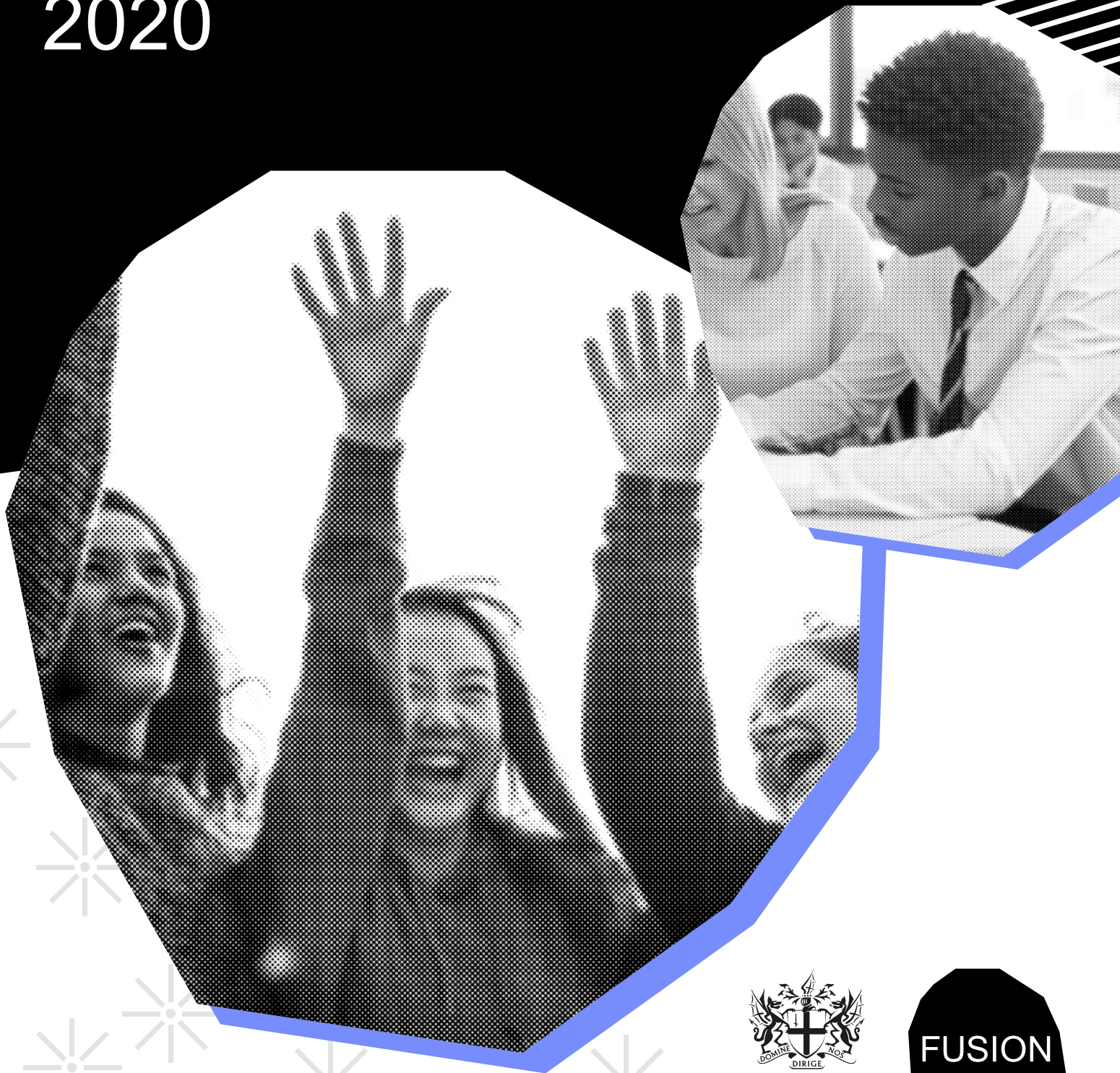


# FUSION REPORT 2

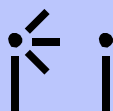
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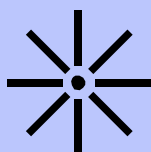
FUSION

# FUSION SKILLS

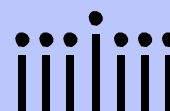
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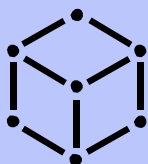
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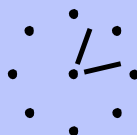
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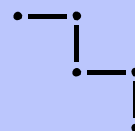
PROBLEM  
SOLVING



ORGANISATIONAL  
SKILLS



ADAPTABILITY  
& FLEXIBILITY



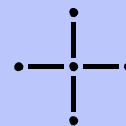
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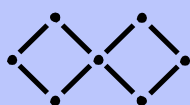
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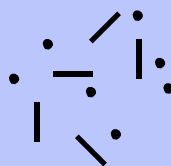
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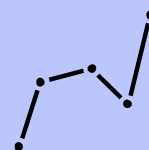
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CREATIVITY

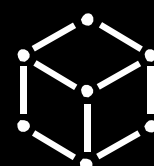
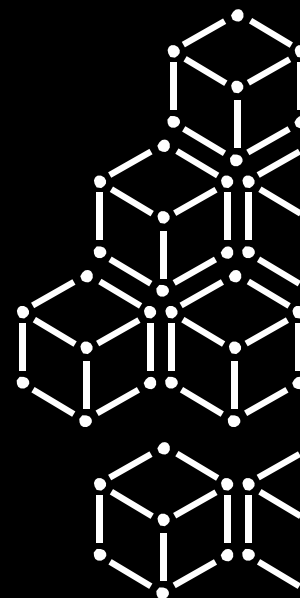
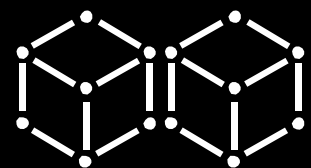


ANALYSIS  
& EVALUATION



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# 1. INTRODUCTION

There are several significant disruptive elements that have meant that there is an urgency to ensure that the development of fusion skills can occur more rapidly. These disruptions include the impact of machine and AI learning; migration and population changes; the 'collapse' of middle skilled jobs; growth of the sharing economy; and globalisation. Concurrently, there are calls to urgent action in terms of human health, mental health and wellbeing and better environmental sustainability. There are societal anxieties including the speed of change itself and the concern that people or places might be 'left behind' in the exponential speed of change. This directly or indirectly results in uncertainty, a mistrust of authority and organisations, and the growing differentiated society and inequality.

Undoubtedly, 2020 has been a momentous year for humanity. The Fusion Cities 2 meeting occurred in the context of a global pandemic. This created even greater uncertainty. Virtually overnight, businesses have had to pivot to new ways of working. The nature and location of work and life has changed. Education has become virtual and hybrid. As one participant summarised the views of many, "It has fundamentally shaken key pillars of the way we used to operate". Crisis accelerates change. The pandemic has amplified existing problems and increased inequalities, but it has also revealed a desire for more rapid change.

There have been skills shortages in particular areas and at the same time, unemployment amongst certain groups has increased rapidly. Companies in the United Kingdom are spending £1.6 billion more per year trying to fill skill gaps. The longer a person remains without work, is under-deployed, or is unable to engage in learning, the growth in the skills gap widens. We face real challenges. Now and into the future we are likely to have three generations of people still working and requiring fusion skills. Digital access, lifelong learning and the spirit of cooperation and sharing are likely to be the drivers of the future. In summary, there is a growing recognition that we need to do things differently and have better approaches to address changes affecting our health, working, environment, cities, and wellbeing.

The City of London Corporation is keen to address this shortage and collectively define the skills needed for the future in the same way as the Livery Companies and Guilds of the City of London historically developed and redefined the skills over centuries that underpinned the British economy.



Sketch made during Fusion 2 by Airbus, Senior Executive about the future of flight.

Fusion events are part of a three-year commitment made by the City of London Corporation to form an influential network of people, organisations and 'places' where there is a clear link between education, business and the cultural and creative sector to develop and enhance skills for the future within an ethical context of social mobility and sustainability. The meetings aim to draw people together to form eco-systemic change and to shine a spotlight on sharing solutions based on common challenges.

On June 7, 2019 the first of the three annual meetings were held in the City of London, UK, to focus on developing a national and international standard for Fusion Skills including a Fusion Assessment Tool influencing schools and lifelong learning. The focus of Fusion 2 was to gather the key thinkers, influencers, and actors in the fields of education, business, technology, the arts and culture, philanthropy, NGOs, and policy makers to energise action around addressing the fusion gap. The main question in 2020 was, "What might be possible to amplify, extend, support... to further grow the dots and connect the dots?" The City of London has a deep commitment towards skills. Fusion 2 is the second of three annual conferences the City of London has committed to delivering to accelerate work around fusion skills.

The aim was not to only look at where new activity is needed, but to also examine ways we could more effectively 'grow the dots and join the dots' – in other words, to amplify and extend the reach of existing and proposed initiatives, actions and directions. This involves gathering the changes already occurring since 2019 and communicating and curating these

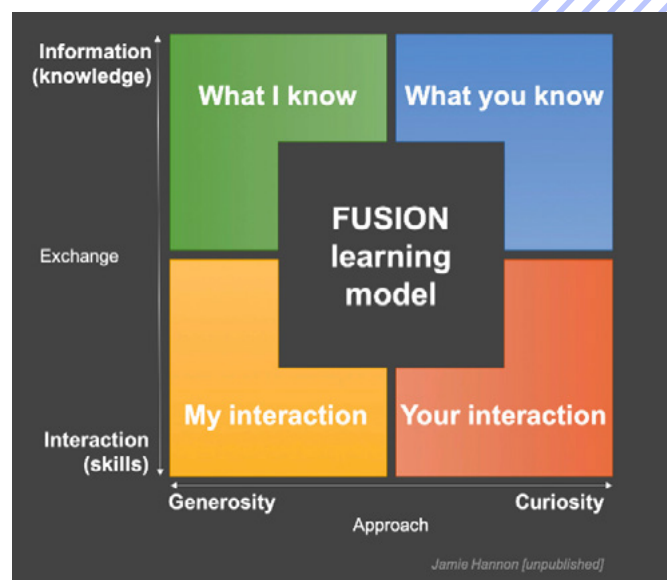
in a systemic and sustainable manner to make fusion more accessibility. The focus was on how we measure and ensure quality and then scale these effective approaches to reach a wider set of actors and stakeholders. Key themes for 2020 included accessibility, assessment, employment, social mobility and creating system-wide change.

In times of rapid change there can be a tendency for people to enter a phase of denial. As we have seen during the pandemic of 2020, unpleasant or unpalatable facts might be ignored or even dismissed. When change becomes inevitable, people may try to retain a sense of satisfaction with the current state or put aside the realities in favour of more satisfying patterns, thoughts, or beliefs. There can be resistance, especially if those roles, jobs, or 'truths' we held securely are threatened. This can lead to overt or passive defences being employed. Negative emotions may include worry, resentment and even anger. But these patterns are not always inevitable. Facing the change with a spirit of exploration and adventure, or at least with a spirit of openness and the recognition of something needs to be done and that the current situation is not going to be able to continue, means there is a greater likelihood of taking responsibility for proactively shaping the future. Decisions can be made, and actions taken to improve the skills needed for now and into the future. In Fusion 2 there is a body of influential people, places and organisations with the dedication, drive, and commitment to ensure fusion continues until change occurs and is accessible and embedded.

The need to look at skills acquisition through a fusion lens is clear. There is a huge need for fusion skills and to make those fusion skills explicit and able to become seamlessly part of a person's lifelong learning, working, and training. As these comments from the Fusion Cities 2 meeting participants suggest, there is a real sense of urgency:

- \* **We need schools and businesses to see that the building of fusion skills is part of just being a good organisation. The development of skills is normalised and just is built into the life of the organisation.**
- \* **Fusion focused organisations will be thriving places.**
- \* **Fusion skills are needed more than ever, especially for those facing the highest barriers.**
- \* **We need way more of this type of opportunity at this time.**

**“ In times of rapid change there can be a tendency for people to enter a phase of denial. ”**



Fusion model Jamie Hannon, Barbican, London

## 1.1 Aims and goals

The aims are that:

- Fusion skills are viewed as the 'norm' in schools, colleges, universities and across business sectors.
- There are no more questions of why they matter, but just how they can be brought to life, developed, and shared.

**The goal is that by 2030, one billion people will have access to sequential and sustainable fusion learning opportunities in school, continuing education, work, and life.**

## 1.2 Definitions

The term 'fusion' first appeared in 1550s, taken from the Latin, *fusionem* meaning to "to pour, melt". From around the 1800s, it gained its meaning more as a "union or blending of different things; state of being united or blended"<sup>1</sup> applicable across a range of disciplines from politics and the sciences, through to jazz, gameplay, food, sports, and computer studies. The concept of 'Fusion' is deliberately chosen, bringing together disciplines, techniques, and best practices from across the technology, arts, business sector, public, profit making, charitable and cultural sectors, and more, necessarily 'fused' together in response to an uncertain, complex, and ambiguous future.

Its usage as a 'skills' term to describe a unique set of human capacities arguably emerged in 2013 when Wallace and Barber<sup>2</sup> explored the concept of 'Fusion Skills' in relation to the creative industries, noting that a key aspect is the fusing of expertise, knowledge, and experience in individuals.

The rapid and radical nature and patterns of work transformations world-wide suggest that the future is unlikely to be organised into clearly defined subjects such as science, mathematics, and visual arts<sup>3</sup>. Successful 'Fusion' as a concept and a skills-set is process-led. It relies on close cooperation between schools (education), businesses, the creative and cultural sectors, and further and higher education.

The wide range of labels used to describe the skills employers seek is vast and includes: 'soft skills', 'essential skills' 'future skills', 'STEAM skills', 'SHAPE skills', 'transversal skills', 'competencies', 'qualities', 'characters' and so on. Additionally, 'cyber skills', 'digital literacy', 'EQ' and 'DQ' are all terms frequently used to

describe the sets of skills, attitudes and values which enable people to thrive and flourish in technologically mediated environments. Each of these terms brings with it unwanted historical and conceptual 'baggage'. For example:

- **'Soft skills'** imply a subordinated importance beneath "hard technical skills" and that they are easy to acquire. Research has consistently disproved this notion as one Fusion 2 participant put it succinctly, "We have to stop calling these soft skills. They are blooming hard skills"
- **'Essential skills'** may be more accurate but implies an exclusivity of skills open to argument, debate and potential negative assessment for someone without 'essential' skills
- **'Future skills'** implies that they are not needed now
- **'STEAM skills'** imply hard technical skills relevant only in science, maths, engineering, technology and the arts, thus ignoring the human processes required to support and harness these technical skills
- **'Digital and cyber skills'** imply that these are obtained and useful only in a 'virtual' world, thus limiting in scope and breadth across analogue, digital, and real worlds.
- **'Transversal skills'** come close to describing the ingredients necessary for an uncertain, complex and ambiguous world but is linguistically confusing. In English "transversal" means 'cutting across a system of lines' as opposed to fusion being the "union or blending of different things".
- **'Transferrable skills'** suggests that the end goal is always to 'transfer' the skills and use them in different environments which places too much emphasis on a change of job or learning environment.

