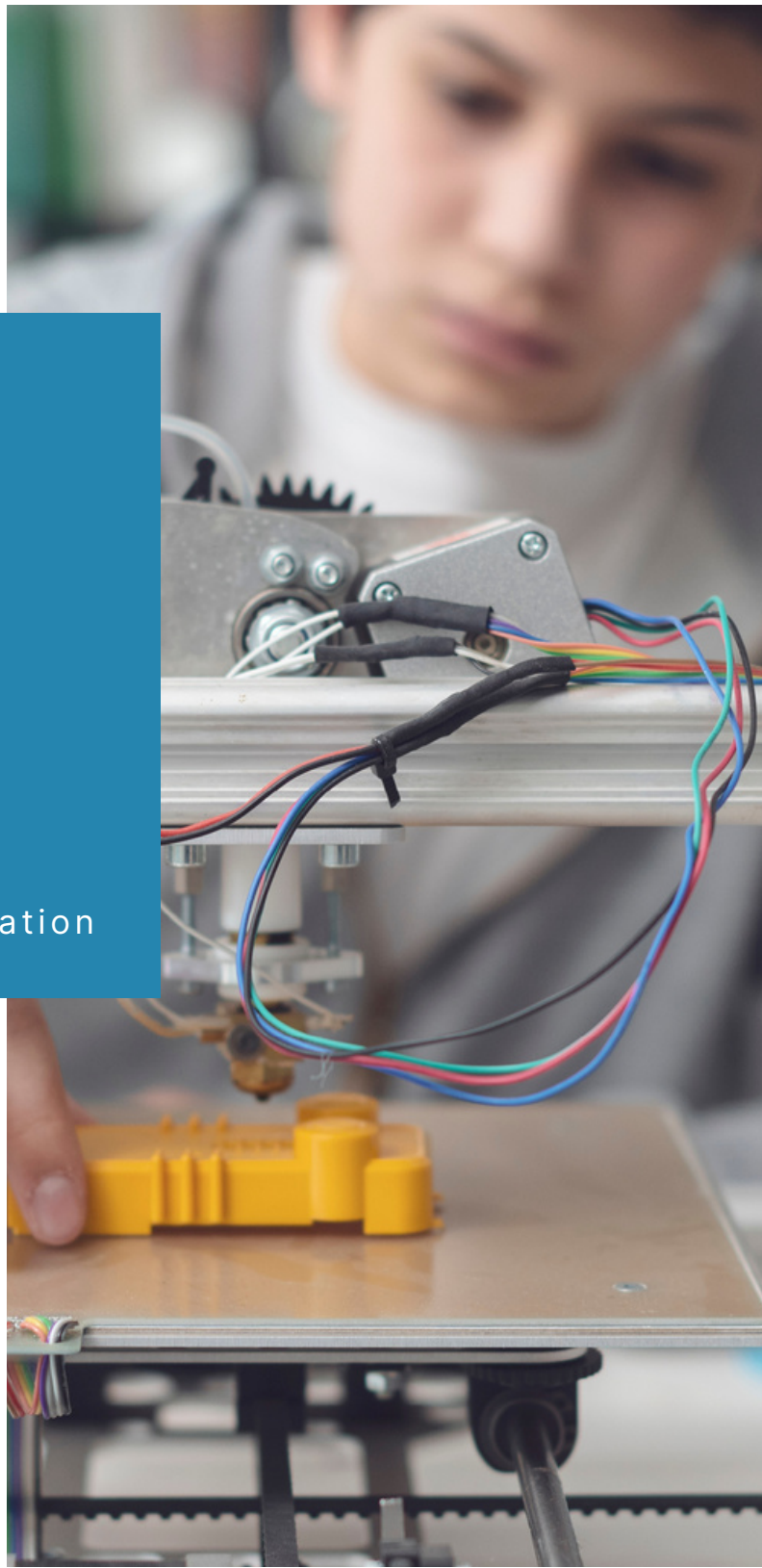
REIMAGINING D&T

FINAL REPORT

Supporting and rebuilding design, innovation, and creativity in our schools...



