

LEADING THE FIELD

Looking into the future of work

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“What do you want to be when you grow up?” If you ask today’s children this question, it is likely their answer will reflect only the jobs of today and not tomorrow. It is estimated 65% of children entering primary school today will ultimately end up working in completely new job types that don’t yet exist. The future of work has become a topic of interest in recent years due to the advancement of technologies in artificial intelligence and machine learning, robotics, nanotechnology, 3D printing and genetics and biotechnology. In a widely cited study by Oxford University researchers who analyzed US Department of Labor data, it is speculated 47 percent of current US employment is susceptible to computerization thanks to current technological developments.

What does this mean for working in the future? Will the office of tomorrow include robots as colleagues? Will employees take part in virtual meetings where data is augmented and projected as part of presentations? Will employees work remotely more as firms provide access to both physical spaces and virtual spaces across the world?

While there are many unknowns to envision a future of work, it is often helpful to look to the past for patterns of change which are no longer the norm in the workplace today. Television or movies often illustrates this best which offers us an entertaining ability to time travel. Take for example, *Mad Men*, a television show which chronicles the office culture of a growing New York City advertising agency. Imagine working in a 1960s office with hardwired telephones on desks, memos written on typewriters, slide projectors for presentations, or file cabinets containing business records. In comparison, a modern day office replaced the hardwired phones with mobile devices, laptops are the modern day typewriters, collaboration software applications supplant slide projectors, and databases are scaling business records while also hiding them from plain view.

The future of work addresses various industries, occupations, and evolves constantly as new inventive technologies are being introduced. It is important and critical to be aware of the trade-offs these innovations have on employees, customer relationships, and the overall workplace landscape. Investors, entrepreneurs, academics, and research groups are taking note of these changes. Tim O’reilly in his most recent book, *WTF? What’s the Future and Why It’s Up to Us*, posits that history tells us technology kills professions, but does not kill jobs. While technology has made drastic improvements to how work is done today, the true opportunity of technology is how it can extend or transform human capability.

Seismic Shifts in Work

One single event did not create a massive shift in work. Oscillating between different time periods can give perspective on seismic shifts, such as the often cited invention of the printing press and its impact on everyday life. A nuanced example of a shift which happened unexpectedly was the emergence of the catalog and mail order industry. In the decades following the Civil War, the expanding postal delivery network saw the number of publications in the U.S. explode. There were 700 publications in 1865 which grew to more than 4,400 by 1890. Advertising in catalogs, content creation for stories and columns for catalogs, and the invention of the telephone by Alexander Graham in 1876 helped kick off a wave of industries and jobs never before seen in everyday life at the time. The catalog and mail order industry today generates about \$125 billion in annual revenue. There are about 7,600 companies in the industry, with over 200,000 employees. About 12 billion catalogs are mailed. And 90 million Americans make a purchase from a catalog each year.

Fast forward a century later and the personal computer was introduced in 1981 by IBM. The personal computer became so successful within two years more than a million units were in the hands of customers. Personal computers paved the way for a generation to learn with machines in their households. Eventually, connecting personal computers created another seismic shift when the internet became commercially available in the early 1990s creating a vast new network. Fast forward once more to Apple introducing the iPhone in 2007, not only did it revolutionize how we communicate, but their app store created a whole new ecosystem for businesses to enter and thrive. The world in which we live and work today is increasingly giving opportunity for existing enterprises to evolve, allow new entrants to disrupt as technology advances, and create new networks.

Challenging Work

The main challenge for the existing workforce is preparing them for the uncertainty which inevitably changes how these industries operate. In the American economy in the 1920s and 1930s, adjusting society familiar to agriculture to one of industrialization required new ways of creating opportunities for people to learn new skills either from education, personal literacy, or their organization. Between 1980 and 2015, occupations requiring social skills (e.g. interpersonal, communication) increased by 83% and occupations requiring analytical skills (e.g. quantitative, computer usage) increased by 77% as reported by a Pew Research Center on ‘The State of American Jobs.’ Manual or physical skills (e.g. physical labor and machinery operation) increased by only 18% during the same time period as a comparison.

These trends are part of the shifts from an industrial economy to a knowledge-based, service-oriented economy. Nine out of 10 workers today are in occupations that existed 100 years ago, and just 5 percent of the jobs generated between 1993 and 2013 came from “high tech” sectors like computing, software, and telecommunications. If new technologies are to upend the jobs of yesteryear then it is necessary to understand the shift of how work is organized, how people find work, and the skills people need to prepare for work.

These trends identified truly does change the social fabric of how we understand work today. Arun Sundararajan is a professor at NYU’s Stern School of business who researches how digital technologies changes business and society. Sundararajan approaches his lectures and research by rethinking how might we refashion the social contract where it is optimized for a world of people having multiple gigs, people running their own small businesses, and people supplementing mainstream income with side income. Working to address these challenges for society is a task which rests upon everyone who wishes to take part in the workforce of tomorrow. Entrepreneurs, investors, and companies today are continually addressing these challenges in unique ways.

Addressing the future

Often technology companies are seen as the leader of solutions for the future of work as they seek to create new opportunities. Jessica Lin, investor at Work-Bench a venture capital firm, spends time thinking about the future of work through one lens of human-centered AI as she evaluates potential companies to invest in. The doom-and-gloom narrative is too often found in media headlines, however, having an optimistic perspec-

tive is critical for identifying opportunities that can help enable and augment workers to be more efficient and effective.

