

# Engineering the Future Apprenticeships

Cross Sector  
Consultation Events

November 2019–October 2020



Engineering and  
Manufacturing  
Route Review

Prepared for the Institute  
for Apprenticeships and  
Technical Education

by Enginuity

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# Top Priorities

## Priority 01

Flexibility to respond to the pace of change

## Priority 02

Simple and steady to avoid breaking the system

## Priority 03

Provide a definitive statement about the role of Qualifications in engineering and manufacturing apprenticeships

# Guiding Principles

- 01 Stability in the present
- 02 Qualifications in apprenticeships have purpose and place
- 03 Retain and formalise the End-point Assessment flexibilities
- 04 Trust colleges and providers to be the voice of the SME
- 05 Mitigate the disparity between EPAOs through standardisation of assessment
- 06 Agreement that the apprenticeship levy can be used on a Government agreed portfolio of digital skills training
- 07 The technical competence of an assessor is more immediate than assessor qualifications
- 08 Change the narrative around engineering apprenticeships
- 09 Utility of the occupational map
- 10 Play to employer strengths in apprenticeship design and development

# Executive Summary

The Engineering and Manufacturing Route Review (E&M) commenced in the autumn 2019 as part of a legal and statutory requirement to review the occupational map and apprenticeship standards, some of which dated back to 2014. Employers agreed that it was important to understand the E&M route review requirements and timelines because the actions resulting from the review would need careful prioritisation to accommodate business priorities at specific times of the year.

The approach and methodology were based around an interpretative mixed methods approach combining polls and thematic analysis of break out activities. In Round 1, these concentrated on two key areas: the present/state of the nation and the future and the pace of change. Round 2 in October 2020 focussed on collating experiences resulting from the impact of Covid-19 on training delivery, end-point assessment and standardisation. The session also included the opportunity to discuss how best IfATE might provide additional support at this unprecedented time.

This report represents the consolidation of the findings and thematic analysis of all face to face and virtual workshops, distilling them into 3 key priorities and ten guiding principles for IfATE to consider as part of their final recommendations for the Engineering and Manufacturing Route Review. There continues to be unanimous support for apprenticeships despite turbulent and unprecedented times both in terms of the transition from not only frameworks to standards but also what may be defined as the 'new' normal. There was broad agreement that apprenticeships not only benefit business but also society, so 'getting the route review right' was critical to build upon the wholesale effort, commitment and dedication invested since 2014 to the present day.

Despite the disruption, the pandemic has accelerated change and innovation in apprenticeship training and assessment – that this is not the time to look back, but a time to move forward.



The route review has also demonstrated the strength of cross sector and industry collaboration, proving that in the fast pace of change, jobs are not occupational islands of isolation, but instead that skills are interconnected and transferrable. There is consensus that in a post Brexit Britain, high quality apprenticeships, upskilling and reskilling, underpinned by qualifications and/or professional registration will be essential to bridge our need to grow, be competitive, productive, resilient and to 'Build Back Better'.

We need to be on the right side of history to attract new talent and repurpose, renew, and reset the existing workforce. High quality apprenticeships have a key part to play in shaping our industrial future and competitive advantage alongside upskilling and reskilling of the existing workforce. Too many businesses focus on the here and now, but innovation is not the explicit domain of large employers. All change however small or incremental, means business and their supply chains need to prepare and be ready. Failure to successfully prepare for the impact of technological disruption means we will put at risk our ability to benefit from the opportunities which create wealth and social mobility.

In summary, everyone deserves a high-quality apprenticeship. Therefore, we must use the route review outcome as part of a strategy to attract new talent and to repurpose the existing workforce. The priorities and guiding principles from the consultation with stakeholders are presented as a blueprint to support IfATE's ambition and to build upon what has already been achieved. There is much support for apprenticeships with the transition from frameworks to standards embraced positively and proactively. The workshop events which extend from November 2019 to October 2020 reflect a period of time where the working environment has radically changed, however, that does not mean the commitment and momentum generated by those who participated is in anyway diminished. Indeed, recent months have shown the 'can do' attitude of engineering and manufacturing – sharing ideas and problem solving to innovate and sustain the training and assessment of engineering and manufacturing apprenticeships despite social distancing and a myriad of events beyond control.

The pandemic has changed the way we live and accelerated change. It has never been more important to maintain the momentum created by the Engineering and Manufacturing route review and to make the outputs from stakeholders self-fulfilling. We need to learn lessons and to build apprenticeships which can adapt to the unexpected and agile enough to flex for future purpose. Whilst there is still much uncertainty, there is much which can be achieved by adopting the three key priorities and ten guiding principles outlines in this report.

We need to change the perception of engineering apprenticeships, starting in schools to open the door to aspiration – purposeful, satisfying careers which are good for the economy, good for our planet and inclusive. However, it is essential to listen to the voice and lived experience of apprentices now to ensure no one is inadvertently left behind through no fault of their own, whether that be furlough, redundancy or at a more basic level, through poor digital connectivity, or digital poverty.

Apprenticeships are vital to a prosperous economy and inclusive society, essential to growth, productivity, and business resilience. The opportunities to enjoy a purposeful satisfying career in this sector are significant, for example, embracing new technologies such as the decarbonisation of electricity and its impact on manufacturing processes. High quality apprenticeships will support the renewal of our economy and build adaptability and resilience, creating their own legacy contribution to our future economic success. Therefore, whilst we must continue to respond to the impact of the pandemic in the coming months, the route review outcomes must have longer term ambition and direction. The rationale can be summed up in three words; continuity, consistency, and ambition for the sector, together with all the opportunities apprenticeships can offer; after all

‘One Engineering Apprenticeship can change a person’s world—and Ours’





