



From Indymedia to Tahrir Square

The Revolutionary Origins of Status Updates on Twitter

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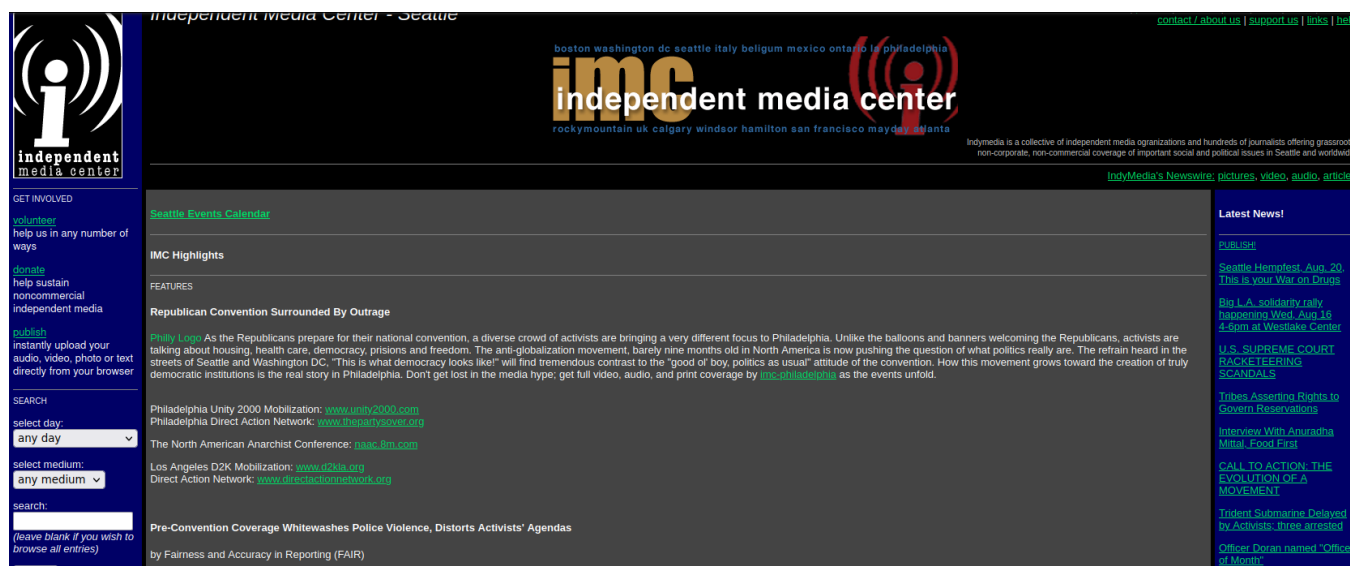


Figure 1: The original Indymedia website with a status update-driven newswire in 1999

ABSTRACT

One of the most important developments in the history of the Web was the development of the status update. Although social media has been approached by a number of critical theorists as an instrument of control and surveillance, it should be remembered that social media began as liberatory technology harnessed by social movements. In this essay, we trace the origin of the status update for spreading news from protest-driven community networks like Indymedia and text messages for protest coordination via TxtMob. In fact, the use of status updates by Indymedia and the wider anti-globalization movement prefigured their usage in Tahrir Square and the Black Lives Matter movement in the USA. This historical link goes through Twitter itself, as the early Twitter engineers were veterans of Indymedia. There is still much to learn from Indymedia: Framing social media as invented and then harnessed by social movements may even provide innovative solutions to issues of content moderation and censorship. Exploring the origin of social

media in social movements provides a perspective on the history of the Web from the tradition of the oppressed.

CCS CONCEPTS

• Social and professional topics → History of computing; History of software; • Human-centered computing → Social media.

KEYWORDS

status updates, social movements, Indymedia, TxtMob, Twitter

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1 INTRODUCTION

The history of the most innocuous feature of the Web, the ubiquitous *status update*, ends up revealing a thread of historical events that demonstrate the use of social media for politics was planted at the very inception of Web 2.0. As described by Tim Berners-Lee, the original Web is a web of data and documents, and not one that easily tracks and displays updates in near real-time [4]. Instead, the model of the Web 1.0 put forward by Berners-Lee was closer to



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an archive of collective knowledge in the vein of Wikipedia rather than the continual stream of updates that characterize platforms such as Facebook and Twitter. Indeed, although much has been made of the social networking aspect of Web 2.0 in terms of the history of social media, one can argue that the move towards status updates is equally an important transition in the history of the Web [13]. Then the question is naturally asked: From whence did this concept of the status updates come from, and why?

