

# **World Federation of Colleges and Polytechnics**

Global Statement on the Future of

Professional Technical Education and Training





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# About

This Global Statement, developed by the World Federation of Colleges and Polytechnics (WFCP) alongside lead researchers Charlynne Pullen and Joel Mullan and in consultation with its members, sets out a vision for the future of Pro-fessional Technical Education and Training (PTET). It shows the contribution that PTET can make to the world's response, recovery, resilience and reimagination following the pandemic.

The statement draws on a range of information sources, including:

- a rapid review of more than 40 relevant reports
- four global thematic workshops held in English, where member colleges were able to share their views and insights
- two additional thematic workshops held in Mandarin Chinese
- one workshop with the WFCP board.

It also draws upon a set of foresight papers commissioned by WFCP as inputs into the statement process, which can be <u>read here</u>.

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## **Foreword**

#### Now is the time.

Never before has the need for Professional Technical Education and Training (PTET) been more apparent, as communities across the world grapple with the devastating social and economic effects of COVID-19. Now is definitely its time.

There is no country, community or family that has been spared from the global pandemic created by COVID-19. However, the impact of the pandemic has not been evenly distributed. Socioeconomics have played an uneven hand for individuals and countries and will most likely continue to do so.

The World Federation of Colleges and Polytechnics (WFCP) has prepared this global statement to signpost the power and impact that PTET can have in ensuring social justice is delivered as we all recover from the pandemic. The statement also highlights the trends that were apparent before COVID-19 struck, such as the way automation, digitisation and the fourth industrial revolution require new skills so that all citizens can reap the benefits from these global trends.

WFCP brings together associations, institutions and individuals engaged in PTET. Members are committed to the highest standard of education and training to empower individuals into mainstream economic and social life by preparing them as productive workers, entrepreneurs and creative human beings. Industries, regardless of their size and constitution, are powered by contemporary and effective education.

The purpose of this global statement is to convey the impact that can be achieved by the federation and its members and to galvanise our collective effort across the countries in which our members operate.

Although the idea of the Global Statement first emerged from the Leadership Institute during the federation's Congress in 2018 in Melbourne Australia, the pandemic gave the impetus for its conclusion and communication to all WFCP stakeholders.

PTET represents the many dimensions of education and training in a post-secondary school context with the term arising from the first WFCP Declaration, signed by all delegates, at its congress in October 2014 in Beijing. Since then, declarations at congresses have highlighted the federation's commitment to contemporary issues facing our broad membership.

This statement will also guide wider engagement within WFCP. In the two years between each congress, members share and interact through webinars and Affinity Groups – or communities of practice - which are formed around topics that are especially relevant in the field of PTET, and which bring members together on a regular basis on-line with in-person gathering at the congress. The Leadership Institute, which is a key activity of each congress and is now co-hosted with the Post-secondary International Network, presents the opportunity to reflect on actions required to support the outcomes expected of the statement.

Across the globe there are different organising philosophies for PTET, ranging from pragmatic training aligned to jobs in the economy to programmes of study that lead to either levels of education to match career aspirations. Regardless of this, members come together in the mission of building the capability of individuals to manage their lives and enhance their livelihoods.

An invisible virus has disrupted most aspects of life. As countries embark on their journey of recovery, WFCP offers this Global Statement to stimulate discussion and action on priorities and strategies for professional technical education and training to engage individuals, communities and organisations so that we rebuild a post pandemic world that is equitable for all.

**Dawn Ward CBE**Chair WFCP



Craig Robertson
Past Chair WFCP





# **Executive Summary**

## The value of PTET

The COVID-19 pandemic has impacted our world on a scale not seen in living memory. More than 4 million people have died, 144 million jobs have been lost, 1.6 billion informal sector workers have had their livelihoods impacted by pandemic-related closures, and countless lives have been disrupted in other ways.

However, the years ahead are also likely to bring upon other significant, albeit more gradual, changes, with some researchers projecting that 1 in 16 workers are expected to need to find a different occupation by 2030. For governments and others looking to develop stronger, more resilient economies and societies after the pandemic, PTET must be recognised as one of the fundamental building blocks.

#### Four ways PTET can rebuild post-pandemic

- 1. essential to short-term economic recovery through upskilling and re-skilling workers who have lost jobs
- 2.a key enabler and driver of longer-term prosperity through driving innovation, developing the workforce to meet future skills needs, and underpinning wider economic policy and industrial strategy
- 3.an important tool for empowering individuals and disadvantaged groups, including through supporting poverty reduction and social inclusion
- 4. key to achieving the UN's Sustainable Development Goals (SDGs) by 2030

# Six priorities for the future of PTET

PTET provision will need to adapt and evolve to meet the new pressures that recovery from the COVID-19 pandemic, and other megatrends will place on it. We suggest six priority areas where PTET systems and their partners must adapt to respond to the challenges and opportunities presented by the pandemic.

- 1. Supporting citizens to navigate and overcome the repercussions of the pandemic
- 2. Unleashing the full potential of digital technology in PTET
- 3. Evolving curriculum and assessment models to respond to requirements of the modern world of work
- 4. Making lifelong learning a reality
- 5. Developing the workforce that can deliver PTET for the modern age
- 6. Developing partnerships and collaborations locally, nationally and internationally

