agile manner. In the most successful contexts, by placing employer-training provider partnerships at the heart of skills systems, trainers could respond to emerging skills needs and develop approaches that appropriately reflected the latest technologies and changes in industry practice. Where partnerships were strongest, they operated across both local and national contexts with centralised employers supporting macro-level curriculum design and standard-setting and local employers working directly with individual training institutions. This meant that teaching programmes could be tailored to both national and local economic needs.

This kind of skills economy can be seen working as a networked skills system, where different organisations are linked together crossing local and national spaces and economic needs in ways to integrate changes into the system in an agile manner. In the most successful systems, WorldSkills could be seen as an integral part of this network, bridging organisations, strengthening network connections, and providing much needed links to international contexts.



## 3 The complex dynamics between policy, people and practice

Across the case study countries, it was possible to see complex dynamics between policy, people and practice in each skills system. The ways in which these three key elements were inexorably linked and interacted in complex and dynamic social contexts could be seen as a fundamental driver of technical excellence. In the most successful contexts, skills systems were underpinned by supportive policy structures, social discourses that valued vocational pathways and a skilled and valued technical teaching workforce. These three aspects could be seen as mutually constitutive: positive public discourses feeds into supportive policy frameworks and an empowered workforce; strong TVET policy shapes public discourse, embeds prestige into skills systems, and supports the workforce; excellent practice drives productivity, shapes public discourse and guides economic and skills policy.

This complex dynamic between policy, people and practice can be seen as both a fundamental driver of excellence within skills systems and a critical driver of the skills economy, ensuring that strong links exist between skills systems, productivity and economic growth.



...in India the role of the regional and national skills competitions in raising the profile of TVET was helping to build a more positive perception

## Policy

TVET is often at the mercy of policy churn. Voter constituents offer more objections to changes in the academic route and so it seems the TVET system can be most easily tinkered with. In some countries this tinkering is at the edge (Brazil, France, and Japan), and in others it is the entire system (Hungary, India, South Korea). In so far as improving the attractiveness of TVET is a policy issue, funding is one of the ways to drive excellence of this route. In India, large amounts of funding are being poured into developing a comprehensive TVET system. In Hungary, it is believed that system-wide changes lead to 'real' change in TVET rather than reforming individual aspects of the system. While funding does not always match the breadth and depth of change, interviewees agreed that the current structures, systems, and approaches in TVET point in the right direction.

Another clear driver of excellence was the use of WorldSkills in the case countries. For example, in India the role of regional and national skills competitions in raising the profile of TVET was helping to build a more positive perception. Winning medals allowed young competitors to return to their (sometimes) rural homes with not only the prestige, but also a cash incentive, and in some cases, government support for enhanced education and training in that area, which all added to the ecosystem of skilling. Policy that allowed for WorldSkills to impact more broadly on the TVET system combined with concrete expectations such as the requirement of CPD hours in, for example Austria, had much impact.

## Economic Structures and the Purpose of TVET

The conceptualisation of teaching excellence and the way in which it was embedded within the TVET system was rooted in the way in which the purposes of TVET were conceptualised and embedded in policy. Broadly speaking, the countries conceptualised the purposes of TVET in two main ways:

- primarily economic
- to offer a quality route to those students who, for a variety of reasons, follow the vocational route.

The seven countries developed educational policies in response to different economic structures and needs. This meant the relationship between the purpose of TVET, the economy, and policy played out, often quite differently, across the case studies.



AUSTRIA

### Austria: The importance of SMEs

Austria is consistently ranked in the top 20 richest countries in the world by GDP per capita (World Bank, 2019). It has a small population of almost nine million yet has seen a continuous increase in the size of the population since the mid-1980s, mainly due to the growing influx of foreign nationals, which has risen particularly sharply in recent years. Small to medium-sized enterprises (SMEs) are the backbone of the Austrian economy. Of all enterprises, 99.6% are SMEs who may not have the capacity to offer a large number of apprenticeship opportunities. For instance, half of all companies in Austria only have one apprentice in total (not per year) (Policy Maker 6). The economic structures in Austria, have led to a system emphasising flexibility within TVET programmes ensuring that relevant training caters to regional economic variations and different interests of the student population.

This was manifested in a broad range of available TVET programmes for students to follow reflecting the various types of training and qualification levels, and the fields of study, which included business; engineering; tourism; fashion; design, arts, and agriculture. In essence, this was a model of centralised flexibility, reflecting a stable and regionally diverse economy, with TVET structured to meet the varied skills needs of industry and the interests of the students and future workforce. This approach is not dissimilar to the Local Skills Improvement Plans (LSIPs) advocated for in the Skills for Jobs White Paper for England (DfE, 2021). France's approach was broadly similar to Austria's.

#### The technical and vocational education system:

The Austrian secondary system, similar to the German system, has two main streams of secondary schools; at age 14 there is the possibility for pupils to start vocational courses and follow a predominately vocational route.

All secondary students (after 15 years of age) either do the (dual) apprenticeship route or continue in school. The secondary school route includes the 'Gymnasium' academic pathway (taken by around 30% of students in 2015) or a vocational school, taken by around 70% of students, which is far higher than the OECD average of 46% (OECD, 2017). The long tradition of TVET, the high levels of participation, and the high-quality of TVET courses can help to explain the high rates of employment for post-secondary non-tertiary graduates aged 25-34, 84% of which are employed compared to the OECD average of 76% (OECD, 2017b).

Vocational students who want to do an apprenticeship (approximately half of those taking the vocational route) attend a polytechnic institute (Polytechnische Schule) for one year, before progressing to an apprentice position in a company. An apprenticeship involves attending a vocational school (Berufsschule) for three years, either in block release (five days a week for about four months) or day release (once a week in school). At the end of the three years, apprentices take a final examination (Lehrabschlussprüfung). Apprentices are part of the company from the beginning of the programme and are paid as employees.

Programmes can be adapted to regional economic contexts and skill needs, and allow learners to develop their strengths and talents in the best possible way.