Following Roundtables & Teacher Consultations

Design and Technology Association

WWW.DATA.ORG.UK

TONY RYAN
@DESTECHRYAN

FOREWORD BY JONY IVE KBE HonFREng RDI

In 1989, the UK became the first country in the world to introduce design and technology as a core subject on the new National Curriculum. The course combined creative, technical and vocational skills and united them under a common design-centred syllabus. Its vision was to prepare pupils to meet the needs of the 21st century, "to stimulate originality, enterprise, practical capability in designing and making, and the adaptability needed to cope with a rapidly changing society".

This was profoundly personal for me as I have vivid memories of my father's passionate work helping to establish design and technology within the national curriculum.

More than 30 years later, and that purpose could not be more apt. Tackling climate change and adaptation will demand the boldest, most creative, and most brilliant solutions yet.

The UK's traditional strengths in engineering and creativity are uniquely suited to meet this challenge – and design and technology is a critical pathway to this wealth of opportunity.

Yet we have reached a critical time in design education, as this report by D&T sets out. Since 2010 the government has embedded a knowledge-rich curriculum across the school system, deprioritising creative subjects and practical, skills-based education. This is a profound and ignorant mistake.

Design and technology is a uniquely interdisciplinary subject. It can combine maths, science, history, psychology and art, encouraging real-world application of acquired knowledge and skills.

It encourages practical problem solving, collaboration, empathy and creativity as well as both critical and analytical thinking. Most importantly, design and technology inspires young people to be curious, to trust their own ideas, and equips them to explore solutions to the world's biggest problems.

Design and technology is too important to the future to be allowed to slip into decline. It is crucial that government, business leaders, educators and governing bodies adopt the recommendations set out in this report.

As a child, discovering the joy of creating and making, and being given the opportunity to develop my design skills, led to a career I could never have imagined when I was at school.

I sincerely hope the next generation of children will have the same opportunities.