Fusion is everywhere: in the economy it is the blending of industries and sectors; in society it is the converging and merging of cultures and attitudes; in life it is the fluidity of identity. The Fusion Effect is innovation, transformation, and growth. Fusion Skills are the human qualities which are required for fusion to occur. They are 'skills' because they are transferable across different contexts and they are themselves a 'fusion' because when they are successfully applied, they are always a blend of skills, knowledge, behaviours, values, ethics and attitudes. As one participant of

<sup>1</sup> <https://www.etymonline.com/word/fusion> Accessed September 13, 2019

<sup>2</sup> Wallace, T. and Barber, A (2013) Fusion Skills: Perspectives and good practice, Creative Skillset, London. [https://www.screenskills.com/media/1551/fusion\\_report.pdf](https://www.screenskills.com/media/1551/fusion_report.pdf) Accessed September 13, 2019

<sup>3</sup> <https://www.etymonline.com/word/fusion> Accessed September 13, 2019

Fusion 2 noted, “Fusion fuses know-how and values”. Therefore, the shortlist of fusion skills represents the qualities most highly valued by employers for their effectiveness in the workplace and they apply across the full spectrum of fusion contexts. The presence of fusion skills are the enabler and catalyst of progress of innovation, and are required for individual, economic, and societal flourishing in the rapidly changing world.

**The top 12 transferable Fusion Skills rated by employers<sup>4</sup> are:**

1. Oral communication/presentation skills
2. Collaboration and teamwork
3. Initiative
4. Problem solving
5. Organisational skills (planning, time management, deadlines, prioritisation, multi-tasking)
6. Adaptability/flexibility
7. Written communication
8. Independent working/autonomy
9. Critical thinking
10. Resilience
11. Creativity
12. Analysis and evaluation skills

To facilitate global coordination, it is important we all speak the same language in terms of defining the fusion skills. Some people might argue that there are core fusion skills and that some areas could be combined or that more skills need to be added. This sort of debate is healthy and useful if a balance is struck between ensuring that there is a level of agreement and depth but that it is possible to have both a consistency of offer and reporting (including potential accreditation). If schools, universities, and businesses invest to develop fusion, they need to be able to show both individual and collective impact and be confident that the work is leading to the desired changes. Consistent understanding of the fusion skills should become norms within sectors. At all levels, we need simple ways to diagnose fusion skills gaps and provide opportunities to develop these. We also need to be able to speak with clarity about fusion across various other communities such as, E-assessment,

Assistive Technology and SEND, to name but a few.

There are some people who argue that fusion is not a new concept. As one participant commented, “I was following the fusion agenda long before I knew what it was and it’s great to know, it was not all a dream”. It is the common-sense and familiarity of it all that is its greatest power in leading change. It is wonderful that the secrets of producing enlightened and educated people capable of navigating through the current and future world of work and life does not rely on expertise in *Malbolge*<sup>5</sup> or another complex coding language, but instead relies on speaking and listening. Learning through talk and oral communication skills are consistently rated highly with employers and educators.

Nothing can be accomplished that is not yet first imagined. Fusion are inherently human skills and that makes their acquisition more natural. They are not taught as much as they are discovered and experienced, but that process of discovery and development takes care and consistency and is a lifelong journey. There is also the demand for higher levels of fusion skills. It is assumed for example that most children will naturally develop oracy as they grow older. That is in part correct, but it is certainly not the case that most young people will develop the higher levels of skills required to become proficient oral communicators across the ranges of contexts they might want to speak.

There are also gaps in our understanding of the interplay and overlap between different fusion skills. While it is assumed that fusion skills work together, we know little about how these mechanisms of cross-over enable people to fuse together different skills. There is a need for further focus on the pre-skills required to bridge into fusion skills. There is also a gap in our understanding of the ‘fusion’ leadership skills needed to manage the development of fusion skills in staff. As this comment from a fusion influencer suggests, fusion skills enhance the quality of leadership, “Having fusion skills enables me to be a better leader, support the vision of my organisation”. While fusion appears to be vital to being able to adapt to and learn digital competencies there is not yet a comprehensive understanding of set of technical, cognitive, meta-cognitive and socio-emotional competencies that enable people to apply fusion to digital learning. There is a growing sense of awareness of the many other non-qualifiable things that make a person. It is likely that as research and sharing around fusion continues to grow, in the future there will be more personalised, self-organised training in skills, with fusion training which can adapt to the needs of the individual and the organisation.

<sup>4</sup> Nesta (2019) *Transferable Skills in the Workplace: Key findings from a survey of UK employers*. City of London, UK p 5 <https://www.cityoflondon.gov.uk/services/education-learning/schools/Documents/transferable-skills-in-the-workplace.pdf> Accessed September 13, 2019

<sup>5</sup> According to Daniel Temkin (2014) *Malbolge* is a notoriously hard to use public domain esoteric programming language invented by Ben Olmstead in 1998, named after the eighth circle of hell in Dante’s *Inferno*, the *Malebolge*. It was specifically designed to be almost impossible to use, via a counter-intuitive ‘crazy operation’, base-three arithmetic, and self-altering code.



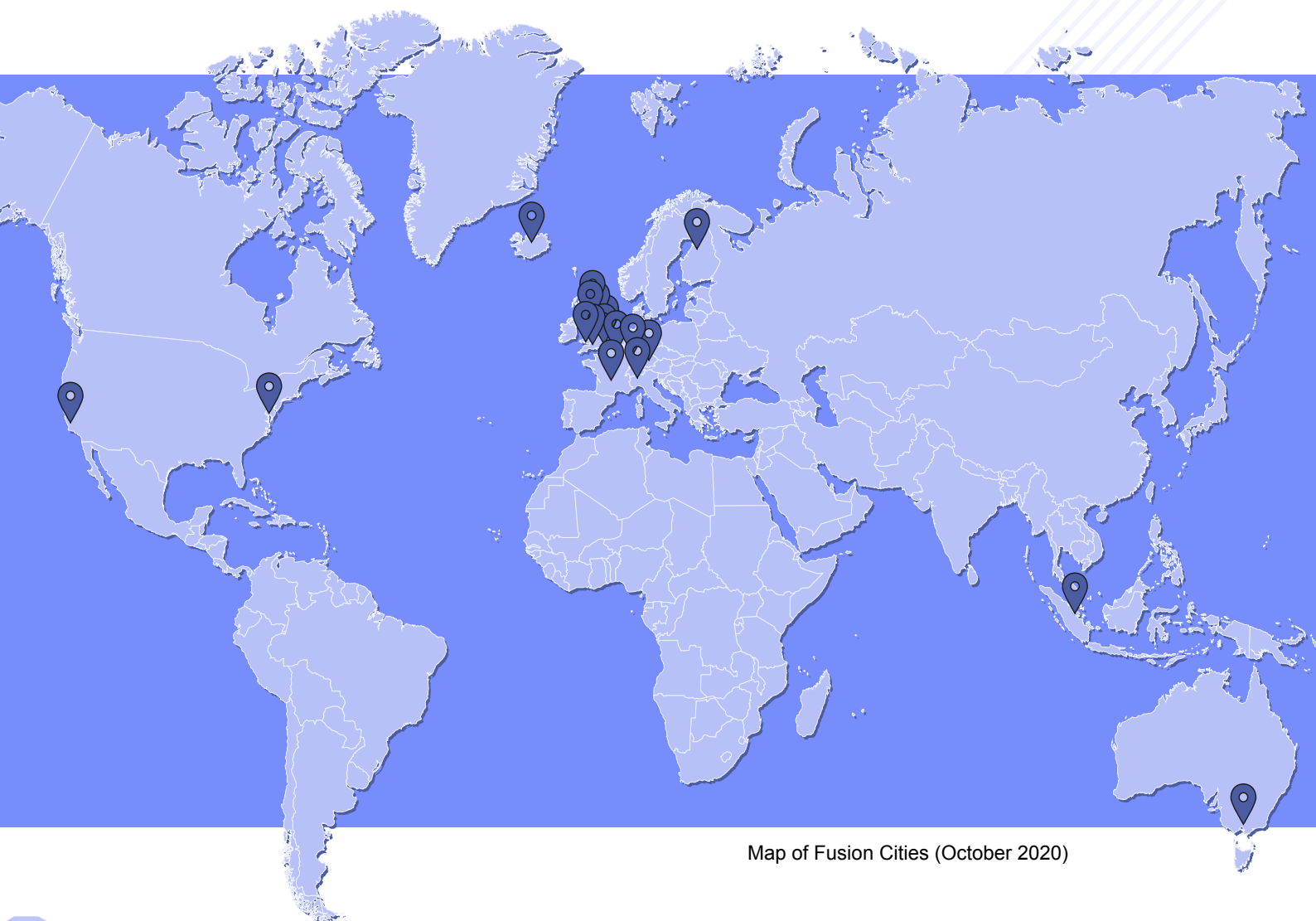
## 1.3 Fusion Cities

Fusion Skills are at the heart of success in the 21st century. Cities across the world need to develop and enhance fusion skills. Fusion cities are cities, or parts of cities, where there is a clear link between education, business, and the cultural and creative sector. They are forward looking places where there is a focus on developing and enhancing skills for the future within an ethical context of social mobility and sustainability. Fusion cities anticipate the evolution of skill needs, think in the future, and make actions which address these demands. Fusion cities have inclusive public places for skills learning. They can identify need and to interpret and articulate what fusion means at the local level. They are inclusive of the potential of community power and play a facilitative role to activate that power. Blended and local community-based ideas can work well if connected to a larger clear vision. Fusion cities are not just a good place to work but places to live, learn and flourish.

They do not need to be large places. In fact, the research to date suggests that smaller cities and towns or parts of larger cities may work better than very large units. It is important to have examples which are local, and context- and place-based. As one fusion business noted, “We also need Fusion Towns and Fusion

Villages too - especially with the potential for true inclusivity and access to markets through distributed connected working.”

These could be described as “Commitment places” where there is an agreed focus and level of energy at the policy and practical level to make fusion changes. This is evident, for example, Amsterdam and Costa Rica where there are ‘hubs’ of commitment and energy to bring about systemic change. There is some interested work underway in terms of place-based working around fusion skills. For example, several the Local Educational and Business Partnerships (LEPs) in and around London are using the Skillsbuilder Universal Framework to consolidate and coordinate skills development at all levels within a geographic region. In Manchester, in the United Kingdom, a programme called “Skills for Life” is transforming the way the city approaches ensuring it has the skills for now and into the future. There is an interesting tension that since Covid, the extremes in place have become more noticeable. We are desiring being able to get goods, services, and experiences at the hyper local level - even in your own home or just a very short walk from your home, but at the same time the rapid increase in online operations mean we can work internationally in a very immediate and cost-effective manner. The following map shows the location of the Fusion Cities.



Map of Fusion Cities (October 2020)



## Dr Yuhyun Park

As founder of the **DQ Institute** and pioneer of the DQ Framework I am in a unique position to appreciate the progress and good work of Fusion skills. At the DQ Institute our team have developed DQ Global Standards as the world's first standards framework for Digital Literacy, Digital Skills and Digital Readiness. Since first publishing DQ Global Standards alongside the Organisation for Economic Co-operation and Development (OECD) and in association with the World Economic Forum (WEF), DQ Global Standards have been endorsed by the IEEE Standards Association (IEEE™ 3527.1).

The DQ Institute have been working in close collaboration with Fusion skills as they are transformative for future readiness and share principles that underpin the DQ Framework. Together with other future readiness skills frameworks identified through the OECD, WEF and other international organisations, Fusion skills help us to understand the key critical skills for lifelong learning from K-12 to adulthood as well as workplace learning.

“ **Fusion skills help us to understand the key critical skills for lifelong learning** ”



The DQ Global Standards Framework provides the building block on how we can tangibly help individuals by developing the roadmap towards future readiness. Training providers and policy makers as well as content creators will know how DQ Global Standards can be used to build future skills which will connect with UN Sustainable Development Goal (UN SDG) 4, to “Ensure inclusive and equitable quality education and promoting lifelong learning opportunities for all”. Specifically, we aim to achieve UN SDG target 4.4, and by “2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship. Alongside and resulting from this aim, the DQ Institute and Fusion skills both aim to support the realisation of UN SDG 8, that is “Decent Work and Economic Growth”.

## 2. EDUCATION

Fusion is the intersection of education, culture, and the world of work, but at times these worlds operate in silos from the other. There is the need for a 'fusion bridge' between education and the world of work. As one fusion influencer noted, "There has to be a sense of mission... a new public conversation about education". For young children, the very process of learning is a kind of fusion. All the 12 fusion skills are very apparent as children begin to interact with the world around them. Despite the natural fit between learning and the fusion skills, the overwhelming view from the Fusion 2 meeting was that the current models of schooling are no longer fit for purpose. To safeguard prosperity, several fundamental questions need to be asked of the current education system, namely:

- What should education really be like?
- What is the purpose of the education system?
- Why does it exist? Is it to develop well rounded children and develop them for life, work or does it just reinforce the inequalities that they are born into?
- Do we need to change the education system or as Sir Ken Robinson said, 'Do we need to absolutely transform it?'
- What is not essential to education? What are the things we can let go of? What is most important?

We need to work together to reimagine education. As one Fusion 2 participant emphasised, "Everyone knows what the problem is... The next question is what is the theory of change?". The theory of change most favoured was one that asked that a critical eye be cast over education and that this should enable systems to determine, what aspects of the current models of education can remain and what elements need to change and how they should change. This is echoed in the following comments made:

*Looking back but moving forward is important*

*Marie Kondo<sup>6</sup> speaks of only keeping the things that bring you the most joy. It is the same question we should ask in educational reform at all levels...*



*Does this bring you joy?*

*Education is like Lego. We need to break down the idea of school to its component parts and then think about how we would use those parts to rebuild the education of the future we would want.*

*What are the strengths we want to maintain? - align stakeholders around these strengths*

To achieve this 'honest look' at education, at all stages, requires the political will power to call for change. This is already occurring with the OECD<sup>7</sup>, UNESCO<sup>8</sup> and the European Union<sup>9</sup> all making clear political commitment to educational change. In this context of a real energy for change, we need more neutral policy spaces where the long-term vision for education can be discussed. As one Fusion 2 participant noted, "The elephant in the room is how will the education sector respond to the issues raised on education delivery as it could not function because of the recent pandemic. If we are to avoid greater problems with future employment, we need to address this issue!"

