



THE FUTURE OF WORK, WORKPLACES, AND WORKERS: A CYBERSECURITY PERSPECTIVE

Abstract

Workplaces are undergoing a paradigm shift with more and more people choosing remote working and virtual offices over physical ones. Businesses can no longer function without technology. With software becoming critical in nearly every industry, the nature of skills, talent, and working models are changing – a shift accelerated by the pandemic. In this scenario with cybersecurity emerging as a top priority for industries, academia is struggling to keep pace with the demand for talent.

This paper looks at relevant trends for the future of work with a focus on cybersecurity. It examines how the increased reliance on software is creating significant demand for cybersecurity professionals. It also discusses how organizations can plug the deficit and train talent to fill these roles, so that they are better equipped for the workplace of tomorrow.

Introduction

The year 2020 saw the biggest ever upheaval in human capital management to have taken place in the last 100 years.

Before that, the Industrial Revolution, over a century ago provided a new template of work, workplaces, and workers. Workplaces, and workers, moved from the farm to the factory. Work was increasingly about solving problems. Education was more 'front-loaded' where school-based learning steered people into a single profession.

Much of this has changed in the 21st century, catalyzed by new technology and the pandemic. Work is now more modular than ever before. New technology is promoting the decoupling of workplaces and work, triggering tectonic shifts in how workers view their careers, jobs, and professions. While the shift from farm to factory required basic reskilling of workforce, in the 21st century for work to provide upward social mobility (especially from a cybersecurity standpoint), organizations not only have to invest in training but also would require to provide apprenticeship opportunities to these new recruits.

The Future of Work: Software is the New Alchemy

With the adoption of AI and automation across all domains including cybersecurity, the focus for workers is moving from problem-solving and human intervention to finding purposeful problems and higher applications of cognition. At Infosys, hiring extends from top universities to community colleges for students of non-STEM disciplines such as liberal arts. To make the assimilation of diverse skillsets even more fluid, organizations should consider a way of awarding college credits for internal and on-the-job training allowing individuals to get a degree while working.

Eventually, every industry is going to be software-driven. Low-code/no-code platforms are simplifying the work of developing and deploying next-gen user-friendly software to support a myriad of business processes. As users turn into producers, the right training becomes crucial for companies breaking the mold. Consider how the disruption over the past couple of decades has helped build the first 500 million mobile apps. Looking ahead, we can expect another 500 million apps built within a mere five years.

The Future of Workers: From College Degrees to On-Demand Skills

Education is aimed to create bridges between talent and the world of work. But as the global cost of education has risen by 150% in the past 20 years, academia is struggling to provide the industry with skilled talent. According to recent reports, there are 11 million openings in the US but only 8 million people with the right skills available to fill those. Yesterday's bridges are falling short of today's needs.

In future, skills will be more purpose-oriented and tailored to a specific

organizational need. Companies at the mercy of shifting industry forces – like the spike in demand for mobile app developers, data scientists, and cybersecurity professionals – need this kind of skilled workforce that can be trained on-demand. Rather than continuing with the old template of hiring those with degrees, companies must invest in programs that support skill-based trainings. Soon, we can expect workers to move from multiple jobs aligned with a single profession to multiple professions. For example, Infosys has hired several people in mid-career shifts, equipped them with the requisite training, and given them opportunities to engage in meaningful work that promise social upward mobility.

The nature of education and training is changing. One view is that education will soon take the form of a subscription-based model, where training programs can be bought on-demand, creating the necessary bridges to plug talent into opportunity as it arises. The world is moving on from 'just-in-case' learning to 'just-in-time' learning. As we get more modular in the way we work, there is a compelling argument for enterprises to employ more part-time workers.

The pandemic itself has accelerated this shift towards the gig economy. The decoupling of work from workplaces means that everyone has a choice to be a freelancer or a part-time worker. A recent survey shows that 50% of Americans want to be content curators, gig workers, and freelancers, rather than full-time employees. This is evident in the numbers: In November 2020, only 200,000 jobs were added to the US economy. In parallel, a whopping 1 million people started their own ventures as small businesses with a handful of employees, providing services to customers. This clearly indicates that more and more people wish to build their own enterprises and have greater control over their own fortunes.

The Future of Workplaces: The Great Resignation

Much has been discussed about 'The Great Resignation'. In the month of November 2021, 4.8 million people in the US left their jobs, the highest ever seen by the Labor Department since the 2000s. There are several key drivers for this:

- The backlog of resignations in corporations during the pandemic has led to aggressive right-sizing, because of which an additional 1.5 million have lost their jobs.
- Burnout levels are at an all-time high among workers, fueling further attrition from the workplace. Industries such as hotels, restaurants, shipping, and logistics have had 7% of their workforce leaving in a month, accounting for a staggering 4% of the entire US workforce.
- Workers are in a state of 'pandemic epiphany'. People are discovering flexibility and re-evaluating what they do vis-à-vis what they would rather be doing. They want workplaces that offer upward mobility and a better work-life balance.

