CLARITY

# Winning the War for Tech Talent: Battle-Tested Strategies from a 30-Year Warrior

Zach Lewis

CLARITY

https://www.clarityinnovates.com/

**Our mission is to connect people to the technology and tradecraft necessary to make our country, and our world, a better, safer place.**

- **Mission Focused Full Stack Digital Services Company**
- **Tactical and Strategic deployment**
- **Cloud development in Government spaces**
- **Multiple Department of Defense Primes**

## Clarity's Competencies

- Full stack digital services
- Application development
- DevSecOps engineering
- Human Centered Design
- Design Thinking
- Agile thinking and methodologies
- XP processes to including
- Test Driven Development
- CI/CD pipelines
- Pair programming
- Code refactoring
- Cloud native development
- Cloud native security
- Green/brown fielding
- X as-a-Service
- Platform engineering
- Systems architecture

# PRESENTER

## Zach Lewis

**Clarity Dev Lead - CISSP/CSSLP**

**Tech Enthusiast, Full Stack Developer/**

**30+ year IT Professional**

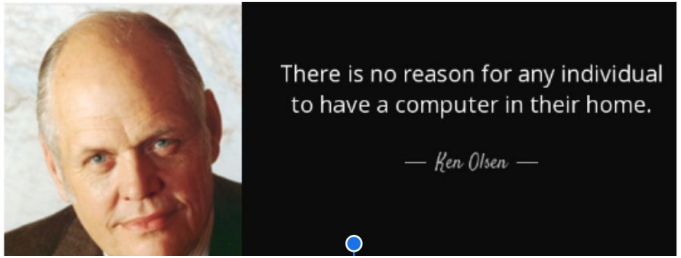
**Solution Oriented Consultant .**

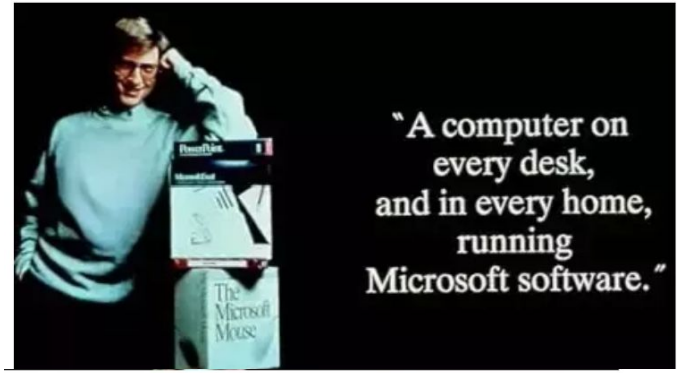
**SRE, App Sec Consultant, Strategic Initiatives, Knowledge Management**

https://www.linkedin.com/in/zachary-lewis-2aa8032

## How Things Change




# Key Areas

The tech talent landscape has dramatically shifted over 30 years

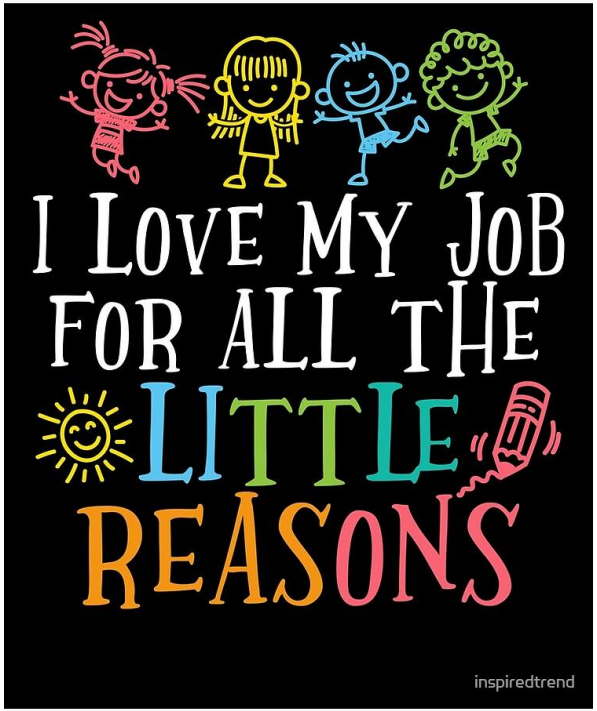
| | |
|---|---|
| • **Mission/Purpose in Life**<br>• **Transferable Skills**<br>• Geography<br>• **Technological advancements**<br>• **Salary** | • **Transparency**<br>• **Instant gratification**<br>• Collaborative tools<br>• **Gig economy growth**<br>• **Work-life integration** |

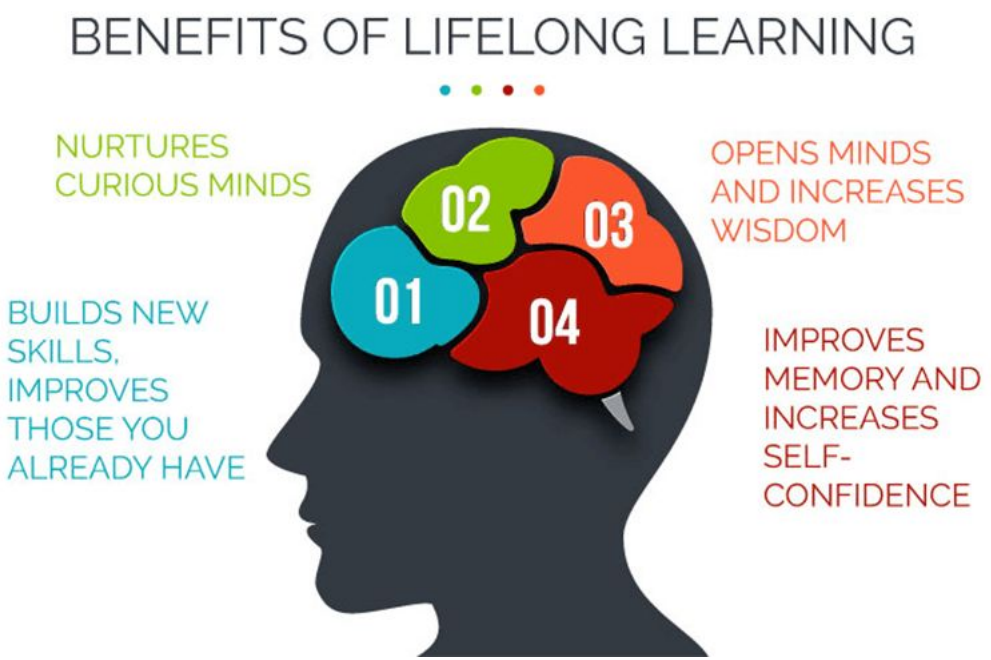
**Recruiting for retention matters more than ever.**

# We know Cybersecurity Hiring Decisions Matter

- **Critical Role in Defense**: Cybersecurity professionals are the front-line defenders against digital threats to national security.
- **Potential for Insider Threats**: A malicious actor in a cybersecurity position could cause significant damage.
- **Rapidly Evolving Field**: The fast-paced nature of cyber threats requires adaptable, reliable professionals.
- **High Stakes**: Mistakes or negligence in cybersecurity can have severe consequences for national security.