To lead this change, input and enthusiasm is needed from policy makers. The comment was made that, "We need intelligent, connected education policy and schools need stability to allow them to be more agile." This change in education has the support of business.

<sup>6</sup> [https://learn.konmari.com/products/konmari-method-fundamentals-of-tidying?gclid=CjwKCAiAteJ9BRAvEiwA0UAWXieDzhqnxMbl-ADGV03-hPGHKURwbEeSpHdUq6HDXVd7XebSEPKRnRoCQVIQAvD\\_BwE](https://learn.konmari.com/products/konmari-method-fundamentals-of-tidying?gclid=CjwKCAiAteJ9BRAvEiwA0UAWXieDzhqnxMbl-ADGV03-hPGHKURwbEeSpHdUq6HDXVd7XebSEPKRnRoCQVIQAvD_BwE)

<sup>7</sup> <https://www.oecd.org/education/2030-project/teaching-and-learning/learning/learning-compass-2030/>

<sup>8</sup> <https://en.unesco.org/events/education-2030-education-and-skills-21st-century-second-technical-follow-meeting-regional>

<sup>9</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1743](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1743)

The sector spoke of the urgency for “education to ‘big up’ the importance of fusion skills.” There were calls for political leadership to be visible and active in the policy and action to rapidly enable fusion skills to be the focus, as these call for action exemplify:

*In short, who can we get, at the top level, to promote and deliver, at government level, a fusion skills-driven educational experience linked to employment. We need to bridge the two sectors!*

*It is obvious (at least to me) that a more humanistic, holistic, and integrative education is a must. That said, I also acknowledge the “easy to say, but not so easy to see” phenomena. Change, transitions, or transformations have their own personality and pace. What we can do, is to support the process, and collaborate in creating conditions for change to take place.*

*Leaders in Education Departments who are willing to share with us what has been done to put fusion skills incorporate in student life, and ready to take on the suggestions of people involved with the conference.*

*I'd like to see a senior officer from DfE talk next year about how they will be focussing on the fusion skills across the curriculum from 2023.*

*Education ministers need to dig deeper into curriculum and see how pupils engage.*

The calls for educational change to develop fusion skills focused on changing the content of education but also changing the methods and processes. Fusion skills develop most fully in an educational context that engenders the possibilities of change and growth. It was argued that as we, as a society, increasingly live in a world “driven by algorithms”, need a “love-based school system”. This approach is mirrored in these comments from fusion influencers:

*Engage the head, the hand, and the heart <and then> thoughts can chime, conflict and ripples of the surface of the mind.*

*Adding elements to the lists/importance... for example, wellbeing to enhance the experiences for students in both education and working life*

To support this change process education should encourage greater partnership and collaboration. This notion of ‘shared undertaking’ creates the conditions in education for change to take place. As one respondent commented, “Schools need to be supported to be able to connect the dots of what is learnt in schools with the world of work and this connection needs to engage with the teachers, the parents, and the children.” Economic factors are driving parental requests for change - “My child is not getting a fair share”. This is promoting more parental and community engagement in the process of educational transformation towards a greater focus

on fusion skills. In times of uncertainty and change, the need to inspire our next generation is more important than ever. As one respondent noted, “Working together, we can inspire and inform the next generation at this crucial time.”

If policy is supportive, change can occur in education through the interplay of changes in the teaching profession, in the curriculum and by changing assessment.

## 2.1 Teachers

The best teachers can unlock so much for our future society and transform lives. Education has changed and the role of the teachers needs to also change – “We are no longer the sage at the front of the room but should instead be the child’s main ‘point person’”. Fusion skills should be embedded within teacher training, both pre-service and during service. Resources for teachers are being developed to boost fusion skills from the early years and throughout different levels of education. Ongoing professional development of teachers as fusion educators needs to occur as, even if fusion skills were to feature in initial teacher education, once in the school or college context, after a few years, teachers begin to develop habits of the institution, not habits of the future. Teachers may feel compelled to concentrate on what is required and tested rather than what they believe to be educationally desirable for their pupils’ future. Continuing professional development and learning should ensure teachers are themselves becoming reflective and reflexive learners (and teachers).

The development of the teaching profession is key, but so too is curriculum design.

## 2.2 Curriculum

The argument was made that over the past decades, there has been a narrowing of the curriculum with a greater focus on limited content which forms the basis of high-stakes assessment, rather on the building of dispositions and skills. There were calls made to urgently reform curriculum:

*A total no-brainer for us to re-model our curriculum and experience of education to benefit pupils, universities, and employers*

*Education ministers need to dig deeper into curriculum and see how pupils engage*

A broad and active curriculum were seen to be the best design for promoting the development of fusion skills. The curriculum needs to encourage active participation and engender culturally rich learning and give agency to the voice of the learners. There is a diversity of sources of learning, not just the teacher. For example, including group play (for all ages of learners) can



release the “Power of play”. For example, incorporating game and play within learning in schools can be an effective way to make systematic change within the education system.

The creative arts and the humanities can engage learners and model ways to solve problems as much as the sciences can. At the intersections of many disciplines there are “deeper fountains of knowledge”. More open-ended and experimental methods where learners are encouraged to ‘give things a try’ seem to be effective in developing fusion skills. As a Fusion 2 participant noted, “Consider your mind like a parachute, it works best when open”. The comment was also made that “we often underestimate children”. Deep learning goes beyond ‘surface level learning’ practices by applying learning to real-life situations. Several examples were shared of the way fusion curriculum can be integrated or combined with more traditional curriculum. For example, “I work part time on the leadership team of a group of primary schools in Tower Hamlets, London. Without removing the national curriculum, we’re redesigning a disposition-rich curriculum, based on principles of Ubuntu. Just at the start of our journey so any ideas and inspiration welcomed - the more practical, the better.”

The argument was made that, with the right curriculum, fusion skills can be broken down and both taught and assessed. Deliberate learning is needed to ensure that all learners are given an equal opportunity to develop the higher order fusion skills. Fusion learning must be for ALL children not just the most advantaged. The learning gap between advantaged and disadvantaged learners is as large as it is for more traditional subjects in the school curriculum. For fusion growth to occur, the gap of disadvantage needs to close. Having an ‘equality of offer’ in formal education can pose some questions because many learners receive a significant advantage in terms of their opportunities to develop fusion skills through informal learning. Arguably, a system of ‘everybody gets everything’ may further advantage those learners already advantaged. More personalisation of fusion learning opportunities might be more equal. Whatever the approach adopted, lifelong learning of fusion skills is vital as the skills themselves change over time but also the person’s capacity to apply them in new and more challenging contexts also needs to develop.

## 2.3 Assessment

Assessment processes do not currently provide any insight into a person’s fusion skills. Moreover, there was a strong view expressed by the experts present at Fusion 2 that high-stakes assessment may in and of itself limit the development of fusion skills and the capacity of education to move to a greater focus more rapidly on fusion development. This latter point was made repeatedly as these examples indicate:

*It is about reframing education away from assessment*

*We need rounder, broader fusion qualifications to equip the whole economy and our young people with the future that we need*

*By focusing on delivering a particular outcome within education, we risk losing out essential skills*

*GCSEs/A-Levels teach students about passing exams rather than being educated*

*School should no longer be just about learning facts and passing exams*

*The standardised assessments are barriers for systematic change in education.*

The argument was made that there is a tendency to measure what is easiest to measure rather than measuring what is really of the most value. For example, it is easier to measure mathematics and science and much harder to measure collaboration, empathy, and teamwork. Strong points were made, especially in context of the Covid infection that perhaps external credentials were no longer as valuable as they had once been.

*There is a real question about the value these days of credentialling at all. The argument could be made that if the development of skills is a lifelong, natural part of people’s lives, then perhaps it is less about credentialling and more about periodic ‘fusion health checks’? It will be about skilling, skills building and re-skilling in a continuous cycle. If this is the case, time dependent credentialling may not be either useful or valid. We need to perhaps shift things and have a slightly different mindset on what assessment means.*

Furthermore, there was the direct link drawn between the way assessment, and in particular exams, were outdated and have a negative impact on the types of learning which occurs and in turn this negatively impacts on the acquisition of fusion skills.

*School should no longer be just about learning facts and passing exams*

*The idea that you must assess everything cannot be right*

*Why do we do exams?*

*Now universities are agreeing to post qualification admissions for 23/24 the last rationale for taking huge numbers of GCSEs evaporates. There is now a very broad coalition feeling that 16 plus exams should go.*



The stronger views suggested that assessment not only stopped the development of fusion skills but led to damage that needed to be 'undone' before fusion learning could occur.

*Healing the damage of the current assessment is as important as providing the new models*

*Most assessment is currently norm-based, and norm referenced. This creates a big 'middle' and does very little to create higher order skills. It is huge problem to create a large number of middle skilled people.*

*The SATs (Standardised Assessment Tests) have been banned in California*

*The present exam culture stops good innovation and creatively which is taking place in the classroom, being expressed, and exploited by students and teachers as part of their education experience.*

*The journey is just as important as the outcome for students and the pandemic has illustrated how some have felt let down by the system because they did not do an exam and get a result!*

*It is easier to measure mathematics and science and much harder to measure collaboration, empathy, and teamwork*

*Child must have a more broaden specification then our very exams driven system allows them to have.*

The link between assessment and school and/or teacher accountability also needed to be uncoupled. For too long, the assumption has been that assessment of pupils' learning acts as a proxy for school and/or teacher efficacy.

*Do assessment measurements deliver on their intended purpose? Are they measuring schools rather than individual performance?*

*School accountability has resulted in unintentional consequences... there is a need to balance punitive and developmental accountability.*

*Horizontal accountability - accountability through the profession not through assessment*

*We need to develop immersive benchmarking.*

*Peer review... alternatives to high stakes assessment*

The argument was also made that assessment needed to be separated from curriculum as the current situation means that often the test or the assessment task drives learning rather than in acting to diagnose the efficacy of

**“ Stronger views suggested that assessment not only stopped the development of fusion skills but led to damage that needed to be ‘undone’ ”**

learning within a robust and well-balanced curriculum.

For others, measurement and assessment was still needed but they proposed different methods and models of assessment, that was then used for different purposes. Assessment should enable people to be aware of the fusion strengths and weaknesses but then give a person robust information and the wherewithal to be able to develop and grow their fusion skills. For example:

*We need robust ways of assessing fusion skills. To be seen as being robust do we need fusion assessment centres? Would it be possible for someone to 'fail' in terms of their fusion skills? How do we objectively examine performance?*

*Any assessment must be accessible for all and be virtual and scalable.*

*The Skillsbuilder Universal Framework<sup>10</sup> provides a way of clearly diagnosing fusion skills.*

*In short, having discussed this with other sources, who are very supportive, there was this blank statement that no government will give up its stance on exams. Agreed. So, there is no point in just attacking the exams system. We need to work with it and fine tune it so its influence and impact will open the door to fusion skills agenda across education.*

For example, more open-ended and 'risk' focused learning curriculum and methods were seen to positively enhance fusion skills development and assessment had acted to stifle these kinds of fusion skills in young people.

*Encouraging students to fail fast and succeed sooner*

*Students are terrified of failure*

<sup>10</sup> <https://www.skillsbuilder.org/>

*'Happy mistake' that you learn and move on from*

*I don't think children are scared of failure. The system has made them that way. We can find children and they are up for challenges and will say, "I'm really scared but I want to give it a go."*

*Unless we allow people to find the confidence to fail then very little will move forward*

The feedback from employers was that people are so frightened of failure that they do not progress their ideas and develop their fusion skills. This point is exemplified in the following example:

*In school you are taught the notion 'you must not fail', a red cross means you have got it wrong and you need to correct it to make it right (stop doing it wrong) When you get into the world of work most great advances come from the people who have many failures/setbacks and have stepped over the challenge to find a solution.*

Models were presented of possible pedagogies and approaches that could be used to enable education systems to proactively develop fusion dispositions. The need for 'asset-based' models based on the strengths of the learners was highlighted along with approaches which proactively support adventurous learning and promote greater awareness of the importance of real-world contexts, experimentation, failure, and resilience. For example:

*How do you start to play with children's strengths? You need to value their skills, support them to thrive, encourage their motivation and leadership skills, help them to enjoy and feel happy as they flourish as humans in our world. In this approach, teachers are relaying the messages 'it is ok to fail', we want to help you and discover the gaps etc.*

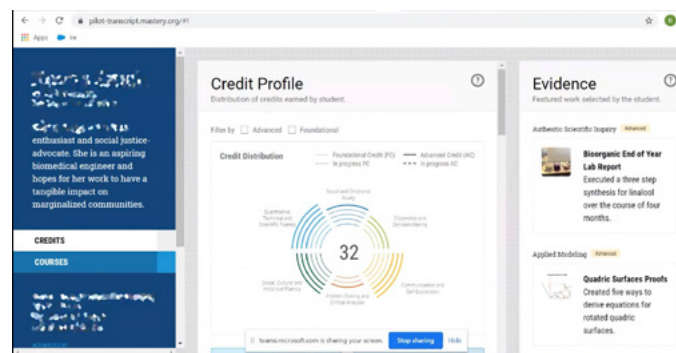
*A lot of schools talk about growth mindset – fusion is more about the process*

*We must give children the psychological resources to understand how to deal with failure. Our job is to give them the tools, resources, and experiences so they become comfortable with making mistakes as this is a skill that they will need for their entire life.*

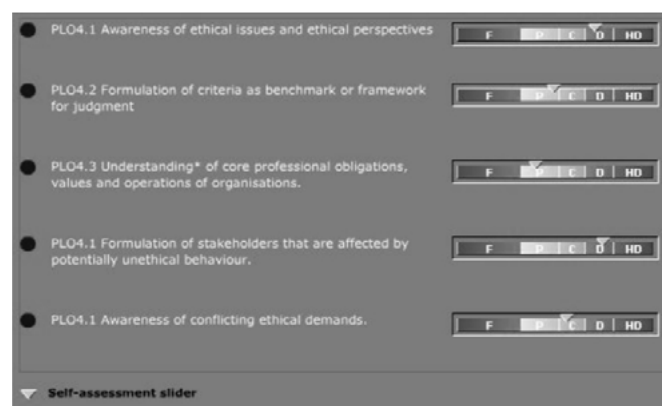
*In the private sector we see so much more flexibility and creativity alongside an assessment process, so it is possible to combine both and pop out more rounded and well skilled individuals.*

*The criticism of the education/exams/ assessment system was repeated... I decided to change my approach from just having a go at the system to offering solutions.*

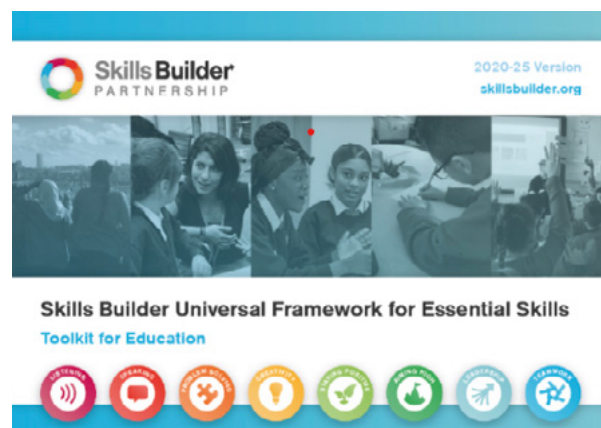
There are also emerging ways to record and report fusion skills. For example, the Mastery Network Consortium<sup>11</sup> offers a digital assessment record defined by the skills, attributes, and qualities a person possesses and can record a full range of different types of assessments (details deliberately obscured).



