



Steering Board

7th February 2024

Contact us:

digital@essex.gov.uk

Agenda

14:00 Welcome – Cllr Lee Scott

14:05 Overview of the Steering Board

14:10 Digital Connectivity Presentations:

- Paul Wehren, Digital Essex, *Digital Switchover*
- Toby Mills and Dan Smith, Entopy, *5G Smart Bid*
- Professor Mays and Professor Haris, University of Essex, *AI and Digital Innovation*
- Michael Snaith, South Essex Councils, *LoRaWAN update*

14.55 Discussion – Doug Parrant

15:05 Break

15:10 Welcome back – Cllr Mark Platt

15:15 Digital Inclusion Presentations:

- Tom Lowe, DPA, *Digital Poverty and Exclusion*
- Jess Flack, Digital Essex, *Digital Inclusion in Essex*
- George Unsworth, Mortar, *Digital Triaging Tool*

15:50 Discussion – Jess Flack

15:59 Close – Cllr Lee Scott



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Digital Connectivity



Paul Wehren
Digital Essex

PSTN switch-off Update

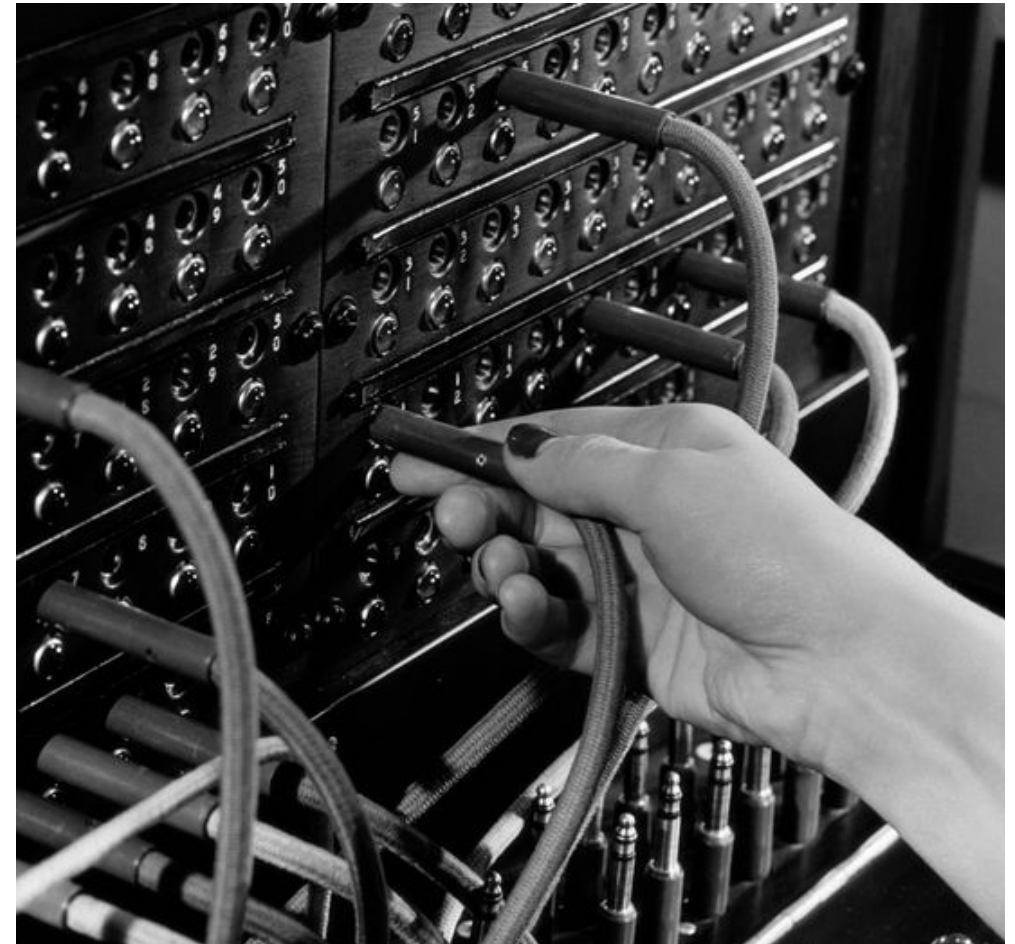
Reminder of what PSTN Switch-off is

The Public-Switched Telephone Network (PSTN) is the equipment that supports the majority of phone calls in the UK and has been for decades

Provides phone service over, powered, copper telephone lines

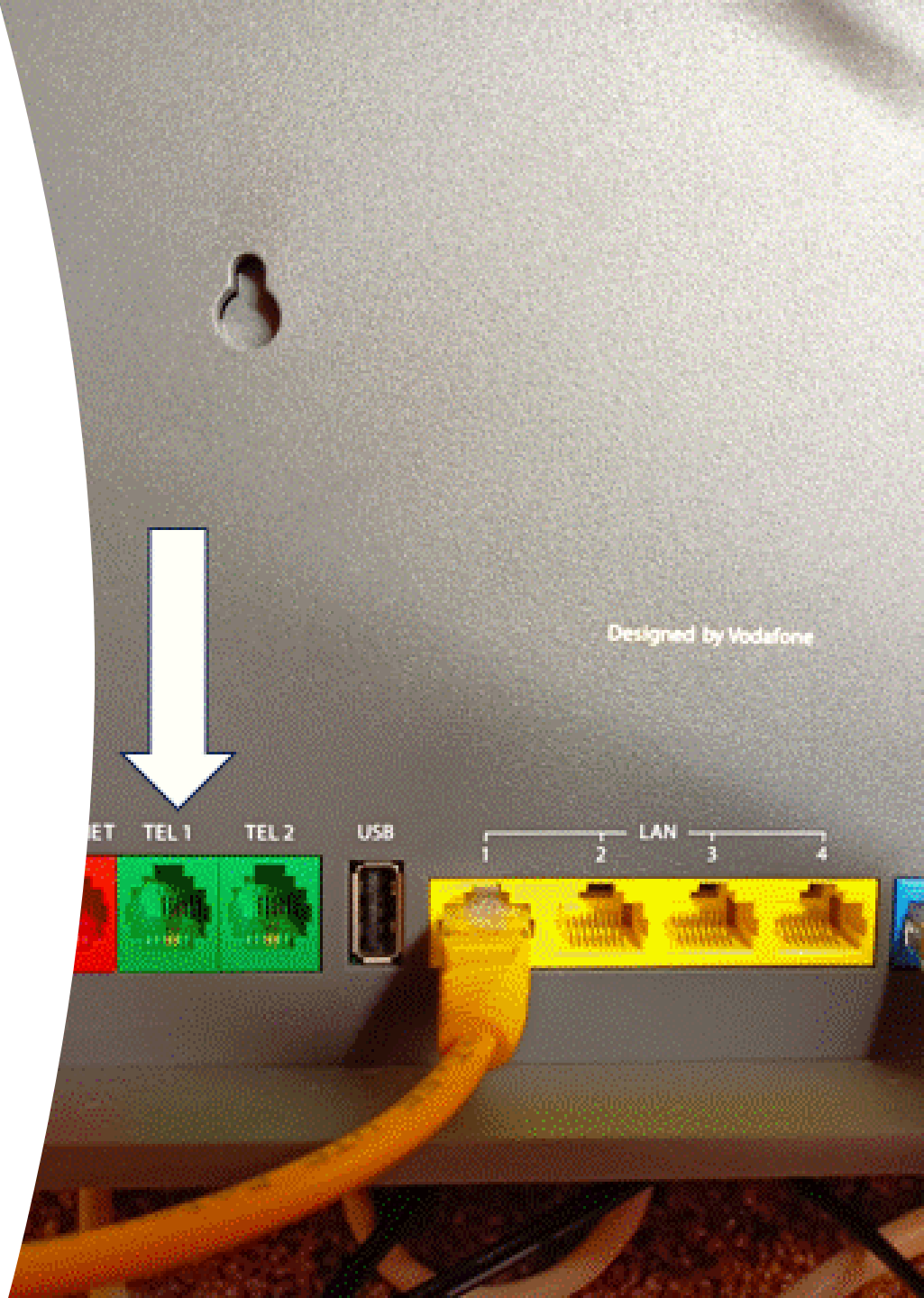
Becoming old and outdated and soon difficult to repair and maintain

Will be replaced by Voice over Internet Protocol (VoIP), a solution that transmits voice calls and data using an internet connection.



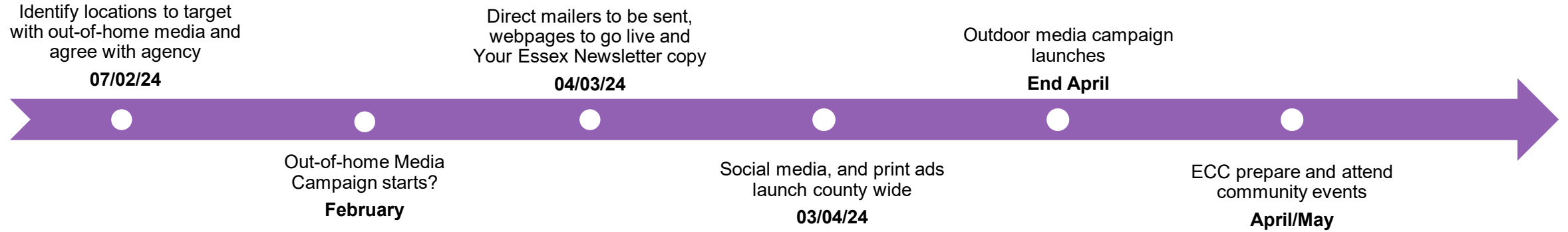
Impact

- Any device that plugs into a standard telephone socket or extension will be affected
- For residents at home in the majority of cases the switch will just mean plugin the existing phone into the router.
- For businesses, the migration is likely to be more complex and require new services or equipment
- Awareness of the impact, what is happening when, who will be affected and where to go for help will be crucial

