



The Enginuity Skills Action Plan for the  
Engineering and Manufacturing Sector –  
A Manifesto for Change

**Enginuity**<sup>®</sup>

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Chair of the Enginuity Board

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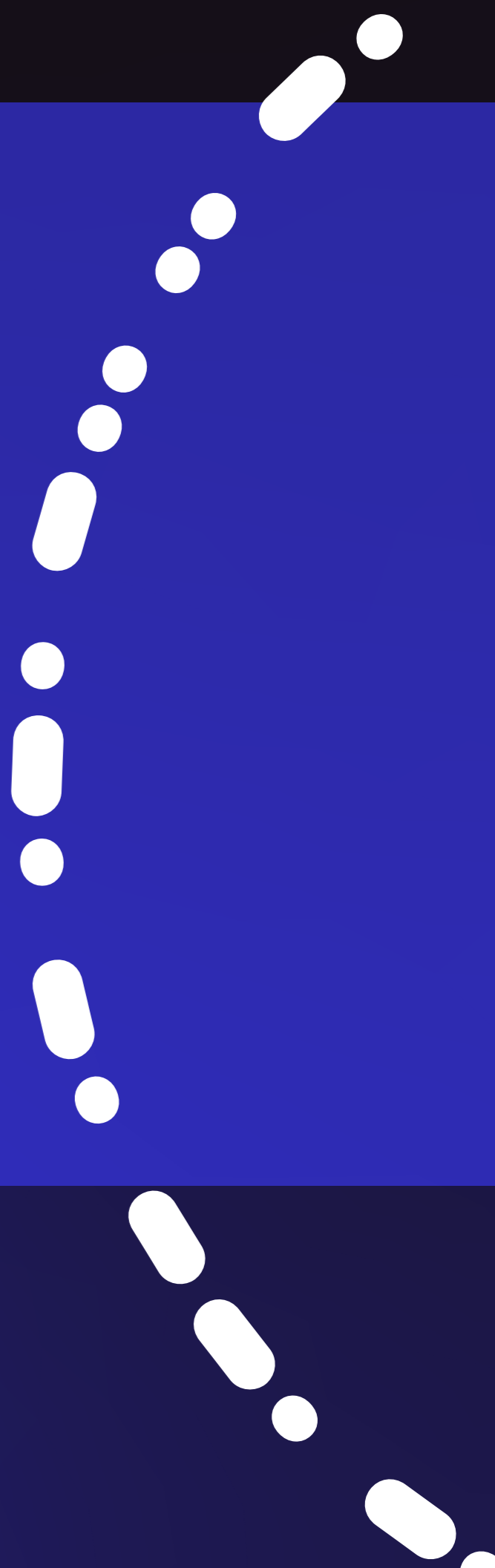
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# Foreward



**Dame Judith Hackitt**  
**DBE FREng**

**Chair of the  
Enginuity Board**

None of us can know exactly what the future's engineering and manufacturing jobs will look like, but we know they will be different from today's. Technology has already had a sector-wide impact on systems and processes, and that's only going to increase.

We must prepare our current workforce for those changes now by upskilling and reskilling workers with modern engineering and manufacturing skills, but we must also invest in attracting and retaining the workforce of the future to ensure a sustainable pipeline of new talent with the skills and desire to work in the sector.

To make this happen, we need policymakers across the four nations to help us make training and learning more flexible and accessible, invest in the Further Education and Higher Education institutions of the future, and ensure that employers have access to simple, transparent funding that incentivises the right things.

We also need support in building a definitive evidence base to ensure that we make informed, pragmatic decisions on when, where, and how to address skills challenges.

Our engineering and manufacturing sector employs over 10 million people. Manufacturing alone contributes £224bn GVA to the UK economy each year (Source: Make UK).

If we do nothing, the sector will survive, but it will fail to thrive, and we will fail in our endeavour to be a leading global player in engineering and manufacturing.

I have been closely involved with engineering and manufacturing my whole career, and as Chair of the Board for Enginuity – a not-for-profit dedicated to filling the UK's engineering and manufacturing skills gaps – I'm passionate about creating a high-performing skills system that will help this sector to grow, promote economic success and support social mobility.

I commend this manifesto to our colleagues, stakeholders, and governments across the four nations, asking that we all step up now to make a difference for our people, our sector, and our country's future.

## Executive summary

The success of UK engineering and manufacturing is critical to the country's overall economic and social wellbeing.

The sector currently employs 10.7m people and manufacturing alone contributes over £224bn GVA\*, significantly boosting economic growth and social mobility both nationally and regionally.

