

The Future of Work
Presentation Michigan Works Annual Conference
September 8, 2019



MICHIGAN FUTURE INC.
A Catalyst for Prosperity

Rather than guessing at how and when technology will change the nature of work our approach to understanding future work has been to focus on what today's labor market realities are and how they have changed over the last two decades or so. With the belief that today's labor market realities reveal a lot about the nature of work going forward.

I want to start with wages. Michigan's core economic challenge is there are too many low-wage jobs. It is the primary reason for the Michigan Association of United Ways finding that a much-too-high 43 percent of Michigan households in a strong economy cannot pay for basic necessities.

Eduardo Porter in a *New York Times* article writes about what is happening in fast-growing metro Phoenix to describe today's labor market realities. The subtitle of his article says it all: "A small group of well-educated professionals enjoys rising wages, while most workers toil in low-wage jobs with few chances to advance." Porter writes:

And yet for all its success in drawing and nurturing firms on the technological frontier, Phoenix cannot escape the uncomfortable pattern taking shape across the American economy: Despite all its shiny new high-tech businesses, the vast majority of new jobs are in workaday service industries, like health care, hospitality, retail and building services, where pay is mediocre.

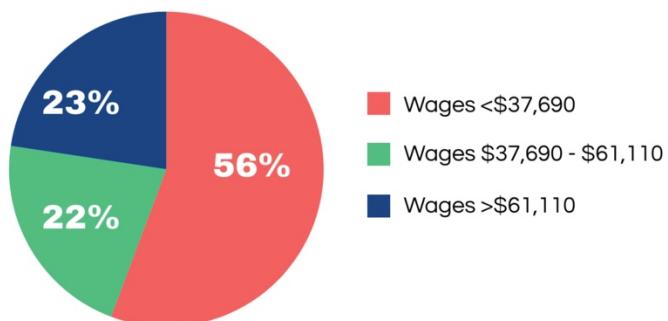
The forecast of an America where robots do all the work while humans live off some yet-to-be-invented welfare program may be a Silicon Valley pipe dream. But automation is changing the nature of work, flushing workers without a college degree out of productive industries, like manufacturing and high-tech services, and into tasks with meager wages and no prospect for advancement.

Automation is splitting the American labor force into two worlds. There is a small island of highly educated professionals making good wages at corporations like Intel or Boeing, which reap hundreds of thousands of dollars in profit per employee. That island sits in the middle of a sea of less educated workers who are stuck at businesses like hotels, restaurants and nursing homes that generate much smaller profits per employee and stay viable primarily by keeping wages low.

You can see Porter's two-tier economy in these two charts of today's Michigan labor market. The first shows that 56% of Michigan jobs are in occupations with median wages less than the national average.

JOB BY WAGES

4.2 Million Jobs in Michigan



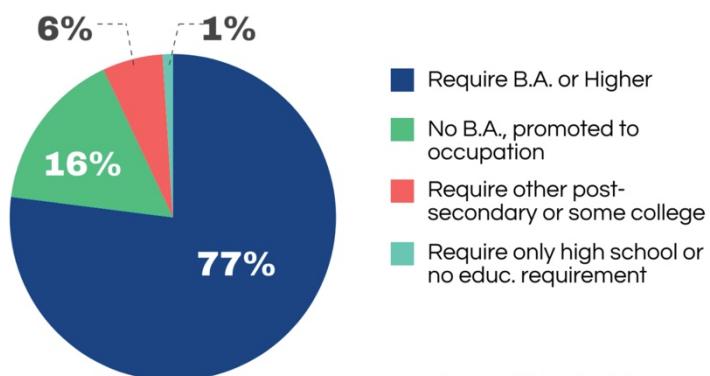
Source: Bureau of Labor Statistics,
Occupational Employment Statistics, 2017



The second chart shows that jobs in occupations with median wages at or above the national 75th percentile overwhelmingly require a four-year degree.

GOOD-PAYING JOBS (WAGES >\$61,110)

950,000 Jobs in Michigan



Source: Bureau of Labor Statistics,
Occupational Employment Statistics, 2017



Machine learning is a key to this “Great Decoupling” where even as economies grow many are left with stagnant or declining standards of living. Figuring out how we create an economy that benefits everyone needs to become the mission of economic policy. As Erik Brynjolfsson, the director of M.I.T.’s Initiative on the Digital Economy and co-author of *The Second Machine Age*, says: “The choice isn’t between automation and non-automation. It’s between whether you use the technology in a way that creates shared prosperity, or more concentration of wealth.”