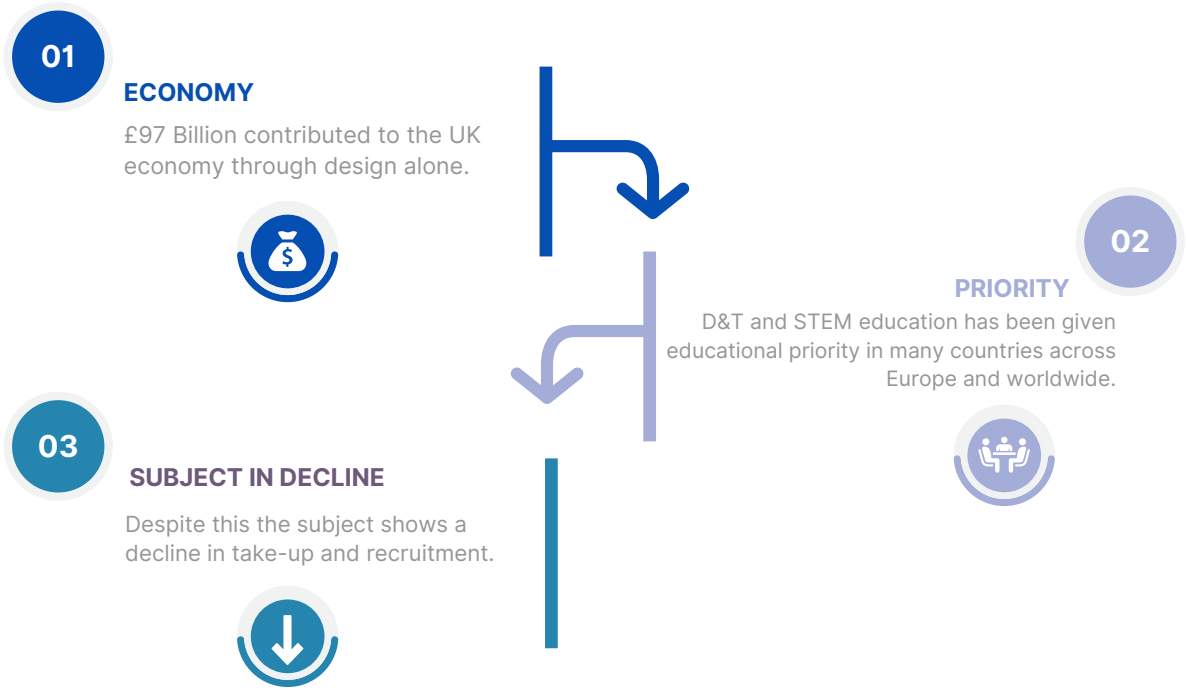
– Sir Jony Ive KBE HonFREng RDI

Context

We have a long and proud history of strength in design and making. We continue to 'punch above our weight' in design, high tech, IT, and emerging tech sectors (£97 Billion contributed to the UK economy through design alone – Design Council – Design Economy 2022). We were the first country in the world to see the importance of design and technology education and make it a compulsory subject; at its height, the subject had over 430,000 GCSE entries, the number of students opting to study the subject at GCSE level has more than halved in the last decade to just over 78,000 in 2022.

Where we once led, the world has followed, with D&T and STEM education being given educational priority in many countries across Europe and worldwide. Meanwhile, subject entries continue to decline in the UK, we have a critical shortage of suitably qualified teachers, and schools nationally are using the autonomy that academy and free school status brings to drop the subject entirely from their curriculum offer. While A Level D&T entry somewhat surprisingly rose by 14% this summer, GCSE entry dropped by a further 5.3%. We are gambling with our young people's and the economy's future as we allow design and technology education to wither on the vine.

This report follows on from the recently released Education Policy Institute paper 'A spotlight on Design and Technology study in England' and the subsequent roundtable discussions and teacher consultation meetings held across the country since the report's release in late March this year. (The roundtables were followed up by teacher consultation meetings in London, Bristol, Cardiff, Norwich, Newcastle, Birmingham, Liverpool, Manchester, and Brighton), meeting and hearing from over three hundred teachers in person. A widely engaged online consultation supported these face-to-face meetings.