Engineers and manufacturers will continue to make significant contributions in the future, but technology, digitisation, and robotics are causing rapid change in the sector, and will play an even bigger role in years to come.

Given the opportunity, UK engineers can meet these challenges and change the world.



## Key priorities

### 01

#### Upskilling and reskilling

Upskilling and reskilling the existing workforce is one of the key challenges facing industries within engineering and manufacturing.

People are a valuable resource and their initial training already counts as an investment, but it's vital that we constantly upskill and reskill workers to match the pace of technological change.

We need to understand and quantify future skills requirements, support the modularisation of qualifications and learning, and equip our workforce with skills that can be transferred between industries and sub-industries to support the progression and mobility of labour.

Policymakers must work with agencies to make qualifications and learning more flexible, instil a common core curriculum based on key transferable skills, and reform the funding system to enable this.

### 02

#### Attracting people to engineering and manufacturing

Industries within engineering and manufacturing must continue to attract new talent of all ages in order to maintain the workforce needed to be competitive and sustainable.

This requires increasing the appeal of engineering and manufacturing, promoting not just jobs but careers, and engaging talent from diverse backgrounds.

We need to ensure transparent and accessible career pathways for all who wish to enter industries within engineering and manufacturing – including those whose geographical location or social background might previously have kept them away – while supporting collective action to address problems such as the decline in England's apprenticeship numbers.

### 03

#### Flexible and responsive qualification and learning systems

It is essential that qualifications and standards be up-to-date and transferable between nations and industries, and that we capture and pass on the knowledge and skills of the existing workforce to new workers through mentoring programmes.

Training and learning should also make the best use of modern technology, and we're keen to work with policymakers to ensure that there is a sustainable and far-reaching network of provision at all levels, employers of all sizes have their needs met, and funding is commensurate with the scale of the challenge.



## Key priorities

### 04

#### A robust and cohesive evidence base

Every decision that policymakers and sector stakeholders make to address recruitment and skills challenges should be based on a robust, definitive, and up-to-date evidence base.

We are keen to work with employers and policymakers across the UK to create a single skills observatory for our engineering and manufacturing sector and the industries within them that will receive comprehensive destination data including achievement rates on apprenticeships, technical and vocational education, degrees, and job and further learning outcomes.

### 05

#### Funding systems

Enginuity is keen to work with policymakers to establish a transparent funding system through which employers can understand what funding is available for early career training, as well as upskilling and reskilling their existing workforce.

Further and higher education requires additional funding both for purchasing capital equipment and paying salaries that will attract staff with up-to-date skills.



## Key facts and figures

### • UK manufacturing



8th

UK manufacturing ranks 8th globally by value of output



£224bn

Manufacturing contributes a Gross Value Added (GVA) of £224 billion



2.6m

Manufacturing employs 2.6 million people in the UK



49%

Manufacturing accounts for 49% of all UK exports



41%

Manufacturing contributes 41% of all business R&D



16%

Manufacturing accounts for 16% of UK business investment

# What action do we need to take?

## Our 5 top priorities

An ageing workforce, skills gaps and shortages, disruptive new technologies, lack of diversity, and the challenge of making engineering and manufacturing attractive to new workers mean that industries, governments across the UK, and stakeholders must take immediate action to:



Upskill and reskill the existing workforce with vital modern technological, digital, and sustainability skills.



Innovate new recruitment methods to attract more people to engineering and manufacturing and plug skills gaps and shortages.



Develop a flexible and responsive learning and qualification system to support upskilling and reskilling, meeting the needs of the modern workplace.



Build a robust and cohesive evidence base to inform better decision making on skills and the workforce.



Foster a simple, flexible funding system that enables innovation and funds interventions with most impact.



How are we going  
to achieve this?

## Action Plan:

# Upskill and reskill the existing workforce with vital modern technological, digital, and sustainability skills

### What is the challenge we are addressing?

For our engineering and manufacturing sector and the industries within them to respond positively to changing technologies and working practices, upskilling and reskilling their existing workforce must become a consistent feature of the lifelong learning curriculum so that cultural barriers do not obstruct older workers' access to provision.

To support this, we need more flexible and adaptive learning and qualifications with modular, bite-sized training and accreditation.

We also need to equip our workforce with transferable skills to support mobility and mitigate the displacement of workers from completed or cancelled projects. Building resilience in the workforce will help ensure the sustainability and success of business.