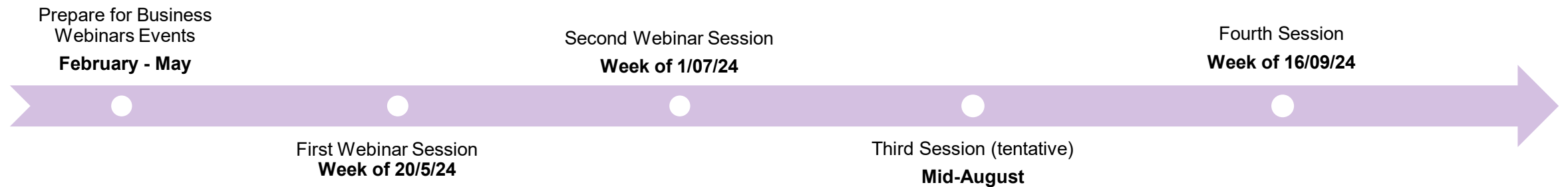


Digital Essex Communication Activities

ECC Comms plan



Essex Business Comms plan



Digital Essex Communication Activities Cont'd

BT Comms plan

Engage with BT to confirm
Comms plan and seek
collaboration opportunities

Feb-April



BT Send out initial
awareness comms to
customers
April

Local newspaper, local radio
ads' and Roadshow Events
May

Switchover starts
July/August

District and Partners updates

PSTN Switchover updates

Mid- Feb



PSTN Switchover updates
Mid- March

PSTN Switchover updates

Mid- April

PSTN Switchover updates
Mid- May

PSTN Switchover updates

Mid- June

More Information

The LGA:

PSTN switchover: www.local.gov.uk/digital-switchover

Telecare Checklist: <https://www.local.gov.uk/publications/digital-switchover-telecare-checklist>

External Resources: <https://www.local.gov.uk/our-support/cyber-digital-and-technology/digital-switchover/external-resources>

Virgin Media/O2:

Community Forum: <https://community.virginmedia.com/t5/Virgin-Phone-Switchover/bd-p/Switchoverforum-board>

Business: <https://www.virginmediabusiness.co.uk/VMBD/Awareness/analogue-switch-off/The-big-analogue-switch-off-is-underway/>

Openreach:

<https://www.bt.com/about/all-ip>

For businesses: <https://business.bt.com/why-choose-bt/insights/ip-technology/switching-to-ip/>

UK Government:

<https://www.gov.uk/guidance/uk-transition-from-analogue-to-digital-landlines>

Ofcom:

<https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/future-of-landline-calls>

FarrPoint:

Useful link featuring switch-off maps: <https://www.farrpoint.com/news/the-big-analogue-switch-off>

General news:

Metro: <https://www.msn.com/en-gb/money/technology/what-to-do-if-you-have-a-landline-phone-when-the-old-network-is-switched-off/ar-AA1gfFDQ?ocid=winp1taskbar&cvid=08f673c602364d0ea25cc9b5e93d0fc4&ei=25>

Public Switched Telephone Network Charter:

<https://www.gov.uk/government/publications/public-switched-telephone-network-charter/public-switched-telephone-network-charter>



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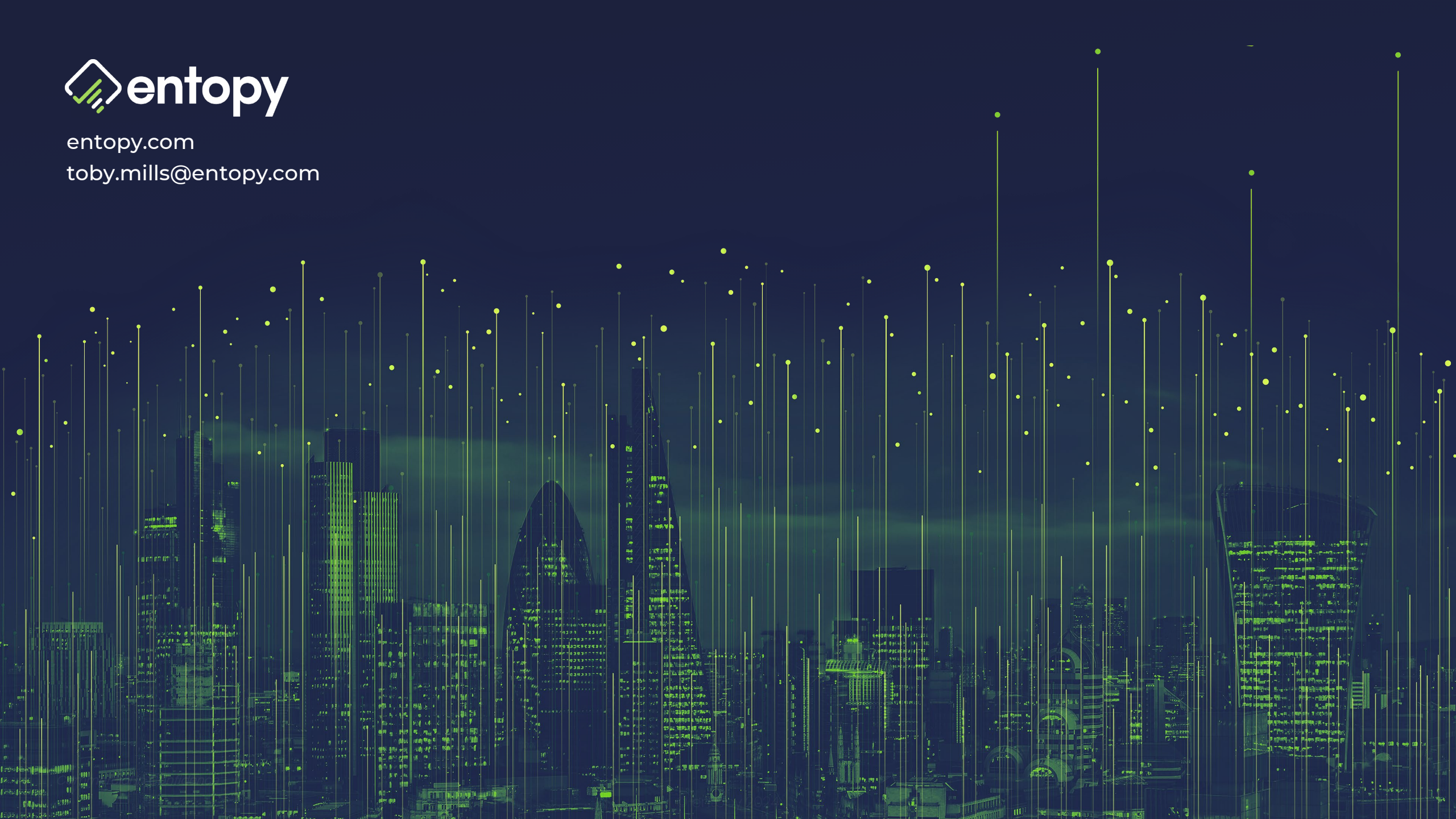
Toby Mills and Dan Smith

Entropy



entopy.com

toby.mills@entopy.com



SMART bid

Adaptive orchestration framework of scalable and sustainable Digital Twin and AI across real-world, operational environments.

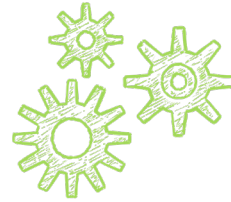
- Quick intro to Entopy
- What is Digital Twin?
- Example / case study
- The SMART bid:
 - The proposal & timelines
 - The innovation
 - What this will deliver for ECC



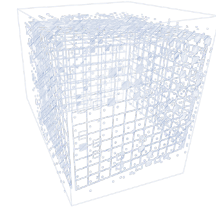
Quick intro to Entropy..



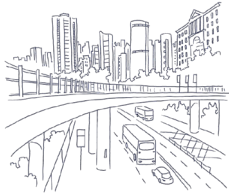
Newmarket, Suffolk



Engineers & data scientists



AI-enabled Digital Twin platform



Focus on roads & critical infrastructure



Large-scale & high-profile deployments



R&D & Growth
(Universities, UKRI)



What is a Digital Twin?

A digital twin is a digital representation of a physical asset, process or system. It is distinguished from any other digital model by its dynamic connection to the physical twin.

- Historical data
- Internet of Things
- Models (AI/ML)
- Other sources



Data

- Our focus is roads & critical infrastructure
- Improving operational decision making

- Through real-time & predictive intelligence
- Congestion, pollution, social impact, future developments, maintenance

Information



- Holistic intelligence
- Automation
- Simulation / testing
- Digital tools



Toby Mills

Dashboard

Monitoring

Trends

Models

Admin Tools

API

Settings

Logout

Dashboard *Port of Dover*

Predicted freight

142

next 3 hours

Predicted freight

387

next 6 hours



1 hour 11 mins

ETA from Dartford Tunnel



15 mins

ETA from A20 Court Wood

Road traffic alerts

- ROADWORKS**
Status : Currently Active
ETA: 44 mins
M20
- ROADWORKS**
Status : Currently Active
ETA: 25 mins
M20