Some surveys show that 70% of US respondents want human connections while 70% want flexibility at work. In such a scenario, enterprises have to become much more purposeful. Rather than looking at it as a mad dash away from workplaces, enterprises should understand that it is, in fact, a march towards freedom. Considering both big and small US businesses are competing for the same labor market, it is in their benefit to run with these trends and create new opportunities for hiring and training.

From Crisis to Opportunity with Cybersecurity

Considering the large number of open positions; hiring will accelerate, giving enterprises the option of attracting new talent. Some statistics indicate that the number of developers hired by the non-IT industries in 2020 was higher than the number of developers hired by the tech industry. To address this, enterprises must create more inclusive and diverse hiring strategies.

With the influx of software into every industry, cybersecurity professionals will be in high demand. According to the publication Cybersecurity Ventures, the world will need 3.5 million cybersecurity professionals by 2025. In the current context, many cybersecurity consultants want flexibility, preferring to work on their own as freelancers as is the case with ethical hackers. The gig economy makes this possible for numerous professions, but this wave has not yet reached the shores of cybersecurity. Enterprises need to create platforms for gig economy workers, particularly cybersecurity professionals and ethical hackers, if they want to sustain their operations.

With the speed at which the cybersecurity domain is shifting, if recruiters look to hire the exact skillset that are currently required in the market, they are already behind the curve. In addition to the interest in the space, cybersecurity talent should be recruited for skills such as the ability to learn, creativity, problem solving attitude. Cyber-attacks are launched not just in the digital realm but a lot of it happen at the psychological level in the form of social engineering. It is therefore imperative that recruiters should be willing to cast a wider net to recruit from non-conventional fields such as arts and humanities. This diversity in thinking during the problem-solving process will potentially be the difference in averting a cyber-attack versus falling prey to it.

Bug bounty programs play a crucial role in attracting top talent for cybersecurity, where large organizations incentivize ethical hackers from all backgrounds to channelize their out-of-box/unconventional thinking to hack into systems. With hackers

being way ahead of the curve and armed with almost any tool at their disposal, organizations need to reward talent who potentially can find out the chinks in the cybersecurity armor by not necessarily playing the game by the preconceived rules.

Creating feeder programs should be a priority when looking to increase capacity. One way of doing this is to create 'feeders' or 'pods' whereby local talent even from Tier-2 or Tier-3 cities can access competent, skill-centric training, making them employable for value-adding jobs.

Enterprises should also be open to expanding the talent pool from people with degrees to those without degrees but ready for remote work and training, or even those in mid-career shifts. Interestingly, 60% of the jobs available in the US that explicitly want degree-holders actually do not need graduates. This has to change in order to mobilize the right workforce. Companies can hire people based on potential, enrol them within industry-grade certification programs, and transition the top talent into jobs of the future.

Companies like Infosys are already doing this. They have successfully hired localized talent from smaller cities in the US, creating bridges for people to learn, earn and work. Some of the clear benefits are lower attrition, better work ethic, and greater worker efficiency.

To create these cyber ninjas, who will act as important sentinels in the cyberspace, universities can also play an important role in this shift. They can award credits to students who opt for immersive experiences at enterprises. They can also encourage digital apprenticeships to drive home the need for just-in-time learning as the new work ethic. Just as K-12 schools are revamping their curricula to include topics like ESG and financial inclusion, studies around the cybersecurity space can act as a springboard to produce the right talent.

Stimulus must be focused on broadband infrastructure to support remote working and attract talent in smaller towns. Focus should be devoted to digital infrastructure as well, just like physical infrastructure.

Conclusion

The confluence of the great resignation, remote working models, and changing worker demands is seeing some industries benefit more than others. It is an opportune time for organizations to reshape the labor market. With 11 million job openings and only 60% of the eligible US population going to work, there is much to be done. Virtualization of work will escalate the demand for skilled and trained cybersecurity professionals, who are vital to support these workplace shifts and enable companies to attract, hire, and employ the right talent in remote models. To

achieve this, academia and industry must collaborate to infuse cybersecurity training within schools. Robust capsule-sized training programs will help workers shift from dead-end jobs to value-driven ones that promise social upward mobility. Companies will benefit from a ready pool of talent, open to just-in-time learning, allowing them to adapt with the times and benefit the economy.

Additionally, organizations must look to recruit for potential in the space rather than what skill sets do the candidates have at the time of hiring.



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