Three kinds of demand pull for the ARPANET into the Internet

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Abstract: This essay examines how the US government intelligence community (IC) as well as the public and commercial sectors contributed demand-pull, in different ways, for an unregulated, privatized Internet. Demand-pull entails more demand than supply, or a shortage in supply (such as a shortage in networks and thus a demand-pull for them). It is argued that an excessive supply of Cold War era IC spy data, which required high-speed data processing, incentivized ARPANET expansion. In the public sector, people wanted expanded networks for personal computing and in the commercial sector there was demand-pull for unregulated networks that bootlegged and gifted PROMIS derived software could be harnessed to. The IC demand pulled for their own cloned and separate networks, while the public demand pulled for their own networks and commercial interests demand pulled for unregulated, privatized and expanded networks. Together these different demand-pull scenarios incentivized a speedy and unchallenged privatization of an Internet that was neither owned nor regulated by any one government or company.

Subjects: Information & Communication Technology; ICT; Robotics & Cybernetics; Sociology of Science & Technology; Communication Ethics; Mass Communication; Communication History; Media, Information & Communication Industries; Information Technology; Media & Film Studies; Media & Communications

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PUBLIC INTEREST STATEMENT

The US intelligence community (IC), the public and commercial sectors generated demand-pull for changing the ARPANET into the privatized Internet. Demand-pull means more demand than supply, or a shortage in supply (a shortage in networks generates “demand-pull” for them). ARPANET or Advanced Research Project Agency (ARPA) Network was built by the US military as a counterinsurgency weapon; today it is called an informational infrastructure and is the foundation of the privatized Internet. Here it is argued different kinds of demand-pull from the IC, public and commercial sectors, helped incentivized the shift from ARPANET into an unregulated, privatized Internet. Massive Cold War era IC spy data, which required super-computer processing, incentivized ARPANET cloning and expansion, while in the public sector there was demand-pull for networks for personal computing and in the commercial sector for unregulated networks that PROMIS derived (and other) software could be harnessed to.
1. Introduction

The Advanced Research Project Agency (ARPA) Network or ARPANET is a complex of interactive computers built by ARPA during the Cold War era at specific American Universities (or nodes); today it serves as the Internet. ARPA contracted cybernetic scientists J.C. Lickleder, William Godel, Ithiel de Sola Pool, among others, to combine research from laboratories in the US and Vietnam to create the ARPANET. ARPANET enhanced anti-Communist IC spy activity with its high-speed transmission capability and super-computer data-processing. The Cold War era intelligence community (IC) bought the earliest, most advanced computers to process signal and spy data (Shorrock, 2008, 192). To buy them meant generating a need for them in the name of anti-Communism by creating excess data requiring networked interactive computer technology, thus creating a “demand-pull” for the ARPANET. How the IC generated demand-pull for the ARPANET is the subject of the first part of this article, the second part discusses how demand-pull for civilian networks (the ARPANET turned Internet) was generated in the public sector. A commercial demand-pull factor, namely PROMIS software, is also discussed. PROMIS software enables computer interaction and long term automated tracking of databanked information; it was pirated and marketed to governments and private parties while ARPANET was privatized during the Reagan Administration. PROMIS software was adopted worldwide for many purposes and made more agile by an unregulated Internet (Fricker, 1993, 2013; Gallagher, 2011; Thomas & Keith, 1996).

The Advanced Research Project Agency (ARPA) or the Defense Advanced Research Project Agency (DARPA) (both names appear throughout the literature) developed the ARPANET and privatized it partly because of IC increased demand for high-speed data distribution among the military IC (CIA, FBI, NSA, military intelligence and others) and partly because of manufactured or cultivated demand-pull in the public and commercial sector. IC demand-pull for electronic data processing and transmission, plus demand-pull for Internet access in the public and commercial sector together incentivized ARPANET privatization in an American neoliberal management context, the result being a taxpayer-funded construction of ARPANET given over to for-profit US companies.

During the Vietnam War, Presidents Nixon and Johnson encouraged more spy operations to search for Communists in Vietnam and the US. Anti-war dissenters were the target of counterinsurgency-style operations waged by the FBI, CIA, NSA and military intelligence against the “New Left” (Americans who did not adhere to traditional Communist ideology yet were against the status quo). An Inter Departmental Intelligence Unit (IDIU) and an Internal Security Division (ISD) within the Department of Justice were established. The ISD’s function was prosecution of offenses involving internal security. The ISD initiated grand jury investigations that corrupted the legal purpose and became interrogations designed to intimidate, gather intelligence, broaden surveillance and launder illegally obtained evidence and intelligence (Donner, 1981, 353–87). The result of all this domestic spying on Americans produced massive spy data, which in turn increased IC demand for interactive computers and high-speed networks to process, sort, store and transport electronic spy data. Electronic information, unlike hard copy files (such as the leaked Pentagon Papers), could be deleted, changed, hidden and tracked on the ARPANET and other networks, making it useful to the IC, which sought such technology from ARPANET scientists such as Licklider.
and Godel (Levine, 2018, 27–33, 50–1, 63). Anti-Communism was the underlying rational that justified: (1) military funding for domestic spying, (2) ARPA weapons research and (3) the IC’s conservative, pro-neoliberal, rather than institutional (or New Deal), “us against them,” “good smart Americans” against evil, inferior Communists, orientation, attitude, modus operandi or group think (Hoover, 1958, 97–8; Keller, 1989; Pyle, 1974, 355–90).

Reiterating some contextual IC history helps backlight how the anti-Communist agenda is exploited for national security and neoliberal interests. To begin with, the common understanding is the Japanese bombed Pearl Harbor in 1941 because the US military failed to detect signal intelligence correctly due to uncoordinated intelligence (Commission on CIA Activities within the United States 1975, 10; Snowden, 2019, 1–2; Wohlstetter, 1962). Shortly thereafter the Soviets defeated Hitler but the US remained anti-Communist. The defense research the US began in WWII became institutionalized in Pentagon-funded university general research programs, think tanks like RAND, laboratories like MIT Research (MITRE) and high-risk research agencies like ARPA and Information Processing Techniques Office (IPTO) (Jacobsen, 2015; Leslie, 1993; Levine, 2018, 59; Norberg and O’Neill 1996; Rohde, 2013). The US waged a “Cold War” against Communism domestically and internationally which sent the right message to post-WWII wanna-be NATO countries.

Anti-Communism was the theme of government purges throughout the 1930s (Dies Commission) and 1940s (federal employee loyalty programs) and the 50s (Senator McCarthy’s House Un-American Activities Commission or HUAC)(Brinson, 2004; Storrs, 2013; Stone & Kuznick, 2013, 234–5). The Emergency Detention Act of 1950 allowed detaining assumed subversives on FBI watch lists like Hoover’s infamous FBI “Security Index.” The Communist Control Act of 1954 outlawed the Communist Party. Anti-Communism underpinned military morale and justified funding for military and intelligence research. The National Security Act of 1947, designed for flexibility, restructured the military, created the Central Intelligence Agency (CIA), the Air Force and gave the President the power to make decisions regarding national security (Halperin, Berman, Borosage, & Marwick, 1976, 5; U.S. 1976a 427–31).

The National Security Act of 1947 enabled the creation of the “military-industrial-academic-complex” or “military-intelligence-complex,” a partnership of military corporate contractors, the IC, private research laboratories and basic research universities (Leslie, 1993). This government and private-corporate partnership take a percentage of US GNP annually in exchange for providing national security at the expense of spending on civilian social services (Hitch & McKeen, 1965, 28–40). IC budgets include “proprieties” (“false front” entities) and their effect on the free market system is unknown (Horton, 2015; US 1976a, 205–51). In 2011 the Budget Control Act mandated military spending caps for 10 years. A March 2019 a press release from Department of Defense (DoD) announced the Trump administration requested the largest DoD budget in 70 years. It states, “On 11 March 2019, President Donald J. Trump sent Congress a proposed Fiscal Year (FY) 2020 Budget request of $750 billion for national security, $718.3 billion of which is for the Department of Defense (DoD)” (DoD Press Release 2019, 1). Mark F. Cancian a senior adviser with the International Security Program at the Center for Strategic and International Studies predicts military spending skyrocketing after the Budget Control Act expires in 2021 (Cancian, 2019).