The ReView software<sup>12</sup> (example follows) enables learners to use a range of criterion referenced activities to demonstrate the attainment of fusion skills. It combines self and peer assessment with external validation to ensure robust fusion measurement.



The Skillsbuilder Universal Framework<sup>13</sup> provides 'lifelong' frameworks that can be used for self- and or external measurement of fusion skills.



<sup>11</sup> <https://mastery.org/>

<sup>12</sup> <https://academ.com.au/review-peer-rating-tool/>

<sup>13</sup> <https://www.skillsbuilder.org/>



The DQ Framework<sup>14</sup> provides global standards in digital and fusion skills (see image below)



These examples represent just some of the work on assessment that is underway. They each show that assessment can be achieved in a manner which is robust and accountable, and which enables learners of all ages to demonstrate their attainment in terms of fusion skills. It is no longer possible to use the lack of assessment tools as a reason for not developing fusion skills.

There are many actions occurring at present across the educational and business sectors<sup>15</sup> to reframe the paradoxes surrounding the gaining of fusion. These are aimed at exposing the challenges and then supporting a process to resolve some of the tensions. It is likely that projects in a real-life form will be the assessment of the future. Future employees will be saying to businesses... not “I got these exam results” but rather “Look at all these cool things I have done and all the difference I have already made.” There is also likely to be greater transparency about the standards expected. Not least, greater transparency should boost equity, equality, and social mobility. There were also calls for greater parity of qualifications as vocational qualifications were being of lesser value than mainstream qualifications, even if they developed fusion skills in a more thorough manner.



“ **Greater transparency should boost equity, equality, and social mobility** ”

<sup>14</sup> <https://www.dqinstitute.org/dq-framework/>

<sup>15</sup> For example, the Happy Schools Project UNESCO <https://bangkok.unesco.org/theme/happy-schools>. It is likely that the 2024 PISA testing will 'test' both creativity and oracy <https://www.oecd.org/pisa/publications/PISA-2021-creative-thinking-framework.pdf> and [https://www.oecd.org/pisa/pisaproducts/PISA2024\\_InternationalOptions.pdf](https://www.oecd.org/pisa/pisaproducts/PISA2024_InternationalOptions.pdf). Big Change is engaged in re-imagining education, <https://www.big-change.org/reimagining-education/> while there are also calls for re-thinking assessment <https://rethinkingassessment.com/>

## Jamie Hannon

Jamie Hannon is Project Lead for **Fusion Futures**, a collaborative project between the Barbican, Culture Mile Learning and Foundation for Future London. Working with creative arts practitioners the programme explores collaboration and problem solving with young people and apprentices. The programme has adopted Fusion as a metaphor of how to learn from one another.

Originally from North East England, now living in London, Jamie's career covers a variety of roles in the creative industries.

'My own work across different part of the creative economy is what inspired my thinking.

I'm a serial learner, and my current enquiry is around knowledge sharing and the cross-pollination of ideas. This principle exists across different industries, whether it's the agile leader, the adaptive expert in engineering or the entrepreneur who blends and enriches their design. For me, Fusion symbolises the process of learning from one another. It has become a key theme of our workshops.

“ We hope our learners will gain a learning tactic for any new situation ”



My original proposal was submitted to Culture Mile Learning's Fusion Prize, a challenge brief that invited new ways of exploring Fusion Skills (Nesta and City of London Corporation, 2019) with young Londoners. Fusion Futures takes cohorts of young people and apprentices through four workshops to build confidence in Fusion Skills, and more crucially, allows participants to practise applying the skills in concert and in different measure. If collaborating through Fusion is the goal, then Fusion Skills are the tools.

Those in industry might spend years understanding Fusion, but we work with creative arts practitioners to simulate Fusion in a memorable and accessible way. By remembering the principles of Fusion – that is, being generous with one's own contribution while being curious about the contributions of others – we hope our learners will gain a learning tactic for any new situation.'



# 3. BUSINESS

*The old routes to employment are not relevant. Getting good A-levels<sup>16</sup> is not the answer to the challenges we face. During lockdown, kids did remarkable things... they did not do their schoolwork, but they did brilliant darts off into polymathic directions.*

***We need fresh ideas, fresh skills...***

Upskilling has become ever-more critical to business. We have seen organisations move at pace to plan and implement new people strategies and to reimagine their talent development models and processes.

Business requires people who are fully equipped for a rapidly changing job market, including the capacities to work productively, solve complex problems, and navigate ambiguity. Moreover, people need to feel fulfilled in their roles and appropriately challenged and rewarded. Employers do not just want qualifications. These are of limited value in terms of ascertaining if an individual possesses the range of fusion skills needed to flourish in 21st century working patterns. Moreover, the reduction in the level of middle-skilled jobs means that businesses are trying to recruit more people from a shrinking pool of highly talented individuals. There is an urgent shortage of people with high levels of talent in the fusion skills and while many businesses are now very determinedly developing fusion training programmes, the speed and scale of staff retaining is not able to keep pace with demand. Businesses are looking for fusion skills more than technical skills on the assumption that is potentially quicker and easier to train someone with fusion talents to learn the new digital skills, than it is to try to train someone with technical skills how to operate in a highly skilled 'fusion' manner. Fusion skills, as opposed to technical skills, are also high mobile meaning that people with high levels of talent in these are very mobile across sectors and this further fuel demand with talented individuals tending towards more desirable sectors. In summary, there is an urgent need to anticipate the evolution of skill needs, think in the future in skills training. Businesses need fusion enlightened and educated people who can effectively navigate through the world

of work. In an ideal world, all learners would have the skills to succeed in school, work, and life, regardless of their age, background, industry, or geographical location.

People's working life has fundamentally changed and as a result it is likely that businesses will need to take a much greater role as leaders of education and learning. This will be a lifelong process and involve the development of fusion skills through digital and non-digital contexts and on growing people in terms of their 'enterprisability'. Enterprisability is the combination of essential work ready skills, the fusion skills and high levels of entrepreneurial behaviours, ethics, and sustainability. There will also need to be managers and leaders capable of effectively leading fusion – and this will include both lifelong learning around fusion skills and then how to manage talented 'fusionistas' to ensure that they get the best from their workers and that the workers also flourish. As a Fusion 2 participant noted, we have moved from the, "command-and-control and factory model towards other dimensions through tradition wisdom and complexity." Along the same lines, another participant made a direct point in how this change is reflected in the City of London in noting that, "The City used to trade in meat, and then it traded in finance, and in the future, it will trade in imagination and creativity."

There are many long-standing challenges in education and skills that we must solve. Far too many people achieve below their potential, limiting their future options and their ability to have fulfilling careers and lives. The next section examines the role of lifelong learning in business and beyond to address skills shortages.

<sup>16</sup> A-Levels are the exams taken at the end of formal schooling in England.

### 3.1 Lifelong

Better links need to exist between different levels of education from early years to the higher education. The rapid nature of change means that it is no longer possible, if it ever was, to learn anything once and then not revisit that concept and continue to learn and grow that skill throughout one's lifetime. The need to learn, re-learn and to learn again is likely to characterise all aspects of our lives. The recent pandemic has given us a reminder of the potential speed of change and the need to be equipped and ready to respond. Arguably for many people there were ten years of change that occurred in less than ten days. Also, technological change is ubiquitous across all aspects of our lives and without the capacities to engage activity with this technology, people are increasingly left behind. There was uniform agreement at Fusion 2 from all sectors on the importance of lifelong approaches to learning as these comments exemplify:

*There will need to be a continuation of adult learning, upgrading skills in using the full potential of digital technology*

*We are all lifelong learners*

*I have enhanced my own fusion skills at this event. I am proof of the lifelong on nature of all this.*

It was acknowledged that where learning will occur also needs to change. If people are lifelong learners, then the learning needs to meet them where they are, whether that be at work or at play. It was also noted that there can be no barriers (actual or perceived) preventing people from accessing that lifelong learning – wherever it is situated.

*It is important to understand that learning also takes place in communities - beyond academics, schools, and workplaces*

*Transition of skills from University to work life still needs work*

*A “no wrong doors” approach to education and skills development. Meet people where they are.*

*Take the learning to the people... deliver locally (Including through technology), devolution and local responses important, greater access to skills funding*

*We need all age career and skills services*

*Adult education needs to be more flexible and more module*

The point was made too that moments of ‘transition’

are extremely important points where lifelong learning may be particularly successful and impactful. These transitions happen throughout people's lives and for a range of reasons, but if we can support these and capitalise on the skills development opportunity they provide, this may help to enhance systemic lifelong learning. For example, the transitions of young people through different levels of schools are crucial points. Also, the transition of skills from university to work life still needs work to make it smoother. Transitions may also occur between different industries or employers and through different levels of a job or role. People will make transitions to different levels of working such as at movement into retirement or returning from periods of leave. All of these provide real and tangible moments of opportunity for fusion. There is a need to focus on the ‘Betweeners’ those who are between jobs, between career stages, between educational and employment, between life stages, between industries/sectors. Fusion often thrives in ‘betweeners’. Skills training may take the form of ‘professional life coaches’ as long as the focus is squarely on the fusion skills. There is the need for a broader, longer term view of skills development. In the next five years in the UK there are likely to be a million more workers over 50 than at the current time and for the first time in history there may be four generations working at any one time. Older workers are 2:1 more likely to become long term unemployed and better support is particularly needed for the unemployed and lower earners.

It was also acknowledged that universities and further education courses and providers could be far more ambitious and focused in terms of developing fusion skills. There is an enormous potential to get fusion skills embedded in universities. In the United Kingdom alone there are 550,000 graduates every year. There is also the need for circular programmes where lifelong learners can engage with or re-engage with universities and other learning providers. For example, “University programmes should create a circular mindset. We need to run programmes for unemployed youth as well to reach those that have left education.”

Career long professional learning will be crucial, and this must promote meaningful applied pathways. This point was clearly exemplified in the following remarks:

*There was a bit of a key area that was missing - while we focused considerably on education assuming learning was for children and teenagers, we forgot many learners are actually postgrads, later in life learners - and in today's world - career changers. I think fusion skills needs to have a more holistic application rather than a focus on the younger generation. 2021 will see us developing an online programme to support the further education sector in learning more about the Circular Economy<sup>17</sup> and encouraging the application of that knowledge and the skills in their future work environments*

<sup>17</sup> Walter Stahel, architect, and industrial analyst, sketched in his 1976 research report to the European Commission ‘The Potential for Substituting Manpower for Energy’, co-authored with Genevieve Reday, the vision of an economy in loops (or circular economy) and its impact on job creation and economic competitiveness. For further details see <https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought>

In terms of fusion skills, everyone is on a journey of learning together. It is no longer enough to educate the second-class robots, people who are good are repeating what we tell them. People must manage their own time and maintain a work/life balance within predominantly digital time. A growth mindset is needed, and as one participant put it, “We need ingenuity to survive in the brave new world.” In line with this, it is not enough to provide lifelong learning to help people just manage to ‘make do’. Lifelong learning must provide the resources for people to really shine. It also must promote diversity and address inequality. As the following comment saliently captures, “When we surprise people with the ambition of what we ask of them, they always astonish us with what they produce and are able to do.”

### 3.2 Digital

Digital technology is now a part of every aspect of our lives. The recent pandemic has further raised the value of digital skills and yet it has also exposed frightening socio-economic gaps in provision. We knew technology would play an important part in the future even before the pandemic, but technology is now crucial and central to learning and working. With this comes the risk posed by widening inequalities. Fusion helps to equip people for an increasingly complex future, where creativity is an essential life skill at the heart of a more technological economy. Digital Intelligence is a comprehensive set of technical, cognitive, meta-cognitive and socio-emotional competencies. Rapid changes mean that digital intelligence requires lifelong learning to upgrade skills using the full potential of digital technology.

Arguably, while in the past it was a person’s technical abilities and academic achievements which were the key to employability, today there is a new skillset being prioritised, and that is ‘Enterprisability’ – the combination of fusion skills with digital competencies and entrepreneurial behaviours, ethics, and sustainability.

“ People must manage their own time and maintain a work/life balance within predominantly digital time ”





### 3.3 Enterprisability

While covid has resulted in increased un-employment, it has also put a sharp focus on the way in which people in work are under-employed due to a lack of fusion skills. It is estimated that 34% of people in work need re-skilling (City and Guilds 2020). The under-employed are the missing millions in terms of productivity and their own flourishing. Interesting this is most acute in young workers and in older workers. There are an estimated four million people in the United Kingdom requiring skills bridges. Skills bridges provide opportunities for people to pivot and grow transferable skills. It will be vital to build these for resilience and recovery. Skills bridges provide people with the top-up skills programmes which draw on their existing skills to build their employability and enhance their job functions and destinations. Automation is compounding the challenges on the low skilled. It is estimated that 50% or more of jobs can probably be automated or done using AI (this equates to about 25% of the current workforce). Even where the occupations may be remaining the nature of the work is changing rapidly and hence the fusion skills needed to pivot.

