



Security Conference

The path to diversity: How the UK's CyberFirst project is shaping the next generation of cyber security professionals

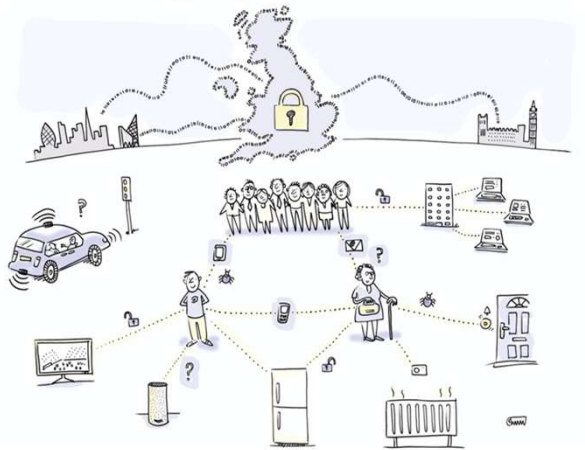
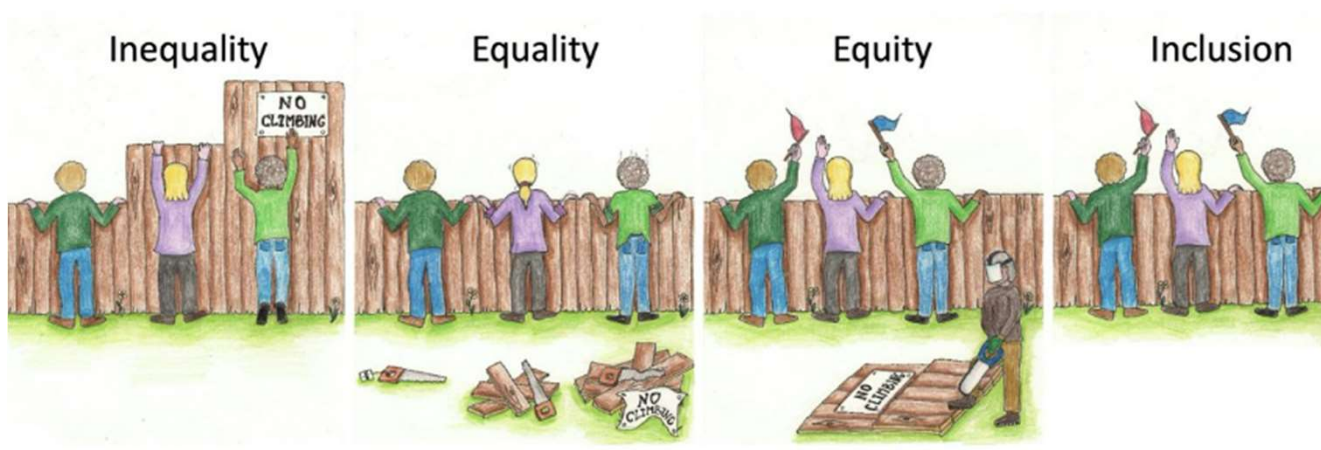
Presented by: Helen Lovekin, CTO Cyber Growth



18/10/2023



What is Equality, Diversity & Inclusion?



White Privilege: Unpacking the Invisible Knapsack

by Peggy McIntosh

Through work to bring materials from Women's Studies into the rest of the curriculum, I have often noticed men's unwillingness to grant that they are over-privileged, even though they may grant that women are disadvantaged. They may say that they

male privilege. So I have begun in an un-tutored way to ask what it is like to have white privilege. I have come to see white privilege as an invisible package of unearned assets which I can count on cashing in each day, but about which I was 'meant' to remain oblivious. White privilege is like an invisible weightless knapsack of

I was taught to see racism only in individual acts of meanness, not in invisible systems conferring dominance on my group.



National Cyber Security Centre
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 BLOG POST
A sociotechnical approach to cyber security
 How a multi-disciplinary approach can help us deliver security that works in the real world.

Why is diversity important for cyber security?

“Neurodivergent people are hardwired to think differently, increasing both business innovation and corporate resilience. That a third of respondents are experiencing discrimination & career barriers, shows we are stifling our own talent pool. We know better, now we must do better – with “Inclusion by Design” in culture, process and practice.”

Nicola Whiting MBE, NeuroCyber CIC

// The organisations I’ve worked in, including MI5, have been at their best when they’ve shown creativity and the ability to tackle problems from innovative angles. You don’t get that without diversity – in all its forms.