### What action does the sector need to take?

- Later in this manifesto, we identify that more must be done to produce, manage, and maintain research and foresight data so that it is useful and accessible to the sector. Industries then need to make more effective use of this evidence base to anticipate and respond to changes.
- Work more closely at local level with universities, colleges, and training providers to create excellent provision and flexibility in learning and qualifications.
- Sector and skills bodies at all levels should empower SMEs to work collectively on reskilling and upskilling, creating economies of scale and value for money.
- Work with Enginuity and other sector bodies to identify the key skills that should sit at the heart of all post-16 learning to support parity of esteem, transferability of skills, progression, and labour market resilience.
- Ensure that industries are engaged and influential in local strategic skills planning across the UK.

### Our ask of policymakers

- Work with relevant agencies across the UK to create modular qualifications that accredit bite-sized learning.
- Mandate a common core curriculum based on key transferable skills that will sit at the heart of all post-16 learning, whether academic or technical.
- Encourage local partnerships between universities, colleges, training providers, and other stakeholders to address upskilling and reskilling in the sector.



## Action Plan:

# Innovate new recruitment methods to attract more people to engineering and manufacturing and plug skills gaps and shortages

### What is the challenge we are addressing?

The Institute of Engineering and Technology's 2021 Skills Survey estimated a 173,000 worker shortfall in the UK's STEM industries over the next 5 years, and attracting new people will be important both for replacing lost skills and introducing new ones. A significant number also left the workforce during the pandemic. The longer they stay away, the harder to employ they potentially become.

Harnessing the skills of tech savvy young people will help modernise ways of working, but the falling number of apprenticeships in England – a key pathway into the sector for the young – must be addressed. Brexit and changing immigration policy have also affected recruitment, and the overall talent pool is shrinking. We need to create a new, sustainable, talent pipeline to meet demand and ensure growth.

### What action does the sector need to take?

- Promote engineering and manufacturing as an attractive place to work. In 2020, an ICE survey of 2,000 young people showed 47% saying a career in manufacturing does not appeal to them and will not provide them with advanced technology skills. We must improve the sector's image through promotional campaigns that appeal to young people.

We must also promote careers and not simply jobs, providing reassurance that there are opportunities for both upwards and sideways progression with engineering and manufacturing skills. It's vitally important that industry collectively promotes engineering and manufacturing as a whole in addition to the opportunities within its diverse industries. The messaging needs to be consistent, clear, and complementary.

- Increase diversity in recruitment to bring more people into engineering and manufacturing; making sure we don't miss out on talent. Older people who have been economically inactive since the pandemic find it harder to get back into work; we must engage them with innovative, accessible, and effective recruitment tools.
- Many engineering and manufacturing SMEs find it hard to address issues such as skills shortages on their own. Industries within engineering and manufacturing need to create more opportunities for collective action such as shared apprenticeships, work placements, and sustainable partnerships with schools, colleges, and universities. Large employers should also be encouraged to support SMEs in their supply chains through initiatives such as over-recruiting apprentices and sharing the oversupply of applicants.

### Our ask of policymakers

- Enhance UK-wide funding for priority skills shortage industries within engineering and manufacturing to incentivise recruitment.
- Create a flexible innovation fund from England's apprenticeship-levy underspend to be used by industries and localities in support of SMEs, supply chain initiatives, and partnerships with schools, colleges and universities.
- Work with industries to promote engineering and manufacturing.

## Action Plan:

# Develop a flexible and responsive learning and qualification system to support upskilling and reskilling, meeting the needs of the modern workplace

### What is the challenge we are addressing?

Practices and processes in engineering and manufacturing will become smarter and more sustainable through digital transformation and advances such as digital twinning and intelligent automation, which will necessitate more virtual and remote learning and training to match the pace of change and need for flexibility.

industries within engineering and manufacturing must also find ways to capture knowledge and skills from the established workforce and pass them on to new entrants.

A cross-sector mentoring and coaching programme to share skills and expertise with new and less experienced recruits will ensure that no organisational or industry knowledge is lost.

### What action does the sector need to take?

- We need to better understand the technical skills of the future through comprehensive, up-to-date research to ensure that learning and qualifications are relevant, sustainable, well designed, and effectively delivered.
- Work to ensure that occupational standards across the UK are up to date and reflect modern working practices.
- Work with universities, colleges, and schools to build capacity and capability for delivering modern engineering and manufacturing skills.
- Build and deliver a funded, UK-wide mentoring programme leading to a recognised qualification for experienced workers.

### Our ask of policymakers

- Ensure that funding is available for technical and vocational education, standards, and qualifications at all levels UK-wide, and that design and delivery are commensurate with the critical need to upskill and reskill the engineering and manufacturing workforce.
- Support the funding of a cross-sector mentoring programme through England's Lifelong Learning Entitlement and other post-16 skills funds across the UK.