# Introduction



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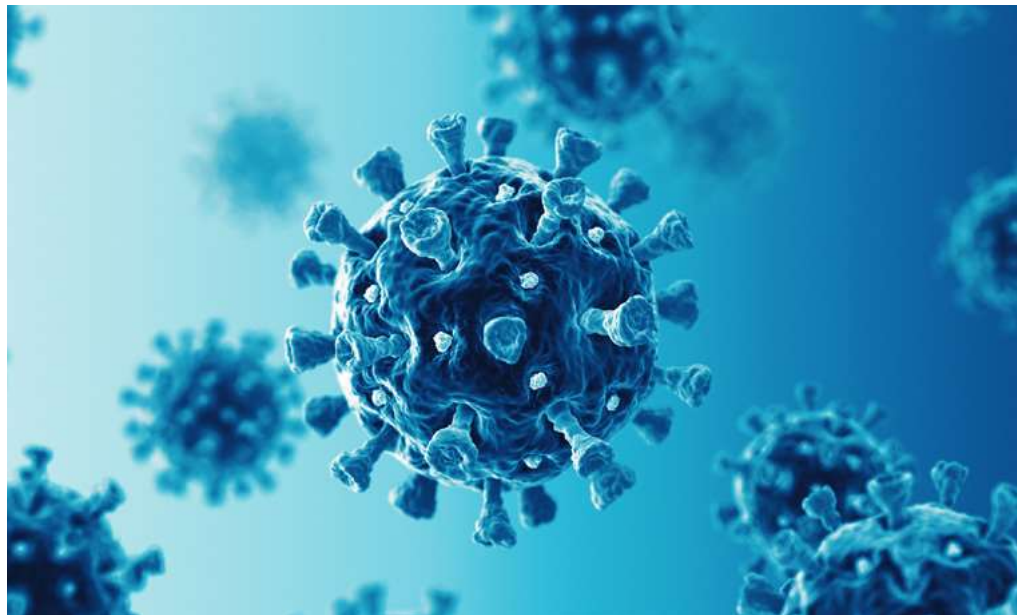
This report represents the consolidation of the findings and thematic analysis of all face to face and virtual workshops, distilling the findings into 3 key priorities and 10 guiding principles which they invite IfATE to consider as part of their final recommendations for the Engineering and Manufacturing Route Review. There continues to be unanimous support for apprenticeships despite turbulent and unprecedented times, both in terms of the transition from not only frameworks to standards but also in what may be defined as the 'new' normal. There was broad agreement that apprenticeships not only benefit business but also society, so 'getting the route review right' was critical to build upon the wholesale effort, commitment and dedication invested since 2014 to the present day.

# System Shocks

## Covid, Brexit and technological disruption

Our world is changing – indeed apprentices who start their career journey may not even know all the technologies they'll work with following completion, but one thing is clear – they will have to be adaptable – career paths are no longer predictable. Technology is changing fast and how we work is changing with it. Industry 4.0 and the net zero transition will require high quality apprenticeships which are agile and able to flex. They present a tangible opportunity to excite, energise and reset the perception of engineering and manufacturing. New ways of working demand new know-how – from data science to advanced systems engineering and machine learning. Historically, innovation has always been a disruptor, but the opportunities for apprenticeships to embrace new technologies including electrification, renewables, carbon capture, hydrogen, batteries, heat transfer etc are immense.

During the engineering and manufacturing route review, the nation experienced unprecedented seismic change and disruption resulting from Covid-19 with many businesses experiencing varying combinations of interruption, contraction, furlough, and redundancy.



“A lot of old conversations have moved on, because they have had to”

In some sectors such as aviation for example, this resulted in a loss of tacit knowledge and experience from the route review process as furlough limited event attendance.

Alongside the pandemic, employers continued to experience the real and imminent uncertainty resulting from the departure from the European Union. Employers now had to invest time and energy as part of their own business readiness, in addition to the ongoing route review and more recently the funding band consultation. It serves to highlight that E&M route review conceived in clear waters, finds itself now competing with a myriad of other pressing priorities.

Employers still place importance on high quality apprenticeships however to maintain their talent pipeline. This provides an insurance against uncertainty by ensuring they can take full advantage of new business

opportunities in the coming years. The combination of continuity, consistency and ambition needed to secure a successful passage through Brexit, Industry 4.0 and net zero therefore can only be achieved if underpinned by a highly skilled workforce. Nevertheless, these technological fault lines will necessitate apprenticeships being sufficiently agile to flex and embrace this change. Employers and their employees have to ‘think’ differently and ‘work’ adaptably to differentiate their products within the market. This means change is not the exclusive domain of large employers or their supply chains but reaches every corner of our industry and our society.

Despite the disruption, the pandemic has accelerated positive change and innovation in apprenticeship training and assessment to mitigate risk and enable completion and achievement. It underlines that this is not the time to look back, but a time to move forward. The route review has also demonstrated the strength of cross sector and industry collaboration, proving that in the fast pace of change, jobs are not occupational islands of isolation, but instead have skills which are interconnected and transferrable.

We need to be on the right side of history to attract diverse new talent in addition to repurpose, renew, and reset the existing workforce. Apprenticeships have a key part to play in shaping our industrial future and competitive advantage alongside upskilling and reskilling of the existing workforce. Too many businesses focus on the here and now, but innovation however small or incremental, means business and their supply chains need to be ready. Failure to prepare for technological disruption means we create disadvantage and put at risk our ability to benefit from the opportunities that create wealth and inclusion. In short, we must ‘Build Back Better’.





# Approach and methodology

IfATE were committed to a strategy of listening and learning and to securing a robust empirically led source of evidence with the underpinning aim to maintain confidence, commitment and continuity for engineering and manufacturing apprenticeships, critical both to the economy and industrial strategy. Employers (large and small), training providers, end-point assessment organisations, professional institutions, trade, and sector bodies were therefore invited to participate in the workshop events (see Annex A). The first round of workshops took place between 27th February and 12th March 2020 with one additional virtual event

to replace the planned Bristol and Manchester events, following the onset of the pandemic. The final workshop was held in October 2020 and was re-opened to those invited from the first round– (see Annex A for a list of organisational attendees) in order to provide continuity in the narrative which now acknowledged that the impact of Covid-19 on training and assessment would shape the recommendations and timelines.

A mixed methods approach was adopted using a combination of survey questions to provide a quantitative baseline and to promote interaction, combined with an interpretative, qualitative methodology to provide the depth of understanding required to shape the route review outcomes. Breakout groups were divided by grouping, for example providers and end-point assessment organisations, separate from employer groups. Professional Bodies and sector bodies were distributed between these two main grouping, together with members of IfATE's review team and Enginuity facilitators.

Event	Total Registered	Attended	Employer	Provider	Organisation type		
					EPAO	Sector Body/PEI	Other
Birmingham	58	40	8	13	6	4	9
Newcastle	47	35	10	19	3	0	3
London	52	31	5	8	3	5	10
Online workshop 1 (March)	49	49	7	23	3	5	11
Online workshop 2 (October)	92	92	26	19	14	11	22
<b>Totals</b>	<b>298</b>	<b>247</b>	<b>56</b>	<b>82</b>	<b>29</b>	<b>25</b>	<b>55</b>

# Polls were conducted during the workshops to set the baseline for the group activities and as a tool for engagement:

## Round 01 Workshop Polls

February/March 2020

- 01 Standards and Assessment Plans/ Tacit knowledge and continuity.....have there been significant changes to the chair or members of your group which could present challenges to any future work moving forward?
- 02 Is eligibility for Professional registration (EngTech/IEng) an essential part of an E&M apprenticeship?
- 03 Are qualifications essential to underpin apprenticeship training in Engineering and Manufacturing?
- 04 Should these qualifications be mandatory? (London extension question) Will standards need to be able to respond to the pace of industrial digitalisation and technological change?
- 05 Would IfATE benefit from having a process to fast-track standards and assessment plans requiring adjustment or to meet the pace of change where the occupational case is already proven?

