
The Silicon Valley Consensus and what it means for information professionals

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This article suggests that there is a Silicon Valley Consensus on a number of issues. It begins by outlining the history of Silicon Valley, the nature of its current ecosystem and the potential for that ecosystem to create an echo chamber. The specific example of automation is then described, both in terms of what automation is and the Silicon Valley response to it. The article ends with recommendations to information professionals for dealing with automation specifically and the Silicon Valley Consensus in general.

INTRODUCTION

This is the 24th article that one or both of us has written for *Online Currents* over the course of six years. The first topic was “Enterprise collaborative bookmarking” – which was a hot topic with a number of start-ups in 2009. As of 2016, it is dead in the water and some of the technology companies mentioned in that article are no longer going concerns. Since then we have discussed big data, mobile, enterprise social networks, search, email, cyber-security and SharePoint. Researching these topics and trying to formulate 3,500 words on them has been a valuable learning experience.

However this article is a little different. We will be taking a step back and looking at the bigger picture. The example of enterprise collaborative bookmarking indicates that not all hyped ideas will be successful and the mixed fortunes of those other topics demonstrates that there are complex forces at play in the world of technology. This article wants to explore the gaps between the hype and the reality and mark out a possible path for information professionals.

We work and socialise with technologists. We read the technology press and we engage in online discussions around technology. In doing so, there is a set of ideas that we constantly encounter among technologists and technology enthusiasts. Here is a non-exhaustive list of them – notions both great and small:

- Technology is an unalloyed force for good.
- Inequality is the natural result of humanity containing a small number of geniuses (mostly software engineers) who, through a mix of their superior intellect and enterprise, deserve to own everything.
- Automation and robots will wipe out the need for all other jobs.
- Governments largely get in the way of technological innovation and should be replaced by a mix of technology and markets.
- Tech businesses are meritocracies and cannot, by definition, be racist or sexist.
- Bitcoin will replace all other currencies.
- The internet of things already works.
- Privacy is a nuisance.
- Facebook is already the world’s largest nation state.
- There is nothing that a human can do that an algorithm cannot do better.
- The only thing worth teaching children is how to code.

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We want to call this the Silicon Valley Consensus. “Consensus” because it is a set of axioms taken as self-evident by many in this world and “Silicon Valley” because that is the epicentre of this worldview.

We should begin with some caveats:

- We are not saying that everyone involved in technology believes the same thing. There are public debates between technologists around all these topics. However, what is striking to us is the frequency with which particular viewpoints are repeated by people associated with this sector.
- We are not saying these ideas are wholly misguided. There are statements in the list above that have merit to them. There are other more contentious statements that have yet to be proved or disproved. And there are statements that are wrong.
- We are not “anti-technology”. We acknowledge that technology and technologists can be a positive force in the world. We use a range of technologies in our lives and our conversations with technologists have informed and enriched us. However, being “for” or “against” something is a very limited set of options. We want a more nuanced debate.

This article will be structured as follows: first, a brief background on the origins and structure of the Silicon Valley ecosystem; we’ll then discuss the particular example of automation; and end with some advice for information professionals.

SILICON VALLEY: A BRIEF HISTORY

Geographically, “Silicon Valley” is an area of Northern California that stretches from San Francisco down through Palo Alto (where Stanford University is located) to San Jose. The origins of Silicon Valley as a technology centre lie in the immediate aftermath of World War II.¹ Fredrick Terman ran the Radio Research Laboratory at Harvard University that developed the radar devices, detectors and jammers that were crucial to the Allied war effort. After the end of the war, he returned to a series of senior roles at Stanford University where he developed pure and applied engineering research facilities that received funding from the Department of Defence as part of the arms race during the Cold War.

Although he wanted to stimulate research that would give the USA an edge over the Soviet Union, Terman did not want to control the commercialisation of science around Stanford and he actively encouraged his students to found companies to supply the needs of the US intelligence services. The “Silicon” part came about when Shockley Semiconductor Laboratory was founded in 1956 by another scientist/engineer who had been part of the war effort in the previous decade.

The culture that developed in these companies was cooperative and entrepreneurial, with a focus on experimentation and learning. For the first 30 years, this was funded by US government contracts and corporate sources. However a network of venture capital funders began to emerge in the 1970s, encouraged by the business opportunities and changes to US tax law. This was happening at the same time as the US engaged in detente with the Soviet Union and Communist China. The engine of innovation within Silicon Valley shifted from the existential struggle of the Cold War to the seeking of profit through first business systems and then consumer-focused technology.