# Ice Breaker Question:  Do you love your Job  ? what things ?



# Hiring Exercise – What Changed ?

List of common IT roles in the 1980s, from highest to lowest level:

1. Chief Information Officer (CIO)
2. IT Director
3. Systems Manager
4. Network Administrator
5. Database Administrator
6. Programmer/Software Developer
7. Systems Analyst
8. Computer Operator
9. Data Entry Clerk
10. Technical Support Specialist

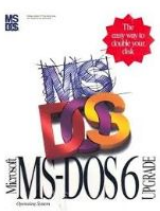
# Hiring Exercise – What is Really Needed ?

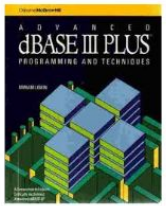
Here's a list of IT roles needed in the 2020s and beyond, from strategic to operational:

1. Chief Information Officer (CIO)
2. Chief Technology Officer (CTO)
3. Chief Data Officer (CDO)
4. Chief Information Security Officer (CISO)
5. Cloud Architect
6. DevOps Engineer
7. Data Scientist
8. Artificial Intelligence/Machine Learning Engineer
9. Full Stack Developer
10. Cybersecurity Specialist
11. IoT Solutions Architect
12. Blockchain Developer
13. User Experience (UX) Designer
14. Mobile App Developer
15. Site Reliability Engineer (SRE)
16. Data Engineer
17. Business Intelligence Analyst
18. IT Project Manager
19. Scrum Master/Agile Coach
20. Network/Cloud Security Engineer
21. Systems Administrator
22. Database Administrator
23. Quality Assurance Engineer
24. Technical Support Specialist
25. AI Solutions Engineer

# Many Learning Opportunities over almost 40 years

- Bell Labs
- Nationwide
- IBM
- Tibco/Talarian
- HP/HPE
- Unisys
- SAIC
- Air Force with Various DOD contracting firms.


# 1980s/90s Skills needed And Values

## Mindset

- Value stability and long-term employment
- Prefer hierarchical structures
- Focus on company loyalty
- Emphasize in-person communication
- Adapt to technology rather than being digital natives
- Mental Health was not an issue
- Local news, not impacted by Social Global issues.
- Tech jobs were new and available.

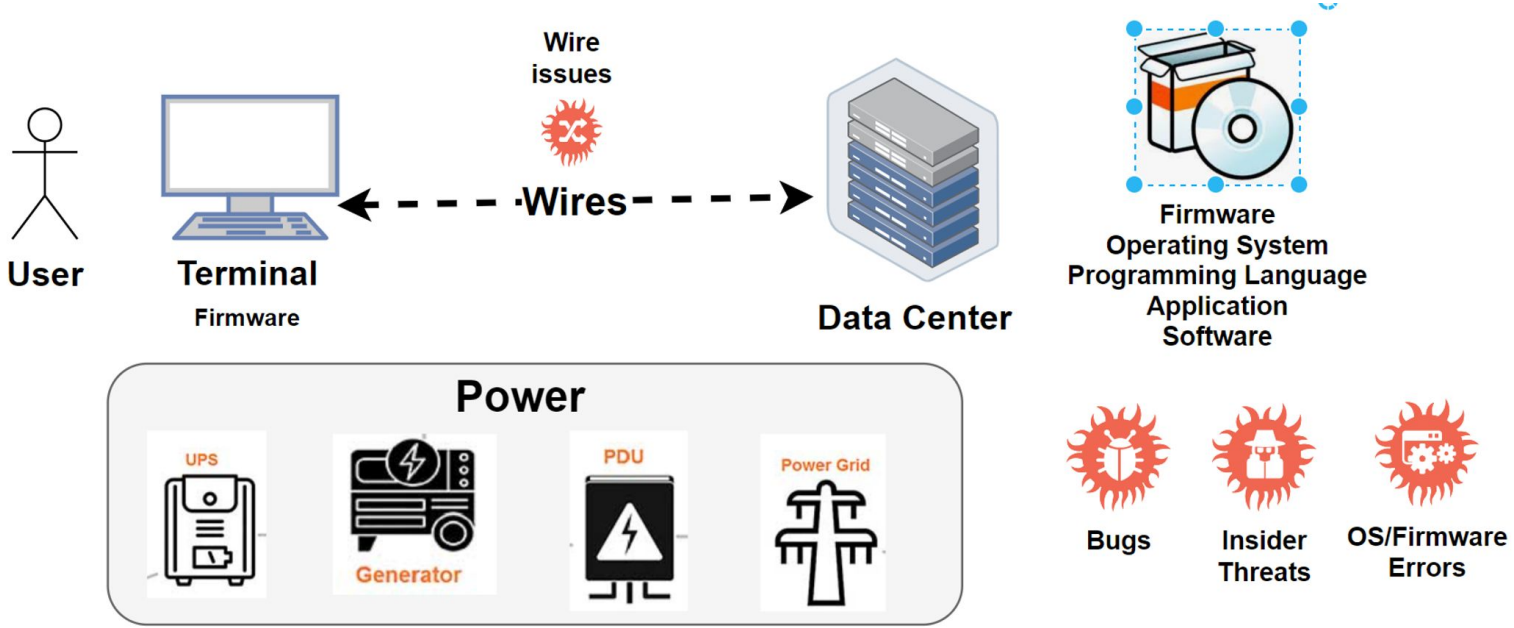
## Technological Landscape:

- Shift from mainframes to personal computers
- Rise of client-server architecture
- Beginning of the internet and email adoption in workplaces