Let’s turn our attention to good-paying jobs and careers. The two are not the same. Contrary to conventional wisdom, the evidence is that the skills needed for a first job are different than the skills needed for a middle-class 40-year career.

All of a sudden much is being written about the trend of employers hiring generalists more than specialists. Two recent books detail this trend towards generalists: *Range: Why Generalists Triumph in a Specialized World* by David Epstein. And *How to Win in a Winner-Take-All World*, by New York Times economic columnist Neil Irwin. But maybe the best place to start is an Atlantic article written by Jerry Useem entitled *At Work, Expertise is Falling Out of Favor*. Useem writes:

Minimal manning—and with it, the replacement of specialized workers with problem-solving generalists—will sound familiar to anyone in an organization who’s been asked to “do more with less”—which, these days, seems to be just about everyone. Ten years from now, the Deloitte consultant Erica Volini projects, 70 to 90 percent of workers will be in so-called hybrid jobs or super-jobs—that is, positions combining tasks once performed by people in two or more traditional roles. Visit SkyWest Airlines’ careers site, and you’ll see that the company is looking for “cross utilized agents” capable of ticketing, marshaling and servicing aircraft, and handling luggage. At the online shoe company Zappos, which famously did away with job titles a few years back, employees are encouraged to take on multiple roles by joining “circles” that tackle different responsibilities. If you ask Laszlo Bock, Google’s former culture chief and now the head of the HR start-up Humu, what he looks for in a new hire, he’ll tell you “mental agility.” “What companies are looking for,” says Mary Jo King, the president of the National Résumé Writers’ Association, “is someone who can be all, do all, and pivot on a dime to solve any problem.”

The phenomenon is sped by automation, which usurps routine tasks, leaving employees to handle the non-routine and unanticipated—and the continued advance of which throws the skills employers value into flux. It would be supremely ironic if the advance of the knowledge economy had the effect of devaluing knowledge. But that’s what I heard, recurrently, while reporting this story. “The half-life of skills is getting shorter,” I was told by IBM’s Joanna Daly, who oversaw an apprenticeship program that trained tech employees for new jobs within the company in as few as six months. By 2020, a 2016 World Economic Forum report predicted, “more than one-third of the desired core skill sets of most occupations” will not have been seen as crucial to the job when the report was published. If that’s

the case, I asked John Sullivan, a prominent Silicon Valley talent adviser, why should anyone take the time to master anything at all? “You shouldn’t!” he replied.

All of these books, articles, and podcasts make clear that what employers value now—and, almost certainly will, even more, going forward—are those with broad, rigorous, non-occupation specific skills.

This trend of employers preferring generalists is consistent with Google’s findings that STEM skills were not the defining characteristic of their most successful employees. It also matches our findings from focus groups we conducted to understand the career path taken by those who make at least \$40,000 without having a four-year degree.

For most focus group participants without a four-year degree getting to a good-paying job was ad hoc and nonlinear. This is far different from the conventional wisdom that the path to good-paying work for those without college degrees is learning a trade, either in high school or soon after, and then enjoying a well-paid career of thirty to forty years.

What emerged from the focus group participants and survey respondents is a description of those skills, clustered in three areas:

- Rock climbing: Our analogy for years that career success looks a lot more like rock climbing than moving up the proverbial career ladder. The ability to spot opportunities and take advantage of those opportunities and then repeat the process. Skills like ambition, self-initiative, perseverance, adaptability, preparation, curiosity, job satisfaction, confidence & humility.
- People skills: People do well who are good with others, working in teams, working with management, etc. The collaboration and communication components of the 6Cs.
- Just plain old work ethic: Not just showing up on time, but also going the extra mile to do what needs to get done, taking initiative, etc.

The foundation skills for a successful good-paying career for those without a four-year degree are not primarily occupation-specific skills. There are a set of so-called soft skills as well as lifelong-learning skills that come first.