**84%**  
of post-secondary  
non-tertiary  
graduates in Austria  
are employed  
compared to the  
OECD average of  
**76%**



**67%**  
of 15-year-olds  
did not meet  
basic proficiency  
in mathematics,  
compared to  
other OECD  
countries where  
the average was

**23%**

### **Brazil: low participation**

Brazil is the largest country in South America, composed of 26 states and is the eighth largest economy in the world (population of 212 million and a gross domestic product of USD 3.372 trillion) (OECD, 2020b). However, Brazil has been ranked as one of the most unequal countries in the world, with a population comprising two main social classes: a low-income majority and a small, rich elite (Medeiros, 2016). In order to respond to this challenge, the government in Brazil implemented several policies to promote education, with the hope that this would decrease the income inequalities within the country. For example, one such policy intervention was the 'Family Benefit programme' (The Bolsa Familia programme), which was introduced in 2003 under President Lula da Silva's administration and aimed at providing low-income families with money on condition that their children attend school. By 2012, more than one-third of students in primary or secondary education received this financial support (OECD, 2015). Despite these kinds of government investments, students in Brazil perform at lower levels comparatively to students from other countries (OECD, 2020). For example, in Brazil in 2012, 67% of 15-year-olds did not meet basic proficiency in mathematics, compared to other OECD countries where the average was 23% and there were large performance differences based on students' socio-economic backgrounds and area of residence (OECD, 2015).

#### The technical and vocational education system:

In Brazil, students are required to be in formal education from the age of four to 17 years old and are expected to complete elementary school and high school. Students can attend public or private elementary school, high school, and university. The majority of students are enrolled in public elementary and high schools; however, their educational quality is low compared to private elementary and high schools. Graduating high school students can enrol in the high-quality public university system although the majority of higher education providers are private, with varying quality (OECD, 2015).



In 2014, only about 15% of 25-34 year-olds had completed a university degree, compared to the 41% average in OECD countries (OECD, 2015).

More recent data from UNEVOC (2018) indicated that in Brazil in 2015, 11.5% of students were enrolled in TVET at the high school level, 10.8% at post high-school level, and 7.6% at post high-school level in short-cycle education. Currently there are three pathways for the initial TVET course (UNEVOC, 2018):

- integrated: students attend TVET and mainstream secondary education at the same institution
- concomitant: students attend TVET and mainstream secondary education at different institutions
- sequential: students first do mainstream secondary education and then TVET.

In Brazil, there are different types of TVET institutions: Federal Institutions and National Apprenticeship Services are the responsibility of the Ministry of Education (MEC) for secondary and higher education levels; Private and Public Technical Schools, which are the responsibility of the States of Brazil at high school level; and Private Higher Education Institutions which are also the responsibility of MEC at higher education level (UNEVOC, 2018).



### **France: highly regulated and clearly defined pathways**

The French education system is a state-regulated, bureaucratic model (Powell et al, 2012), defined by a strong central state, shaping planning, regulation, and financing. The State defines pedagogical guidelines and curricula, and carries out the recruitment, training and coordination of school teaching and management staff in both public schools and many private schools that have a contract with the State. Although several commentators have argued for a creeping neoliberalisation within the French education system, with a growth in the number of private institutions embedded within it, TVET remains highly centralised and regulated (Powell et al, 2012; Orange, 2017).

Students can also choose to undertake an apprenticeship from the age of 15 in over

450 trades

Apprenticeships in higher education represent over

40% of all apprenticeships

All French children must complete a basic education from the age of six until 16. Students start at école primaire (primary school), progress to collège (lower secondary school) and then to lycée (upper secondary school) at the age of fifteen. At upper secondary level, students can choose between a general and technological track, which prepares them for a three-year general or technological Baccalaureate, or the vocational track. This track, delivered through a variety of different vocational lycées, prepares students for either a two-year professional skills certificate (Vocational Aptitude Certificate, certificat d'aptitude professionnelle, CAP) or a three-year Vocational Baccalaureate (CEDEFOP 2008; 2013).

Alongside these formal general, technological and vocational educational tracks, students can also choose to undertake an apprenticeship from the age of 15 (or at any point up until the age of 30) in over 450 trades. Formal training is delivered through a Centre de Formation pour Apprentis (CFA, apprenticeship training centre) and in the workplace, with people on an apprenticeship contract having the status and rights of an employee and receiving a salary. All vocational diplomas, from the CAP up to the master's degree, including engineering and business schools, can be awarded through CFAs to apprentices.

The enrolment rates of young people in vocational pathways (professional baccalauréat, CAP/BEP or the equivalent) remain below the average for 15-19 year-olds in European countries (24% in France versus 28% in the group of 22 European Union countries [EU22]) (OECD, 2016). Six percent of 15-19 year-olds in France are enrolled in vocational courses that combine work and study, compared to seven percent in the EU22 and 15% in Germany. However, the number of apprentices continues to increase. Apprenticeships in higher education account for 75% of this increase, and these programmes now represent over 40% of all apprenticeships (OECD 2016).

This growth in the number of apprentices likely reflects recent policy reform across the whole of the TVET sector. The most important recent reform, the 2018 'Law for the freedom to choose one's professional future', introduced the following key initiatives aimed particularly at improving the apprentice training pathway:

- personal training accounts
- the creation of France Competences
- apprenticeships can start at any time of year
- apprenticeships are accessible to youths up to 30 years old
- 500 euro support was made available for apprentices to gain a driving licence

Simplifying  
apprentice training  
centre opening  
procedures  
created

500

requests to open  
new learning  
centres in addition  
to the existing

965

- a 30 euro per month pay rise was introduced for apprentices below 20
- further financial support was provided at an institutional level for CFAs
- a vocational Erasmus programme to support 15k apprentices to go abroad to enhance their training is in the process of being developed, to be rolled out by September 2022 (although this is likely to be delayed given the Covid-19 context)
- professional sectors were empowered to have a greater role in the development and design of vocational programs and diplomas, working with the State
- the procedure for opening apprentice training centres (CFAs) was simplified, only requiring a declaration of activity, an intervention that has already seen significant growth in the number of CFAs with more than 500 requests to open new learning centres, in addition to the 965 already in existence, having been submitted since 2018 (according to the CFA website)
- the continuing vocational training contribution and apprenticeship tax replaced by single contribution
- employment and diploma success rates to be published publicly to provide greater transparency within the system.



HUNGARY

### **Hungary: a reinvigorated system?**

Hungary is one of the Central European countries formerly part of the Eastern Bloc with a prospering economy (OECD, 2019). By the end of 2019 the employment rate of 15-64 year-olds increased to 70.3 %, which is higher than the EU average (69%). In parallel, unemployment reached a record low of 3.4% (Hungarian National Official Statistics, 2020). However, this was achieved by a combination of increasing the pension age, introducing public work schemes, reducing compulsory schooling age from 18 to 16 and reducing the length of

44  
large regional  
vocational  
centres with  
370  
institutions

Some centres have  
10-15  
institutions in  
one centre with  
as many as  
12,000  
learners

vocational education and training (TVET) from four years to three years in the upper secondary vocational schools.