CURRENT
16th January



3°C
Partly cloudy

17TH
January



3°C
Patched rain possible

18TH
January



2°C
Sunny

19TH
January



1°C
Sunny

20TH
January



3°C
Overcast

21ST
January

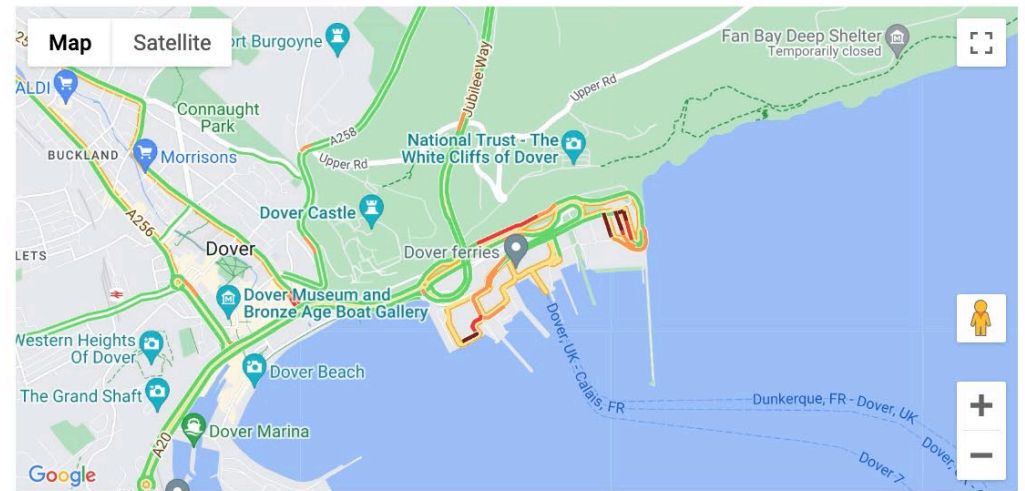


7°C
Patched rain possible

22ND
January



8°C
Patched rain possible





Operational since
September 2023

>93% predictive
accuracy

>25% reduction in
congestion



SMART grant bid

- £1.3 million bid to UKRI
- Announcement on 29th March 2024
- 36-month project
- Digital Twin of Strategic Road Network (SRN) of Essex, supporting 3 use cases
- To research and develop game-changing innovations to address scalability, sustainability & accessibility issues surrounding AI-enabled Digital Twin deployment (particularly for Local Authorities)
- Consortium of Essex County Council, Entopy and the University of Essex, with support from public and private sector

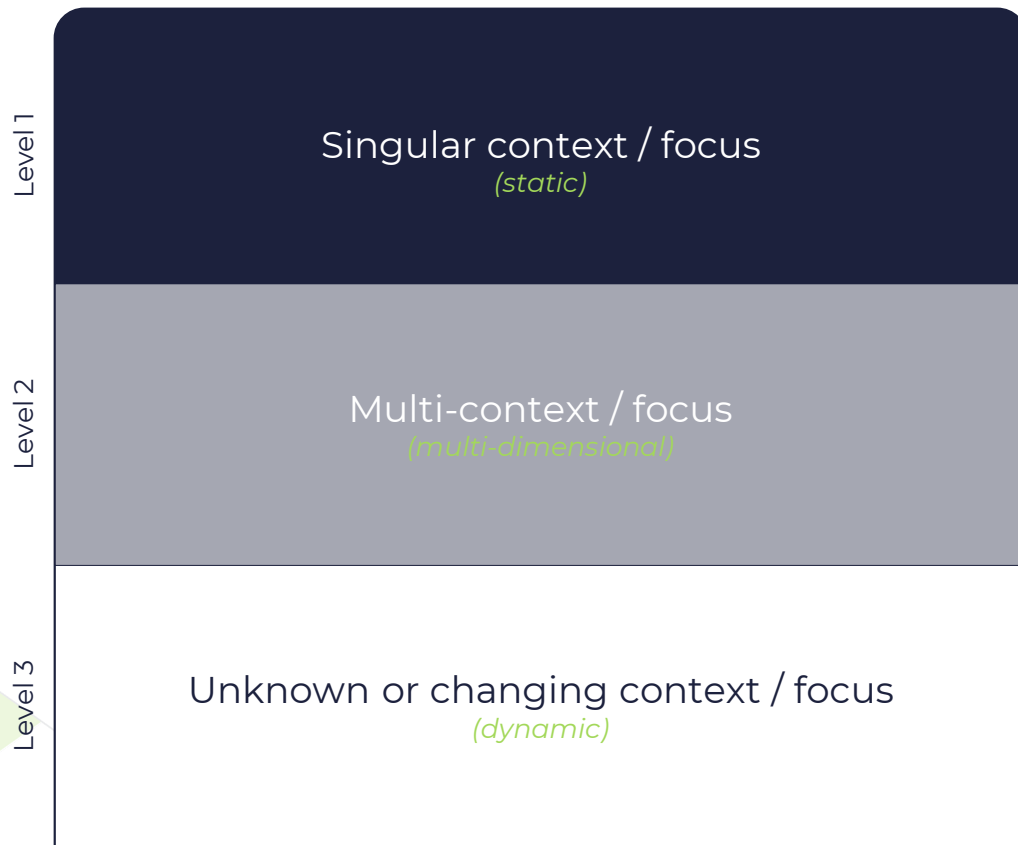


IADS | The Institute for
Analytics and Data Science

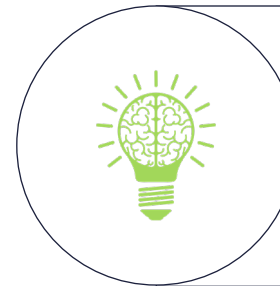


Game-changing, two-fold innovation

The project seeks to address a major challenge of Digital Twin & AI in real-world contexts that is preventing adoption by local authorities but is also a fundamental challenge in Digital Twinning more generally.



- Mobilisation and maintenance of Digital Twins requires a lot of manual developer resource
- Data & models must be orchestrated to serve target workflows (RDF/ontology)
- Leading to:
 - higher costs
 - restrictions on the types of use cases that can be served (singular defined/static)
 - capacity/scale issues for vendors



Context-oriented orchestration

(automated selection, composition & orchestration)

Context-oriented optimisation

(development of model/data federation techniques)



A Digital Twin of ECC SRN

Monitor traffic and air quality in the Epping Forest road network, focusing on key routes, anticipating increased traffic due to congestion or road incidents (e.g., M11 or M25 closure) during specific times.

Strategic Road Network Digital Twin across Essex County Council, developing understanding of regional modality and predicting future modality, predictive traffic flows across region.

- Existing data (NH, RNS)
- New CCTV
- New air pollution IoT
- New LoRaWAN

Predicting traffic flows (by class) to defined endpoints, initially, **London Gateway**, to help reduce localised congestion and impact of HGV traffic on surrounding roads/area.





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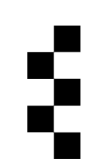
Professor Mays and Professor Haris
University of Essex



Research & Innovation for Digital Essex

Dr Mays AL-Naday (CSEE/IADS, University of Essex)





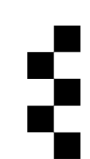
Introduction

- **Top University in Knowledge Transfer Partnerships (£10+M portfolio)**
- **Active in EU FP7→Horizon Europe: 5 projects in 2023, 2024**
- **9th in UK for research impact, 6th for research power (REF 2021)**

Me: Associate Prof. in edge-cloud services, networks and their cybersecurity (sustainability, Energy)

- **Research Overarching target :**
 - **Digital Transformation: Cloud middleware services and network**
 - **Scalable AI services**
 - **Energy efficiency, greenness and cost of services (including AI)**





Research & Innovation Activities

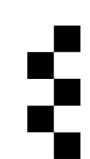
- **National**

- InnovateUK CyberASAP: enabling privacy-by-design AI services
- IUK KTP with Entopy (Feb 2024): AI reusability, economic service, faster traction to support critical use-cases in Essex and UK in general
- IUK Smart Grant with Entopy (under review): Federated AI, allow supporting use-cases, otherwise infeasible
- Regular collaboration with BT on Telecommunications and cloud computing challenges

- **International**

- Horizon Europe (HE): submissions in review (cybersecurity, smart management of digital energy networks)
- HE Smart Networks and Services project (2024 - 2027): reliable/secure 6G services, empowered by AI
- UEssex full research member:
 - 6G Infrastructure Association (6G-IA): overseeing HE SNS JU research and Innovation
 - Alliance for IoT and Edge Computing Innovation (AIOTI): overseeing HE research in Digital Transformation (IoT, data, cloud-edge computing, cybersecurity).

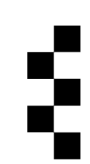




Public sector role in Research & Innovation

- Public services have the best knowledge of ***community requirements***, ***constraints*** and ***challenges***
- It is critical to embed these aspects in the design and development of digital services to address strategic challenges (societal, economical, environmental)
- Engagement of public sector is vital to:
 - Outline such requirements and engage in the iterative process of design, development and evaluation
 - Provide trial fields to test innovative solutions in a risk-controlled environment
 - Provide realistic data to enable research in AI and relevant services/enablers of digital transformation





Links and Contacts

- **Comnet**
 - <https://www.essex.ac.uk/departments/computer-science-and-electronic-engineering/research/communications-and-networks>
- **Email:** mfhaln@essex.ac.uk
- **Linkedin:** www.linkedin.com/in/mays-al-naday-07758940



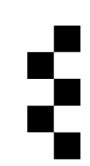


Digital Connectivity

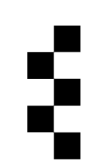
Opportunities, Challenges, Research

Professor Haris Mouratidis

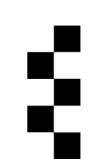
Institute for Analytics and Data Science (IADS) / School of Computer Science
and Electronic Engineering (CSEE)



- Smart Cities
 - Infrastructure, transportation, sustainability
- Digital Health and Telemedicine
 - Remote patient monitoring, online consultations, 24/7 exchange of health data
- Remote work
 - Video conferencing, collaborative platforms
- E-Commerce/ Digital Marketplaces
 - Connect with customers anywhere at any time
- Smart Manufacturing, agriculture
 - Integration of technologies for efficient production and farming optimisation
- Environment and sustainability
 - Monitoring through smart devices, sustainable practices automation
- Digital Economy
 - Transactions, innovations