## Round 02 Workshop Polls

October 2020

- 01 What has been the impact of Covid-19 on apprentice recruitment?
- 02 What has been the impact of social distancing on delivery?
- 03 What has been the impact of Covid-19 on End Point Assessment?
- 04 I am aware of the government's net zero target and how it will impact my industry...
- 05 Apprenticeships can currently respond well to new green technologies...

A concept card approach was used as an organising framework for the significant volume of feedback from the groups. This enabled the identification, organisation, and categorisation of emergent themes and from each round of workshops (see Annex B) and contributed to the agenda and structure of the final event in October 2020. The findings were distilled into 3 key priorities and 10 guiding principles, essential to build on what has been achieved since 2014, to create an exemplar of apprenticeship design and development and to support our post pandemic economic and industrial recovery.

# Consultation Findings



## The journey so far

- 01 Employers generally preferred standards to frameworks regarding this as a positive change– a “definite improvement”, however, still need time to embed fully. The migration had been “hard but acceptable”
- 02 Employers had worked proactively to align knowledge in standards to real job roles, building a co-operative relationship with colleges and providers
- 03 The breadth of foundation phases in some standards had allowed employer flexibility within the foundation phases for example, Engineering Technician
- 04 Behaviour reviews had been well received despite some logistical challenges from a delivery perspective

## Our 3 Key Priorities

# Priority 01



## “Flexibility to respond to the pace of change”

Employers need a degree of flexibility to regularly adjust apprenticeship standards to keep pace with digital and technological innovations and new work practices by including an element of built in flexibility – i.e. the digital flex of 20%. The aim is to enable agility and fast track changes/ updates to apprenticeships.

The fourth industrial revolution is introducing new disruptive innovation and technologies, resulting in the need to think and rethink radically different ways of training, whether that be new entrants or upskilling/ reskilling. Employers have embraced the introduction of new apprenticeship standards as a way of tackling those persistent problems of performance, business resilience and social inequality. There is universal agreement that everyone deserves a high-quality

apprenticeship as the cornerstone of a successful and satisfying career, yet there is a risk that in a few short years, technological advancement and ways of working will overtake apprenticeship standards. In a post Brexit Britain, apprenticeships must remain the gold standard opportunity, admired, and with currency and credibility – a beacon to the world. Put simply, apprenticeships need to be as sufficiently agile as business itself to respond to the pace of change.



“Occupations are changing even within the lifecycle of an apprenticeship, therefore 20% Industrial digitisation flex in the adaptation of standards to meet the pace of technological change would be helpful where the occupational case is proven”

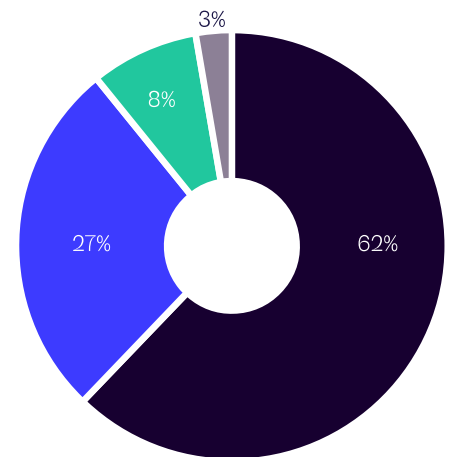


## Workshop Poll 01

### Do standards need to be able to respond to the pace of digitalisation and technological change

Technological change is happening quickly within Engineering and Manufacturing, and the government-commissioned Made Smarter review<sup>01</sup> predicted a need for a million workers in such roles to be upskilled in order to meet projected industry demand for digital manufacturing and engineering skills. This is reflected in the results from polling of workshop participants, with almost nine in ten (89%) either agreeing or strongly agreeing with the need for standards to be able to respond to the pace of digitalisation and technological change in order to meet those skills needs.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree



## Our 3 Key Priorities

# Priority 02

### “Simple and Steady—avoid breaking the system”

During Covid-19, it is important to be realistic about what the priorities are, what can be changed and achieved at this unprecedented time.

Employers, providers and end-point assessment organisations are stretched during these unprecedented times, for example, responding to social distancing, health and safety, digital connectivity and the real problem of digital poverty. Moreover, this is not only for existing apprentice cohorts, but for new starters. There is broad consensus that IfATE mitigate risk and allow apprenticeships to remain steady at the present time to reduce the administrative burden, with policy alignments contained within a practical, realistic and extended timeline. In terms of the current funding consultation, the consensus was to avoid any apprenticeship funding reductions, simply to reflect that more cost/support had been invested during Covid-19 to ensure no one's learning journey was unfairly disadvantaged.

End-point assessment flexibilities have been well received and there is a hope that these should remain for the next 12 months, as a minimum. Apprentices at risk of being disadvantaged through no fault of their own, or made redundant should be supported in order to avoid a worse-case scenario of being left partly trained. Combined, participants considered these measures would manage the present and support the transition to a 'new sustainable normal'.

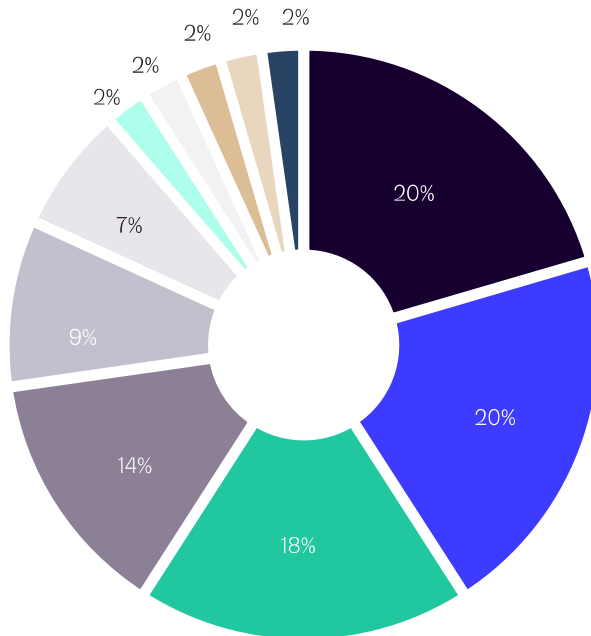


“Apprentices are generally the first to suffer, recruitment has dropped considerably... the Institute should keep looking at mechanisms to help apprentices keep engaged and employed”

## Workshop Poll 02

### What has been the impact of Covid-19 on apprentice recruitment?

Just over a fifth of attendees (21%) were able to report that the pandemic has had no impact on apprentice recruitment, with a slightly smaller proportion (14%) having seen little impact. However, for most of the participant organisations there has been a stronger impact; almost two in five (39%) have had to defer at least some starts while almost a third (32%) reported significant reductions in numbers or delays. (11%) had seen multiple impacts.