Although less pronounced, a similar relationship between the purpose of TVET and economic needs exists in Hungary. The purpose and aims of TVET have been consistent over time: to contribute to the economy, improve employability, and integrate socially disadvantaged groups. The laws introduced in 2011 and 2019 were to increase the competitiveness of TVET and supply skilled workers according to employers' needs, increase the popularity of TVET, and increase the number of learners in TVET with the explicit aim of supporting economic growth.

To remedy considerable difference in opportunities between the capital, Budapest, and the rural areas of Hungary, National Competitiveness Councils were set up in 2017 to support labour mobility, upskilling and bringing workers closer to economic centres. While tourism and agriculture may provide jobs in the poorer rural areas, growth-enhancing restructuring of agriculture was dominated by SMEs potentially leading to employment cuts in the sector (OECD, 2019 p. 50). In 2017, 99.98% of enterprises in Hungary were SMEs.

#### Structure of TVET pathways:

In Hungary, at 14 years of age young people decide to follow the academic path or the vocational path. Compulsory school age was reduced to 16 years in 2012 (it was 18 years between 1998 and 2012). Those young people wishing to follow the academic path continue in the 'gimnázium', which offers four years of general education leading to the upper secondary leaving certificate, 'Matura'. (There are some gimnáziums, which start at the age of 10 and 12, and serve these young people up to 18 years old.)

In Hungary participation in TVET is at 23% of learners at upper secondary level; in Europe the average in TVET is 48%. Since 2015, all types of vocational schools are organised into 44 large regional vocational centres with 370 institutions, some as large as having 10-15 institutions in one centre with as many as 12,000 learners. In the three-year vocational schools (not leading to the 'Matura' examination) numbers have gradually declined between 2010 and 2018 by almost 50% (Ministry of Human Resources, 2020). Those young people who wish to continue on the vocational path have three options: 1) 'technikums'; 2) upper secondary vocational schools; and 3) vocational schools. The three different types of schools cater for different groups of young people and offer different kinds of provision. The names of these school types have changed in 2020 with the aim to raise the profile of TVET and attract more young people to vocational pathways.

In September 2020, a new school type replaced the 4+1 vocational grammar schools, and the five year 'technikums'

The number of young people securing an apprenticeship contract has increased from 32% in 2010 to

**67%**  
in 2019

were introduced (although they existed in the past between 1951 and 1973 and then between 1985 and 1993). Young people who attend 'technikums' can obtain the 'Matura' after the fourth year and will receive a vocational qualification after the fifth year. This means that they can enter a specialist higher education institution linked to the sector and qualification they studied. Young people have to complete all five years regardless of their future career plans.

Young people can also choose a three-year vocational secondary school (this was previously four years long) and, since 2013, can participate in dual training (apprenticeships) based on the German model. However, if a young person is unable to secure a contract with an employer they can complete their training in the schools' workshops gaining their qualification in school-based TVET. The number of learners in the three-year TVET programmes has dropped from about 130,000 in 2010 to 69,000 in 2019. Meanwhile, the number of young people securing an apprenticeship contract has increased from 32% in 2010 to 67% in 2019 (Ministry of Human Resources, 2020).

In the 'technikums' learners spend two years learning about the broad sector before they have to specialise. This is one year in the three-year vocational secondary school. Learners conclude with a final national examination before they can



specialise and access apprenticeships. Through this broad sector-based education young people have the opportunity to later re-skill and take on other specialisms in the same sector.

### **India: A young population in high numbers**

India is a federal union of states, comprising 28 states and 8 Union Territories (Ministry of External Affairs, 2019). A national government sits at the centre, and each state has its own government. The official language for the country is Hindi,

India is experiencing what is referred to as the 'youth bulge' where a large percentage of the population is comprised of children and young adults, and these children are soon to be young adults ready to enter the workforce

with 22 officially recognised scheduled languages across the states (however there are over 100 different languages and over 1000 dialects spoken across the country). There are multiple ethnicities, religions, socioeconomic classes, all mixing together to form a complicated and rich background spread over rural and urban settings, shaping access to educational and training pathways.

As one of the fastest growing nations in the world, India is expected to be the world's most populous country by 2050 (Jambo & Pilz, 2017). The country now has 1.37 billion people and is expected to add another 230 million by 2050 (UN Department of Economic and Social Affairs, 2019). Given the population booms, India is experiencing what is referred to as the 'youth bulge', a trend seen in many developing countries where a large percentage of the population is comprised of children and young adults, and these children are soon to be young adults ready to enter the workforce (Lin, 2012). India's



**62%**  
of people in the  
working age group  
(25-59 years)

high population comprises more than 62% of people in the working age group (25-59 years) (Ministry of Skill Development and Entrepreneurship, 2015), making the country one of the worlds' youngest.

Prior to the pandemic, India was considered the world's fastest growing major economies (IMF, 2019), outpacing the other BRIC (Brazil, Russia, India and China) nations. Yet, within this development and fast growth, India has been described as having 'islands of prosperity in a sea of poverty' (Trines, 2018), with the World Economic Forum ranking India at 62<sup>nd</sup> out of 74 emerging economies on their Inclusive Development Index (Taneja, 2020). Inequalities in wealth are driven by gender, religion, language, geography, disability and even caste, all of which contribute to unequal development in this populous nation. Some states are relatively wealthy and can be easily compared with fast-emerging economies of the world, and

1.5m  
schools

8.5m  
teachers

250m  
children

Despite the high and increasing number of HEIs in India, only

10.6%  
of people aged 15 and over had completed a graduate degree

some regions are extremely poor and can be compared to Sub-Saharan Africa and the poorest countries in Asia. Overall, living conditions are difficult for many individuals and families, with 33% of households with no electricity, 53% with no toilets on the premises, and 42% with no bathing facility (MacLean et al., 2018).