The story behind the status update leads into long-forgotten events and unexpected usages of the Web. Contrary to popular narratives [1], innovation on the Web is not just driven by start-ups and military funding, but also has been driven by the real needs of self-organized social movements expressed by code. Twitter is a perfect example: Although there is no doubt that as a company Twitter was in part the result of venture capitalists giving money to entrepreneurs like Jack Dorsey and Evan Williams [5], the secret story of how the concept of the status update can be traced to anarchists such as Evan Henshaw-Plath, Blaine Cook, Tad Hirsch, Nathan Freitas and many others active towards the end of the anti-globalization movement.

It is precisely this double-sided history of the status update that we delve into in this paper, tracing the origin of Twitter to two projects by social movements called Indymedia and TxtMob. It is somewhat surprising that this history is not more well-known, and even the most prominent books on the use of Twitter by social movements seem to have left this story out [19]. This is not surprising, as these academics were not heavily involved in the social movements that led to this technology, and so it is the duty of the engineers who worked with these social movements to set the record straight, so to speak. In Section 2, we outline the genesis of the status update and how it gained traction in the Indymedia platform that was created by social movements, and then the mobile messaging platform TxtMob that was used to spread status updates at protests via SMS-based text messaging. Then in Section 3, we delve into how a few programmers from Indymedia helped found Odeo, the pod-casting company that then gave birth to Twitter [5], leading to the universalization of the status update. Finally, we conclude in Section 4 with how the future trajectory of the Web may be reflected in previous socio-technical revolutions.

2 INDYMEDIA AND THE ORIGIN OF THE STATUS UPDATE

Social media did not happen all at once, but was an idea that was simultaneously and independently invented. The use of CGI (Common Gateway Interface) scripts put forward by early Mosaic employees in 1993 allowed some level of dynamic websites since nearly the birth of the Web [4]. As early as 1997, websites such as *slashdot* in allowed users to submit their own stories about technical subjects and the short-lived *SixDegrees* website allowed for the first form of web-driven social networking with an individual profile. Then in 1998, early blogs like *OpenDiary* allowed writers to post time-stamped writing and for commentary via a Web interface. However, the concept of a *status update*, a piece of information with a particular time-stamp delivered in a timely manner typically as part of a feed (a temporally ordered collection of status updates), had not yet reached widespread usage for breaking news updates.

Strangely enough, the spark that lit the fire of social media's usage for news was the *Indymedia* network of websites [6].

Parallel to the development of the Web in 1994, the indigenous Zapatistas of southeast Mexico gripped international headlines when they declared that 'another world is possible' against the 'end of history' declared by neoliberal capitalism [20]. Convening international encounters in Chiapas, a global social movement colloquially known as the 'anti-globalization' social movement formed as a 'network of networks' – in parallel to the internet [20]. This loose social movement may more accurately be described as an 'alter-globalization' movement as, while it warned that globalization's freedom of trade would lead to global immiseration, the movement imagined a world of globalized dignity and sovereignty. This movement against corporate globalization was organized primarily via the development of e-mail such as the PGA (People's Global Action) mailing-list, which allowed activists from across the globe to co-ordinate low latency international solidarity as for the first time, as direct peer-to-peer communication could establish real links between groups as diverse as student activist groups at the University of North Carolina and sweatshop organizers in the Philippines. Just as the Internet poured over borders, the nascent anti-globalization movement began organizing 'days of action' across borders, first at the MAI (Multilateral Agreement on Investment) meeting in Canada in 1998 [7]. While the movement and its use of technology has been historically well-documented [3], the Web-based media technology pioneered by this movement should be revisited in order to understand how the status update become ubiquitous on the greater Web [14].