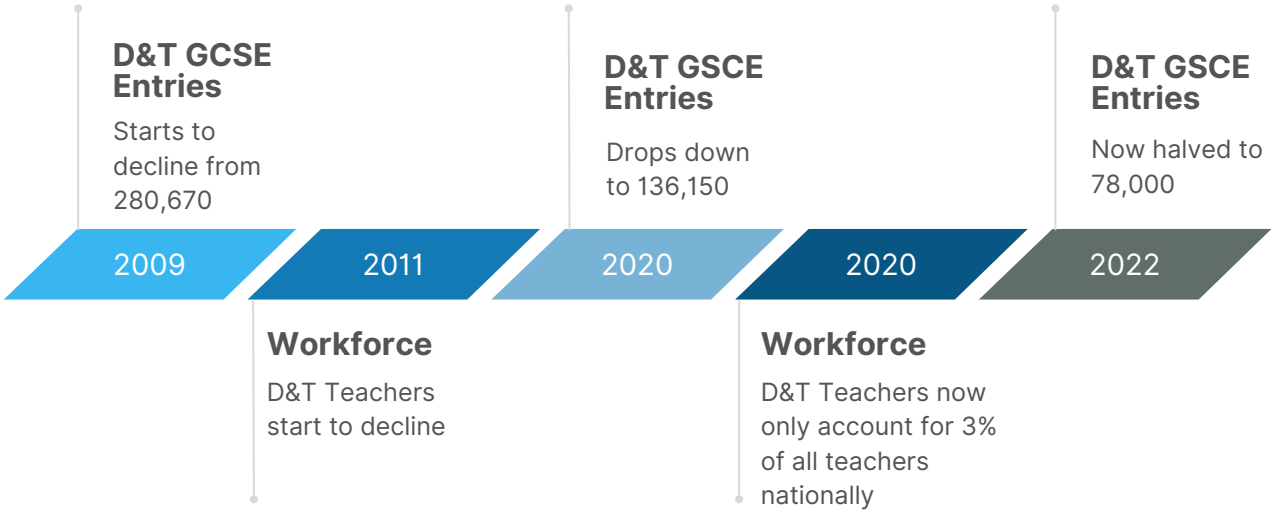
Baseline data from the EPI report

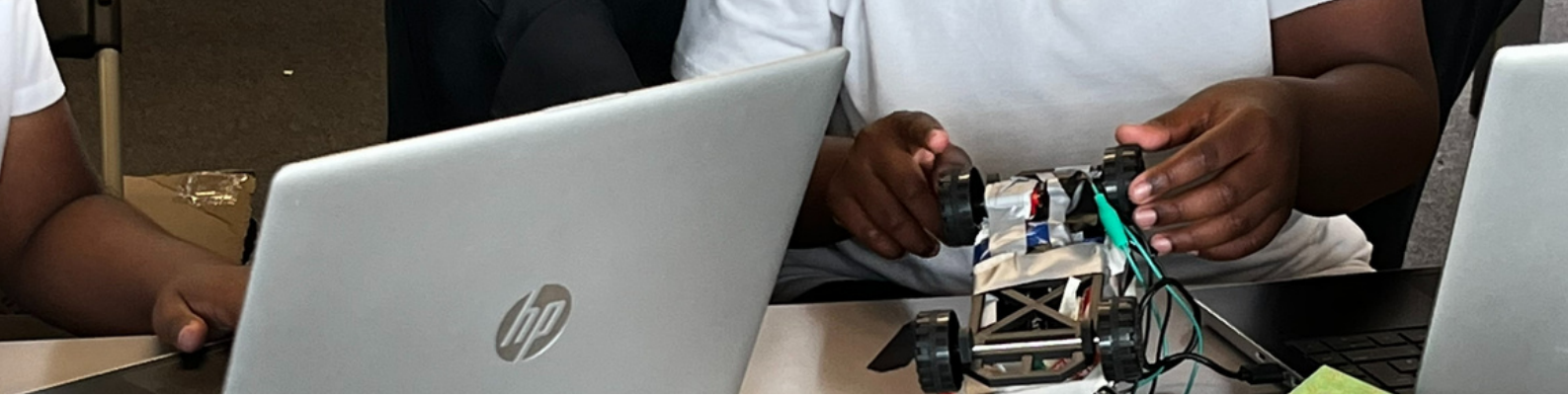
In case there are any misguided illusions that we can happily carry on as we are, here are some key statistics from the EPI report:

- GCSE entry numbers have dropped to 136,150 (2020) from 280,670 in 2009, a reduction of 51.5% (with further significant declines in GCSE entry over the last two years)
- A Level entry has dropped from 22,160 (2009) to 10,430 (2020), a reduction of 53%
- The number of D&T teachers has been declining since 2011, such that in 2020 they only accounted for 3% of all teachers nationally
- We have less than half the number of D&T-trained teachers in the system now than we had in 2009 (currently fewer than 7,000)
- Sponsored academies and free schools are less likely to offer D&T at GCSE
- Independent sector A Level entry is still strong at 4.2% (over twice the mainstream percentage)
- Students not studying GCSE D&T are extremely unlikely to take D&T A Level or related Vocational courses (Implications for T Levels?); fewer than 3% currently do.

The paper also raised interesting regional differences, some, one could expect, and some were more of a surprise:

- GCSE entry is particularly low in London (one borough 4% only), The Northeast, Yorkshire, and The Humber (all around 18% National Av 22%)
- GCSE Entries higher in Southwest (25.5%), East Midlands, East of England, Southeast (all-around 24%)
- D&T A Level is particularly strong in the East Midlands (2.6%), National average in mainstream schools is 1.8%
- Students 16-19 are most likely to take Vocational qualifications in the Northeast (3.8%), least likely in London (1.3%)





The EPI's analysis of the data is clear and concise; if we do not act to change the direction of the subject, further decline is inevitable, and the subject will move to the periphery of the school curriculum, becoming a 'nice to have' instead of the core subject that it once was. Meanwhile, Europe and the rest of the world have not only caught up with the lead we set but are now racing ahead.

This paper is a call to action. Doing nothing is not an option.

Next steps following the release of the paper

The EPI paper used secondary data. Its purpose was to gather evidence already available but, until this point, scattered across a range of sources. It provides a baseline for the subject and a foundation on which we can build. We could spend the next twelve months discussing the gravity of this data and apportioning blame for the situation the subject finds itself in. However, I firmly believe you don't encourage change by grieving where you are now; instead, you look ahead to what you might become. We need to learn from what has happened in the past, but we must be led by what we can and must become in the future.