Despite this, human capabilities and 'enterprisability' are still sought. As one participant noted, "The human being is still the barista". That is because the barista brings a range of competencies that turn the process of making a coffee into an art form and piece of social theatre. We are likely to be more likely to pay for the coffee if it comes with designer flair, a friendly conversation, innovation, and creativity. This creativity is the secret for unlocking the potential of the future workforce.

We need to ensure that the workforce is equipped with the right skills to flourish now in the future and to reach their full potential. Looking at job vacancy advertisements shows that across a range of industries and job opportunities employers are no longer looking for qualifications. Instead, they are seeking people with fusion more than technical skills, or at least fusion with technical skills. Interpersonal competencies, including verbal and non-verbal communication skills that are not only important for one's career, but also for wellbeing, which is largely a prerequisite for a successful career. Companies are building ecosystems around employment, skills development, and wellbeing. For example:

*We need a consistent plan to upskill the existing workforce... completely change to a different type of network and a different type of technology... two-year people plan... we need to train new applicants but also an upskilling programme (total cost e.g., 11 million pounds)*

This is vital in attracting, retaining, and retraining. People change jobs more frequently than previous times and so the training offers need to also serve to lift the skills across whole sectors, not just in particular companies. As one respondent commented, "Not a job

for life but a life of jobs." Aligned to the trend of greater employment mobility, there has also been the trend towards smaller and smaller businesses. In the United Kingdom alone, more people work for themselves in micro-businesses of less than five employees than the entire public services for the UK. This shift causes a fundamental shake-up in how skills development might occur. This is exemplified in the following points:

*Skills may need to be developed through sector and/or business aggregation and through services provided to start-ups and micro businesses.*

*We have to move away from the current model of competing for the same smaller and smaller group of people with high level fusion skills. We have to move beyond corporate competition to build corporate collaboration around fusion skills development*

*Businesses need a commitment to skills development that is scalable to the size of the business... with growing numbers of SMEs, this is crucial.*

Not only the type of skills programmes, but also their methods are important. Specifically, skills development programmes need to utilise 'deep learning' approaches. Programmes are most impactful when they go beyond 'surface level learning' to use learning practices that place a particular emphasis on applying learning to real-life situations or problems. Moreover, it was suggested that starting with fusion skills to build enterprisability begins far too late. It was indicated that practices in the school with younger children lay the groundwork for enterprisability, as these examples show:

*My kids spent some time in the French schooling system. At the age of 12-15 there is a strong element of placement experiences and encouraging the kids to think about their futures. Some say too early, but it gave the kids lots to think about.*

*I work with children from primary to secondary and the beauty of talking about the future helps them to understand the skills they may need in the future and then school starts to make sense. It also provides passion and motivation.*

A cautionary note is that while fusion skills are very important for work related skills and employability, they are equally important for life in general. For example, fusion skills contribute to being a flourishing and active citizen and a lively member of society. Focus on fusion skills in the workplace can assist the lifelong development of fusion in life skills, but equally, there may be times when it is better to focus on the life dimension of fusion and this will in turn build people with the enabling capacities for enterprisability. To plan and deliver enterprisability programmes in businesses requires high quality fusion managers and leaders. How do we develop the skills in managers to become 'fusion developers'?



### 3.4 Managing fusion

The next stage in the fusion skills journey will be to develop fusion managers. Uplifting the expectations on middle and senior leadership is needed to boost creative approaches to skills development.

*There is a need to broaden and deepen our understanding of leadership. We need creative, thought leadership and self-leadership.*

*Leadership is an insight job... not as it often is an 'inside' job.*

*Having fusion skills enables me to be a better leader, support the vision of my organisation*

Building the fusion leaders of the future starts with engagement with employers to ensure their staff have fusion skills, or even understand the concept of fusion. More needs to be done to work with industry clusters, employer bodies, and sector organisations to develop systems for fusion leadership. Managers will in the future be required to be leaders of fusion. As one participant emphasised, as a successful leader, no matter what the fusion tools are, "If you want to build skills you have to wear a hard hat."

The participants suggested the characteristics that fusion leaders would need and the sorts of skills and attitudes they might adopt, including:

*We need nuanced reformers*

*Stability mixed with agility*

*How do you release people and let them run?*

This requires Inclusive and democratic systems that highlight the value of diversity. The nature of the work on a day-to-day basis needs to provide people with opportunities for practising the skills. It was argued that businesses should be 'accounting' for fusion skills development in company accounts in the same way as they are now "accounting for sustainability". The suggestions were made that there was an urgent need to develop 'master fusion practitioners', both locally and globally. The importance of 'fusion management' is outlined in the following response:

*The speed of change is a real challenge to traditional management. How can managers learn to improvise? We have seen those over covid. Businesses used to say, 'we need two years to change this or that' and then we saw it change overnight when it had to. There must be a 'can do' spirit. The notion of 'fixed ideas' is completely up for grabs now. We all need to help to get to the future. We all need to join the dots. We must leave a footprint... not a carbon footprint but rather a play footprint. We need to give a little bit.*

**“ Building the fusion leaders of the future starts with engagement with employers to ensure their staff have fusion skills ”**

## Helena Good

Helena Good is the Team Leader on the **Daydream Believers Programme**. She is a Design Lecturer at Edinburgh College and in November 2020 was awarded TES FE Teacher of the Year. She is currently on a 12-month secondment to Skills Development Scotland.

Daydream Believers is a programme containing resources to facilitate the teaching of creative thinking, problem solving and innovation; essentially everything embedded in Fusion Skills. Over the past 4 years we have been supporting teachers in schools to value essential skills like Fusion Skills and examining ways that our partners and employers can connect and share their expertise in this area. This award-winning collaborative effort includes resources by contributors such as LEGO, Whitespace, Ellen MacArthur Foundation, Skyscanner, Edinburgh Napier University, Glasgow School of Art, and Edinburgh College.



“ **Fusion skills celebrate the best of what makes us human, supports us to collaborate and take initiative** ”

In August 2021 secondary schools and colleges across Scotland will pilot a new qualification in Creative Thinking. This level 5 & 6 (15 plus) qualification has Fusion Skills at its heart. It is an exciting example of colleges, universities and businesses collaborating to embed Fusion skills in the future workforce. The qualification will be resourced by Daydream Believers and utilise challenge-based learning to create an innovative learning experience.

Fusion skills celebrate the best of what makes us human and supports us to collaborate and to take initiative. We need to build links between education sectors and work together with each other. When people with the same dreams, passion and energy sit around a table, things happen. That has certainly been our experience on the Daydream Believers programme.

# 4. FUSION PROCESSES



There appears to be two groups of facilitating factors which boost fusion skills. While creativity and collaboration are themselves fusion skills, they appear to be powerful processes in also driving the development of the other fusion skills. Similarly, if creativity and collaboration seem to act as germinators for fusion development, then diversity and accessibility are the fertile ground for the development of fusion. An educational environment, a workplace, or an area without underlying principles of openness, diversity and accessibility is unlikely to be an effective structure for growing fusion skills. If these challenges exist in a context, it is probably best to address these first before trying to 'plant' the seeds of fusion into that environment.

## 4.1 Creativity and collaboration

*The future depends on how we exercise and apply our imagination*

The interdependency of the creative industries and business is at the heart of driving fusion skills. As it was succinctly summarised by a Fusion influencer: “**Critical thinking + cognitive flexibility = Imagination.**” It was argued that creativity is a major driver of the development of the fusion skills, as well as being a fusion skill in itself. It was argued that “Creativity is in a sense a composite habit of mind of all 12 Fusion skills (not no 11!)” and also that “applied imagination <in creativity> is a meta-Fusion skill!”. Creative approaches are also a method of upskilling people. For example, it was acknowledged by The Durham Commission<sup>18</sup> that, “Creativity is key, the challenge is the tackling the disparity between those young people who are rich in opportunity and those who just aren't exposed at school or at home.” Encouraging young people to engage in the arts and culture is a key factor in fusion skills for the future, including learning through play. Playful experiences support children's development on learning and are linked to wellbeing and success at later life. The benefits of play were not just confined to children and young people. Play and playfulness

was seen to be a major driver of the fusion skills in all contexts.

*Play and learning is key and linked to wellbeing and success at later life*

*Learning through play is an important factor in supporting creativity.*

*We help build 'fusion skills' through 'play' with a particular focus on 'experience'. We look at whether the experience is meaningful.*

*We need to ensure creativity is nurtured. Playfulness nurtures the fusion approach*

*Known creativity is an important part if the success of the private sector*

*Playing and learning have been seen as contradictory to each other. We have pre-conceptions of how should learn and this is something that needs to broaden and change.*

*Businesses need to encourage creative environments*

*Incorporating game and play within learning is an effective way to make systematic change*

Beyond play, it was argued that imagination and space to 'daydream' are likely to also be facilitating factors to grow fusion skills. In view of this, how do organisations promote, enable, and allow for opportunities for daydreaming? There was wide support for the value of daydreaming.

*When children dream about the future, we can then discuss what strategies they need to get there (fusion skills) we can talk about the values they need and then the resilience strategies to keep them on track and thrive.*

*Love that line... imagination began before the internet*

*Count me in for an A-level in daydreaming!*

<sup>18</sup> The Commission looked at the role creativity and creative thinking should play in the education of young people. It was set up in response to the strength of opinion across the business, education, and public sectors that young people are emerging into a world in which the skills and knowledge of the current education system will no longer be sufficient. A copy of the report can be accessed here: <https://www.dur.ac.uk/creativitycommission/report/>



*Yes, I am a chaser of dreams! When I started working for myself, I didn't feel like a CEO or a Director or a Founder or a consultant or any of the usual titles, so I went for this. There is a story and it's linked to a school! My first job in sport was as a Sport Development Officer and I did a lot of work setting up after-school clubs. I remember going to a little first school one day and being taken into the school hall. On the wall, there was this saying: "Dreams are always taller than you, which is why you have to reach high to make them come true". Every child in the school had drawn a picture of their dream and the teachers had put them on the wall just out of reach, so that every time they went in the hall, they saw their dream. This stuck with me over the years and I love the phrase, what it stands for and what it reminds me of. I also like the idea of chasing dreams rather than just following them – as chasing feels more active and dynamic...a bit like your 'doing' words.*

A strong link was made between the need to engage deeply with the creative industries and the arts and culture sector to generate and amplify fusion. As Richard Florida, commented in 2002<sup>19</sup> "The creative individual is no longer viewed as an iconoclast (a person who attacks or criticizes cherished beliefs or institutions). He or she is the new mainstream." The arts and culture sector can be a very valuable resource to education and business in assisting in delivering fusion programmes for developing talent. It was stated that the arts in particular help to develop fusion in a manner which is rich and deep. For example, "The arts explain what we are feeling" and "The arts read between the lines. They expand our peripheral vision and flatten things enabling us to truly see more." While it is important to acknowledge the potential benefit of engaging directly with the arts in terms of enlivening and accelerating fusion training processes, it is important to also acknowledge that creativity does not, and should not, only exist in these sectors. In summary, the following comment captures the theme and its relevance to processes, "Some of the most creative people I have ever met are buried deep in the Research departments of Pharma companies ...deploying insights into deep science to come up with novel solutions to disease." The implication is the importance of businesses unlocking the creative potential that may exist within pockets of any organisation, and then to have structures and processes in place that allow these unlocked skills, wherever they exist, to be fully mobilised into collaborative practices around talent development. The strong link was also drawn between creativity and collaboration and the role of the arts and culture. The arts were seen to be the driver for creativity and innovation.

*We need creativity to be at the heart of education*

*Creativity and the arts must lie at the core of fusion skills*

## *Weaving businesses, culture, and education through fusion*

Other respondents argued that creativity, while generated through the arts, may also equally exist in all other forms of human enterprise. Fusion skills are just as likely to be developed in the workplace as in the classroom. Fusion Skills come from a variety of different sources and are achieved through informal and formal learning environments.

*We can't achieve social equity or tackle the lack of social mobility without acknowledging the value of the arts, alongside STEM subjects and the importance of teaching for creativity across the whole curriculum.*

*Creativity is not limited to the arts but occurs in all subjects.*

The Fusion 2 meeting heard several examples of businesses proactively implementing these creative and collaborative processes. These involved a range of approaches. For example, the use of 'pilot projects' was a common and effective approach. In one example, a large company set up a smaller company to provide a space for fusion working, to generate innovation and to inform future directions of the larger company. In a short amount of time, the small company was transforming the practices in the larger company. As one Fusion 2 participant responded, "Great to hear the small company disrupting the big company... David and Goliath". It was argued that creative disruption is a natural part of the free markets model and that companies are 'smart' when they set up their own disruptors.

Ideas were suggested of practical ways to continue to be able to collaborate and share good practice. The following ideas might inspire greater collaboration:

- "Show and tell" what the other has done (especially across and within sectors)
- Local resilience forums
- Topic teams around particular fusion skills e.g., the oral communication teams, the problem-solving teams
- Establish a community of practice
- 'Twinning' projects based on learning needs
- Establish policy strand focused group e.g., research, evaluation, best practice, local and regional policy
- Establish a methodological strand e.g., impact measurement, professional development, resource centre
- Establish local 'play agents'
- Create a 'think and do' tank

<sup>19</sup> Florida, R. (2002) "The rise of the creative class" Basic Books, New York p. 7



## 4.2 Diversity and accessibility

Upskilling not only helps address the fusion skills gap, but it also presents an opportunity to make real inroads when it comes to improving social mobility, diversity, and inclusion. Commitment to fusion skills is also a commitment to equality. Fusion must be truly universal. The United National Declaration says that “Everyone has a right to flourish”. If the assumption is that fusion skills are needed for human flourishing in all aspect of their life and work, then the word “everyone” is important. We need to ensure that there are applicable tools and frameworks that are available to people of all capacity levels, including those people with complex SEND needs. It also must be universal and accessible. It is important that all people can thrive. Fusion cannot in and of itself cause greater inequality.

Everyone should feel valued. The key to promoting social mobility in terms of fusion skills is to make the lifelong journey of fusion skills acquisition as transparent as possible. Now, it can seem that some people have the magic fusion skills while other people cannot work out how to get them. Transparency around the fusion skills needed to flourish and succeed leads to greater diversity within the roles requiring higher order skills.

No children, worker or citizen should be left behind and yet there are groups who may experience less opportunities if they are not supported to develop the fusion skills. There are many of these individuals and groups including people directly or indirectly excluded from getting higher order skills through gender, ethnicity, age, disability or learning needs. For example, if oral communication is the number one fusion skill then how do we ensure that people with speech and learning difficulties are prioritised and not left behind?