## Action Plan:

# Build a robust and cohesive evidence base to inform better decision making on skills and the workforce

### What is the challenge we are addressing?

Every decision that industries within engineering and manufacturing make to address recruitment and skills challenges should be based on a robust, relevant, and up-to-date evidence base. This is important because:

1. It allows employers, stakeholders, and policymakers to make informed, value-for-money decisions as to where, which, when, and how skills challenges should be addressed.
2. It provides a framework for success and performance metrics with which to assess and communicate intervention outcomes.

Research data should be supported by local labour and skills market observations and real-time insights from employers to create a rich and accurate picture.

We also need governments to provide destination data and regular achievement rates for apprenticeships and other forms of training. The evidence base for industries within engineering and manufacturing is currently fragmented, and ideally requires a single, funded observatory that will produce regular, up-to-date, and relevant data for our entire engineering and manufacturing sector.

### What action does the sector need to take?

- Contribute regularly to UK-wide data collection for our engineering and manufacturing sector, using the outputs to make better, more informed decisions around recruitment and skills development.
- Work with governments across the UK to create a single skills observatory for engineering and manufacturing.

### Our ask of policymakers

- Work with Enginuity and other industry bodies to support the creation of a single engineering and manufacturing skills observatory using multiple data sources and AI to analyse cross-sector and sector-specific skills requirements, demand, and employment data.
- Provide comprehensive destination data including achievement rates on apprenticeships, technical and vocational education, degrees, job outcomes, and further learning.

## Action Plan:

# Foster a simple, flexible funding system that enables innovation and incentivises the right things

### What is the challenge we are addressing?

Funding should support quality training and learning delivery, and Further Education and Higher Education institutions need additional financial help both for purchasing capital equipment and attracting skilled staff, but for many employers the funding system is too complex and fails to incentivise the right things.

We need a responsive, flexible, and transparent funding system to support upskilling and reskilling of the existing workforce and the training of new entrants. It is also important that a proportion of all funding goes towards positive outcomes such as employment, career progression, and higher learning.

Apprenticeship numbers in English engineering and manufacturing industries have fallen since the introduction of the Apprenticeship Levy, particularly among SMEs, and while the levy is sound in principle, there have been challenges since its implementation.

In December 2023, FE Week estimated that £2.178bn of apprenticeship funding had been handed back to the Treasury in the six years since the Apprenticeship Levy was introduced in 2017. This money should be made easily accessible for industries to innovate new ways of supporting apprenticeships.

### What action does the sector need to take?

- Work collectively – especially with SMEs – to ensure the Apprenticeship Levy in England is optimally used and any underspend put towards fuelling innovation.
- Work with national and regional bodies across the UK to optimise the use of all post-16 funding.
- Help FE colleges, Training Providers and HE institutions deliver high quality training and learning by offering expertise and knowledge in areas such as strategy and governance, off the job training, and work placements.

### Our ask of policymakers

- Undertake a comprehensive review of the Apprenticeship Levy in England to improve flexibility and minimise underspend.
- Prioritise funding for post-16 training and education in the UK's skills shortage industries within engineering and manufacturing.
- Make funding systems more transparent, giving employers a clearer understanding of the funding available for early careers and to upskill and reskill their workforce.

## Conclusion

There is much to be done and this is a burning platform – we need to act fast.

This manifesto is clear on the challenges our engineering and manufacturing sector and the industries within them must face to meet skills needs now and in the future. If we decline to act on skills, then factors such as rapid technological change and increasing competition from overseas may make survival difficult and growth impossible.

This manifesto is clear on the scale of the challenges, but also on the solutions: what we must do for ourselves and ask of policymakers.

We must focus on upskilling and reskilling our workforce while attracting more people into engineering and manufacturing.

We must work with policymakers to make learning and qualifications more flexible, improve and simplify the funding system, prioritise funding for skills shortage areas, and create a comprehensive evidence base to ensure better decision making.

As the Sector Connector dedicated to closing the UK's engineering and manufacturing skills gaps, Enginuity is well placed to work with policymakers, educators, and employers to action the recommendations and asks within this manifesto, and as a charity can not only bring expertise and funds but can leverage those of other sector organisations.

If we achieve all this, we will have a workforce and a sector that is ready for change, and our engineering and manufacturing industries will maximise their contribution to a sustainable and prosperous future for the UK.



# About Enginuity

Enginuity is a charity dedicated to helping employers find new ways to close the skills gap.

We combine a unique approach to sector data with a deep understanding of the skills challenges, to help employers ensure the sector has a highly skilled, globally competitive workforce now and in the future.

[enginuity.org](https://enginuity.org)

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