The concrete needs of social movements can be addressed by the development of disruptive innovation by social movements themselves. For example, crucial to the organization of these protests were shared calendaring services that listed all the protests going on globally, bringing various diverse movements into connection with each other via *protest.net*, thus giving the appearance of a widespread global movement where previously there had been only isolated groups. One of the fundamental problems facing the anti-globalization protests was the lack of mainstream media coverage. At the time in 1999, large protests in many countries like the United States were relatively unknown, and small-scale protests were mostly ignored by the radio and television-based media of the time. In response, an alternative media ecosystem focused on these pre-Internet media forms developed, such as Free Speech TV and Deep Dish Radio, but these alternative media outlets seemed unable to reach many people. When the mainstream media did take some limited interest in a protests in the 1990s, the protesters felt that they hopelessly distorted and inaccurately reported the events on the ground. While the protesters identified this (often lack of) coverage mostly as ideological bias within mainstream media, early media activists also identified very real inefficiencies at the heart of the media itself that could be remedied by using the early Web. Thus, it was only logical that the participants in the anti-globalization social movement would reach out to create their own websites for sharing and archiving the protests. Small online media groups organically formed such as DAMN (Direct Action Media Network) in order to relay independent coverage of the protests with the help of technology collectives such as *tao.ca*.

These small local and online collectives would share first-hand reports and photos to the wider world using the only medium viewed as an alternative to mainstream newspapers and television shows: The Web.

What was missing was a truly global event to bring this nascent form of media activism to the attention of social movements worldwide. The event that finally catapulted activist-driven social media onto the historical stage was the protests against the World Trade Center (WTO) in 1999, which used mailing lists to globally mobilize over fifty thousand activists in Seattle [7]. Six months ahead of the dates of the protest, media activists started creating an online platform to share and archive media about the protest by building on top of an obscure Australian open-publishing software called *active*, previously deployed in anti-capitalist carnivals in Sydney and London earlier in the year. This software was then deployed to create a new website *Indymedia.org* – short for ‘Independent Media Center’ (IMC) – with the slogan “Don’t Hate the Media, Be the Media” [15].

Unlike most web-sites at the time, Indymedia enabled any person to upload text and photos to the website without permission, and this status update would then be displayed instantly to the whole world in a *newswire* that consisted of a time-stamped collection of status updates, as shown in Figure 1. Indymedia was one of the first examples of the trend towards user-contributed news reporting and feeds in what later became generalized as Web 2.0. When the WTO protests led to running street battles by an anarchist Black Bloc and mass civil disobedience that shut down the WTO itself, Indymedia became overloaded with visitors as the mainstream media had been ignoring the protests. Indymedia became the primary source for news for both mainstream journalists and activists for breaking reports, and soon mainstream media was reporting news that they themselves had discovered using Indymedia [7]. The use of the status update in Indymedia serves a prime example of how innovative technologies are produced to solve the real social problems facing social movements.

In a perhaps odd turn of events, the stridently anti-capitalist Indymedia could claim to have pioneered the use of the status update for live news reporting. However, the details of the technical implementation matter. The status updates of Indymedia were not presented as a stream of updates created by a single profile, but were instead presented as a collective timeline where all contributions were anonymous by default and presented only in the order they were given, with the most recent updates being on the top of the site. In this manner, Indymedia resembled more *4Chan* than Twitter. This model valued collective social movements and news rather than individual micro-celebrity, and presented a different model of social media than that later popularized by Twitter and Facebook. Furthermore, this model of social media seemed attractive globally to places historically ignored by mainstream media, and new local websites took up Indymedia as a brand-name and were created globally from Thunder Bay in Canada to Palestine. There was nearly a new Indymedia site every ten days for the first two years, leading to over 140 sites by 2004. Each site would be maintained by a local collective that would in turn often engage in other forms of media production, such as the creation of video, and even early forms of livestreaming via leasing space on light poles with pre-paid modems. The early Indymedia sites soon forked the original



Figure 2: An advertisement for TxtMob in 2004.

software, or just rewrote it from scratch, leading to a multiplicity of mutually incompatible Indymedia sites that maintained the same look and feel as the original Indymedia, yet were ran on different codebases, from the static HTML produced by the Mir software to the PHP-driven *dadaIMC* software. However, these Indymedia sites were all knitted together such that the global Indymedia site (*indymedia.org*) was able to share status updates from local sites (from *indymedia.org.uk* to *brasil.indymedia.org*) using early IETF standards like RSS 1.0 (RDF Site Summary) [15]. This usage of RSS for thousands of news stories daily was one of the first actual real-world uses of the Semantic Web [4].