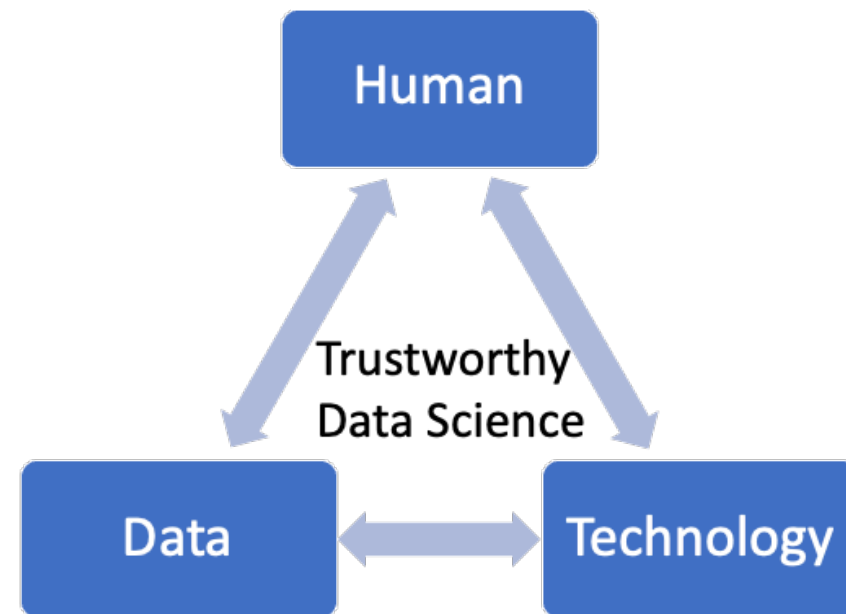
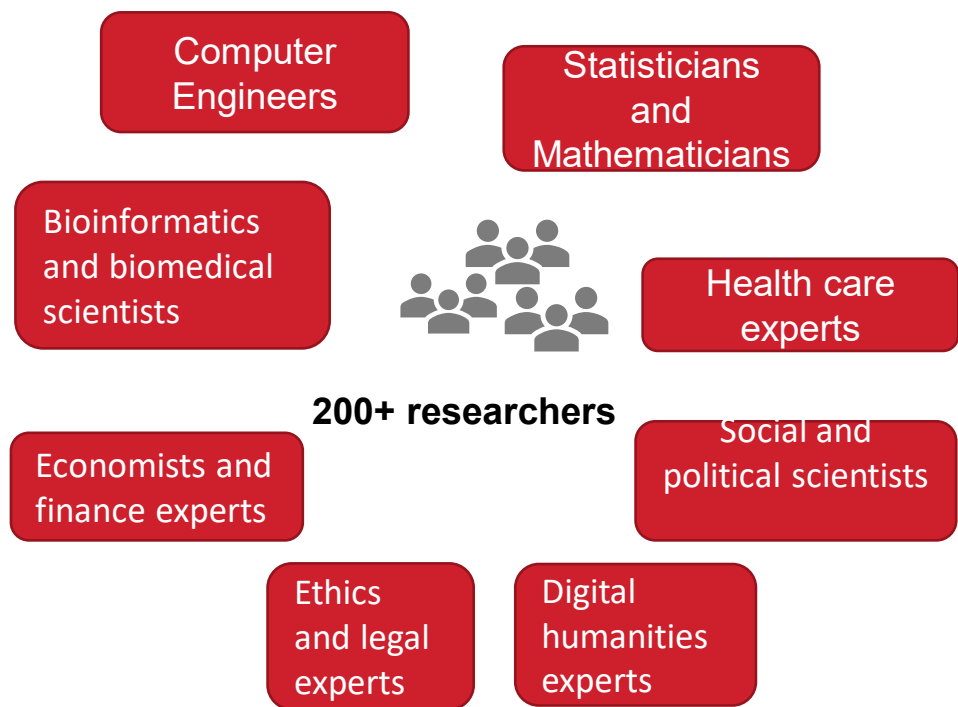


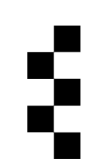
- Digital Divide
 - Unequal access to technology
- Affordability
 - Inaccessible to a portion of the community
- Digital Skills
 - Clear gap on digital skills with individuals lacking the necessary digital literacy and skills to fully embrace digital connectivity
- Environmental Challenges
 - Increasing demand on data storage and processing, larger digital footprint, energy consumption
- Infrastructure Challenges
 - Inadequate ICT infrastructure, lack of fast broadband
- Privacy and Security Concerns
 - New threats and vulnerabilities
- Misinformation
 - Fake news, online manipulation
- Ethical Concerns
 - Bias in technology, AI and potential misuse.



Institute for Analytics and Data Science (IADS) was created in July 2014 to use analytics and data science to develop lasting solutions that transform the worlds for the benefit of individuals and communities.

IADS Community





Research Towards Digital Connectivity Challenges

Energy efficiency

Research is focused on minimizing energy consumption and CO2 emissions by co-optimising machine learning models across algorithm, arithmetic and dataflow.

Cyber Security and Privacy

Intelligent threat analysis and mitigation, Dynamic Cybersecurity Risk Assessment and Incident handling, Privacy-by-design solutions, compliance with regulations.

Digital HealthCare

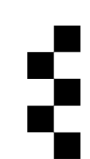
AI and data science driven systems, algorithms and engines to support detection (e.g. melanoma-based skin cancer lesions), triaging (musculoskeletal services), and diagnosis and prediction (e.g. tooth decay, extraction).

Life Sciences and the Environment

Bioinformatic and statistical tools to highly complex genetic and genomic datasets to understand the potential impacts of environmental change on the microbial communities that support ecosystem and human health.

AI & Decision Making

Create optimal solutions that promote correct decision making (e.g. mechanism design) using AI. Designing self-optimising and self-healing service composition algorithms under high degrees of dynamism and uncertainty, and under various correlations among the interacting parties.



Thank you!



h.mouratidis@essex.ac.uk



<https://www.essex.ac.uk/centres-and-institutes/institute-for-analytics-and-data-science>



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Michael Snaith
South Essex Councils



South Essex LoRaWAN Network

LoRaWAN Update

- **Background:** The South Essex Digital Programme secured funding from Highways England to deliver a South Essex Council owned IOT Long Range Wide Area Network (LoRaWAN) across South Essex
- **Procurement:** Procurement exercise has been completed and a delivery partner namely Abzorb has been contracted to design and deliver this network.
- **Delivery:** Delivery of the LoRaWAN Network will commence in early February 2024 with an anticipated completion in early September 2024.

LoRaWAN Next Steps

Next Steps based on Collaboration:

- Engagement with Digital Essex
- Outcome Workshops (February/March)
- Development of 4-5 Pilots/Projects
- Engagement with UCL and London Legacy
- Engagement with Higher Education
- Engagement with Highways England

Key Outcomes

- Delivery of public services through the deployment of council owned and managed sensors which will be a key component in collecting data across South Essex (environmental, transport, independent care)
- Enable South Essex to share data with other public bodies and academia which will inform future policies and strategies – environmental, transport, health
- Enable South Essex to share data with centres of education – support local coding initiatives and promote digital skills amongst young people
- Stimulate digital innovation and economic growth, providing local businesses with a test bed to pilot innovative ideas and solutions that can benefit communities
- Develop opportunities to collaborate with other public sector bodies who own and operate LoRaWAN Networks including Norfolk and Suffolk County Councils in the East of England



Discussion Led by Douglas Parrant



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5 min Break



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Digital Inclusion



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Tom Lowe
Digital Poverty Alliance (DPA)

The background features a network of location pin icons connected by thin lines. The pins are in two colors: white and blue. The white pins are concentrated on the left side, while the blue pins are more widely distributed across the right side. The text 'digital poverty alliance' is centered in a light green, lowercase, sans-serif font.

digital
poverty
alliance

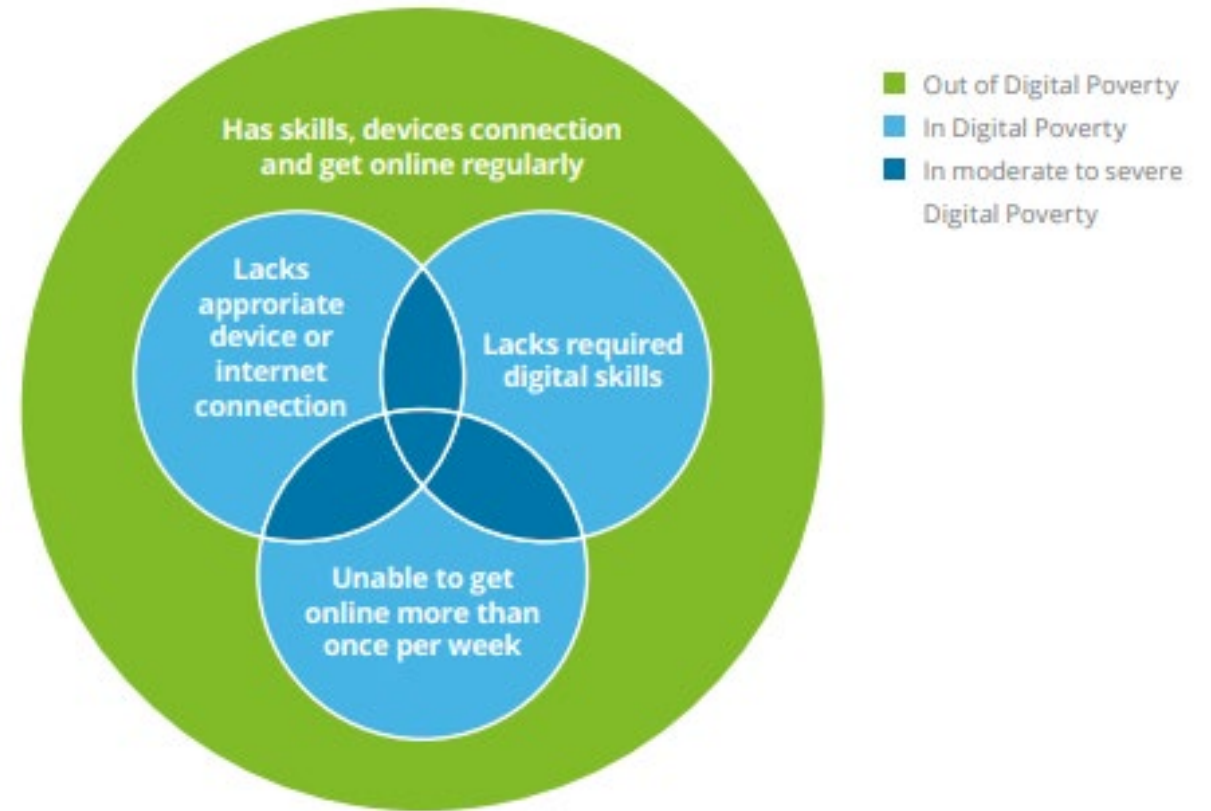
Tom Lowe: Head of Policy and Comms at DPA and Learning Foundation

Outside in Project

DIGITAL POVERTY: THE INABILITY TO INTERACT WITH THE ONLINE WORLD FULLY WHEN WHERE AND HOW AN INDIVIDUAL NEEDS TO.