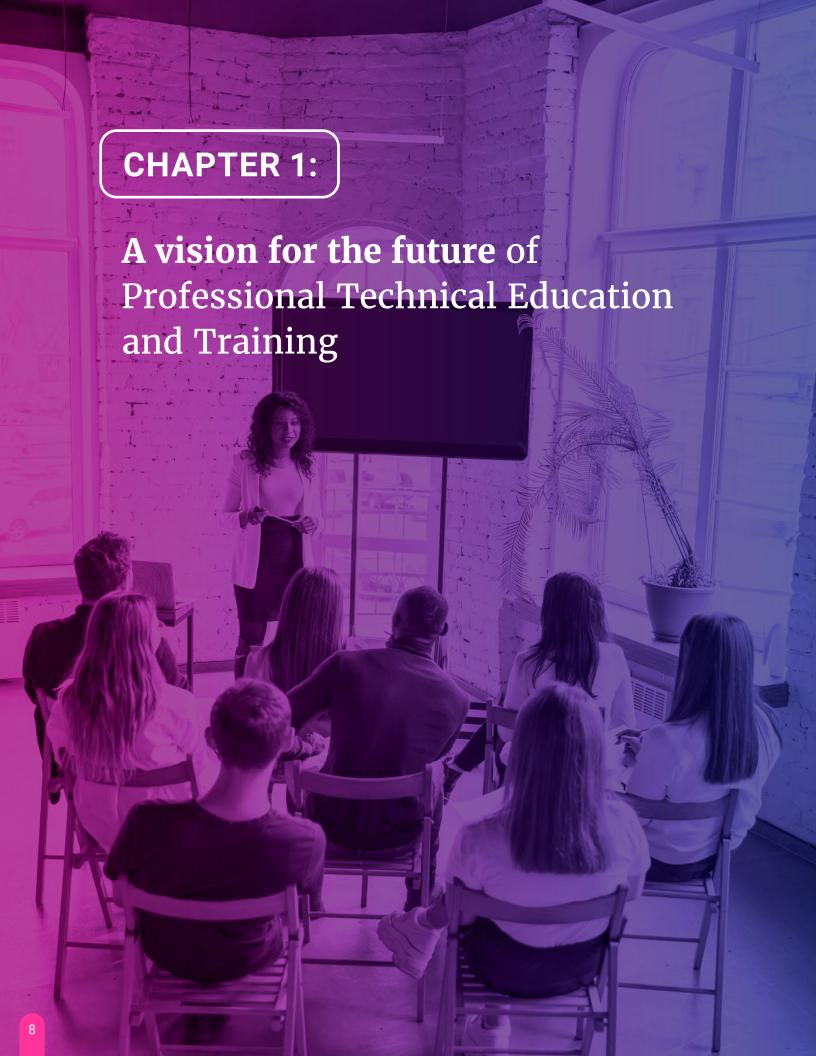


# Recommendations

- Governments should fund the expansion of PTET opportunities for individuals who have lost employment (or are at risk of losing employment) due to the pandemic, supporting them to build their skills and quickly transition to new employment.
- Governments should support PTET providers to address learning loss among young peo-ple and existing learners, including through extending learner entitlements, and giving providers flexibility to design and implement catch-up programmes.
- Governments should work in partnership with the private sector and others to extend digi-tal infrastructure and internet connectivity to enable equitable access to digital learning.
- PTET providers should work with other partners to support the development and sharing of high quality, accessible digital resources for PTET.
- PTET providers should invest in embedding digital technology, where appropriate, into their learning design and operating models, to realise the bene-fits of new models of 'blended PTET'. Governments should support providers to develop and scale innovation and business support activity, and both should provide support for PTET teachers to upskill and improve their own capabilities and digital pedagogy.
- Governments should give providers greater flexibility in funding, regulation, curriculum, accreditation and assessment, to enable them to deliver against education and training that better aligns with economic need and learner demand. Providers should be judged principally on the extent to which they support learners to achieve their intended outcomes.
- Recognising likely future changes to skills demand beyond the pandemic, governments should invest in an expansion of professional technical education and training and lifelong learning programmes for people currently in work, and ensure that sufficient funding is available to enable learners to participate, regardless of background or age.
- Providers should ensure the design of education and training (including modes of delivery, outreach, and content) is inclusive and caters for new groups of learners who may need to undertake PTET for the first time.

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- Governments should support providers to develop and scale innovation and businesses support activity.
- Development funders and multilateral agencies should provide technical and financial support in low-and-middle-income countries to adapt their PTET systems to realise the opportunities and mitigate the challenges set out in this report.



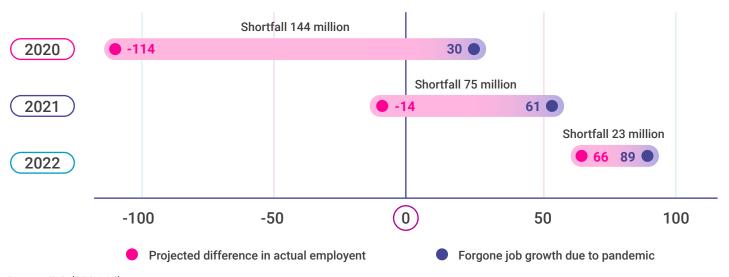
The COVID-19 pandemic has disrupted our lives on a scale not seen in living memory. As we write, more than four million people have died. The social distancing and lockdown restrictions required to contain the virus have had significant social and economic impacts, particularly in countries without strong social protection systems. Millions of businesses stand on the brink of bankruptcy. Hundreds of millions of livelihoods are still at risk. And in our education system, despite the best efforts of teachers and leaders, months of instruction time have been lost.

While we're unlikely to see such widespread rapid change again, there are several megatrends that will nonetheless have profound (though more gradual) disruptive effects on how we live, learn and work. These include globalisation, digitisation and automation, with the impact of climate change and responses needed to reverse global warming overarching all these trends. The demographic make-up of countries will likely change in major ways and more people may seek out migration to secure a safer way of life.

For governments and others looking to develop stronger, more resilient economies and societies after the pandemic, PTET must be recognised as one of the fundamental building blocks. With countries starting to think about how they rebuild, it is encouraging that many policymakers are aspiring to help prepare their populations for the implications of these megatrends, rather than aiming for a return to business as usual.

Significant numbers of jobs have been lost. According to the ILO (2021), there was an employment loss of 144 million jobs globally in 2020, with 114 million actual jobs lost, and 30 million jobs that would otherwise have been created also being lost. Whilst economic stimulus and the vaccine roll-out is likely to power jobs recovery in some countries, taking employment to above pre-pandemic levels in 2022, the ILO estimates that the global shortfall in jobs compared to pre-pandemic estimates will be 75 million in 2021 and 23 million in 2022.

Figure 1. Pandemic Induced Global Shortfall in Jobs, Relative to 2019 (millions)



Source: ILO (2021:14)

The impact of the pandemic has been uneven. While PTET providers in many high-income countries were able to keep learning going through pivoting substantial amounts of education and training to online modes of delivery, in large parts of the world, and particularly in low-and-middle income countries, this was not possible. In OECD countries, most PTET systems were physically closed for between 40 and 100 days in 2020, with outliers ranging from the Netherlands, which kept in-person upper-secondary vocational learning at least partly open throughout 2020, to Mexico, which was closed for over 180 days (OECD, 2021). In Africa however, millions of children have lost at least half a year of learning, with the poor disproportionately affected (AfDB, 2021).

In many cases, attitudes towards PTET have changed as a result of the pandemic. While some sectors were shut down or switched to remote working, many sectors staffed by PTET graduates - health and social care, logistics, food and drink, retail and manufacturing - as well as technicians across the labour market, were heavily relied upon during the pandemic. This raised awareness of previously overlooked sectors and changed attitudes as to what 'essential' or 'key' work in the economy really is. The recovery presents the opportunity to reset PTET as a key pathway to fulfilling careers – ones that are now held in deeper respect by the employers, communities and governments.



In this Global Statement we highlight four ways in which PTET can help countries to develop stronger, more resilient economies and societies after the pandemic - and suggest six priority areas where PTET systems and their partners must adapt to respond to the challenges and opportunities presented by the pandemic.

# A time for PTET - four ways PTET can rebuild post-pandemic

With several vaccines having now been successfully developed - and deployment of these ongoing around the world, many countries are now looking ahead to plan for the future. PTET must play a vital role in supporting countries to rebuild - and to improve resilience against future shocks.

# 1. (Re)skilling is essential to short-term economic recovery

A significant number of workers have lost their livelihoods during the pandemic - with employment globally falling by 4% compared to 2019. Many economists expect that the total number of livelihoods lost will continue to rise as the withdrawal of economic stimulus and job support measures by governments in advanced economies results in the closure of enterprises that are no longer viable. Yet at the same time we are seeing many industries facing labour market shortages and struggling to find skilled staff. Supporting this group of workers back into employment will be vital for economic recovery. PTET must play a key role in supporting them to rapidly re-skill and find new employment, particularly in areas where skills gaps (misalignment between labour market demand and skills supply) persist. The COVID Economic Recovery Index developed by Horizon Group highlights that having policies that allow workers to upgrade their skills and transition into new occupations is a key determinant of economic resilience (Drzeniek et al, 2021).

# 2. PTET is a key enabler and driver of longer-term prosperity

Beyond immediate recovery from the effects of the pandemic, there are also several other areas where PTET can contribute to longer-term prosperity. Developing "future skills": PTET should be used to develop the skilled workforce required to meet demand in new growth areas. There are a clear set of occupations where, across geographies, growth in skills demand is expected. These include "green jobs" in occupations related to decarbonisation and climate-adaptation; care sector roles to support aging populations as life expectancy increases and the demographic profiles of populations shift; roles in the digital and technology sectors; and roles related to education.