#### Education in India:

The Indian education system is one of the largest in the world with more than 1.5 million schools, 8.5 million teachers, and 250 million children (UNICEF, 2019). Literacy rates in India, as defined in the Census taken in 2011 (a person >7 years age who can read and write with understanding in any language), stand at 74.04% in the country (82.14% males, 65.46% females). The Right of Children to Free and Compulsory Education Act or Right to Education Act (RTE) enacted in 2009, which came into force in April 2020 makes education a fundamental right of every child; India is one of 135 countries in the world to make education a fundamental right that is enshrined in the Constitution of the country. However, the 75<sup>th</sup> survey on 'Household Social Consumptions: Education' (2019) indicated that for people aged 15 and above, only 30.6% of the population had completed a secondary level of education in rural parts of India, while in urban areas it was 57.5%. Despite the high and increasing number of HEIs in India, only 10.6% of people aged 15 and over had completed a graduate degree.

#### Technical and vocational education and training:

In India, conceptualisations of the purpose of TVET are rooted in the economic needs of a fragile labour market and so educational policies and the professional cultures and structures that flow from them are rooted in responsive models of policy-making. The short-term and long-term skills ecosystems were designed to provide pathways to employment for young people. The short-term ecosystems, largely referred to as the skilling route or the vocational route, consisted of short-term training of three to four months to 'quickly ready them [students] for employment' (Policymaker 2). The long-term ecosystem was one that encompassed longer, more substantial training that was provided through institutions such as Industrial Training Institutes (ITIs) or through polytechnics or National Skills Training Institutes (NSTIs) or even bachelor and higher-level degrees (minimum one year-long) provided by universities in some vocational courses; this route leads to diplomas or degrees and was more closely aligned with finding employment in engineering or IT industries, for example, than others.

In 2008, the government made its first moves to overhaul technical education in India, with initial ideas announced as part of the eleventh five year plan. Following this, the first National Skills Development Policy was announced in 2009. The National Skills Development Corporation (NSDC), a public-

private partnership was set up the year before to facilitate and implement government policies under the Ministry of Finance. The NSDC, in cooperation with major industry players, initiated 36 Sector Skills Councils (SSCs) to facilitate the process of 'skills-gap analysis, training and assessment' (Chandran Wadia and Dabir, 2020, p23). SSCs bring together all the stakeholders



relevant to that sector, industry, labour and academia (MSDE, 2018). The remit of the corporation is to: 1) implement government vision; 2) bring together industry and government to develop the skills ecosystem; and 3) to act as a funding organisation to create skilling programmes at scale.

A qualifications framework was created and adopted in 2013, known as the National Skills Qualification framework (NSQF). In 2014 the Ministry of Skill Development and Entrepreneurship (MSDE) was created with the sole purpose of developing and implementing the government's plans for skills development. The NSDC was brought under this new Ministry and charged with the task of creating an ecosystem for skilling. The core of TVET provision is crafted and implemented via the MSDE and its implementation arm, the NSDC. All vocational education and training is run through the NSDC save for the long-term vocational education and training that are the purview of an organisation called the Directorate General of Training (DGT). A new National Council for Vocational Education and Training (NCTVET) was established in 2019 to regulate the ecosystem that was being developed by the MSDE and the NSDC (Chandran Wadia and Dabir, 2020, p.24), which shifted the regulation of the SSCs away from NSDC to the NCTVET. Where all these provisions are still in the process of being implemented, the TVET structure can best be described as being in a state of flux.





TVET in India encompasses everything from short-term work-related training (a few days to a few months) to year-long courses resulting in certificates and diplomas to three-year courses that result in a degree (Chandran Wadia and Dabir, 2020).

### Japan: high stakes and fear of failure

Japan's education system is noted for both its high participation rates and the quality of student educational outcomes. At age 15, when compulsory education ends, the vast majority (98.4%) of Japanese young people continue in tertiary education; in 2017 this was one of the OECD highest rates, with 51% of the adult population having been educated to tertiary-level.

Japan has a low unemployment rate of 2.3% (World Bank, 2019), with youth unemployment (aged 15-24) also being relatively low at 3.7% in 2019. Unsurprisingly these numbers have grown since the impact of Covid-19, although the decline in employment has been below other countries such as Canada, the US, and Sweden (OECD, 2020c). However, these low unemployment rates, which show those without work but available for and seeking employment, mask the low participation rates of some groups, significantly, women. Only 71.0% of 15-64 year old women are employed, compared to 84.3% of men in the same age range (OECD, 2019b). This reflects strong traditional cultural norms in the country in terms of women's role in the society, although this gap has been narrowing considerably over the past decade (OECD, 2015b).

### Structure the TVET system in Japan:

At 15 years of age compulsory education finishes in Japan and students follow one of three upper-secondary streams: either three years of senior secondary school (the most common route); colleges of technology ('Kosen', discussed further below); or the third option, specialised training colleges. TVET is provided at the upper-secondary and the tertiary level (post-18

At age 15,  
when compulsory  
education ends,

**98.4%**

of Japanese young  
people continue in  
tertiary education

An instructor, for example, noted that his kosen college ensures that all academics obtain a PhD, offers a

**100%**

employment rate upon graduation, and provides students with overseas training and internship programmes

education). Vocational education comes in all shapes and sizes across Japan, some of which follow the national curriculum, others are merely managed by private organisations, which presents challenges in providing a coherent definition of the TVET sector and difficulties in the centralised implementation of educational policies across the sector as a whole. This is complicated by the fact that vocational schools, colleges and universities are managed by different governing bodies in Japan, including prefectural governments, the Ministry of Labour, the Ministry of Education and even companies.

However, within this complex context, the main types of vocational providers at secondary and tertiary levels include:

- specialised training colleges, three-year community colleges from age 15, include training for instance in hair, manga illustration drawing, cooking, and hotel management
- colleges of technology ('kosen'), five years from age 15
- junior colleges ('Tanki Daidaku') offering two-year TVET programmes for post-18 students to acquire practical skills for technical professions, such as engineering, accountancy, business administration and nursing
- professional schools, two or four year programmes post-18, includes training in engineering, welding, information science, mechatronics etc.