Following the release of the EPI paper in late March, we held a series of roundtable discussions with school, business, and sector leaders to look at the baseline that the research has provided, but more importantly, to explore what actions need to be prioritised to set the subject on a pathway to recovery. These meetings set the direction, specifically through a half-day workshop at the Royal Academy of Engineering in London, which included representatives from major academy trusts, the Design Council, RAEng, V&A, ERA Foundation, major awarding organisations and Make UK, amongst others. Four clear actions emerged from these roundtable discussions.

Develop

Curriculum innovation, development, and consistency in delivery, concentrating initially on KS3.

Research

Increase the amount of focused research into the subject and ensure that this research reaches teachers.

Demonstrate

Showcase excellent and outstanding practice to demonstrate the subjects relevance.

Connect

Connect the worlds of business/industry and education to close the skills gap and showcase exciting career paths.

The need for curriculum innovation, development, and consistency in delivery, concentrating initially on KS3.

Driven by the Ofsted framework and the resulting resurgence of D&T at primary level, over the last two years, our primary membership has risen from 6.7% of the primary school population to its current 20.58% (approximately 10,000 members to over 28,000). At current rates of growth, a third of all primary schools will be members by this time next year.

We are working hard at the Association to support primary leaders to write and implement ambitious curriculum models and are then working with schools and MATs to support subject leadership.

Primary colleagues are implementing ambitious curriculum plans and are leaning on the Association for support and training. It is no exaggeration to state that secondary teachers will soon experience a dramatic improvement in pupils' knowledge, skill levels and confidence on transition from primary to secondary education; we must be ready to build on this growth.

At the other end of the school spectrum, many schools have embraced the GCSE and A Level change implemented from 2017, whilst others, for various reasons, have found this to be problematic. It is clear from the consultation that there are changes to the syllabus requirements that are arguably necessary, notably a reduction in the core content required. It is also evident that decision-making bodies have no immediate desire to make this happen now.

Building on the growth at primary, it is therefore imperative to concentrate on building and developing our national KS3 offer to ensure all students arrive at KS4 equipped with the knowledge, skills, character sets and confidence to embrace the challenges set by external bodies.

What we will do

Based upon conversations held across the D&T community and with key decision makers, we are proposing a focus on the KS3 curriculum with the intention to change practice from that which is often outcome-based to one that is context-led. The intention is to create a databank of KS3 resources to support this transition working with some of the country's lead businesses and designers to develop a wide range of context-led briefs.

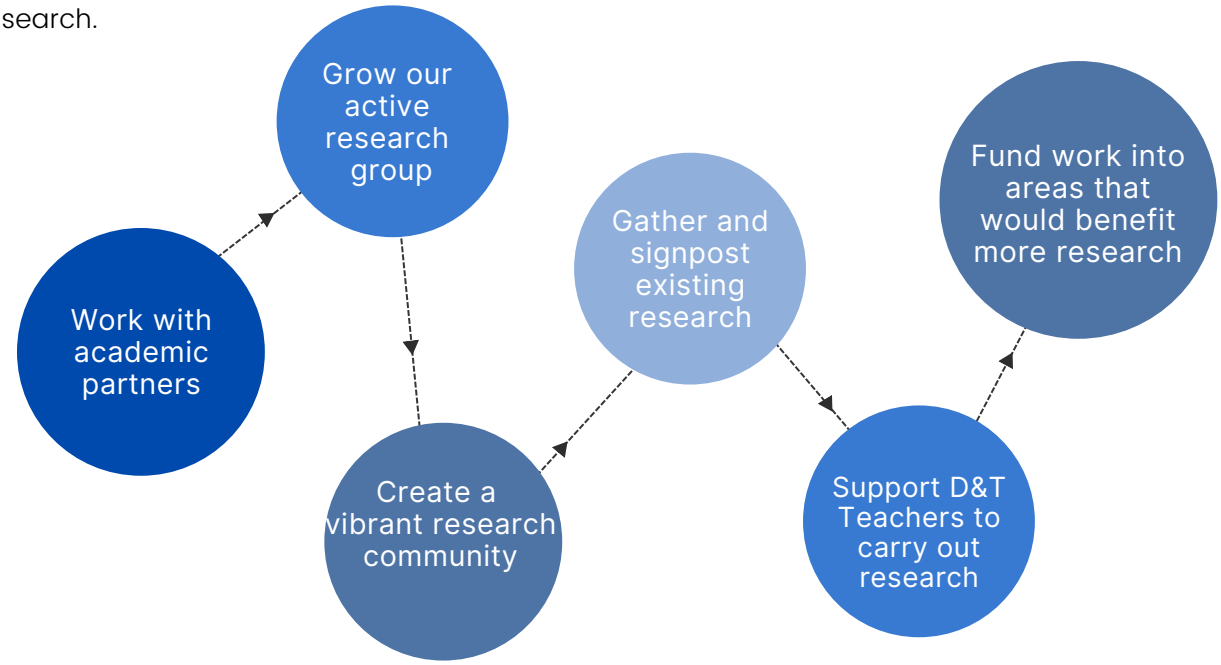
Increase the amount of focused research into the subject and ensure that this research reaches teachers and better informs classroom practice. Encourage and support teachers to carry out their own action research.