## Key Technologies

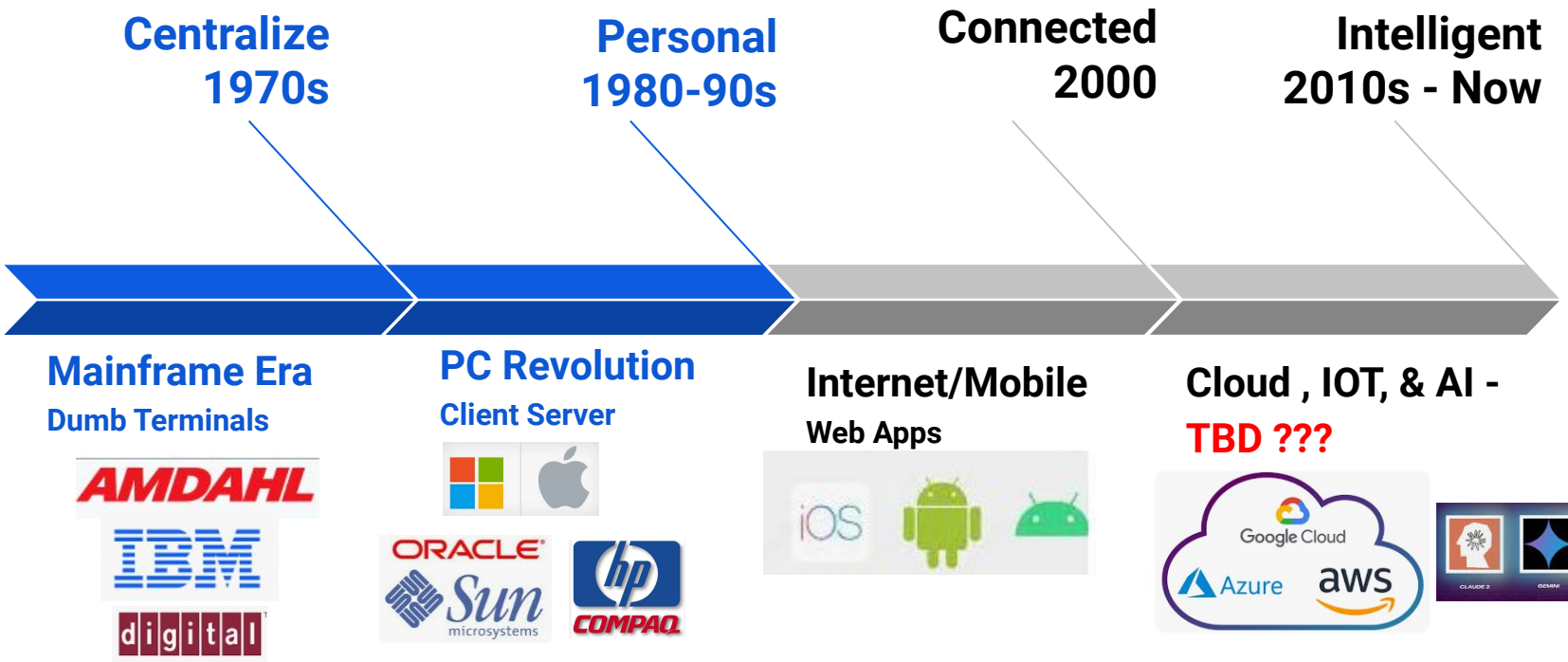
- MS-DOS and early Windows operating systems
- C and C++ programming languages
- SQL for relational databases
- Early networking protocols (TCP/IP, Ethernet)

# Skills needed have Changed from 30 years ago or has it ?
# Think why is this partially true ?



# Technological advancements - Hardware

***NOTE: Legacy Systems are still running all of these in production somewhere ...***

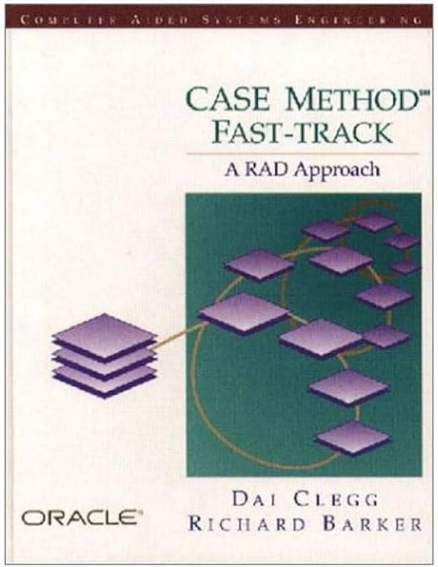


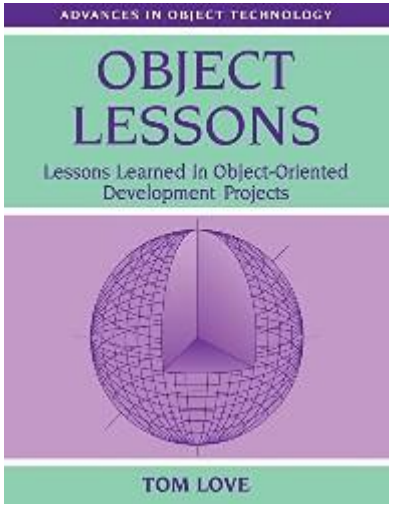
# The Potential of Simplified Application Development

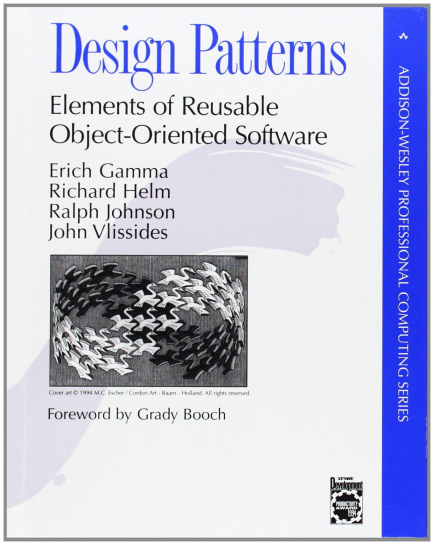
**Why has this not made it easier ? Personnel ? Will ?**