It is important to note that some of them are regarded as a more prestigious organisation than others. For example, colleges of technology (kosen) managed by the Ministry of Education, are the most successful type of vocational education institution of all. Japan has around 57 national kosen colleges, which offer apprenticeships, associate degrees, diplomas, licenses, and certificates for skilled trades and technical careers. Courses are delivered within a number of fields such as broadcasting; business administration; computer science; arboriculture; medical care; web development; robotics; biotechnology; environmental technology and engineering. Most commonly students do five years of study and leave with the equivalent of a bachelor's degree. Although founded in 1961, they have grown in popularity in recent years, partially due to kosen graduates' high employment rate. Kosen colleges are responsive to industry needs, which over



**70%**  
of 24-35 years old  
in the nation have  
completed tertiary  
education

the years has shifted from manufacturing to computer science and applied chemistry. An instructor, for example, noted that his kosen college ensures that all academics obtain a PhD, offers a 100% employment rate upon graduation, and provides students with overseas training and internship programmes.

### **South Korea: shared responsibility?**

South Korea is one of the largest economies in Asia in terms of its GDP. It experienced a period of rapid economic growth post 1953, in a period that is often referred to as the 'Miracle on the River Han'. By the early 21st century, South Korea was one of four Asian economies (The Four Asian Tigers, or Four Little Dragons in Korean) that had moved from an agrarian-based developing economy to a high-income developed economy, specialising in the manufacturing of electronic devices and their components (Leae et al, 2008).

South Korea is a country that has a strong focus on education, with successful performance in academic testing, spending 4.33% of its GDP on all levels of education (WorldBank, 2016). Literacy rates are incredibly high at 98% (UNESCO, 2008), with this rate standing at 100% for the population aged 15-24 years. Of the population that goes to school, 99.5% make an effective transition from primary to lower secondary general education (UNESCO, 2017). According to the OCED, 70% of 24-35 years old in the nation have completed tertiary education in South Korea; participation in TVET is lower. In 2018, over 80% of students in upper secondary schools attended academic secondary school, and about 20% attend vocational high schools. It is important to note that since the vocational training system was introduced through the Vocational Act of 1967, vocational education in South Korea in the 1970s and 1980s had 55% of students enrolled in TVET programs and was promoted as the means of building manpower for a growing economy during Korea's period of industrialisation

In South Korea,  
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development

(Ministry of Education and KDI school, 2014). Interestingly, two Ministries share responsibility for TVET by separating it into two sectors, vocational education and vocational training. Because vocational education is under the Ministry of Education and vocational training is under the Ministry of Employment and Labor, they have different funding routes and interests in the TVET system.

#### Structure of education in South Korea:

Compulsory education in South Korea is nine years (elementary and middle school), after which students can choose a high school path. The three years of high school offers students four options: general high school, autonomous high school, special-purposed high school, and specialised high school (vocational high school); the last two options are the TVET pathways. Special-purposed high schools tend to be more competitive. At the post-secondary level TVET is provided by two types of institutions: Junior colleges (tend to be private institutions) and polytechnics (limited set of technical fields).

In South Korea, the history of TVET has shown a focus on using vocational pathways as a means to drive economic development. In 2015, the government established National Competency Standard (NCS) (Development Manual for NCS, 2015) to create a better link between education and industry



by the systemisation of knowledge, skills, and attitude required in the industrial fields. This NCS continues to be developed through government support. The government also supports continuous research on the TVET system and is continually promoting TVET with the aim of sustaining a 'skill-based economy' (Kim, 2020).

#### Policy Changes in TVET in South Korea:

South Korea experienced a period of dramatic and rapid economic development and a range of social, political, and

economic changes subsequently. During this time, TVET played a major role as it was directly linked to industry improvement. Key to this rapid social and economic growth was the series of five-year economic development plans (1967-1981), a major part of which focused on growing the manufacturing industry. Therefore, this period of five five-year economic development plans saw cyclical attempts to activate the industry by supplying skilled workers and technicians from the advancement of TVET (Choi & Ji, 2013). Since the 1990s, South Korea has shifted to a service-focused industry and knowledge-based economy. This required structural changes in the TVET system that focused on the quality of education with high competence of students.

In the 1990s, Korean society entered the global economy with demand for service and technological industry. Due to this, professional knowledge was emphasized in workers to fit the need for higher technological skills in a global context. The government no longer relied on vocational high schools but emphasised college-level education to offer a high standard of training. To meet this goal, the government opened 'Korea Tech' which was a four-year college for training TVET instructors. Korea Tech has since contributed to the development of professional knowledge in vocational education significantly by distributing high-quality instructors prepared with professional knowledge and foreign language competence. However, Korean society has entered the new phase of a decreased student cohort in TVET with reduced interest in vocational education since the 2000s. The continuous issue of over-education has also created a gap between vocational education and the skills required in industry (Kang, 2014).

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*“The relationship between the purpose of TVET, the different economic needs of the case study countries, and strategic approaches of governments could be seen as setting the critical parameters for vocational educational policy. These parameters established the social and cultural space in which TVET practitioners taught and influenced the ways in which teaching excellence was conceptualised, its prestige and embedded in policy and practice...”*

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When thinking about the educators/trainers involved in WorldSkills Competitions and in TVET more broadly it is important to note that...the common thread was the teachers'/trainers'/instructors' passion for their subject and focus on their students

## People

Primarily, the people involved in the TVET system in each of the seven countries were a key driver of excellence. South Korea, for example, emphasised that the quality of educators was directly linked to the quality of TVET. In India, it was the ever-increasing importance and input from employers that was contributing to not only the short-term skilling ecosystem but also helping to shape the long-term one. Even in a more established TVET system such as Austria, employers could help drive change in work-based VET courses. In France, WorldSkills representatives were instrumental in experimenting with different pedagogical approaches to help build different skills; all key examples of people responsible for driving change and building excellence.

When thinking about the educators/trainers involved in WorldSkills Competitions and in TVET more broadly it is important to note that even though teacher qualification requirements and CPD varied greatly across the seven countries, the common thread was the teachers'/trainers'/instructors' passion for their subject and focus on their students. To illustrate, in Japan all teachers emphasised the importance of practical and hands-on demonstration workshops, which means that teachers spend more time directly with students demonstrating skills and supporting students' development of these skills. Even when Japan entered a state of emergency in the height of the pandemic in 2020, their schools still offered face-to-face teaching. This decision came purely from their teaching philosophy that student-teacher interaction was a crucial driving force for success in TVET. In Hungary, teachers were keen to make sure that they were also abreast of changing industry standards and curriculum standards, and indicated they wanted more CPD to enable them to be the best teachers they could be in VET.

