

Aaron Swartz – an Influential Software Engineer

In his 1986 essay, “No Silver Bullet”^[1], Fred P. Brooks Jr. posited that some software engineers are inherently better than others and that any company wishing to improve its productivity should be seeking, cultivating and recognising these engineers as “great”. In November of that year, a boy named Aaron Swartz was born in Chicago, Illinois. In my opinion Aaron Swartz was one such great software engineer, but not necessarily for the reasons Brooks had in mind.

A gifted child, Aaron had taught himself to read at age 3. The son of an industrious software engineer, he was introduced to computers and programming at an early age, and soon immersed himself in learning about technology, programming and the Web. His autodidactic habits and voracious appetite for knowledge would carry him far.

At a young age he started contributing to the RSS 1.0 web syndication specification. Swartz had been working remotely from home until one day his co-developers asked to meet the star coder of their team in person. The adults were astounded when Swartz replied he wasn’t sure that his mom would let him travel; he was only 14.^{[2][3]}

I’m sure that Brooks would consider Swartz amongst the class of “great engineers”, but for many people Aaron was influential not only because of his prodigious ability but also the rare and refreshing source of his motivation.

“Growing up, I slowly had this process of realizing that all the things around me that people had told me were just the natural way things were, the way things always would be, they weren’t natural at all. They were things that could be changed, and they were things that, more importantly, were wrong and should change, and once I realized that, there was really no going back.”^[4]

Throughout his life Swartz would use programming and the web to try and change the world. However, instead of being recognised as an avant-garde thinker and given space to grow, explore and voice his ideas, the US government would make an example of what happens to disruptive people like him.

As Swartz and the World Wide Web entered their late teens, he continued to work on bigger and bigger projects. He was passionate about and involved in Creative Commons, befriending Lawrence Lessig. He met Tim Berners Lee, “father of the internet”, and was inspired by his hero’s altruistic decision to release his invention for free, rather than attempt to make a profit. This resulted in the most widespread and world-changing technology in history.

Aaron began attending Stanford University, but finding college life (as with high school) stifling and not conducive to his creativity, he dropped out. He instead continued with his start-up, *Infogami*, which he had begun working on over his freshman summer. This Y Combinator-funded project would soon go on to merge with the nascent website Reddit, of which Swartz became a co-founder.^[5]

During his development of Infogami, Swartz created the web framework Web.py. He was unhappy with the existing frameworks, which he thought were too opaque and didn’t provide enough control. Web.py was praised by many python developers for its simplicity and effectiveness.

These successes again show Swartz to be an influential engineer by Brook’s definition: *“although many fine, useful software systems have been designed by committees and built by*

multipart projects, those software systems that have excited passionate fans are those that are the products of one or a few designing minds, great designers.”^[4]

However, his leaving college marked the beginning of his departure from entrepreneurship. He soon became disillusioned with start-up culture, and left the office where he had been employed since leaving college. Swartz maintained a candid personal blog, *Raw Thought*, where he would write openly about his thoughts and feelings. These ranged from his interactions with other people, to entertainment (his last entry is a detailed analysis of *The Dark Knight*), to his political views. The latter are particularly interesting, giving us insight into what drove him. It is clear from his blog entries as well as the prolific number of non-profit projects Swartz worked on throughout his life that he wasn't motivated by profit.^[6]

In an interview with Ruari McKiernan, Swartz admitted that *“I feel very strongly that it's not enough to just live in the world as it is, to just take what you're given and follow the things that adults told you to do and that your parents told you to do and the society tells you to do”*.

In 2008 he founded Watchdoc.net, a site aggregating information on politicians, and he wrote a somewhat notorious article entitled *The Guerilla Open Access Manifesto*.^[7]

Swartz was the entrepreneurial wunderkind who'd made it to where many people only dream of, but he rejected this culture. With a rare combination of deep technical capability and political acumen, Swartz devoted himself to internet activism and the freedom of information movement. One of his biggest successes came from his involvement in the campaign against the Stop Online Piracy Act, which was successfully opposed in 2012 largely due to online petitions set up by Swartz and colleagues. But it wasn't long before the waves he was making would draw some very unwanted attention.

As a research fellow in MIT, Aaron had access to the digital repository JSTOR. In 2010 he began downloading a large number of academic journals using a laptop he connected to a wiring closet on the campus. Presumably his intention was to release them for free or to perform some sort of meta-analysis on the publications. The traffic he caused was flagged and led JSTOR to temporarily deny access from MIT. The FBI soon became involved.

Swartz was arrested in early 2011 and became embroiled in a long legal battle. The case escalated from accusations of misdemeanour to a full-blown federal prosecution. During the trial Swartz's lawyers were exasperated at the prosecutorial overreach and disproportionate sentences proposed for what amounted to copying information which Swartz already had access to.

The trial cost Aaron all the money he had accumulated during his brilliant career, and his parents were planning on mortgaging their house to fund his defence. He was facing 35 years in prison and two of his attempts at plea bargains failed.

Aaron Swartz committed suicide on January 11, 2013. Many shocked colleagues and friends attended his funeral, including Tim Berners-Lee. At the procession his father said that *"Aaron was killed by the government, and MIT betrayed all of its basic principles."*

If companies had more engineers like Aaron Swartz their software would be better. If the world had more people like Aaron Swartz, our lives would be better. As modern companies begin to rival and outmatch governments in their global influence and control over the future, the engineers we should be praising and nurturing most are those like Aaron: capable of great compassion as well as great thought.

Swartz recognised that the software we build impacts the world enormously, and his death ultimately demonstrated that indeed, the old world is dangerously under-adjusted to the new power this technology brings to the hands of individuals. Steve Jobs, Bill Gates and Mark Zuckerberg are names that will spring to the minds of many when asked to name an influential software engineer. Undoubtedly they were all influential, and have improved the world to varying degrees. However all seem to have been largely driven by profit or a desire for success. Aaron Swartz was influential in a unique and important way: not primarily because of his programming ability, or even his inventions, but his attitude to *how* and *why* we should produce software in the first place.

[1]. "*No Silver Bullet*", F. Brooks, 1986

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[2]. "RDF Site Summary (RSS) 1.0 website"

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[3]. "*The Internet's Own Boy: The story of Aaron Swartz*", Brian Knappenberger, 2014

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[4]. "*My Interview with Internet Activist Aaron Swartz (1986-2013)*", Ruairí McKiernan, 2010

<http://www.ruairimckiernan.com/articles1/my-interview-with-internet-activist-aaron-swartz-1986-2013>

[5]. "*Aaron Swartz – Wikipedia page*"

https://en.wikipedia.org/wiki/Aaron_Swartz#Entrepreneurship

[6]. "*Raw Thought*", Aaron Swartz

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[7]. "*Guerilla Open Access Manifesto*", Aaron Swartz, 2008

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