- Significant reduction in numbers or delays
- No impact
- Some deferred
- Little impact
- Majority of starts deferred
- Recruitment on hold
- **Recruitment on hold.** Significant reduction in numbers or delays; Majority of starts deferred
- **Recruitment on hold.** Significant reduction in numbers or delays; Majority of starts deferred; Some deferred
- **Recruitment on hold.** Significant reduction in numbers or delays - some deferred
- **Significant reduction in numbers or delays.** Majority of starts deferred
- **Significant reduction in numbers or delays.** Some deferred

## Our 3 Key Priorities

# Priority 03



“Provide a definitive statement about the role of Qualifications in engineering and manufacturing apprenticeships”

Once and for all determine a position with guidance around the inclusion/recognition of knowledge qualifications and vocational competence qualifications.

There has been much debate since the inception of new apprenticeships around the merits and inclusion of qualifications in terms of both knowledge and skills. Participants strongly supported the role of a qualification to consistently underpin apprenticeship training and to provide parity of esteem, although there was some divergence of opinion around skills-based inclusion, dependent on the sector and regulatory environment. As some apprentices began to be

placed at risk and/or made redundant, a qualification offered a safety net in difficult times and provided a passport upon which to plan for a new future. Furthermore, qualifications gained recognition overseas, especially where a qualification was preferred to evidence competence during tenders and much closer to home, parents placed value on qualifications as a key milestone in the learning journey. The time has come to close down this debate and provide clarity on how they may be included.



“Everyone I deal with, whether it be SME or large corporations, its qualifications, qualifications, qualifications. They want that physical passport”

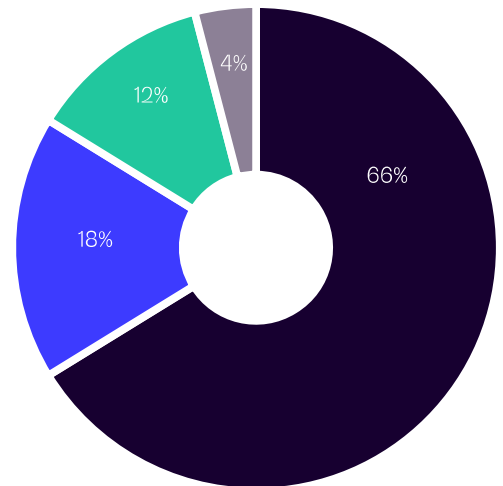


## Workshop Poll 03

**Do you think qualifications are essential to underpin apprenticeship training in Engineering and Manufacturing?**

Attendees were strongly supportive of the need for qualifications to underpin apprenticeship training in Engineering and Manufacturing, with two thirds (66%) of poll respondents saying they are extremely important and only 4% of respondents saying that they are not so important. No respondents indicated qualifications were of no importance at all.

- Extremely important
- Very important
- Somewhat important
- Not so important



## Our 10 Guiding Principles

# Guiding Principle 01



### Stability in the present

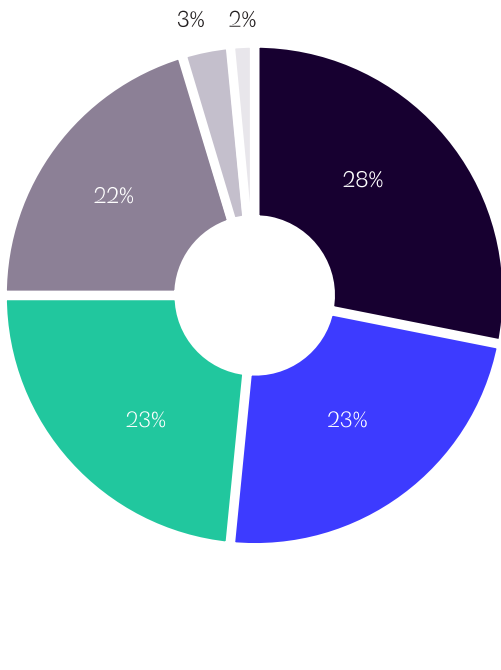
Manage and respond to the fall out of Covid 19, Brexit – reduce the administrative burden in terms of rework whilst reviewing overlaps between some apprenticeships. Accredite Prior Learning on all apprenticeships to aid economy and efficiency and duplication of learning and assessment .

“The new normal will be around for a long time... going backwards now will penalise apprentices”

Employers and providers have demonstrated their commitment and support of the transition from frameworks to standards, but their businesses are under pressure resulting from a perfect storm of external factors ranging from Covid-19, Brexit and the need to survive the present to build for the future. In addition, some employer group members have retired, moved to new roles, have been on furlough or placed at risk of redundancy. This not

only creates temporary disconnects but highlights the current need for stability around the review of apprenticeships in engineering and manufacturing.

There was broad agreement of the need to use the public purse efficiently and effectively, with some consensus around the accreditation of prior learning to avoid any perceived or actual duplication of learning or assessment.



## Workshop Poll 04

Have there been significant changes to the chair or members of your group which could present challenges to any future work moving forward (pre-pandemic position)

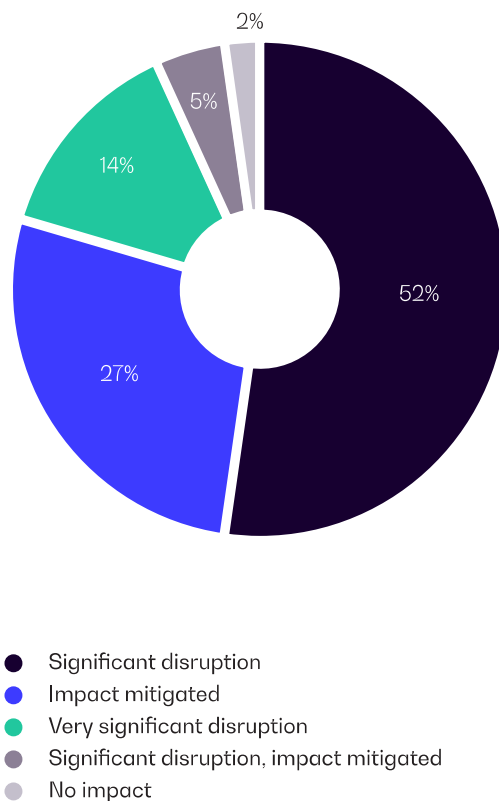
Continuity of membership and leadership of employer groups appears to be an issue which could impede future apprenticeship development.

- A moderate amount
- A little
- Not applicable
- A lot
- A great deal
- None at all

## Workshop Poll 05

What has been the impact of social distancing on delivery in 2020/1?

As may be expected, social distancing has had a significant impact on how apprenticeships in engineering are being delivered, with only one respondent out of 44 stating that it has had no impact at all and almost three quarters (71%) reporting either significant or very significant disruption. However, there are signs that providers are beginning to get to grips with the problems being created by covid-19, with almost a third (32%) of participants having been able to mitigate the impacts on their apprenticeship delivery and/or assessment. With no end to the pandemic in sight, sharing experiences and disseminating best practice in apprenticeship delivery and assessment will be crucial if apprentices' prospects are to remain high.