Anti-Communism colored Cold War era society, media, academic, church and civic organizations. In the 1940s and 1950s the IC was tasked with apprehending Communists who might spy or steal research secrets from the military-intelligence-complex. Former State Department official Alger Hiss was relentlessly pursued by Congressman Richard Nixon and convicted of perjury. Physicist Klaus Fuchs was apprehended in 1950 for passing nuclear secrets to the Soviets, leading to the discovery, trial and execution of Ethel and Julius Rosenberg for spying for the Soviets. Military research increased on campuses across the US, as did anti-Communist FBI and CIA spy operations. Sundry investigative commissions and American loyalty commissions (N.Y. Lusk Committee, 1919; Fish Committee, 1930; McCormack-Dickstein Committee 1934; the Dies Committee 1938, and...
others that came after) essentially interrogated pro-New Deal Americans (people who were not considered 100% pro-corporate), identified people (often wrongfully) as subversive; forced people to testify against each other; and promoted the “spectacle” in the press to sow hatred and fear of being identified as a Communist (which became a catch-all concept of someone who was disliked) (Donner, 1981, 359). The investigative process was corrupted to serve conservative and IC purposes for collecting more personal and discrediting information, widening the range of the surveillance operations and laundering illegally obtained evidence (Donner, 1981, 386–7, 353–85, 367, 372). Reporting on this history in *The Age of Surveillance: the Aims and Methods of America’s Political Intelligence System* (1981) Donner wrote:

In 1945 the House gave its blessing to a permanent version of the Dies Committee, the House Committee on Un-American Activities (HUAC), and entrusted it not only with the conventional power of standing committees to consider and propose legislation but with the broader power to conduct investigations implemented by subpoenas. This unit renamed the House Internal Security Committee (HISC) in 1969, was finally terminated in January 1975 by the post-Watergate democratic Congress. Two years later the Senate abolished the Senate Internal Security Subcommittee (SISS), the counterpart to HISC, launched in 1951 as the offspring of the Senate Judiciary Committee (387).

The Introduction to the Vintage version of Donner’s book (1981) reports that after the post-Watergate democratic congress terminated these anti-Communist investigative committees (and just on the cusp of the privatization of the ARPANET into the Internet) the IC was positioning to regain lost ground from 1974 cutbacks, based on an ultra-conservative Heritage foundation report. The report claimed America’s internal security was at greater risk than “at any other time since the World War II” (Donner, 1981, ix). The government’s decades-long efforts to purge alleged and real Communists using public investigations had already been turned into an “underground” FBI operation undertaken unilaterally by Hoover in 1956 (Halperin et al., 1976, 112–3; US Senate 1976b, 96-104).

Hoover’s covert and counterinsurgency umbrella operation was called COINTELPRO (counter-intelligence programs). Over the 1950s, 1960s and 1970s COINTELPRO mushroomed into hundreds of secret programs to spy on thousands of Americans who protested for civil rights or against the War and the draft. COINTELPRO programs became increasingly agressive (meaning they were allowed to go beyond passive observation and report taking) and counterinsurgent in character as documented in *Agents of Repression* by Ward Churchill and Vander Wall (1990) and the film *COINTELPRO 101* and elsewhere (Donner, 1981; Halperin et al., 1976, 61–134; Johnson, 1990; Keller, 1989, Table 5.3; Packard, 2019a). This history continues to when the FBI and CIA ran domestic spy operations COINTELPRO and CHOAS together, generating excess IC spy data. After that, there is discussion about how civilian demand-pull for personal computers and Internet access was cultivated and discussion about the contributing role of PROMIS software. A summary and conclusion follows.

### 2. Anti-communism IC operations drive demand-pull for ARPANET R&D

Responding to Sputnik in 1957, the US government created ARPA and gave it jurisdiction over space technology and a huge budget. Shortly thereafter National Aeronautics and Space Administration (NASA) appropriated ARPA’s space budget (Moschovitis, Hilary Poole, Schuyler, & Senft, 1999, 34–5). ARPA went through three managers, struggling to find a new mission for its reduced staff and funding. According to Weinberger and Levine’s “Lost History” chapters, William Godel redirected the goals of the ARPA towards high-tech counterinsurgency research (Levine 2018, 13–101; Weinberger 2017, 3–9, 67, 74–5). The military wanted to develop counterinsurgency warfare capabilities by collecting information on targeted individuals, using the information to make predictive Artificial Intelligence (AI), which could act to change or avert social unrest or neutralize targets (neutralize meant either kill enemies or render them incapable of being “troublemakers”). Godel pioneered collecting sensor data in Vietnam and combined it with survey data drawn from Vietcong prisoners
and computer processed it to find ways to predict and avert human decision-making. The research programs in Vietnam such as AGILE; IGLOO WHITE and the Phoenix Program of assassination combined with Command and Control (later renamed IPTO) research done by Licklider at Lincoln Labs in Cambridge Mass. Manifest in the ARPA and software that could track data-banked activity (such as PROMIS) and computerized surveillance that could monitor for actionable intelligence in real time (collect information for making automated decisions and preempting people’s predicted behavior). Given a generous and guaranteed budget, the Pentagon invested in research pertaining to: bombs, supercomputers and interactive, networking computers (which became the ARPA and then the Internet), high-speed computer information processing, surveillance technology, “chain of command” enhanced human–machine communication and listening, human mind–control experimentation in the search for Marchurian candidates, computers that think and “human terrain warfare” mapping of populations for drone warfare (Edwards, 1996, 205–7; Jacobsen, 2015, 398, 420–52; Kinzer, 2019; Leslie, 1993; Levine, 2018; Rohde, 2013; Thomas and Keith, ix; 1996; Weinberger, 2017).

ARPA secured legislation from newly elected John F. Kennedy to fund a laboratory for Godel in South Vietnam to develop counterinsurgency and surveillance technology beginning in 1963. Major Edward Lansdale managed projects Agile, Igloo White and the Phoenix assassination program (Edwards, 1996, 142–5; Levine, 2018, 14–31; Norberg and O’Neill, 1996, Table, 1, 7; Weinberger 2017, 70–2). Lansdale pioneered psychological operations in the Philippines and was the inspiration for the movies The Quiet American and The Ugly American (Levine, 2018; McCoy, 2009, 377–8; Wilford, 2008, 170-9). Agile operations essentially wiretapped the Ho Che Men Trail, creating a computerized way of tracking the Vietcong and pioneered predictive computer programing (Edwards, 1996; Jacobsen, 2015, 155; Levine 2018; Weinberger 2017, 167). The Phoenix Program of assassination and torture combined the computerized National Police Evaluation System with the VCI Neutralization and Identification System and used the data to track Vietcong “from identification to neutralization,” which helped assassinate over 20,000 Vietcong (Thomas & Keith, 1996, 174). This capability to monitor, hunt, predict and preempt or neutralize subjects is what the military and private companies wanted to counter civil unrest and the Communist threat. Agile, Igloo White and Phoenix programs were DARPA sponsored and augmented by Ithiel de Sola Pool’s Simulmatics Corporation, in which Pool’s MIT PhD students performed contracted survey research on Vietnamese (Rohde, 2011; Weinberger 2017, 168–85). Pool was a political science professor at MIT and an associate to J.C.R. Licklider (or Lick) at Cambridge Lincoln Laboratory. They worked on Command and Control research (renamed IPTO), which took the lead in producing the ARPANET and furthering the ideas in Licklider’s famous article, “Man Computer Symbiosis” and Projects Camelot and Cambridge (Jacobsen, 2015, 155; Licklider, 1960; Edwards, 1996, 1–43, 262–73; Levine, 2018, 35–73; Rohde, 2011; Weinberger 2017, 168–85).