We are still a relatively new subject on the curriculum, and we simply do not have the depth of research behind us that many other subjects enjoy. That is one reason why for many, it feels that we are constantly proving the validity of our curriculum presence.

It is also one possible reason we have never adequately defined the subject's very essence; what about the teaching of design and technology makes it an essential part of a 21st Century curriculum? The roundtable messaging provided a clear brief to the Association. Work with academia and business to identify, fine-tune, fund and commission appropriate research and ensure this is accessible to schools and teachers. Through active application of this research, the subject can develop, grow and once again place design and technology in this country as a world leader.

What we will do

Working with key academic partners, the Association set up an active research group last year, and this has been growing in size and activity since. We intend to create a vibrant research community that supports design and technology teachers to carry our research in their schools which is then shared with the community. A website is under construction, and the Association is actively seeking funding to establish the community. Alongside this, we intend to gather and signpost existing research that could be used to support pedagogical improvement across the community; a great deal of this research exists but has not always filtered down to positively impact practice in schools nationally. Finally, we will work with academic and industry partners to identify and fund work into areas of the subject that would benefit from additional focused research.



Showcase excellent and outstanding practice. Through this demonstrate the subject's relevance to parents and decision makers (many of whom also happen to be parents).

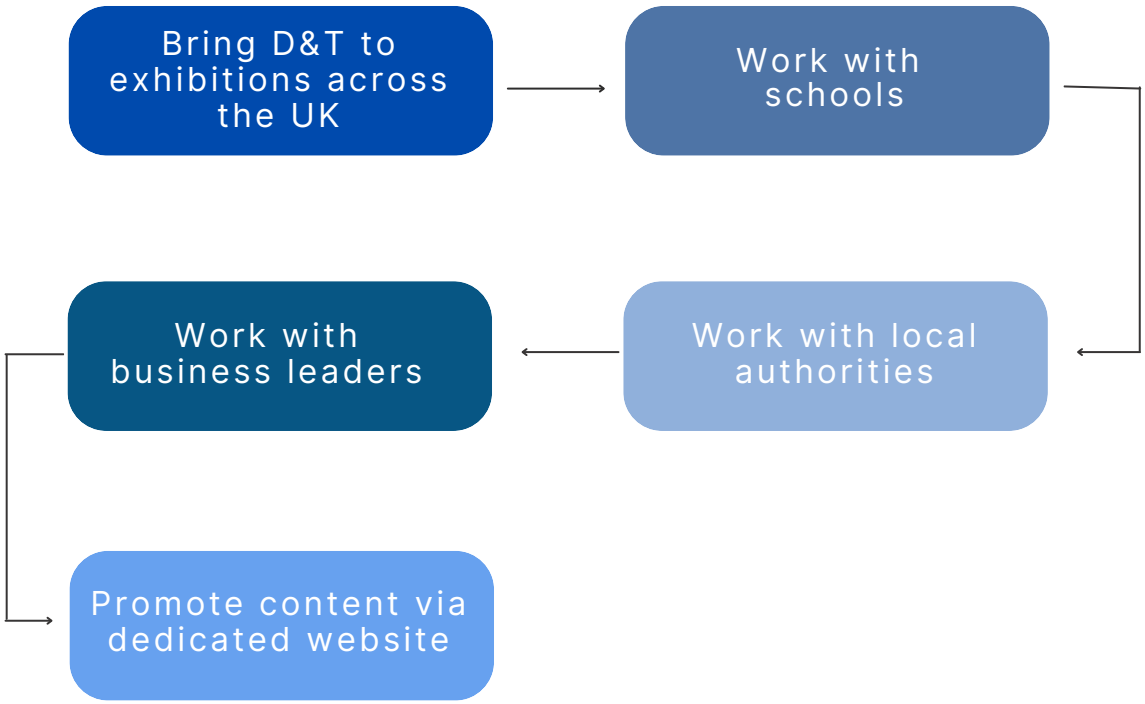
Despite the challenges evident across the D&T workforce, many school departments offer their students a high-quality curriculum, enabling young people to perform at the highest levels. Too often, this work does not get showcased outside of the department, let alone outside the school. We need to change this by bringing the best of D&T to the attention of parents, business leaders and policymakers.