#### Catalysing business innovation and technology transfer:

PTET institutions play a key role in supporting businesses to innovate, with collaborations between providers and businesses in some countries already creating significant value through support for identification and operationalisation of new applications of existing technologies, creating new products and services, and makings businesses more efficient. Innovation support activity should now be scaled up.

#### Supporting wider economic policy and industrial strategy:

PTET also plays a key role in the wider economic and active labour market policies pursued by many governments. WFCP members have, for example, provided business support and training to complement government loans for emerging entrepreneurs, or quickly developed courses in new areas in partnership with businesses or local governments to support a local economic development need.



# 3. PTET empowers individuals and vulnerable groups

More fundamentally, PTET also supports individuals to develop the capabilities and agency required to make choices about their own lives. This will be even more important in the years ahead given expected changes to labour markets and the nature of work.

PTET helps citizens to build the capabilities and resilience they will need to navigate career transitions successfully. Citizens are likely to have to change track many times in their working lives - as digital technology and automation fundamentally alters the types of work available in many countries, with many process-focused jobs (including white collar roles) automated, and jobs becoming more polarised in quality. For the occupations that remain, the skill of the individual professional or technician will likely become ever more important - and there will be a central role for PTET to play in the initial and continuing professional development of workers.

PTET supports poverty reduction: By providing technical and vocational education and training to high-need target groups (for example minority communities, people with disabilities, people with low levels of skills) PTET can be used as an efficient instrument to reduce poverty by increasing employability and enhancing socio-economic development. PTET can also play a key role in enabling people in vulnerable and marginalised groups to achieve better economic outcomes and self-fulfilment by equipping them with the essential skills required for success, and contributing to reductions in the social, economic, and digital gaps between different groups and communities.

PTET supports digital inclusion. With technology-powered remote working practices adopted by many workplaces during the pandemic, the role that PTET plays in supporting people to develop the basic digital skills required for employment, access to public services and everyday communication will be more important than ever.

PTET supports youth development. Many programmes, particularly full-time education and training programmes have historically been designed with young people in mind, and could provide particular opportunities for those young people whose education has been delayed or disrupted as a result of the pandemic, helping to address learning loss elsewhere in the education and training system.

# 4. PTET will be key to achieving the Sustainable Development Goals (SDGs)

PTET is a key enabler of efforts to shift the pace of global development if we are to achieve the targets for 2030 set out in the Sustainable Development Goals (SDGs). The SDGs are a set of 17 interlinked global goals agreed by the United Nations and designed to be a "blueprint to achieve a better and more sustainable future for all. They provide a great framework for PTET – and there are particularly strong links between PTET and three of the SDGs:

- SDG 4 Quality Education Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all
- SDG 8 Decent Work & Economic Growth Promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; and
- SDG 9 Industry, Innovation & Infrastructure Building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation

#### There is also a strong link to several other SDGs, including:

- SDG5 Gender Equality Achieving gender equality and empowering all women and girls, which includes action to increase the proportion of women in managerial positions in the workplace.
- SDG 13 Climate Action Taking urgent action to combat climate change and its impacts - given that many of the initiatives required to support climate adaptation and decarbonisation (such as the growth and development of cleantech) likely to require large scale skills development programming to meet.
- SDG 17 Partnerships for the Goals, with the achievement of many of the other SDGs will also require effective partnerships between PTET providers and other actors to ensure that individuals are equipped with the skills required.





## 6 priorities for the future of PTET

To meet the new pressures that recovery from the COVID-19 pandemic and other megatrends will place on it, PTET will need to adapt and evolve. The policy, funding and regulatory systems in which PTET operates will also need to evolve in order to allow education and training to be developed that meets these new and pressing needs.

Here we identify six priorities for PTET systems.

## 1. Supporting citizens to navigate and overcome the repercussions of the pandemic

Citizens across the world have been affected by the pandemic, in a range of ways. There are specific groups who have been particularly badly affected in many countries:

- · Young people who have lost early learning and work opportunities
- Those living in poverty prior to the pandemic, particularly those in precarious work, and those without savings
- Women who have often had to pick up full-time caring responsibilities
- Older workers who have been made redundant or

For those in learning, there has been a significant loss of learning opportunities. In some countries PTET has been closed completely, and even in countries which were able to pivot rapidly to online remote learning, providers are reporting that learners have lost months of expected progress. It is necessary to support the learners affected to catch-up with the learning loss, to ensure this does not have a persistent effect on them.

PTET can directly support those who have been impacted by the pandemic - minimising any longer-term scarring effects on the working lives of those affected. PTET providers, often in partnership with governments or employers, already target different groups and offer specific types of learning that are effective. For example, work-based learning and apprenticeships for young people (particularly in areas where there are now labour shortages and therefore skills demand), opportunities to reskill and upskill for those out of work as a result of the pandemic, and programmes to encourage and support individuals to set up businesses.



- Governments should fund the expansion of PTET opportunities for individuals who have lost employment (or are at risk of losing employment) due to the pandemic, supporting them to build their skills and quickly transition to new employment.
- **Governments should support PTET providers to** address learning loss among young people and existing learners, including through extending learner entitlements, and giving providers flexibility to design and implement catch-up programmes.

# 2. Unleashing the full potential of digital technology in PTET

The use of digital technology has been a key enabler of the continuation of learning in many countries during the pandemic, and has underpinned significant innovation in the delivery of PTET.

However, in most settings, digital has been deployed as an emergency response – rather than implemented in an optimal way. Digital exclusion is a major concern – with digital delivery unlikely to be optimal for less engaged learners, or those requiring more intensive support to return to learning. There are also significant concerns around digital infrastructure, particularly in low and middle-income countries where education and training is more likely to have been cancelled than been shifted to fully online. The quality of digital learning resources is variable, and there is a need to support staff to develop a digital pedagogy and to adapt their practices for digital mediums. Some of the more practical elements of PTET are also very difficult to deliver digitally.

More work is needed post pandemic to work out "what to cut and what to keep" and how to harness the benefits of "blended PTET" on an ongoing basis. There are significant opportunities in digital to continue to play a key role in the enhancement of PTET, including:

- allowing better access to PTET for those learners juggling other elements of life such as work and family responsibilities
- curriculum enrichment, including opportunities for learners to use immersive technologies to help them master technical skills
- using data from digital solutions to inform teaching, and improve outcomes
- as an enabler for staff Continuous Professional Development, and collaboration - with the potential for resources to be easily shared with others around the world





# 3. Evolving curriculum and assessment models to respond to requirements of the modern world of work

Responding to demand from employers and learners will likely require providers to deliver PTET in different ways. Examples of this might include:

- Developing micro-credentials to support progression of those looking to re-skill rapidly
- Providing learners with mentoring and coaching (perhaps using models familiar from apprenticeships), and particularly for education and training related to business support
- Developing courses in close partnership with employers to ensure that content is up to date with recent industry practice – particularly for new and growth industries - and reflective of the needs of prospective employees

For young learners especially, the curriculum will also need to evolve to ensure that learners are equipped with the capabilities that are likely to be required to succeed in a number of different jobs across a lifetime rather than a competency-based training approach that trains learners for a specific occupation.

### Recommendation

6 Governments should give providers greater flexibility in funding, regulation, curriculum, accreditation and assessment, to enable them to deliver against education and training that better aligns with economic need and learner demand. Providers should be judged principally on the extent to which they support learners to achieve their intended outcomes.