Silicon Valley’s culture was also significantly shaped by social transformations of the 1960s when San Francisco itself became a centre for the counter culture. Libertarian and communal worldviews and lifestyles emerged among the technologists of Northern California.² These worldviews combined dreams of a utopian society with a focus on personal development and a hacker community set apart from society. Hacker (as in “computer programmer” not “cybercriminal”) conferences in the 1980s developed this ethos further. The shift from government funding led to the emergence of the Silicon Valley ecosystem that exists today.

¹ L Berlin, *Silicon Valley Then and Now: To Invent the Future, You Must Understand the Past* (2015) <https://backchannel.com/why-silicon-valley-will-continue-to-rule-c0cbb441e22f#.7j0sv4jvz>. S Blank, *Secret History* (2008) <http://steveblank.com/secret-history>.

² F Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago, 2006).

SILICON VALLEY'S ECOSYSTEM TODAY

Silicon Valley is not one “thing” or even simply a place; rather it is an ecosystem of interconnecting, mutually reinforcing entities:

- Academic institutions (eg Stanford University, University of California Berkeley) that attract smart students from around the world and conduct basic research.
- Large technology companies (eg Apple, Facebook) that also attract talent to the region. The former employees of the tech giants may also leave to become entrepreneurs at one end of the start-up lifecycle and the tech giants might acquire these smaller companies (for their technology or talent) at the other end.
- Venture Capitalists (VCs) that invest in start-ups at different stages of their lifecycle. VCs not only provide money but also expertise as they may be run by former entrepreneurs. The different types of investors provide funding at different stages of a start-up's lifecycle (eg Seed, Series A).
- The start-ups themselves. Start-ups are risky business – 9 out of 10 “fail”. However a very small number are outrageously successful and become the tech giants mentioned earlier.
- Organisations that house and support multiple early-stage start-ups – often known as Accelerators or Incubators – have developed. Such organisations often take equity stakes in the start-ups they support in exchange for mentoring and infrastructure. These include operations such as YCombinator and 500 Start-ups. This last group are a relatively new phenomenon that have appeared within the last 10 years.

Individuals move between different entities in the ecosystem (eg they might graduate from Stanford, work for a while at Facebook, create their own start-up, and then join a VC firm), forging personal connections, building reputations, and exchanging ideas. It should be noted that Silicon Valley is not the only geographic technology ecosystem in the world but it is the most successful and visible. This ecosystem has certain strengths and weaknesses to which we will now turn.

SILICON VALLEY ECHO CHAMBER

In any industry, people talk to each other. They talk about the challenges they share and the day-to-day concerns they experience. They use the jargon of that industry. This is all normal. However, there are risks to being an insider within an industry and the primary risk is one of groupthink. Everyone talks to the same people and consumes the same media and the same ideas circulate. Domains where participants do not have experience will be understood superficially.

There has been public debate as to whether Silicon Valley is an echo chamber³ and the answer appears to be a qualified “yes”. This focus even gets reflected in the choice of products that start-ups choose to work on: a significant number deal with the issues of 20-something workaholic computer programmers (everything from on-demand IT infrastructure to on-demand food and transport). If this community did not wield so much power then this would be unimportant. However the Silicon Valley Consensus is correct in noting that information technology is playing an ever-greater role in our lives.

The culture that emerges in these echo chambers is one that is, on the plus side, collaborative, risk-taking and hard working. On the other hand, it tends to focus on engineering solutions to the world's problems and it has a rose-tinted view of technology and technology firms.

The Silicon Valley ecosystem has also established itself in the popular imagination through TV series such as “Silicon Valley” and films such as “The Social Network”. The archetypal Silicon Valley denizen in such portrayals is male, white, 20-something, socially inadequate, highly intelligent, and on the path to immense riches. These are undoubtedly partial representations but they do contain some truths.

AUTOMATION AS AN EMERGING ISSUE

One lively area of discussion is the rise of automation. Automation is the use of machines to do the work of humans. These machines may be physical robots that can directly manipulate the world

³ N Bilton, “Disruptions: The Echo Chamber of Silicon Valley” *New York Times – Bits Blog* (2 June 2013) <http://bits.blogs.nytimes.com/2013/06/02/disruptions-the-echo-chamber-of-silicon-valley>.

around them or they may be computer software: algorithms that can interpret data and make decisions (the favoured term in use being “machine learning”).

Automation in one form or another has been around for a long time, and it really took off with the industrial revolution 200 years ago. Automation then expanded and continued in agricultural and manufacturing environments. Whereas 50% of the UK population worked in farming in 1750, less than 1% do now. Likewise in manufacturing: while much of the public debate about the decline in manufacturing has been about off-shoring (with country x “taking our jobs”), automation has had a significant impact on manufacturing employment. US manufacturing output increased while manufacturing employment decreased. These issues have not always received public attention and a cynic might say that is because many farm and factory workers do not wield much in the way of power and influence. The response has generally been an exhortation to education – manual workers should go back to school and get qualified in a professional, white collar role.