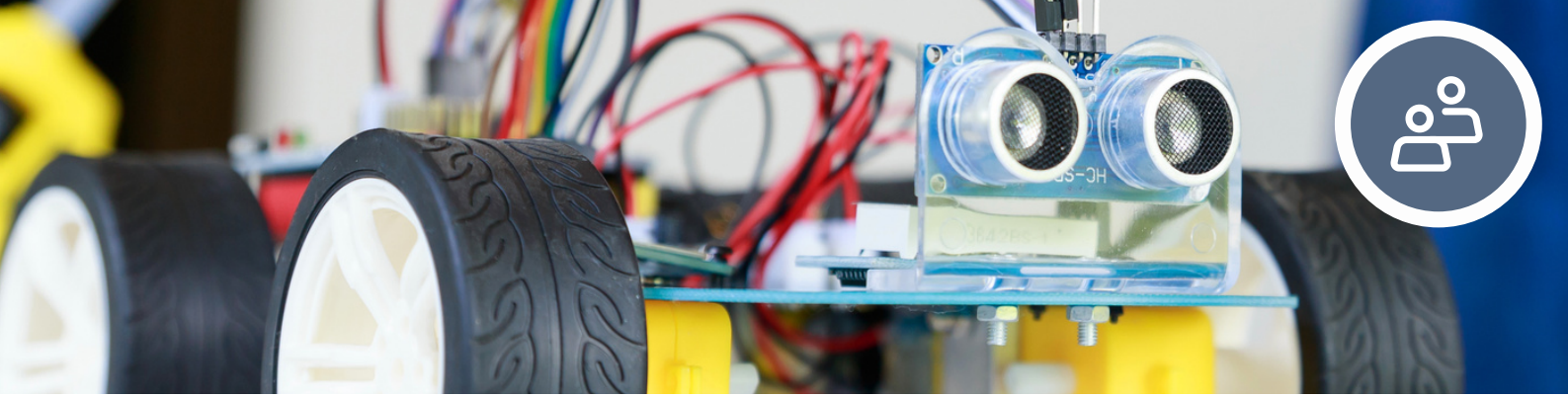
What we will do

We want to work to bring the best D&T to exhibition sites across the UK, showcasing the problems tackled, the processes used to tackle these problems and the prototypes and final artefacts produced in response to the design brief set.

This must not just happen in London but needs to take place nationally. The Association will work with schools, local authorities, and business leaders to make this desire reality.

Alongside this, we will produce a dedicated website to showcase the very best of D&T practice nationally and will actively promote content hosted on this website using sector and industry partners to help drive traffic to this resource.





Better connect the worlds of business/industry and education by accelerating the growth of our Blueprint 1000 initiative.