# a reality

The megatrends we are facing means lifelong learning needs to transition from being an aspiration to becoming a reality, accessible to all. Individual career pathways will likely be less predictable in future, making flexibility and support crucial for a sustained working life.

In practice, this is likely to require:

- Providing a clear flexible offer for learners who need to balance participation in PTET with work or other commitments
- Empowering individuals to make their own informed decisions by offering a range of types of education and training, with appropriate support (including maintenance if appropriate)
- Employers partnering PTET providers to engage workers in training opportunities particularly those likely to be at risk of redundancy
- Providers reaching out to new groups of learners, including career switchers and older learners, targeting learning to their needs and making it as accessible as possible.

#### Recommendations

- 7 Recognising likely future changes to skills demandbeyond the pandemic, governments should invest in an expansion of professional technical education and training and lifelong learning programmes for people currently in work, and ensure that sufficient funding is avail-able to enable learners to participate, regardless of background or age.
- (8) Providers should ensure the design of education and training (including modes of delivery, outreach, and content) is inclusive and caters for new groups of learners who may need to undertake PTET for the first time.

# 5. Developing the workforce that can deliver PTET for the modern age

There will be a need to support staff in the PTET sector to adapt the learning opportunities offered, which will require a renewed focus on workforce development and continuous professional development (CPD).

There is a significant opportunity around the use of digital to enable staff to take part in Continuous Professional Development, with staff development and links between teachers being strengthened during the pandemic. After an initial rush to get courses online, the potential to connect and network with other teachers and PTET staff around the corner and around the world has begun to be realised. Action learning and joint practice development have been common in successful staff development for some years, but the logistical concerns of finding a way to meet for only say one hour a month rather than at a day's training course, can be mostly solved by digital technology. Staff are now able to 'drop into' training that they may otherwise have found it difficult to attend; and take part in international collaborations that otherwise would have been logistically difficult. Digital technology has also enabled the establishment of specialist remote communities of learning/practice; and provided a platform for the sharing of materials.

There are also challenges for PTET leadership who need to navigate the challenges ahead, and while some traditional training may be appropriate here, there is also a space for facilitated discussion amongst leaders to support each other.

# 6. Developing partnerships and collaborations locally, nationally and internationally

PTET providers and their learners can benefit from stronger partnerships between providers, locally, nationally and internationally. Collaboration presents opportunities to promote cross-cultural understanding and dialogue including space for knowledge sharing, the exchange of expertise and innovations, and enhanced understanding of different countries and cultures. Collaboration in online and blended learning could underpin growth in potentially disruptive specialist provision – aggregating demand from across large geographic areas, and allowing students from around the country (or even transnationally) to learn first-hand from leading practitioners in disciplines where there has not been sufficient critical mass for specialist provision.

Another key aspect of collaboration and partnerships is working locally with SMEs to help them solve problems and improve their efficiency. In some countries, business centres (or applied research centres) are located within learning providers,) although they are often restricted in how and who they can help due to funding restrictions. However, there are significant benefits for innovation and development when SMEs work directly with PTET providers to help them develop new products and bring ideas to market. These could help with growth after the pandemic and enable learners to engage with work-based learning in new ways.

#### Recommendations

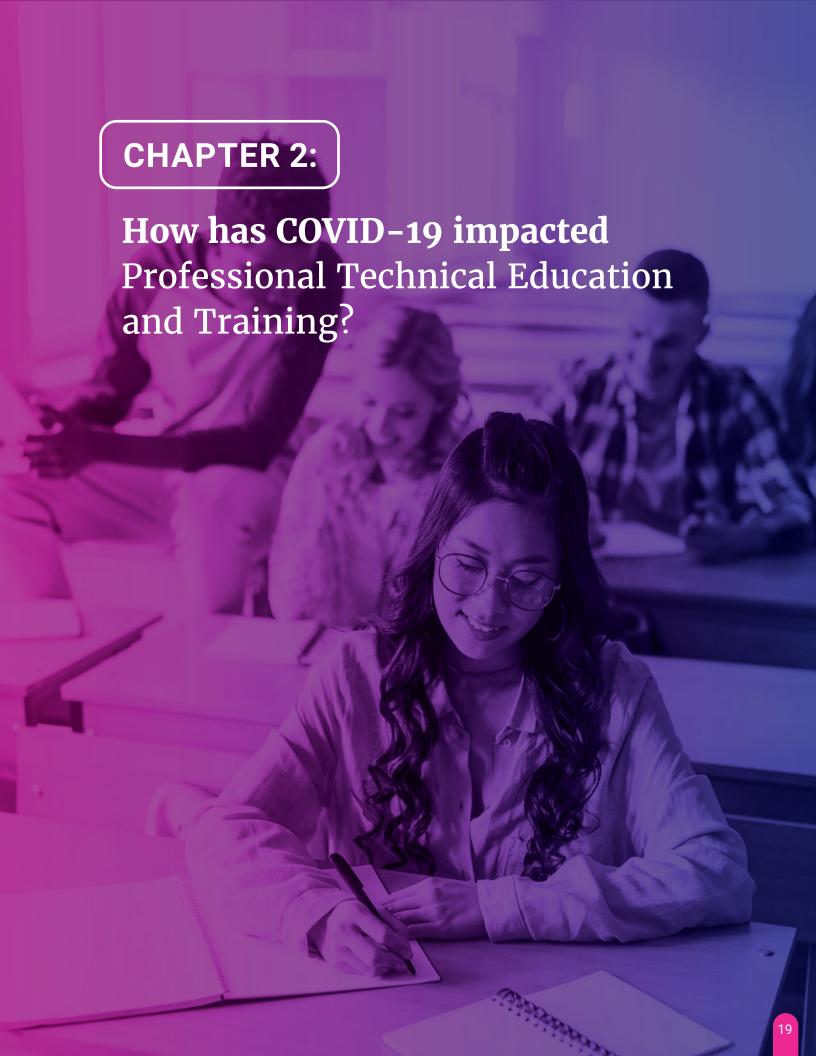
Governments should support providers to develop and scale innovation and business support activity.

## **Conclusions**

There are significant opportunities following the pandemic for PTET to play a key role in rebuilding economies and society that benefit all.

These opportunities extend from working with local SMEs to collaborating globally; from targeting underrepresented groups for training programmes to upskilling adults changing careers; from enabling young people through workbased learning to building capability in existing staff. Realising these opportunities will require investment including financial investment by governments and employers - but also an investment of time by individuals.





# Impact on labour markets, the nature of work, and businesses

Before COVID-19, several megatrends were already driving changes in the occupational make-up of national labour markets (OECD, 2020a).

#### These include:

- Globalisation enabling products and services to be sourced globally
- Technology driving the automation of work (currently focused on low-skilled, low-paid work, but likely in the future to also impact process and compliance-focused white-collar work)
- Ageing populations, requiring support with reskilling, but also driving up demand for care and leisure services in retirement
- Migration contributing to skills shortages in countries of origin, and mitigating shortages in countries of destination
- Climate change driving demand for skills to support climate adaptation and the transition to the green economy

COVID-19 has catalysed additional changes in labour market composition. Unemployment has increased, with many businesses already closing or reducing their workforce, and more expected to follow as governments taper down economic support programmes. The impact on employment varies by sector. Jobs have declined in the manufacturing, accommodation, food services and retail sectors, while other sectors including e-commerce have grown. Informal employment and gig economy work brokered through digital platforms has increased (Acland 2020). Some commentators suggest that some production/manufacturing operations (particularly related to food supply and healthcare) are likely to be "reshored" in light of increasing friction in global trade, investment and travel - this would shift semi-skilled jobs from low- and middle-income economies back to high income economies (OECD 2020a). Analysis of 8 national labour markets by McKinsey Global Institute (2021) meanwhile projects a greater degree of labour market disruption than anticipated pre-pandemic - with an estimated 1 in 16 workers expected to need to find a different occupation by 2030. The study finds that replacement employment for at risk workers is more likely to be both higher-skilled and higher-paid, and will require them to learn new skills.

