HEY LEP Career Aspirations Group: Digital and Tech Sector CPD Event

Career opportunities in the digital & technology industries

Wednesday 6th March 2024 @ C4Di, Hull

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

Housekeeping

Chris Howell
HEY LEP Employment & Skills Manager

Introduction

Andy Crossland
HEY LEP Chair Career Aspirations Group

Hull and East Yorkshire Local Enterprise Partnership

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

HEY LEP Career Aspirations Group

Active working group with the remit for all age CEIAG and reporting to the HEY LEP Employment & Skills Board.

5 key objectives:

1. To promote CEIAG quality standards, such as QICS and Matrix

2. **To help support & develop local CEIAG practitioners**

3. To develop and promote Labour Market Information (core CAG theme)

4. To review, develop, and promote Employability Skills passports

5. To review the LEP Skills Pledge

Today's Event

- Perceived gap for **careers and IAG staff** to network and undertake CPD
- Concept = termly short events focused on specific sectors & industries
- Enable networking and sharing best practice / information
- Offer marketplace & access to LMI Information
- Appreciate your feedback / future topics

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

Agenda

09:10	**HEY Digital and Tech Sector: C4Di**
09:30	**Cyber Security: Arco**
09:50	**Comfort Break**
10:05	**Digital Infrastructure: KCOM**
10:25	**Data Science, A.I. & Modelling: UoH**
10:45	**Plenary & Q&A**
11:00	**Networking & Close**

HEY
Hull and
East Yorkshire
Local Enterprise
Partnership

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

C4Di

Arco

HEY LEP – Careers in the Digital and Tech Sector

February 2024
Delivered by Mike Hudson

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Agenda

- Who are Arco
- Why cyber security teams are important
- Meet the team
- The Arco team journey
- Cyber Security Roles, Skills and Initiatives
- Network, network, NETWORK!
- Questions

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Who are Arco

- Family owned
- Established 1884
- UK's only integrated services and safety products business
- Retail, manufacturing & distribution
- Over a thousand vendors
- Over 200,000 individual items

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Arco digital careers

- 90+ Colleagues across 20 disciplines - 5 apprentices in 2021, 5 in 2020, 15+ work experience students in Cyber since 2021

- IT
    - Desktop applications support
    - Network infrastructure support
    - Cyber Security
        - Red teaming
        - Blue teaming

- Continuous improvement
    - Business analyst
    - Business improvement partner

- Vendor Management

- Digital and Social Media

- Project Management
    - Scrum masters

- Architecture
    - Solutions architecture
    - Data architecture

- Software engineering
    - Application development
    - SAP development
    - Web development
    - Software testing
        - Test automation

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The world around us

Common cyber-attacks in the industry

Ransomware and Malware

Malicious files delivered via email, website, instant message, rogue network connection or USB. Designed to prevent access to files and software and extort money from victims.

Social Engineering/Phishing/Business Email Compromise (BEC)

Emails, phone calls and text messages crafted to obtain usernames and passwords for systems, with a view to either extort money or steal data.

Denial of Service (DoS) and Distributed Denial of Service (DDoS)

Attempts to take services offline with large volumes of malicious traffic from either a single source or multiple sources around the world.

Hacking / Remote code execution

Malicious access and use of computer systems via unpatched software, with a view to either disrupt normal business activity, steal and extort data.

Payment card skimmers

Attachment of foreign/malicious hardware to card terminals in retail stores, and data interception, with a view to steal payment card details.

Data theft and Insider Threat

Malicious or accidental leaking of confidential, commercially sensitive data and insider malicious actions.

"Global cybercrime damage is predicted to hit $10.5 trillion annually by 2025."
—Steve Morgan, Cybersecurity Ventures

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Cyber Security Incidents per Organization - UK
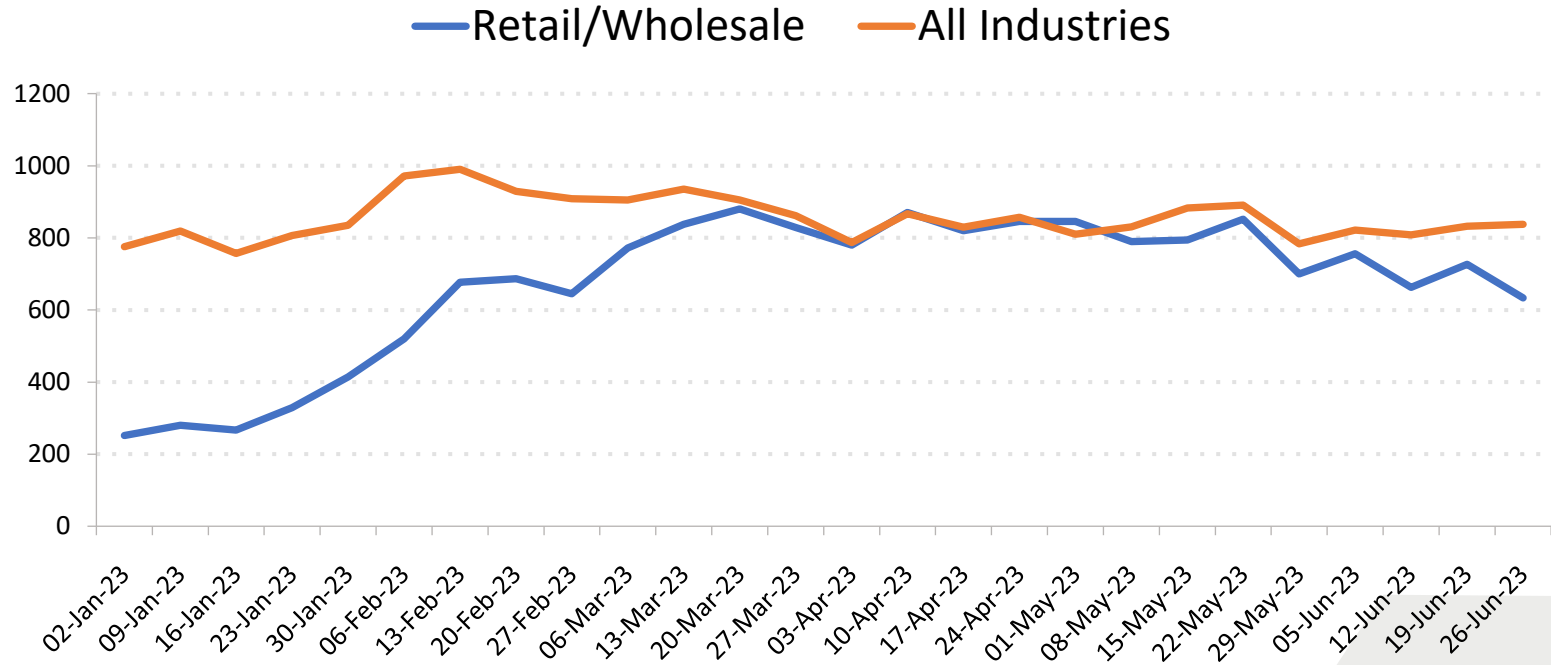
"An organization in United Kingdom is being attacked on average 855 times per week in the last six months." – Check Point Research