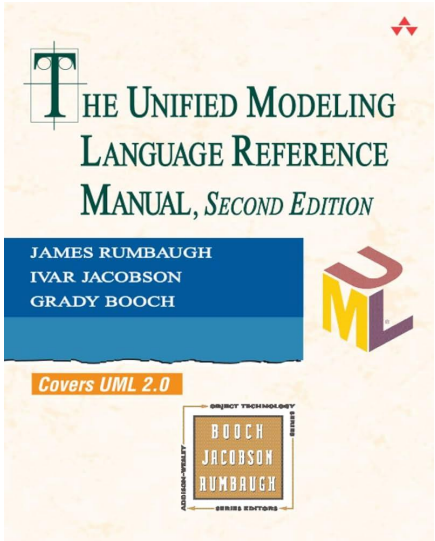
Nationwide

**Strategic Initiatives: IBM, Sun, Oracle, Java, C/C++**




Nationwide


## Late 1980s and 1990s

| | |
|---|---|
| **Skills: Fast Learner, Proprietary Tools**<br><br>**Unix Internals - TCP/IP Kernel Code**<br>**Test Lab - Punch Blocks**<br>**Unix/C Programming**<br>**Shell Programming, Java,**<br>**OOP, SQL RDBMS, Client Server**<br>**Firmware, Hex Codes, Boot Loaders** | **<u>My Roles - Software Tools Team -</u>**<br><br>**(COMPAS)- Configuration and Product Assurance**<br><br>**Strategic Initiatives**<br><br>**Parallel Systems Support Programs (PSSP) Large Cluster Configuration Management** |

**Key People:**

**Ken Thompson and Dennis Ritchie were also Bell Labs .. co-inventors of the UNIX operating system and C language**
**Bjarne Stroustrup started developing C++ at Bell Laboratories in 1979 as an extension to the original C language.**
**Marc Andreessen, Rob Cool - NCSA Mosaic Web Browser, HTTP Web Server**

# Lessons from Wall Street - 2001



Talarian is leading the real-time revolution. **Driven by the need for speed**, global connectivity and the ability to bring new services online faster than ever,



## Messaging Middleware

SmartSockets® - Publish Subscribe Middleware

SmartSockets SSL - Security

RTgateway - Scalability

SmartMQ - Queuing

SmartPGM

SmartTransfer

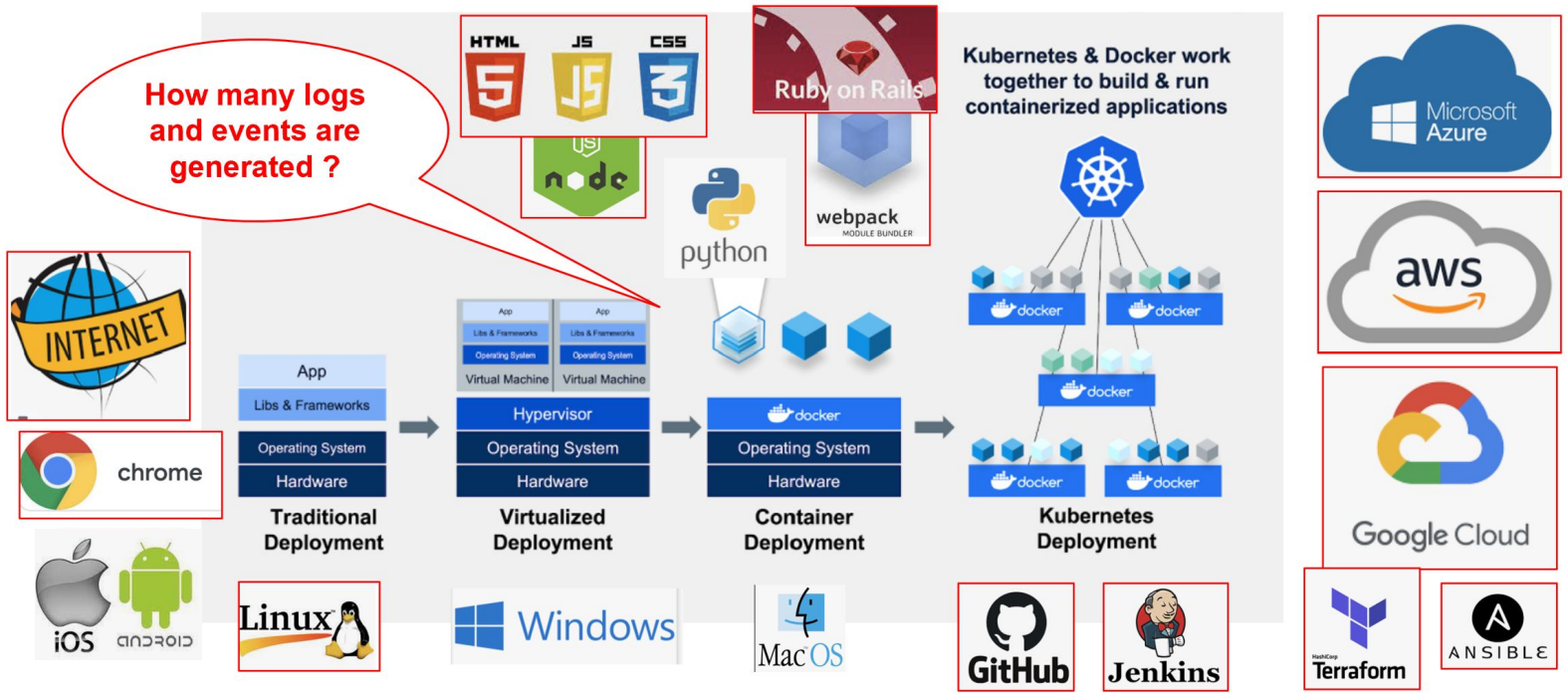
# The 2000s - Rise of Social Media and Mobile

Mobile developers and UX designers skyrocketed
Bootcamps and non-traditional education , certifications
stock options and work-life balance