*We (Skillbuilder)<sup>20</sup> have done quite a lot of work now around SEND - we work with about 50 special schools in the UK, and a couple abroad, and we have created an extended version of the Framework which is designed to have extra scaffolding to support progress. There are also a handful of case studies of our work with special schools<sup>21</sup>.*

*1. E-assessment community 2. The Assistive Technology community 3. The SEND community. I work with all three and know specialists within each area, but I see fusion skills as a delivery mechanism to embed this culture across teaching and learning, embrace all the groups listed under the fusion skills banner. I am not suggesting offering any group a platform to share their disenchantment with the present education experience. No, we need to see these groups as contributors to establishing that the fusion skills model is, by getting their support and action, good for promoting the fusion skills agenda*

*but helps towards serving their specific needs.*

Social class is another factor which may result in less than equal access to developing the higher order fusion skills. Social class may affect education a person receives and how people think of or perceive themselves (or are perceived by others). How they have perceived prior education might impact on their perceptions of developing fusion skills and this impacts on their perceptions of what the outcomes of their life might be. The effects of an unequal childhood or early working life can result in significant lag impacts on a person, future fusion learning. As the follow example shows, without equality of basic needs, even commencing a fusion programme might not be possible:

*I wonder, based on my experience teaching inner city youth in the US, if meeting students' and families' basic needs and equity issues must be addressed alongside fusion skills.*

Gender stereotypes are defined between ages 5-7. For example, only in Iceland do boys and girls choose the same job. There is insufficient research at this stage to see whether the fusion skills themselves have a gender bias. Arguably, greater transparency about the fusion skills and a more universal offer to develop and measure them may assist in improving gender equality, especially in the top jobs. Transparency around fusion skills may serve to eliminate, or at least reduce, the impact of unconscious bias. As, diversity is more and more important in generating fusion skills, accessibility needs to apply to everyone. Fusion skills develop more rapidly in contexts that value difference. Just as collaboration across sectors leads to the faster and deeper acquisition of fusion skills, the more upskilling involves all kinds of people, the more rapidly the fusion skills develop. We are all different and the way we express our fusion skills is different too is all different too. Fusion learning programmes need to pay particular attention to diversity groups which sit at the intersection of many underrepresented groups. Equality of opportunity for all must be the central tenant of any fusion skills programme:

*It is all about transparency in terms of how to get in and get on.*

*Many of these opportunities were not open to us and this is the start of something*

<sup>20</sup> <https://www.skillsbuilder.org/expanded-framework>

<sup>21</sup> Scroll down to see an example from Oak Grove, Special Education School The Skills Builder Partnership

## Steve Wake

Steve Wake is an expert in **Project Management**. He lives in London. He led the UK Association of Project Management to Chartered status, is a member of the BSc Management Standards committee working on national and international standards and a member of the Guild of Educators in the City of London.

As Chairman of APM I championed a strategy seeking to increase our reach and membership. 'Project Management is a life skill for all.' I thought the skills for successful project delivery would make a great GCSE for 14-16 year olds. In my mind I saw 100,000 16 year olds acquiring and developing this knowledge year on year. What better way to help themselves, society, and my association!



“ **A positive step would be to ensure we are all speaking the same language, using the same terms and definitions** ”

Whilst I was lobbying for this, I learnt about Fusion skills. Fusion skills were a better fit. Not only did they mirror the project management message they could be used everywhere. It was a revelatory moment. Fusion skills could be used and useful to all ages 7-70. Genuine lifelong learning. As useful in the playground as to a 50-year old changing career. Any sector any situation. I realised Fusion is of national and international importance. Smart citizens for Smart cities.

There is widespread support and enthusiasm for Fusion and the need for change has been recognised. The links of education and industry need to be redefined so that the way we live can be redefined and made real. A positive step would be to ensure we are all speaking the same language, using the same terms and definitions in a way everybody understands and agrees. That language can be applied in defining the curricula specifications we need to make Fusion work. A standard which we can write and gather around. A Fusion standard, national and international, agreed by all, shared by all and available to all. I am ready willing and able to help make that happen.

# 5. SYSTEMATIC CHANGE

The people in the virtual meeting of Fusion 2 were all committed to bringing about systemic change. The theme for the event was on “growing the dots and joining the dots” – in other words, how can you expand the scope and reach of what you are currently doing in fusion and then how can this join with other initiatives to have even greater impact?

Organisational, societal and community seismic changes have occurred. We do not have the luxury of time to make changes happen. Change must begin now. Systems change by working with the right people on the ground. This requires looking at the skills through different lens, such as through re-skilling programmes, skills frameworks, awareness raising (including access and attractiveness - re-framing the skills offer), diversity, inclusion, and progression (lifelong). Cross-sector collaborations are key. There is great importance around being in a virtual (or actual) room with people who are different from you. As one of the participants, neatly summarised it, “Joining up the journey throughout education and working life.” Everybody needs to shift mindsets and to become involved in fusion skills to ensure that the change is not a top-down approach but rather bottom-up. This does not mean that change can occur without leadership and vision. As stated in previous sections, fusion leadership will be vital for success. Not least, an effective fusion leader will build engagement and motivation, and a sense of capturing the real needs and urgency for action.

In an ideal world, it might have been a preferred option to start systemic change early in education. Certainly, children are an engine of change. Ideally, we would have relationships with people years before they potentially join a company or organisation. The suggestion was made that more experimental practice needs to be encouraged within education and there is a responsibility to bring around change in education. For example:

*We need lab schools and organisations. These should be defined propositions. Under the glass dome... a focused eco system for learning.*

*Sometimes smaller entities can operate outside the restrictions and regulations apparent for the larger systems.*

Skills develop through “intentionality building” systems. These systems occur when the development of the skills is deliberately not separated from the structures and context of the systems.

Systems are constantly forming and are both impacted by, and can be more impactful on, the surrounding systems. Intentionally integrating fusion skills into the emotional, social, and economic systems of an organisation embeds the fusion at the core. Ironically, current success in any organisation might inadvertently lead to a lack of focus on skill development. A view that ‘everything is fine at the moment’ can be a problem as it can “paper over the cracks” without fixing the fundamental problems of capabilities for the future. As with Donut Economics<sup>22</sup>, which suggests that the 21st century challenge is to meet the needs of all within the means of the planet, fusion is at the core of the system and from it, social cohesion and learning environments are generated. Capacity building at the core leads to proactive change. The capacity building is supported by research, resources, practice, and commitment.

Longer term systems of change are needed in both education and in business. Generally systemic change follows some key steps.

- 1) Identify emergent needs and fund and support pioneers
- 2) Design change
- 3) Deliver change
- 4) Recommence the change stages

<sup>22</sup> Rayworth, K (2018) Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist, Random House, London.



There are several features in common in businesses and places which make smart, systemic responses to change. These include the following:

- a) Effective partnerships built around shared endeavour are developed between entities
- b) There is effective coordination of the entities which encourages greater shared learning and collaboration, and the adoption of practices
- c) Inspirational and persistent leadership and partnership is important, including stewardship and social leadership
- d) The vision and policy are aligned to achieve the shared priorities
- e) Accountability mechanisms promote collaboration and co-design
- f) There is the generation of research, information, and data, and this is shared and disseminated, and effectively used in decision making across a system
- g) Technology is used as a connector and enabler
- h) Resourcing, including time, funding and investments are accessible over the longer term

Overtime, systemic change should see a movement from translation to adaption to modification to transversal competencies to fusion. Systemic change lays the foundations for the future and challenges assumptions of things having to be the 'same as before'. Repeating the same things leads to the same results. Even successful organisation needs to ask critical questions about whether they are pleased with those results now and into the future.

Identifying pioneers and champions is important to lead and propel change. The process of the influence of pioneers is explained in the following comment:

*If you have 250 businesses or schools or any type of organisation, then 50 will be the 'sophisticates'. They are the early adopters and know what they are doing. It is important to group these and to enable them to take a lead in systems change. Then you have the 100 organisations who are committed, but they do not really understand the concept or how to implement it fully. They need to be supported, provided resources, linked to sophisticates and so on. The final 100 are novices. They are slower to adopt the change but are most likely to be influenced by the committed reaching out to them and enhancing their commitment to make change. We*

*need to proactively pull together the "sophisticates". Corporates and organisations sell to each other. That process needs to be stimulated.*

The next section explores the role of policy in engendering systemic change. Yet arguably, policy may not be as effective as direct action to bring about change. Sometimes, institutional inertia can stifle progress and policies can lag the perceived need in a specific area. In relation to several issues in recent years, alternative levers have worked more effectively to generate rapid policy change. This has been seen for example in terms of environmental issues (e.g., 'Extinction Rebellion'), racial equality (e.g., Black Lives Matter) and in gender issues ('Me Too'). In each of these examples, people from diverse backgrounds have grouped together to push for more rapid and far-reaching change. Perhaps then, it is less important to have policy buy-in to fusion that it is to create a movement of people and different types of organisations all committed to being fusion pioneers. This proposition is outlined in the following comment:

*Fusion is a social movement... we have a sense of purpose ... we need to find their voice. There is a need for a more compassionate system. We need to measure things differently and change what is valued and how enhanced production is defined. We need a 'commons' approach to sharing and seeing that we all have a responsibility to boost fusion skills.*

**“ Identifying pioneers and champions is important to lead and propel change. ”**

## 5.1 Policy

There is an ideas vacuum amongst politicians. Fusion skills can fill the void by providing a framework and a narrative for decision makers, which in turn can lead to dissemination of the concept of fusion skills. For example, the concept of re-inventing government in the early 1990s and the concept of the stakeholder society were academic ideas before they were adopted by governments who needed to frame their policies within a credible narrative. Many governments are facing issues around flourishing citizens and having skilled workforce for the future. However, they do not possess a narrative with wide appeal. Fusion skills potentially provide such a story. How to do this in a practical sense requires the concept to be introduced to and adopted by policy 'wonks'. Stakeholders should use their influence with politicians and those connected to the political landscape to get buy-in for the idea. While there is considerable energy around fusion, this would be consolidated if it were to also be engrained within policies and encouraged by governments and policy makers. Identifying the influential stakeholders is needed and then providing these people with a coherent fusion narrative.

*I would like to see all politicians, bureaucrats and teachers speak and "be" the language of fusion skills. Teachers need to be THE most revered professionals in any society. They are our most important resource facilitating our future.*

*Be strategic listeners ... if you listen carefully who is calling for change? Where are the critical voices? Who are the influential stakeholders?*

As the concept continues to spread, different groups need to see actions and to have examples of best practice to point to in terms of impact. Policy needs to translate into actions. The following section examines the actions proposed. As effectively captured in the following quotes, we need more action:

*The future is here, why are we still talking about fusion skills as something important later?*

*Everyone knows what the problem is... The next question is what is the theory of change?*

There was also a level of impatience that the policy world was lagging on fusion and not fully appreciating the urgency of the issues. Policy needed to be more engaging creative and forward looking, as signalled in these comments:

*Someone said this morning that we need politicians and policy makers who are like film or theatre producers and able themselves to be fusion producers*

*We do need policy makers but let's not wait for them. Let's inspire all teachers (Head) to stand together*

*and create the change we need.*

Policy making needs to be more adventurous and not pose limits on the need to support change. As one Fusion 2 respondent stated, "Shake the dust of policy makers and turbo charge the show!"

## 5.2 Actions

As previously stated, one of the key actions that can occur to lead to rapid change in the development of fusion skills is to collaborate. For example, education and business engagement forums could occur to bring these sectors together. Moreover,

*I feel we can make fusion work for all. It's not just a domestic agenda it's a world agenda and that what really sound exciting.*

*Build bridges and working with people who are different from you, rather than working in isolation/silos*

*Acting, rather than words, that is what I am going to do. I will start contacting local schools for a taster session of what I'm developing.*

Sharing is another way to rapidly implement quality programmes for fusion at scale. For example, recent years has seen the rise of mutual aid. Sharing support in ways never seen before may serve to benefit everyone – the concept of the rising tide lifting all the boats. There is certainly energy to do this from the Fusion 2 meeting to make substantial change. This also resulted from the Fusion 1 meeting where individuals and organisations took the responsibility to make action occur, especially in the case of Fusion 1 in terms of definitions, measurement and skills frameworks and tools.

*Let's now gather all the energy and activity together from this event and home in on a future strategy for next year that will offer solutions and alternatives based on all this activity demonstrated at the 2020 event.*

*Let's acknowledge where we need to focus some of our attention and make it work. ... to quote someone with real vision... get 'ON' with it!*

There is a growing 'fusion community' of like-minded people willing to work to grow fusion within their sphere of influence and to encourage greater communication and action related to fusion. For example:

*Think of people as FUSION SKILLS VESSELS. Let us challenge others to consider and appreciate the role fusion skills play in successful careers and work*

*I will initiate greater awareness of the power of fusion skills*

In addition to the strong support from the 'fusion community', opportunities need to exist for stakeholders beyond this group to also be engaged in fusion collaboratives. Some ideas were suggested to bring more people into the fusion community. For example:

*It is about helping and guiding... also collaboration... and listening to what people need... a very open book.*

*You need a range of workshops which appeal to different people. Come and have a conversation... also allow for mini conversations and mini workshops.*

*Provide opportunities for people to be there just to lend support*

There was also a focus on aspects such as marketing and training to boost the size of the network of people interested in and capable of leading the actions around fusion, as the following suggestions to boost action show:

*Marketing ... More focus needs to be given to marketing to ensure fusion is widely known and understood.*

*Youth activist training*

*Need more people able to speak out*

*Amplification of successes the visibility of success*

The Fusion 2 meeting participants made several very practical and achievable suggestion regarding action. To begin with, the suggestion was made to use existing and modified mapping software to create 'fusion maps' of places so that it becomes possible to know where 'hot spots' of fusion activity exist. Policy and financial levers especially those around new contraction projects and procurement could be effectively engaged to resources and fund fusion. For example, could procurement processes have to have a percentage set aside for the development of fusion skills? Could town planning projects also have a percentage for fusion as a core requirement of planning permissions?

It was felt that currently many local and national governments are closely looking at skills development, especially in the post covid world and the seismic changes it has brought to economic and social life. With transparent and direct discussion around agendas and funding, fusion might prove to be the enhanced solution to many of the current problems and concerns. Working with regional bodies to support them with fusion and digital skills training might be a way to make positive change and embed fusion in local systems. Even at the hyper local level, community, technical and vocational colleges act as ideal sites for fusion

skills development as they are influential within a place and fall directly at the intersection of life, work, and education. They are also capable of reaching learners of all ages.