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Ransomware Attacks

Throughout the course of this year, the below organisations where amongst hundreds of others who fell victim to successful Ransomware Attacks.

Ransomware is a term used when malicious software restricts access to data held on a system or network, with the
key to unlock the data held at 'ransom'.

Normally delivered via email attachment or file download, upon execution, Ransomware encrypts all files and folders on the PC and any connected network servers is can find. Often using a method of encrypted and a recovery key only known by the malicious actors, unless stringent measures and controls are in-place, restoration of data and access to systems is only possible by paying a significant amount of money for the key.
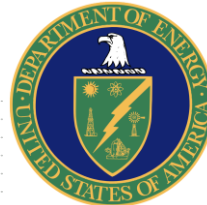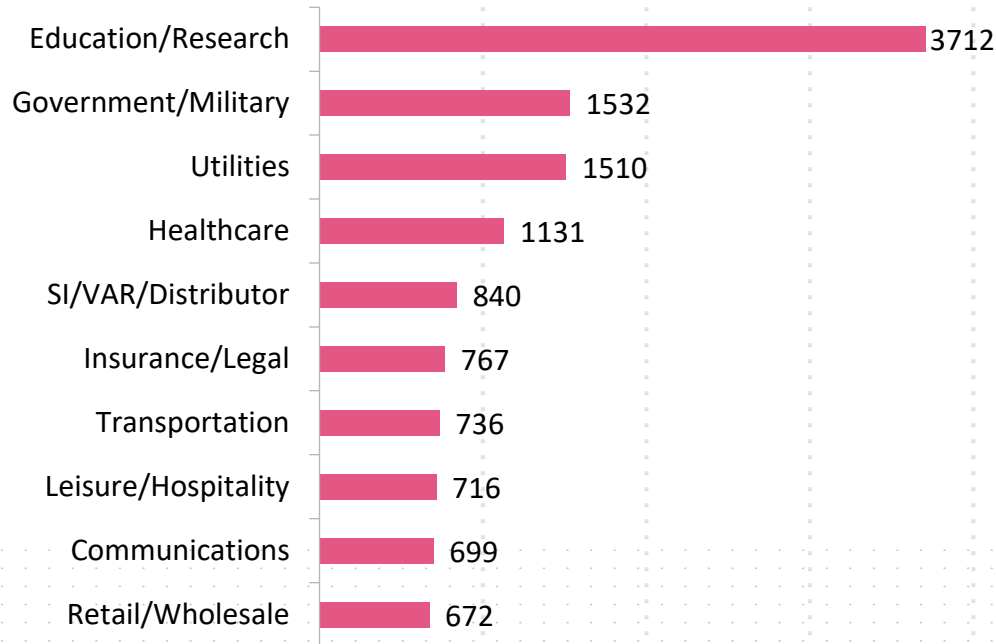
Ransomware Attacks - UK
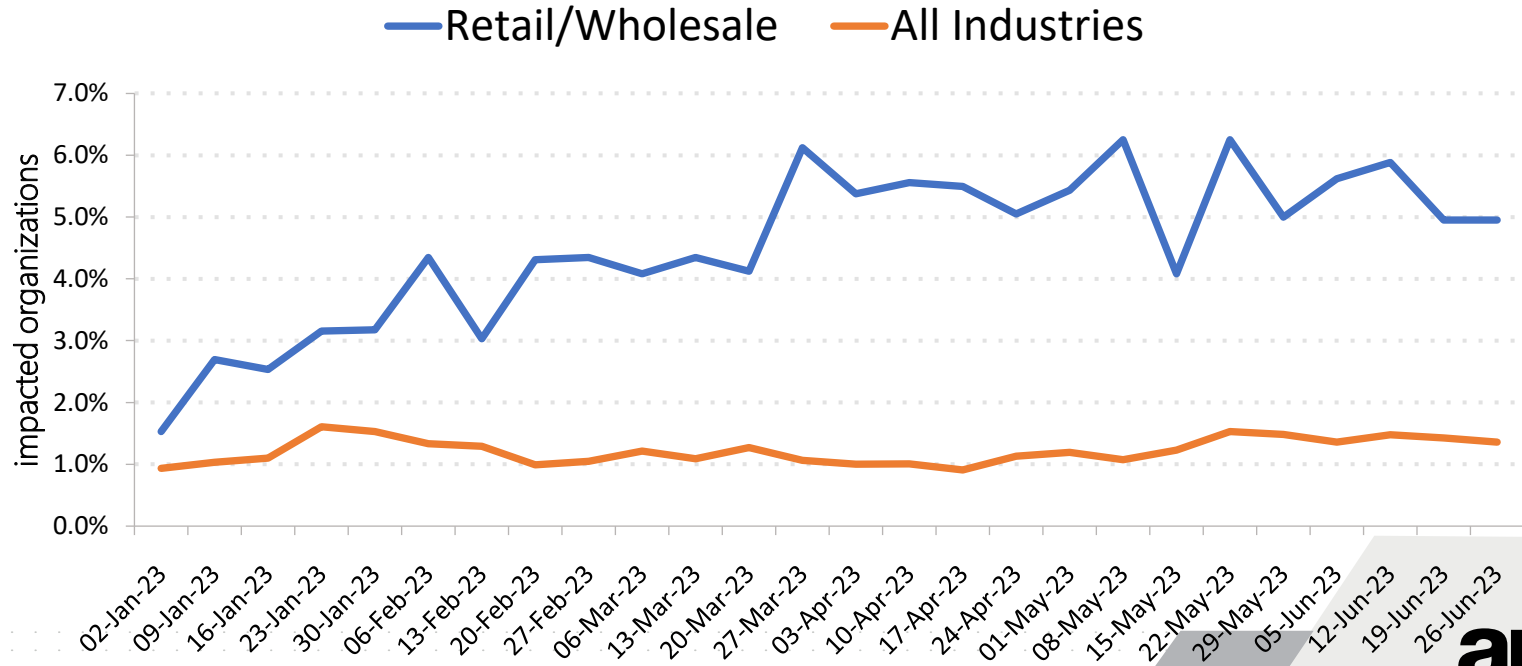
Data Theft