The pandemic caused significant employment losses - though these tended to affect different groups of the population to differing degrees. According to the ILO, the employment loss due to the pandemic (both jobs lost and lack of growth) in 2020 was 144 million jobs across the world (ILO, 2021). In 2021, they estimate there will be a pandemic-induced global shortfall in jobs of 75 million, and a shortfall on 23 million in 2022. Employment losses were higher for women (5.0 per cent) than for men, and for young workers (8.7 per cent) than for older workers (ILO, 2021).

**Unemployment caused by the pandemic disproportionately** affected those in certain sectors. Uncertainty and disruption has left many businesses struggling to survive, despite the support that some countries were able to provide. In order to tackle the pandemic, many governments closed businesses and told workers to work from home where possible, often re-opening where possible and closing again as new variants and approaches were adopted. There is a clear sectoral dimension for businesses closed down during attempts to tackle the pandemic. The hardest hit sectors include accommodation and food services, arts and culture, retail and construction - mainly sectors were young people and women are disproportionately more likely to be employed. Conversely, positive job growth was in higher skilled services sectors like information and communication, financial services, and insurance activities (ILO, 2021).

Unemployment caused by the pandemic disproportionately affected small businesses. In the USA, the National Skills Coalition has highlighted that half of all private sector jobs in the USA are provided by small businesses, around 59 million jobs. Without support, between 1.4 million and 2.1 million small businesses could close as a result of the pandemic (National Skills Coalition, 2020). This in the context that in the first four months of the pandemic, nearly 50 million Americans, almost 30% of the workforce, filed for unemployment support (National Skills Coalition, 2020).

Workers in the informal economy were also disproportionately impacted. The informal economy is also crucial, particularly in some low- and middle-income countries, where it can represent up to 90% of total economic activity. The ILO estimates that pandemic-related closures have impacted 1.6 billion informal sector workers, with women over-represented in the most hard-hit sectors (ILO, 2020). While many informal enterprises had to close down during the closures, it is anticipated that much of the growth for the recovery will come from informal enterprises and workers, often those working in sectors where setting up again has relatively few barriers.

# Impact on particular demographic groups

Young people are facing significant challenges due to the pandemic. This includes economic disruption from reduced hours, short time work, and layoffs; disruption in education, particularly limiting the ability to train in a practical area as education and training predominantly moved online; and difficulties making the transition from education to work, or between different jobs as the focus has been on maintaining existing employment (ILO and ADB, 2020).

Older workers, who are more at risk of severe illness as a result of COVID-19, have faced difficult decisions in the pandemic, and particularly for jobs that cannot be done from home, have been laid off, or if possible retired early. Many countries have offered job retention or short work programmes which have supported older workers who were working when the pandemic struck but there is not a guarantee that the same jobs will exist in the same form during the recovery, making it important to provide retraining and upskilling as part of job retention schemes – something which has happened in the Netherlands where employers had to actively encourage training (OECD, 2020a) but in other countries, for example the UK, training was not prescribed or encouraged.

Women have been affected across the world as noted above, but this is particularly an issue in the informal economy which has 1.6 billion informal workers, with women over-represented in the most hard-hit sectors (ILO, 2020). The informal economy has greater significance in lower- and middle-income countries, and in some of these countries, women face additional barriers to accessing training.

In many countries, the pandemic has affected certain ethnic and/or minority groups more than others, partly in a work context, but in some countries, particularly when combined with existing financial disadvantage, in terms of mortality as well. In Canada, a report from Public Policy Forum highlights the particular impact of the pandemic on Indigenous workers, who have higher employment rates in sectors that were more likely to be closed down, and on immigrant families, especially Asian young people, who experienced discrimination as a result of the pandemic (Public Policy Forum, 2020). In the USA, a report from the National Skills Coalition highlighted that Black, Latino, Pacific Islander, and Indigenous workers were overrepresented in occupations that were likely to take longer to open up after the pandemic (National Skills Coalition, 2020).

Finally, in many countries, those who live in rural areas have also been disadvantaged – with the urban-rural gap in digital infrastructure becoming a more significant factor in determining access to opportunities as key elements of everyday life were moved online (Association of Colleges, 2021).



# Impact of COVID-19 on learning

Social distancing requirements disrupted the traditional face-to-face provision of education and training. A global survey of TVET providers carried out by the ILO, UNESCO and World Bank across 126 countries identified extensive disruption to teaching and learning. The survey identified:

- A complete closure of TVET centres was reported in 114 of the 126 countries represented
- Significant disruption in assessments and examinations – with the assessment of practical learning outcomes being judged particularly difficult to assess
- Particular difficulties for learners in acquiring hands-on experience due to the closure of businesses who would otherwise provide opportunities for workbased learning
- Concerns around the challenges of engaging learners using remote methods with an increased risk of learners dropping out of courses
- Significant challenges for teachers including an increased workload associated with pivoting to remote learning, and in some cases

To support continuation of learning, many providers and education systems moved quickly to pivot to technology-enabled distance learning. Common responses included the creation or upgrading of virtual learning environments (VLEs); the creation, curation and dissemination of digital content, tools and resources; and the use of radio and television for general education elements. In some contexts, this was supported by wider efforts to build supporting infrastructure. In Mexico, the online portal "Capacítate Para El Empleo" [Get trained for employment] funded by the Carlos Slim Foundation provides free access to hundreds of technical courses - access to the portal has been extended to other countries in the Americas (World Bank, 2020). In South Korea, Government provided a virtual training platform which learning providers were encouraged to upload course content to (OECD, 2020). In France the Ministry of Labour made 200+ professional education-related courses available online (Avis et al, 2020).

While the extent of closures varied across geographies, many PTET systems are projecting significant learning loss. In OECD countries, the extent of institutional closures ranged from the Netherlands (open for all usual upper-secondary vocational provision) to Mexico (closing provision for over 180 days in 2020), with most countries closed for between 40 and 100 days (OECD, 2021). Elsewhere, the

African Development Bank has highlighted that millions of children in Africa lost at least half a year of learning, with the poor disproportionately affected (AfDB, 2021).

Lack of reliable infrastructure led to differences in the extent to which learners were able to access remote learning. A global survey of providers carried out by ILO/World Bank/UNESCO (2020) found that low income countries were more likely to have cancelled all training due to the pandemic rather than shifted to fully online provision. Within both high-income and low-income countries, disparities in access to the internet (or mobile data) and to devices led to inequalities in learner's access to PTET, in spite of efforts by governments, private sector actors such as telecoms companies, and providers themselves to support learners to overcome shortfalls in infrastructure.

While many innovative approaches to digital learning were developed over the course of the pandemic, it is more difficult to provide quality distance learning alternatives for practical elements of PTET courses. Avis, Atkins, Esmond & McGrath (2020) also raise concerns about what is lost through PTET that is delivered in the absence of "work context or the support of experienced workers and VET professionals". Responding to COVID-19 has accelerated an existing wide-spread trend of digitisation of PTET systems that was already taking place in further education systems.