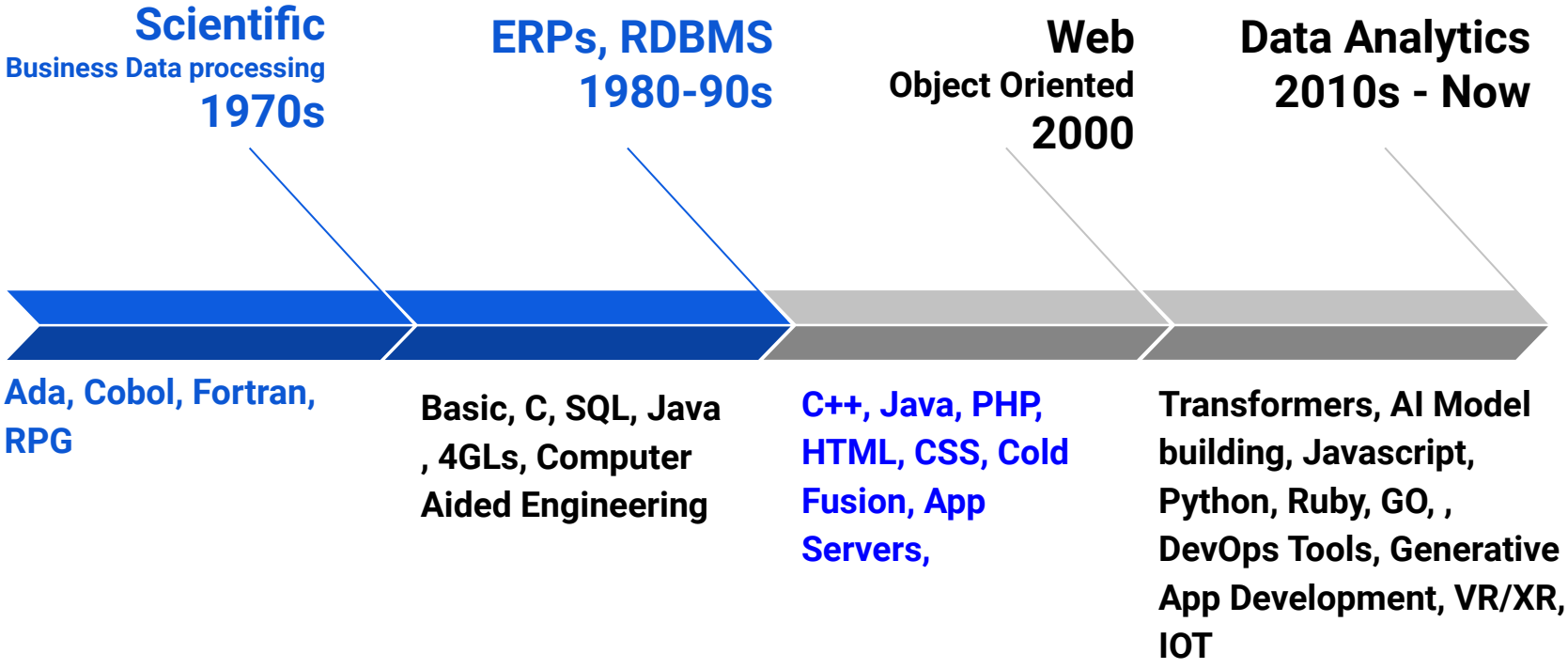
**Generation X (born 1965-1980):**

- Seek work-life balance
- More independent and self-reliant
- Value skills development and career growth
- Comfortable with technology but not fully immersed
- Prefer email communication

# Tech Stack Today is Diverse and Complex

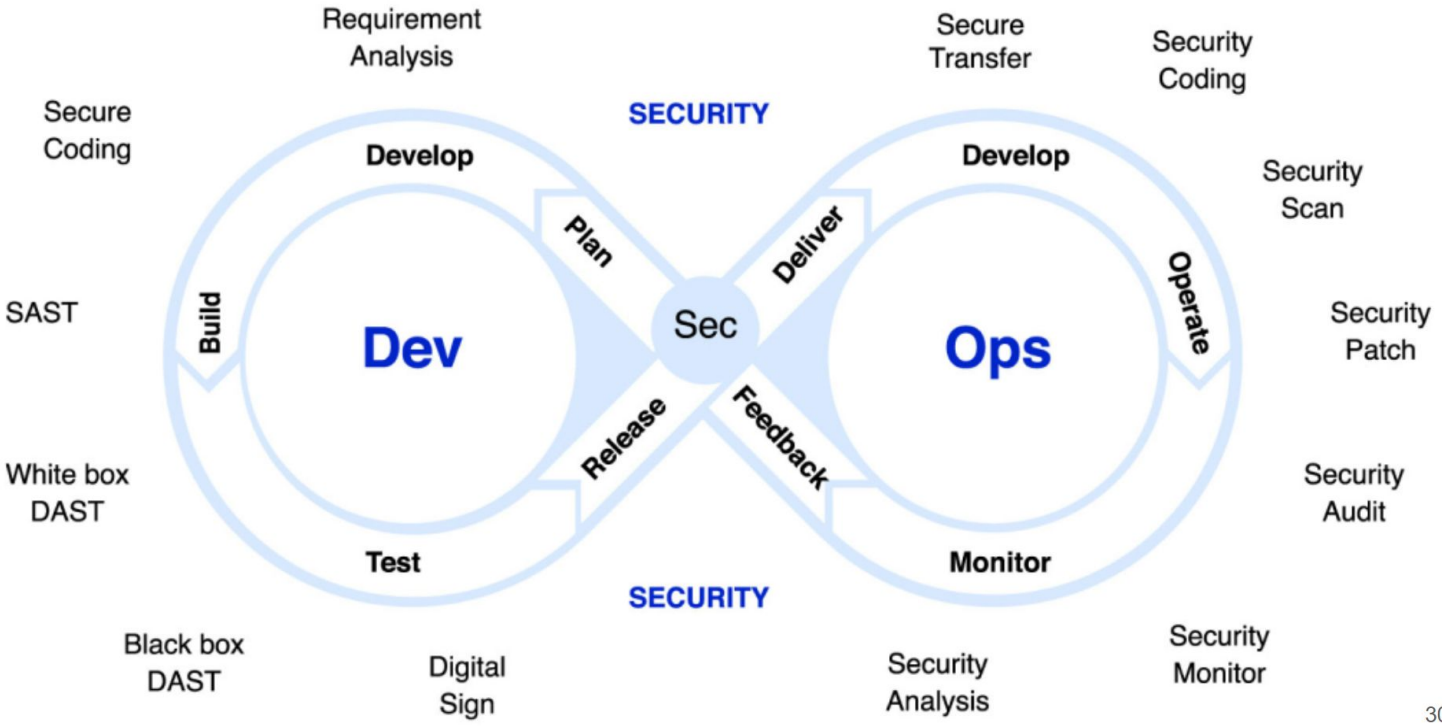


# Technological advancements - Software Development



https://techbuzzireland.com/2021/05/12/6-ways-to-preventing-information-overload-in-your-presentations/