Further to the ransomware attacks, the below organisations all suffered varying levels of data theft, access to systems gained via either credential theft or malicious software running on their networks.

Data Theft is the term commonly used for data taken from the owner's network and either sold on the dark web or held at ransom before public release. Often the negative impact on a business's reputation out ways the financial damage incurred via the theft.
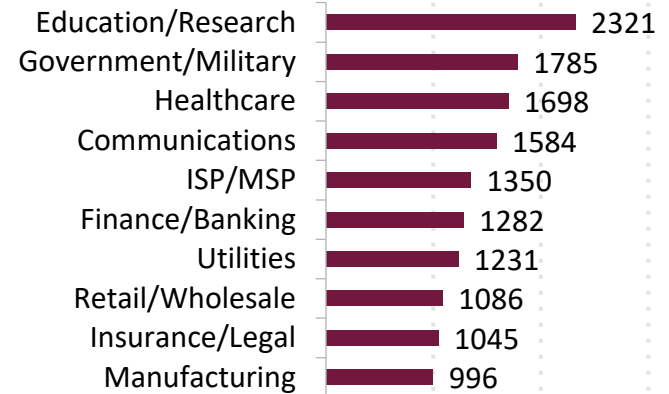
Most Impacted Industries - First 6 Months 2023

Weekly Attacks per Sector - United Kingdom

Sector	Attacks
Education/Research	3712
Government/Military	1532
Utilities	1510
Healthcare	1131
SI/VAR/Distributor	840
Insurance/Legal	767
Transportation	736
Leisure/Hospitality	716
Communications	699
Retail/Wholesale	672

Weekly Attacks per Sector - Global

Sector	Attacks
Education/Research	2321
Government/Military	1785
Healthcare	1698
Communications	1584
ISP/MSP	1350
Finance/Banking	1282
Utilities	1231
Retail/Wholesale	1086
Insurance/Legal	1045
Manufacturing	996

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Meet the Cyber Security Team

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Mike Hudson
Cyber Security Manager

CISSP (Certified information security systems professional)
CISMP (Certificate in information security management principles)
ISO/IEC 27001:2013 Lead Auditor
Prince2 Foundation Certification
ITIL Foundation Certification

Cloud Network Security Expert for Azure (Exam Pending)

NCSC Cyber First Schools Ambassador
HEY LEP Digital Skills Steering Committee
Yorkshire Cyber Security Cluster Board Member
15 Years working for Arco

Joshua Thorpe
Cyber Security Analyst

CISCO CCNA ITN V7 Certified
CompTIA Network + Certified
CompTIA Security + Certified

BCS Level 4 Cyber Security Technologist Apprenticeship

Cloud Network Security Expert for Azure (In Training)

4 Years working for Arco

James Swinburne
Apprentice Cyber Security Analyst

Working towards
BCS Level 4 Cyber Security Technologist Apprenticeship

Cloud Network Security Expert for Azure (In Training)

2 Years working for Arco

Cyber Security Roles, Skills Initiatives

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RED TEAM

ATTACKERS

Works to break into the system.
Skills include:

- **Penetration Testing**
- **Vulnerability Scanning**
- **Social Engineering**
- **Threat Intelligence**
- **Custom Toolset Development**

PURPLE TEAM

MEMBERS FROM BOTH TEAMS

Gets blue and red teams to work together to improve an organisation's security posture.
Skills include:

- **Collaboration**
- **Information-Sharing**
- **Reporting and Analysis**

BLUE TEAM

DEFENDERS

Works to keep the systems safe.
Skills include:

- **Network Monitoring**
- **Data and Log Analysis**
- **Risk Assessments**
- **Threat Detection**

Junior/Apprentice Cyber Security Analyst

› Knowledge of Windows desktop & Server operating system

› Maintaining desktop operating system updates

› Experience and understanding of Antivirus technology

› Knowledge or user directories

› Basic knowledge of networking

› Analytical mindset

Working toward a BCS Cyber Security Technologist Level 4 certification or similar

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Cyber Security Analyst (Blue Team)

› Experience of Windows desktop & Server operating system

› Maintaining operating system updates

› Experience and understanding of Antivirus technology

› Experience of managing a user directory

› Understanding of networking technologies

› Threat hunting understanding and light experience

Possesses a BCS Cyber Security Technologist Level 4 certification or similar

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Cyber Security Engineer (Blue Team)

› Advanced knowledge desktop & Server operating systems (Linux, Windows etc)

› Advanced scripting skills

› Experience and knowledge of Firewall rule management

› Awareness of IDP platforms

› Ability to select and implement new tooling and technologies

› Advanced Threat hunting knowledge and log analysis

Possesses certifications such as CompTIA Sec+, Network+, CISCO CCNA ITN, or Pentest+

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Penetration Tester / Ethical Hacker (Red Team)

- ❯ Advanced knowledge desktop & Server operating systems (Linux, Windows etc) and their floors
- ❯ Advanced scripting skills and testing tools (Kali Linux, Metasploit etc)
- ❯ Experience and knowledge of Firewall rule management
- ❯ Awareness of IDP platforms
- ❯ Ability to select and implement new tooling and technologies
- ❯ Advanced Threat hunting knowledge and log analysis

Possesses certifications such as Comptia Pentest+, Certified Ethical Hacker (CEH) and Offensive Security Certified Professional (OSCP) or similar.

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Other Cyber Security Roles

- Security Engineer
- Application Security Engineer
- Security Analyst
- Penetration Tester
- Security Administrator
- Incident Responder
- Security Researcher
- Forensic Engineer
- Reverse Engineer
- Security Auditor

- Vulnerability Assessor
- Cryptographer
- Cryptanalyst
- Intrusion Detection Analyst
- Firewall Analyst
- Malware Analyst
- Cyber Threat Intelligence Analyst
- Security Sales Engineer
- Security Architect
- …… and many many more*

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ISC2 Certified in Cybersecurity

ISC2™

CC Quick Glance

ENTRY-LEVEL CYBERSECURITY

Proves you have the foundational knowledge, skills and abilities for an entry- or junior-level cybersecurity role.

WHAT TO EXPECT ON THE CC EXAM

Domain 1. Security Principles

Domain 2. Business Continuity (BC), Disaster Recovery (DR) & Incident Response Concepts

Domain 3. Access Controls Concepts

Domain 4. Network Security

Domain 5. Security Operations

CC Exam Outline

Entry-Level
NO WORK EXPERIENCE REQUIRED

FREE Exam & Training
FOR LIMITED TIME

ANAB Accredited
ISO/IEC STANDARD 17024

CyberEPQ

Chartered Institute of
Information Security

Headstart

- ✔ Open to students from Year 9 upwards
- ✔ Suitable for career changers looking for a new direction
- ✔ Provides a broad introduction to a variety of cyber topics
- ✔ Work at your own pace at a time that suits you
- ✔ Receive a Certificate of Completion outlining modules studied
- ✔ Easy transfer to the CyberEPQ after completion

£50 / student

Introduction to Cyber Security

The History of Computing & Cryptography

Cybercrime

Risk Assessment, Management & Governance (Part 1 & 2)

Security Testing & Vulnerability Assessment

Digital Forensics

Incident Response Management

Identity & Access Management (Authentication, Authorisation & Accountability)

Security Audit, Compliance and Assurance

Human Aspects of Cyber Security (specialist topic)

Pentesting (specialist topic)

Software Security and Architecture (specialist topic)

Chartered Institute of Information Security

The CyberEPQ

School-based Learners

✓ City & Guilds Accredited Qualification worth up to 28 UCAS points

✓ City & Guilds registration costs

✓ Supervision and marking provided by your existing teacher

✓ Option to spread the course over a 1 year or 2 year duration

✓ Invitation to exclusive career related events with leading Cyber Security companies

✓ Enrolling more than one student? **Enrol a group**

£200

Introduction to Cyber Security

The History of Computing & Cryptography

Cybercrime

Risk Assessment, Management & Governance (Part 1 & 2)

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Digital Forensics

Incident Response Management

Identity & Access Management (Authentication, Authorisation & Accountability)

Security Audit, Compliance and Assurance

Human Aspects of Cyber Security (specialist topic)

Pentesting (specialist topic)

Software Security and Architecture (specialist topic)

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CyberEPQ

Chartered Institute of
Information Security

The CyberEPQ

Independent Learners

- ✓ City & Guilds Accredited Qualification worth up to 28 UCAS points
- ✓ Includes City & Guilds registration costs
- ✓ Supervision and support provided by a CIISec appointed supervisor
- ✓ Study course content over 1 year
- ✓ Invitation to exclusive career related events with leading cyber security companies

£550

Introduction to Cyber Security

The History of Computing & Cryptography

Cybercrime

Risk Assessment, Management & Governance (Part 1 & 2)

Security Testing & Vulnerability Assessment

Digital Forensics

Incident Response Management

Identity & Access Management (Authentication, Authorisation & Accountability)

Security Audit, Compliance and Assurance

Human Aspects of Cyber Security (specialist topic)

Pentesting (specialist topic)

Software Security and Architecture (specialist topic)

OFFICIA

Network, Network, NETWORK!