Conducting pilot projects and strategic experiments also help to develop fusion skills and provide examples to share. All the various sectors in fusion skills should be engaging in learning and pilot projects and sharing the outcomes of these, as the following comments outline:

*It is important that the organisation remains still in 'learning mode' and remains agile. The organisation needs to be a place of synthesis and design. Work towards a creating a culture of 'options' rather than blue profits.*

*Test ideas, get feedback and refine it further*

*Live pilot projects with support and guidance.*

*Need to stimulate fusion research projects*

More research was also highlighted as a core action. There were calls for more research on the link between fusion and a growth in productivity. It was suggested that there was already evidence of changes happening and this needed to be recorded and reported. There were calls for more of what was described as "bold capturing" where the fusion methods themselves are applied to fusion research and reporting. This happened in the Fusion 2 meeting where 13 fusion documenters covering everything from drawing to poetry, film making to festival directing were the fusion researchers. The assets they produced are in a range of forms making them highly accessible to communicate widely and across boundaries. While detailed written reports have their use to record, potentially other kinds of assets are powerful dissemination tools. In summary:

*Gather evidence of change already happening... Undertake bold capturing ... notice things and encourage people to tell stories about innovations happening around them. Amplify key voices.*



## 5.3 Impact

Impacts are the lasting effects of an event, those that continue to exist after Fusion 2 has taken place. Impacts can take many forms, including, but not limited to, personal impacts, social impacts, educational impacts, cultural impacts, economic impacts, environmental impacts, political impacts, and disruptive impacts. The impacts to emerge from Fusion 2 are proposed under the following headings:

### Communication

- A viral global fusion skills platform has been created
- There is a growing movement of fusion supporters and advocates
- More voices join the fusion debate
- More communication is getting out through a range of channels
- We are listening to influencers and community leaders who have differing experiences and views
- The influence of fusion skills is being experienced and activated internationally

### Collaboration

- Fusion is culturally responsive and is open to other perspectives
- We continue to create networks and connections
- How can we ensure fusion does not become another silo?
- Public bodies and the private sector are collaborating to provide fusion development
- We have built and are nurturing multi-disciplinary networks
- Educational institutions are working with technology companies for fusion innovation support

### Education

- Young people and children to fully understand the value of fusion skills
- Fusion is embedded in mainstream education
- Fusion is in core classroom teaching and curriculum and fusion skills are being taught without having to disrupt curriculum
- Fusion skills are in the national curriculum through advocacy from teachers and policy makers
- Fusion skills are being developed at all levels of education
- Fusion skills lead to reform by challenging the narrow, exam-focused systems in school
- Fusion skills are embedded in vocational education

### Assessment

- Assessment and accreditation models allow people to evidence their fusion skills in a humane and kind way

### Practice

- Ideas have been transferred into pragmatic actions
- Great case studies/examples of how fusion can be applied and used in action have been gathered and shared

#### Culture and Creative sector

- The informal learning sectors such as museums, theatres and others are actively delivering fusion skills education to all ages

### Business

- Employers include the need for fusion skills (named and general) in job advertisements
- Companies are investing in fusion as part of their move to create inclusive economies
- Digital skills are integrated, to better enable and unlock learning for a wider segment of society that may not always have been engaged to date
- Thinking about digital inclusivity access and well being

### Accessibility

- Access to fusion skills is assured for low socioeconomic groups and vulnerable populations
- Fusion skills are inclusive
- More fusion activity is occurring at a local level and in the lives of 'real' people

### Governance

- Fusion exists within regulatory frameworks and regulatory bodies, so it is required, not just provided as an opportunity.
- A coordinated body brings all this good fusion work together
- Next year is a celebration of what has been achieved and provides an ongoing plan of action

### Research

- A research trial has begun to generate longitudinal data on results of fusion skills and to allow analysis
- Research results are published in academic journals and general interest publications

The Fusion Cities 3 event, **due to take place on June 7, 2021** will provide an opportunity to ascertain if these impacts occurred and to what extent the impacts have brought about positive change.

Figure 5.3.1 shows that the most likely actions to be undertaken by Fusion Cities 2 participants are:

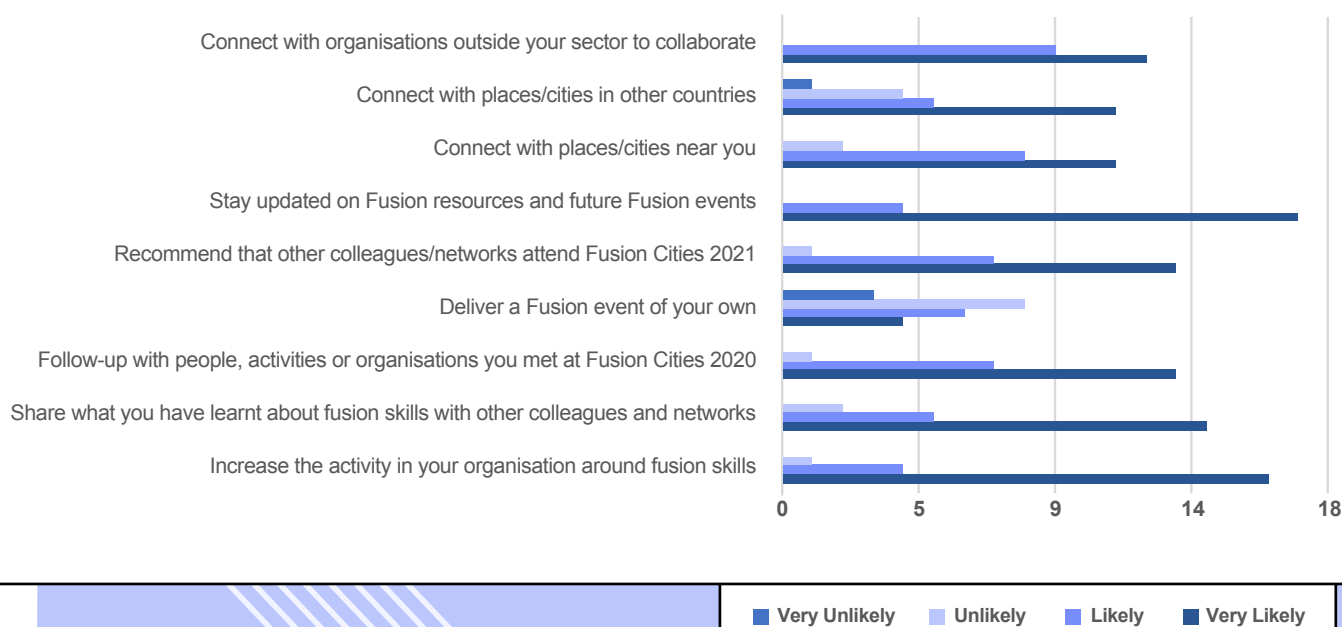
- 1) **Connecting with organisations outside your sector**
- 2) **Staying updated on fusion resources and events**
- 3) **Increasing activity around fusion skills within their organisations**

People were least likely to deliver their own fusion event or connect with other places or cities.



## Figure 5.3.1

### How likely are you to carry out the following actions in the year ahead?



## Patrick Craven City & Guilds

The UK faces a new reality, where a job for life is no longer 'the norm'. But Covid-19 has accelerated some of the changes happening in our economy and brought new ones into play. In this context, it's not easy for people to understand where their current skills and experience can be put to good use.

We want to help people think differently about their skills, so they can be matched to the jobs that are still available. Fusion Skills enable people to do just that – to look beyond their academic or technical skills and see the potential of their transferable skills.

We have developed our Skills Bridges programme with this thinking in mind, to help people that might find themselves out of work to identify the transferable skills that could help them unlock a completely new career.

**“ Fusion Skills enable people to look beyond their academic or technical skills and see the potential of their transferable skills. ”**



Let me tell you a story about Andy. Andy had worked in the hospitality industry for 10 years and found himself out of work, unable to see a way to get back into the industry. After completing the transferable skills self-assessment and occupational mapping analysis he realises that he has a high profile for oral communication, customer service, collaboration, and adaptability.

The last 12 months have also seen him become the primary carer for his elderly parents and this has given him an enormous sense of wellbeing and satisfaction. After seeing the strong profile match to adult care work and the volume of job vacancies in his area he decided to join the Step into Social Care course which reinforced his feeling that this is the career switch for him, and he recently started work with a major care home employer in the region.

By using Fusion Skills and highlighting the immense value of transferable skills we can give more people the confidence and know-how to get back into meaningful employment.



# 6. CONCLUSION

We have a moral responsibility to give all people the opportunity to live happier, fulfilling and more creative lives. Fusion skills are valuable for everyone and if equitably developed have the potential for people to flourish and to lead lives worth living, and to build a world where people want to live life to the fullest. As a Fusion 2 participant noted, fusion enables people to, “Step into your own greatness, whether as an individual or as an organisation.”

Values drive the importance of fusion. Fusion requires the involvement of all people, in all organisations and at all levels to bring about transformational change. Fusion needs to be nurtured and developed explicitly in a compassionate system. Compassionate systems can be in and of itself an organisational tool. Compassionate systems thinking links the development of fusion skills to ethics and social and emotional learning, to produce a model of skills development with compassionate integrity.

Fusion Skills are at the heart of success in the 21st century and must now be put at the top of the education/business agenda and stay there until its resolved.

*When fusion skills become the focus so much will fall into place and everyone involved will benefit from its success. The wins offered by fusion must outweigh the traditional educational response which always focuses on risk!*

As one participant noted, fusion skills are “What I wish I had known...” Fusion skills are the building blocks of life. We need men, women, and children to dream of things that were never were. The mind is like a parachute, it needs to open fully to work and we need to ask ourselves how we can develop the explorers of the future? The Fusion 2 event created a wonderful energy and built a solid base of support and action. Collectively, we need to build on that momentum to bring about salting and sustainable systemic change.

**“ Fusion Skills are at the heart of success in the 21st century and must now be put at the top of the education business agenda ”**



# APPENDIX ONE: THE FUSION 2 EVENT

## A1.1 Vision

The demands of businesses and organisations are changing rapidly. What you learned in school does not prepare you for real work-life situations with adequate skills. The City of London Corporation is keen to collectively define the skills needed to succeed and flourish now and into the future.

In response, the City has made a three-year commitment to convene an annual meeting of other London, national and international businesses, education sector, cultural venues, and cities of innovation between 2019-2021. The first of these annual meetings, Fusion Cities 1 took place in June 2019 which focused on the disruptions facing society and why education and future skills development needs to urgently change. The group of leaders and influencers who met focused their energy on defining the fusion skills and developing tools effectively measure these at all levels of learning.

The vision for Fusion Cities 2 was to explore the impact achieved over the past 12 months and focus on the next challenge which is bringing about systemic change.

## A1.2 The event

Fusion Cities 2 Meeting took place virtually on 9 October 2020.

The event engaged leaders, influencers and experts from a variety of industry sectors and connected 'Fusion Cities' which are places where there is a clear link between education, business and the cultural and creative sector to develop and enhance skills for the future within an ethical context of social mobility and sustainability.

The event provided real-life case studies from experts, influencers, and businesses on how they are adopting and delivering activities and programmes that embrace fusion skills.

191 guests attended the event which was repeated across two different time zones to cater to a global audience. The invitees were carefully chosen to include people at the nexus of innovation and influence. Everyone in the virtual event was in some way an expert in fusion and brings ideas, challenges,

and experience. The aim was to organise a virtual gathering of an unprecedented group of people who are all committed to driving fusion for the future across sectors.

The following summary provides an 'at a glance' overview of the Fusion Cities 2 event (Fusion 2)

	<b>191 attendees in total across the two time zone events</b>
	<b>14 UK, EU and Global Cities were represented at the event</b>
	<b>54 sessions delivered in total across the two events</b>
	<b>At least 94 businesses participated at Fusion Cities 2 Meeting</b>
	<b>Participants came from sectors including Business, Charity, Creative &amp; Culture, Education, Government and Technology</b>

## A1.3 Partnerships

Fusion Cities 2 Meeting included welcome speeches from The Lord Mayor - William Russell, Mayor of London – Sadiq Khan and HRH Princess Dana Firas of Jordan. All of whom stressed the importance of Fusion Skills and the need to bring about systematic changes which generate opportunities for new learning, businesses, products, and services.

The event also had a panel which consisted of Mark Robinson, Head of Business performance at Airbus, Sir Nicholas Serota, Chair of Arts Council England, Dr Yuhyun Park, CEO of DQ Institute, Nick Chambers, CEO of Education and Employers, Dr Stephanie Jones, Professor at Harvard Graduate School of Education and Richard Tavener, CEO of Global Institute for Futures Teaching (GiFT).

**The following people also spoke:**

### ANDREAS SCHLEICHER

Director for Education and Skills  
at the OECD

### PROFESSOR SHEILA THE BARONESS HOLLINS

Founder and Chair of Books Beyond Words  
and Emeritus Professor of Psychiatry of  
Disability

### THE RT HON LORD JIM KNIGHT

Chief Education Adviser at TES Global

### BARONESS DEBORAH BULL

CBE, Director of Cultural Partnerships,  
King's College London

### EMMA HARDY, MP

Shadow Minister for Higher and Further  
Education and Chair of the Oracy All  
Parliamentary Group

### PROFESSOR DAME ALISON PEACOCK

Chief Executive of the Chartered College of  
Teaching and Honorary Fellow of Queens  
College Cambridge

### SHARON AMENT

Director of the Museum of London

### RICHARD TAVENER

Founder of Global Institute for Futures  
Teaching (GiFT)

### BRITTANY SINGH WILLIAMS

Global Education Strategist and Founder of  
Spark Education

### RENIERA O'DONNELL

Higher Education Lead at the Ellen  
Macarthur Foundation

### DR NIMROD SHEINMAN

Founder and Director of Israel's Centre for  
Mindfulness in Education

### DAVID GREGSON

Chairman of the Gregson Family Foundation

### JOYSY JOHN

Director of Education at Nesta

Fusion Cities 2 Meeting was delivered successfully following the development of strong partnerships with organisations who hosted sessions/workshops exploring Fusion skills. There were 28 different organisations to deliver 54 different sessions at Fusion Cities 2 Meeting. These organisations include Arts Council England, Culture Mile Learning, Daydream Believers, DQ Institute, Lego Foundation, Skills Builder Partnership, Edinburgh Festival, PWC, Airbus to name just a few.