- Significant disruption
- Impact mitigated
- Very significant disruption
- Significant disruption, impact mitigated
- No impact

## Our 10 Guiding Principles

# Guiding Principle 02

Qualifications in apprenticeships have purpose and place in terms of occupational consistency of knowledge, and a fall back in times of uncertainty/redundancy – a passport to differentiate themselves in the job market. In the pandemic, apprentices who have lost their jobs during the pandemic have benefitted from this additional safety net.

“Qualifications continue to provide a sense of achievement and open doors for progression”

The Apprentice Voice



Overall, the key is to avoid duplication of activity and to create a reliable, valid economy of scale and to future proof any impacts from policy changes in years to come. Whilst there is a need for a definitive position from IfATE, there is strong support for qualifications to remain within engineering and manufacturing apprenticeships. The findings concluded that a qualification offers consistency, comparability and credibility with a strong legacy in terms of its recognition by employers, parents and apprentices themselves and forms part of the ladder towards professional recognition. With a range of sectors, there were some differing views about the use of qualifications for competence, but unequivocal support for knowledge acquisition. This would further support case for the award of UCAS points and progression opportunities but more fundamentally reflects how qualifications are respected by both SME and large employers.



“Qualifications help apprentices achieve something if, they can’t achieve their full apprenticeship for circumstances beyond their control.”

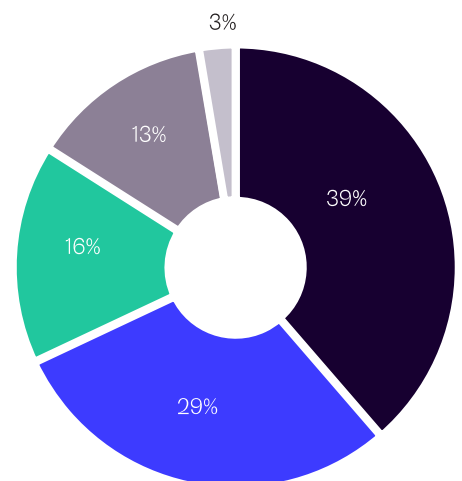


## Workshop Poll 06

**Do you think eligibility for Professional registration (EngTech/ IEng) is an essential part of an E&M apprenticeship?**

A majority of respondents believed that eligibility for professional registration was of some value, reflecting the longstanding use of professional registration within Engineering and Manufacturing.

- Somewhat important
- Very important
- Extremely important
- Not so important
- Not at all important



## Our 10 Guiding Principles

# Guiding Principle 03

### Retain and formalise the End-point Assessment flexibilities

Going backwards and reverting to pre-Covid requirements would unnecessarily penalise existing apprentices.

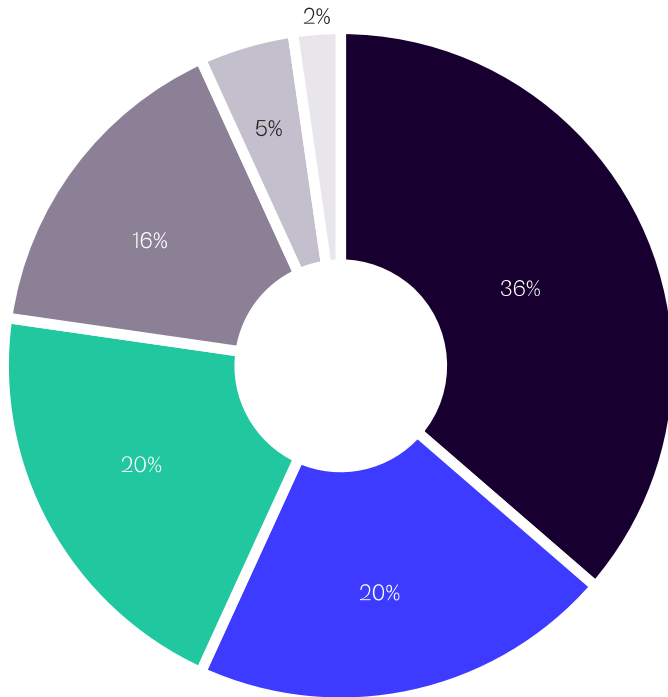
There was broad consensus about the need to adapt to a 'new normal' and the opportunities this could offer individual apprentices now and in the future. For example, recognition of qualification achievement after EPA requirements avoid delays at epa gateway. Although many time constraints and concerns existed, all reported a need to acknowledge the present, learn lessons and share exemplary practice and in turn future proof against future system shocks.



## Workshop Poll 07

### What has been the impact of Covid-19 on End Point Assessment?

The impact of Covid-19 on End Point Assessment has been mixed with around a third of respondents (36%) indicating that they had successfully mitigated impact. The same proportion (36%) said that they had seen either a significant or a very significant disruption.



- Impact mitigated
- Very significant disruption
- No impact
- Significant disruption
- Little impact
- Little impact, no impact

“The flexibilities and future proofing of assessment methods would assist in ensuring assessments are able to be carried out in times of exceptional circumstances”

## Our 10 Guiding Principles

# Guiding Principle 04



## Trust colleges and providers to be the voice of the SME

Many are focussed upon business survival then business recovery – enabling them to prioritise their business will seed future apprenticeship opportunities and growth.

“Colleges and Providers are a conduit towards hard to reach SMEs”

SMEs often form the back bone of the supply chain for larger employers and could even be that single point of failure within the production process. SME engagement was a challenge in apprenticeship design and development, even prior to the pandemic to ensure routes matched the real world of SME and micro business. Moving forward, this challenge could be compounded further due to more pressing needs around working capital, order books and business survival. Colleges and Providers considered that they could be a useful conduit to this hard to reach group.

frameworks to new apprenticeships. Furthermore, the challenge of funding could impact recruitment for non-levy payers, compounded by bureaucracy and the amount of levy pass through permitted currently by large employers. A suggestion was made around the potential for larger employers to support their own industry with under-utilised levy rather than a simple return to treasury. This move might serve as an investment for the future as well as recognise the multi-faceted nature of complex technology implementation and the thousands of businesses involved in for example, aero-defence projects.

There was a broad view that SMEs were at a more basic level struggling to understand the transition from



## Our 10 Guiding Principles

# Guiding Principle 05

“End-point Assessment organisations interpretation of standards vary – how can they have a different approach to each another?”

“Moderation is the safety net for EPAOs”



## Mitigate the disparity between EPAOs through standardisation of assessment

Inconsistent interpretation was leading to differences between end-point assessment organisations on the same apprenticeship. Some learners may pass or fail dependent on the assessment organisation interpretation.

There was broad consensus around the need for standardisation of assessment materials, judgements/grading. At an organisational level, there were a range of experiences of end-point in action which could only be resolved through moderation across EPAOs and by standard.

## Our 10 Guiding Principles

# Guiding Principle 06

Agreement that the apprenticeship levy can be used on a Government agreed portfolio of digital skills training for the workforce to drive the post-pandemic economic recovery, harness innovation and productivity and business resilience.