Skills

Our Skills Working Group is dedicated to encouraging skills development in the cyber security industry. They help other cyber skills programmes to grow by putting them in touch with the right collaborators, building their knowledge and discovering best practice.

At YCSC, we are committed to promoting skills opportunities, increasing outreach and encouraging skills development across all ages. We work closely with numerous schools, colleges and universities to identify achievable pathways for students.

01	BRISTOL & BATH CYBER
02	Cyber East
03	CYBER.
04	CYBER WALES
05	CyberNorth
06	CYNAM
07	East Midlands Cyber Security Cluster
08	KMCC Kent & Medway Cyber Cluster
09	MIDLANDS CYBER The Cyber Cluster for the West Midlands
10	NI CYBER
11	NWCSC NORTH WEST CYBER SECURITY CLUSTER
12	CYBER
13	Swindon & Wiltshire Cyber Cluster
14	SCSC Surrey Cyber Security Cluster
15	SCOTLANDIS cyber
16	SWCSC SouthWest Cyber Security Cluster
17	YCS

https://ukc3.co.uk/upcoming-events/

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Upcoming CIISec Events

Chartered Institute of Information Security
10,614 followers
23h · 🌐

Have you signed up for next week's virtual webinar on the CyberEPQ?

Whether you are a teacher curious about the benefits of the CyberEPQ, a student unsure on the process of writing your CyberEPQ, or an organisation looking to sponsor future talent in the cyber security industry, join us for an overview and Q&A session🚀

Hear from our CIISec CyberEPQ team, a CyberEPQ graduate, course supervisor and industry professional.

📝Tuesday 5th March
⏰4.30pm-5.30pm

Register here: https://lnkd.in/e-3pvuSV

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Upcoming YCSC Events

The Art of Social Engineering: Virtual Masterclass

Thu, 7 Mar, 13:30 GMT

Free

Yorkshire Cyber Security Cluster

Next Generation Cyber

Wed, 20 Mar, 10:00

Cantor

Free

Yorkshire Cyber Security Cluster

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COMFORT BREAK

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

University of Hull

HEY Hull and
East Yorkshire
Local Enterprise
Partnership

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

UNIVERSITY
OF HULL

HEY LEP: Careers in the Digital and Tech Sector, 6th March 2024

Data Science, Artificial Intelligence and Modelling

Learning opportunities at the University of Hull

Amy Bilton (DAIM Head of Business Engagement and Enterprise)

Welcome…
to the new world

41

Photo by Markus Spiske on Unsplash

Definitions

(some answers from *Microsoft Copilot*)

- **Data Science** – an interdisciplinary field that combines mathematics, statistics, programming, analytics, artificial intelligence (AI), and domain expertise to extract knowledge and insights from data (https://www.ibm.com/topics/data-science)

- **Artificial Intelligence (AI)** - computer systems capable of performing tasks that historically required human intelligence (https://www.coursera.org/articles/what-is-artificial-intelligence)

- **Modelling** - the process of creating a visual representation of either an entire information system or specific parts of it (https://www.ibm.com/topics/data-modeling)

AI is not new…

1950s

- Turing test
- The term 'Artificial Intelligence' is coined

The rise of artificial intelligence over the last 8 decades: As training computation has increased, AI systems have become more powerful

So why the fuss now?

- **2020s**
  - OpenAI's *ChatGPT* launched Nov 2022 – made available to the public.
  - The rise of **Generative AI (Gen AI)** - AI models that can *create* content (e.g., text, images, music, video)
  - Recent advances in:
    - **Large Language Models (LLMs)** - deep-learning algorithms trained on massive amounts of data to 'understand' and predict text.
    - **Diffusion models.**
    - **Generative Adversarial Networks (GANs).**

25/06/2024
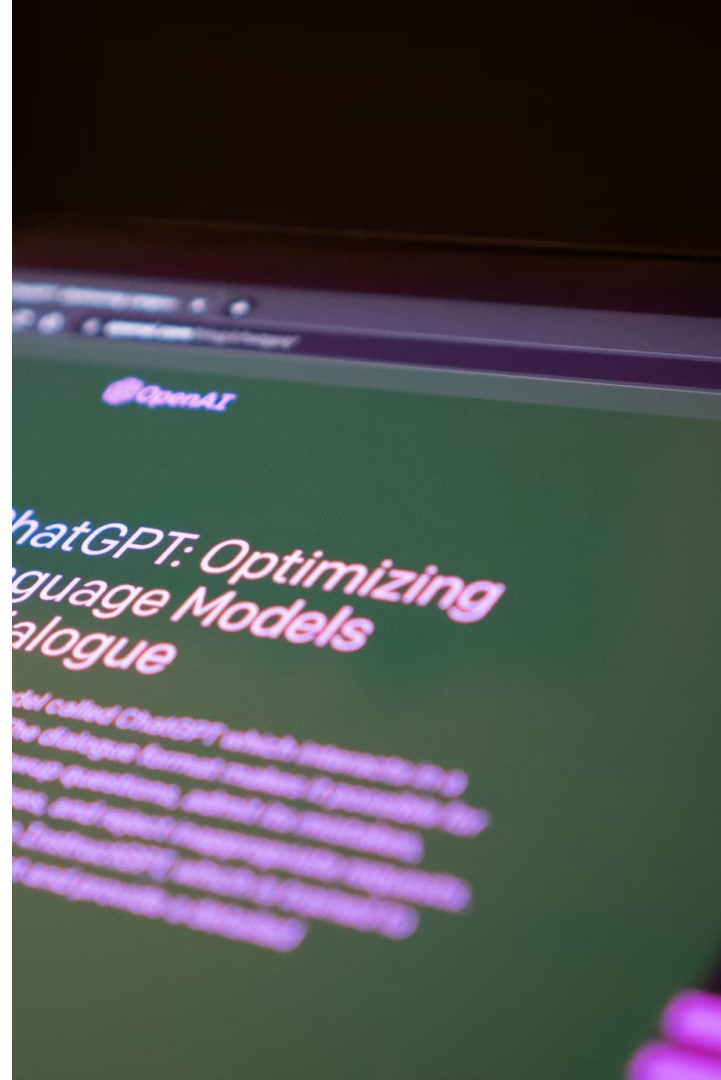
Sound familiar?