Licklider served as an IPTO Director twice (October 1962 to July 1964 and January 1974 to August 1975) and was part of Bolt, Beranek and Newman (BBN). BBN grew out of the MIT acoustics laboratory and it aspired to “man machine systems across the board.” (Waldrop, 2001, 150). Licklider had joined BBN in 1957 the year the Soviets launched Sputnik and ARPA was established. ARPA routinely oversaw high-risk inventions that private companies did not want to finance R&D for but wanted to use, industrialize, own or market once proven and profitable. ARPA routinely turned successful inventions over to the military-industrial-complex for use, which further incentivized ARPANET creation (Jacobsen 2015, 5, 246–7). Godel took on the high-risk venture of counter-insurgency intelligence gathering in Vietnam and Licklider the mission of interactive computing at IPTO in Lincoln Laboratory of MIT. Lick began his venture by asking US intelligence agencies if they were working on interactive computing. He discovered the NSA “really needed what I wanted” (Levine, 2018, 50–1); so began a productive partnership between Lick and the NSA (Novak 2015). During the 1960s and 1970s the IC underwent major adjustments and was impacted by rapid technological changes and increased public scrutiny. After the Bay of Pigs President Kennedy feared the IC had provided faulty intelligence and he replaced CIA Director Dulles with McCone. McCone established a National Intelligence Program Evaluation (NIPE) in 1963, to coordinate and evaluate intelligence requirements, something that had never been done before (US Senate 1976a,
Just before his assassination, Kennedy signed legislation for counterinsurgency research in Vietnam (US Senate 1976a, 120). The agencies remained uncoordinated as competition between the CIA and the DOD festered and during Nixon’s administration CIA Director Helms replaced NIPE with Intelligence Community Staff (IC). Later CIA Director Schlesinger slashed staffers from the CIA and other agencies, while funding continued for electronic surveillance technology in Vietnam and the US (Weinberger 2017, 143–67; US Senate 1976a, 117–25). Suddenly with the decline in “cloak and dagger” covert spy activity a new IC interest arose in “economic intelligence” (which had long been a priority in British intelligence). This new intelligence was particularly concerned with international finance and the gold market. The change was precipitated by the 1971 US balance of payment crisis which transpired when data-processing and data-banking technology was improving. In the 70s Director Colby replaced the Office of National Estimates with National Intelligence Officers (NIOs) for better interaction between the IC and policymakers. He also increased “information collection activities in the areas of terrorism and international narcotics traffic-with considerable success” (US Senate 1976a, 123).

In the mid-1960s the Vietnam War was broadcast live on television and Americans mobilized against the War, the draft and military research programs on US campuses. As protests increased and turned violent President Johnson wanted the IC to find the foreign Communist subversives who were agitating Americans against the war (Donner, 1981, 259; US Senate 1976c, 689). Civilian protests grew into the largest antiwar protests ever in the history of the US. To the IC the anti-war and other movements appeared to be Communist inspired if not instigated. The IC mobilized multiple operations to spy on and infiltrate America’s unwitting dissidents (Donner, 1981; Halperin et al., 1976; Keller, 1989, 134; Pyle 1974; US Senate 1976b, 96–104). Later, in 1970 ex-intelligence Captain Christopher H. Pyle wrote about military surveillance of US political activity in a groundbreaking 1970 Washington Monthly article titled, “CONUS Intelligence: The Army Watches Civilian Politics” (Donner 1981, 315).

In 1965 the U.S. Army Intelligence Command was established by a merger of all military intelligence groups formerly assigned to CONUS (the national military command surveillance data bank) with Central Records Facility (renamed Investigative Records Repository) with its millions of Army and FBI reports on suspected subversives. Army intelligence now had a unified command capable of coordinating an effective nationwide surveillance of dissident activity. Intelligence command gradually expanded the scope of surveillance while continually reducing restraints on the Army’s surveillance programs (similar developments occurred in other IC agencies). In 1967 when riots happened in Newark and Detroit, no regulations stood in the way of a massive expansion of IC spy operations, either in scope or in conduct (Pyle, 1974, 348–9). In September 1967, the Attorney General authorized the FBI to use whatever resources necessary to monitor “Black Nationalist organizations.” The government’s response to Black unrest was to double-down on domestic surveillance and attack individual agitators, rather than attacking poverty and inequality in America (Chuchill and Vander Hall 1990). When the October 1967 “March on the Pentagon” was anticipated the Intelligence Command had secretly implemented a series of emergency operations (STEEP HILL, ROSE BUSH, PUNCH BLOCK, LATERN SPIKE and CABINET MAKER) that authorized surveillance of protests by intelligence units that “did not have to wait for a Presidential order” (Pyle, 1974, 7). In his Columbia University dissertation, Christopher Pyle reports on another development in 1967:

Sometime during the fall or winter of 1967 the Intelligence Command decided that this vast subversives file was not sufficient for all purposes. What was needed were brief summaries describing individuals, organizations and incidents related specifically to political protest, civil disorders, and dissent within the Army. Moreover, the summaries had to be quickly retrievable so that they could be promptly transmitted to requesting units in the field. The answer, of course, was computerization (Pyle, 1974, 76)

Even while Poole’s research in Vietnam was being criticized, this military surveillance reporting methodology that Pyle reports on appears similar to a Simulmatics’s research project undertaken
in Vietnam, by Father M. Joseph Hoc, a Vietnamese-born, Stanford-trained sociologist - indicating that counterinsurgency research from Vietnam was likely being tested domestically (Weinberger 2017, 176–81; Rohde, 2011, 244). In contrast to Robert Kennedy’s assassination in June 1968, where no Secret Service men were present at the time of the shooting, the riots at the Democratic Convention in Chicago in August of 1968 were swarming with thousands of intelligence agents from multiple law enforcement units. The FBI ran hundreds of COINTELPRO operations, while the CIA ran CHAOS (1968–1974), MERIMACK (1967–1973) and Project RESISTANCE (1967–1973). Pyle describes how the military did its part at the convention:

The Army’s surveillance of the demonstrators was run out of the Evanston (Region I) office of the 113th MI Group, where special hot lines furnished instant communications with the Intelligence Command at Fort Holabird, Fifth Army at Fort Sheridan, Illinois, Fourth Army at Fort Sam Houston, Texas, and the FBI and police in Chicago. Other telephones and radios linked the operations center to the Group headquarters in Highwood, the Chicago Field Office at 1819 West Pershing Road (not far from the Amphitheater), the Secret Service command post outside the hall, and radio cars on the streets. As the demonstrations drew closer, the normally staid offices of the Regional Headquarters took on the appearance of a betting parlor (Pyle, 1974, 171).

So much domestic spy data were generated by these operations that in 1975, NBC correspondent Ford Rowan claimed a supercomputer called HYDRA was enlisted to process large volumes of spy data in multiple streams (Donner, 1981, 294–9; Rowan, 1978, 67–9, 70, 252; U.S. Senate 1976c, 695). CIA Director Richard Helms proposed HYDRA at the peak of the anti-war protests in 1969 as a way to share the information gathered about American dissidents amongst the IC (CIA, NSA, FBI, Pentagon, military intelligence and so on). The increased spy data helped spur the Department of Defense to contract with BBN to make two smaller networks modeled on the ARPANET; the Community On line Intelligence Program (COINS) network started in 1971 and the Platform Network built later in the 1970s. This increased data sharing capabilities of the military’s MILNET, while ARPANET serviced the academic community (Abbate, 2000, 134, 234n19; Levine, 2018, 92–3, 297 n58; Mueller 2002, 82).