Less than a third of the attendees had also attended the meeting last year, with 71% of participants being new to the fusion events. Most attendees this year came from the broader education sectors with the arts and cultural also well represented.

## A1.4 Press and Media Coverage

While the event itself was held under Chatham House rules, press and media coverage for Fusion Cities 2 Meeting included tweets and LinkedIn posts during and after the event using #FusionCities2020. At least 50 tweets were made using #FusionCities2020

## A1.5 Participant Responses

When participants were asked 'Who do you hope your Fusion post-event action has impacted', 28% responded 'The World', 17% responded 'My organisation', 17% responded 'My customers/learners' and 'My future self' and 'My industry/sector' were both at 10%. 48% of participants confirmed that 'Inspiration' formed a key part of the Fusion event, followed by 'Sharing' and 'Learning' at 22%. Finally, when participants were asked 'What from the event inspired you?', 44% responded 'People', 31% responded 'Stories' and 9% responded 'Phrases and Quotes'

*"Not even a global pandemic can stop people who want to make change"*

*"Hearts on, hands on, minds on = FUSION"*

*"Refreshing, Uplifting and Thoughtful"*



## A1.6 Impact

A copy of this report will be sent to all participants and be available in the public domain. All participants will receive a link to a fusion assets' web page.

*"This has been a learn fest for us all"*

*"I have enormous energy from this event"*

*"This event is fresh... we have had poetry, music... just a diverse breadth of different people."*

*"I love your message! Inspiring. Thank you."*

*"Great videos, fascinating to see the similarities between nations."*

*"Love the video and message"*

*"That's given me shivers!!"*

*"This is truly exciting"*

*"Places for learning... master classes but also fun... what makes you learn and capture your mind?"*

*"There was a real buzz"*

## A1.7 Creative Documenters

Fusion Cities 2 included the input from 13 Creative documenters including artists, poets, film makers, directors, composers etc. They were in place of note takers (all sessions were recorded) and served to capture the main themes of the events in a creative way. For example, here is a poem by the poet, Paul Lyalls, and images from Jenny Leonard (on page 38):



### Step up and step forward

By Paul Lyalls

Step up, step forward, bring the  
core love

Design – refine

It's a circular economy of

Curricular

So be particular

Propose? Who knows?

Develop and envelop

Embrace, relate, replace re  
landscape

Go national, make it rational

Recognise that each and every  
player

Has their own twist.

The secret is to make each one  
feel A List

A national standard is  
demanded

Unify all the strands

So that everyone understands

Avoid the bureaucratic

And always be emphatic

If you truly want global inclusion

The Only Way Is Fusion



Illustration by Jenny Leonard



## A1.8 Event evaluation

The following graphs report the impacts of the event on the participants who responded. In summary, they felt the most impact was directed at the global level or worldwide (see Figure A1.8a). “Connect with” and “collaborate” were the main verbs to describe the

actions following the event (see Figure A1.8b). The participants currently felt that there was the most innovation in the arts and cultural sectors and in the community (see Figure A1.8c) and the respondents’ favourite fusion ‘superpowers’ were creativity, resilience and adaptability, and problem solving (see Figure A1.8d).

Figure A1.8a Where is impact directed?

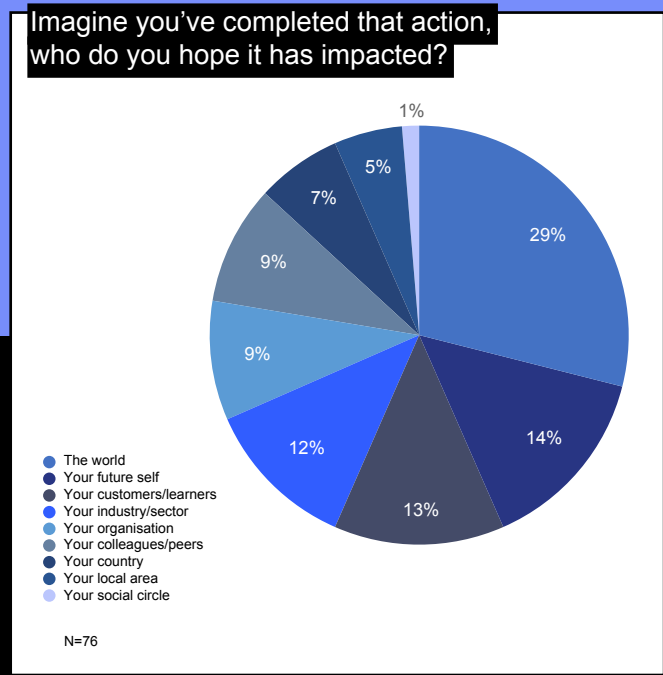


Figure A1.8b Personal Action Points

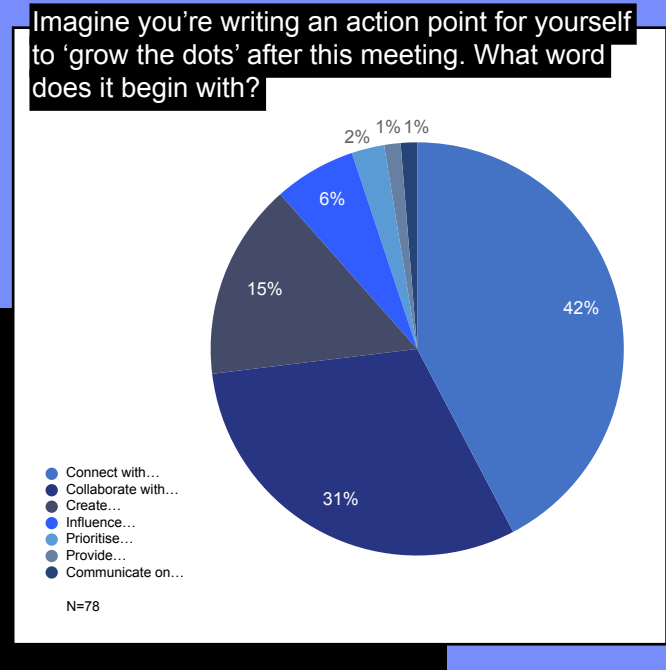


Figure A1.8c Where is innovation currently occurring?

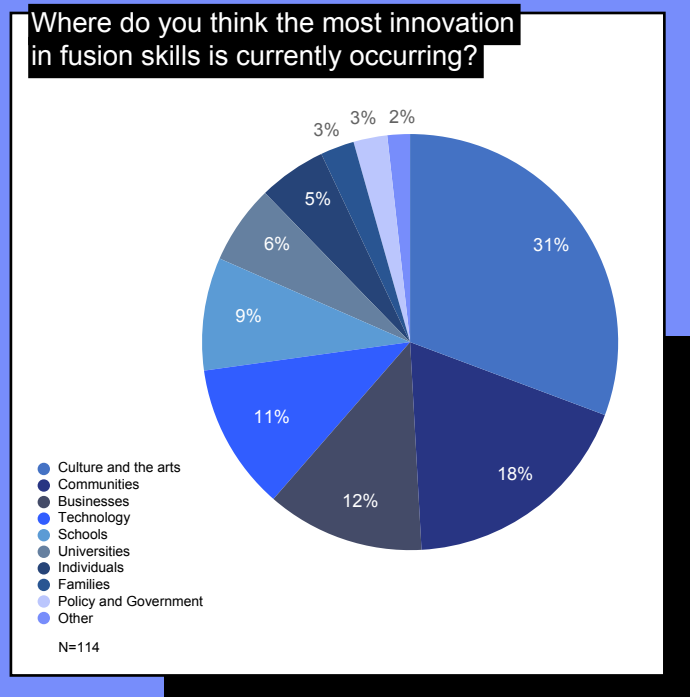
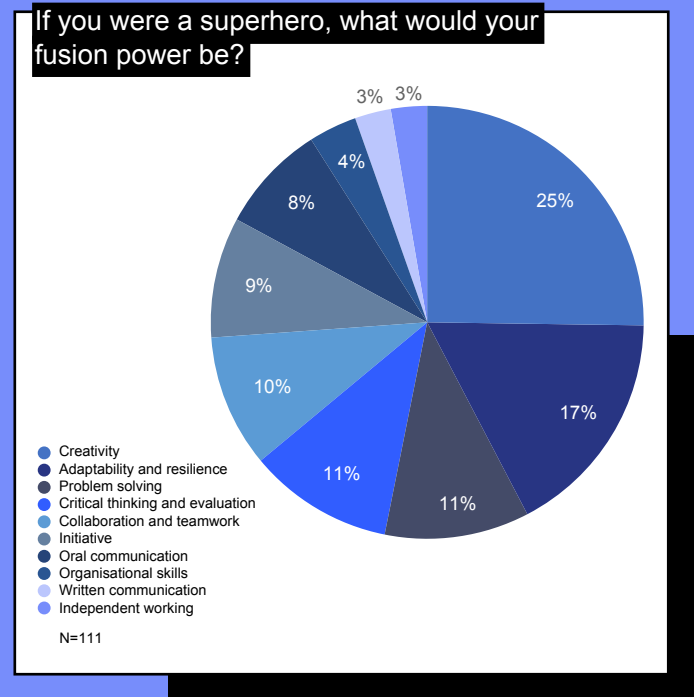


Figure A1.8d What would your fusion power be?





# APPENDIX TWO: RESEARCH METHODS

This report was based on a range of research methods including:

- Self-generated comments from participants (including via chat and email)
- Key point transcription of meeting sessions
- Textual analysis
- Email responses
- Survey responses (conducted pre-, during- and post- the event)
- Comparative qualitative analysis

The meeting was conducted under Chatham House Rules<sup>23</sup> and as such the responses made are direct quotes (when indented) but not attributed to the named person who made the quote or comment. The indented comments are presented exactly as they were said or written, and the quotes sampled to include illustrate the explicit and implicit points made by conference participants. Where many participants made the same or similar points, a representative selection of quotes was included, as opposed to including every quote expressing the same or a similar point.

The aim of the report is to make known how the meeting contributed to Fusion research and includes a discussion of all major themes raised or covered. Critique and synthesizing of significant main lines and fields of discussion are included in the report.

This report offers insights into the fusion field, as reflected in the meeting's proceedings. The details of the meeting the context in which Fusion was held is contained in Appendix One.

The themes in this report explicate the questions and lines of development of fusion as they emerged from the meeting. These are presented in an understandable way, thereby outlining the specific contribution of the event to our understandings of fusion. Through this report, readers are presented with an outline of the conference's themes, the topics raised and critical reflections on aspects.

The report also includes a critical appreciation of contribution made during and after the event, At the same time—to unfold this critical appreciation—it is necessary to place the reported conference in a broader context. To do this effectively, the methodologies (e.g., ethnography, text analysis) employed by the presenters need to be adequately described and how they relate to issues within the field explained.

The report begins with a brief introduction to fusion. This serves to introduce and define fusion and to summarise the background issues and concerns within that field. For a deeper understanding of fusion, readers can also refer to the Fusion White Paper, the Fusion Cities 1 report and the report, Transferable Skills in the Workplace: Key findings from a survey of UK employers. Readers can also access a range of other information, reports, and resources via the Fusion Assets website<sup>24</sup>. It is possible on the assets website to view video-files of sessions. You will also find all the outputs from the Fusion Documenters on the asset's pages. Fusion Documenters are creative experts from a range of backgrounds who used their fusion skills to capture and summarise their perceptions of key themes emerging from the meetings. These artefacts were created 'live' on the day of the event and we shared in the plenary sessions at the end of each time zone event. The Fusion Documenters also made use of photographs, audio- or video-files of sessions, and making them accessible as external files.

Comments and reflections on the report are welcomed and these can be submitted to the fusion email **[fusionskills@cityoflondon.gov.uk](mailto:fusionskills@cityoflondon.gov.uk)**

Also, welcome are details of follow-up actions, ideas, directions of travel or further research.

<sup>23</sup> <https://www.chathamhouse.org/about-us/chatham-house-rule>

<sup>24</sup> <https://fusionskills.org/>

# APPENDIX THREE:

## LIST OF ATTENDING ORGANISATIONS

Airbus	Freelance Photographer/creative	Nacka municipality, Sweden
A New Direction	GA Partnership	NELEP
Argyll Centre in Edmonton Public Schools	Galleywall Primary school	North East LEP
Artist	Global Institute for Futures Teaching	North of Tyne CA
Arts Council England	Fused Learning	Northumbria University
Author, Designer	Goldsmiths City of London	Odyssey Trust for Education
AXELOS	Goldsmiths College	Opus 29 Consulting
Berry Street Education Model	Greater London Authority	Our Place   City of London
BITC/Skills Taskforce	Greengage	Education Foundation
British Council	Gregson Family Foundation	Pentacle: The Virtual Business School
Camden Council	Haberdashers' Aske's Elstree Schools	Petra National Trust
Centre for London	Harvard Graduate School of Education	Phil Lambert Consulting Pty Ltd
Chartered College of Teaching	Helen Simon Associates	PMI-UK
City Academy	HIT Training	PwC
City of London Corporation	House of Lords	QBE
City of London School for Boys / Girls	Illustrator	Realtime Travel Connections
Collegiate Schools Foundation	ImpactEd	Regent's University
Comedian	Independent Youth sector consultant	Scottish Government
Compass for Life	Innovation Unit	Siemens
Coventry University London	Inspiration for All	Skills Builder Partnership
Creative Director	Institute of Directors	Spoken word poet
Creative Dundee	ISD	Square One
Creative Scotland	Israel's Centre for Mindfulness	St. Joseph's College
Culture Mile Learning	in Education	STEAM Co.
Daydream Believers	Ivy House	SW Projects Ltd
Department of Education and	Jearn	Tech City
youth Reykjavik	K Neo Media Limited	The City and Guilds of London Institute
DQ Institute	King's College London	The Finnish Institute
Durham Commission	Kite UK Education & Exams Consultancy	The Weaving Lab
Edinburgh Chamber of Commerce	Krinova Science Park	UBS
Edinburgh Festival Fringe Society	Learn life	University of Bamberg, Germany
Edinburgh Nappier University	LEGO Foundation	University of Edinburgh
Educate Ventures	Lizzy Moriarty	University of Lyon
Education and Employers	Lumina Learning	University of Oxford
Education Development Trust	ManpowerGroup	University of Technology Sydney, Australia
Ellen Macarthur Foundation	Mansion House	Weaving Lab
Foundation for Creative Intelligence	Mayor of London's Office	WeSpeak
Foundation for Future London	Merchant Taylor's Company	West London Zone
	Musician	