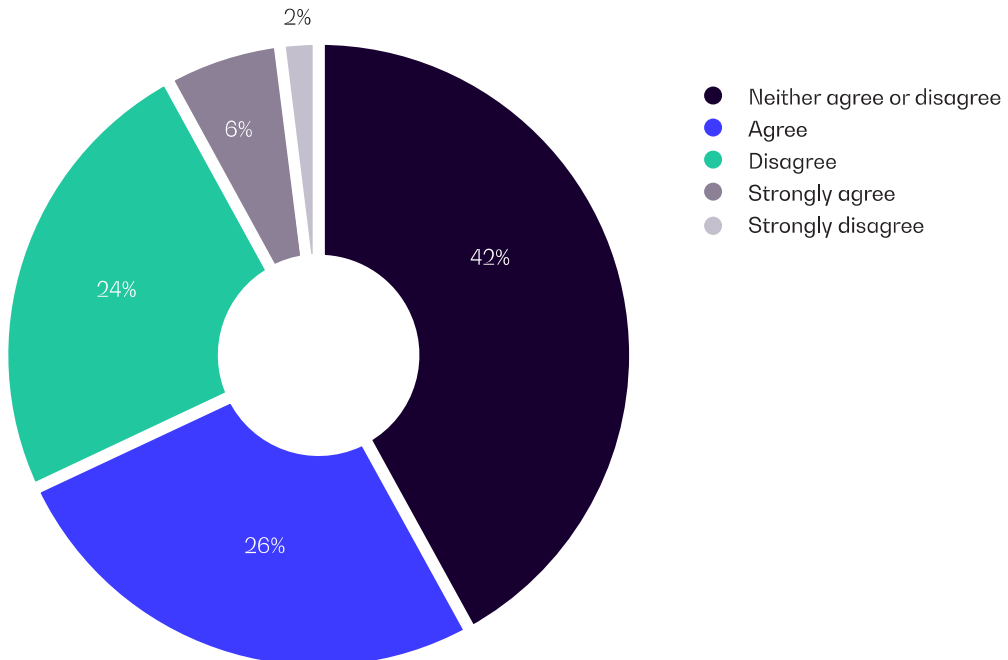
We need to thrive and recover but fundamentally our ability to adapt to Industry 4.0 and net zero will be accelerated or hindered by the skill level of the workforce and available talent. Some will not need a full apprenticeship, but instead require a more modular, just in time approach to upskilling/reskilling. Our industrial recovery demands new know-how – from data science to advanced systems engineering and machine learning. We need to consider how the current workforce is prepared sufficiently to respond to this change, whether that be ventilator challenges, vaccine manufacture or more broadly the opportunities from decarbonised electricity including renewables, carbon capture, hydrogen, batteries and heat transfer technologies. Therefore, to aid efficiency of the public purse, in some cases it may be more appropriate to consider an agreed portfolio of industrial digital skills training, rather than a full apprenticeship. There is also a more broader strategic win for Government, ahead of COP26, to show action leadership around the ways to accelerate both a fair transition and achieve our net zero ambitions.

“Review levy flexibility to support employers to upskill and reskill for business growth and recovery”

## Workshop Poll 08

### Apprenticeships can currently respond well to new green technologies

Results indicate that there is still a degree of uncertainty within the sector when it comes to integrating new green technologies into apprenticeships, with more than two-fifths (42%) of respondents indicating that they neither agree nor disagree with the proposition that current ‘apprenticeships can currently respond well’ in this space. This matters in the context of the need for new talent to ensure the UK reaches its net zero target. It is also important to remember that net zero matters to the young people who are needed to go on to fill those roles – 81% say it’s important to them to do their bit to reach the target<sup>02</sup>



## Our 10 Guiding Principles

# Guiding Principle 07

The technical competence of an assessor is more immediate than assessor qualifications which can be acquired and be part of their continuous professional development.



“You can train someone to be an assessor, but you can’t replicate industry knowledge.”

There was some consensus around that there is not an inexhaustible pool of occupational competent assessors to meet the demand for independent objective end-point assessment. This may result in the need to explore alternative strategies, in particular, for those operating in highly regulated industries. Other alternatives put forward included making better use of qualifications for knowledge, whilst utilising the assessor more directly towards skills-based competency assessment.



## Our 10 Guiding Principles

# Guiding Principle 08



### Change the narrative around engineering apprenticeships

Improve the perception of StEM careers and opportunities. Clear messaging for schools, young people/ parents, and teachers around the diversity of career opportunities - clean, green jobs which make a difference to our planet, our economy, and our life chances. Award UCAS points for Level 3 apprenticeships to give parity of esteem.

We are “fighting a losing battle with schools in selling apprenticeships as a route into work”

29

There is sadly a historical association with ‘dirty tools’ within engineering and manufacturing. This needs to be neutralised through better understanding of the diverse opportunities available by schools and parents. There is a need to communicate from an early age the brilliant careers available in engineering and manufacturing and to build aspiration in young people to be part of it and make a difference. There was consensus that whilst there was no silver bullet, it was time to think about language, the wording of job adverts, the national careers website, advice and guidance materials etc., all to attract a more inclusive and diverse workforce in the future. Overall, there was consensus in the view that it was time to focus on

operational engineering excellence through case studies; identify role models; review job titles and move away from craftsperson/technician descriptors. In higher education, there was a call to improve the profile of degree apprenticeships instead of being perceived as sub-optimal degrees with all having a role to play to change outdated perceptions.

## Our 10 Guiding Principles

# Guiding Principle 09

“Schools must be more proactive because young people did not have awareness of engineering career”

The Apprentice Voice

## Utility of the occupational map

Ensure meaningful connections between different options in a visual, way for schools, parents and young people around for example, T Level to apprenticeships or higher education.

“The Occupational Map should be more ‘user friendly’ to schools, parents, and individuals”

There is an myriad of choice and options at different stages of a young person’s education, so it is equally important to be transparent about the different routes and opportunities. This may serve a key milestone, for example, at the start of the journey via new entry routes including traineeships and kickstart and/or upon completion of an apprenticeship or the T level when available. The occupational map had mixed reviews in its current format but there was broad consensus that its greatest utility would result being clear and visually appealing to schools, parents and young people.