This narrative of educational improvement came unstuck in the first decade of the 21st century with the outsourcing and off-shoring of many white collar jobs (eg call centre staff, accountants, computer programmers) to countries like India and the Philippines. However there were still many roles that depended on someone in situ rather than on the end of an email address or a phone.

In 2013, two Oxford University academics published a study on the potential impact of computerisation on 702 occupations: “According to our estimates, about 47 per cent of total US employment is at risk. We further provide evidence that wages and educational attainment exhibit a strong negative relationship with an occupation’s probability of computerisation.”⁴ The research, of course, used machine learning techniques.

The occupations most likely to be automated included:

- data entry keyers;
- library technicians;
- mew accounts clerks;
- photographic process workers and processing machine operators;
- tax preparers;
- cargo and freight agents;
- watch repairers;
- insurance underwriters;
- mathematical technicians;
- hand sewers;
- title examiners, abstractors and searchers; and
- telemarketers;

In contrast, those least likely to be automated were:

- recreational therapists;
- first-line supervisors of mechanics, installers and repairers;
- emergency management directors; and
- mental health and substance abuse social workers.

Further research has filled out this analysis.⁵ McKinsey noted: “According to our analysis, fewer than 5 per cent of occupations can be entirely automated using current technology. However, about 60 per cent of occupations could have 30 per cent or more of their constituent activities automated”.⁶ This implies that the nature of roles will change and the number of people required to carry them out will decline.

⁴ C B Frey and M Osborne *The Future of Employment: How susceptible are jobs to computerisation?* (2013) <http://www.oxfordmartin.ox.ac.uk/publications/view/1314>.

⁵ C B Frey et al, *Technology at Work: The Future of Innovation and Employment* (2015) <http://www.oxfordmartin.ox.ac.uk/publications/view/1883>. C B Frey et al, *Technology at Work v2.0: The Future Is Not What It Used to Be* (2016) <http://www.oxfordmartin.ox.ac.uk/publications/view/2092>

⁶ M Chui et al, *Four fundamentals of workplace automation* (2015) <http://www.mckinsey.com/business-functions/business-technology/our-insights/four-fundamentals-of-workplace-automation>.

THE SILICON VALLEY CONSENSUS RESPONSE TO AUTOMATION

In June 2015, a number of academics, technologists and business people wrote an “Open Letter on the Digital Economy”.⁷ The letter writers make some sensible statements such as: “To paraphrase many recent headlines, will robots eat our jobs? We think this is the wrong question, because it assumes that we are powerless to alter or shape the effects of technological change on labor”. They go on to recommend a set of policy changes – better education, fewer trade barriers – that seem both uncontroversial and probably insufficient for the challenge they identify.

However a more specific response has emerged from Silicon Valley with a focus on Universal Basic Income (UBI), including a research program from YCombinator, a start-up incubator. UBI does what its name suggests: everyone would get a basic income.⁸ Why would we all get this? Because there would be no jobs left due to automation and somehow those waves of unemployment need to be managed.

Universal Basic Income (and other forms of social security) may well be good ideas. However the unspoken assumption here is that technology firms will own everything through these systems of automation. Research by Greg Ferenstein indicates that the general view of society among the Silicon Valley elite is fundamentally an oligopolistic one – with a small number of individuals owning a majority of the wealth.⁹ “Equality of opportunity not equality of outcome” is the phrase that is often deployed and improved education is the preferred method for dealing with social ills.¹⁰

This oligopolistic perspective is challenged by those that want broader economic participation and ownership and the emergence of inequality as a subject of public debate. Rushkoff¹¹ favours distributed marketplaces like eBay and Kickstarter to monopoly platforms like Uber. Exactly who will own the means of production and how the spoils of innovation will be divided is likely to remain a hot discussion topic for at least the next two decades.

AUTOMATION AND INFORMATION PROFESSIONALS

Automation will impact information professionals. The University of Technology Sydney Library stores much of its collection in an underground space where items are retrieved by robot cranes.¹² Libraries are using virtual intelligent agents to provide services to their patrons.¹³ If you want a future you need to focus on developing a role that adds more than automation technologies can currently provide. We will now briefly discuss two frameworks for coping with these challenges.

Frey and Osborne¹⁴ identified three bottlenecks to the automation of a role. These bottlenecks can be seen as leverage for humans in a discipline:

- Perception and manipulation: finger dexterity; manual dexterity; cramped work space; awkward positions.
- Creative intelligence: originality; fine arts.
- Social intelligence: social perceptiveness; negotiation; persuasion; assisting and caring for others.