# More Processes

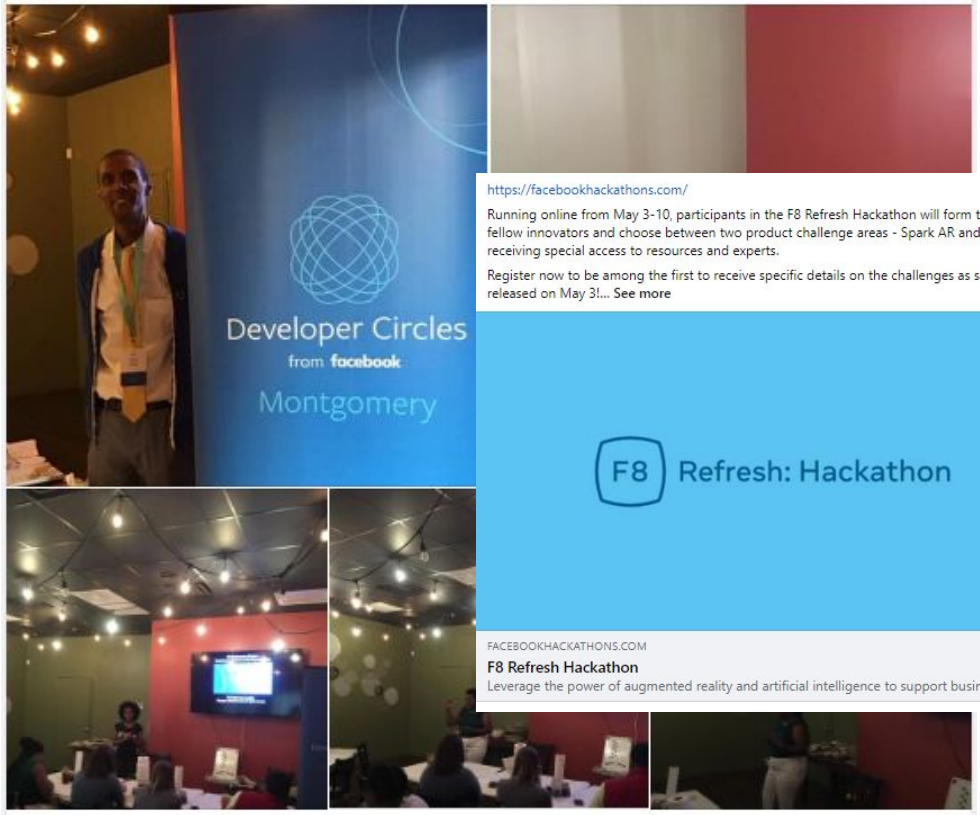


# DOD Work and CyberSecurity 2001 - Now





# Lessons from Meta Developer Circles - Finding Tech Talent - Hackathons and Meetups




https://facebookhackathons.com/

Running online from May 3-10, participants in the F8 Refresh Hackathon will form teams with fellow innovators and choose between two product challenge areas - Spark AR and Wit.ai - while receiving special access to resources and experts.

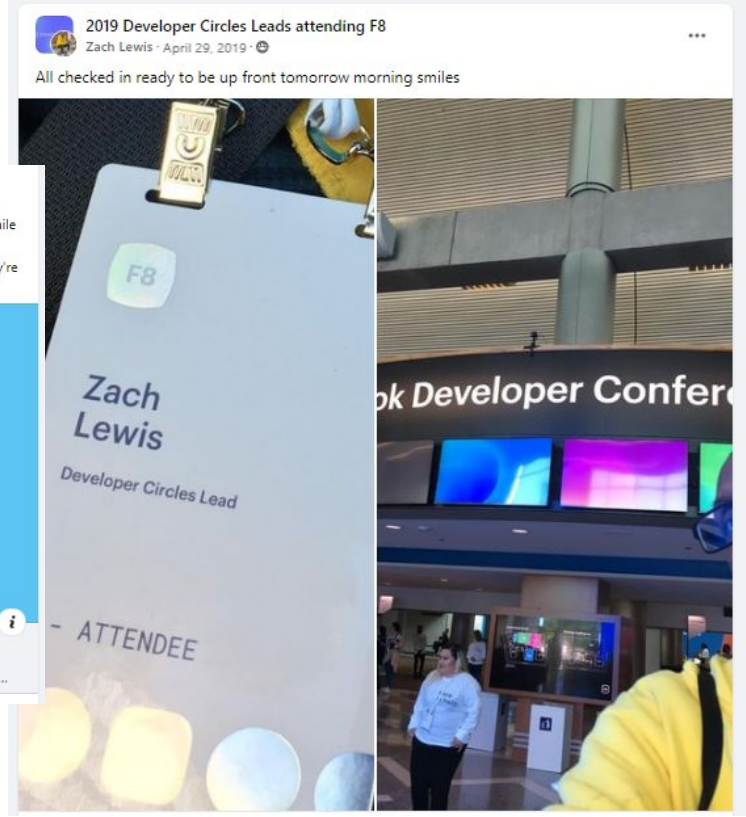
Register now to be among the first to receive specific details on the challenges as soon as they're released on May 3!... See more



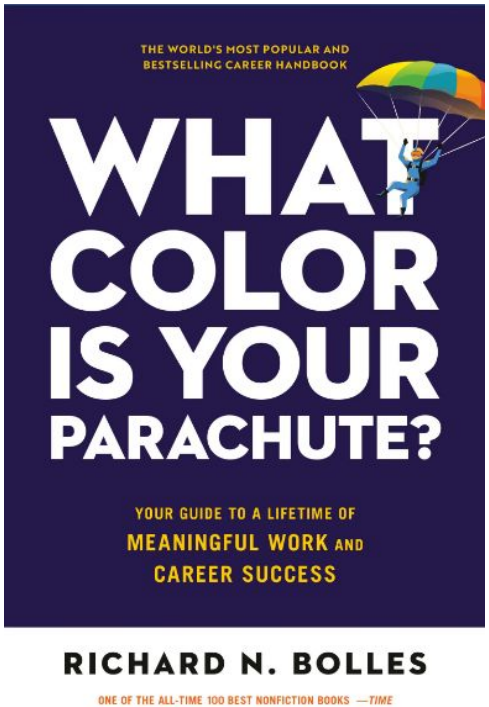

FACEBOOKHACKATHONS.COM

**F8 Refresh Hackathon**

Leverage the power of augmented reality and artificial intelligence to support businesses and ...