LORD JONATHAN EVANS, FORMER MI5 DIRECTOR GENERAL - FROM 'DECRYPTING DIVERSITY', NCSC/KPMG UK, JULY 2020

“In cyber security, diversity isn’t just a numbers game. Our adversaries are diverse and inventive, and we need to ensure we don’t end up with a monoculture response”. **Dr Ian Levy, NCSC Technical Director**

When companies invest in diversity and inclusion, they are in a better position to create more adaptive, effective teams and more likely to recognize diversity as a competitive advantage.

What is “culture”?



“human cultural reality is not a consistent logical scheme but a seething mix of conflicting principles.”



What is CyberFirst?

“Enhance and expand the nation’s cyber skills at every level, including through a world class and diverse cyber security profession that inspires and equips future talent.” [National Cyber Strategy](#)

- **Launched in 2015** as a GCHQ undergraduate sponsorship scheme.
- **Schools programme** for 14-18 year olds
- **Summer courses** for 11-17 year olds
- **Bursary programme** (£4k/yr of degree study)
- In 2017 we introduced the **Girls’ Competition** for 12-13 year olds.
- **CyberFirst Schools and Colleges Regional Partners programme**



This is a **CyberFirst** world –

Reach and impact



- 1169 bursary students, 595 graduated to date 87% into CS roles
- EDI – 22% female and 15% EM
- Last 2 intakes 42% of offers to females
- 242 CF members
- 57,000 girls participated in the girls comp
- 17,000 attended NCSC extracurricular courses
- 4,500 attended other CF extracurricular courses eg cadets
- 99 recognised CF schools and colleges across 6 partnered regions
- ~50,000 registered on CF Explorers
- 15 ACEs-CSE
- Social impact:
 - in the NW alone £600k industry investment, 2,200 hours dedicated volunteering, £1.57m of social impact in less than 12 months - equivalent to £2.57 for every £1 spent.

Trailblazer
FROM CYBER

12-13
CyberFirst

t.

Academy

Bursary

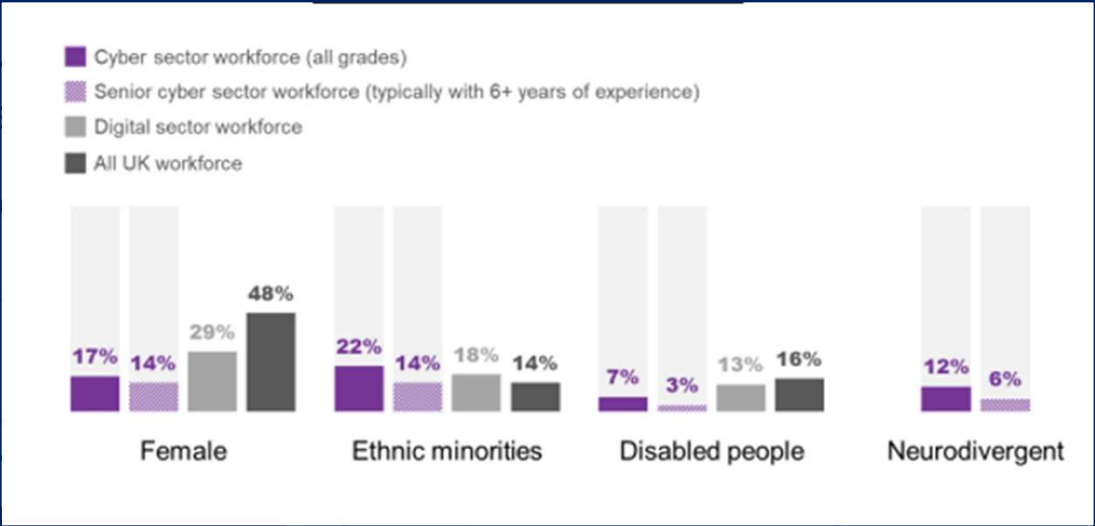
Cyber
First


LEARNING

1. Where do we need diversity?

50% of businesses (739,000) have a basic skills gap as laid out in CE scheme
 33% (487,000) have advanced skills gaps

Gender Imbalance
 Studied 'Co...
 GCSE (14-16 yrs.)
 A-Level (16-18 yrs.)