What next? Potential PTET solutions for response, recovery, and reimagination

This chapter sets out some of the key ways that PTET can offer solutions for the response, recovery and reimagination following the pandemic. The key areas of change and growth are around digital provision; developing new and expanding PTET provision; lifelong learning; and collaborating with other providers, other teachers and employers.

While some of these suggestions go to the heart of the role of PTET, some elements are new and highlight the core role that PTET needs to play in the post-pandemic changed world. WFCP is committed to supporting its member associations to rise to the challenge and realise the opportunities and benefits that these potential solutions provide in the months and years ahead.

## Digital provision

Provision has changed significantly as a result of the pandemic, and there is significant demand to keep and adapt some of the changes. Most notably, in digital learning, there is a greater understanding now of the possibilities for building elements of digital and online learning into PTET provision. The Asian Development Bank expects greater use of learning platforms to persist beyond the pandemic, with "flexible learning more as a norm than the exception" and providers expected to expand digital offerings (ADB, 2020). While very little PTET provision can be solely delivered online, there are some good examples of how provision can be transformed to make the best of digital and in-person learning.

It is important to distinguish however between the emergency deployment of education delivered using digital technology that we have seen during the pandemic, and the future opportunity to create PTET systems making optimal use of edtech (Commonwealth of Learning, 2020). A review of the use of digital technology during the pandemic by Jisc (2020), the UK's sector agency for digital technology in further education concludes that: "the use of technology was often simplistic and not always as engaging, exciting or collaborative as it could be. It sufficed as a stopgap but we need a more ambitious model for the future".

There are significant opportunities to improve learner outcomes and experience through enhanced use of digital technology in PTET systems after the pandemic.

These include:

- Continued use of remote or blended learning to make it easier for those already in work (or with caring responsibilities) to access learning opportunities.
   During our workshop on digital learning, a participant from Canada highlighted the benefits of synchronous online learning in enabling participation and engaging online learners, noting that in their organisation, learning had previously almost exclusively been used for asynchronous self-study, where learners worked through a topic at their own pace.
- Enhancing student engagement with learning through gamification of learning, changes to learning design, and developing high-quality digital learning content.
- Making use of virtual reality (VR) and simulation to allow learners to practice tasks without having to be in a workshop or real-world environment, allowing greater opportunities to practice hands-on elements of training using industry-standard materials and equipment that may otherwise be prohibitively expensive.

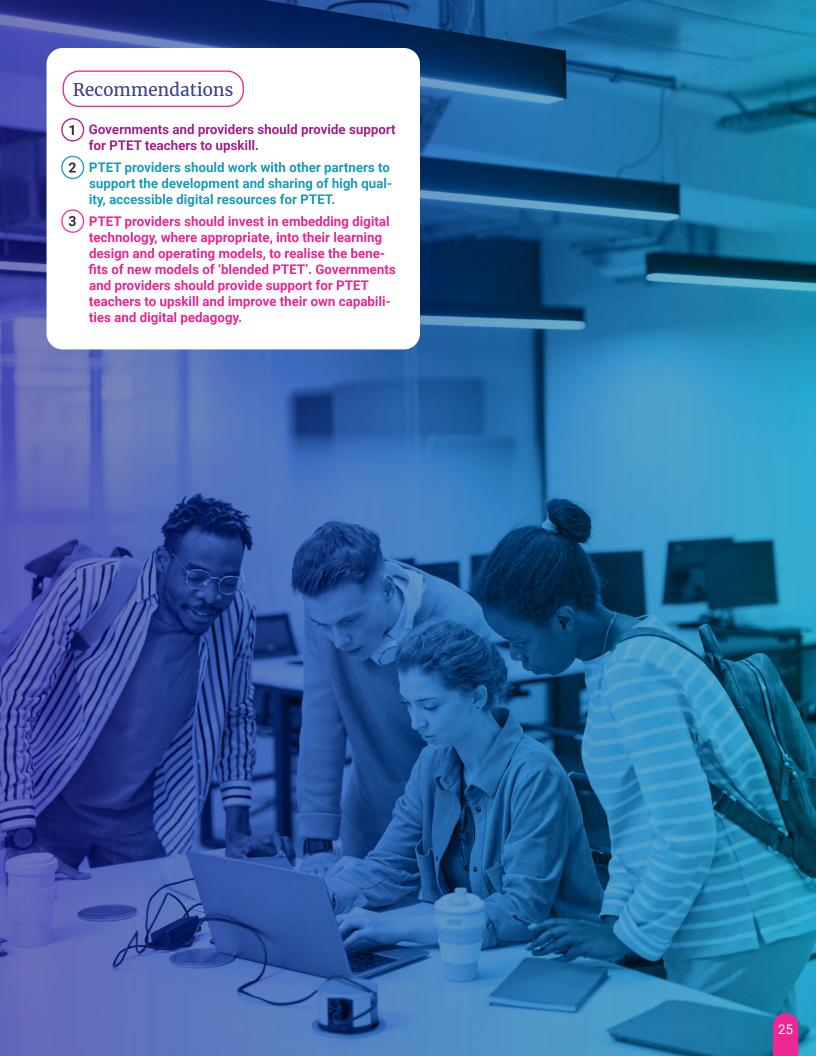
- Using blended or flipped learning methods (which involve learners reviewing material in advance of a session, then discussing the topic in person during a session) to support more effective use of classroom time
- Using data from digital solutions to give early warning of student disengagement, provide insights into learner performance, and enable greater personalisation of learning

In many areas of the world, it is likely that greater use of digital technology within PTET will disrupt the current systems for the provision of PTET. For example, it is easy to see a scenario where new providers establish themselves as providers of digital PTET at scale, utilising state-of-theart digital learning environments, and investing in the biggest vocational subject areas where there are common professional standards at transnational or global scale. In the face of this potential 'global supply chain for learning', established providers of PTET will likely have to adapt their provision – considering how digital learning fits with their existing strengths, and can mitigate their challenges.

In countries that had been able to switch to online learning during the pandemic, there was significant praise for the work teachers had put in to adapt courses, but also a recognition that the teaching and learning workforce more broadly need support to make the best use of digital technology in future.

Also affecting teachers directly is the **quality of digital learning resources**. While huge amounts of learning resources and digital content are available to support learning, including large amounts of open-source material, the quality of resources (in terms of both content and design/interactivity) is highly variable. There are also challenges around the discoverability of high-quality resources. Resource availability varies by subject – with more niche subject areas being more difficult, and less cost-effective, to serve (Jisc, 2020).

In workshops conducted to inform this Global Statement, concerns around being able to use digital resources on a range of different platforms were raised. The incompatibility of various systems means it can be difficult to use resources developed by others. Learners in more traditional learning environments would expect consistency of experience while many teachers wish to continue to have flexibility to choose and develop their own resources, and teach in their own way. Ensuring high quality resources exist and are accessible for teachers to use, within the context of the specific course or lesson/session, alongside providing support for teachers to develop their own digital pedagogy, would likely need to be key elements of whatever approach is used going forward.



# Digital infrastructure and inequality

The pandemic exposed the lack of digital infrastructure in almost every country in the world, whether for the majority of the population, for particular groups of people without access for financial or geographical reasons, or due to a lack of sufficient devices. Providers from the USA and Canada shared their experience of setting up wi-fi in the parking lots of their campuses to enable some learners to access digital learning. Other providers, for example in Indonesia and Jamaica, had simply postponed classes for several months, as there were simply not enough learners who were able to access digital resources.