The Association launched this initiative just over eighteen months ago following consultation with teachers and business leaders. Both parties want to work closer together and see the mutual benefits of doing so, but both cited a lack of time and dedicated staff/budget as barriers to success in this area. Whilst readily acknowledging that our subject has value in life and not only for employment, it is widely recognised that the pace of change in business dictates that we are preparing students for careers that currently do not exist or are emerging; careers education cannot hope to keep up. It is also widely acknowledged that context for learning is essential to all deep learning, especially within our subject.

What we will do

The Association's target for Blueprint 1000 membership in 2022 is forty-five members. The roundtable discussions and feedback received from D&T leaders nationally have tasked us to accelerate this to reach one-hundred-and-fifty members by the end of 2025, putting a Blueprint member organisation within reach of most schools.

Sir James Dyson

Founder and Chief Engineer at Dyson

‘Design & Technology plays a fundamental role in combining the academic rigour of Science and Maths with creative problem solving to equip young people with the skills they need to solve big problems. Over half of our undergraduates at the Dyson Institute studied the subject at GCSE and apply the practical skills learnt to live Dyson projects and technology. There is great potential in this subject, for education and the global economy, and it should not be left untapped.

When taught the right way Design & Technology can be a strong factor in reversing the decline of engineers so urgently needed in the UK. We have demonstrated this through a six-year project my Foundation ran with schools in Bath, working to improve their provision of the subject. The project saw one and a half times as many students interested in pursuing engineering careers as a result of more challenging and relevant Design & Technology classes.’

Sir James Dyson. - **March 2022**

Getting our house in order

While we want government behind the above actions, it is essential to note that all the above can occur without government permission or intervention. It has been pointed out that should we successfully fund and action these four points:

- Building a research base for the subject
- Developing the KS3 curriculum and associated pedagogy
- Showcasing best practice
- Better connecting D&T practice in schools with that in business/industry

Urgent requests to Government

Without urgently improving the number of teachers qualifying to teach design and technology, all the above will be pointless. Our subject has been under-recruited for years, and headteachers and governing bodies are struggling to keep the subject running within their schools as they simply cannot find suitably qualified staff. The Association will take an employee experience / HR-Informed approach to recruiting staff and work with the DfE and other ITT agencies to improve recruitment to our subject.

We urgently request the following actions from the Government:

- The Government to increase the ITT Bursary for D&T trainees from its current £15K figure to match chemistry, physics, computer science and mathematics at £30K.

- The Government to set up incentives for industry professionals to move into teaching design and technology by setting up a scheme akin to the Engineers Teach Physics pilot.

- The Government to consider allowing companies to redirect Apprenticeship levy funding to support design and technology teacher professional development and upskilling. This effectively helps teachers identify and train possible apprenticeship candidates earlier in the educational process and allows companies to support subject growth and development directly.

Next Steps

Over the coming months and into 2023, the Design and Technology Association will be working to secure a way forward on all the identified action areas.

- Funded by a key industry partner, we recently produced three sample work units for Key Stage three. These will be tested with teachers over the coming month and will be shared with the D&T community in early November. We are talking to several design teams from key UK businesses and are working with some of the UK's best designers and teachers to create context-led problems taken directly from industry where possible.

We intend to seek funding to create a broad base of fully resourced units of work for release by September 2023.

- We are reaching out nationally to find suitable venues for 2023 and beyond, where we can regionally showcase the best of D&T. We will seek funding partners from business and FE/HE to assist us in our mission to give students a platform to demonstrate the value of the subject to their learning and development.

We are seeking funding to set up a website to showcase some of the best D&T practice nationally and will lever traffic to this website through our various partner organisations.

- We have set up a research community and will seek to grow this over the coming years. The Association will support this initiative and will assist in ensuring that research relevant to the subject's future is successfully shared across the community.

We will collate relevant research already in existence and will share this with the D&T community. Where there are identified gaps in our research base, we will work with key industry partners to fund, commission, and deliver new research.

- We are working on plans to expand our Blueprint 1000 initiative to reach seventy-five members by the end of 2023 and one hundred and fifty by the end of 2025. By showcasing the impact of these education/industry partnerships, we can demonstrate the value of design and technology education while at the same time improving diversity and talent acquisition across a range of industry sectors.