Estimated current cyber workforce
 • Estimate c. 133,400
Annual Shortfall c.11,100



2. How do we make it relevant?



3. Make it a community effort



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[Bank of America](#) | Bank of England | [Barclays](#) | [Becrypt](#) | [Bitweave](#) | [Blockphish](#) | [Blue Screen IT](#) | Bob's Business | [Boston Consulting Group](#) | BT | [Bupa](#) | C3ia Solutions | [CACI](#) | Capgemini | [Capita](#) | CDS Defence & Security | [CGI](#) | Cisco | [Citrix](#)



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Microsoft | [Morgan Stanley](#) | Motability | [Nano Foundation](#) | National Grid | [NatWest Group](#) | NCC Group |



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Ltd | Reliance ACSN | [Roke Manor Research](#) | Rolls Royce | [Salus Cyber](#) | SBD Automotive | [Scottish Business Resilience Centre](#)

| [Secarma](#) | [Secrutiny](#) | Secure School | [Secure Team](#) | [Secureworks](#) | [Seric Systems](#) | SHE Defence | [Siemens](#) | Sirius

Constellation Ltd | [Somniac Security](#) | S-RM | [Standard Chartered](#) | tech Geek | [Technocamps](#) | [Techvets](#) | [Tesco Stores Ltd](#) |

Thales Group UK | [The CyberHub Trust](#) | The Investment Association | [The Law Society](#) | Titania | [Translink](#) | [Trooli](#) | [TrustStamp](#)

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[WR Logic](#) | [XServus](#) | [Zaizi](#) | [Zenero](#)

240 CYBERFIRST MEMBERS



UK GOVERNMENT & PUBLIC SECTOR

Civil Aviation Authority
DCMS
Dept for Education
Dept for Transport
DSTL
DVLA
DWP
HMGCC
HMRC
Home Office
IP Office
Met Office
Ministry of Justice

MOD
National Air Traffic
NCA
4 NHS Depts
NI Civil Service
Ofgem
Scottish Govt
3 UKIC Depts
UK Parliament
Digital Service
Welsh Govt



POLICE & REGIONAL ORGANISED CRIME UNITS (ROCU)

Bedfordshire Police
Cambridgeshire Constabulary
East Midlands Special Operations
Greater Manchester Police
Gwent Police Hi Tech Crime Unit
Hertfordshire Constabulary
Merseyside Police
Metropolitan Police
Norfolk & Suffolk Constabulary
South Wales Police
Surrey & Sussex Cybercrime Unit
Warwickshire Police
West Midlands Police
ROCUs (6 regions)



ACADEMIA

Cardiff Metropolitan University
Cardiff University
De Montfort University
University of Gloucestershire
University of South Wales
University of West of England
Warwick University
Wrexham Glyndŵr University