In April 1970 Senators Stevenson, Ervin, Muskie and McGovern agreed U.S. military intelligence agents were spying on them (Blum, 1972, v) prompting an investigation by the Planning Group on Intelligence and Security to the Policy Council of the Democratic National Committee (hereafter The Planning Group). The investigation’s report, Surveillance and Espionage in Free Society, was published the year of President Nixon’s Watergate wiretapping scandal. The report was critical of domestic spying and challenged the motives and integrity of agencies long portrayed as protectors of America. The last chapter of the book is written by Ithiel de Sola Pool, Licklider’s co-worker at DARPA, where they developed the Camelot, Cambridge and ComCom Projects. Pool advocates intelligence needs to move “from behind the cloak of covert-ness to where it belongs, at the heart of the public democratic process?” (1972, 272–97). Without mentioning the ARPANET, which was used to transmit spy information among the intelligence agencies, de Sola Pool wrote: “We shall consider how bridges can be built between the intelligence community that now operates in hidden burrows and (1) the world of social science, (2) the U.S. Congress and (3) the people” (Pool, 1972, 273). And without referring to the Schlesinger Report (1971), which had already identified data-processing problems within the IC, Pool reviews history about CIA intelligence gathering and problems with accuracy and bias. Pool argues the quality of intelligence supplied to the President, how it is gathered and distributed, is problematic and needs to change. Pool advises the president:

He must make clear to the intelligence community that it too is to start behaving as a collection of scientific research organizations, not like bureaucracies [...] If public judgment is sometimes very different from the President’s the main reason is the very different bases of knowledge in which they work. The American people could use, and are not getting, a substantial part of the information that the intelligence complex produces. (Pool, 1972, 292)
In hopes of rolling back some of Nixon’s pro-IC expansion policies, the Planning Group concluded with a rather radical list of recommendations (Blum, 1972, 309–14) such as: the Democratic president-elect would form a transitional staff on intelligence; agencies should report on their operations and budgets; agencies to be overseen and regulated by a Commission: appoint a new director for the FBI; police intelligence gathering be parted from political surveillance; automatic declassification of government documents after 3 years; reporters protected from disclosing sources; government agents forbidden from masquerading as journalists; foreign policy “belongs to the people” and “intelligence operations must yield data available to and usable by the people” so people can make informed decisions (Blum, 1972, 313). These recommendations must have seemed like a Democratic Party declaration of war on the IC.

Poole’s recommendation that people be able to share IC data seems to hint at a democratization or a liberation of information (in contrast to Soviet-style networks) and seems aligned with arguments US computer hackers used to promote Internet access. Or perhaps Pool’s argument was inspired by Chile, which was building Cybersyn to share industrial communications “through which anyone could consult anyone else.” (Beer, 1981, 270). The Planning Group report was just one among many investigations by Congress, the Senate and the President, which all recommended more oversight of the IC. Many government reports and studies were made regarding counterinsurgency spy program abuses, which resulted in data-banking illegally obtained personal information. Donner’s (1981) “Selected Bibliography” lists over 80 government publications pertaining to government surveillance-related issues (528–32).

Before the Planning Group published its book in 1972, over 1,000 FBI documents were stolen from the FBI office in Media, Pennsylvania. The group was going after military draft materials, but they stumbled upon FBI, COINTELPRO documents. The group dubbed, “Citizens Commission to Investigate the FBI” distributed leaked documents to the press and to people on COINTELPRO watch lists. Keller wrote, “For the first time, actual FBI files documented the existence of widespread domestic intelligence activities aimed at containing dissent” (1989, 149). The Media leaks confirmed FBI infiltration of anti-war groups. After the FBI lost control of paper files and the press revealed FBI and COINTELPRO abuses, the public’s trust in the FBI was damaged. Government officials who rightly feared Hoover and had reservations about the latest FBI enemy, “extremism,” began to question the FBI. Hoover died the next year. The following year, 1973, under orders from Nixon, Schlesinger headed the CIA for only 6 months and oversaw the infamous “Schlesinger Purge,” axing about 7% of the CIA spies involved in covert actions, such as the 1973 Chile coup (during which Cybersyn was destroyed). Schlesinger made it clear the spies of the future would be “desk jockeys staring at computers” (Moran, 2017).


The Watergate and impeachment hearings provided the first clues about serious abuses in the intelligence agencies. In late 1974, newspaper articles exposed the CIA’s “destabilization” of the Allende regime in Chile and its massive domestic surveillance programs. These articles were based on leaks from patriotic or disgruntled employees and they finally forced an official response. President Gerald Ford’s Rockefeller Commission began by detailing many of the CIA’s illegal domestic activities in a report issued in 1975. The House and Senate set up separate investigating committees. The House committee, chaired by Congressman Otis Pike, sought to reassert the legislative powers. It subpoenaed documents, held public hearings, resisted compromises and looked into activities that the agencies preferred to keep secret. Its’ subpoenas were resisted; its investigators frustrated; in the end its final report was suppressed by the Congress itself. Portions of it were published in the Village Vice: the remainder remains unpublished. The Senate committee, chaired by Senator Frank Church, preferred compromise to conflict. It negotiated with the agencies for material, allowed CIA officials to screen all documents it was given, rarely issued a subpoena or held a
public session. Its voluminous reports published in the summer of 1976 unearthed many intelligence agency crimes but are still incomplete. (Halperin et al., 1976, 1-2).

A year before, in 1975, Vice President Nelson Rockefeller completed a “Report to President by the Commission on CIA Activities Within the United States” for President Gerald Ford. The so-called Rockefeller Commission Report presented about 33 pages of recommendations many of which advocated government regulation of the CIA. Also in 1975, the US Senate established a Select Committee to Study Governmental Operations with Respect to Intelligence Activities (often called the Church Committee), chaired by Senator Frank Church. The Committee investigated the activities of US intelligence agencies because there were public concerns the agencies were operating in unlawful and abusive ways, outside a constitutional framework (US 1976a, iii). The Committee published 14 reports investigating the legality of intelligence operations by the CIA, NSA and FBI, including attempts to assassinate foreign leaders, spying on Martin Luther King, Jr., and monitoring the political activities of U.S. citizens. The Committee reports contributed to changing social views about the intelligence community. Agencies that had been lauded as protecting and representing 100% Americanism against the Red menace now appeared menacing. The Cold War era government investigations of alleged and real subversives had inverted into investigations of the government’s most secretive agencies. There were reports in the New York Times, The Washington Post and Ramparts Magazine about CIA front and covert FBI operations in the US and Vietnam, documented in Agents of Repression (Churchill and Vander Wall, 1990), The Lawless State (Halperin et. al. 1976) and Hugh Wilford’s The Mighty Wurlitzer: How the CIA Played America. (2008, 237-40)

The recommendations by the Senate Select (Church) Committee include: Intelligence agencies need to be reformed; evidence points to repeated abuse that needs to stop; there is danger of drifting towards “big brother” government, so restraints on agencies are needed to head off this danger; agencies actions narrow the distinction between legal dissent and criminal conduct but this distinction must be protected; the agencies are acting against the Constitution and since they do not “preserve, protect and defend” the Constitution (as politicians are sworn to do) perhaps legal provisions should bring the IC under Constitutional law (US Senate 1976b, 289).

The Schlesinger, Rockefeller, Church and other reports made Americans legally witting their political activities had been monitored in secret and often illegal ways. Among the changes the Senate Select (Church) Committee helped bring about was regulation of wiretaps, specifically the Foreign Intelligence Surveillance Act (FISA) of 1978 (Young, 2015). Interestingly the 1976 Senate (Church) Committee reports appear to overlook one of the IC’s greatest assets, the ARPANET, which was being used in the 1970s for transferring spy data for the operations discussed in the Committee Reports, such as CHAOS and COINTELPRO. Although Committee reports were responding to the abuses of those operations, news about computer-enhanced spying was announced on television by NBC correspondent Ford Rowan in a 1975 news-broadcast. Rowan told the public the military was building a computer communications network that was going to spy on Americans and share information with intelligence agencies. Rowan wrote Technospies (1978) about how intelligence agencies were starting to use new forms of electronic surveillance and data banking for monitoring people. Technospies was published two years after the Senate Select (or Church) Committee reports were published. It appears the Committees’ books stated nothing about the ARPANET, while Technospies (1978) alludes to the supercomputing capabilities of what could be the ARPANET but calls it “HYDRA” and does not name sources. Perhaps this was an IC rebuff to The Planning Group report recommendation that IC information be shared with the public and “National legislation is required to guarantee the reporter the right not to disclose confidences”? (Blum, 1972, 312)