# Flower Model - What makes a Job Good ?




# The 2010s - Big Data and Cloud Computing

data scientists and cloud architects
social media and professional networks
continuous learning and career development

**Millennials/Gen Y (born 1981-1996):**

- Prioritize purpose-driven work and company culture
- Desire frequent feedback and recognition
- Value flexibility and remote work options
- Digital natives, comfortable with rapid technological change
- Prefer instant messaging and collaborative tools

# The 2020s - AI and Machine Learning

transformative potential of AI across industries
importance of ethical considerations in tech
personalized learning and skill development
challenges of information verification

## **Gen Z (born 1997-2012):**

- Highly entrepreneurial mindset
- Expect diversity and inclusion in the workplace
- Prioritize mental health and well-being
- True digital natives, expecting cutting-edge technology
- refer visual communication (video, emojis, GIFs)
- Critical need for AI/ML engineers and ethical AI specialists
- Recruitment emphasizes diversity, equity, and inclusion
- Retention strategies prioritize purpose-driven work and social impact

# Social Cohesion Matters for Retention

https://www.zoomshift.com/blog/employee-retention-strategies/

# Was this a personnel issue or a dependency issue ?

## How is this related to Team Cohesion, Company Culture, Etc ?

# We Know Retention Matters

- **Continuity** in cybersecurity teams fosters trust and collaboration, essential elements in quickly identifying and responding to emerging threats.
- **The rapid evolution of technology** and cyber threats creates a constant demand for experienced professionals who understand the nuances of an organization's systems and potential vulnerabilities.
- **Long-term employees** accumulate valuable institutional knowledge about an organization's unique security challenges and past incidents, which is critical for maintaining robust cyber defenses.

# #1 Priority Today Work- Life Balance

**Emphasize Work-Life Balance**

- **Why:** Tech professionals often value flexibility and personal time.
- **How:** Offer flexible hours, remote work options, and generous time-off policies.
- **Overcome:** Highlight that higher salaries often come with longer hours and more stress.

# Social Cohesion Matters for Retention

https://www.hrlineup.com/what-is-team-cohesion-and-why-is-it-important/


**Social cohesion pertains to the interpersonal relationships and camaraderie among team members.** It involves trust, mutual respect, and a supportive environment where individuals feel valued and included. Socially cohesive teams foster a sense of belongingness, collaboration, and emotional support, which enhances overall team morale and satisfaction.

# Strong Company Culture

## Create a Strong Company Culture

- **Why:** A positive work environment can compensate for lower pay.
- **How:** Foster inclusivity, organize team-building activities, and prioritize employee well-being.
- **Overcome:** Showcase your culture through employee testimonials and social media.

# Starting Early - Non-Traditional Candidates

## Target Non-Traditional Candidates

- ❑ **Why: They may value opportunity over immediate high compensation.**
- ❑ **How: Recruit Early in Middle School, bootcamp graduates, career changers, or those returning to the workforce.**
- ❑ **Overcome: Emphasize your willingness to train and support their career transition.**

# Example - Middle School Long Term Strategy

**Future Employee Development Program: Middle School to Career Program Overview**

- **Target audience: Middle school students (children of employees or from local schools)**
- **Duration: 6-10 years (middle school through college)**
- **Goal: Develop a pipeline of skilled, loyal employees while supporting education in the community**

# Example - Middle School Long Term Strategy

Boomers transition plan 5-15 years to replace.  Legacy code

## Initial Outreach and Selection - Middle School Phase (Grades 6-8)

**Partner with local middle schools and company employees**

Develop selection criteria (academic potential, interest in technology, etc.)

**Host information sessions for students and parents**

Conduct interviews and assessments for interested students

**Offer after-school and weekend STEM workshops**

Establish clear conditions for tuition payment (e.g., academic performance, internship completion,  parental involvment)

**Set up a college fund for each participant**

**Provide mentorship from current employees**

**Workshops for parents on supporting STEM education at home**

# Question: Which of these Matter ? Order of Importance ?

- **Trust and integrity** are paramount in roles with access to sensitive information.
- **Adaptability** is crucial in the rapidly changing cybersecurity field.
- **Communication** and collaboration abilities are essential for effective cybersecurity work.
- **Emotional intelligence** and stress management are important in high-pressure situations.
- **Cognitive variety** within a team enhances creativity and leads to more comprehensive threat analysis and defense strategies.

# Mission/Purpose in Life Example - Questions:

## Sense of contributing to national security

How do you view the role of technology in national security?

Can you describe what national security means to you in the context of your work?

Tell me about a time when you felt your work directly contributed to a security objective. What was the situation, and how did it impact you?

Describe a project you've worked on that you believe had national security implications. How did that affect your approach to the work?

# Cont.  --Mission/Purpose in Life Example - Questions:

## Alignment with personal values

What are the core values that guide your professional life?

How important is it for you that your work aligns with your personal values?

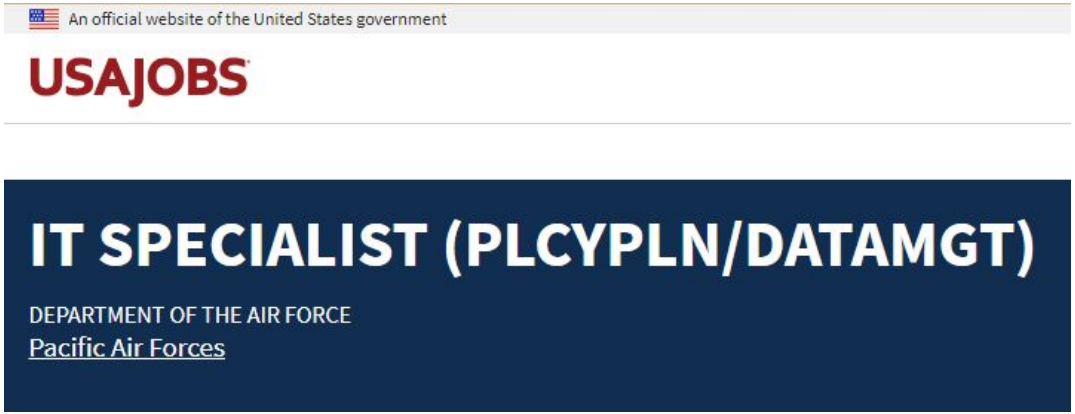
Can you share an experience where your personal values aligned strongly with a work project? How did that affect your performance and satisfaction?