As the posting was anonymous by default, Indymedia was one of the first sites to suffer from posting of hate speech, neo-nazi content, and so-called ‘fake news.’ Thus, perhaps the most relevant aspect of Indymedia to current debates on censorship and content moderation on social media sites was the fact that each local collective managed and enforced their own content moderation policy. These publicly-published policies allowed each geographically-bound collective to formulate explicit criteria and processes for the removal of content, and volunteers from the collective removed content at all hours. As each site was geographically bound and ideologically motivated, the volunteers were often quite effective at manual content moderation in practice, and content moderation algorithms were not used. Likewise, as Indymedia status updates were displayed purely chronologically, journalists from the movement such as Brad Will would have their high-quality journalism blend and risk disappearing into various low-quality posts. Thus, the local collective would also choose to headline certain status updates by sharing them on the main page of the site where they would outlast the more ephemeral status updates of open-publishing on the Indymedia newswire, as shown in Figure 1.

However, a wave of repression soon hit the anti-globalization movement, such as the deployment of mobile police forces on bicycles at the Indymedia-organized protests against the 2001 Republican National Convention in the USA. The activists no longer needed to get their news out, but they needed to know the precise location of cops and mass arrests in the streets in as near as possible to real-time, and the traditional Indymedia website was not up to

the task as it was bound to a desktop or laptop. As one of the last large protests of the anti-globalization movement loomed in 2004 at the Democratic National Convention in Boston, an MIT student called Tad Hirsch, working with the mysterious John Henry of the Institute of Applied Autonomy, created a group text-messaging app using SMS called 'TxtMob' that allowed protests to co-ordinate in the streets via text messages spread in near real-time [9]. In particular, it allowed people to not only receive messages from protest organizers but ask questions of other protesters using text messages from their mobile phone, re-creating a more horizontal form of decision-making than traditional top-down organizing over text messages as used in past protests. It was pioneered by a few hundred people in the protests against the Democratic National Convention in July 2004 in Boston. An advertisement aimed at activists to encourage them to download TxtMob is given in Figure 2.

As the more massive Republican National Convention protests in New York City approached in 2004, TxtMob gained 4,400 registered users. One of the primary problems created by gaining more users was allowing people to use the service for free to send and receive text messages. At the time, many telephone providers offered services to convert text messages to emails for free. As the protests approached in August, Nathan Freitas wrote a Java applet that communicated to a central server to convert every SMS message it received to an email and sent to a mobile phone company's gateway to then be broadcast to the entire group as an SMS. Yet if all the text messages were sent in a centralized manner, the mobile phone company would likely shut down the gateway to stop what appeared to be spam. Therefore, Indymedia programmers Blaine Cook and Evan Henshaw-Plath put an applet in the Indymedia site to load in the background, hidden to a user, as the window was left open. In this manner, hundreds if not thousands of computers were 'hijacked' to deliver SMS messages to protesters for free. In the end, Indymedia ended up delivering over 40,000 SMS messages an hour. In the last two days of the protest, the American phone company T-mobile shut down the phone system during the RNC protest in New York City to disable the increasingly effective TxtMob system many years before Mubarak followed the same path in Egypt.

The repression continued, as the so-called 'war on terror' took its toll on the anti-globalization movement, which slowly but surely transformed into a more centralized anti-war movement in the United States. In places from Italy to the UK, Indymedia Centers became the primary target of the police raids and server seizures, and the network slowly became a shadow of its former self in the 2010s, with the main network server itself eventually going inactive and protesters in newer social movements utilizing Twitter and Facebook instead of Indymedia [14]. The programmers behind the technical infrastructure of Indymedia went on as well. Some still maintain the email server *riseup.net*, which is the world's largest non-profit email provider. However, two of the radical programmers behind Indymedia and TxtMob - Blaine Cook and Evan Henshaw-Plath, went on to create Twitter in Silicon Valley [5].