To sum up, some factors that fueled demand-pull from the IC for interactive computers and networks included: Presidents Johnson and Nixon urging the IC to find foreign Communist agents agitating American protestors, which gave the CIA justification to run domestic spy operations in
the FBI’s supposedly exclusive domestic territory. Also wiretapping and new kinds of electronic surveillance pioneered in ARPA laboratories in Vietnam and US offered new sources of data that the NSA collected, along with millions of private communications from at least two cable companies. File and data management by the IC was the subject of much study by the Senate Select (or Church) Committee. Overlapping spy programs caused a concentration of IC operations (COINTELPRO, CHOA, MERRIMACK, and so on) during the 1960s and 1970s, in response to social movements and unrest, generating massive data. The massive data broke down the distinctions between “foreign” and “domestic” (US Senate 1976b, 104, 165–209) intelligence because computerized data banking enabled merging of FBI, CIA, NSA, military intelligence, drug enforcement agencies and police watch lists. New computerized data processing caused blurring of data boundaries, competitive replication and hoarding of data. Labels used for categorizing data grew too broad. The 1976 Senate Select (or Church) Committee’s Book II conclusions point to what is captured in this quote, under the section titled, “The Overbreadth of Domestic Intelligence Activity”:

These broad and imprecise labels reflect the ill-defined mission of domestic intelligence, which resulted from recurring demands for progressively wider investigations of Americans. Without the firm guidance provided by law, intelligence activities intruded into areas of American life which are protected from governmental inquiry by the constitutional guarantees of personal privacy and free speech and assembly (US Senate 1976b, 166-7)

The processed data were not only collected in questionable ways (which indicated liability problems) but was also difficult to analyze, making the product both a liability and expensive to analyze. Too many similar labels (subversive, agitator, key activists) where used to describe those spied on, causing overlapping, diluted and expanded data, leading to poor quality but expensive product and bottlenecks. The quote also points to the conflicted problem that the CI does not uphold the Constitution (it upholds national security), which the Committee rightly insists the IC is violating.

In Christopher Pyle’s dissertation for Columbia University titled, *Military Surveillance of Civilian Politics, 1967–1970* he explains the history and rational of military covert intelligence operation and how surveillance has always been a part of American military history. Both Donner and Pyle investigated the spying operations on US citizens in the 1960s. Donner explains how surveillance operations generated a need to launder or cover up how the data were obtained. Pyle documents how each bureaucracy ended up developing its own databank and data collection system, since agents always wanted to have data at hand (rather than have to ask for it) in case superiors requested it (352). If they did not have answers at hand they risked demotion and in this way spy operations expanded across the government spectrum. Pyle concluded that each crisis expanded data collection. Similar discussions appear in other government records and books as noted above.

When aggressive spy operations illegally stole evidence, it was sometimes laundered in grand jury proceedings such as those lead by the Internal Security Division (ISD) of the Department of Justice (DoJ). Donner (1981) explains how the ISD changed the federal grand jury proceedings from determining if the prosecutor had presented enough evidence to justify an accusation of law, into a “cover for a variety of intelligence-related pursuits divorced from legal ends” (356). Such pursuits included forced testimony, mandatory release of documents under subpoena and interrogation of witnesses to expand the scope of the investigation and to launder libelous evidence. Thus, the 1960s surveillance programs generated massive personal data about Americans, which in turn generated distorted legal methods to cover up illegally obtained evidence, while broadening the scope of spy operations in the process.

The increased data flow for the IC essentially created a situation akin to what today we might call “data dumping.” This means there is too much data to make sense of without the help of expensive computers. This precipitated demand-pull for both high-speed networks and HYDRA-
style supercomputing and interactive computer information processing (which Licklider wanted to supply) to enable better, faster data analysis and processing, sharing, tracking and storage in the IC community. DoD used HYDRA and increased IC networks. By the 1970s, IC information gathering techniques, covert operations and information mismanagement had become problematic to the government and was the subject of many investigations and much critical press coverage.

In 1975 the Pentagon relieved ARPA of its responsibilities to run the ARPANET, turning it over to the Defense Communications Agency (DCA). ARPANET was no longer an experiment but rather a proven part of the military intelligence and academic communities (Abbate, 1999, 136-40; Novak, 2015, 6; Salus, 1995, 162). Although Abbate claims the military used ARPANET after the DCA took over the ARPANET, Jon Postel is quoted in Casting the Net that ARPANET had been in operational service since 1971, the same year the Schlesinger Report was made. Either way, the ARPANET was a proven informational infrastructure in regular service to the IC by the early 1970s.

Five years later, Federal Communications Commission (FCC) legislation allowed the nation’s telecommunications infrastructure to establish subsidiaries that could use ARPANET while bypassing existing regulatory strictures that telephone companies had to abide by. This hands-off, neoliberal style legislation, along with the ARPANET’s now military-tested and proven ability to deliver data incentivized privatization. In 1986, ARPANET was transferred to the National Science Foundation (NSF). Under the NSF, ARPANET was exempt from review by the Foreign Area Research Council in the State Department’s Bureau of Intelligence and Research. According to Rohde, this council had been formed in response to the Project Camelot scandal of 1965. Pool had supported Project Camelot but Chilean scholars called it “Yankee espionage” and the project was shut down; later it was merged into Project Cambridge (or CAM) (Levine, 2018, 67 – 8, 161; Rohde, 2013, 63 – 89).

In 1988 the Computer Science and Technology Board of the National Research Council published a report, “Toward a National Research Network” listing the government’s goals for the ARPANET. According to Salus’s Casting the Net (1995, 243-4) the goals included: encouraging private investment; protecting competition; open access to the network; avoiding a society of “haves” and “have-nots”; encouraging flexible government actions; protecting privacy and copyright; maintaining US leadership; providing for interoperability; job creation; improved health care delivery; lower prices; more choices; economic growth; democratize information; provide long-distance learning activities; and linking citizens to their government. This sent a message to the public that the Internet would benefit society and was endorsed by the scientific community.

By 1990 the ARPANET had been folded into NSF’s NSFNET and NSF contracted with Stephan Wolff to privatize the ARPANET. Wolff had a plan to privatize the ARPANET, now called NSFNET. In Surveillance Valley (2018) Levine writes:

Vinton Cerf, who in 1982 had left his job at ARPA to head up MCI’s networking division, described Wolff’s private-public network provider scheme as “brilliant.” He said, “The creation of those regional nets and the requirement that they become self-funding was the key to the evolution of the current Internet.” (120)

In 20 Years of Censored News under the heading, “The Top Ten Censored Stories of 1995” the first story listed is “Telecommunications Deregulation: Closing Up America’s ‘Marketplace of Ideas’ (Jensen, 1997, 320). This pertains to the Telecommunications Deregulation Bill of 1995, passed by Congress, which deregulated the entire US communications industry without public debate. The legislation eliminated anti-trust regulation of telecommunication companies; undid limits to how many radio stations can be owned by one company; and lifted the Federal Communications Commission (FCC) ban on joint ownership of broadcast radio or TV (allowing a single company to have full control over three news sources in a community). This bill opened the doors to media monopoly, in complete opposition to the spirit of the Communications Act of 1934, which established the FCC with F. D. Roosevelt’s appointee, Larry Fly as Chairman (later targeted by the Dies Committee). The source for this 1995 top

In 1996 the Telecommunications Act was passed by Congress and signed by President Clinton. Passage of this Act was not contested but the media began to recognize the implications of deregulation. According to Project Censored The Baltimore Sun (4/3/96) reported the act would “open the door to unprecedented consolidation” (1997, 321). The trade journal Telephony (6/17/96) predicted the telecommunications industry would suffer just like the deregulated airline industry had suffered. It predicted mergers, employee unrest, less pay, more work, fewer benefits, possibly higher costs to consumers but in the long run, consumers would be no better off than before the deregulations. The historic corporate mergers did transpire, as Project Censored reported:

They were: 1. Bell Atlantic-Nynex, $21.34 billion; 2. British Telecommunications-MCI, $21, 27 billion; 3. SBC Communications, Pacific Telesis, $16.52 billion; and 4. Worldcom-MFS Communications, $13.56 billion (Jensen, 1997, 321)

3. Public sector demand-pull for personal computers & network access
Civilian demand-pull for networked and interactive computers was fostered in various ways before, during and after the ARPANET was privatized. Before and during the privatization phase of the ARPANET the university communities that hosted the original nodes for civilian networks such as MIT, Stanford and University of California Los Angeles brought new users to the networks, many of whom invested their unpaid labor to help develop programing language, software, hardware, protocols and designs for computers and networks. In their important critique of the Internet privatization process, Kesan and Shah reported how the US research community demanded access to high-performance computing in the 1980s leading to construction of networks between universities, supercomputer centers and labs (Kesan and Shah 2001, 104). In, Netizens (1997) Hauben and Hauben document the history of the huge civilian-led Usenet movement to establish and foster “The Internet Community.” Here was the public incubator that helped grow civilian demand-pull for better network access, software improvements, expanded email use and ultimately more network access. Laboratories taught children how to use computers and trained America’s students how to use word processing and computer programing. Public demand-pull for Internet access increased as email, email addresses and Internet governance were developed through civilian working groups with government oversight as described in Mueller’s ruling the root (2002). Mueller explains how the military maintained control of the ARPANET/Internet through the domain name registration process, carried out by ARPA scientists with civilians in groups such as the Federal Networking Council (FNC) and an FNC Advisory Committee, which developed Internet governance and institutionalization. According to Mueller, military and private sector groups viewed their relationship with each other in distinctly different ways and the distinction between public and private sectors was blurred (Mueller, 2002, Fig. 5.1, Fig. 5.2, 98–9). Mueller notes:

The FNC became a kind of clearing house where the agencies worked out an informal set of quid pro quos to compensate each other for supporting various administrative activities required by the Internet, such as name and address registration, IETF meetings, BIND development and so on. The military would allow the civilian Internet to use the address and domain name registry of the DDN-NIC; the Energy Department and NSF would fund other things that the military wanted. Generally the agency that had some established relationship with the desired performer would fund the activity in question. The intra-agency transfers-in-kind were of dubious legality and obscured formal lines of authority, but they allowed the agency heads to proceed with construction of the Net without getting bogged down in turf wars or legislation. (Mueller, 2002, 100)

Apparently, governance over the Internet grew out of the “brutal practice of advancing an idea and beating on it until the group consenus was that it would work” (Mueller, 2002, 94). Thus, Internet “laws” were advanced through practice rather than legal jurisprudence; practice that may
have been inspired by Chicago School of Economics pedagogy (Leeson, 2008; Van Horn, Mirowski and Stapelford, 2011). Mueller’s book is a rendition of dialectics applied to a revolutionary digital mode of production during construction but with end results that are counter-revolutionary. It provides insights into the interface between the military and public sector when the ARPANET was transitioning from a military weapon of surveillance, into a civilian informational infrastructure Internet. This transitioning process also manifested in the lives of those who built the ARPANET, as they lost government contract positions and moved into the private sector.

For example, Markoff’s What the Doormouse Said: How the Sixties CounterCulture Shaped the Personal Computer Industry (2005) chronicles how Stanford University computer labs fostered a community of computer hobbyists who helped hatch Apple Computer. Stanford also hosted the Stanford Research Institute (SRI), which undertook specialized military contract work such as “controversial studies of land reform in Vietnam, counterinsurgency surveillance in Thailand, and chemical weapons.” (Leslie, 1993, 243). Jon Postel a DARPA contractor who oversaw name and number assignments for Domain Name System (DNS) worked for MIT Research (MITRE) (1973–1974) and then Stanford Research Institute International (SRI International) (1974–1977). SRI International had been SRI, until student protests against military research moved the university to divest from SRI, after which it became SRI International.

Another kind of demand-pull for computers was fostered under the guise of “tools” and Ayn Randian neoliberal ideology. Communications professor Fred Turner argues anti-war protestors were coaxed, nudged and encouraged to perceive the personal computer not as a “big brother” machine that dominates humans but as a tool to a more egalitarian society or something akin to what was later called the “California Ideology” (Barbrook & Cameron, 2015). Stewart Brand’s legacy as a marketer who sells the American public on the personal computer is described in Turner’s, From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network and the Rise of Digital Utopianism (2006) published by University of Chicago Press.

Turner chronicles how hundreds of thousands of so-called back-to-the-landers, left the cities between 1967 and 1970s and built communes in remote locations. At this time Daniel Ellsberg (2017) (who leaked the Pentagon Papers in 1971) was doing nuclear holocaust research for RAND. In the 1960s, it would not have been unusual to wonder, “Was the back-to-the land movement monitored by RAND as a simulation of what survivability might look like during a nuclear winter?” Perhaps, but more likely FBI and CIA agents were monitoring the communes. One 1971 CONTELPRO operation was called, “Investigation of Marxist-Oriented Communes” (Keller, 1989, Table 5.3, (26) 171). The communes were filled with what the IC generally viewed as the “New Left.” The New Left did not adhere to Communism, but they did not support the status quo either. They appeared to contradict the values of military, governmental and law enforcement and opposed the military draft.

Foer, author of World Without Mind (2017) credits Brand as a marketing genius who transformed this youthful generation’s fear of monstrous computers, seen as “the embodiment of centralized control” (15) into an infatuation with the personal computer as a tool for liberation (21) and communal connection. This differed from the Cold War era America where fingering someone as Communist, Marxist, socialist, Keynesian, New Dealer, unionist, feminist or civil rights advocate, demonstrated one’s allegiance to hedonistic utilitarianism and notions of American liberalism; notions excluding of communalism to the point of atomization. Cold War ideology was challenged when hippies opposed the Vietnam War and secret military research. Turner writes Brand had planned to join the nearly 750,000 back-to-the-landers who moved onto communes between 1967 and 1970 (2006, 4) but instead he created The Whole Earth Catalog and The Last Whole Earth Catalog (1971a) subtitled “access to tools” which promoted alternative lifestyle gear and books by Ayn Rand and cybernetic scientists like Norbert Wiener and Marshall McLuhan. Brand’s Catalog falls between the mail-order Sears Roebuck Catalog that supplied turn-of-the-century Americans with everything that could be transported on the new railroads (like housing kits) and today’s Amazon.
online emporium. Foer points out Brand’s Catalog was not just selling commodities, it promoted ideas about how people could live a counterculture lifestyle with the right tools. One did not have to live on a commune to avoid participating in the square establishment; with the right tools (like a computer) one could drop out of the system and “shape his own environment” (Brand, 1971a, 1).