The concept of digital equity can be defined in different ways

- **Digital exclusion:** “Digital exclusion is where an individual lacks internet access and/or has low levels of digital skills or confidence.” (Ofcom)
- **Digital divide:** “Digital divide is a constellation of diverse and intersecting divides with salient gaps in access to connections and devices, skills, literacies and meaningful outcomes.” (Digital Poverty Alliance)
- **Data poverty:** “Data poverty means those individuals, households or communities who cannot afford sufficient, private and secure mobile/broadband data to meet their essential needs” (NESTA)



Society is becoming increasingly digitised



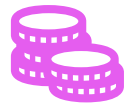
Access to the online world is essential for everyday activities. Accessing healthcare, applying for jobs, access to banking and education all rely, to some extent, on internet access.



Landline phones are currently in the process of transitioning to internet-based connections. Over time, it is likely broadcast television will also change to IP transmission.



As services transition online, there are millions of people that lack the capability or motivation to get online. Or they may be sceptical or concerned about using digital tools.



For millions, the cost-of-living crisis has squeezed household income and the affordability of connectivity.

Groups most affected

Digital Poverty can impact anyone as life and circumstances change. However, there are groups where experiences of digital poverty are more common.

People on lower incomes.

- Approximately 1 in 2 DE Households are in digital poverty.

People over 65

- Approximately 1 in 2 older people are in some form of digital poverty

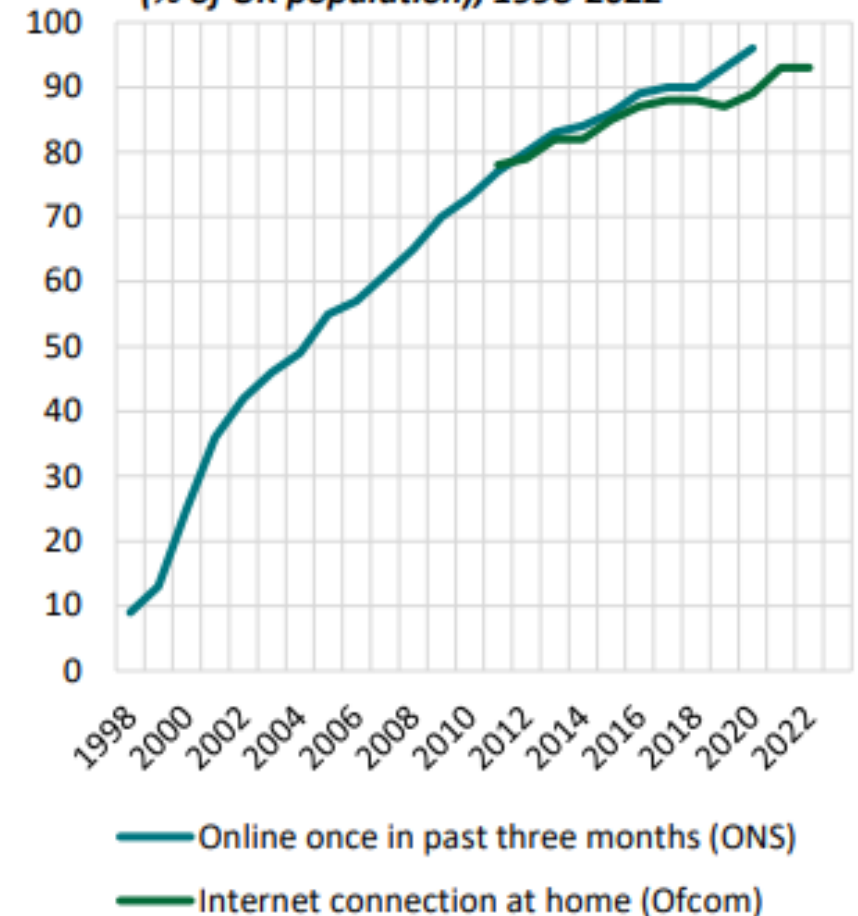
People with a disability

- Approximately 90% of websites do not meet web content accessibility guidelines and of non-internet users, around 50% were disabled

Key stats

- 13–19 million people aged 16+ in the UK are estimated to be in some form of digital poverty
- Around 20% of the adult population across the UK have low levels of digital capability.
- 1 in 5 young people only access the internet through a mobile phone
- Around 6% of households do not have a home internet connection (approx. 1.7 million people)
- Ofcom estimates that about 8 million households are finding it difficult to afford communication services.

**Fig 3.1. Internet access
(% of UK population), 1998-2022**



Source: Ofcom (2022) and ONS (2020)

Misconceptions about digital poverty

The problem will naturally fix itself over time.

It is only a problem facing the older generation.

Providing access to devices and connectivity is sufficient to tackle the problem.

The DPA is a community response

**LEARNING
FOUNDATION**



A National Delivery Plan



A route map to **2030**



Focusing **attention**



Setting out **actions**



Identifying **key stakeholders**

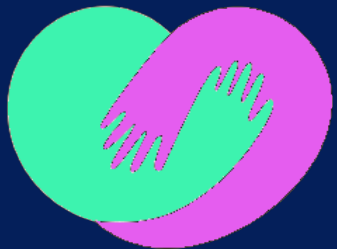


Bringing **organisations** together

The six missions

1. Increase awareness across society about the need for sustainable and strategic action to end digital poverty.
2. Ensure affordable connectivity and guarantee full digital access for those in need.
3. Improve standards of accessibility, safety, and inclusiveness across all digital products and services.
4. By 2030, significantly reduce the proportion of individuals without essential digital skills and ensure the sustainability, and expansion, of these skills in response to changing technologies and needs.
5. Enhance knowledge and understanding of digital poverty among all stakeholders, including citizens, governments, and the public and private sectors, through the development and utilisation of research.
6. Increase local capacity to provide joined-up digital inclusion support to individuals and communities.

Help for people now



Tech4Families: Programme to provide devices and support to families on a low income.



Tech4Teachers: Half of teachers in summer 2021 didn't have the tech they need to teach outside the classroom. The Tech4Teachers Programme supplied nearly 2,000 devices to teachers.



Tech4Prison Leavers: Programme working with prison leavers to provide wraparound support – tech, data, mentoring and skills support.



Tech4 Schools: Programme focusses on providing tech to pupils in schools with high pupil premium numbers.

JOIN THE CAUSE

Find out more

Visit our website and discover the work we're doing across the UK:
www.digitalpovertyalliance.org

Join the hub



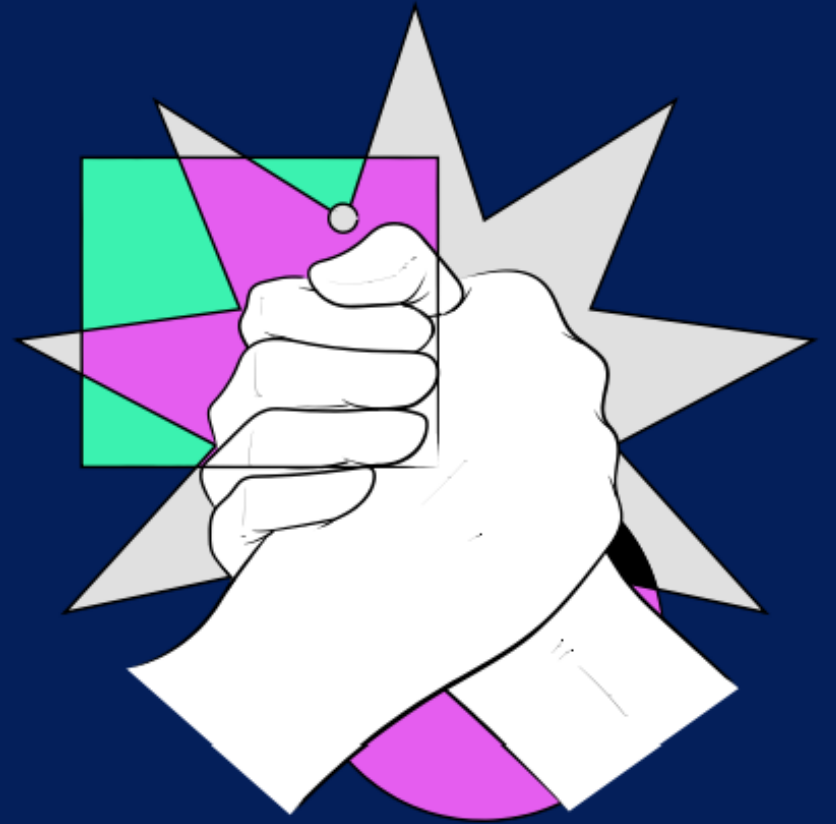
Got ideas?