3 HOW TXTMOB LED TO TWITTER

As the protests died down in 2004, Evan Henshaw-Plath and his wife Gabriela Rodriguez (Gaba) were hired by Evan Williams as

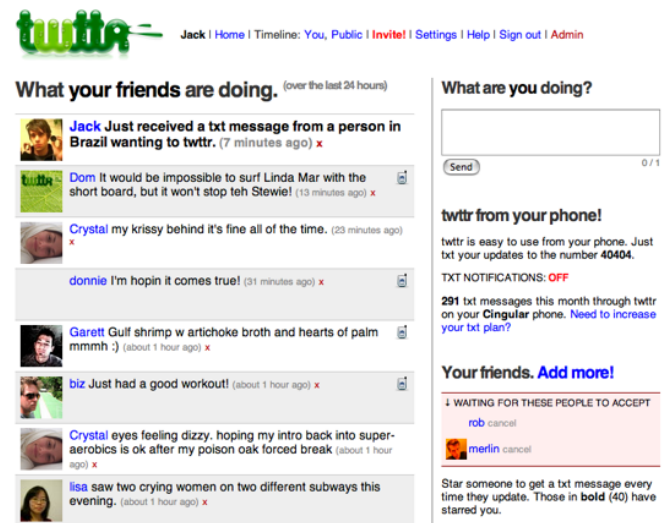


Figure 3: The first public landing page for "Twitter" (later Twitter) in 2006

the first engineers in the podcast startup Odeo,¹ which dreamed of democratizing access to media in a more traditional capitalist manner than Indymedia. At the time, Williams was the sole angel investor, and he also hired Noah Glass, who had created a service that allowed a voice message to be transformed into an audio file hosted on a web server [5]. Evan Henshaw-Plath began work while living in his van, and Noah Glass worked out of cafes. He also hired the anarchist programmer Blaine Cook, who used to work with *tao.ca* before joining Indymedia. Gabriela Rodriguez then left Odeo in 2005, and Odeo hired Jack Dorsey, who while sympathizing with activists was not active in Indymedia, to replace her after they failed to hire Moxie Marlinspike, whom later went on to create the encrypted messaging application Signal.

Work continued at a feverish pace by activists to harness mobile phones and SMS messages for protests in 2005.² After Tad Hirsch fully open-sourced TextMob, a new version of TxtMob was built for the Mayday immigrant strike in 2005. As the original Odeo site was launched in summer 2005, Odeo raised over 5 million USD in funding. Yet Apple adding podcasts to iTunes doomed Odeo's original project and so caused the company to look into a pivot. In January 2006 Blaine Cook, Evan Henshaw-Plath, and Tad Hirsch presented their work at the O'Reilly Media Emerging Telephony Conference.³ Evan Williams becomes increasingly interested in telephony and TxtMob, and thus at an internal company hackathon in January 2006, the new version of TxtMob was demonstrated by Blaine Cook and Evan Henshaw-Plath to Evan Williams, Jack Dorsey, and the rest of Odeo. Everybody in Odeo signed up for and used TxtMob for a week, and afterwards there was a debriefing and critique focused on the difficulty of signing up and how hard it was to find groups. Commercial alternatives to TxtMob were also demonstrated, such as *UPOC.com*.

¹<http://evhead.com/2004/11/web-developer-needed-inaround-sf.asp>

²https://aspirationtech.org/MobileActive_press_advisory_090605

³https://www.christine.net/2006/01/tad_hirsch.html

As Odeo's podcasting service floundered, Jack Dorsey pushed for the idea of sharing status updates, seemingly inspired by TxtMob, although Jack Dorsey had independently developed similar thinking in 2001 as Dorsey's original sketches of status updates did not involve text messages. Noah Glass, Florian Weber, and Jack Dorsey then started in February 2006 to work on Twitter and created a demonstration by March 2006. The original demonstration screen shown in Figure 3 shows the influence of Indymedia and TxtMob. Still working on Odeo, Evan Henshaw-Plath left in May 2006 to join Yahoo! in order to work on geolocation services called Fire Eagle. Although Twitter received early favorable coverage from venture capital magazines such as TechCrunch and an outburst of usage around the San Francisco earthquake in August 2006, it still only had 5,000 users - the same as TxtMob - by September 2006. Twitter added API and instant message integration, leading it to take off in 2007 at the SXSW conference. Over the course of time the status update became truly ubiquitous [5], becoming the primary method for sharing news across the world [10].