## Our 10 Guiding Principles

# Guiding Principle 10



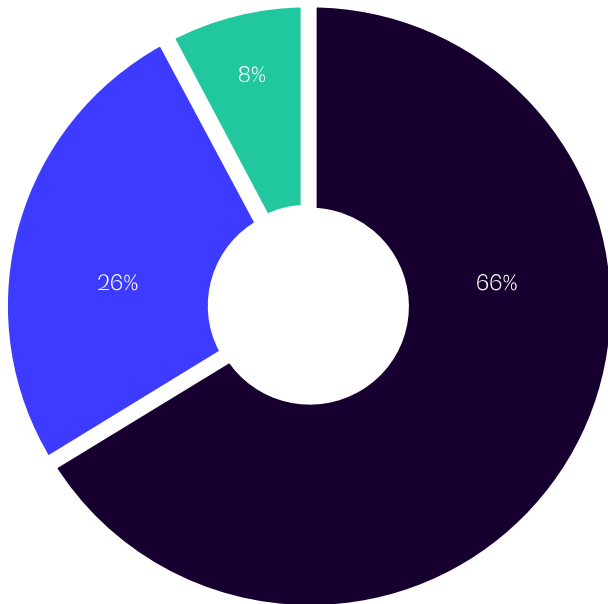
### Play to employer strengths in apprenticeship design and development

The role of employer groups should simply be to develop the top-level knowledge, skills, and behaviours specification, together with an overview of occupational duties.

With time pressure on employers showing no sign of abatement, the findings called for a pragmatic approach to the future design or amendment of apprenticeships. This would simply enable both employers and IfATE to play to their own strengths. Employers with their occupational knowledge and IfATE in terms of process, templates and support – together creating an exemplar of apprenticeship design to showcase to other nations. This would ensure that future fitness for purpose was embedded by employers within the design process whilst reducing the creative and maintenance burden on the few for the benefit of the many.

“The whole new ethos with the new apprenticeships is that employers are leading and driving it”

- Extremely valuable
- Very valuable
- Somewhat valuable



## Workshop Poll 9

**Would IfATE benefit from having a process to fast-track standards and assessment plans requiring adjustment or to meet the pace of change where the occupational case is already proven?**

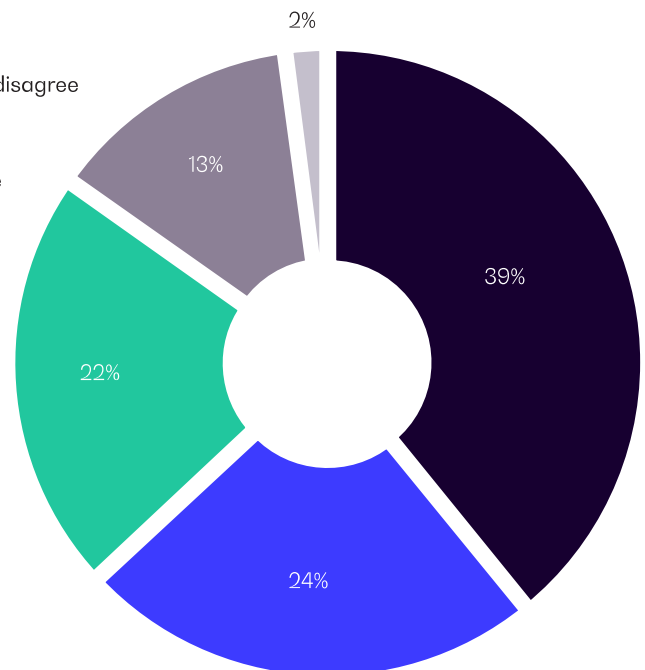
There was strong support expressed for the prospect of a process for fast-tracking amendments to Engineering and Manufacturing apprenticeships in order to meet the pace of change. Two-thirds of respondents (66%) said that such a process would be extremely valuable, reflecting the perceived need for Engineering & Manufacturing apprenticeships to keep pace with the technological changes that are underway within the sector.

## Workshop Poll 10

**I am aware of the government's net zero target and how it will impact my industry.**

61% of respondents indicated that they were aware of the government's net zero target and the potential impacts on their industry. This is similar to the level of awareness amongst the wider public research by the Department for Business, Energy, and Industrial Strategy (BEIS) conducted in June 2020 found that 63% of the public are aware of net zero.<sup>03</sup>

- Agree
- Neither agree or disagree
- Strongly agree
- Disagree
- Strongly disagree



<sup>03</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/906452/BEIS\\_PAT\\_W34\\_-\\_Key\\_findings.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/906452/BEIS_PAT_W34_-_Key_findings.pdf)



# Summary

Everyone deserves a high-quality apprenticeship. Therefore, we must be on the right side of history and use the route review outcomes as part of a strategy to not only attract new talent, but to renew and reset the existing workforce. The priorities and guiding principles from the employer and stakeholder consultation are presented as a blueprint to support IfATE's ambition and to build upon what has already been achieved since 2014. The workshops which extended from November 2019 to October 2020 reflect a time period during which, the working environment has radically changed. Nonetheless, that does not mean the commitment and momentum generated by those who participated is in anyway diminished. Indeed, recent months have shown the 'can do' attitude of engineering and manufacturing as a sector – sharing ideas and problem solving to innovate and sustain the training and assessment of apprenticeships despite social distancing and a myriad of events beyond control.

The pandemic has changed the way we live and accelerated change forever. It has never been more important to maintain the momentum created by the Engineering and Manufacturing route review and to make the outputs from stakeholders self-fulfilling. We need to learn lessons and to build apprenticeships which can adapt to the unexpected and are agile enough to flex for future purpose. Whilst there is ongoing uncertainty, there is much which still can be achieved by adopting the 3 key priorities and 10 guiding principles outlined in this report.

We need to change the perception of engineering apprenticeships, starting in schools to open the door to aspiration – purposeful, satisfying careers which are good for the economy, good for our planet and ensure no one is left behind. It is also essential to listen to the voice and lived experience of apprentices now to ensure no one is inadvertently penalised through no fault of their own, whether that be furlough, redundancy or at a more basic level, through poor digital connectivity, or digital poverty.

Apprenticeships are vital to a prosperous economy and inclusive society; essential to growth, productivity, and business resilience. The opportunities to enjoy a brilliant career in this sector are significant and at the heart of broader road to economic recovery. High quality apprenticeships will support the renewal of our economy and build adaptability and resilience, creating their own legacy contribution to our future economic success. Therefore, whilst we must continue to respond to the impact of the pandemic in the coming months, the route review outcomes must have longer term ambition and direction. The rationale can be summed up in three words, continuity, consistency, and ambition for the sector, together with all the opportunities apprenticeships can offer; after all