Lots of Data

Messy data

Where to start?

Industry needs

- From conversations…
  - Data science & AI literacy skills, incl. terminology, tools ('beyond Excel').
  - An understanding of data, e.g., data concepts, types, potential biases, ethics.
  - Data collection, management & governance, data quality, ownership.
  - Data analysis (incl. business intelligence, trends).
  - Programming skills (particularly in Python).
  - More advanced AI methodologies, such as machine learning, deep learning.
  - How to take an AI project from start to finish.
  - An understanding of what questions to ask.

- **Disclaimer:** the field is advancing rapidly, so skills needs could look very different next year, or even within the year.

Computer science courses at the University of Hull

Undergraduate and postgraduate courses with varying degrees of data science and/or AI, depending on available modules, incl.:

- **BSc (Hons) Computer Science**

- **BSc (Hons) Computer Science (Artificial Intelligence)**

- **BSc (Hons) Robotics and Artificial Intelligence**

- **MSc Advanced Computer Science**

25/06/2024

MSc Artificial Intelligence and Data Science

▪ **Conversion course** – our students come from a broad range of backgrounds across sciences and humanities.

▪ Suitable for those wanting to upskill, change direction, switch careers.

▪ Covers topics such as Python programming, machine learning, big data, data visualisation, computer vision and the ethical and legal responsibilities of using data.

▪ **In-person** teaching.

▪ Full-time and part-time options.

▪ Start dates January, May and September.

▪ **Entry requirements:** check the course page, https://www.hull.ac.uk/study/postgraduate/taught/artificial-intelligence-and-data-science-msc

(Subject to approval) We are in the process of exploring new undergraduate and postgraduate courses focusing on data science & AI applied within different disciplines.

25/06/2024

MSc in Artificial Intelligence (Online)

- **Fully online**, flexible learning.

- Required working knowledge of programming; covers topics such as Python AI libraries and coding techniques; advanced technologies such as Machine Learning/Deep Learning; ethical, regulatory & social aspects of the fair use of AI.

- Part-time (2 years)

- Start dates January, May and September

- **Entry requirements:** check the course page, https://online.hull.ac.uk/courses/msc-artificial-intelligence.

- (Subject to approval) our School of Computer Science hope to launch a PGCert in Responsible AI using two modules from the MSc AI (Online), with a May intake.