Although Twitter is thought of a centralizing monolithic platform today, the early Twitter could be controlled by a chat bot that ran over the open XML-based chat standard XMPP. In the tradition of Indymedia and other blogging sites, early Twitter also supported standards for sharing status updates like RSS. Blaine Cook from Indymedia eventually became the lead technical architect of Twitter, where he worked on protecting users via creating the IETF OAuth standard so that users did not have to trust Twitter with their passwords to use the Twitter API. Although the goal was protecting users, the effect of OAuth was shifting power from Twitter to the preferred identity provider of the users themselves. At the time it was naively believed users would host their own identity providers [8], but eventually Google and Facebook became the primary identity providers for almost all users. In its first few years, the open source ethos of Indymedia prevailed at Twitter, as the entire early infrastructure could be accessed by anyone via APIs [16]. This allowed Twitter to essentially outsource much of its development, including that of machine-learning, to app developers and researchers, letting Twitter somewhat catch up to Facebook and Google.

The origin of Twitter was at the intersection of dispatch systems, email, voicemail, and video, where elements of what was old, but worked, were re-imagined and created something new. The effect of this was the growth of Twitter from an experiment in status updates and text messages to a new medium, changing our relationship to power. So it should come as no surprise that the original use-case of Indymedia and TxtMob, the sharing of status updates about protests and the location of police forces, became the defining use-case of Twitter around the world as events unfolded in Tahrir Square in January 2011 [19].

Technology does shape but does not determine social processes, and so while it does not determine change, technology helps create the possibility and facilitate change to the extent that social movements use technology. It is self-evident that technology is not deterministic, and it is an insult to the revolutions of 2011 to call them 'Twitter revolutions,' but Twitter was nonetheless more useful than platforms such as Google to these protests. The original use-cases and even values of Indymedia and TxtMob were built by their designers into the affordances provided by Twitter. It is

no surprise that a vast social movement like Arab Spring - with little relationship to the anti-globalization movement that built the predecessors of Twitter - would arise to use Twitter to overthrow governments. The tools that had been pioneered by a relatively small amount of protesters as part of the anti-globalization movement were now able to be used by everyone, including those in the Global South that needed them the most, having more important things to tweet about than even Twitter expected.

However, today the challenges facing Twitter seem to be that social movements from the extreme right, as well as various governments, have also discovered the affordances provided by Twitter. This has led Twitter to be enveloped in debates over content moderation and censorship, particularly after Jack Dorsey permanently banned Donald Trump from Twitter in 2020. In this regard, although technology shapes what is possible, somewhat like rules of physics, one should be reminded that inside the space of the possible there are many different politics. So, the history of Twitter ends up being neither one of political liberation of humanity via the freedom of information nor one of the recuperation of the cyberleft by Silicon Valley. Instead, we are faced with the all-too-human story of how the social and technical interleave in surprising ways, with social movements creating new technology and harnessing existing technology for their own needs, while venture capital-driven startups then universalize this technology, albeit for capitalist growth rather than human emancipation. In the end, we are left with the question of whether or not the roots of the status update in social movements may leave us some direction to solve the problems that Twitter, and social media as a whole, is inflicting upon humanity. Venture capital itself ends up playing the role of the unwitting promulgator of technologies built by radicals into the hands of the masses, with consequences neither venture capital nor radical technologists foresaw.

4 CONCLUSION

In conclusion, technology always encodes values, and not always the values that their users, or even designers, believe they encode. Technology may encode the values of surveillance capitalism, or it may encode new forms of values that resist recuperation. Yet values are far too often unclear: For example, what are the values of Twitter? Are the values of Twitter that of venture capital? Or does some radical kernel remain from its lineage in Indymedia and TxtMob?