CHARITIES/ NOT FOR PROFIT

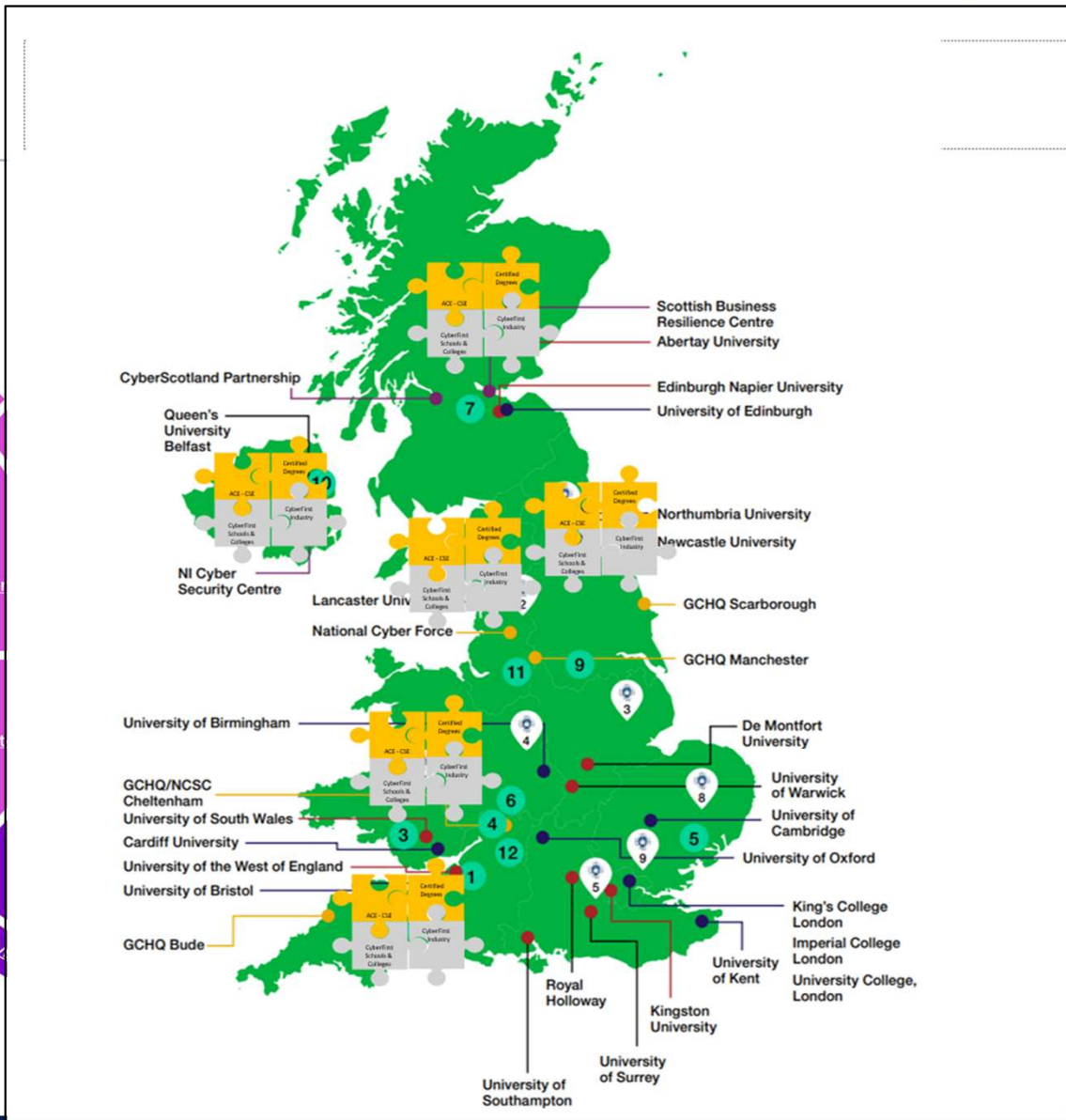
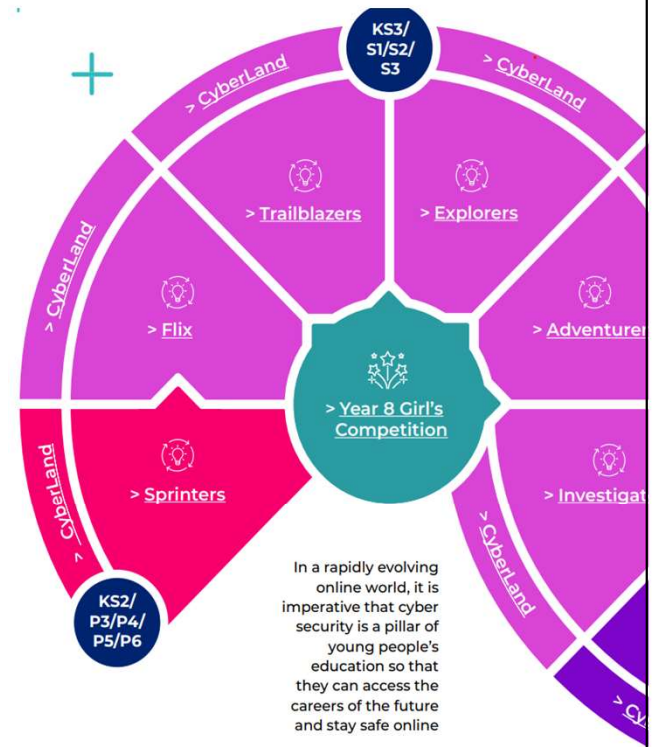
Career Colleges Trust
CREST
Marie Curie
Smallpiece Trust
The Alan Turing Institute
The Cyber Helpline