Brand wrote commentaries on the works of Buckminster Fuller, Norbert Wiener, Marshall McLuhan and Ayn Rand and featured them in the Catalog, which took a National Book Award and sold 2.5 million copies. Foer writes, Steve Jobs called the Catalog “a bible” (2017, 20). While Brand saw individual liberation in the personal computer, Turner writes, for “this generation” computing was about liberating computers from government control and regulation (2006, 133). Reading Turner’s account of the back-to-the-land movement one might wonder what these former communalists think and feel about having so many of their youthful, back-to-the-land, experiences with LSD, free love, and desire to seek utopia and “come together” (as Turner phrases it repeatedly) shared with the entire world through passages that sometimes read as if they were lifted from an FBI agent’s report? The book’s descriptions of the communalists’ lives and conversations almost seem to relay a coded message that the communalists, like Communists on an FBI list, maybe do not deserve privacy. For example, Sonoma County Wheeler’s Ranch founder Bill Wheeler’s comment, “We are very much like the Vietcong” (Turner, 2006, 77) might be interpreted as a credit to the rugged Vietcong, but to the ears of an FBI or CIA agent in the 1960s it would validate the IC belief that communalists were Communists who needed to be monitored, whose communes needed to be infiltrated and whose members needed to be pacified for national security. For someone to say they are mimicking the Vietcong (inside the US), while in Vietnam the Vietcong were subject to US torture and napalm is like the thinking of counterinsurgency infiltrators whose job it is to pacify or neutralize others with more honest and transparent motivations. The message between the lines almost hints, “We have personal information about you, so don’t contest this revisionist history.” Or perhaps, “Don’t think you can make claims for personal damages as subjects of human drug experiments or for innovative technology inventions appropriated from you, since obviously someone has information about your sorted past and drug habits.” Interestingly the reporting changes its tone when it discusses Brand and those who became successful and wealthy off the cyber-culture; these liberals seem to be respected and deserve privacy and praise. Turner tells us he has not even written a biography of Brand (Turner, 2006, 8). When Yasha Levine requested an interview with Brand for his Surveillance Valley book, Brand turned him down (Levine, 2018, 299n5). It appears part of the successful Silicon Valley cyberculture, or California Ideology, includes a rather IC inspired mentality that some people deserve information more than others; similar to Secretary of State Rumsfeld snubbing press reporters and filmmaker Errol Morris, when they asked for information about weapons of mass destruction in Iraq (Packard, 2019b). Levine points to similar behavior in his analysis of how J.C.R. Licklider’s Cambridge (Project CAM) picked up where Pool’s terminated Project Camelot left off (Levine 2018, 68–71, 292n92).

Curtis’s three-part mini-series, All Looked Over by Machines of Loving Grace shows how the communes where the back-to-landers hoped to cultivate a new egalitarian lifestyle without hierarchy, sexism or racism, failed partly because neo-liberal-style individual freedom was enforced, while peer and social support (or socialism) was forbidden, thus allowing bullies, sexist chauvinists and very possibly intelligence agent infiltrators, to dominate the communalists. The bullies ruined the spirit of the community. One former member of The Family commune, Molly Hollenbach, recalled: “It was suppose to be that one was free to be oneself and free to help others. But some became more free than others. And this created fear. And anger. It felt like a virus running in the background; like Spyware, you know it’s there but you don’t know how to get rid of it” (All Watched Over By Machines of Loving Grace 2011, Part 2; Levine, 2018, 101–11, 110). The film uses the commune experiments as a metaphor for a society dependent on interactive computers, where decisions are no longer negotiated, rather people give up their decision power to computers. In Levine’s words, “Brand saw computers as a path toward a utopian world order where the individual wielded the ultimate power” (2018, 137) and his “push to rebrand military computer
technology as liberation coincided with a less visible force: the gradual privatization of the ARPANET and the creation of a global commercial Internet” (Levine, 2018, 116). Foer sums up Brand’s marketing scheme for the personal computer this way:

Brand’s manifesto distilled the thinking of the commune movement and then advanced it in crucial ways. Technology he argued, had created the ills of the world. Only technology could solve them. Tools, liberated from the hands of the monopolists and militarists, could empower individuals to become more self-sufficient and self-expressive. Power Tools to the people, you could say. If some of these sentiments sound familiar, it is because they have echoed in dozens of Apple commercials over the years. (Foer, 2017, 19)

According to Curtis’s mini-series, Ayn Rand’s Atlas Shrugged Cold War era ideology about people being virtuous by being independent, amoral and neoliberal was inspirational to the founders of Silicon Valley. The film argues leaving economic decisions up to the computers causes economic crisis, while Presidents and economic advisors are helpless to correct a computer algorithmic driven global situation that enriches the elite, while destroying countries. The California Ideology mindset of being a singular Rand-ian agent that stands alone in the world is ultimately caught in the cogs of a global economy destroying machine as indicated in the first part of the film. The second part of the film explores some of the cybernetic ideas that helped lay the foundations for the algorithmic driven Internet of today. Both Curtis and Levine review how the cybernetic-libertarian ideology failed the back-to-the-landers movement as detailed in Turner’s book, but these authors do not discuss the possibility of IC infiltrators. Brand authored commentary about how visitors who consumed meals but did not share the work had a destabilizing effect on the communes (1971b, 181).

Curtis’s mini-series shows the communalists tried to achieve a sort of Rand-ian inspired community, where people were free to be themselves and to help others be themselves; yet by giving up the power to work as a supportive group (rather than as individuals who “travel in their own space”) the community fell victim to bullies and intrusive visitors who took advantage of the communes. The hippies followed the lead of Turner’s book title, From Counterculture to Cyberculture and bought personal computers and network services, opening up new kinds of marketing for tools and Amazon. If we are to believe Turner’s account or some similar account, then the Internet was born because LSD dropping, cybernetic enthusiasts and communalists created demand-pull for personal computers and networks, with computer companies responding—rather than an intentional but largely hidden introduction of the ARPANET into the public realm for, among other things, targeted spying.

4. Commercial sector demand-pull for privatized networks

Amidst 1970s IC drama, monumental changes unfolded in the economy. Neoliberal economists spearheaded by Milton Friedman and the Chicago School usurped Keynesian economics. They overturned the International Monetary Fund and the Britton Woods system, which had pegged monetary exchange rates to a gold standard to help stabilize the economy. This was a victory for neoliberal business interests but workers experienced “stagflation” (rising unemployment and inflation), while legislators continued to deregulate industry, crush unions, suppress wages and cut taxes allowing economic crises to escalate. The Internet went public in the midst of this shift from a state-led to a market-led economy. Leeson (2000, 2003, 2008) chronicled the downfall of Keynesianism in this time period, while Mirowski (2002), Van Horn, Mirowski and Stapleford (2011) analyzed neoliberal economists inside the military-intelligence-complex and the Chicago School.

Once privatized, people who had invested labor into the ARPANET were replaced by paying customers valued for their telecom bill payments and as Harvard Professor Shoshana Zuboff argues in The Age of Surveillance Capitalism (2019), for their “human experience as raw material for hidden commercial practices of extraction, prediction and sales; a parasitic economic logic” (Zuboff, 2019, 8). If Zuboff’s idea of surveillance capitalism is plausible, it must be based on the
presupposition that the personal computer and Internet have the ability to watch, record, remember, predict and preempt human decision-making, the same qualities Godel sought with the Phoenix Program. Thomas and Keith write that in 1970 the Phoenix Program of assassination in Vietnam implemented the National Police Evaluation System in conjunction with the VCI Neutralization and Identification System to track Vietcong “from identification to neutralization” and surmise this was an early version of “PROMIS” (software that tracks data-banked information). The software was called Prosecutors Management Information System or PROMIS and is the focus of the infamous Inslaw case. The case began in 1982 as a dispute between the US Justice Department (DoJ) and William and Nancy Hamilton. The DoJ contracted Hamilton’s company to adapt PROMIS computer software to track criminals’ cases from office to office. Bill Hamilton changed the program so it interfaced with other databases without reprogramming, creating “an ominous kind of computer microscope for long term monitoring of individuals” (Thomas & Keith, 1996, 5). Since the software was originally developed under a Law Enforcement Assistance Administration grant in the 1970s (commonly used for hiring informants), it is in the public domain and considered free (Pyle, 1974, 12). Quoting Bill Hamilton, Fricker explains the tracking abilities of PROMIS:

“We developed it originally just for prosecutors. But some of our users wanted to have it shared with the courts and the police. So, the software was engineered to make it adaptable. In making it highly adaptable, a byproduct was to make it useable for non-prosecutor tracking and that made it adaptable totally outside the criminal justice system.” It became obvious with the latest round of modifications any data system could be integrated into PROMIS. And those data systems could interact that is, combine with each other forming a massive tracking data base of people via government documents such as birth and death certificates, licenses, mortgages, lawsuits or anything else kept in a data base. PROMIS could also track banking transactions, arms shipments, communications, airplane parts again, anything kept in a data base. Hamilton noted every credit card is tracked by PROMIS. (Fricker, 2013, 2)

Ryan Gallagher (2011) reports the NSA gave enhanced 32-bit PROMIS software versions to the banks, which is confirmed by William and Nancy Hamilton in an interview by Kenn Thomas:

Q: Are you familiar with this company in Little Rock, Arkansas called Systematics, Inc?
Bill: Yes
Q: The story there is that somehow PROMIS has been applied to the banking industry. Do you know anything about it?
Bill: We are fairly confident that it was installed in the World Bank in 1983 and in the International Monetary Fund. Danny Casolaro introduced us to two former computer employees at the World Bank who told us all of this. There have been published articles in the international banking regulator newsletter that independently verified that. So if you put it in the World Bank and the International Monetary Fund, it’s not likely that you’ve just put it there. Any effort to take software as flexible as it is, you have to really think through how you are going to use it in banking and then just put in one bank, that doesn’t make sense. So the hardest evidence we have has to do with the World bank and the International Monetary Fund, but logic supports the idea that it is much more widely used. (Thomas & Keith, 1996, 160–1)

The Hamiltons claim the DoJ had plans to fit PROMIS with “back doors” and sell it to governments in the Middle East in order to spy on them. Rafael Etian (Chief of the Israeli Defense Force’s [IDF] anti-terrorism intelligence unit) and British publisher, Robert Maxwell marketed bootlegged PROMIS software (Gallagher, 2011). Today PROMIS derived software is used in Israel, Ireland, Canada, Rome and elsewhere. This factors PROMIS software into the demand-pull calculations, since PROMIS customers anticipated using it on unregulated networks. Such expectation represents a form of commercial sector demand-pull for privatization of the ARPANET that is as
plausible as hippies buying personal computers in the expectation they will find in cyberculture, life opportunities that were stymied in the counter-culture communes.

Thomas and Keith’s *The Octopus Secret Government and the Death of Danny Casolaro* (1996) salvaged a dead journalist’s research about the Inslaw case. It describes a private detective agency, founded in 1954 by former FBI man George Wackenhut, taking over the Cabazon Indian reservation in Indio, CA. In 1966 Wackenhut acquired the files of a former HUAC staffer, making it the owner of the largest privately held file on alleged American dissidents, with over 4 million names. In 1966 Stewart Brand was hosting his multi-media show, *America Needs Indians*. It was also the year that the Freedom of Information Act was legislated. That year the FBI and CIA began operating CHAOS and COINTELPRO simultaneously in the US (US Senate Select 1976b, 96) and in Vietnam, Pool’s Simulmatic’s Corporation began conducting psychological research on Vietcong defectors in search of predictive counterinsurgency methodologies (Rohde, 2011). And according to reporter Mat Novak,

A short editorial in the 19 September 1966 issue of the *Sandusky Register* newspaper in Sandusky, Ohio, predicted that life was about to get worse as information, especially financial information, became more centralized. The editorial noted that although the “computer age” was “in its infancy”, the computerization of financial information would lead to more robbery, more embezzlement, and a complete “assault on privacy.” (Novak 2018)

Twelve years later, in 1978, Wackenhut was selling high-tech weapons, chemicals and PROMIS software. The last sentence in *The Octopus* reads: “1995: New allegations began to emerge regarding the use of PROMIS in banking operations, possibly leading to a wave of congressional resignations” (Thomas & Keith, 1996, 181).

5. Implications, summary, conclusion
After 9/11 and Edward Snowden’s leaked documents about NSA spying, more literature began acknowledging a creation story of the Internet with roots in Cold War counterinsurgency, cyborg and behavior modification R & D. Snowden put another hole in the firewall of public unawareness about the Internet as a military surveillance weapon, aimed at the U.S. public. Literature written after Snowden’s leaks, by Yasha Levine (2018) and Shoshanna Zuboff (2019), reflect revised versions of the ARPANET creation story that root it to military surveillance and human behavior modification R & D. The literature discussed here about factors that incentivized demand-pull for the ARPANET into the Internet, lends historical support to these emerging creation stories and bridges the time when the Internet was in the monopoly ownership of the military-industrial-complex prior to privatization and up to privatization (essentially the Red Scare and Cold War years until the 1990s).

Given changes in the subjective meaning of the Internet creation story, a researcher or academic may need to choose to position him/herself amongst the literature. If one finds the “IC demand-pull for more ARPANET development as a consequence of massive spy data collecting” reasonable and the idea that the Internet was born as a counterinsurgency tool for the military surveillance of Americans during the 1960s plausible, than one might take a more questioning view of literature that discusses the Internet history without reference to the Internet as an IC surveillance and information processing tool. By keeping the history of IC surveillance operations out of the public’s consciousness, the US public lacked important information that could have been used to publicly debate the privatization of the ARPANET into the Internet. It also lacked having an informed choice to opt out of, or delay, the oncoming digital age, made possible by a rapid and orchestrated demand-pulled privatization of the ARPANET into the Internet. Most people could not have made a truly informed decision about what creation story to believe before the Internet was privatized. Now in retrospect, with more information becoming available, there is the possibility to make informed choices about which Internet creation story one considers true or worth remembering. This gives researchers a choice to base future research on and gives the public a choice to help base future decisions upon. Having the freedom, information
and the will to make informed choices is a counter to having decisions made for us through secrecy, powerful interests or cyborg programing.

In summary, President Johnson pushed the IC to find proof that Communists were agitating Americans, prompting the FBI and CIA to operate expanded and aggressive often illegal domestic counterintelligence programs. In the 1970s the spy operations become a liability since they had grown into an unregulated industry that was mutating the grand jury system in part to cover its illegal activities and expand them at the same time. Pyle points out that the 1960s saw the launching of the ICs’ industry into full professionalism, with new police intelligence units scorning the old FBI’s all White force and standard anti-Communist approach to New Left agitators (Pyle, 1974, 12–3). But in the midst of all this success the IC was confronted with government investigations, critical media coverage, blown covers, Hoover’s death, staff cutbacks, leaked hard copy documents (like the Pentagon Papers), an angry public and looming suggestions about government regulation. It is easy to understand why the IC viewed the ARPANET and Lick’s interactive computing ideas as a route to a more ubiquitous, agile, flexible, computer interactive, cost-effective and counterinsurgent way, to electronically track people who were less afraid to criticize, protest and question IC activities (yet still continue to auto-fund them and have trouble challenging them, since they are secret for national security reasons).

Meanwhile, civilian computer users, inventors, hobbyists, entrepreneurs or “Netizens” were optimistic and excited about the potential of the Internet as a site for something different in the world. Famed whistleblower Edward Snowden’s Permanent Record (2019) describes a typical American family’s charmed infatuation with the unfolding developments of Internet access in 1980s America (11–61). Whatever that California Ideology was, they bought it! And they bought the expensive personal computers too. Yet according to Hafner and Lyon, a lot of ARPANET contractors “were not well paid” (1996, 115). Perhaps most of the people who contributed to the Internet did so at a discounted rate, in service to the government, society and science or as a curiosity, a hobby, a labor of free love that fit with the era of free love, sex, drugs and rock and roll, in the exuberant so-called Age of Aquarius, when anything seemed possible—even the prospect of getting rich by spying through the Internet! Chasing the American dream reaped rewards for some, chasing the California Ideology reaped rewards for others (although the Hamiltons remain unpaid). The computer was a portal to opportunity, to things good and bad, or the way to visit a novel “cyber” site where one could chat with like-minded people without having to leave the house and risk having COINTELPRO agents raid it on their daily black bag route. On the one hand, a few entrepreneurs became today’s one-per-centers. On the other hand, Alan Turing, whose mathematical contributions made digital computing possible, died after eating an apple dipped in cyanide, the fruit the bible (not the Catalog) uses to symbolize knowledge (Moschovitis et al., 1999, 15); today the image of the apple with the bite in it graces every Apple Mac computer. The dark and light side of the ARPANET turned Internet is reflected in the human lives that interact with this most expensive of all inventions, a weapon of surveillance, privatized into an informational infrastructure.

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Note
1. An example of demand-pull was demonstrated when Hitler unilaterally ordered hundreds of decrees, which increased Third Reich statistical data beyond human processing ability, generating demand-pull for faster IBM data tabulating machines (Packard, 2018).

References
Articles and Books