Although only history can ultimately judge Twitter, Twitter may also learn from the forgotten values and practices of Indymedia. It can be argued that the 'making explicit' of the values of communities can lead to the control of online communities over their own discourse in order to resist propaganda. The decentralized nature of Indymedia seemed far more effective at this than Twitter, as Indymedia came specifically from geographically grounded communities with their own localized histories and activist values. Indeed, unlike social media platforms such as Twitter that are held to some ill-conceived Habermasian idea of an universal platform for communicative action, Indymedia wore its political ideology on its sleeve: Their online space was for social movements against neoliberal globalization, and only for those social movements. Learning

from the experience of Indymedia, a return to this model of explicit values may make future social platforms more resistant to manipulation and more able to moderate their own content, as the boundaries of what should and should not be tolerated become much more clear.

The harnessing of technology by social movements is a better framework to understand technology than a parade of inventors from Gutenberg to Berners-Lee. There are numerous stories of how technologies lead to shifts in the nature of power throughout history via enabling social movements. Social movements are both born in a technological matrix and have the range of capabilities amplified by new technologies, as is clearly the case with the usage of Indymedia by the anti-globalization movement and the use of Twitter movements from Tahrir Square to #occupy [18]. The temporal frequency of social movements should be grasped on a larger historical level: For example, there have been much previous work documenting the disruptive technological development of the printing press in the series of peasant wars that finally completed the transition of feudalism into capitalism [11]. Contradictions deepen as printing Bibles may have seemed to have reinforced the feudal theological state at first blush, yet the printing press was quickly subverted to print both vernacular Bibles and then incendiary pamphlets preaching anti-capitalist revolution [11].

As exemplified by the literary salons of France, the use of these technologies is often first pioneered by small groups before sparking wider revolution [11]. The heretical 'republic of letters' born from the massification of the written word eventually led to the formation of modern bourgeois nation-states that effected nearly all stratum of society. Take for example the 'Committees of Correspondence' that were the backbone of the American Revolution: Could they have existed without the spread of the written word? Would Black Lives Matter be as successful as it was without social media, given that the wanton murder of black people by the police in the United States far pre-dates social media? Slowly but surely, over time the technology of what was once a revolutionary vanguard falls into the hands of more and more people, so what starts out as a small group of activists using TxtMob eventually leads to people throughout the world participating leaderless uprisings [17].

This is not to say that the use of technology by social movements is necessarily progressive. In the modern age, the development of radio was crucial for reactionary social movements such as the rise of national socialism in Germany. Some of these examples are well-known and have been subject to great scrutiny [2]. Dialectically, technology always creates new spaces for both dissent and repression. In the digital era, the use of status updates for propaganda (a more accurate term for 'fake news') and surveillance demonstrates the repressive danger inherent in status updates. Yet does the apparent failure of the social media-empowered social movements, from the anti-globalization movement to Arab Spring to #occupy, point to an inherent flaw in the technology itself, as armchair activists like Morozov claim [12]?

It is more intelligent to ask if these Web-mediated social movements have truly failed. These social movements have all to some extent accomplished changing the terms of the cultural configurations of their time in favor of the oppressed. Although the anti-globalization movement has passed, its critique of neoliberal globalization is widely accepted, even on the right. Occupy has led to a

revival of radical socialism in the United States. Black Lives Matter has brought unprecedented scrutiny on the police. While Egypt lies under dictatorship again, Tunisia maintains a democracy. Their time may simply not have come; social movements before have been compared by Marx to a mole that burrows deep into the soil and surprises history itself when it pops its head back out: "Well grubbed, old mole!" While we must freely admit that spreading information is not enough, it is merely the first step in a struggle. What social movements need is to find a form of organization capable of sustaining autonomy. The question is then what kinds of technology can enable the kinds of self-organization needed. As important as status updates are, they are precisely only one tiny facet of what a social movement needs. A social movement that truly succeeds will need many other technologies: Technologies for deliberation and voting, for economic planning and monitoring, and for inspiring creativity and science. What we can learn from the failure of Indymedia and Twitter-inspired social movements is not that the widespread democratization of reading and writing is preordained to fail, but that simply the status update is not enough, a conclusion that is all-too self-evident. As social movements will continue to make new tools and utilize existing tools in unforeseen manners, the future of technology is still being written.

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