Digital learning requires access to devices, either for individuals, or through provision in public and community buildings like libraries and community centres. One workshop participant from Australia noted that their adult learners relied heavily on libraries and community centres for internet access, and so it was incredibly difficult to support learners when these lifelines were shut during the pandemic. For many higher income countries, ensuring their learners had access to devices was also a challenge, particularly in larger families or amongst those on lower incomes. In low-and-middle-income countries, the situation was much worse, with large numbers of students lacking access to the technology that would be required to make virtual provision an option. Any future extension of digital learning needs to take into account the ability of learners to access the internet on a suitable device from home, and have somewhere appropriate to study.



# New and expanding PTET provision

## Young learners

PTET as a sector, across all countries, has been open and accessible to learners. Following the pandemic, there is a greater need to support young learners who have had their education significantly disrupted. Amongst OECD members, only 15 of 28 countries provided any remedial support for upper-secondary PTET learners (OECD, 2021). There are also large challenges for those who were on apprenticeship or work-based learning programmes. Repeating a year of education or work-based learning will likely be logistically difficult for providers, teachers and learners, but a different kind of provision, through mentoring or support of young learners when they are in work may be both practical and ensure they have the skills they need.

Another way some governments are supporting young people through this crisis is through encouraging entrepreneurship (Pullen, 2020). For example, in Pakistan, the government's National Youth Development Programme, Kamyab Jawan, includes a loan scheme for individuals aged 21 to 45, while its Youth Entrepreneurship Scheme allows young people to apply for a loan to start a business or expand their existing business (Government of Pakistan, 2021).



5 Governments should support PTET providers to address learning loss among young people and existing learners, including through extending learner entitlements, and giving providers flexibility to design and implement catch-up programmes.

#### Skills for work

In some countries, those who have been made unemployed as a result of the pandemic and small businesses have been specifically targeted for training support. For example, in Indonesia, the Ministry of Manpower adapted the roll out of a new pre-employment card training programme which explicitly prioritised 'laid-off workers, informal workers and micro and small business owners across heavily-impacted tourism-oriented regions' (ILO/ADB, 2020).

Numerous organisations have focused response efforts on reskilling unemployed and at-risk workers to equip them to secure livelihoods in growth areas with better long-term prospects. A number of sectors are cited consistently across contexts as being areas of opportunity. These include "green jobs" (occupations related to decarbonisation and net-zero) and jobs in the care, education, digital and technology sectors. (Costa Dias, 2020; ILO, 2020; ILO/ADB, 2020). Other potential policy solutions suggested include making use of workers' transferable skills to support them into "lifeboat jobs" that can help workers to transition between occupational areas. Lifeboat jobs should ideally be "skills adjacent" to a worker's previous employment so as not to require extensive re-skilling, and provide advancement opportunities (Burning Glass, 2020).

Tackling skills mis-matches between the supply and demand of skilled labour is also likely to be crucial in minimising the economic and social impacts of the pandemic, though it has proved to be a persistent challenge, with both governments and employers struggling to accurately project future skills needs. Recognising that many workers are likely to need to retrain or adapt their role over the course of their careers, some organisations are promoting the adoption of more competency-based curriculums for PTET. Cedefop and the European Training Foundation (2020) for example, argue that high quality TVET systems should shift "learning provision from job-specific technical skills to key competences relevant to work that facilitate labour market transitions".

### Inclusive provision

As set out in Chapter 2, women, those from ethnic minorities, and older people have all been hit hard by the pandemic. Specific and targeted support for these groups already exists at many PTET providers, but funding, particularly in the long term, can be scarce. Providers should ensure the design of such provision (including modes of delivery, outreach, and content) is inclusive and caters for new groups of learners entering the PTET system for the first time.

This may require the development of partnerships with relevant organisations. For example, in Canada, the Indigenous Leadership Skills Applied Certificate Programme is offered by Saskatchewan Polytechnic in partnership with Indigenous Works Canada, a non-profit organisation that offers engagement strategies and prosperous partnerships to increase Indigenous engagement in the economy. The Polytechnics' in-house staff developed the programme with the advice and knowledge of Indigenous Chiefs and Knowledge Keepers from across the country (Rosia, 2021).

Programmes for those returning to the workplace,

whether women with caring responsibilities or older workers more generally, may require learning to be delivered in bite-size chunks, with learners building up qualifications over time. Ensuring that these kinds of programmes continue to exist and are expanded after the pandemic will be crucial to ensuring training is accessible to these groups.

Another issue raised in the workshops is the **need for maintenance support for those needing to re-train.** It is clear that the availability of maintenance support is a key deciding factor for many people looking to change careers or gain the skills they need to move back into the workforce. Some countries' unemployment support packages allow

individuals to study qualifications and develop skills in order to make them more employable and support them back into the workforce.

Promotion of **lifelong learning and continuing professional development** is also a key area for attention. Lifelong learning is at the heart of Singapore's SkillsFuture programme, which provides a range of training opportunities for citizens at different points in their career (RSA/WorldSkillsUK, 2019). At mid-career Government provides training subsidies (90% for those aged 40+) to support the professional development of workers so that they can update skills to match the changing needs of the economy. Many courses are available in bitesize format. Courses are mapped to skills gaps, with the most relevant courses "badged" to help nudge learners to take them.

This has been broadly successful in driving up participation, with a recent study showing that the skills training participation rate of Singapore's labour force reached 49% in 2020, a significant increase compared to the 35% participation rate in 2015 (Ministry of Manpower, Singapore, 2020). Similarly, the Technological and Higher Education Institute of Hong Kong has recently started to offer Earn and Learn Degree Programmes after years of running programmes at diploma and higher diploma level.

#### Recommendations

- Recognising likely future changes to skills demand beyond the pandemic, governments should invest in an expansion of professional technical education and training and lifelong learning programmes for peo-ple currently in work, and ensure that sufficient funding is available to enable learners to partici-pate, regardless of background or age.
- 7 Providers should ensure the design of education and training (including modes of delivery, outreach, and content) is inclusive and caters for new groups of learners who may need to undertake PTET for the first time.



## Support for innovation

Innovation is often associated with traditional academic higher education, rather than professional and technical education. However, there are numerous types of business innovation, notably product innovations and business process innovations that are particularly relevant for professional and technical education and training (OECD/Eurostat, 2018). In Canada in 2017/18, for example, research activity conducted specifically in colleges and institutes led to more than 4,400 new processes, products, prototypes and services (TAFE Directors Australia, 2020). Similarly, the Universities of the Applied Sciences in Switzerland, institutions delivering industry-centred professional and technical higher education, increased regional patenting activity by 6.8% and patent quality by up to 9.7% (Pfister el at., 2021) showing that professional and technical education can support product innovations as well.

The recovery from COVID-19 will require a range of innovation, from the more local examples above, to applied research on a larger scale. In Australia, the Technical and Further Education (TAFE) institute directors are asking their government for specific funding to enable TAFEs to work with small and medium enterprises to develop and improve products and processes (TAFE Directors Australia, 2020). This kind of practice-based innovation uses professional and technical education to improve the effectiveness of small businesses, and is based on a Canadian

model where government provides investment to colleges and polytechnics to provide practical and applied research support for small and medium enterprises. A similar model was raised in the workshops by a participant from Chile where business centres are funded to work with SMEs to promote innovation and entrepreneurship. However, the current model for the system in Chile is to fund the centres based on very specific outcomes. In the workshops, another model, at Hangzhou Vocational and Technical College in China, was discussed. Hangzhou has established a public training centre with support from the municipal government, and by August 2021, had developed 13 co-operative enterprises and provided skills training for more than 350 enterprises.