25/06/2024

Photo by John Schnobrich on Unsplash

CPD, Short Courses

AI for Business Programme
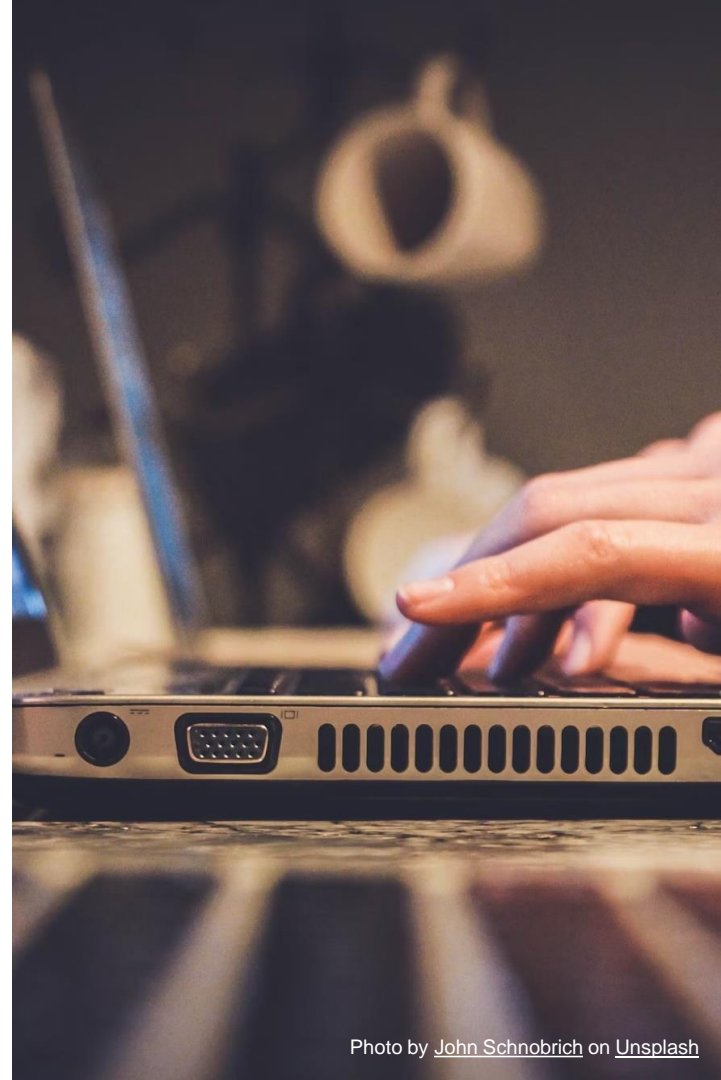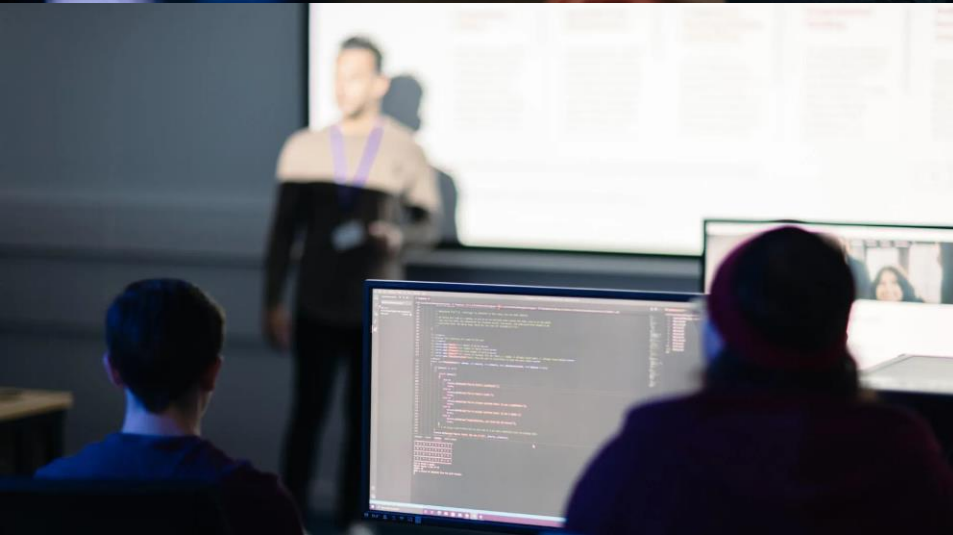
- **In development** (subject to approval):
  - **Executive education** course for **mid-to-senior-level managers**. You may be head of a business unit or managing a team at a functional level and tasked with improving business performance in your division.
  - Focused on **creating value** in your business.
  - **4 days**, over 4 weeks.
  - *Indicative content:* Opportunity to assess current AI readiness and develop an implementation plan, interactive learning including understanding AI, tools and data, AI roles and skillsets, real-world case studies, organisational change, leadership in AI.
  - Collaboration between Business School and DAIM.
  - Anticipated start date summer 2024.

- **Also being explored:**

Basic data science & AI literacy course(s)

Responsible AI

- **Are there other needs? We'd like to hear from you!**

AI Readiness Assessment

4 days

In-person

- -

Online resources

Executive Education Certification

Digital Badge

Thank you

HEY LEP

Department for Digital, Culture, Media & Sport: Assessing the UK's Regional Digital Ecosystems

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2021 DCMS Regional Digital Eco-systems Report

Five "Enabling Domains"

Figure 2-2: A framework for assessing regional ecosystems for the digital economy