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*“The teacher must be at the centre of the fundamental reforms in the [Indian] education system. The new education policy must help re-establish teachers, at all levels, as the most respected and essential members of our society, because they truly shape our next generation of citizens.” (MHRD, 2020)*

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In Hungary,  
there was a  
**30%**  
increase in salary  
during 2020  
when the status  
of TVET teachers  
was changed  
from public  
employee to  
instructor

Two countries in particular had adopted specific measures to improve the status of vocational teachers. In India, with the move to Sector Skills Councils, there was a push to involve industry-trained instructors, creating a better link to industry. In Hungary attempts have been made to improve the status of teachers. The government recently changed the name and status of TVET teachers. As such, they were now referred to as instructors and were no longer public employees. In addition, their salaries were increased in 2020 by an average of 30%.

Employers are key stakeholders in driving excellence. A great example can be seen in the role that employers are playing in India's TVET system. In the automotive sector, there are companies setting up their own training schools to provide short-term skilling courses and helping with skills competitions at the national and international level. In Austria, employers are at the core of work-based learning and importantly part of any company's ethos in the country is the tradition of training young people, with companies tending to have a well-structured system for doing this.

### **Social and familial influence on student choice**

Policy-makers, teachers, employers, and other stakeholders were providing ways and means to promote the vocational route (Chankseliani, James & Laczik, 2016). In so far as these had proven successful, a tension was evident in the social and familial influence on student choice around TVET. This tension was high across all countries and needs to be taken into account for the positive development of TVET. In Japan, parents traditionally placed a higher emphasis on traditional academic education rather than vocational education. Yet, vocational schools have not only been successful in attracting secondary school graduates but also university graduates who were not able to secure employment upon graduation and returned to school to do a TVET qualification (Tsukamoto, 2016).

These findings are similar in India. Traditionally, Indian parents place a high priority and regard for traditional academic education rather than a vocational route. However, through WS, success in changing this perception was occurring (see above).

In South Korea, due to the negative perception and strong social stigma, a lot of students in TVET were from low socio-economic backgrounds. There was a financial incentive to enter the TVET route as students from low SES backgrounds were aware of the benefit of earning income at an earlier age. In addition, the Korean system pressures students and parents to invest high amounts of money in education, which in turn cautions students in low SES to choose an academic path; this burden almost incentivises them to take the TVET route.

...they are all starting to see the importance of skills and have been developing policy accordingly, using WorldSkills as a driver for change of perceptions

The stereotype of students being less academic was dominant across all of the countries. In Austria, a common typecast of a vocational-school student was that they were worse at subjects like German and English, but good or average at maths. Likewise there was also a trend for more young people with an immigrant background to do vocational training. The perception that TVET was a second-class route was no different in France and was often perpetuated by the fact that students who struggled at school or were disruptive were pushed into vocational courses and apprenticeships.

While most countries have given more prominence to HE over recent decades they are all starting to see the importance of skills and have been developing policy accordingly, especially using WorldSkills as a driver. This work needs to continue to include parents so they see the value in the vocational route.



### **Prestige**

The positioning of TVET pathways in relation to academic educational routes had a profound impact on the nature of those pathways, the nature of policy interventions, and the cultures and practices of the teaching workforce. Raising the esteem of TVET was a policy priority in many of the countries. In Austria there were well-defined TVET routes that had a rich and successful history not dissimilar to its German neighbour.

Even though a much smaller percentage of students in Brazil follow the vocational route, TVET has a central role in the educational system. Vocational courses were designed according to the needs of business so students had skills that business sought. TVET students were described as advantaged in comparison to students who only completed high school because they had gained a professional identity and skills.



In Japan a highly structured and multi-layered TVET system combines high quality industry training and links, for example, with Toyota, have seen positive changes to the perception of vocational training

In South Korea the government is committed to promoting and encouraging more students to access TVET by increasing employer involvement in TVET policy development

In France, there remains a value-based distinction between the academic and technological Baccalaureate, the 'intellectuels' and the vocational tracks, the 'manuels', or those who work with their hands. However, reforms in 2018 were seen as having a positive impact on the value placed on vocational pathways. These policy changes appeared to be making a notable change on both the numbers of apprentices/vocational students and the training structures and resourcing, despite the impact of Covid.

A highly structured and multi-layered TVET system in Japan, combined with high quality industry training and links, for example, with Toyota, have seen positive changes to the perception of vocational training. In addition, for some industry sectors which have offered society an essential lifeline during the global pandemic (eg medicine, nursing, security, social care, electronic engineering), there has been significant changes in perception. Moreover, Kosen colleges have the highest level of esteem of all vocational institutes in Japan, where all teaching staff must obtain a PhD, and their graduates have a good track record of high employment rates. Likewise, due to more recent changes in industry (such as increases in technology and digitalisation), and consequently in the skills required for work, TVET institutions, especially the specialised courses at professional training colleges, Senmon gakko, have gained in popularity. Enrolments in these TVET institutions and courses were now growing after a period of continuous decline (Tsukamoto, 2016).

The South Korean government is committed to promoting and encouraging more students to access TVET by increasing employer involvement in TVET policy development and implemented the recent creation of sector skills councils and Meister schools; graduating from these schools largely guarantees students' employment. In addition, the government promoted a 'Work-First, Study-Later' programme to encourage students from vocational high school to work in companies before entering higher education to tackle the issue of over-education as well as increase the practical skill and competency from field experiences.

Thus, these social and familial structures shaped student choice, across all the case countries, and intersected with economic factors, shaping the nature of TVET policy and practice. Ultimately this policy development helped determine the space in which the TVET workforce was able to engage and shaped the nature of excellence in teaching and the way it is manifested in practice.



In Japan, vocational education is often historically associated with being 'dirty, manual, relentless, and rough'... in reality there were in fact a huge range of new emergent categories... he described this emerging type as "follow-your-dream" type...

## Practice

Globally, TVET routes have expanded and contracted according to contextual market requirements. There were several examples of good practice that helped shape the TVET systems in our seven case study countries; practices that were based on WorldSkills experiences and excellence at this level feeding into TVET systems. Some of this practice was historical and cultural, and in other countries, such as Hungary practice was being completely re-shaped through policy.

A policy-maker in Japan emphasised that vocational education is often historically associated with being 'dirty, manual, relentless, and rough', but highlighted that in reality there were in fact a huge range of new emergent categories of vocational education (he described this emerging type as "follow-your-dream" type, "Yumeoi Kei" in Japanese). There were a wide range of occupations that have become available to young people, reflective of the rapid change of economies around the world and the many subjects undertaken at university that are seen as vocational, such as engineering, medicine and law (James Relly, 2021).