240 CYBERFIRST MEMBERS

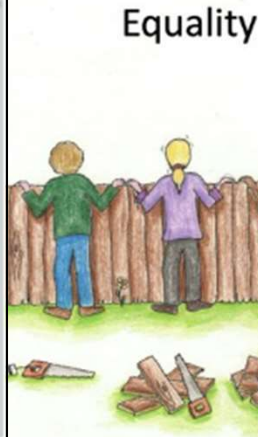
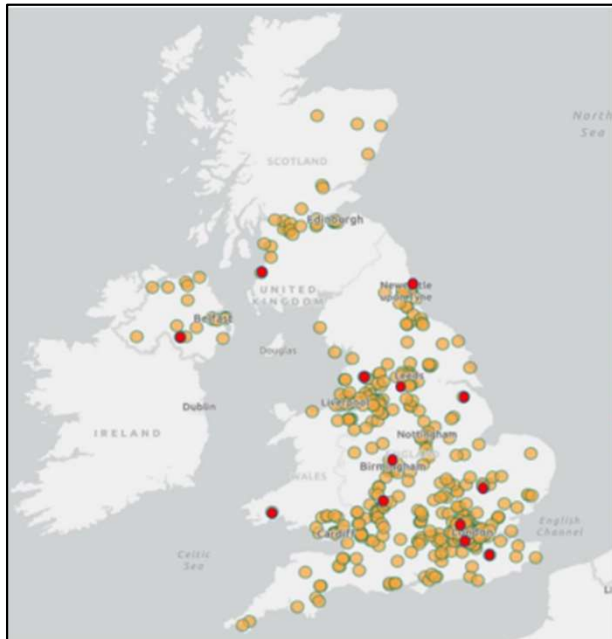




4. Create an accessible pathway



5. Remove barriers to inclusivity



GCHQ seeks teenage girls to join cyber security fight

© 18 January 2017




THINKSTOCK

6. Build in continuous improvement


"Developing a diverse cyber workforce is vital for ensuring the UK remains safe online, and we are committed to removing barriers so young people can pursue careers in the field. I am delighted to see the positive impact our CyberFirst initiative is having in the North West - recognising schools for the very best in cyber education and helping pupils develop valued tech skills. Working with IN4 Group, I look forward to seeing the programme grow across the region, paying dividends for the local ecosystem and contributing to our national cyber resilience now and into the future."

Lindy Cameron
Chief Executive



CyberFirst North West




CyberFirst aims to ensure the UK has a sustainable supply of diverse and high-quality individuals joining the cyber workforce of the future. Together with the UK government, it strives to equip young people with the digital awareness and skills they need to enable them to pursue a career path in the sector.




HOST
Home of Skills & Technology

CyberFirst Evolution

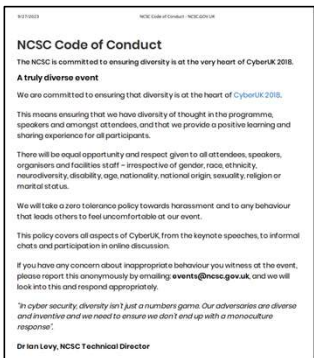
<p style="text-align: center; font-weight: bold; margin: 0;">2018</p> <p>NCSC piloted a Cyber Schools Hub (CSH) programme in Gloucestershire, with a collaborative aim of encouraging young people to engage with computer science and the application of cyber security in every day technology</p>	<p style="text-align: center; font-weight: bold; margin: 0;">2020</p> <p>The pilot of the now CyberFirst Schools & Colleges scheme was extended to Gloucestershire and Wales</p>
<p style="text-align: center; font-weight: bold; margin: 0;">2021</p> <p>The scheme was further extended to include secondary schools and colleges in Northern Ireland, South West of England and North East of England</p>	<p style="text-align: center; font-weight: bold; margin: 0;">2022</p> <p>The scheme was rolled out to the North West of England and delivered by IN4 Group</p>



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7. You can't be what you can't see.



One female student described how she felt the programme had successfully challenged stereotypes.

"I always felt the unconscious bias, "you're going to struggle if you're female" ... I'm so much more interested and confident. I've met women in cyber, I'm inspired by them. I wouldn't have if it wasn't for CyberFirst. I feel more included."



8. Positive cultures in the workplace

- > We will make changes to external recruitment practices to ensure the NCSC attracts diverse talent to better represent the communities it serves.
- > We will take action to eliminate the gender and ethnic minority pay gaps in our organisation.
- > We will support our workforce with training and information to value a fully inclusive environment, and take action to promote it.
- > Through our [CyberFirst](#) programme, we will aspire to increase every year the number of women offered a place on the scheme.
- > We will work with establishments with high numbers of students from under-represented communities to create a thriving cyber security community.

BLOG POST

Mind the gap: creating an inclusive environment

How the NCSC is attracting newcomers - and helping existing staff to thrive - in the cyber security domain.



As individuals and organisations increasingly rely upon digital technology in both





1. Discover where you need diversity.
2. Make it relevant.
3. Make it a community effort.
4. Create an accessible pathway.
5. Remove barriers to inclusion.
6. Build in continuous improvement.
7. Ensure you have visible role models.
8. Develop positive cultures in the workplace.



National Cyber
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a part of GCHQ



What's your path to diversity?

Helen Lovekin, CTO Cyber Growth, NCSC

