DIGITAL MAKERS:

A SCIENTIFIC PATHWAY TO DIGITAL UPSKILLING

May 2021

Our vision is to use science to learn how to best digitally upskill the next generation, bridge the skills gap blocking employment, and give young people the ability to protect themselves in an increasingly hostile digital world.

Digital makers brings schools together with industry, policy makers, universities, cultural organisations, and the NHS to learn how to **transform digital education for young people**.

Leveraging the internationally renowned Born in Bradford project **(tracking the lives of 30,000+ students through the 38 secondary schools In Bradford)**, Digital Makers is adopting a whole-system place-based approach to ensuring the **next generation of school leavers are digitally literate**.

Digital makers brings together nine Regional Universities with their International counterparts (UC Berkeley and Stanford) to establish **what works, where, and who it works for in digital education**.

Our approach explores how we can provide digital skills that empower young people to **gain employment** (with the accompanying long-term benefits to **physical and mental health**) across all sectors and domains – including the arts and creative industries.

> **"There is a disconnect between national policies and the curriculum. Digital skills progression for 'Digital Working', 'Digital Living', and 'Digital Specialisms' are not clearly sequenced or mapped despite a revised Ofsted framework."**

Executive Steering Group

Digital Makers is overseen by an Executive Steering Group – chaired by the CEO of Bradford Metropolitan District Council – who met for the first time on 9th March 2021. The group concluded:

> *"There is a disconnect between national policies and the curriculum. Digital skills progression for 'Digital Working', 'Digital Living', and 'Digital Specialisms' are not clearly sequenced or mapped despite a revised Ofsted framework."*

The group commissioned research in two areas where they want to see improvement:

i. **Explore how can we improve the Digital Offer to Young People** regarding:

- Preparation for future education/employment (Digital Working)

- Equipping students with digital life skills (Digital Living)

- Opportunities to develop specialisms and career pathways (Digital Specialisms)

ii. **Investigate school capacity** to deliver an integrated offer including: staff skills, hardware/software capability, and school budget allocation

Operational Partnership Board response

The Operational Board Partnership has established two 'Task and Finish' groups:

Digital Divide:

are mapping the multiple factors that contribute to **digital inequalities**. The group have established a robust framework and are auditing the digital capacity of Bradford's secondary schools to understand the intersection and interaction of factors including capacity, access, participation and experiences as a function of ***ethnicity, place and disadvantage***. The group are generating learning, and creating a **diagnostic dashboard** showing:

1. The **best framework** for **describing and understanding** the educational digital divide across an entire district

2. The place-based (ward-level) factors that **influence capacity for digital education**, and how these factors interact and intersect within different parts of the system

3. The place-based factors that **influence access to digital education**, and how these factors interact and intersect within different parts of the system

4. The capacity, access and individual factors that **influence student participation** with digital education, and how these factors interact and intersect

5. The capacity, access and individual factors that **influence student experiences** with digital education, and how these factors interact and intersect

Digital Literacy:

are co-designing educational content with stakeholders. The content not only develops **digital skills**, such as coding and programming, but literacy in **digital technologies** (such as **virtual reality**), and the ability to **apply these skills** to create films, stories, and games.

Our Task and Finish groups are working with local and national employers, schools, children and young people and their families to ensure that digital upskilling is informed by the **highest quality evidence**, and can be implemented successfully within school contexts.

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Summer of Technological Fun

Our first output is the *'Summer of Tech Fun'*, a series of extracurricular holiday workshops hosted in schools - designed in partnership with industry partners (**Raspberry Pi**, **the Brilliant Club** and **Dubit**) - that seek to **level the educational inequalities exasperated through the pandemic**.

The Summer of Tech Fun runs across August 2021, and teaches children to:

1. Understand the importance of technologies in shaping the **future of society**

2. Explain how data science is progressing the agenda on critical matters like **climate change** and **social justice**

3. Communicate the effects of the digital divide on people's daily lives, **develop ideas to tackle the divide**, and co-produce solutions

4. Explain basic elements of building games and **creating an online application**

5. Develop a **simple computer program** that uses basic programming constructs

6. Teach **cloud computing** and how it is used in daily life

7. Explain machine learning (**Artificial Intelligence**) and list examples of its use

8. Support children to **express themselves creatively** using immersive technology platforms

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Our current work

- Building capacity in 38 schools for digital skill training (including equipment upgrading and teacher training to create **Digital Champions** in each school)

- Co-designing curricular content with employers, researchers, practitioners and members of the Digital Makers Programme "Ideas Group" a collective of Bradford's **pupils, teachers and digital influencers** to ensure the work programmes are capturing the imaginations of the region's school children

- Delivering taster sessions and a **"Digital Club"** within schools

- Evaluating and reporting on the **impact and efficacy** of the project

Our vision is to use science to learn how to best digitally **upskill the next generation**, bridge the skills gap blocking employment, and give young people the ability to **protect themselves in an increasingly hostile digital world**.

Our goal is to create the infrastructure that will enable the business community to harness **digital expertise**, drive inclusive **commercial growth**, and increase **productivity and skills** for the regional economy.

Digital Makers will learn how a region can establish itself as a trailblazing site for creative and innovative companies where commercial success is combined with the creation of societal benefit.

Our commitment to co-production ensures that the evidence we generate can be implemented widely, **with the work from Bradford capable of informing digital education strategies nationally**.

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Supported by our partners:

Led by:

Mai Elshehaly – Lecturer in Computer Science, University of Bradford
Mark Mon-Williams – Director, Centre for Applied Education Research
Faisal Mushtaq – Director, Centre for Immersive Technologies, University of Leeds
John Wright – Director, Bradford Institute for Health Research

Executive steering group:

Kersten England – CEO, City of Bradford Metropolitan District Council (Chair)
Frank Hester – CEO, The Phoenix Partnership
Helen Douglas – Director of Communications and Apprenticeships, Cisco
Philip Colligan – CEO, Raspberry Pi Foundation
Robert Arnott – Director of Strategy, Social Mobility & Disadvantage, Department for Education
Coleman Fung – Founder, Fung Institute for Engineering Leadership, UC Berkeley
Beeban Kidron – Founder and Chair, 5Rights Foundation
Ian Douthwaite – CEO, Dubit
Mark Cowgill – Director and Co-Founder, Exa Networks
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Janine Smith – Digital Content Director, Channel 4
Liz Jolly – Head Librarian, British Library
John Bridgeman – Deputy Vice-Chancellor (Research, Innovation & Engagement), University of Bradford