⁷ E Brynjolfsson et al, “Open Letter on the Digital Economy” *MIT Technology Review* (4 June 2015) <https://www.technologyreview.com/s/538091/open-letter-on-the-digital-economy/>.

⁸ D Matthews, “Why a bunch of Silicon Valley investors are suddenly interested in universal basic income” *Vox policy & politics* (28 January 2016) <http://www.vox.com/2016/1/28/10860830/y-combinator-basic-income>.

⁹ G Ferenstein, “I quizzed dozens of Silicon Valley elites about inequality. Here’s what they told me” *Vox policy & politics* (9 January 2016) <http://www.vox.com/2016/1/9/10738910/silicon-valley-elites-quiz>.

¹⁰ G Ferenstein, *The Age of Optimists* (6 November 2015) <https://medium.com/the-ferenstein-wire/silicon-valley-s-political-endgame-summarized-1f395785f3c1#xxwt0bbg6>.

¹¹ D Rushkoff, *Throwing Rocks at the Google Bus* (2016) <http://www.rushkoff.com/books/throwing-rocks-at-the-google-bus/>.

¹² N Chettle, “Robots control Sydney’s University of Technology underground library” *ABC News* (10 September 2014) <http://www.abc.net.au/news/2014-08-10/robots-take-control-of-sydneys-hidden-book-bunker/5658334>.

¹³ G Liu, *The Application of Intelligent Agents in Libraries: A Survey* (2011) <http://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1003&context=leddylibrarypub>.

¹⁴ Frey and Osborne n4.

Information professionals score very differently in each of these three areas:

- Perception and manipulation: With the virtualisation of information, manual dexterity is no longer a key skill for information professionals unless you work with physical documents in a preservation role.
- Social intelligence: There is a strong tradition of care and service to others among information professionals – we see ourselves as “here to help”. Further developing our relationship-building and consulting skills gives us an edge against machines.
- Creative intelligence: Perhaps the most intriguing of the three is creative intelligence. In our opinion, creativity has been a neglected element of the education of information professionals. Designing useful, pleasurable and “delightful” environments and experiences for patrons is emerging as a key task for information professionals and one that we should grasp fully.

Davenport and Kirby¹⁵ offer a more deliberately careerist framework to coping with automation in the workplace. They identify five different strategies that workers can undertake. These strategies are listed below with their definitions and an example of how they might apply to information professionals.

Strategy	Definition	Information professional example
Step up	Focus on management and the big picture	Running an information centre or library
Step aside	Focus on creativity and areas that are difficult to automate	Designing a unique experience for your users
Step in	Understand how software makes decisions to manage it better	Search engine optimisation and tuning
Step narrowly	Focus on a niche	Serving a particular community or working with an unusual type of information
Step forward	Design automated systems yourself	Develop search and text analytics systems

SILICON VALLEY CONSENSUS AND INFORMATION PROFESSIONALS

Moving on from a specific response to automation, we will now end with comment on the broader Silicon Valley consensus. The worst response from information professionals is to ignore the mix of technologies and ideologies that we have labelled the “Silicon Valley Consensus” in this article. Information professionals need to understand the nature and the potential impact of these technologies. They need to understand the different business models that drive the development of these technologies. They need to be cognisant of the ideas that drive their creators, popularisers and owners. We do not think that ignorance is an option. Information professionals can gain this knowledge by:

- Using the technologies themselves. In some cases this can be simple.
- Talking to those working with such technologies.
- Reading technology media and research undertaken in this space.

The second worst response would be to accept the Consensus uncritically. Many claims are made about the power of technologies and the wisdom of those who wield them. Not all these claims turn

¹⁵ T Davenport and J Kirby, “Beyond Automation” *Harvard Business Review* (June 2015) <https://hbr.org/2015/06/beyond-automation>.

out to be true. A thoughtful stance to technology is one that both appreciates its possibilities and seeks evidence as to whether these possibilities can be realised.

- Does the technology actually do what its proponents claim that it does? To establish this, you may have to test it yourself.
- Is it as widespread as its proponents claim? Are claims of growth actually borne out by data? If there's no data then what anecdotal information can you get from people in that market?
- What claims do critics make about a technology and are those claims justified?
- What is the business model behind a technology and how does this influence the claims of its proponents?

More broadly, the challenge for information professionals is to become involved in public debates about information, knowledge, privacy and learning. The powerful of Silicon Valley have a natural advantage. If you are a billionaire, people assume that you must have done something right and so they listen to you. Most information professionals are not billionaires but we have unique perspectives on information literacy, digital inclusion and a number of other topics. We can bridge the divides between technologists and the rest of the human race. We have much to offer, if we choose to engage.