# Annex A

## List of Workshop participants

Activate Apprenticeships	Galvanizers Association	Northern Gas Networks
AMTC	Gen2 Training	Northumbrian Water
Ap-Ex Training consulting Ltd	Gestamp Talent Ltd	NSAFD
Autoexel	GET	NSAN
Axia Solutions Ltd	Gloucestershire College	Peak Performance Partnership Limited
B.E. Wedge Holdings Limited	GQA Qualifications	Pearson BTEC and Apprenticeships
BAE Systems	GSK	Plumpton College
Balfour Beatty	Hartlepool College of Further Education	Porter Consulting and Management Services Limited
Bedford College	Havering Colleges	RAeS
Berthon Boat Company Ltd	Heart Worcestershire College	RAF
Birmingham City University	Herefordshire & Worcestershire Group Training Association	Sandwell College
BMW Motoren GmbH	HETA	Sanofi
Bolton College	HS2 Ltd	Seta Ltd
Breedon Group plc	HVM Catapult	Severn Trent
British Airways	IET	SGN
British Printing Industries Federation	IMI	Shrewsbury Colleges Group
Burnley College	Institute of Explosive Engineers	SIAS
CABWI Awarding Body	Institute of Physics	Siemens PLC
Canterbury Christ Church University	International Assessment Centre	South and City College Birmingham
City & Guilds	IPS INTERNATIONAL LTD	South Staffs Water
City of Wolverhampton college	Jaguar Land Rover	SSE Services Plc
Click	JCB	St Helens College
Cogent Skills	JMA Contract Services Ltd	Stockton Riverside College
Collins Aerospace	JS Consultancy	Stuart Rattray Training
Confederation of British Metalforming	Kirklees College	Sunderland College
Construction Plant-hire Association	Leeds City College	Tarmac
Coventry University	Leonardo	TDR Training Ltd
David Kirschner	LJW Skills Consultancy	Textile Services Association
Derwent Training Association	LSEC	The Engineering College
EAL	Make UK	The Engineering Council
East Durham College	MCTS	The Institute for Apprenticeships and Technical Education
ECITB	Middlesex University	The Institute of Cast Metals Engineers
EDF Energy	MidKent College	The Institute of Materials, Minerals and Mining
EFM	MITSkills	The MTC
Elring Klinger GB	MK College	TRS Training
Energy & Utility Skills	NA College Group	Tyne North Training
Energy and Utility Independent Assessment Service (EUIAS)	National Composites Centre	UK Electronics Skills Foundation
ETA	National Skills Academy for Food and Drink	Unipres (UK) Limited
EU Skills	NCC	University of Portsmouth
FDQ	NETA Training	University of the West of England, Bristol
Ford	New City College	University of Warwick
Foundry Training Services Limited	New College Durham	WCG
Fujifilm Dyosynth Biotechnologies	NFEC (National Forum of Engineering Centres)	Wendy Shorter Interiors Ltd
	NLTG	WorldSkills UK
	North West Training Council	York College

# Annex B

## Round 1 Events



### Employer Group

#### Activity Session 01

#### State of the Nation

- 01 Diversity & Inclusion: what works and what challenges are faced in the recruitment, training, or assessment of apprentices within the sector?
- 02 The role of qualifications in standards: strengths, challenges and issues for your business and workforce development needs
- 03 Looking at the Occupational Map (on the table). Two discussion points: Are employers seeing increased commonality within occupations and if so, how is this impacting on their business? Would a move towards a common core and specialist core and options be helpful?

### EPAO/Training Provider Group

#### Activity Session 01

#### State of the Nation

- 01 As providers/EPAOs what has gone well in terms of training, end-point assessment; challenges and areas for IfATE to consider/unintended consequences resulting from any changes to standards/assessment plans?
- 02 Diversity & Inclusion: what works and what challenges are faced in the recruitment, training, or assessment of apprentices within the sector?
- 03 EPA Design – purposeful proportionate assessment method(s) and commonality where appropriate, obtaining accurate measures of success rates at Gateway or at certification

### Employer Group

#### Activity Session 02

#### Apprenticeships / Upskilling/Reskilling

- 01 Impact of Brexit on investment in skills
- 02 The pace of change – how is technology and digitalisation impacting on job role and skills?

### EPAO/Training Provider Group

#### Activity Session 02

#### Looking forward - 'Engineering the future'

- 01 The impact/implications of industrial digitalisation on learning and end-point assessment
- 02 The future role and structure of qualifications in apprenticeships
- 03 A role for a common core and specialist core in apprenticeship standards?

### EPAO/Training Provider Group

#### Activity Session 03

#### Learning Lessons/Landing the Messages

Recommendations to IfATE following the conclusion of the route review

# Annex B

## Round 2 Event



## Interim Feedback from Events

- 01 Presentation of Emergent themes and recommendations
- 02 Q&A

### Activity Session 01

#### Covid-19

#### Moving towards the New Normal (All Groups)

- 01 Impact of Local lockdowns on delivery and assessment – what further adjustments need to be made moving forward – lessons learnt
- 02 What has worked well and what has been more challenging
- 03 How have you ensured quality and standardisation to ensure validity of end-point assessment
- 04 Moving forward – any additional support from the Institute

### Activity Session 02

#### Theme 1

#### Boiler plating Behaviours in standards: (Employer Group only)

- 01 Standardise the behaviours essential and desirable for a range of occupational levels @ Level 2; Level 3; Level 4/5; Level 6/7

### Activity Session 03

#### Theme 2

#### Standardisation of EPA (Provider and EPAO Groups)

- 01 Consider how EPA may be standardised @ Level 2; Level 3; Level 4/5; Level 6/7
- 02 How can end-point assessment be future-proofed from exceptional circumstances such as Covid-19

### Activity Session 04

#### Theme 3

#### Recommendation 12 - Assessor Currency/ demand for EPA assessors and common phrase 'working in industry' (All Groups)

- 01 Provide suggestions how to balance assessment validity with the supply of technically competent assessors increases to meet end-point assessment demand



# About ENGINUITY

In February 2020, the Semta Group, the employer-led skills body supporting the UK's engineering & manufacturing sectors, became Enginuity, a new engineering and skills organisation, creating practical skills solutions for individuals, educators and engineering and manufacturing employers, using unmatched industry expertise and data. Enginuity is not just a new name for Semta Group; it is a way of thinking and solving problems. Enginuity combines our existing engineering expertise with ingenuity with data. It enables us to design and constantly improve solutions that provide a great user experience for employers and educators to integrate but also enables us to shape the future of the engineering and manufacturing landscape as a sector connector.

“One engineer can change their world and ours, given the opportunity”

## Enginuity is a registered charity and provides public benefit by:

- 01 Supporting Engineering and Manufacturing to drive a positive and growing contribution from the sector both in terms of jobs and contribution to GDP
- 02 Supporting employers in identifying future skills requirements and developing or sourcing appropriate education and skills solutions to upskill and reskill their existing workforce thereby maintaining people in employment for longer whilst also promoting the sector as an attractive and worthwhile career
- 03 Ensuring that individuals and employers can access high quality engineering skills training programmes, assessment, and validation to keep their skills and competency relevant, up-to-date, and evidenced
- 04 Inspiring individuals with latent talent who may not have considered engineering and help individuals already interested in a career in engineering to understand their potential and be given opportunities for development and progression
- 05 Ensuring that ethics and safety of the public is integrated into all training both directly and through partners to create the right environment for and build trust in engineers to tackle some of society's most pressing issues such as climate change.”

Enginuity's purpose is built upon a core value of creating no harm and the beneficiaries of achieving the purpose are individual engineers, engineering employers, future engineers, and the wider society.