Tell me about a time when you faced an ethical dilemma at work. How did you handle it, and what guided your decision?

# Example: AI/ML Data Science Skills Matter


Represents the command at meetings, conferences and senior level technical forums as an expert consultant and advisor on **Artificial Intelligence, Machine Learning, data science**, data storage/retention, administration and assurance.

# AI/ML Data Science Skills Matter

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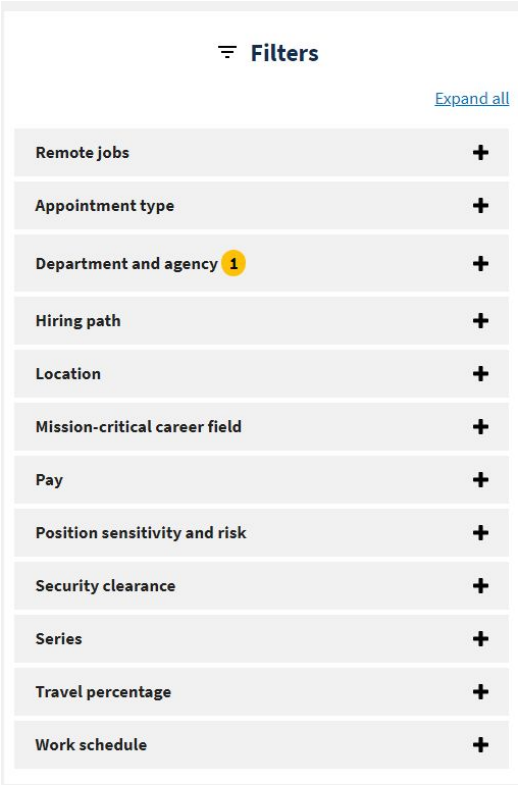
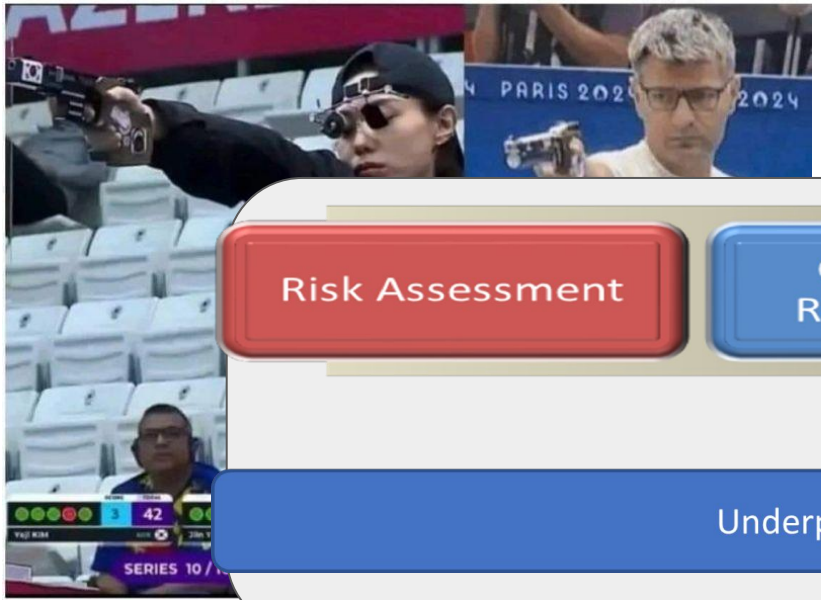


# Tech Skills matter, But don't forget about Team Cohesion

Comptia A+ certified
BSc in computer science
CCNA certified
AWS certified
Azure certified
CEH certified

a random
Linux
user




THE AI CYBER THREAT

Alibaba Cloud
Microsoft Azure
IBM Cloud
aws
Google Cloud Platform
ORACLE CLOUD

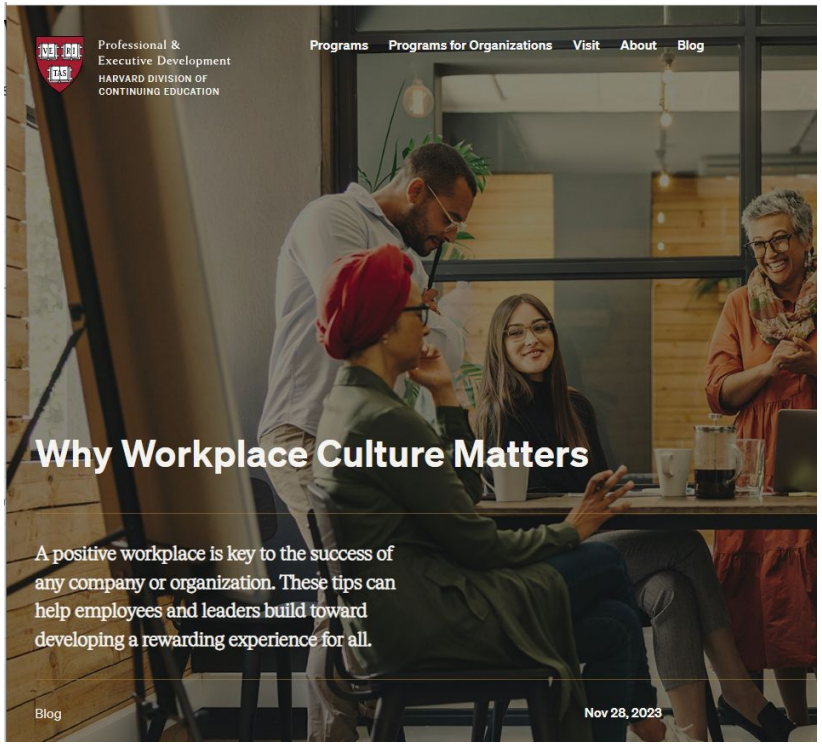
Risk Assessment

Operational Requirements

Protective Security Measures

Underpinned by Governance

# Strong Company Culture




- **Trust and psychological safety**
- A sense of belonging
- Professional development opportunities
- Flexibility
- **Pay attention to behavior**

https://professional.dce.harvard.edu/blog/why-workplace-culture-matters/

# How much overlap and backup personnel are needed ?

Our expert is out all this week and we do not know what to do ?


# Is Simplification Your Goal ?

https://www.netfriends.com/blog-posts/why-you-need-technology-business-reviews

# THANK YOU / Q&A