Within TVET there was clearly a lot of good practice developing and utilised to provide the young people taking the TVET route with the skills and knowledge required to learn and earn. In India, for example, trainers described the care that was taken to develop competencies in skills that would potentially have been lost without formal support. This was particularly evident in the textile industry, where some of the handloom crafts were a dying art form, and the Sector Skills Council had taken an active stance to create more formal training practices for young people, so that these skills could be developed

In India policy change has focused on ensuring that all trainers for vocational courses have industry-relevant training

outside of the villages where these crafts were centred. The development of this practice meant that a traditional skill would not die out, and that there were new areas of work that were being created for young people to learn.

### Teaching excellence

The emphasis on excellence in teaching and setting standards was clear across all seven countries. Some of this was historical and deeply cultural. For example:

- in Austria the entry into, and requirements for, TVET teachers were regulated by the state. All TVET teachers were required to have a bachelor-level teaching qualification, of which the particular type of teaching training qualification depended on the type of TVET teacher they were. Recent reforms (2015-19) of the teacher training curricula had occurred across the board, which included competence orientation at its core: the curricula focused on general pedagogical competence, subject-related and didactic competence, diversity and gender competence, social competence and awareness of the profession
- in Hungary, despite all the recent policy changes there had been no attempt so far to change Initial Teacher Training (ITT); however, the in-company trainers had to pass a master craftsman examination that included the development of teaching skills
- teaching excellence in France was linked with understanding the needs of trainees. Also important was the emphasis of the teaching workforce in understanding business needs
- much policy change in India had focussed significant effort on behalf of the government to professionalise training in the sector, with the SSCs responsible for instigating the Training of Trainer (TOTs) centres to ensure that all trainers for vocational courses have industry-relevant training and were certified to the same standards of quality.



In Austria projects were often set by local employers and could therefore be said to be more reflective of current industry needs

### Assessment and learner journey

Project-based learning (PBL) was prominent in Austria and Hungary. In Austria some TVET schools had introduced project-based learning involving no subject boundaries and greater emphasis placed on skills and competency development. These projects were often set by local employers and could therefore be said to be more reflective of current industry needs. Furthermore, a key aspect of the company-training working well in Austria was the 'Ausbildungsverbund' (training alliance): if one company cannot teach a certain skill to an apprentice, they can temporarily go to another company specifically to learn that skill. The end of training exam (Lehrabschlussprüfung) was designed with input from companies, with experts creating and checking exam questions, which were then placed in a national question pool. For the project and diploma assignments in TVET schools, these were often set by companies or carried out with their collaboration.

In Hungary, the new learning outcome-based curriculum required culture change, change of attitude, and change of teaching approaches. PBL was a new approach that supported the new curriculum well, shifting the emphasis from theory-based to practice-based training meaning that the role of TVET teachers became more like mentors.

End of course assessment was favoured in Brazil. TVET courses were mostly delivered in schools or schools in partnership with business such as hotel schools and restaurant schools. Thus when it came to specialisation courses these were delivered in the business context or in lorries and boats owned by the TVET provider that were transformed into classrooms. In addition, the teachers went into industry and invited professionals to be part of a WS exercise and consequently assess their performance and provided constructive feedback.



## Continuing professional development (CPD)

The notion of dual identities,<sup>2</sup> and its inherent tensions, was apparent across all seven countries. Various policy initiatives were implemented to ease or counteract this tension. For example, teachers in Austria acknowledged the need for constant training to keep up with the changing requirements of industry. For school-based teachers, it was now compulsory across Austria for teachers to spend at least 15 hours per teacher per year on CPD, which included many different options. Programmes were organised by the teacher education (pedagogical) universities offering a range of courses for teachers. It is noteworthy that many teachers in Austria have experience in business and industry, and for certain subject areas, for example electrical engineering, this was also an admissions requirement.

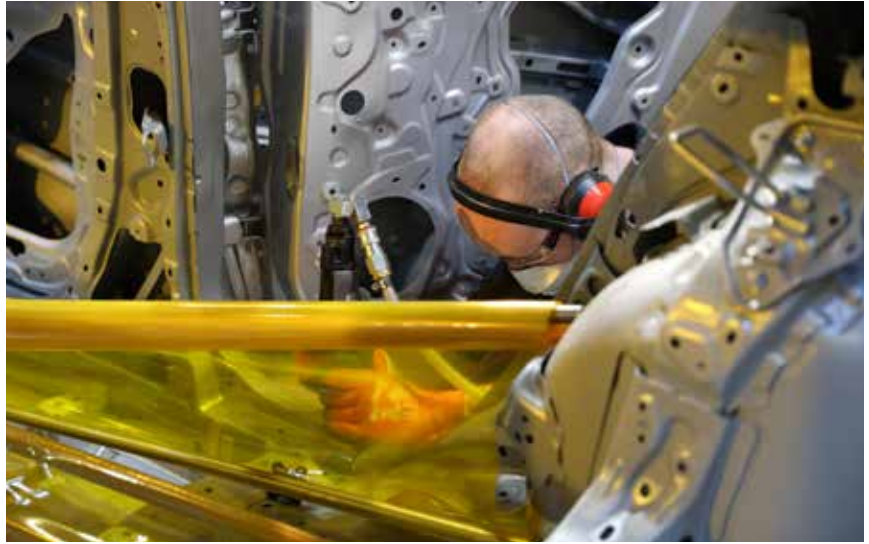
In Hungary an important aspect was for teachers to leave the classroom/workshop and engage with machinery and processes in the real world of work

In line with Hungary's reinvigorated TVET system, there have been significant developments in TVET teachers' CPD. Previously, teachers received credits for CPD in general fields of knowledge. From 2020, there was training specifically targeting sector and occupation specific skills development for which TVET teachers receive credits. There was a growing emphasis on keeping instructors up-to-date with developments in industry. The Ministry set up a governmental organisation, the Centre for Innovative Training (IKK Zrt.) that was tasked with, for example, the strategic development of instructors' CPD. TVET teachers were required to undertake 60 hours of CPD in a workplace environment over a four-year period. Within the formal CPD there was an aim for interactive and practice-based training and the 60 hours CPD was considered restricted in term of lengths and focus; consequently assurances were required that CPD was meaningful and did not allow instructors to stay behind in their skill area. This was important in fast-developing sectors. Moreover, Vocational Education and Training 4.0 (2019) included an HR development strategy to support the latest developments in TVET. WS Hungary offered CPD in three skill areas: electrician; car mechanic; and beauty therapist. These were free to register and showcased new processes taking place in industry. There were similar activities happening in vocational centres. An important aspect was for teachers to leave the classroom/workshop and engage with machinery and processes in the real world of work. The organisation is funded and sponsored by the industry partners and their programmes are free to all TVET teachers.