When providers work with SMEs to help them grow, there is an essential element of uncertainty - the new process or development may not work, there may not be a market locally, and there will inevitably be a process of reviewing and refining the goods or services offered by the SME. This has been particularly clear during the pandemic, when many businesses have had to change the way they sell, operate or otherwise function in order to continue trading. In the private sector this is managed through measuring success at portfolio (rather than individual project level) and cross-subsidy from high return innovation covering the cost of less successful projects. across the portfolio. Public sector funding models for innovation will need to employ similar portfolio-level measures of success.



#### Micro-credentials

Many organisations across the world have experience of providing flexible learning in an informal way, but the greater use of online learning will likely create more opportunities for learners to undertake more formal flexible learning, particularly through modules that are taught fully or mostly online. Flexible formalised learning can provide introductions to topics (often for young people or those unsure what course to take), very specialised learning (for those in work or upskilling in a particular area), or something in-between.

Micro-credentials are one way that many providers, employers, or education systems have decided to accredit short mostly online courses. These credentials, which include 'digital badges' and certificates from MOOCs (Massive Open Online Courses) have been used as a supplement traditional courses, or by established workers looking to learn something new, for some time. However, there are concerns about the recognition of these types of credential, with many employers and recruiters reporting a low level of understanding of the value of these new kinds of accreditation, and preferring to assess candidates for jobs based on more standard qualifications (Mullan and Broadbent, 2021). There are also concerns that micro-credentials risk driving further growth in the 'gig economy', particularly in higher income countries, with their availability meaning employers can demand workers have specific skills evidenced through micro-credentials (Wheelahan and Moodie, 2021). In addition, micro-credentials that only involve digital learning have similar challenges to those for wholly digital mainstream learning: lack of engagement with other learners or the teacher/lecturer and lack of abilHowever, in Canada, a national framework for micro-credentials aims to address these concerns. The framework defines micro-credentials as a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification (Colleges and Institutes Canada, 2021a). One of the particular advantages of micro-credentials is that they can be more accessible to those with additional challenges, for example due to disability, location of training provider, caring responsibilities, or work (Colleges and Institutes Canada, 2021b). Micro-learning can provide a way of learning and building up new skills more slowly (or more quickly) than traditional learning and at an appropriate pace for the learner. Despite the challenges, micro-credentials are still relatively new and could be a way of expanding PTET provision to those who might not be able to access it.

#### Recommendation

10 Governments should give providers greater flexibility in funding, regulation, curriculum, accreditation and assessment, to enable them to deliver against education and training that better aligns with economic need and learner demand. Providers should be judged principally on the extent to which they support learners to achieve their intended outcome.





## Collaboration

## Working with other PTET providers

The expansion of digital learning has enabled a range of benefits in terms of collaboration. One of the ways collaboration has expanded has been through providers together working across national boundaries. For example, as described in a workshop for this project, a US provider developed a short course in installing solar panels initially designed to be delivered locally. As much of the course had to shift online, they took the opportunity to offer this course to a PTET provider they had an existing relationship within Ghana. Through the course, young women in Ghana were trained remotely on installing solar panels with US tutors. Those young women who had taken the course online were then able to train other individuals locally in Ghana in person using the digital materials. This solidified an existing relationship between the two providers in different parts of the world, and should be used as a model to help train teachers or trainers in new methods remotely.

Another way that collaboration should be extended beyond

### Working with other teachers

The global nature of the COVID-19 crisis has enabled teachers in similar situations, to engage with each other around the world in trying to work out how to develop and deliver digital teaching and learning. One teacher from Australia noted in a workshop that they felt they had been able to establish a community of practice across the world, and that this had helped them identify some of the challenges of their own learners reflected in those elsewhere. It also provided a space to share problems and collaboratively consider potential solutions.

Supportive professional development that incorporates action learning and joint practice development is widely considered to be effective, but previously it has been difficult to arrange. Using digital tools to bring teachers together to work on projects for a short period of time, say an hour once a month, makes this much more realistic. It also enables teachers to engage in professional development even if they are time poor. Providers should allow time, space and resources for teachers to engage in professional development and learn from each other.



### Working with employers

Working in collaboration with employers is core to the work of many PTET providers. The pandemic has made that more difficult, but it is **crucial for providers to build on and retain existing relationships**, as well as develop new relationships. Employers will be in different positions as a result of the pandemic, and for some the certainty of specific qualifications will be reassuring. In China for example, the first-ever National Vocational Education Conference, held in 2021, upgraded the three-year diploma to a four-year baccalaure ate TVET programs and institutions (with 247 approved baccalaureate TVET majors available). Following this reform, it is intended that employers will have more clarity on the types of PTET qualifications that learners will arrive with.

In other countries, providers are working directly with employers which will help to develop wholly new courses and qualifications. One of the solutions may be to develop shorter courses to enable lifelong learning, as noted above. One of the other ways to help meet skills demand that cannot be predicted is to work directly with employers to tweak and amend existing courses over time. Such collaboration can future-proof the employer by ensuring they have the skills they need in their workforce, but also help providers ensure their staff are up to date with the latest developments. This kind of collaboration may require incentives or it may simply require trust and partnership on both sides. As jobs change more quickly, partnership between employers and learning providers become more crucial for both parties.

#### Recommendation

(11) Governments should support providers to develop and scale innovation and business support activity.





## Global Statement on the Future of **Professional Technical Education and Training**

# Four ways PTET can rebuild post-pandemic



- 1. Essential to short-term economic recovery through upskilling and re-skilling workers who have lost jobs
- 2. A key enabler and driver of longer-term prosperity through driving innovation, developing the workforce to meet future skills needs, and underpinning wider economic policy and industrial strategy
- 3. An important tool for empowering individuals and disadvantaged groups, including through supporting poverty reduction and social inclusion
- 4. Key to achieving the UN's Sustainable Development Goals (SDGs) by 2030

## Six priorities for the future of PTET



- 1. Supporting citizens to navigate and overcome the repercussions of the pandemic
- 2. Unleashing the full potential of digital technology in PTET
- 3. Evolving curriculum and assessment models to respond to requirements of the modern world of work
- 4. Making lifelong learning a reality
- 5. Developing the workforce that can deliver PTET for the modern age
- 6. Developing partnerships and collaborations locally, nationally and internationally

#### Recommendations



- 1. Governments should fund the expansion of PTET opportunities for individuals who have lost employment (or are at risk of losing employment) due to the pandemic.
- 2. Governments should support PTET providers to address learning loss among young people and existing learners.
- 3. Governments should work with the private sector to extend digital infrastructure and internet connectivity.
- 4. PTET providers should work with other partners to support the development and sharing of high quality, accessible digital resources for PTET.
- 5. PTET providers should invest in embedding digital technology, where appropriate, into their learning design and operating models.
- 6. Governments should give providers greater flexibility in funding, regulation, curriculum, accreditation and assessment.
- 7. Governments should invest in an expansion of professional technical education and training and lifelong learning programmes.
- 8. Providers should ensure the design of education and training is inclusive and caters for new groups of learners.
- 9. Governments should support providers to develop and scale innovation and businesses support activity.
- 10. Development funders and multilateral agencies should provide technical and financial support in low-and-middle-income countries to adapt their PTET systems







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