Please contact Tom Lowe at
tom@digitalpovertyalliance.org

TOGETHER WE CAN END DIGITAL POVERTY

Join us.

digitalpovertyalliance.org





Jess Flack, Digital Inclusion Lead *Digital Essex*

Access, Affordability and Adoption
(Skills)

High Level Updates

- Community Health and Digital Literacy Hubs -Brentwood
- Working with Community Volunteering Services to develop their offer – Ability Net health and digital literacy training and social prescriber networks
- Digital Triaging Tool – working with our CVS' to help shape the tool, the offers available and how this is recorded.

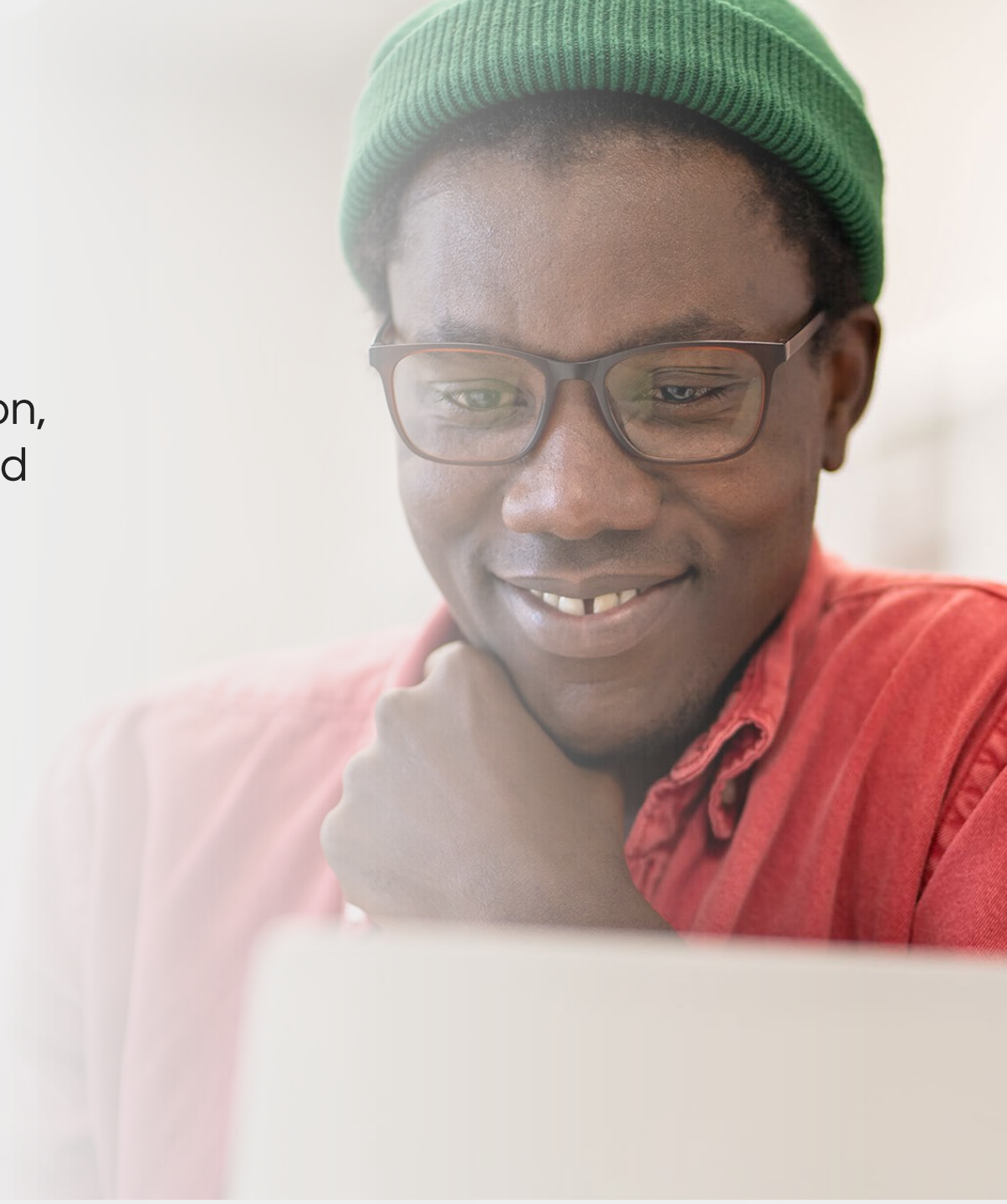
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George Unsworth
Mortar



Mortar is a specialist agency and technology framework for improve accessibility and inclusion, driving the next generation of intelligent, user-led services.

So no-one gets left behind.





Responding to user needs

During the Covid pandemic we helped to identify and engage isolated older residents living alone.

This put us on a path to supporting communities and their need for more **accessible** and **equitable** methods of communication.





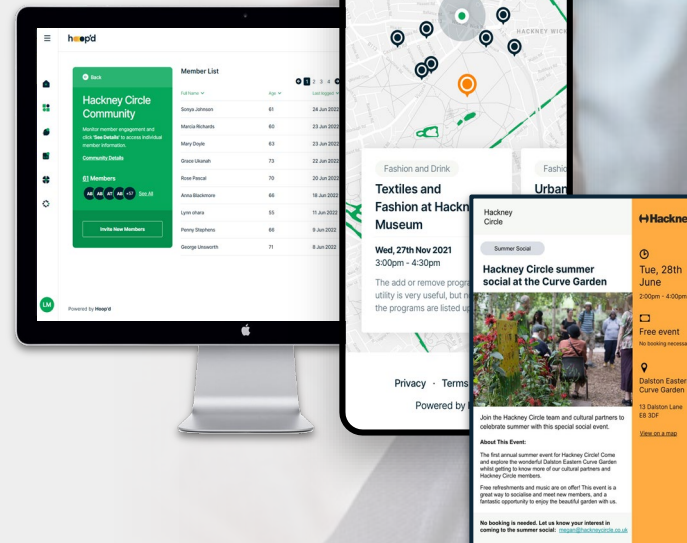
Driving user-centric services

Hoop'd is our platform for creating tailored and bespoke services and digital solutions that improve accessibility, inclusion and the impact of service delivery

- Cloud based, modular framework
- Custom templates, information and interfaces
- Data capture, analysis and visualisation
- Bespoke info, casework, triage and referral tools



[Learn more](#)





Leading national programmes

We lead the development of government backed inclusion and accessibility tools, applying intelligence to enhance community navigation, signposting and referral.



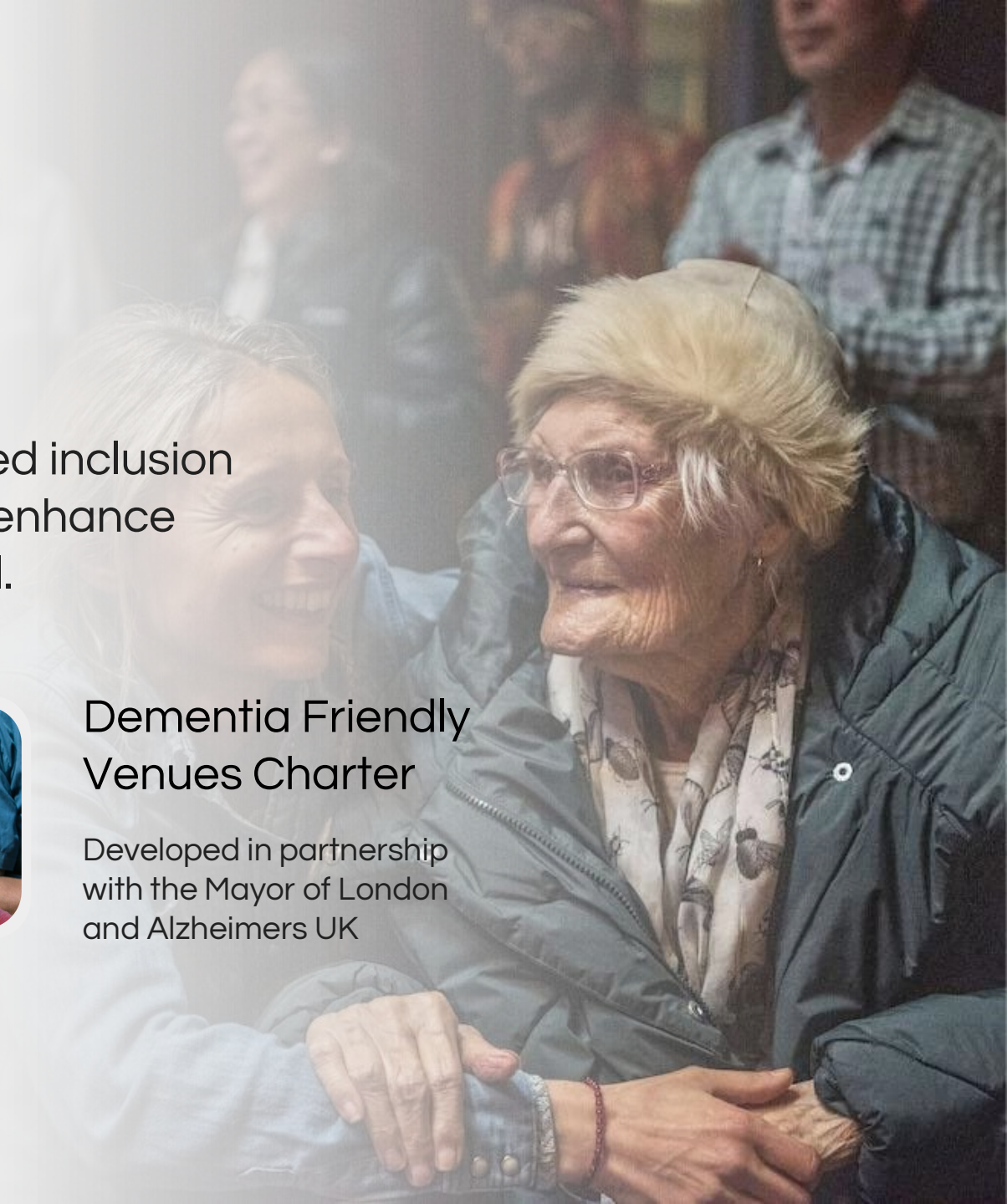
Digital Inclusion Triage Tools

Developed in partnership with the Local Government Association



Dementia Friendly Venues Charter

Developed in partnership with the Mayor of London and Alzheimers UK





Building bespoke solutions

Our framework enables us to tailor solutions to match the needs of targeted users and support our local area partners. Making transformation easier and more affordable.