CPD in France seemed more regulated than in the other countries. Participants highlighted that different trade organisations, which provided regulation and organisation of

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<sup>2</sup> Dual identities refers to the notion that TVET teachers and trainers are both occupational specialists and pedagogical experts (CAVTL, 2013).



In France competing on a world stage in order to gain insight into professional practices at an international level was seen as very important

the vocational teaching profession (the GNFA, the National Group Pour La Formation D'Automobile, for example), offered a range of courses for teaching staff and mentors.

In France, it was clear that the driving force behind professional learning and development was the teachers themselves and that available courses and opportunities varied across different trades and industries. From a teaching perspective, several participants, particularly those directly involved in WorldSkills France, suggested that skills competitions gave them the time and space to experiment with different pedagogical approaches, allowing more innovative thinking about their teaching practice. In addition, competing on a world stage in order to gain insight into professional practices at an international level was seen as very important.

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*“The educators and policymakers in South Korea believed that the quality of educators was directly linked to the quality of TVET.”*

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Therefore, it was believed important for South Korean educators to be proficient in the technical competencies in skills and be experienced in the up-to-date knowledge from industry. Instructors received at least 12 hours of development training annually so they were cognisant of industry needs and trends. One of the challenges highlighted by all the interviewees was that although facilities were upgraded almost constantly, there was little done to ensure there was

development in teacher competence (specifically for delivery of education and training at the upper secondary level).

In Japan, there were clear CPD opportunities linked to WS. More generally though, some institutions had introduced the ‘cross appointment’ system whereby teachers obtained positions at both universities and companies. This allowed teachers to work at companies to gain practical experience in the relevant industries while teaching and researching at universities.

One practice that prevailed and was very much a part of the Japanese tradition, was of ‘lesson study’. This involved Japanese teachers working together to improve the quality of the lessons they teach. In fact, Japanese teachers in general (both TVET and secondary) reported one of the highest levels of peer-mentoring amongst OECD countries (OECD, 2020a):

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*“Principals organise meetings during which teachers with varying levels of experience identify an area of need in the classroom, research intervention options and create a lesson plan. One teacher then uses this sample lesson in the classroom, with the other teachers observing. Following the sample lesson, the group meets again to discuss, reflect, and make adjustments to refine the lesson plan. This method of teacher led-research is well regarded, has shown effectiveness in improving student and teacher learning and has been adopted in other countries.” (NCEE, 2020)*

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# 4 Recommendations and lessons for the UK

This project sought to understand the drivers of technical excellence across seven countries: Austria; Brazil; France; Hungary; India; Japan; and South Korea. It was an ambitious project not least because the cultural contexts of the countries are so different. Nevertheless, common threads run through each.

Similar to the 'Good people in a flawed system' (James Relly, 2019) report for WorldSkills UK, excellence in the TVET systems of each of the countries is underpinned through the dedication to excellence and passion of the teachers, trainers and tutors, employers delivering the curricula to the young people and through WorldSkills initiatives and impact.

This piece of research clearly illustrates how policy, people, and practice, are the key drivers of technical excellence in the TVET systems of the seven countries and brought to the fore a number of issues, and some lessons for the UK. The following recommendations are offered:



## 1 Supporting the development of a skills economy

**Recommendation:** A robust skills economy has a close relationship between world-class teaching and training standards meeting employer needs to enhance productivity and economic growth. In the UK the tertiary landscape needs to be thought of as healthy and connected eco-systems with excellence and standards embedded at all levels to ensure the skills economy and the knowledge economy work together for economic productivity. WorldSkills UK, through the Centre of Excellence, has begun to show how this can be achieved. Building on the Centre's work is imperative for the UK to improve standards.



## 2 Supporting the art of teaching and innovation

**Recommendation:** The countries that maintained some esteem for the TVET route, required their teachers, trainers, lecturers and instructors to be subject matter experts and pedagogical leaders. A requirement for a teaching or pedagogic qualification would aid building esteem into the system.

**Recommendation:** Ensuring teachers, trainers, lecturers, and instructors are delivering the most current knowledge and skills to students is of the utmost importance, not least to industry and the students' entry into the labour market. A mandated number of CPD hours per year spent in industry can help colleagues to have the time to use in industry to gain this experience.

**Recommendation:** Work with providers (FE and PTP) to allow for a 'third space' within WorldSkills UK to give time to trainers and trainees to experiment with skills, processes, and pedagogy, while also providing a bridging mechanism to bring work-based innovations and developments into the training process.



### 3 Supporting system alignment and high-quality qualifications

**Recommendation:** There needs to be a clear alignment of strategy between key players in the tertiary education landscape to ensure that learners do not receive mixed messaging around the purpose and drivers of TVET. Drawing on WorldSkills is key. WorldSkills UK must play an important role as an established international organisation focused on high-quality skills.

**Recommendation:** Ensuring qualifications are of the highest quality and relevant to industry, as in Austria, is a key way of aligning employer and student needs while driving technical excellence. Developing high quality qualifications recognised by employers as key to their industry and with their involvement, internationally benchmarked, will help to ensure the UK system is delivering excellence.

**Recommendation:** All of the countries in this study engaged employers in curriculum development and training but not one of them placed employers in the driving seat. Policy that allows for partnership rather than onus is key.

**Recommendation:** Chronically underfunded education and training systems cannot drive excellence. Policy that allows for appropriate levels of funding to invigorate a system and allow it to be excellent is necessary.

### 4 Supporting technological change

**Recommendation:** WorldSkills UK could provide support to deal with technological change in industry through CPD for teachers to stay up-to-date with best practice and evolving demands nationally and internationally.

**Recommendation:** WorldSkills UK could look to changes in sectors and industries and, due to technological changes, ensure the testing of relevant skills and review its skills competitions portfolio, curriculum content and standards in the UK to ensure ongoing relevance to economic need.

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