“I believe technology is one of the key ways to democratize access and opportunities. How can you use new types infrastructure to change the modality of learning? If version 1.0 was in-person learning, 2.0 was writing and blogging, & 3.0 is video, what does version 4.0 look like? Or version 5.0? We’re not going to learn the same way after a few years ago.”

She expands on this thesis noting advancements in technology and companies addressing the future of work will allow us to do our jobs better, faster, and make us happier. Possibly even free us up to do work that is more complex, creative, compelling. Upskill, a Work-Bench portfolio company, is a glowing example of this. Upskill provides a smart glass wearable solution that helps line technicians better assemble complex manufacturing parts through their hands-free, voice command viewfinder. In this case, Upskill is expanding the capabilities on the job by augmenting reality with data and assistive technology.

Addressing the future of work is also a broad opportunity for Adriel Bercow, an investor at Flybridge Capital Partners. The future of work casts a wide-net of potential solutions and it’s important to analyze everything considered work today.

“Investing in the future of work is not like investing in autonomous vehicles where there’s a clear trend happening -- future of work has some ambiguity. Some of these problems have not been analyzed before and are only emerging.”

Flybridge’s recent investment in Hyr is a testament to this which they believe is a win-win solution for businesses and talent. Hyr is an AI-powered recruitment solution and marketplace platform connecting hospitality and retail businesses with 1099 labor to fill hourly paid shifts alongside W2 workers. “For Hyr, contract workers have flexible work weeks and want to create their own work schedules. There are tons of industries that have 1099 workers but don’t have the technology or benefits to find people to fill those positions.” Bercow’s analysis and Flybridge’s investment thesis is aligned with a macro trend happening. Alternative work arrangements like temporary help agency workers, on-call workers, contract workers, and independent contractors or freelancers have grown dramatically from 10.7 percent in 2005 to 15.8 percent in late 2015 based on a report by the National Bureau of Economic Research.

Perspective on the future

Often making an investment or solution addressing the future of work is a matter of having perspective. Roy Bahat, Head of Bloomberg Beta, dives deep into this with national think tank, New America, in a report Shift: The Commission on Work, Workers, and Technology. The report concluded most workers value certainty over making more money, and that society must provide new pathways to stability in work while empowering people to reap the rewards of risks taken. In many ways, the future of work is already here in the present. Regardless of whether you’re an entrepreneur, founder, or employee,

the best way to gain perspective is to have empathy as this allows you to see problems from another point of view. It may even unlock new ways of addressing a problem.

Jessica Lin at Work-Bench is an investor by day, but for the last ten years Lin has taught people preparing for the GED and other exams at LaGuardia Community College. “There are plenty of underserved areas where there’s huge potential, talent, and hunger, but the areas are completely disconnected.” Listening to problems first hand and utilizing empathy is how Lin and Work-Bench uniquely operates as a firm. “We constantly serve as the bridge and matchmaker. At Series A, customers are oxygen. On any given day our companies will be talking with corporate customers to hear their pain points.”

Bercow at Flybridge stressed empathy is a common trait founders and entrepreneurs share. “The founders who have lived it, breathed it, and understand it (problems) and can address these huge markets are the ones we get excited about at Flybridge. What is consistent is they have a deep passion, resilience, and drive to build what they’re building. It’ll change the way those people work in those specific spaces.”

Emerging skills and technology in the future

Recent research reports from major multinational consulting companies like Deloitte and PwC assert demographics, globalization, urbanization, and technology will play roles in the workplace of the future. The role of frontier technologies like artificial intelligence, VR/AR, and blockchain are being developed and deployed to imagine a future different than today. The emergence of blockchain technologies like the Ethereum network, envisions the rise of the autonomous company. Smart contract products and protocols have potential to power capital fundraising by crowdsourcing funds via token sales. Virtual reality and augmented reality products are being tested to help professionals in fields like medicine as we’re moving away from rote memorization to experiential learning. While many of these changes are technology related, it is human labor and their role in parallel with technology that will define how work looks in the future.



Creativity is one of the top three skills workers will need based on a World Economic forum report, The Future of Jobs. With more information and data becoming essential in the workplace today, critical thinking and complex problem solving are the other important skills rounding out the top three. The combination of soft skills and hard skills prepare workers for the various multitasks which will occur on the job when information and internet-connected devices dominate. Being creative may also prove to be the most important skill as it will allow workers to re-skill more easily when they need to learn new things, collaborate, or adapt to various work environments and arrangements.

Conclusions: the future’s present

Predicting how the future of work will play out is complicated because it requires involvement from people across government, industry, civil society, public institutions

and organizations. The responsibility is shared and actively discussing how innovations impact the present state and future allows all parties to acknowledge that change is inevitable. Preparing for the advancements in artificial intelligence, complex information systems flowing with data, and a heavily internet connected world will require people to be digitally literate and equipped with digital skills and data science. However, skilling-up in the core STEM fields (science, technology, engineering, math) must also come with an understanding of the social sciences and humanities which will become equally important.

On a global basis, it's important to also acknowledge the variance across languages, histories, economic states, ethics, psychology, and human development. Technology will act as a powerful tool to change how people work. However, the real opportunity is at the intersection of human capital and the critical thinking of individuals alongside technology. For entrepreneurs, researchers, investors, and workers the future of work relies on you to spend more time talking with each other, listening to each other, and learning from each other. The future depends on these conversations.