The Directory of What Works

Supporting young people at risk of exclusion in Cheshire and Gloucester



Cultural referral platform

Identifying older residents at risk of exclusion with Public Health and Hackney Council



Digital Inclusion Triage Tool

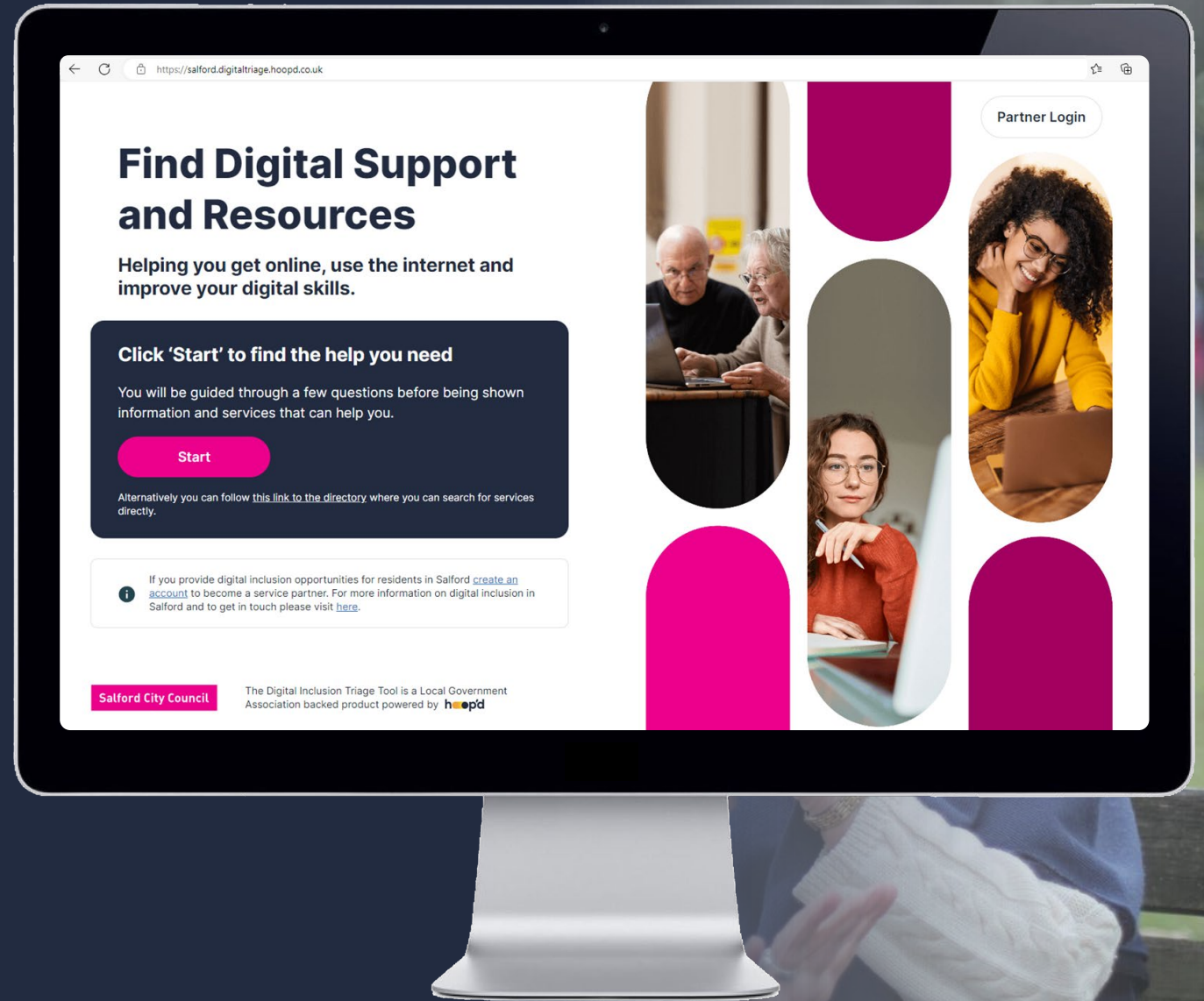
Helping people get online, use the internet and improve their digital skills



Digital Inclusion Triage Tool

First developed as an LGA Digital Pathfinders project the Digital Inclusion Triage Tool provides local areas with the environment, support and resources for delivering tailored Digital Inclusion campaigns and initiatives

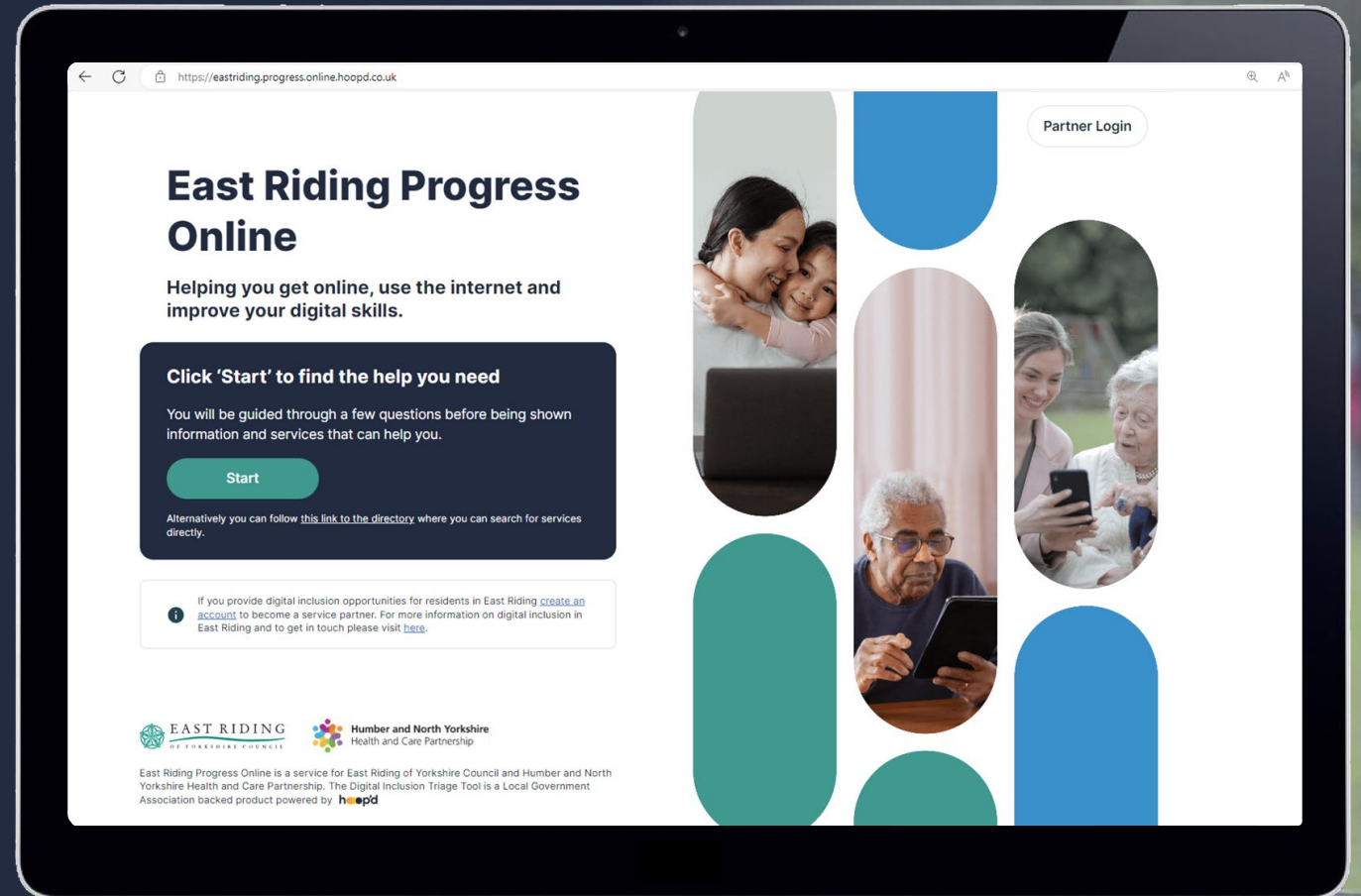
It is designed and developed by Mortar and powered by Mortar's framework



Digital Inclusion Triage Tool

Salford is the Lead Partner in the tool's Beta development, where the tool is driving their Find Digital Help service

Associate Partners East Riding are using the tool to deliver Progress Online alongside Worcestershire and Waltham Forest who are implementing and testing their own local versions of the tool



An elderly man and woman are sitting at a table, looking at a laptop. The man is on the left, wearing glasses and a dark sweater. The woman is on the right, also wearing glasses and a light-colored sweater. They appear to be engaged in a conversation or a task on the laptop. The background is slightly blurred, showing some colorful objects.

Why is the tool needed?