In many ways these are similar to the skills that are characteristic of Google’s most successful professionals and managers as reported by the Washington Post. The Post writes:

Sergey Brin and Larry Page, both brilliant computer scientists, founded their company on the conviction that only technologists can understand technology. Google originally set its hiring algorithms to sort for computer science students with top grades from elite science universities.

In 2013, Google decided to test its hiring hypothesis by crunching every bit and byte of hiring, firing, and promotion data accumulated since the company’s incorporation in 1998. Project Oxygen shocked everyone by concluding that, among the eight most important qualities of Google’s top employees, STEM

expertise comes in dead last. The seven top characteristics of success at Google are all soft skills: being a good coach; communicating and listening well; possessing insights into others (including others different values and points of view); having empathy toward and being supportive of one's colleagues; being a good critical thinker and problem solver; and being able to make connections across complex ideas.

Those traits sound more like what one gains as an English or theater major than as a programmer. Could it be that top Google employees were succeeding despite their technical training, not because of it? After bringing in anthropologists and ethnographers to dive even deeper into the data, the company enlarged its previous hiring practices to include humanities majors, artists, and even the MBAs that, initially, Brin and Page viewed with disdain.

That today's labor market values non STEM degrees and skills can be clearly seen in these two charts. The first comes from a Wall Street Journal column by George Anders based on his book subtitled "The Surprising Power of a "Useless" Liberal Arts education".

HOW PAY STACKS UP

Median annual earnings for select liberal-arts and other degrees, based on years of experience

Liberal Arts Majors	0-5 yrs.	10-20 yrs.	20+ yrs.
English lang. + literature	\$ 39,000	\$ 69,000	\$ 73,000
History	41,000	72,000	81,000
International Relations	44,000	74,000	119,000
Philosophy	42,000	82,000	97,000
Political science	43,000	77,000	89,000
Psychology	38,000	60,000	69,000

Other Majors			
Accounting	47,000	73,000	84,000
Business management	45,000	69,000	81,000
Civil engineering	56,000	89,000	108,000
Computer science	63,000	103,000	116,000
Hospitality management	39,000	60,000	70,000
Nursing	57,000	73,000	75,000



MICHIGAN FUTURE INC.
A Catalyst for Prosperity

Table compiled by *The Wall Street Journal*
Source: PayScale

The second comes from David Deming, Professor at the Harvard Kennedy School and the Harvard Graduate School of Education. It shows that increasingly the labor market is rewarding social skills as much, if not more, than math skills.



To us it is clear that to have a good-paying 40-year career, today and tomorrow, all of us will need generalist skills—no matter what our first job/occupation is—and most of us, at least for a first job, will need some specialist skills. But where we have gotten off track, across the board in education and training, is which are the foundation skills.

To use Heather McGowan's terrific analogy the generalist skills are the operating system we all need; the specialist skills are the apps (with a shorter and shorter half-life). So it is not either/or but both/and for most of us, but where the most important 40-year-career-ready skills are the 6Cs from the book *Becoming Brilliant*: collaboration, communication, content, critical thinking, creativity and confidence.

Unfortunately, at the moment most education and training programs are increasingly focused on occupation-specific skills: the apps, not the operating system.

To make matters worse too many of us are telling parents and kids that the only path to prosperity is to be a specialist in the trades or STEM. This is not supported when you look at today's data, let alone what is likely to happen in the future. Our messaging even narrows the fields where one can do well as a specialist.

The other reality of all this emphasis on learning a trade or profession is that it completely misses the reality that most of us got to where we are today through our second and third jobs, not the first. It is the promotion job that makes one prosperous for most. And that for most our first job specialist skills were not what got us the promotion jobs. It was the generalist skills.

If, as all these readings say, increasingly rigorous generalist skills are what the labor market most demands—rather than learning a trade or profession—we need to rethink completely what we mean by career-ready and to redefine our definition of career-ready skills. This is the core of the education policy debate we need to be having.

In a world where generalists are what increasingly is being rewarded, the emphasis on occupation-specific skills in our education and training systems is not good for either students or the economy. Knowing coding or welding or accounting is not what matters most to having a successful 40-year career. All of those occupation skills have a shorter and shorter half-life. It's not that knowing how to code, weld or do accounting is irrelevant to getting a job today, it is those are the icing on the cake career-ready skills, not the foundation skills.