1. Digital tech Businesses, Employment, & GVA

5. People, Skills & Inclusion

The Ecosystem for the Digital Economy

2. Place, Infrastructure & Assets

4. Ideas & Innovation

3. Investment & Business Environment

Source: Steer-ED, 2021

of our communities
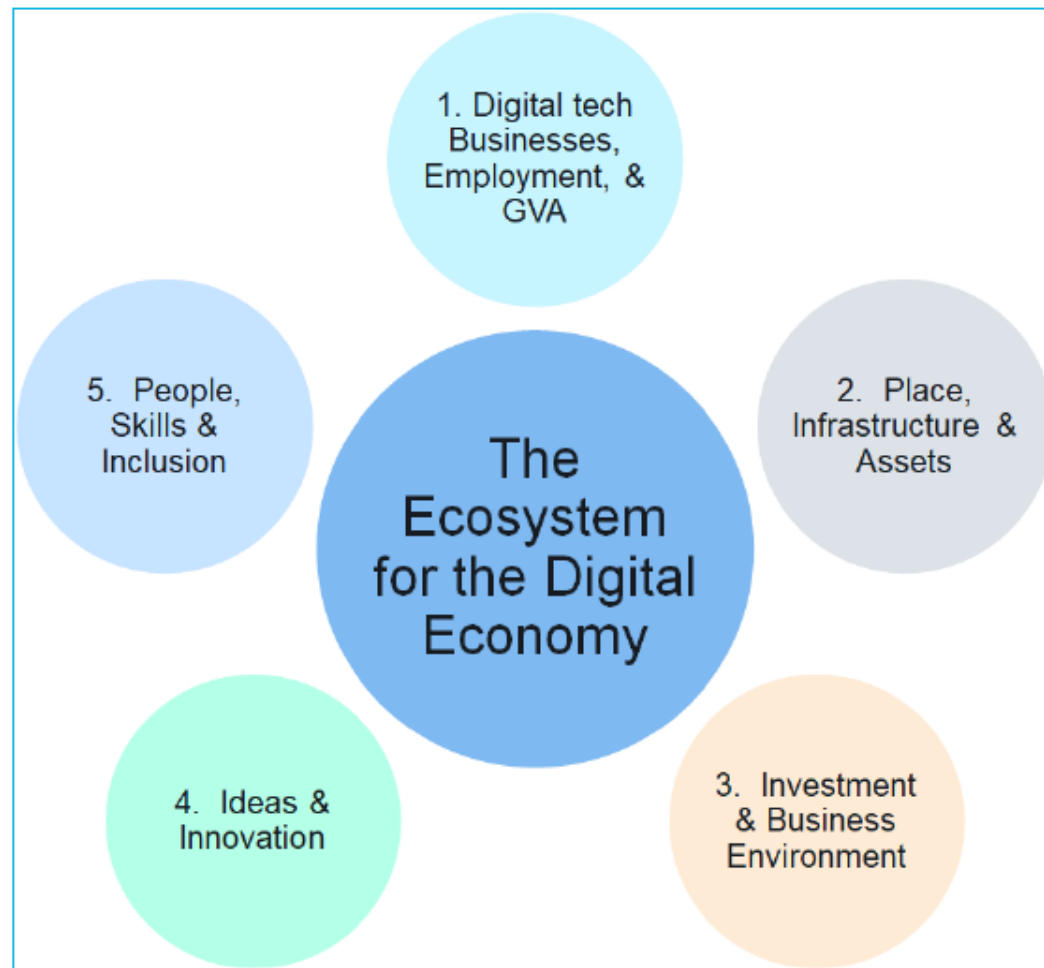
Digital Sector GVA % plotted against Digital Sector GVA 5 year growth rate (2014-19) – Yorkshire and the Humber NUTS3 regions, and UK NUTS3 outliers
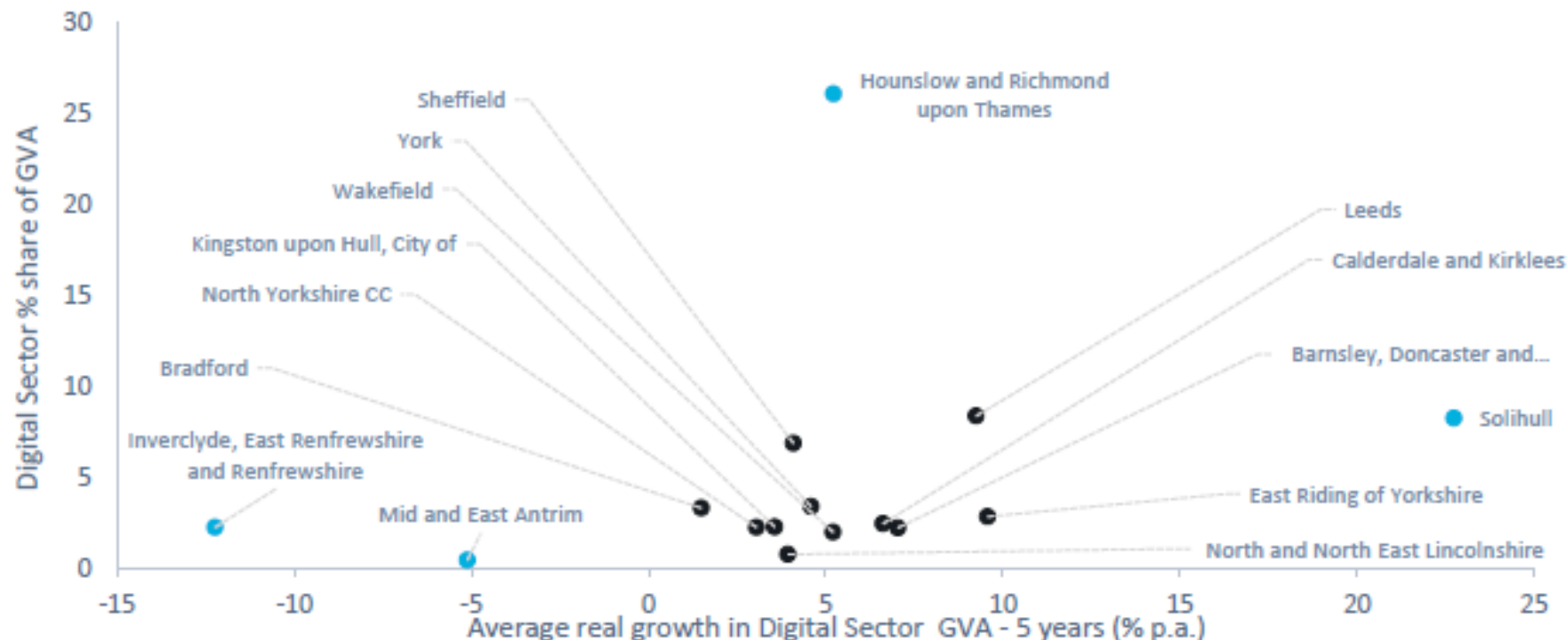
Source: Regional Gross Value Added (balanced) by industry (ONS), 2021

- The chart above shows how digital sector growth is correlated with the relative size of the digital sector in Yorkshire and Humber's NUTS3 regions. It plots these against outlier NUTS3 regions from the rest of the UK.

Table 5-1: Indicative additional GVA and jobs in the digital sector by 2025 (above the 2019 values)

NUTS1 region or nation	Potential additional annual GVA by 2025 (£m, 2018 prices)	Potential additional jobs by 2025
East Midlands	1,500	36,500
East of England	2,250	41,400
London	16,760	216,500
North East	460	13,800
North West	2,680	50,000
Northern Ireland	790	13,300
Scotland	2,160	34,300
South East	8,820	129,500
South West	1,370	36,600
Wales	350	11,300
West Midlands	2,750	52,700
Yorkshire and The Humber	1,590	42,200
Total	**41,480**	**678,100**

Source: Steer-ED, 2021

Plenary & Q&A

Andy Crossland
HEY LEP Chair Career Aspirations Group

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities

Networking and Close

Driving growth of the Hull and East Yorkshire economy for the benefit of our communities