Front-line service staff do not know what services and resources are available

Existing services and resources are not being utilised or reaching their intended beneficiaries

User needs are not being effectively or efficiently recognised or addressed



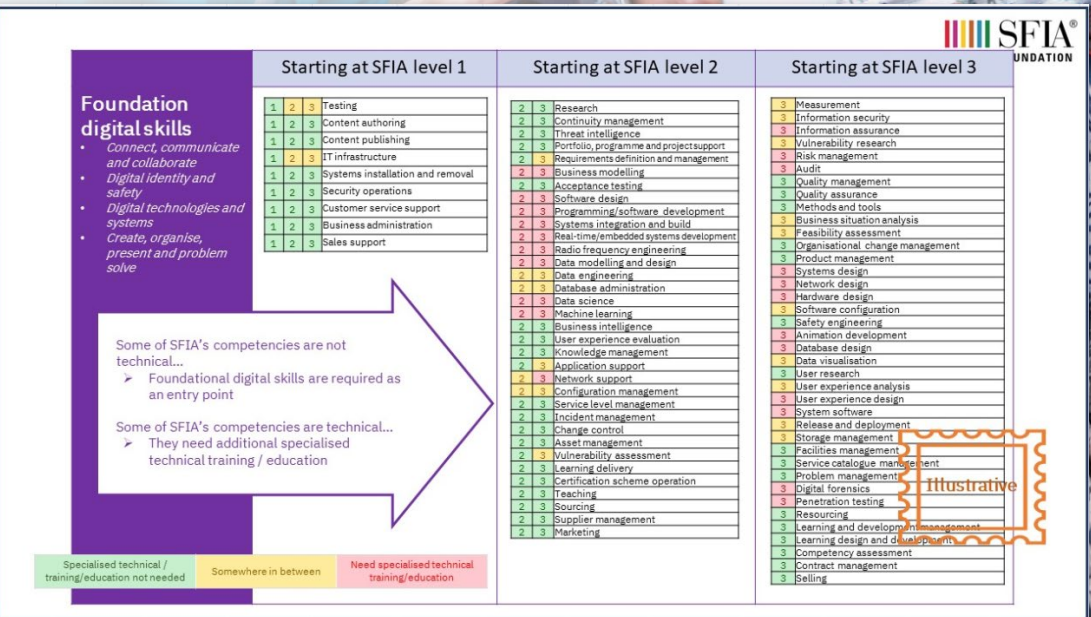
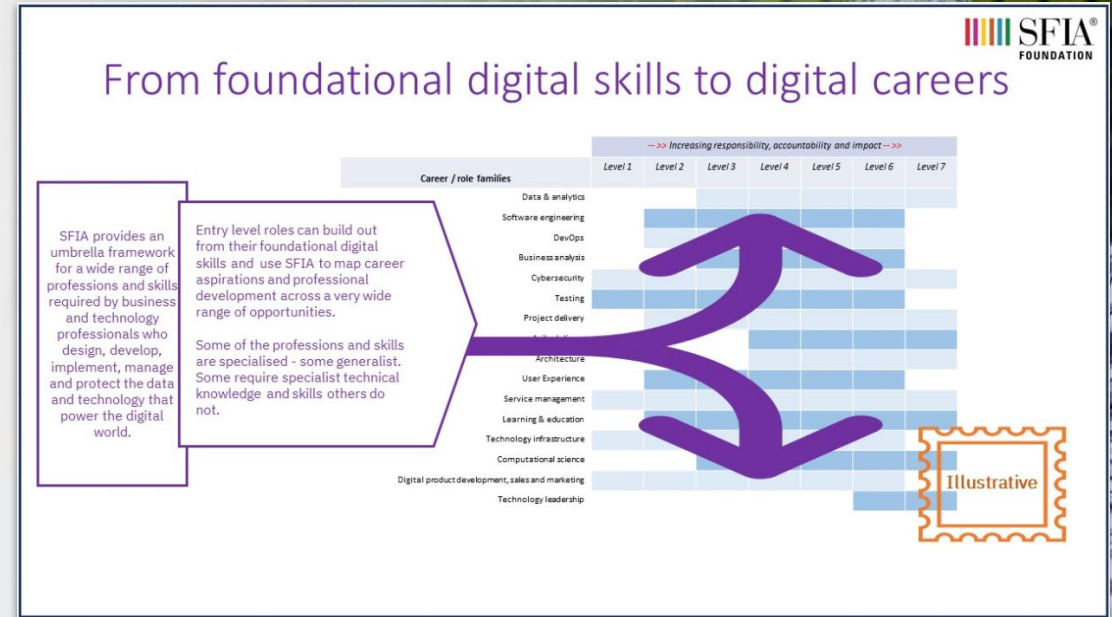
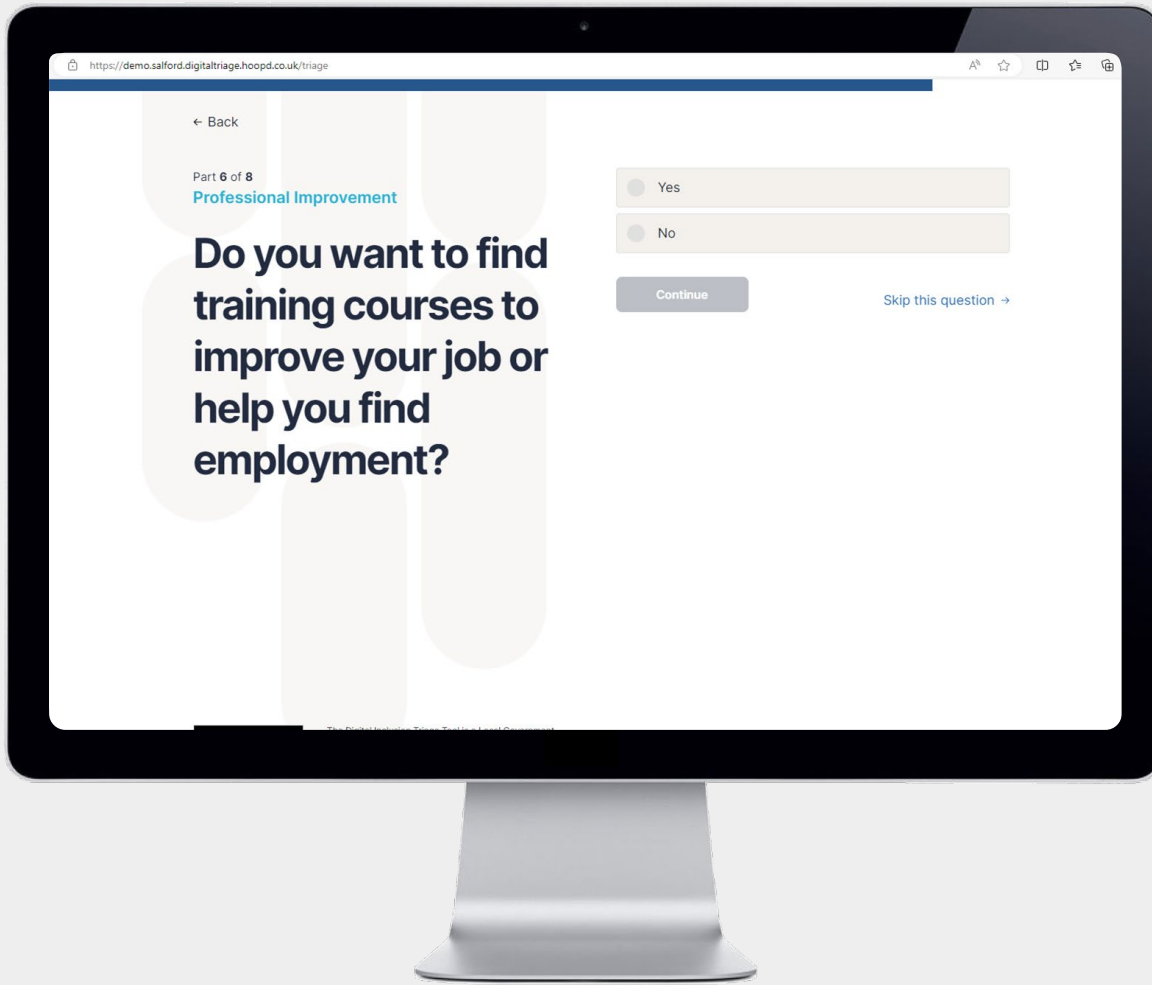
Working with Digital Essex

Addressing the need for a more holistic, local approach to improving access to digital skills.

Taking the Digital Inclusion Triage Tool forward:

- Developing a Skills for Work pathway
- Improving access to Essential Digital Skills resources
- Supporting the local CVS community in developing and promoting their digital inclusion offer





Discovery

Design

Discovery meeting

- WECAN/U CAN
- SAVS
- VAEF
- NEE DAST
- Laindon Medical Centre
- Maldon CVS
- The Witham Hub
- Chelmsfrd CVS
- 360 Chelmsfrd

Discovery matrix / mapping



Follow up questions via email



Design introduction and User Persona workshop

- WECAN/U CAN
- SAVS
- VAEF
- NEE DAST
- Laindon Medical Centre
- Maldon CVS
- The Witham Hub
- Chelmsfrd CVS

Outcomes



Tool presentations

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For more information:

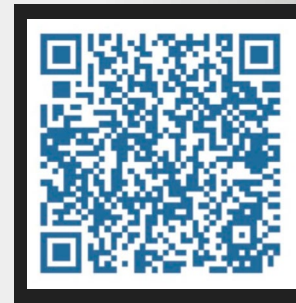
Mortar is a highly agile and dynamic team with over 40 years of senior with management experience across Accessibility in the Home Office and Lead Development within the Government Digital Service.

George Unsworth
CEO & founder
System and service design expert
Young Foundation, Nationwide &
Finance Innovation Fellow

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— 07815324141



Connect on LinkedIn





Discussion Led by Doug Parrant



Any Other Business

CVS opportunities

- VM02 have 5 volunteering days a year and they all use <https://www.neighbourly.com/accounts/registerchoice>
 - Our community volunteering services can register their charity as an org/person and then access support from corporate volunteers.

LSIP

- LSIP (Local Skills and Improvement Plan):
- [LSIP-Executive-Summary-v2.pdf \(essexchambers.co.uk\)](#)
- [Essex LSIP Events | Essex Chambers of Commerce](#)
- Contact: Louise Aitkin louise.aitken@southeastlep.com